

Quick Installation Guide

eComStation 2



Introduction

This Quickguide is intended to help you get started installing eComStation 2.0 on your computer or in a virtual machine. The eComStation help is split up into 2 sections. The first section is this Quickguide. The second is the online help, available from within the graphical eComStation installer and from the installed system. The information in the Quickguide is intended to help you prepare to install eComStation 2.0 on your system. It provides information you may need to boot the installation CD and to get the graphical installer loaded and running. The online help provides detailed help for the graphical installer and various post-installation tasks. We especially recommend that you read Chapter 1 of this Quickguide if you are installing to a large disk drive.

Chapter 1, **eComStation 2.0 Quickguide**, contains important information about using up to a 2 terabytes hard disk and tells you what you need to take into account when installing multiple Operating Systems on your hard disk.

Chapter 2, **Bootting from eComStation CD #1**, explains how to set up your system to boot from and use the **Pre-boot menu** of eComStation 2.0 CD #1. The Pre-boot menu loads the proper drivers depending on what hardware is detected. You can also use this chapter to help resolve startup problems.

Chapter 3, **Continuing the Installation Process**, explains the basics of using the graphical Guided Procedure installer which is started after you accept the Pre-boot menu selections. This section also explains how the Guided Procedure online help works and where you can find more information. You should be able to find the information you need to complete the installation in the online help once the Guided Procedure installer is running. This chapter also describes how to use CD #2 and how to set up connections to Windows/Linux computers in your local network, etc.

Chapter 4, **What Hardware is Supported by eComStation 2.0**, is intended to help you understand the computer hardware that eComStation supports and where you can find more information to resolve hardware-related installation issues. This chapter might be useful if you encounter problems booting from eComStation CD #1 or if you are having other problems installing eComStation.

Chapter 5, **Getting Support/Resolving Problems/General FAQ**, will help you find additional resources and explain how to get support.

Chapter 6, **License Agreement/Trademarks/Acknowledgments**, is the legal section of the manual and describes your rights and duties as to the usage of eComStation 2.0.

1. eComStation 2.0 Quickguide

Thank you for purchasing eComStation 2.0.

This Quickguide is intended to assist you with starting the installation of eComStation from CD #1 and also contains important installation notes. Additional online help is available directly in the graphical installer and can be accessed easily by depressing the help button in the right-hand corner of the screen.

eComStation 2.0 has all the features you are used to from previous versions of eComStation plus both major and small improvements. To list a few;

- ACPI enables you to use modern systems with multiple CPU's. and allows hardware that needs ACPI to manage it to work.
- The bootable JFS file system gives your eComStation a major performance increase and allows applications and the Operating System to load much faster.
- The Panorama video driver enables eComStation to work with just about any video card.
- Improvements in network support with include more NIC drivers and drivers for WiFi chip set. Support with the Samba protocol to access shared network drives.
- Major improvements in the installer to support virtual machines such as VirtualBox, Virtual PC etc.
- Support for booting and installing from USB-attached CD drives.
- Better support for modern hardware while preserving support for legacy devices.
- Major improvement in audio support with the updated UNIAUD driver
- Support of hard disks up to 2 TB.
- Comes with free virus scanner, ClamAV (see CD #2 for details).
- It is strongly recommended that you no longer use versions of eComStation older than eComStation 2.0 in conjunction with Windows Vista/7 because you can lose the Windows disk signature from your disk which can damage your Windows partition. eComStation 2.0 preserves the Windows disk signature.

As of May 2010, eComStation 2.0 does not require any fixpaks to be installed. The last fixpaks and fixes released by IBM are already integrated into eComStation. Installing the latest IBM fixpaks on eComStation is not recommended. In fact, installing fixpaks from IBM such as fixpak 5 or 6 from MCP 2 may render your eComStation 2.0 non-functional. These IBM fixpaks may back level files required by bootable JFS or other system components.

1.1 Important eComStation 2.0 Installation Note

Before you start to install eComStation 2.0 on your system, please read the following chapter carefully to help you make the right choices. eComStation 2.0 supports hard disks up to 2.0 Terabytes, but there are some things to take into consideration.

In this manual, you will find multiple references to two programs called the “DiskChecker” and “MiniLVM”.

The **DiskChecker** is a program that is loaded when booting from the eComStation 2.0 CD #1. The DiskChecker starts to run when you see the line “Checking fixed disk integrity.” If any errors are detected, they will be displayed after the eComStation 2.0 boot logo is displayed. After the boot logo, no graphics are displayed; just text.

MiniLVM is a program to manage the volumes/partitions on your hard disks. You can start this from eComStation 2.0 CD #1 as follows; once the system is booted into the GUI installer, enter your registration key. Click on the “next” button until “Select the installation volume” appears and click on “Manage Volumes”.

This chapter is important if:

1. The hard disk you want to install eComStation 2.0 to is bigger than 512 GB or if one of the additional hard disks in your system for data is bigger than 512 GB;
2. Your hard disk is bigger than 512 GB and/or you have Windows Vista/7 installed or want to install it;
3. You booted from the eCS 2.0 CD #1 install disk and got a message from the “DiskChecker” that referred you to the manual. The DiskChecker will refer you to the manual to resolve certain disk layout issues it discovers;
4. You want to dual boot other Operating Systems such as Linux and older versions of Windows.

Before setting up your hard disk, **make a tested backup of your hard disk** when modifying partitions on your hard disk(s), if any are present. A lot of pre-installed systems with Windows Vista/7 do not ship with recovery media (CD or DVD) in order to reinstall Windows. The recovery partition is also on the hard disk itself. There is a risk that this recovery partition can be lost when modifying the partition layout. It is recommend that you use the tool that comes with your pre-installed Operating System to create recovery DVD/CD's first. Make certain you **backup all personal data**.

1.2 Empty hard disk bigger than 512 GB, No Operating System Installed

If you have an empty hard disk with no Operating System installed and you want to install eComStation it or you want to use a hard disk as an additional data drive larger than 512 GB, you need to completely partition the HDD with MiniLVM from eComStation. You should **not** use other partition tools on the drive like Partition Magic or the Windows DiskManager! For example, if you want to install Windows and/or Linux next to eComStation, you need to create all the partitions for Windows/Linux with eComStation. You can then choose to format the partition with the proper file system in the installer of the Operating System you want to install.

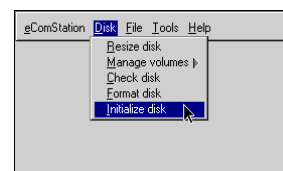
A good layout for a disk that will contain Windows XP/Vista/7 is to install the eComStation BootManager first and then use the eComStation supplied tools to create a primary partition to contain the Windows XP/Vista/7 installation. Place the primary partition for Windows directly after the eComStation BootManager partition and then create the other logical partitions. When running the Windows installer, do **not** delete the primary partition but rather, select it as the target partition for Windows installation.

After Windows XP/Vista/7 is installed next to the eComStation BootManager, boot from the eComStation CD #1 and start MiniLVM. Use MiniLVM to mark the eComStation BootManager partition as active/startable. Add your Operating System(s) to the BootManager menu and you will be able to start them via the BootManager.

The above scenario is **not** possible with most recovery DVD/CD disks supplied by computer vendors because most recovery disks wipe the hard disk and do not provide an option to select the install partition. Either you need to use a Windows OEM/retail disk that allows you to select and setup the partition size or you need to use the procedure described in section 1.3.

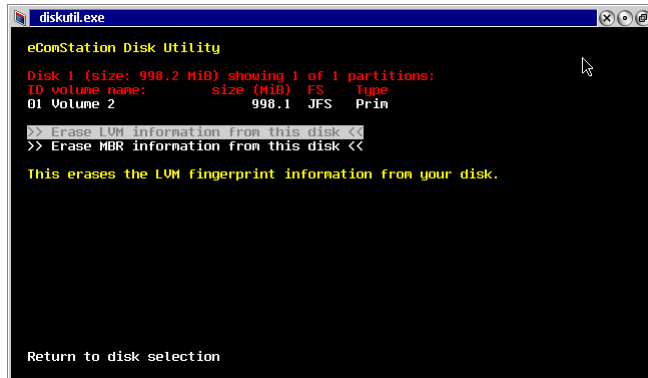
If you do **not** want to use the copy of Windows or any other Operating System already installed on your hard disk and the disk is larger than 512 GB, boot from eComStation CD #1 and wipe your hard disk. If you get a warning from the DiskChecker, type CTRL-C to bypass this warning, since you will erase any information from the disk anyway.

When the graphical part of the installer has started, click on the “next” button and agree to the eComStation 2.0 license agreement. On the “Installation Type” screen, choose “Management console”. From the Management console menu, select the "Disk" item and select “Initialize disk”. This will display a list of all hard disks and USB-attached



storage available media on your system.

Select the correct disk (normally number 1 or 2), then select to remove the MBR (Master Boot Record). You will be asked twice for confirmation. After a countdown of 5 seconds, your disk will be erased and the system will reboot. Select to boot again from the eComStation 2.0 install CD.



If you would like to preserve the Windows environment on your disk, please read one of the two following sections:

1.3 Hard Disk Bigger than 512GB with a Pre-loaded Operating System.

This section applies when you encounter the below message during startup from the eCS 2.0 CD #1 install CD:

“A partition was detected on disk 1 which extends beyond the proper cylinder boundary. You will have to resize this partition using the partition resizing tool (available during installation) if you wish to use the disk. Refer to the user manual for more information.”

When you depress enter at this stage of the startup process of eComStation, it will restart your computer. If your system holds a secondary hard disk (disk 2), the above warning may be displayed, but when you have depressed enter, your system will continue to boot into the installer. This means you are able to use disk 1 to install eCS 2.0 but you can not access disk 2 from eComStation. The same strategy described for disk 1 applies to any second hard disk in your system. You need to create any partitions you want to access on disk 2 below the 512 GB boundary.

If your hard disk is bigger than 512 GB and it already has a non-OS/2/eComStation Operating System installed (for example Windows), eComStation will not be able to use the hard drive. The reason for this is that the drive geometry used can not be fully supported by eCS 2.0. This will be addressed in future versions of eComStation.

Currently, eComStation can access only the first 512 GB of the disk. If you have a 1.5 TB disk and you want to use 100 GB of disk space for eComStation volumes, you

need to reduce the main Windows partition to 400 GB so the partitions you want to use for eComStation volumes fit below the 512 GB disk boundary. **There may NOT be any partitions in the area above the 512 GB boundary on your disk.** You will need to delete any system recovery partitions that reside above the 512 GB boundary.

Most computers come with Windows Vista/Windows 7 pre-installed. Both Windows versions have a built-in disk resizer, so to resize your hard, disk start Windows Vista/7:

- click on the logo in the left hand corner of the screen in Task Bar (**Start**)
- choose **Control Panel**
- set menu to **Category**, not **Small/Large Icons**
- select **System and Security** at the bottom of the screen **Create and Format Hard Disk Partitions** lists all storage media in and attached to your computer,
- depress the left or right mouse button on the large partition of your hard drive
- choose **Shrink Volume** from the context menu,
- If you cannot resize your partition below the 512 GB boundary;
- go to **My Computer**
- click the right mouse button on the partition you need to resize,
- choose the option **Tools** and select **Error Checking** to run **CHKDSK** - the system will need to restart for this,
- run the Windows disk Defragmenter.

You might need to repeat this procedure 2 or 3 times to clear the end of the disk partition.

Note: if you want to create a partition for data exchange between Windows and eComStation, this partition also needs to be below the 512 GB disk boundary.

Ensure that any Operating System you want to start via the eComStation BootManager is located below the 512 GB boundary. If you install an Operating System with its bootable partition above the 512 GB boundary, it will most likely not boot that Operating System via the eComStation BootManager.

For more information about installing the eComStation BootManager, please read the section “Loading Other Operating Systems Next to eComStation” located at the end of this chapter.

After you have created free disk space below the 512 GB boundary, you can boot from the eComStation installation CD #1 and install eComStation. You may be asked by the DiskChecker if the LVM fingerprint information should be fixed. If asked, answer

“Yes” to this question. After you update the fingerprint information, the system will reboot. After the reboot, restart the eComStation installer from CD #1 and install eComStation.

If you start MiniLVM to create partitions and you still get the warning about a corrupt partition table/MBR;

- click on **Cancel**, right hand corner of the screen,
- select **Maintenance console** from the menu,
- select **Initialize disk** - lists all hard disks and USB-attached storage media on your system and let the utility delete the LVM information.

Normally, to delete the LVM information, you need to select disk 1 or 2 and then request the erase from the menus. In this case, let the countdown expire and allow the utility to delete the LVM information. After the information is deleted, reboot from the eCS 2.0 install CD and restart the install process.

You can now install eComStation on the disk in the free disk space you created.

We recommend that you install the eComStation BootManager first, then create a logical partition in which to install eComStation 2.0. This logical partition will extend to the 512 GB boundary and MiniLVM will display that your hard disk has only 512 GB of disk space. This is the expected behavior.

The logical partition can later be expanded with your Operating System's DiskManager. In our research, we concluded that the Windows 7 DiskManager will refuse to expand the logical partition created by eComStation. We recommend that you use the commercial package DFSee to expand the logical partition. You may download the bootable CD version here: <http://www.dfsee.com/dfsee/cdrom.php>

We recommend that you create the partitions above the 512 GB boundary while running DFSee booted from the DFSee bootable CD. Once you have created a partition above the 512 GB boundary, you will **not** be able to modify the disk layout using eComStation's DiskManager (MiniLVM). This means you need to **carefully plan your disk layout** before performing the eComStation installation.

Operating Systems like Windows and Linux can access the rest of the disk for data storage.

1.4 Hard Disks Smaller than 512 GB

When booting from the eComStation 2.0 CD #1, the DiskChecker may display the following message:

“A partition was detected on disk 1/2 which extends beyond the proper cylinder boundary.”

If this occurs and you wish to install eCS to this disk drive, you will have to resize this partition using the partition resizing tool. Refer to the user manual for more information.

If you get the above message, you need to depress enter and let the installer start. Once you have entered the registration key in the eCS installer, start MiniLVM as follows: in the left hand column of the screen, the current menu is highlighted during the install phase. Click on **Next** until you see **Manage Volumes** and select it. This will start the application MiniLVM which will result in getting the error message “Disk 1 reports a corrupt partition table”. You may ignore this warning. From the menu bar choose the option **System → Partition Resizing Tool**.

The partitions are listed in the order they are found on your hard disk. In the event you got the above error message from the DiskChecker, you need to make the last partition on the reported disk (1 or 2) smaller. Make certain you allow enough space for eCS to install, leaving 10 or 20 GB to create a partition for eComStation.

If you can not create enough free disk space, boot into Windows and perform the following task. Go to **My computer** and click with the right mouse button on the partition you need to resize. Choose the option **tools** and select **error checking**. This will allow you to perform a CHKDSK. Your system will need to restart for this. After you have done this, run the Windows disk Defragmenter. You might need to repeat this procedure 2 or 3 times to clear the end of the disk partition.

When the disk resizer is finished resizing the partition and you click on **Finish**, click on **Proceed** to reboot the system. After the reboot, select to boot from the eCS 2.0 CD # 1 again. The DiskChecker might ask you to repair the LVM fingerprint information on your hard disk. If prompted, answer “Yes” and the system will reboot again.

At this point, you may choose to boot from the eComStation 2.0 CD #1 again and create the required volumes with MiniLVM. If you still get an error message from MiniLVM that disk 1 or 2 is corrupt;

- Click on the **Cancel** button of the installer in the right hand corner of the screen of the eComStation installer,
- Start the **Maintenance console** from the menu,
- Select the **Disk** menu
- Select **Initialize Disk**

The **Initialize Disk** tool will show all hard disks and USB-attached storage media on your system. Normally, you will need to select disk number 1 or 2 (whichever is your hard disk). Then choose to erase the LVM information. After the 5 second countdown timer expires, the LVM information will be deleted. The system will be automatically rebooted afterwards.

After the reboot, the **DiskChecker** will, if you allowed the **Initialize disk** tool to erase the LVM information, ask to repair the LVM fingerprint information. Once this is done, one final reboot is performed. You can now boot from the eComStation eCS CD #1 and finish the eComStation installation by installing to the volume created with MiniLVM.

1.5 Loading Other Operating Systems Next to eComStation

It is strongly recommended that you use the eComStation BootManager to start eComStation and other Operating Systems from your hard disk. Other Boot Managers might work, but may make the installation complicated. If your computer came with Windows Vista/7 pre-installed, note which partition you add to the eComStation BootManager to start Windows. If you have Windows Vista/7 pre-loaded on your computer, you need to check how Windows is installed on your HDD.

Most Windows Vista/7 pre-loads are installed with 2 primary partitions on one hard disk. The first partition on the disk is about 100 to 200 MB, known as the Windows BootManager followed by the Windows partition itself, which normally uses the rest of your hard disk. Add the small Windows partition to the eComStation BootManager.

When your system starts up, it should work like this:
eComStation BootManager→Windows BootManager→Windows main partition.

In some situations, the eComStation bootmanager will render the Windows 7 boot partition unstartable. Please refer to <http://www.ecomstation.com/faq/560> for more information on this problem.

1.6 Installing the eComStation BootManager, I get “Partition Alignment error”

When you select to install the eComStation BootManager from MiniLVM and you get the warning **Partition alignment error**;

- Create a primary partition of about 20 MB with MiniLVM.
- Select to install the eComStation BootManager
- Delete the 20 MB partition you just created.

Since with most pre-loads of Windows Vista/7 on computers two primary partitions are already in use and the eComStation BootManager is also a primary partition, it is recommended that you create a logical partition in which to install eComStation, otherwise you cannot exchange data between eComStation and other Operating Systems.

1.7 Coexisting with Other Operating Systems - miscellaneous

In the previous sections of this chapter, we described how to deal with Operating Systems on your hard disk if the hard disk is bigger than 512 GB or you are using Windows Vista/7. This section will provide some hints on how to deal with Linux and older version of Windows, such as Windows 98/Me.

To exchange data between Operating Systems, make sure you have a volume that is readable and/or writable by both systems. Almost all Operating Systems can use FAT16 partitions (maximum size of the partition is 2GB) but otherwise, special drivers will be required to make this possible.

The FAT 32 driver is installed by default with eComStation 2.0. You can copy data back and forth between Windows and eComStation.

If you are installing eComStation 2.0 to a system that has an older version of the BootManager installed from either MCP or eComStation 1.0 or 1.1, we recommend that you delete the older BootManager and install the eComStation 2.0 BootManager version.

There was a defect in Windows 2000 that destroyed the BootManager partition which was corrected in service pak 3. To replace the existing BootManager, run MiniLVM and use the system menu options.

The eComStation 2.0 BootManager will not be destroyed by versions of Windows 2000

that do not have service pak 3 installed.

My Computer in Windows NT 4.0, 2000, XP, Vista and 7 may show a drive letter for eComStation partitions. If you double click on that drive icon for the eComStation partition, Windows will report that it cannot read that partition and will offer to format the partition.

DO NOT accept this offer since it will render your eComStation volume useless. For your own safety, we recommend that you use the Windows DiskManager to remove the drive letters from eComStation partitions.

To access the DiskManager, go to Administrator Tools → Computer Management → Storage and remove the drive letters from the partitions. Windows will no longer list the HPFS/JFS partitions; however, this will not affect the drive letters defined for eComStation itself. The eComStation drive letter assignments are stored in a different way from Windows.

Windows 95, 98 or Millennium Edition

If you have installed eComStation and you are going to install a DOS-based Operating System like Windows 95, 98, 98SE, or Windows ME, be aware that these systems will install on the very first primary partition of your hard disk only. It may be advisable to resize and/or move your eCS partition with the aid of a partition manager to allocate free space for the creation of a primary partition at the beginning of your hard disk.

If you install Windows after eCS is installed, some versions of Windows will generate a warning about BootManager being disabled or report that you will no longer be able to start OS/2. You may ignore these warnings. When the installation has finished, you can re-enable BootManager by booting eCS from the installation CD#1 and run MiniLVM again to set the BootManager as the active partition.

Linux

eComStation can be installed without problems alongside a Linux installation. We recommend that you use the eCS BootManager rather than LILO or GRUB as the primary BootManager. To do this, install LILO or GRUB to the Linux partition rather than the MBR.

2. Booting from eComStation CD #1

Read the license chapter in this Quickguide. By using software from CD #2 or starting from eComStation 2.0 CD #1, you accept the terms that are mentioned in this license. If you have any questions or remarks about the license, please send an e-mail to licensedesk@ecomstation.com.

Before you begin your installation of eComStation 2.0, have the registration key readily available on either USB stick, floppy disk, hard disk or on paper. You should have received the registration key by e-mail. If not, you can request it via the customer area of <http://www.ecomstation.com/> after logging in. For the latest information and tips on the installation process, check <http://www.ecomstation.com/support/>

Hardware requirements

In order to successfully install eComStation 2.0, please take into consideration the following;

	Minimum	Recommended
CPU	Intel Pentium 133 MHz or equivalent (including Intel Celeron, PIII, P4 and AMD K6, Athlon and Duron processors)	Any modern CPU will do, but the higher the speed the more responsive your system will be. Also, the latest multi-core CPU systems should work. This is made possible by ACPI, but eComStation can also work on multi-core CPU's without using the other cores.
Memory	96 MB (absolute minimum required for installation from CD).	Install as much memory as you can in your system. 4 GB is the maximum supported amount. Applications like Firefox and Open Office need a lot of RAM to work. Also make certain you give a virtual machine (like Virtual PC) enough memory.
Video	PCI VGA video card with at least 512 KB memory.	For more information, refer to the chapter “ What Hardware is Supported by eComStation 2.0 ” in this Quickguide, the video card section.
Drive space	600 MB	When selecting more options in the installer, more drive space is required. A practical working size is a bootable JFS partition of 4 GB.
Mouse	Any PS/2, serial or USB mouse	A PS/2 or USB mouse is recommended for best performance.

	Minimum	Recommended
CD-Drive	IDE or SCSI CD-ROM	An IDE/SATA or SCSI CD-ROM or DVD player with boot capability and a BIOS which supports booting from CD-ROM.

Starting the Install

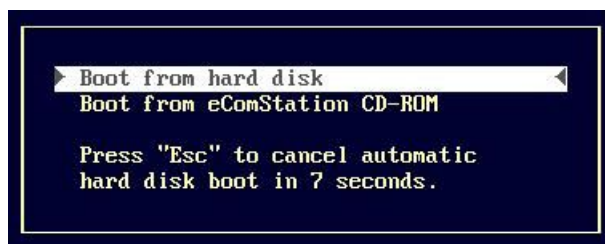
The eComStation 2.0 package consists of three CD's:

- CD#1 contains the eComStation 2.0 base product and installer,
- CD#2 contains a host of applications and drivers to enhance your eComStation experience and
- CD# 3 contains Open Office 3.1.

If you received only a single eComStation disk, you most likely have received a DVD disk which contains the content of all three CD's. When the manual instructs you to insert CD #2 or CD #3, insert the DVD disk.

To start the eComStation installation, insert CD #1 in the CD drive and press reset.

If the system boot successfully from CD #1, you will see the following Boot Source menu;



If the above menu does not display, there are a couple of things you can try to resolve the problem.

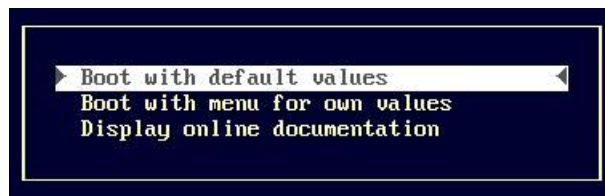
Some computers will only check the CD-ROM drive for bootable CD during a "cold boot". To perform a cold boot, power off your computer and turn it on again.

If your system does not attempt to boot from CD #1, check that your BIOS is set to enable booting from the CD-ROM drive and that BIOS is configured to check the CD-

ROM before the hard disk. Consult the manual of your mainboard and/or computer for instructions on how to access your computer's BIOS and adjust these settings.

Another thing to try is, to press the **PAUSE** key as the CD-ROM drive starts to spin up. Sometimes the BIOS attempts to access the CD-ROM before the CD is spinning fast enough. **PAUSE** gives the CD time to spin up to speed. After the CD is spinning at full speed, press **ENTER**.

On the Boot Source menu, the default option is to boot from hard disk. To boot the installation CD, cursor down to the “Boot from eComStation CD-ROM” menu item and press **ENTER** and you will see the following Boot Options menu:



This menu allows you to boot either using default values or the values you select. On most systems with IDE and or SCSI hard drives and CD-ROM's, it is sufficient to select the “Boot with default values” option. To select the “Boot with default values” option, press **ENTER**.

If you need to adjust the options, cursor down to the “Boot with menu for own values” option and press **ENTER**.

When you select the “Boot with default values” option, the installer will be loaded and started. The eComStation boot logo will display. The boot logo will be replaced by a screen with a blue background and you will be asked if you want the CD Checker to verify the CD content. If you do not respond to the prompt within 30 seconds, this check will be bypassed. This check verifies that all files on the CD-ROM can be read without errors. When the CD Checker completes, it will display a status report and list any files that can not be read correctly. If you encounter freezes when the installer is copying files to hard disk, we recommend you restart the installation and run the CD Checker.

Some older equipment may have problems with some of the IDE driver performance options. If the system freezes while the CD Checker is running, we recommend that you restart the system and choose “Boot with menu for own values” and select a lower performance driver on the **Boot Options: Storage** page.

To select a lower performance driver from the **Pre-boot menu**, press **PgDn** (Page Down) until you see the **Boot Options: Storage** page title. If an IDE controller was detected, the controller option will be set to “(E)IDE/ATA(Pi) Performance Mode” (Danis506, DaniATAPI). First, try selecting “(E)IDE/ATA(Pi) Compatibility Mode” (Danis506, DaniATAPI)” and press **F10** to accept the selection and retry the CD Checker. If this fails, try selecting the “IBM1S506, IBMATAPI” driver in “Performance Mode” or “Compatibility Mode”. See the section titled **The Pre-boot Menu** below for more details on how to operate the **Pre-boot menu**.

If you get the message that “OS/2 cannot operate your hard disk” or if the DiskManager (MiniLVM) status window does not show any disk drives, we recommend that you try one of the other IDE drivers as described above. If you still can not boot from the CD, please see the next section which describes how to make boot diskettes. Boot diskettes are also useful if you need to supply an updated IDE driver.

After the CD Checker finishes, a message indicating that the eComStation installer is being started will display.

If you get a message that PMSHELL cannot load a DLL, you most likely do not have enough memory to load the installer. The installer requires a minimum of 96 MB of RAM.

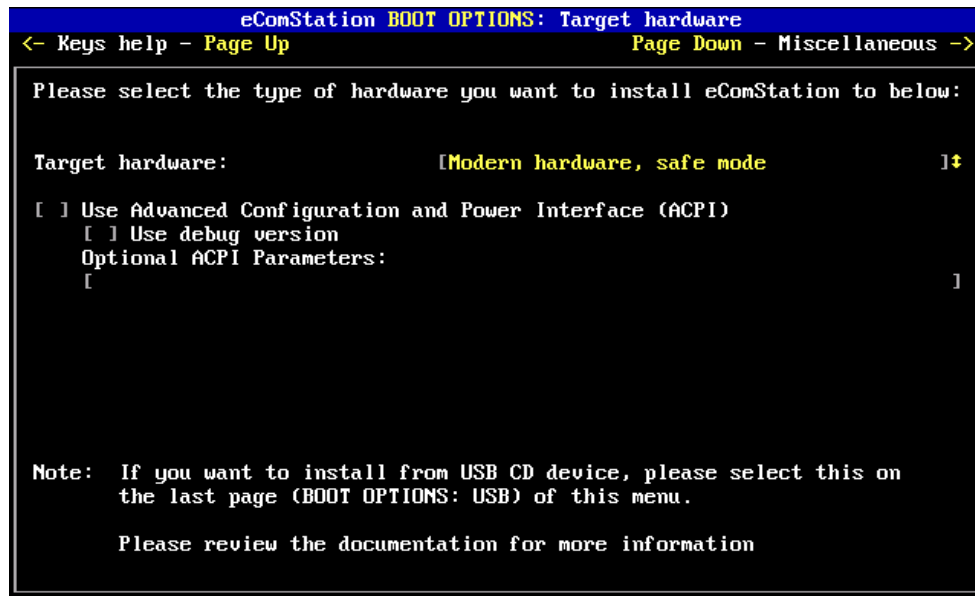
If you boot eComStation in a virtual machine, we strongly recommend that you read **The Pre-boot Menu** section. The **Pre-boot menu** contains several settings that are specific to booting in a virtual machine.

2.1 The Pre-boot Menu

In addition to the cases described in the previous section, there are other situations where you might want to use the **Boot with own values** option. For example, if you want to boot CD #1 from an external USB CD ROM drive, you will need to override the default options.

To navigate through the **Pre-boot menu** pages, use the **PAGE UP** and **PAGE DOWN** keys. To move from field to field, press the **TAB** and **SHIFT-TAB** keys. To toggle an option on or off, press the space bar. To select an item from a field that supports multiple selections, use the up and down arrow keys. See the **BOOT OPTIONS: Keys help** page for a full description of the available keyboard navigation features. This is the first page that displays when the **Pre-boot menu** starts.

eComStation BOOT OPTIONS: Target hardware:



The first entry on this page is the **Target hardware** field which enables you to select the target platform you will install to. The pre-boot menu will automatically pre-select this field based on what type of hardware was detected. If you want to change the pre-selected option, you can override it.

The **Target hardware "Virtual Machine"** option is recommended if you install in a virtual machine. It is automatically selected if you boot eComStation in Microsoft Virtual PC/Connexix Virtual PC for OS/2, Parallels workstation, VMware or VirtualBox. Only certain versions of VMware will support eComStation, so please consult the documentation.

You might need CPU virtualization for this feature to work. VirtualBox is a virtual machine you can download free of charge from www.virtualbox.org. For VirtualBox to load eComStation, it is required to have CPU virtualization. CPU virtualization is called AMD-V or Intel VT-x. Please consult your computer/BIOS manual to see if your system supports this.

Make certain that CPU virtualization is turned on in your BIOS. When you turn it on, fully power off your computer and turn it back on again. eComStation may have hangs or kernel TRAPS or it will hang without CPU virtualization. We recommend that you use VirtualBox version 3.2.0. or later, as recently there have been fixes to address stability issues with eComStation/OS2.

If the pre-boot has automatically set your **Target hardware** to **Virtual machine**, do not modify any of the settings on the other pages in the **Pre-boot menu**.

For virtual machines, the optimal selections have already been set. For example, altering the hard disk drive controller, enabling USB, ACPI or changing the video driver can result in stability issues.

Target hardware "Legacy hardware":

It can be difficult to tell if a computer supports ACPI based on the documentation that comes with your computer, but typically all systems with a Pentium II CPU or older or systems with a legacy ISA slot(s) will not support ACPI.

In the event ACPI support on your system is not detected, it will switch on the Legacy mode (exceptions for some modern industrial mainboards). Selecting Legacy mode is recommend for certain older models of ThinkPads; but selecting this mode on modern hardware might result in hangs during boot from CD #1.

Target hardware "Modern hardware, safe mode":

This option is pre-selected when ACPI support is detected. This mode is optimal for modern hardware and is automatically selected when ACPI is detected. It will not load the ACPI driver at startup. This mode will prevent eComStation from loading certain drivers that can hang on a modern system.

Target hardware "Modern hardware, ACPI mode":

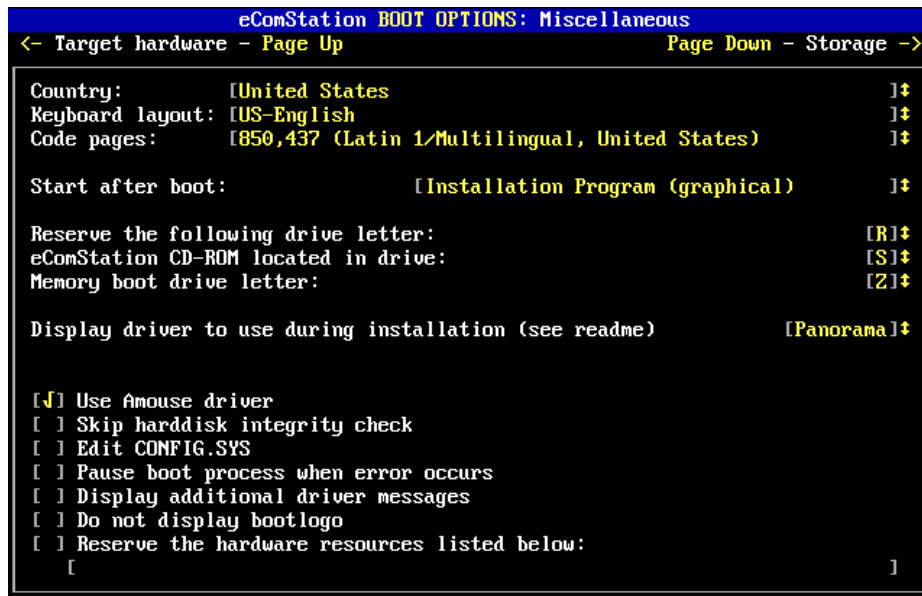
This is the exact same mode as **Modern hardware, safe mode** but with ACPI loaded. The statement that loads ACPI in your config.sys is the line PSD=ACPI.PSD. This mode must be selected manually. If you do not select it here, you can install ACPI either by selecting it when booted from CD #1 in the installer or after eComStation is installed with the help of the "ACPI Wizard".

If you have a system with an AMD mainboard chip set (not an AMD CPU), selecting ACPI might hang your system at boot. Use **Modern hardware, safe mode** on this type of systems. For more information on ACPI, please read the chapter in this Quickguide: "**What hardware is supported by eComStation 2.0**"

If you activate the option **Modern hardware, ACPI mode**, the next menu option in pre-boot with the title **Target hardware** is pre-selected at **Use Advanced Configuration and Power Interface (ACPI)**. You can select **Use debug version** and

Optional ACPI parameters. These two options are used only if you are asked to debug problems with ACPI. For more information on ACPI, please read the chapter in this Quickguide: “**What Hardware is Supported by eComStation 2.0**”

eComStation BOOT OPTIONS: Miscellaneous



This screen offers a mixture of various options. In the first block, select the locale information for the Operating System. The country option sets the default country/region dependent information which can be refined in detail after the installation through the **Locale** object.

Since the keyboard layout you use may be different from the country you are located in or be based upon the language version of the Operating System you use, the layout is selectable as well. With the code page option, you may determine the primary character encoding eComStation uses and an alternate code page that you can toggle between after the Operating System has been started.

The next option selects what program to start after booting from the installation CD-ROM or floppy diskettes. The graphical installation program can be started or a command line interface for maintenance tasks or problem determination.

Reserving a drive letter allows to control of the assignment of the drive letters for your CD/DVD drives. The Operating System will assign drive letters to **all** drives that are **partitioned** media, such as hard disks or certain removable drives. The letter of the last one of these media is the first valid letter for a working drive letter reservation. The

CD/DVD drives will be assigned the next letters after the reserved one in the order the drives are detected by your PC.

Changing the drive letter to be reserved automatically adjusts the value of the next option where you can select the drive the eComStation installation CD-ROM has been inserted. If the CD-ROM is not located in the first CD/DVD drive, you must change this letter to match the appropriate drive. Usually, this would be the second drive, so move the drive letter one further by pressing either the **Up** arrow key or hitting the letter key ('T' for the example above). The range of the values is limited by the selected reserved drive letter and the fixed letter of the memory boot drive ('Z').

If you do not know the letters assigned to your drives, leave the menu after the selection of your storage controllers in the next screen by hitting the **ALT** key together with the **F1** key. In the following screen, hit the **F2** key and run the program "ecsdrinf" on the command line. It will give you an overview of the drive letters, labels, and file systems. The drive letter next to the label "ECS_CDRUN" is the one of the drive where the eComStation installation CD-ROM has been inserted.

The drive letter of the memory boot drive should only be changed if you already have a drive/logical volume that has the default of 'Z' assigned. If you select a drive letter identical to the one of the CD/DVD drive that has the eComStation CD-ROM inserted, a warning message is displayed and you can not leave the menu until you select a different drive letter.

The option "Display driver to use during installation (see readme)" - we recommend that you do not modify this. In most cases, the **Pre-boot menu** makes the proper selection for you. You can choose GRADD, VGA and the SNAP driver and Panorama video driver. If you are installing in a virtual machine, do not modify the video setting. The video driver selected in this menu will also be used for installation of eComStation. For more information on video drivers, please read the chapter in this Quickguide: "**What hardware is supported by eComStation 2.0**".

The following seven options of **eComStation Boot Menu Miscellaneous** can be useful for problem determination and solving startup issues.

1) **Use Amouse driver:** This option is recommended for systems with a USB mouse and is also pre-selected if your system is detected as a modern machine. We recommend that you do not select Amouse when installing eComStation in a virtual machine. When this option is selected in the **Pre-boot menu**, it will be installed automatically by the installer.

2) **Skip hard disk integrity check:** If this option is checked, the hard disk integrity check will be skipped during the pre-boot process. Generally, we recommend that you do not disable this option.

3) **Edit Config.sys:** This option allows you to modify the config.sys before the installer is loaded. You can use **F7** to search for text in config.sys. This is a powerful option and should only be used to resolve problems. Making modifications to config.sys without sufficient knowledge can result in failure to boot the installation CD or the installation itself, failing.

4) **Pause boot process when error occurs:** If this option is selected and the system detects an error when loading the installer, it will ask you if you want to continue. Write down the error message and pass it along to support. This option suppresses the automatic boot that some errors will automatically initiate. If you request that the loading of the installer continue, it is possible that the load will fail completely.

5) **Display additional driver messages:** Select this option to activate verbose mode which is supported by some drivers. When using this option, we recommend that you use **ALT-F4** to leave the **Pre-boot menu** rather than pressing **F10**. When verbose mode is selected, the drivers may generate a lot of output and **ALT-F4** loads the drivers one at a time so that you can read the messages.

6) **Do not display bootlogo:** Select this option if you opened a support ticket and support requested that you check the **Use debug version** ACPI option. Suppressing the debug logo will make the messages output by the ACPI driver visible on the screen.

This option is also useful if your system seems to hang at the boot logo. For example, some SiS graphics are known to hang when the bootlogo is loaded. Suppressing the bootlogo avoids the hang. Please note: if this option resolves the hang that occurs when booting from CD #1, you need to modify your installation manually after the installer has finished copying files from CD #1 to your hard disk. To do this, select your install options and let the installer start copying files to your hard disk. Then check the **Start management console on completion** checkbox. When the file copy completes, use the management console menu to open a command line session and delete the “os2logo” file from the root directory of your boot drive.

7) **Reserve the hardware resources listed below:** Use this option to prevent resources from being allocated by the wrong device driver. This should happen rarely and typically occurs only for older ISA hardware or PCMCIA (PC Card) adapters. To reserve resource, press the **SPACE-BAR** to enable the option and then enter the resource reservations in the field that follows.

Some typical resource reservations are:

- /IO:x,y or /P:x,y

Reserves I/O ports, where 'x' is the base port number in hexadecimal and 'y' is the length/number of ports in hexadecimal. The 'x' and 'y' values are separated by commas. Example: /IO:340,4

- /MEM:xxxx,y

Reserves memory, where 'xxxx' is the base memory address in hexadecimal and 'y' is the length in hexadecimal of the address range. The 'xxxx' and 'y' values are separated by commas. The memory address is a paragraph address that is xxxx represents the paragraph address address xxxx:0 which is the same as the linear address xxxx0. The addresses that can be reserved are between C000:0 and DFFF:0. Example: /MEM:CA00,1000.

- /DMA:x

Reserves a DMA channel, where 'x' is the channel number in decimal. Example: /DMA:2

- /IRQ:x

Reserves an interrupt line, where 'x' is the interrupt line in decimal. Example: /IRQ:10

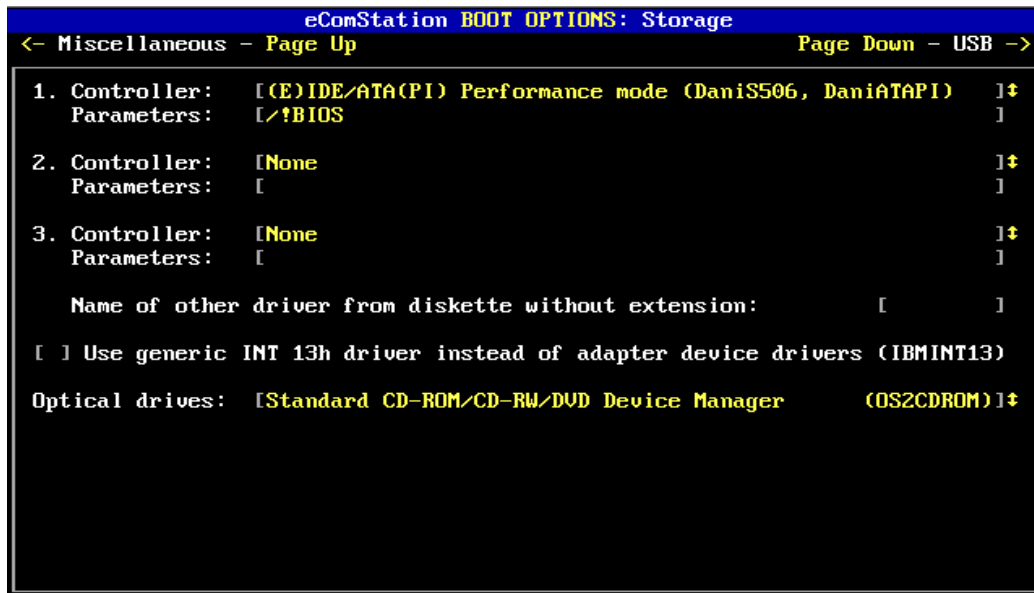
- /EXC

- /MUL

- /SHA

Modifies the reservations defined by /IO /MEM /DMA /IRQ. The options are EXclusive, MULtiplexed or SHARED. The modifier must immediately follow the resource to which it applies. The modifiers are mutually exclusive. Only one can be specified for a given resource. If a modifier is not specified, the default is EXclusive.

eComStation Boot Options: Storage



The Storage menu allows you to configure the drivers to be loaded to match the host adapters installed in your PC. In most cases, the installed adapters will be detected automatically. You may select up to three different host adapter drivers. These drivers will be loaded in the order listed on the menu. If you have multiple CD-ROM adapters, the driver for the host adapter that has the CD/DVD drive which contains the eComStation installation CD-ROM must be loaded first. Selecting a driver more than once is allowed, but is not useful. Only the first instance will be loaded.

If a ATA(PI)/(E)IDE host adapter is detected, the "Extended ATA(PI)/(E)IDE (DaniS506, DaniATAPI)" driver will be preselected as the first controller by default. If SCSI host adapters were detected, they will be selected as the second and third controllers depending upon the number detected.

The ATA(PI)/(E)IDE drivers are **not** compatible with any of the software RAID setups offered for some ATA/IDE RAID controllers such as HPT, Promise FastTrack, AMI; however, the chip sets are supported in non-RAID mode. Verify that the RAID features are disabled in the BIOS setup for these controllers.

If the installer does not start correctly or the installation fails, try switching the DaniS506 driver to Compatibility mode. If this fails, try switching to the IBM1S506 driver (i. e., "(E)IDE/ATA(PI) Compatibility mode (IBM1S506, IBMATAPI)".

ServeRaid Adapters

If you are installing eComStation 2.0 to an IBM server with a ServeRaid adapter which uses the IPSRAID.ADD driver, the eComStation DiskManager may not display any of the disks connected to your RAID array. This seems to be a bug in the IBM ServeRaid driver. This is a timing issue. If this occurs, change the first controller instance from DANIS506 to IBM1S506.

Tekram Adapters

Host adapters that use the following drivers need special attention:

- Tekram DC-310/U, DC-390F/U/U2B/U2W/W (TMSCSIW)
- Tekram DC-310/U, DC-390F/U/U2B/U2W/W (see note, below)

These adapters require that you supply the driver TMSCSIW.ADD from diskette since the company did not allow distribution of this driver with eComStation. Please refer to the end of this appendix for directions on how to supply the driver on diskette. The driver archive can be downloaded from:

<ftp://ftp.tekram.com/SCSI/390X/DC390FBW.zip>

If you have trouble booting with this driver, try selecting "Symbios/LSI F-U2W 81x/825/860/87x/885/895 chips (SYM8XX)" instead. For DC-390U3D/U3W adapters, select "Symbios/LSI U2W/U160 895A/896/1000/1010 chips (SYM_HI)".

- Tekram DC-305/315/395 (TRM3X5)
- Tekram DC-305E/I, DC-315U, DC-395F/U/UW

These adapters are **NOT** recommended for eComStation. If you choose to use this adapter, you need to supply the driver TRM3X5.ADD from diskette since the company did not allow distribution of their driver with eComStation. Please refer to the end of this appendix on how to supply the driver. The driver archive can be downloaded from:

<ftp://ftp.tekram.com/SCSI/3X5/DC3X5U.zip>

Using Other Adapters

To select an adapter that is not listed in the controller drop down list, select the entry that reads;

Use other driver from diskette (enter name below)

When you select this option, a red arrow => will appear to the left of the field labeled

Name of other driver from diskette (without extension):

Enter the name of the driver without the extension (.ADD), for example "AIC7770". You will not be able to leave the **Pre-boot menu** until you have either entered the driver name or until you have selected a different option from the controller drop down list. Please refer to the end of this appendix on how to supply a driver on diskette.

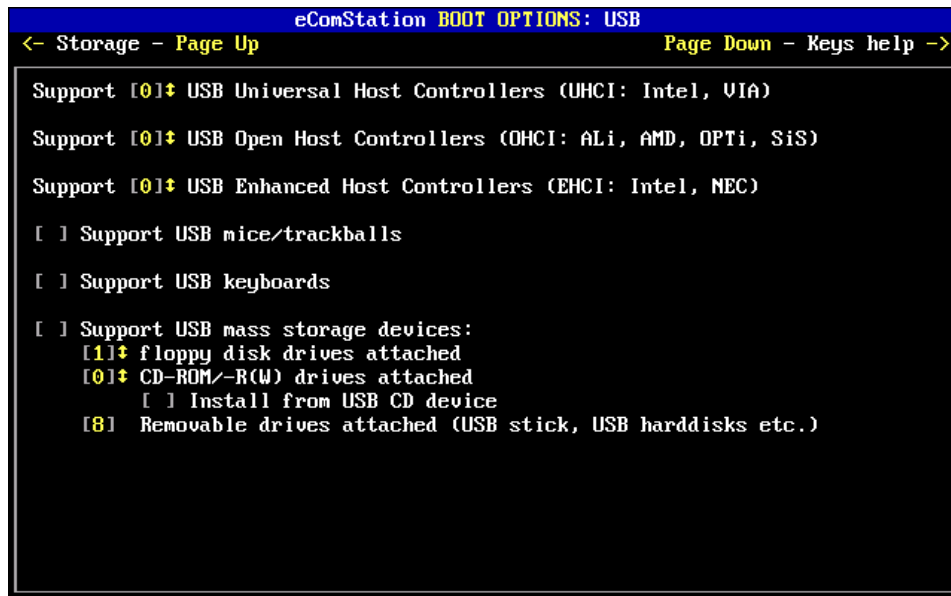
Below each controller selection field, there is a parameters field where driver-specific options can be entered. Most drivers will not require any special options to boot correctly. You can force the driver into verbose mode by typing /V into the parameters field and the driver will display additional messages when it is loading.

If none of the other host adapter selections work properly or your host adapter is not supported, you can try selecting the generic INT 13h driver. Selecting this driver forces the values of the three controller selection fields to **None** since this option is mutually exclusive with any other controller selection. Certain restrictions apply and the usage of this driver is not recommended. On most systems, this driver will either fail to work or the system will function extremely slowly.

Optical Drives

If you experience problems starting the installer or the installer appears to have problems accessing the CD/DVD drive, try selecting the "Extended CD-ROM/CD-RW/DVD Device Manager" from the optical drives selection list. For older hardware, try selecting the "Standard CD-ROM Device Manager". This Device Manager does not support DVD drives.

eComStation BOOT OPTIONS: USB



If the **Pre-boot menu** detects USB host controllers, it will preselect up to 8 controllers for each detected controller type as well as enabling support for USB keyboards and pointing devices. To change the preselected counts, use the **Up** and **Down** keys to cycle the count between 0 to 8 or type in a number. Note that you are selecting controllers, not ports.

To successfully run USB devices, the USB controllers must have hardware resources assigned (i. e., IRQ, port, etc.). Please consult the mainboard manual for any special BIOS settings that might be required for the USB controllers.

The next three options control USB devices that might be needed for installation (pointing devices, a keyboard or external storage devices).

Press the Space bar to activate/deactivate support for each of these device types. You must select at least one USB host controller before you will be able to activate any of these device types.

If at least one USB host controller is detected, "Support USB mass storage devices" will be pre-selected.

Note: to install eComStation from a USB CD-ROM drive, set the count of **CD-ROM/-R(W) drivers attached to 1 and check the **Install from USB CD device** option.**

If you are installing eComStation 2.0 under a virtual machine, we recommend that you

do not activate USB support. Activating USB support can lead to instability.

Making a Boot Diskette/Driver Update Diskette

If your system is not able to boot from CD #1 and you have a diskette drive, try creating boot diskettes from CD#1. This is especially useful for legacy systems. The drivers on these diskettes can not be updated.

You can also boot from CD-ROM and supply additional drivers on diskette. The section entitled “Booting from eComStation CD #1” describes how to use an additional driver diskette.

To create the diskettes, run makedisk.bat from a DOS/Windows based machine on which you have CD-ROM access. Alternatively, run makedisk.cmd on an OS/2 based machine that provides CD-ROM access. Both makedisk.cmd and makedisk.cmd can be found on CD #1.

To create boot diskettes, press 1 to select the **Create 4 installation diskettes with menu** option.

To create an additional driver diskette, press 2 to select the **Create 1 prepared diskette to update the memory disk with your files** option.

3. Continuing the Installation Process

The installer runs in three phases. In **phase #1**, you will select the items to be installed, such as network configuration, audio driver, etc. In this phase the base operating system is installed onto hard disk. **Phase #2** will boot from hard disk and continues to install selected components to the system. Finally **phase #3** is booting to a complete eComStation 2.0 desktop and allows you to fine tune the system by using the Post Installation Tasks wizard.

If you need additional assistance while the installer is running, use the **online help**. To view the online help, press the help button in the right hand corner of any installer screen.

To access the online help after eComStation is installed, put eComStation 2.0 CD #1 in your CD-ROM drive and click on the folder **Local system** on your Desktop, select the folder **Drives** and click on the drive letter of CD ROM. Finally, go to the folder \ECS\INSTALL and double click on GUIDPROC.HLP.

The online help Contains the following chapters;

Chapter 1. Installation

Describes how to install eComStation 2.0 using either the Easy or Advanced installation method. Explains how to handle a migration from a previous OS/2/eComStation version.

Chapter 2. What's Next?

Talks about adding support for several hardware items and will touch briefly on the installation of additional applications.

Chapter 3. Getting Connected

Explains briefly how to get connected to the Internet and your Local Network. Also contains tips on networking within a Windows/Linux Environment.

Chapter 4. Getting Involved

Describes some ways you can help to support the development and evolution of eComStation.

Chapter 5. LVM

Describes in detail the usage of the LVM programs in eComStation.

4. What Hardware is Supported by eComStation 2.0

4.1 ACPI Support

ACPI support is a new component in eComStation 2.0. Before ACPI was introduced in computer hardware, a lot of the hardware management (like IRQ assignment and power management) was done by the BIOS. With ACPI, a large part of these tasks is taken over by the Operating System. ACPI support is an extension of the Operating System kernel at the deepest level possible, in the form of a so called PSD.

When ACPI is enabled on eComStation, the following line is inserted in your config.sys: PSD=ACPI.PSD

The position of this line in the config.sys does not matter as eComStation will load this module as the first “driver” from config.sys. The old APM.SYS driver can not be used in conjunction with ACPI. It is replaced with the line BASEDEV=APM.ADD in your config.sys. The position of this driver in the config.sys is not important.

The installation of ACPI can be enabled by selecting ACPI in the **Pre-boot menu** (please read chapter 2 of this manual for more details). It is also possible to select it during installation of the Operating System when booted from CD #1 in the hardware page of the installer. A final option to install ACPI is the “**ACPI Wizard**” after the system is installed. Go to the folder “Local system” → “Install Remove” and double click on the ACPI Wizard icon.

Note: To activate SMP (multiprocessor / multicore) support you need to run the ACPI wizard and modify the parameters. By default SMP is not enabled.

Note: not all computers require ACPI support.

There are three reasons to install ACPI. The first reason to install ACPI is because of multi CPU support (or SMP support). eComStation has an extremely good SMP support in its kernel. Large parts of the eComStation Operating System are “threaded”. Especially with a SMP system the kernel can have an application be served by 2 or more CPU's by distributing these “threads”, increasing the speed of your computer.

The second reason to install ACPI is to support APIC mode. Computers used to have IRQ support up to IRQ 15. This mode of operating is called “PIC” mode. More and more modern systems will only run reliably if the IRQ management is set to “APIC” mode. This is made possible by ACPI.PSD, as well. With some notebooks, the base

functionality of the computer works without ACPI so you can start your OS, but functionality like WiFi and sound might not work without ACPI being installed and running in “APIC” mode. In some cases ACPI also has to be loaded to initialize hardware before a device driver uses the device.

The third reason to install ACPI is that it makes it possible to use suspend and resume, because with most modern laptops, the classic APM support is no longer present in the BIOS. The success rate of this may depend on the hardware you have. **Note:** The first time you test suspend and resume, we recommend that you close all open documents etc. before you test to see if your system works.

If suspend/resume does not work:

You can try the following. Open your config.sys file and look for the line

```
DEVICE=X:\ECS\SYSTEM\AMOUSE\AMOUSE.SYS SMP.
```

Replace this line with the following

```
DEVICE=X:\OS2\BOOT\MOUSEAPM.SYS.
```

If your screen remains black at resume, you can try appending the **/VBE** switch option to the PSD=ACPI.PSD line in your config.sys. This will configure the VBE extensions.

To modify the settings for suspend, go to the folder “Local System” → “System setup” and click on the ACPI setup icon. Generally, it is best to set the “**sleep state**” to **S3** and keep the “Save video for suspend” set to “0”.

Usually, installing ACPI will not cause any system issues. What can cause problems is when the **/SMP** mode and/or the **/APIC** switches are added to the config.sys. For more information on the ACPI switches, please consult the document PSD_EN.INF which can be found in the \ECS\ACPI\DOC\ directory of your boot drive. It offers detailed information on ACPI and the switches available for the various ACPI drivers and utilities.

Q: I installed ACPI or I allowed the ACPI wizard to add the suggested switches **/SMP /APIC** to the PSD line. The config.sys line now reads PSD=ACPI.PSD **/SMP /APIC** and my system does not start. What should I do?

A: Not all systems support ACPI equally well. On some systems, when you install ACPI and enable the **/SMP /APIC** support, you might see pauses of up to 40 seconds for

your machine to start up and load the drivers. This can happen especially with USB drivers and the UNIAUD audio driver, so wait for your system to boot.

Q: I installed ACPI and I see my system loading and then the screen remains black when all device drivers seem to be loaded. I see no eComStation Desktop.

A: Restart your system with the key combination **Ctrl-Alt-Delete** and when you see the little white “eCS” blob in the left hand corner of the screen, press the key combination **ALT-F4**. This will allow you to select which device drivers and daemons to load. Continue pressing the space bar until you see the line, X:\OS2\ACPIDAEMON.EXE. Skip this line. If your system starts successfully now, remove the line RUN=X:\OS2\ACPIDAEMON.EXE from your config.sys. Then add a reference to the acpidaemon.exe to your eComStation startup folder.

Q: I have enabled SMP support and my system seems to hang and in the part of the boot process where text is displayed on the screen, no graphics are displayed. How can I fix this?

A: From the line PSD=ACPI.PSD /SMP /APIC in your config.sys, remove the option /APIC. Normally, this is recommended, but some device drivers don't support the /APIC mode from ACPI.

Q: I installed ACPI and I don't see COM.SYS loading the config.sys. Instead, I see PSCOM.SYS. What is PSCOM.SYS?

A: The PSCOM.SYS driver is a serial port driver that supports IRQ's above 15. This driver is needed when ACPI is running in APIC and the serial port is assigned to an IRQ above 15.

Q: I started up my system the first time with ACPI installed and the eCenter CPU graph reports that I have very high CPU consumption. What is going on?

A: In some rare cases the “Beer battery widget” that is installed in the eCenter on laptop systems can make the system slow. Click on the battery icon with the right mouse button and choose “Delete widget”.

Q: DOS and Win/OS2 sessions do not start since I added the /SMP /APIC switches to the PSD=ACPI.PSD line in my config.sys file. Why is this happening?

A: On some systems, if you start a DOS or WIN/OS2 session when you booted eCS, it can take up to 30 seconds to start the first DOS or WIN/OS2 session. You can try to

remove the /APIC option from the PSD=ACPI.PSD line in your config.sys. If this does not help, you may need to install ACPI version 3.14. This is often true if you have a Nvidia mainboard chip set. To do this, insert eComStation CD #1 in your CD ROM drive and then open the folder “Local System”→”Drives” and select your CD ROM drive. Go to the directory \CID\SERVER\ECSPKG and click on the package ACPI314.WPI. The WarpIN installer will warn that you are going to install older versions of the ACPI drivers. Ignore this warning and allow WarpIN to install the driver.

Q: I have an AMD mainboard chip set and it hangs when I load ACPI. What can I do?

A: Some AMD chip sets do not work with ACPI because of the way eComStation boots. You need to install your system in the default install mode that CD #1 offers “Modern hardware- Safe mode”. For more details, please read Chapter 2 of the Quickguide about the **Pre-boot menu**. (Please note ACPI does not effect AMD CPU's).

Q: My machine seems to get very warm. What can I do?

A: This can be caused by ACPI especially when the SMP mode is activated. For Intel CPU's, download the following tool to throttle the speed of your CPU: Intel: <http://hobbes.nmsu.edu/download/pub/os2/util/system/cpuspeed1.4.zip>
For AMD CPU's there is currently no solution.

Q: My system hangs at startup when I added the switches /SMP /APIC. When loading the USB host controller drivers or USB equipment does not work.

A: Try adding the /CD option to the ACPI.PSD line in your config.sys.

Q: My system is slow with ACPI in SMP mode. What is the cause?

A: On some systems, hyperthreading does not work properly with ACPI. Turn this feature off in your system's BIOS.

Q: I selected “shutdown” and my system does not switch off? What can I do?

A: Your system might not properly support power off via ACPI. Click with the right mouse button on your eComStation Desktop in a spot where there are no icons, then click on **properties** in the menu. In the new menu that pops up, select **eShutdown**. and disable the **Power off** option.

Q: I installed the latest build of XWorkplace and my system is having problems with powering off with ACPI, but eWorkplace worked.

A: As of May 2010, the time of the eComStation 2.0 release, a version of XWorkplace with the required fixes had not yet been released.

4.2 What Audio Cards/Chip Sets are Supported?

eComStation 2.0 comes with drivers for a wide variety of supported audio chip sets. ISA chip sets are not detected. You need to select ISA chip sets manually from the driver list during installation. Most PCI/AC97/HDA chip sets integrated on mainboards should be detected and supported by UNIAUD. If an audio driver is not installed, go to the folder "Local System" → "Install/ remove" and click on "Multimedia Application Install". Choose "Add a Multimedia Feature" → "Install from the menu and select the appropriate driver from the list of drivers included on the eComStation 2.0 CD".

Q: My system starts up and I have a repeating startup sound or other system sound. What is going on?

A: This happens with the UNIAUD driver on some systems that have HDA audio chip sets. In this case, go to the folder "Local System" → "System Setup" and then choose sound and disable the system sounds. An updated UNIAUD driver will be available at a later date. Please check the following web page for details:

<http://www.ecomstation.com/faq/559>

Q: I am having trouble with the UNIAUD audio driver. Where can I get support?

A: Go to <http://svn.netlabs.org/uniaud> for more information. Please note: eComStation 2.0 ships with a build of the UNIAUD drivers UNIAUD16.SYS and UNIAUD32.SYS from May 2010. The website still needs to be updated to reflect these changes, so do not back level your UNIAUD driver.

Q: I have the UNIAUD audio driver installed, but I can almost hear no sound. What is wrong?

A: Some systems have issues with the mixer settings. Go to the folder "Programs" and then "Multimedia." Double click on the "UNIAUD Mixer" and move the sliders for PCM Playback to adjust the volume.

Q: I have installed an audio driver and it does not work properly. How do I uninstall it?

A: Start **minstall** as is described at the top of this section. Choose “Uninstall an Installed Feature” from the main menu. This will remove the audio driver you selected to uninstall. If you still are having problems, you can also select from the “Reinitialize your Multimedia installation”. This will reset your multimedia sub-system to the state it was when there was no audio driver installed. This will resolve problems that can occur if the configuration files get corrupted. After resetting, try to reinstall your driver via minstall and see if this fixes the problem.

Q: I have downloaded an updated version of the UNIAUD driver (UNIAUD16.SYS and UNIAUD32.SYS). What do I do with it? There is no information or files with the package that explain how to install the audio driver.

A: If you already have UNIAUD installed on your system, all you need to do is copy UNIAUD16.SYS and UNIAUD32.SYS to the \MMOS2 directory on the boot drive and reboot. We recommend that you backup the old UNIAUD drivers before overwriting them.

Q: I have an SB live card in my system and the driver does not load. What do I do?

A: If you have more then 2 GB of memory in your system, switch over to UNIAUD. The Soundblaster Live driver does not work with more than 2 GB of RAM. Start minstall as is described at the top of this section and override the selected SB live driver and select the UNIAUD driver.

4.3 What Video Cards are Supported by eComStation?

eComStation 2.0 supports four different types of video drivers.

The first is the **SNAP video driver**. This driver has support for hardware acceleration which provides a high level of video performance. For a list of supported video chip sets, look on eCS 2.0 CD #1 in the file: \CID\SERVER\SNAP\readme.txt. This driver will not work with suspend/resume of ACPI. You will need to use the Panorama video drivers for suspend/resume to work.

In most cases, the **Panorama video driver** is installed by eComStation 2.0. This is a driver that supports just about any video chip set. This is because it is a VESA driver and the VESA interface on video cards is a generic or industry standard. The Panorama driver does have a few limitations:

- The Panorama driver does not use video chip set specific features. For example, some laptops have “wide screen” adapters, but these resolutions are not supported by the Panorama driver. For some video chip sets, there are Panorama wide screen enablers. For more information, see:
<http://en.ecomstation.ru/projects/panorama/?action=down>
- If you experience performance issues with the Panorama video driver on your system, please check the FAQ item for this at:
<http://www.ecomstation.com/faq/555>
- With the Panorama driver, you cannot set the refresh rate for your screen. The BIOS of the video card detects the capabilities of the screen and uses the best possible settings.

The **GRADD video driver** is similar to the Panorama driver, but it does not provide the level of acceleration that the Panorama driver offers. The GRADD driver does not work as well with some video cards as the Panorama driver does. On some video chip sets, the GRADD driver will hang the system or crash it.

The **VGA video driver** is a basic driver that is normally not needed. It only supports a resolution of 640 x 480 and 16 colors.

If you want to change the driver after installation, open the folder “**Local System**” → “**Install/Remove**” and start the program “**Video driver wizard**”. You can choose to install SNAP, Panorama, GRADD or the VGA driver.

Recovering from an Incorrectly Set Screen Resolution

This is a new feature in eComStation 2.0. If you accidentally set the screen resolution too high and your screen no longer displays a video image, you need to reset to standard VGA and then reinstall your video driver. If you do not see the eComStation desktop after rebooting with the modified resolution, press **Ctrl-Alt-Delete**. When you see the little white eCS blob in the left hand corner of your screen, press **ALT-F1**. This should display the recovery menu. From the recovery menu, select option “D Reset GRADD based video driver to 800 x 600 64K colors.”

Q: When booting from eComStation CD #1, I get a hang or TRAP in SDDHELP.SYS. What do I do?

A: Select the Panorama driver in the **Pre-boot menu**.

4.4 Disk Storage Controllers

For a list of supported SATA/PATA controllers, please check the file \ECS\DOC\DANIS506\CHIPLIST.TXT on an installed system. On some systems, the default settings of the AHCI controller are not supported and you need to switch the controller to compatibility mode in the BIOS. Beware when switching to compatibility mode. Consult your BIOS documentation. In some cases, compatibility mode will result in Windows failing to start.

An AHCI driver is under development, but not yet ready for public release. For details please visit <http://www.ecomstation.com/faq/557> (AHCI is the follow up of the SATA disk controller standard).

Q: I tried to install eComStation on a bootable JFS volume with a HP / Compaq DL-360 server using CPQARRAY.ADD RAID driver or the LSI 320 driver. The system does not start or it crashes.

A: The LSI 320 driver does not support bootable JFS. You must install to an HPFS file system. The CPQARRAY.ADD driver has no problem accessing JFS data volumes.

Q: I have an Adaptec SCSI Adapter and a SCSI CD-ROM and I could not get it to boot the eComStation CD #1. What should I do?

A: Check the following settings:

In the Adaptec BIOS, set disconnect to "NO" for the CD-ROM device. Some CD-ROM's do not work properly in sync mode. Try turning off initiate sync negotiation in the BIOS.

Q: My computer is beeping and the hard disk is spinning up and down all the time. What is going on?

A: Most likely, you have a problem with reading from the hard disk. If eCS detects problems with reading from hard disk, it tries to recover by resetting the disk controller. A common reason for read problems is that a computer may not be properly grounded. Please check the electrical grounding of your PC or hard drive.

4.5 What network Card Chip Sets are Supported?

For an extensive list, please visit <http://www.ecomstation.com/faq/558>

Q: Why are some chip sets that were supported by the Genmac 2.20 driver not supported by eComStation 2.0? For example, my Atheros wireless chip is not supported.

A: Some drivers had to be removed due to licensing issues. To download the Genmac driver for your missing chip set, visit: <http://genmac.netlabs.org/>

4.6 What CPU/Mainboard Chip Sets are Supported?

Most mainboard chip sets are supported by eComStation. For details, read the section on ACPI earlier in this chapter. We generally recommend Intel-based motherboards because they tend to be the most compatible. The CPU type or brand does not really matter, as long as it supports the x86 architecture. You can purchase a multi-core CPU and run eComStation in single core mode if the ACPI driver does not support the motherboard in SMP mode.

4.7 USB / USB Peripherals Support

When you boot from eComStation CD #1, the correct number of USB 1.1/2.0 controllers is usually automatically detected and the correct drivers are installed. Support for USB keyboards, mice and USB hubs should be not be a problem as most of this equipment conforms to industry standards.

Many **USB scanners** are supported with the TAME package. If you did not select the TAME package during installation of eComStation CD #1, you can install it by starting TAME.EXE from the directory COMMON\CID\SERVER\ECSPKG\ on CD #1.

On some systems, the system load time will be longer because the USB drivers take a long time to initialize. This can be up to 30 seconds or longer. This sometimes can occur if ACPI is enabled in /APIC mode. See the ACPI section in this chapter for more details.

If you have an **USB mass storage device** that does not have a drive letter assigned in eComStation, it may be because the existing device formatting does not conform 100% with the USBMSD standard. If the USB key/hard disk contains no data you wish to keep, we recommend that you reformat the device with the eComStation “Disk utility” tool. To access this tool, boot from eComStation CD #1 and press **CTRL-C** to ignore any warnings from the DiskChecker. When the graphical installer is loaded, insert your USB device. Select the **Maintenance console** from Easy/Advanced/Maintenance console radio buttons. When the menu bar displays, select the **Disk** and select “Disk

utility” from the sub-menu. Select the device you want to erase and respond **Yes** twice to erase the device. **Confirm the erase only if you are sure you have selected the correct device.**

Your system will then reboot. Once back in eComStation, use MiniLVM to partition the USB key or hard disk. You can find MiniLVM in your System setup folder. It is best to format the USB key under any version of Windows as a FAT 32 device, so that you can use the key under Windows, eComStation and Linux. This procedure is needed especially if your USB disk is bigger than 512 GB and you want to use it under eComStation. Most disks are pre-partitioned for Windows. The same limits apply as described in chapter 1, which provides instructions on how to deal with hard disks bigger than 512 GB.

Q: Which USB network hardware is supported in eComStation?

A: eComStation has support for USB Ethernet adapters which are based on the Kawasaki KL5KUSB101 chip set. You can install this driver via the Adapters and Protocols tool (MPTS) which you can find in the System Setup → Network folder.

The following USB Ethernet network cards have been tested:

3COM USB Network Interface

D-Link Corp. USB Ethernet Adapter (DSB-650)

ADS Technologies Inc. USB Ethernet Adapter (USB-10BT)

Note: as of May 2010, USB 3.0 host controllers are not supported by eComStation. Development of a USB 3.0 host controller driver is planned.

4.8 Which printers are supported by eComStation 2.0?

Open the folder “**Local System**” → “**Printers**” and click on “**Install Printer**”. In the dialog “Create new printer”, there is an option “**Install new printer driver**”. Select it list of the supported printers.

Printer drivers shipped with eCS

Printers need two drivers to function. One driver sends the stream file to the printer and the other driver is called a “port driver”. If you want to install a printer that uses SLPR printing (a TCP/IP protocol), install a “local printer” and select your printer from the list. Click the right mouse button on “LPT 1” and then, click on “Install”. You will be able to select SLPR or the SMB (for access to Samba printer).

Importing a PPD file

If your printer is not supported by the drivers shipped with eComStation 2.0, check the manual of your printer or the website of your printer manufacture to see if the printer supports the Postscript printer language. If it does, look for the PPD file for your printer.

A PPD file is a text file that describes the features of your printer and it can normally be found on the driver disk or the website of your computer vendor. If you cannot find the PPD file, search via your favorite search engine. For example, check the website: <http://www.openprinting.org/download/PPD/>. When you have a PPD, you can import the file by opening the folder “**Local System**” → “**Printers**” and start the program “**Add printer drivers**”.

CUPS Printer Driver

As an alternative, you can download the CUPS printer driver for eComStation. This is a printer driver ported from Linux to eComStation. It supports a wide variety of printers. Almost every printer sold for Apple's Mac OS X is supported by CUPS on eComStation because Mac OS also uses CUPS. There are some exceptions however. A small percentage of printers are only supported on Mac OS X. For more information on how to install CUPS, how to download it and which printers are supported, please visit the website: <http://svn.netlabs.org/ecups/wiki/HowTo>.

4.9 What Video Capture/TV Tuner Cards are Supported?

On eComStation CD #2, you will find a set of legacy drivers for ISA/PCI TV tuner and video capture chip sets and also for the popular Brooktree 848 chip set. However, these drivers do not support current hardware.

The commercial application Emperoar TV supports modern USB and PCI DVB/MPEG capture cards. For more information and which models are supported, please visit the website: <http://www.s-t.de/emperoar/>

4.10 How Do I Burn CD's/DVD's with eComStation?

eComStation 2.0 comes with a trial version of **RSJ CD writer**. For more information, visit <http://www.rsj.de>. RSJ should work with just about any IDE, SCSI or USB/DVD burner. An alternative you can try is **DVD toys** from eCo software. A trial version of DVD toys can be found on eComStation CD #2 under the eCosoft tab. Go to:

<http://en.ecomstation.ru/projects/dvdtoys/> for more information.

4.11 More information on supported hardware.

There are 2 good websites with more background information on which hardware is supported by eComStation. The website <http://www.os2warp.be> holds a lot of background information on how hardware works. The web page from eCo software has a large catalog of currently supported hardware, laptops, desktop machines, etc. For more information visit <http://en.ecomstation.ru/hardware.php>

5. Getting Support/Resolving Problems/General FAQ

5.1 Getting support:

eComStation Home & Student users are not entitled to receive support via telephone from Mensys B.V. Other eComStation resellers may decide to do support these users on their own terms. To get support, you need open a support ticket. Please visit <http://www.ecomstation.com/support> and click on the option:

Create a support ticket

When you create a support ticket, we need to know what version of eComStation you are using. You can determine what version of eComStation you have by checking your registration key. The eComStation registration key consists of something like a username and a password. The username will look similar to ML20HW-XYZ123. The 5th character indicates the version, H indicates Home and Student, B indicates Business and S indicates Server edition.

Before opening a ticket, please read this section of the manual carefully and also **Chapter 5. Resolving Problems**. By following these steps, you will provide us with the information we need to efficiently resolve your issue. Opening a support ticket without this information will delay the processing of your support request.

Please describe the problem as clearly as possible. If possible, include the exact error message. In many cases, a seemingly insignificant error message will make it possible to resolve your issue.

The most important thing we need from you is the file **instlog.zip** which is created by the eComStation installer, even if the installation process is interrupted. The file instlog.zip contains all the choices you made during installation of eComStation 2.0 and logs important information about your drive layout and what hardware is on your system. Find the file **\VAR\LOG\INSTLOG.ZIP** on your boot drive and include it along with those noted below when seeking support.

If possible, please also attach the files:

\CONFIG.SYS
\popuplog.os2

The files will be on your boot drive, if they exist. Also include

\IBMCOM\LANTRAN.LOG
\IBMCOM\protocol.ini
\IBMLAN\IBMLAN.INI

These files will usually be on your boot drive, but may be on some other drive if you installed the corresponding components to an alternate drive.

Use the following terminology in your ticket as this will make it easier to understand when you are experiencing problems using eComStation:

CD boot problem - refers to the boot from eComStation CD #1 into the graphical installer where you can define your disk partitions and programs you want to install.

Phase 1 install problem - use this phrase if the first portion of the installation of eComStation terminates/hangs while the system is still booted from CD #1 and copying files to hard disk.

Phase 1 reboot problem – use this phrase to describe problems that occur when booting from the hard disk after the installer has completed copying the core files to the hard disk. This boot phase will display device driver names as they are loading and after the device drivers are loaded, will continue with the next phase of the installation.

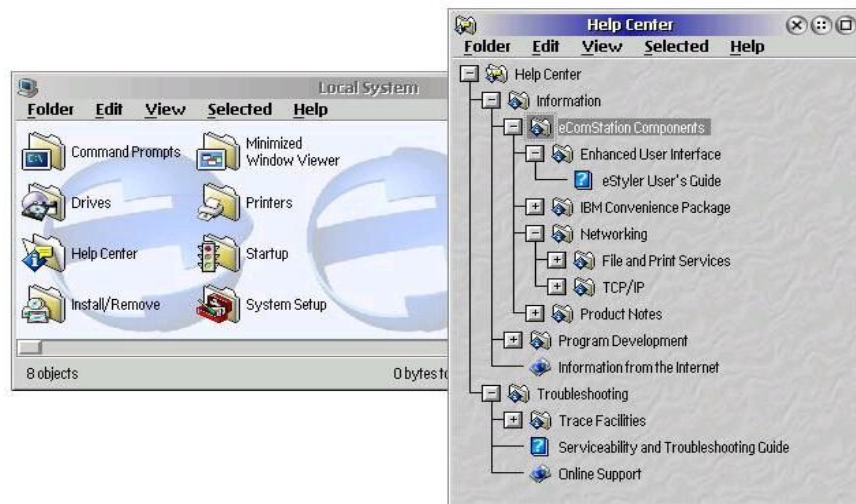
Phase 2 installation problem – use this phrase to describe crashes, hangs or other problems that occur after the core files have been copied to disk and the system has successfully rebooted from hard disk for the first time and the graphical installer has restarted. When the graphical installer restarts, it will display the progress slider and the elapsed time counter. Depending on the speed of your system, this installation phase should take no more than 40 minutes. If it takes longer, you probably have an installation hang that needs to be resolved.

Installed System problem - use this phrase if your system is installed completely and you are experiencing stability issues or application issues. If you have made any modifications since the initial installation completed, please report what you have modified.

Please also refer to the chapter titled **4. What Hardware is Supported by eComStation 2.0**. It might help resolve problems you might have after configuring ACPI, enabling USB support or adding a sound driver.

When a support ticket is opened, we will try to respond within **2 business days**. Response time may longer if extensive research is required.

Once your system is installed, you will find all support documents conveniently located in the help center folder. Open this folder from Local System → Help Center.



Additional tools on CD #2:

- Recovery and System Tools
- Documentation for the Graham Utilities
- Filesystem and Recovery tools.
- \bontrial\trial\grahutil\graham20.inf

Please note that the Graham Utilities can be run directly from CD to provide maintenance functions on your system.

Community support

Community support can be found by pointing your newsreader to <news://news.ecomstation.com/>.

You can also access the news server with a web browser by going to: <http://news.ecomstation.com/>

5.2 Resolving Problems

If you are having problems installing eComStation 2.0 and your system hangs during one of the boots, do the following:

When eComStation boots you will see a little white blob that says "eCS" in the upper left corner of your screen. When this blob displays you can:

- Press the key combination **ALT-F2**. This will display the name of each driver as it loads.
- If you are an advanced user, you can try pressing **ALT-F4**. This will allow you to select which drivers to load.

Knowing exactly which driver hangs can often be extremely helpful in determining what needs to be done to resolve the hang.

When booting from CD #1, you can also use the **Pre-boot menu** (described earlier in this Quickguide) and on the **BOOT OPTIONS Miscellaneous** page, toggle on the **Edit CONFIG.SYS** option. When you check this option, you will be able to edit the config.sys that the Pre-boot menu will use to boot from CD-ROM.

5.3 General FAQ

Some problems are not specific to eComStation 2.0. They are what we would call generic problems. Please review the following section if you have not yet identified any specific hardware problems.

Q: I boot from CD-ROM to install eComStation and my system seems to “hang”.

A: On some systems, the USB drivers can take longer to initialize. When you start your eComStation system with the **ALT-F2** and see the system “hanging” on the last device driver displayed, this may not be an error loading the last device driver. It could be an error switching eComStation into full protected mode operation. See the section that discusses ACPI configuration for troubleshooting hints.

Q: My machine locked up during installation or the install process stopped. How can I restart the installation?

A: Try the following. On your hard disk, go to the directory \ECS\INSTALL\RSP\ and start RESUME.CMD. This may not always solve the problem.

Q: My system hangs when booting from a hard disk and I use a bootable JFS volume. I see on the screen CHKDSK process with a message indicating it can not continue. What can I do?

A: Boot from eCS 2.0 CD #1. (If you get any warning from the DiskChecker, bypass this with the key **CTRL-C**). When the installer has started, press the **SHIFT-F3** and type in the command “CHKDSK X: /F” where X: is the drive letter of your boot volume.

Q: I set the JFS cache size with the option /CACHE: in the config.sys to 512,000 KiB. Why is my system unstable?

A: We recommend that you limit the JFS cache to a maximum of 128,000 KiB depending on the amount of RAM that you have installed.

Q: I'm trying to run a DOS application and it does not work. It gives an error when I try open a file from the DOS application or the application will not even start. What is wrong?

A: There is a bug in the JFS file system that causes some old DOS applications not to work properly. We recommend that you create an HPFS partition with MiniLVM and install the application to the HPFS partition.

Q: I'm certain my system works with APM.SYS to provide suspend and resume, but it was not installed. How can I resolve this?

A: The APM files are installed to your hard disk by default. If you are certain that your system supports APM, add the following lines to your config.sys:

```
DEVICE=X:\OS2\BOOT\APM.SYS
DEVICE=X:\OS2\MDOS\VAPM.SYS
RUN=X:\OS2\APMDAEMN.EXE
      (where X is the drive letter of your boot drive)
```

Q: I installed the IPX protocol to support a legacy Netware environment. Do I need to add anything on my Netware install?

A: You need to add a file called "net.cfg" to the root directory of your boot drive with the following content:

```
NETWARE REQUESTER
PREFERRED TREE "DIX_HILLS"
CACHE BUFFERS 30
PACKET BURST OFF
LARGE INTERNET PACKETS NEGOTIATED
NAME CONTEXT "NEW_YORK.RR"
```

The keyword "PREFERRED TREE" is used if you use an NDIS Netware environment. If you use bindery only mode, replace the keyword "PREFERRED TREE" by "PREFERRED SERVER".

Q: I installed the IPX protocol to support a legacy Netware environment. I get a TRAP during the installation of eComStation in the module "RTSND." How can I fix this?

A: Do not use a Realtek 8139 network card with the IPX/Netware client.

Q: I have an IBM XSeries 345 server. When I boot from eComStation CD #1, I get a black screen trap in the module "RESOURCE". What do I do?

A: Boot from eComStation CD #1, again. In the **Pre-boot menu**, select **Legacy hardware** from the menu option **Target hardware**.

Q: I migrated a previous installation of OS/2/eComStation to eComStation 2.0. On volumes other than the install volume, folders sometimes do not open when I double-click on them. How do I fix this?

A: This occurs if you have been using the XWorkplace Split View folders feature for these volumes in your previous eCS installation. Out of the box, eWorkplace does not support the Split View folders; only XWorkplace supports them. To solve this problem, open the settings notebook of the specific volumes and go to the Menu tab and change the "Open As" properties of the volume to "Icon View". Sub-folders will automatically inherit the "Open As" behavior from the parent.

6. License Agreement/Trademarks/Acknowledgments

6.1 eComStation 2.0 End User License Agreement

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Product versions:

The following eComStation 2.0 versions are available:

- eComStation 2.0 Home & Student
- eComStation 2.0 Business Edition
- eComStation 2.0 Server Edition

The Home & Student version can be used by any private or small office user. As a private or small office user, you are allowed to have up to 5 licenses installed for production usage. If you need to install more than 5 licenses, you are required to purchase the Business Edition.

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No Waiver:

The failure of either party to enforce any rights granted hereunder or to take action against the other party in the event of any breach hereunder shall not be deemed a waiver by that party as to subsequent enforcement of rights or subsequent actions in the

event of future breaches.

Information About Your Software:

eComStation 2.0 includes a license to use the following products with eComStation:

- IBM OS/2 Warp V4, IBM Product Number 31L0480M
- Note: eComStation upgrade product users are required to supply their own valid license for OS/2 V4
- IBM OS/2 Warp Convenience Pak, IBM Product Number AS6Y5NA
- eWP - an OEM version of XWorkplace
- eCSCoNet - an OEM version of ISDNPM

Third Party Work:

eComStation contains driver(s) and application(s) belonging to a Third Party, hereinafter referred to as Third Party Work (TPW). TPW is licensed to Mensys B.V. for distribution with eComStation from the following companies and or persons (hereinafter referred to as the licensor):

- 3Com Corporation
- Abbotsbury Software Ltd.
- Artem GmbH
- AVM GmbH for International Communications Technology
- Analog Devices
- Broadcom
- Creative Technology Ltd.
- Cirrus Logic Inc.
- Christian Langanke (Internet Assistant).
- DAWICONTROL Computersysteme GmbH
- Eicon Networks Corporation
- Elsa AG
- HST High Soft Tech Gesellschaft für Telekommunikation GmbH
- Intel
- Mainconcept
- Marvell Yukon (also covers: Sysconnect (Schneider & Koch) and Galileo Technology Ltd)
- Ralink
- Realtek
- Teles AG TCS
- Network card drivers from Yanagihara Nobuyuki (GOMI NDIS drivers)

In accordance with the agreements with **HST**, and **Eicon**, we must inform you that:

The HST and Eicon ISDN drivers you receive with eComStation may not be installed on systems without a valid eComStation license.

In accordance with the agreement with **Creative Technology Ltd.**, we must inform you that:

The supplied SB 16 and SB AWE 32/64 may only be used with Creative products. All copyrights, patents, trademarks belong to the respective licensor(s) of the TPW. The TPW is provided on an "AS IS" basis. No warranty of any kind is offered, and no claim of suitability for use on any system should be assumed. None of the drivers that come with eComStation can be redistributed, and may not be uploaded to FTP servers.

eComStation 2.0 contains the Doodle Screen Saver.

This software has been tested and found stable. However this screen saver should not be used on mission critical systems such as MEDICAL, NUCLEAR, AVIATION, NAVIGATION, MILITARY, OR OTHER HIGH RISK APPLICATIONS.

The screen saver displays animations. These animations may contain certain flashing lights and/or light patterns. A very small percentage of people may experience epileptic seizures when exposed to certain patterns or backgrounds. Certain conditions can trigger previously unnoticed epileptic symptoms even with people who have no history of prior seizures or epilepsy. If any of the people for who this computer is accessible and/or visible and has an epileptic condition, consult your physician prior to using the screen saver.

If you experience any of the following symptoms (after or while looking at the screen saver) - dizziness, eye and/or muscle twitches, altered vision, loss of awareness, being disorientated, or convulsions - IMMEDIATELY switch off the Doodle screen saver and consult your physician.

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The full source code of the the two above codecs can be downloaded from:

<http://math.berkeley.edu/~roconnor/MMAudioPak/>

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The components covered by this are the OpenMPEG codec in MMeCS and the browser plugins. These components are not supported by IBM.

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Abbotsbury Software has been so kind to license their Hauppauge drivers so these could be included with eComStation. These drivers allow the use of Hauppauge TV boards to function under eComStation. For any commercial request regarding these drivers, please contact:

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