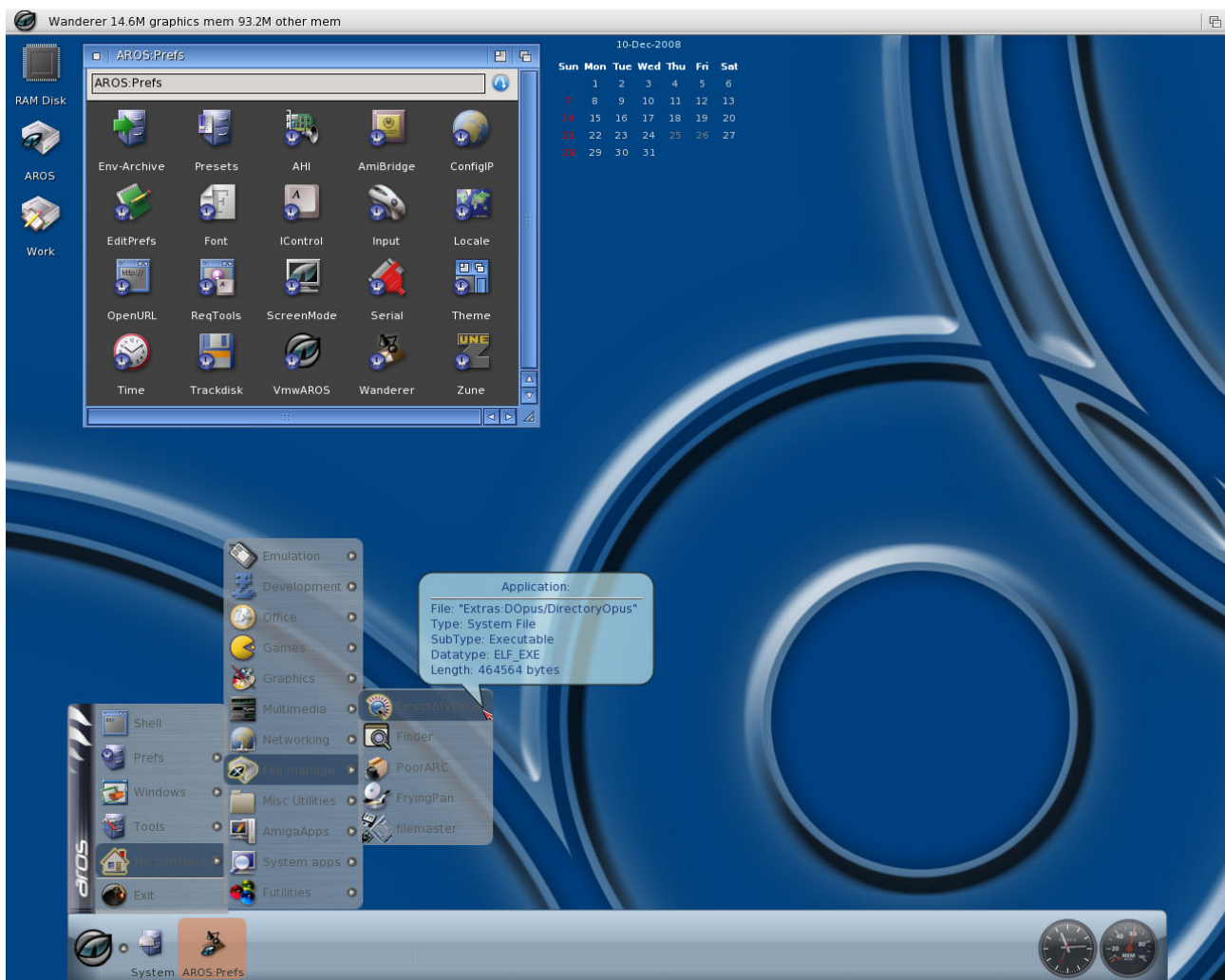# VmwAROS
V1.0

Quick and dirty user/reviewer guide

1. Introduction

The **AROS Research Operating System** is *a lightweight, efficient and flexible desktop operating system, designed to help you make the most of your computer. It's an independent, portable and free project, aiming at being compatible with AmigaOS 3.1 at the API level (like Wine, unlike UAE), while improving on it in many areas.* These lines, taken from the official Aros.org homepage, explain in a few words one of the most interesting open source projects available. Being distant from both Linux and Windows experiences, AROS is growing as a true alternative for people bored by the complex and resources-hungry competition. A *niche OS*, whose strongest features are speed, compactness, responsiveness, amazingly fast boot time and tiny application dimensions, far different from the 200 megs word processors we use today.

However, like many other young or niche projects, AROS relies on few active developers. The team has already done a great job, re-implementing most of the functions of the original AmigaOS while improving them with modern features, such as an hardware abstraction layer, an original driver model, USB and TCP/IP stack, which allow AROS to be used for virtually everything today. The main issue, anyway, is the lack of drivers and applications, two holes that might be easily filled with more developers. Most of AROS applications have been placed on a repository called "The Archives", located at http://archives.aros-exec.org and a tool called AAEDT has been developed to help downloading software. These applications, however, are often difficult to install and configure for a novice user. Even AROS itself, relying on the old-age Amiga lifestyle, it's enough user-friendly for the middle/skilled user, but slightly difficult to manage for newbies.

And here **VmwAROS** comes in. VmwAROS started in November 2007 as a pre-configured AROS environment for the popular VMware virtual machines. It came with a collection of applications and games already installed and configured, often with some hand-made scripts, that let the user run them as easily as clicking twice on a icon. VmwAROS is now available in two different flavours:

- **VmwAROS VE** (virtual environment) is the classic pre-configured virtual machine for VMware products
- **VmwAROS LIVE!** is the same environment on a bootable live-CD that runs on top of your real hardware, and can be installed onto the hard drive.

Other efforts had been made in order to let the user share files between the AROS virtual machine and the host operating system, being it **Linux**, **Windows** or **MacOS**. VmwAROS comes with YAFS pre-installed and launched at boot time, which allows user to transfer files with any FTP client. Even the network is already configured to do this, and with some little poking in the configuration files it is possible to surf the web, chat by IRC and so on. In order to make all these tasks even easier, newer versions of VmwAROS come with DHCP support. A brand new version of ConfigIP, VmwAROS' network configuration script, allows people choosing between automatic (DHCP) and manual settings.

This reference guide is targeted to both VmwAROS VE and VmwAROS Live! However, some of the procedure may vary depending on the version you're using. Most of the options can be accessed only after installing on a virtual machine or on a real hard drive. **Please remember AROS is still in alpha stage and might not fit your daily needs. There are still much more things *you could do for AROS*, than the ones AROS can do for you!** For any further information, visit *www.vmwaros.org* and *www.aros-exec.org*.

1.1 Using VmwAROS VE

There is nothing you should urgently know about VmwAROS VE. If you're reading this, you've been already able to unpack the archive that contained it, and you should have found a directory with many files inside, including this PDF guide. Well, all you have to do is placing this directory inside the folder you use for your VMware virtual machine, starting your VMware client and select "Open an existing virtual machine" (or any similar option used by your version), then choose the *VmwAROS VE 1.0.vmx* file. VmwAROS VE will appear in your list of installed virtual machine: press its "Play" button and start enjoying it.

> You will hear the floppy drive spinning all the time. This is a normal feature of AROS which reprises Amiga's automount feature for floppies. You have many way to stop this. You can either disable the floppy from your virtual machine's preferences, use the **Trackdisk** preference panel in AROS:Prefs, or simply insert any floppy disk in the drive.

1.2 Two ways to use VmwAROS Live!

VmwAROS LIVE! comes in a package formerly known as VmwAROS EXE (which won't exist any more), which includes these files

- **vmwaros-pc-i386.iso**: the VmwAROS Live! ISO image you can burn into a physical DVD.
- **vmwaros_manual.pdf**: the manual you're reading
- **Emulator**: a drawer that contains the free virtual machine QEMU
- **Win32-START.bat**: a launch script for 32 bit Windows 2000, XP and Vista.
- **Win64-START.bat**: a launch script for 64 bit Windows XP and Vista.

You can either run VmwAROS Live! as a normal operating system for a real PC or simply "look at" it by running it into the included virtual machine. There are advantages and drawbacks in both cases.

1.2.1 Using VmwAROS as a real operating system

If your hardware is supported by AROS, you can consider installing it onto the hard drive, and use it as an alternative operating system along with any other eventually installed in the same hard drive. You will need some blank (unpartitioned) space on the drive, and maybe you'll have to edit a little GRUB2 configuration files to access all the other systems (Windows should be added automatically at the end of the list by AROS installer, but if you have any other OS installed, you have to edit /boot/grub/grub.cfg file accordingly). For security reasons, you might prefer to use a blank EIDE drive for VmwAROS, so you will be sure you won't hurt any existing and important data.

Installing VmwAROS on the hard drive is the best way to enjoy all AROS features: amazingly fast boot times (about 12 seconds on the average nowadays PC, but can be even faster), instant-response to user, sound support (if you have the right audio cards) and accelerated 2D for most ATI and Nvidia cards (if you have problems, though, you can switch to VESA modes). There is no real drawbacks in using VmwAROS on real hardware, just the time spent preparing, installing and configuring it. You can even just use the Live version without installing it: but you won't be able to save your preferences, files and boot/loading times will be *dramatically* slower.

1.2.2 Using VmwAROS Live! in the QEMU virtual machine

VmwAROS Live! includes a free, open source virtual machine to let you "test" the OS even without installing it on your real hard drive. It can run inside Windows exactly as any other applications. Depending on your operating system version, just run the **Win32-** or **Win64-START** batch files to launch QEMU and the *VmwAROS Live!* DVD without the need of burning it on a physical DVD-R. You will be **almost** in the same conditions of a user who has launched the DVD on a real computer. In fact, you will need to install VmwAROS on a virtual hard drive (it's provided with the virtual machine, so no problems here) and configure it to get the most of it. QEMU doesn't use your real hardware, so you will need to configure AROS using the QEMU emulated hardware.

Sound

You won't get sound in QEMU, until someone will create a proper AHI driver for it (AHI is modern AmigaOS and AROS standard audio layer). It's exactly the same issues which also *VmwAROS VE* has, since both virtual machine technologies emulate the same ES137x audio chipset. If anyone is interested in developing the driver, there is a bounty open for it. More informations here, *http://www.power2people.org/bounty_036.html*.

Networking

Networking in QEMU is possible, but you will need to configure your host Windows machine accordingly. QEMU uses a virtual network card, which acts exactly as any other real NIC physically installed on a real computer. So, you will need a way to "connect" this virtual card to your computer, or at least allow Windows talk with it. In a nutshell, you need a virtual card installed on Windows and you must configure it to route datas from/to QEMU and any other real network eventually installed, for example the local LAN between your PC and your DSL router. We can't cover here all the necessary steps, but we can still suggest some interesting sites you may look at:

- *http://openvpn.se*
  This side provides a Virtual Private Network software which installs a tun/tap driver. It provides both 32 and 64 bit drivers, so it should be good for any modern version of Windows.

- *http://wiki.laptop.org/go/Talk:Using_QEMU_on_Windows_XP*
  A good guide to networking on Windows with QEMU.

- *http://bellard.org/qemu/qemu-doc.html*
  A complete documentation about QEMU, which includes networking too.

After Installation

Once you'll have installed VmwAROS on your virtual machine (follow chapter 3 like it was on a real computer), you will need to edit your WinXX-START.bat with the notepad, in order to switch the boot peripheral from the virtual DVD drive to the virtual hard drive. In a nutshell, you must change the -d option from "-boot d" to "-boot c" and allow QEMU access to your real DVD drive, turning "-cdrom ..\vmwaros-pc-i386.iso" to "-cdrom <drive_letter>" (where <drive_letter> could be D, E, F or whatever one your Windows is using for the DVD drive). Please do a safe copy of the original bat file.

1.3 Before you start using VmwAROS Live!

AROS is still alpha software and this means it could not work correctly on your computer. If you are totally new to AROS, you'd want to know the following:
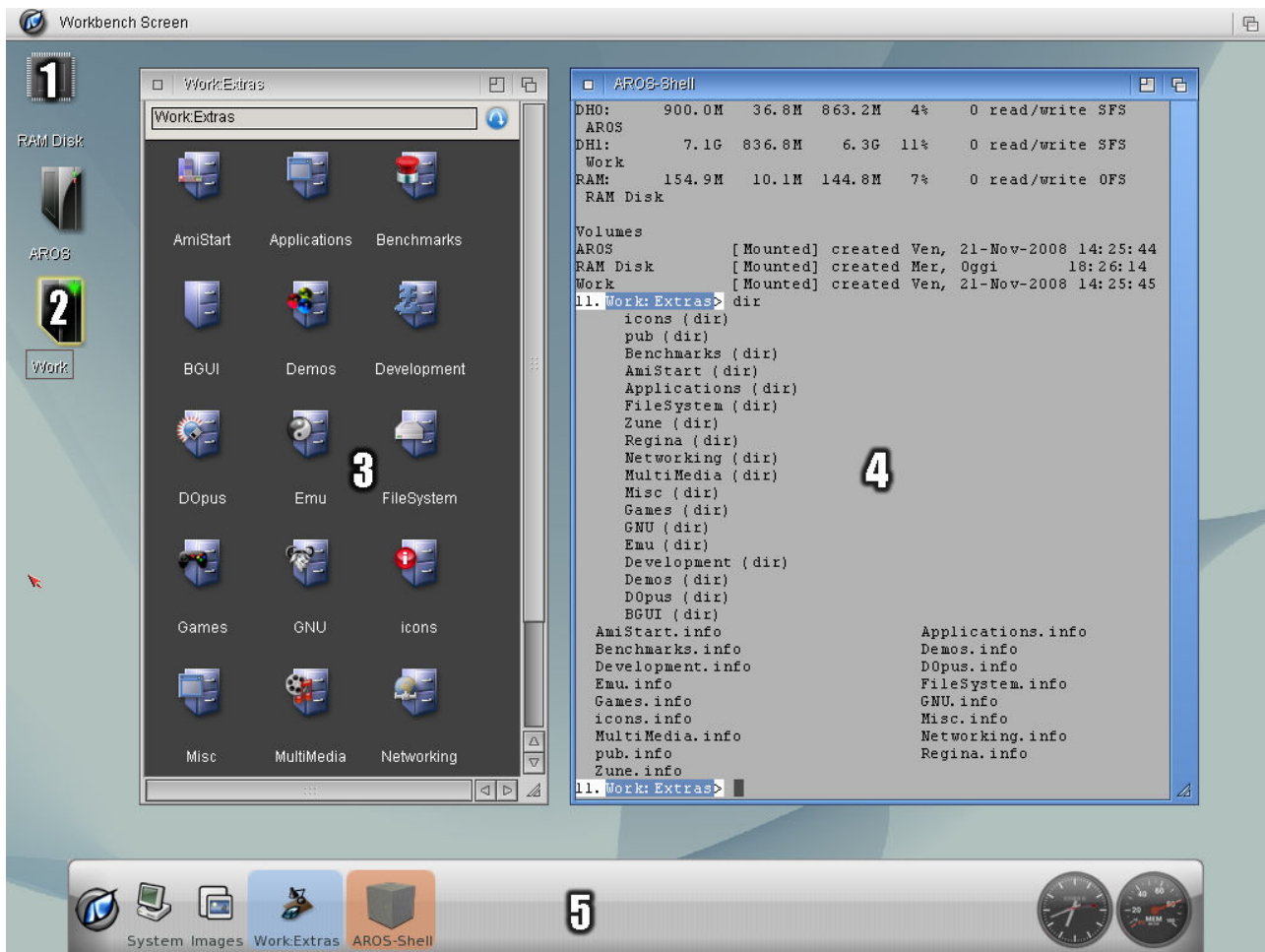
1. the **RAM Drive** (RAM:) is a volume mounted directly in your system memory. It can be used as a fast place to unpack files or a temporary buffer for your operations. Remember that its contents will be lost when you reset or power off the machine;

2. **hard drives** and other volumes can have labels. You can use the RELABEL command to change them. In a shell, you can use both labels and volume identifiers;

3. this is a **Wanderer** window, with icons inside. **Icons in AROS are meant to identify important files only,** and can be used to open the described file with a different tool, to set file properties and so on. They are mostly PNG files with the .info extension;

4. this is the **AROS shell**. AROS is not Linux so you won't use it all the time, however you'll find that using the shell can be far easier than clicking thousands times on the left mouse button;

5. this nice bar is not part of AROS itself, but is a program called **AmiStart**. It will help you launching programs and previewing images. **Just remember it behaves differently from Windows start menu.** You can delete icons by throwing them outside. You can add new ones by dragging them from Wanderer. To close a menu, just select an option in a parent menu. To close all, click on the VmwAROS button on the left side.

1.4 Wanderer

AROS' Workbench is called Wanderer. You can copy programs and files simply dragging their icons from their location to another. You can open Windows and launch program by clicking twice on their icons. Now let's talk about windows. This is a window:

It has some tools you should understand to get handy with AROS:

1. The close gadget (   ) is on the left side of the title bar, and closes the window.

2. The iconify button (   ) on the right allows either to reduce the window to the minimum size, or expand it again.

3. The depth gadget (   ) on the top right corner places the window before or after the others. AROS behaves quite differently from most operating systems: clicking on a window won't give it the focus immediately. You can hide a window under the others either if you're using them or not.

4. The scroll bars (   ) allow you to show hidden parts of the window contents.

5. The dimension gadget (   ) on the right bottom corner resizes the window as you like. This is the only active part of the boundaries which allow you to do so.

6. The parent button (   ) goes up in the directory tree, opening the parent one.

7. The path field (   ) shows the current path of the window. You can edit it to go wherever you want in the filesystem.

8. The title bar (   ) shows the window name. You can move windows wherever you want, handling them by their title bar, keeping the left mouse button pressed.

In this manual we'll often talk about directories calling them *drawers* instead of *folders*. That's an heritage from the Amiga age that AROS had proudly taken.
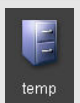
1.5 The AROS Keyboard
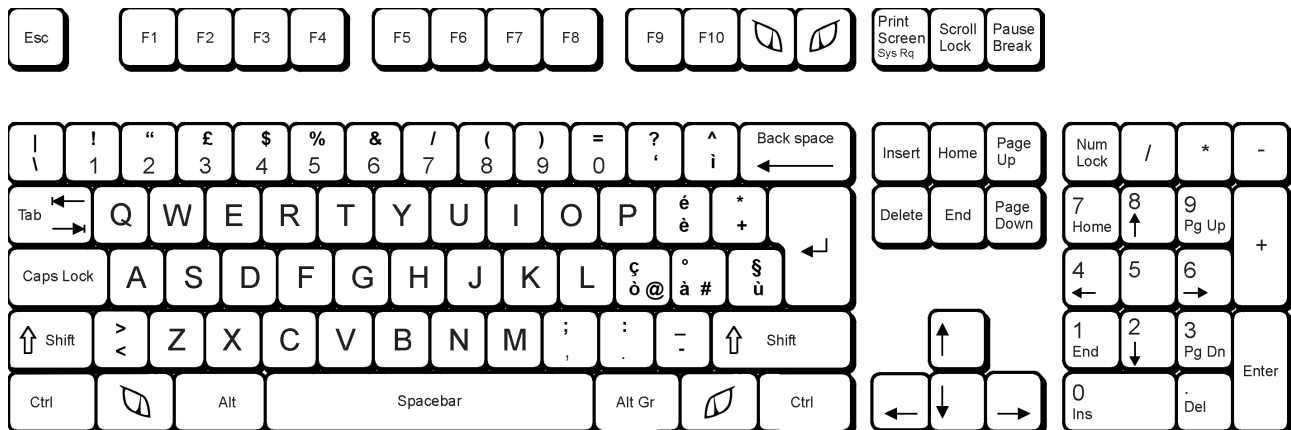
Please assume this convention: whenever you read about **lAros** and **rAros** keys on this manual, we mean the left and right *Aros keys* respectively. Since no keyboard manufacturer has decided yet to sell an AROS specific one, **lAros** corresponds to **left Windows** (*command* on Mac, *Amiga* on Amiga) key and **rAros** to the right one(s). Some keyboards, mainly compact, notebook and really old ones, may lack of them. Since they are really mandatory for AROS programs, they have been mapped also to F11 and F12 respectively. The scheme above shows the italian layout, some character will change depending on the language you're using.

The rAros key (rWin or F12) is really important for AROS. It allows some speedy *shortcuts* you'll surely love.

| Keys	Action
rAros + Q	Quit wanderer (you don't want to do that)
rAros + W	Open a shell (you'll do that quite often)
rAros + E	Open a command window
rAros + R	Rename the selected icon
rAros + I	Display icon information
rAros + O	Open the selected icon
rAros + A	Select all icons in the active window
rAros + K	Kill the active window
rAros + Z	De-select all
rAros + C	Copy to clipboard
rAros + V	Paste from clipboard
rAros + X	Cut to clipboard
rAros + N	Create a new drawer

1.6 Right menu

AROS doesn't use context menus like Windows or Linux. So you won't get the familiar context menu over an object by selecting it with the right mouse key. Like it was in AmigaOS, you will get the active program's option menu while you're pressing it. Keep the RMB (right mouse button) pressed until you have selected the option you want, then release it. In order to have something similar to a context menu, however, you can launch the **Icontrol** applet in **Prefs**, and select **Pop-Up** in the **Type** field.
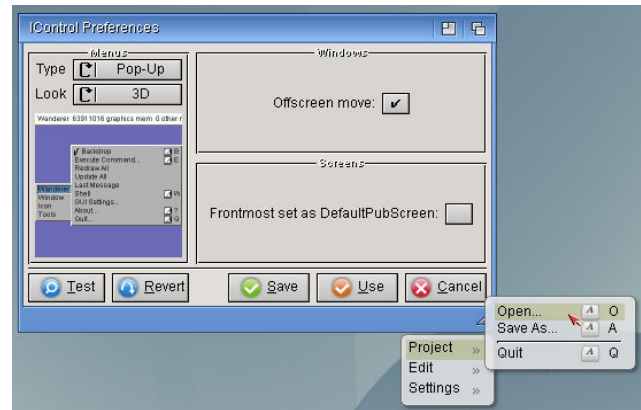
1.7 Icons and files
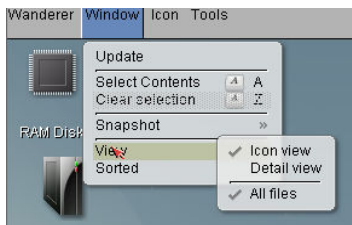
In AROS, as like as in AmigaOS, not all the files have icons. This allows two levels of reading and keeps the windows noticeably cleaner. On the other hand, this may lead to *misinterpretations* of directory contents. You can view all files by selecting the **View > All files** option on the **Window** menu of **Wanderer**. Use your right mouse button to to this.

1.8 AmiStart

AmiStart is VmwAROS' toolbar and docking application (well, every serious operating system has one). Customizing it is really, really is. Just drag any icon, drawer or application onto it to add a tool or a whole new menu, and throw out from the bar or the menu any icon, to get rid of it. Yes, that's all. By clicking on it with the right mouse button, though, you will gain access to a huge series of customization menus, which will allow you to deeply customize any object and menu of the toolbar. The **calendar** on the top of the screen is part of AmiStart too. If its background gets crowded, just right-click on it and choose "refresh" or "reload".
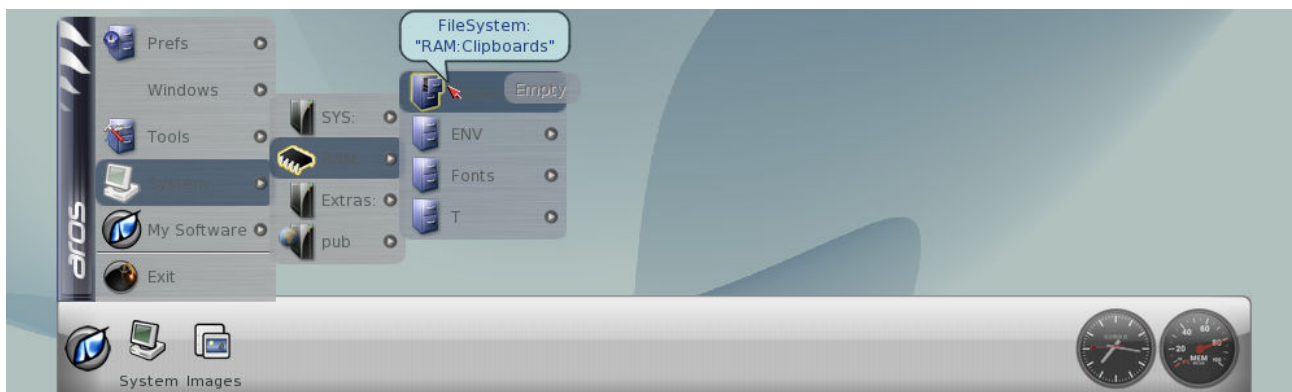
1.9 Supported hardware

Although any PC, starting from old Pentium and K6 ones, should be enough powerful to run AROS, there are some limits to the supported hardware. Unluckily, there's simply not enough development power to create drivers, though the limited range of supported expansion boards should be enough to create a cheap, tailored computer for AROS.

PROCESSORS
Intel: Pentium, Pentium II, Pentium III, Pentium4, PentiumD, Core, Core2 Duo, Core2 Quad
AMD: K6, K6-II, K6-III, Athlon, AthlonXP, Athlon64, Athlon64 X2, Phenom, Duron, Celeron

CHIPSETS
Any chipset supporting IDE/Atapi operations with the processors above. This VmwAROS version offers limited SATA support too.

VIDEO
AMD/ATI Radeon cards, Nvidia TNT, TNT2 and GeForce cards, any VESA-compatible card, including most integrated ones. Some known problems with some Via, SiS and Intel integrated GPUs.

SOUND
Any Nvidia and Intel AC97 compliant sound adapter, Creative SoundBlaster Live!/Audigy based on EMU10K1 DSP (no SB Live! Value).

NETWORK
Any PCI network card based on RTL 8029, Etherlink 3, AMD Pcnet 32, Nvidia Nforce, intel Pro-100. Partial support for RTL 8139. Using one of those is the only way to get networking run on AROS. No modems supported yet.

KEYBOARDS AND MICE
Any PS/2 keyboard and mouse will work. USB models partially supported. In order to let 'em work, just use an adaptor or activate "USB Lecacy Support" in your BIOS.

If your USB mouse is not recognized, try opening a shell (rAros+W) and use one of these commands:
`C:loadresource DRIVERS:uhci.hidd`   or   `C:loadresource DRIVERS:ohci.hidd`

HARD DRIVES AND OPTICAL ONES
Any EIDE/ATAPI hard drive or CD-ROM will be fully supported. To be sure your controller is supported, just start HDToolBox and look for devices connected to a SCSI bus: if you find any, you'd be OK. In order to let your SATA hard drive work under VmwAROS, you may also try setting it as "Legacy ATA compatible" in your motherboard's BIOS.

2. What's new in VmwAROS

If you have already experienced AROS using its nightly builds, you know that is an amazingly fast operating system, with a responsive GUI and maybe the quickest boot times available. But if you went deeper, you've probably encountered many issues configuring and using it. That's where VmwAROS helps. With this distribution you'll get:

A better *Amiga-like* look
Ken Lester's icons give AROS a better "Amigan" look and feel, with professionally-drawn dual state icons. The complete collection is available in a drawer.


A simplier interface
AmiStart is the de-facto standard toolbar/ dock application for modern AmigaOS incarnations and clones, with drag-n-drop approach and customizable icons, effects, menu and applets.
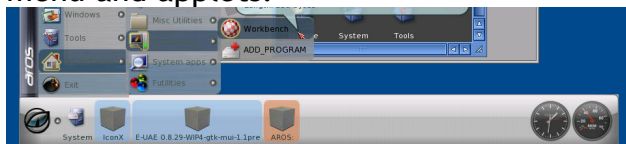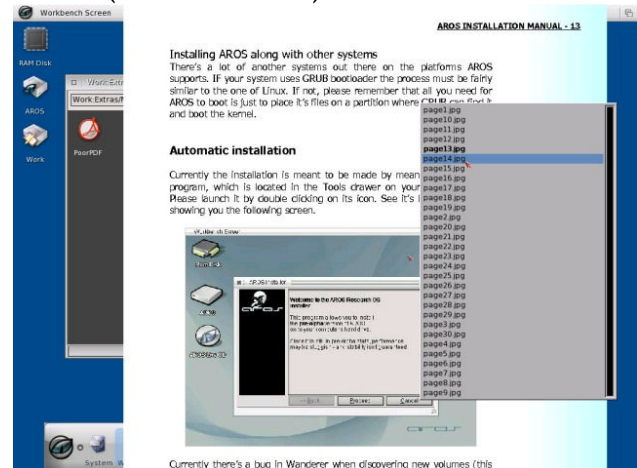

Better access to files
VmwAROS runs in the background **YAFS**, a tiny FTP server, which allows easy transfer from/to AROS. Either you're running VmwAROS in a real or a virtual machine, you'll love it.
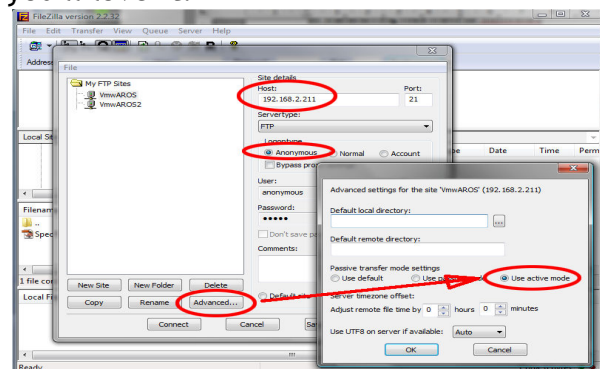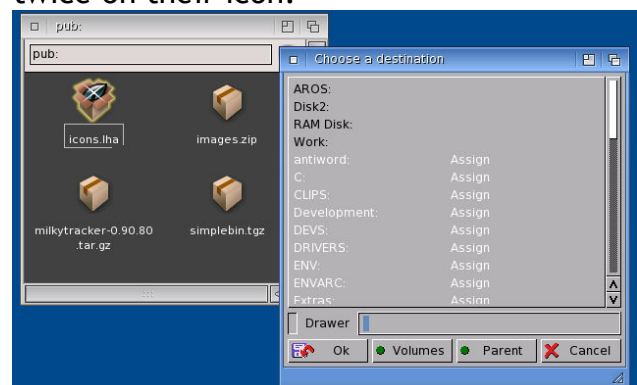

PDF support
PoorPDF is VmwAROS' reader for PDF files. Maybe it's not like having Adobe Acrobat Reader ported to AROS, but at least it works (most times...).

Multiple Archive decompressor
PoorARC is VmwAROS' extractor for archived files. Expand your files from **zip, tgz, bzip2, lha, arj, lzop, ace, rar** and many, many other archives by clicking twice on their icon.
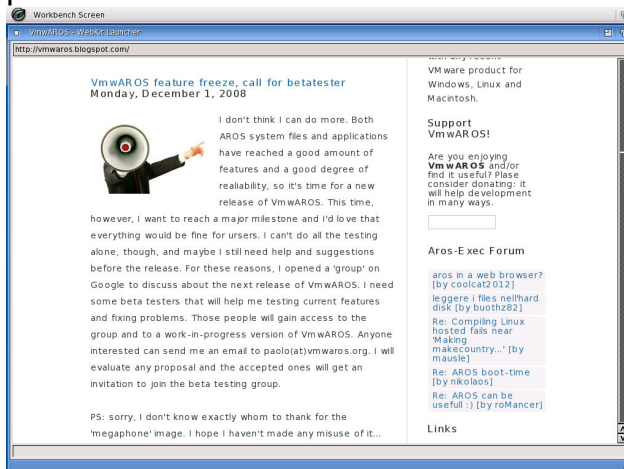

The best compatibility
A customized *muimaster.library* allows using both current and older AROS applications, without compatibility issues. All apps included in the compilation have been tested.

Networking made easy

Configuring the network in AROS has always been a long and difficult job. With VmwAROS, all needed files are already in place.


A robust development chain

VmwAROS can compile AROS iself, and provides many updated libraries and all the languages, compilers and interpreters available today for AROS.

Amiga 68K application support

AmiBridge allows launching AmigaOS applications in a emulation window, launching them straight from Wanderer and AmiStart (you need *AmigaOS* files and Amiga ROM images).
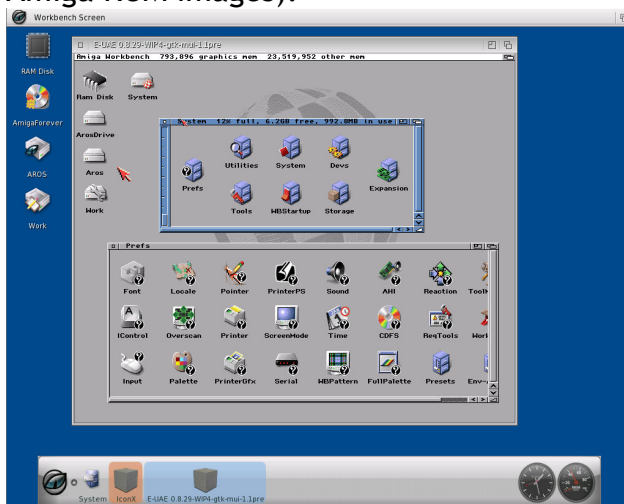
New background images

A new collection of desktop wallpapers, many of them coming from the private collection of a professional photographer (who kindly offered them).
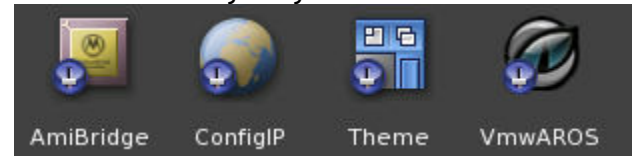

Easy system files updating

With VmwUpdate, you can keep your AROS system files and basic applications always up-to-date.

Easy customization

Make AROS looks and feel the way YOU like it! And in a easy way...

## The most up-to-date applications, already configured!

Do whatever you want with AROS: with VmwAROS you can play many SDL games, browse the Internet (well, almost...), send and receive your emails, create and manage your database, emulate old computers and consoles, play your MP3 songs and watch your MPEG movies, compose music with HivelyTracker, write text files, paint your pictures, browse your image collections, chat on IRC, discover old gaming classics like DooM, Quake and Beneath a Steel Sky, write your own applications and much, much more, because this is only the beginning.

3. Installation (VmwAROS LIVE! only)

Installation on the hard drive is recommended in order to use AROS programs and save their files. However, AROS is still alpha code and can be dangerous for any operating system already installed on your hard drive. Keep in mind that **VmwAROS heavily discourages installation on production machines with important data on them**: please, use only an old drive, possibly clean and with no other partitions.

1. Open VmwAROS Live CD-ROM by double clicking on its workbench icon, then open your **Tools** drawer

2. Launch **InstallAROS** and read carefully what's written in the first page. Keep it in mind and don't shout at us if something goes wrong: you were warned. Click on **proceed**.
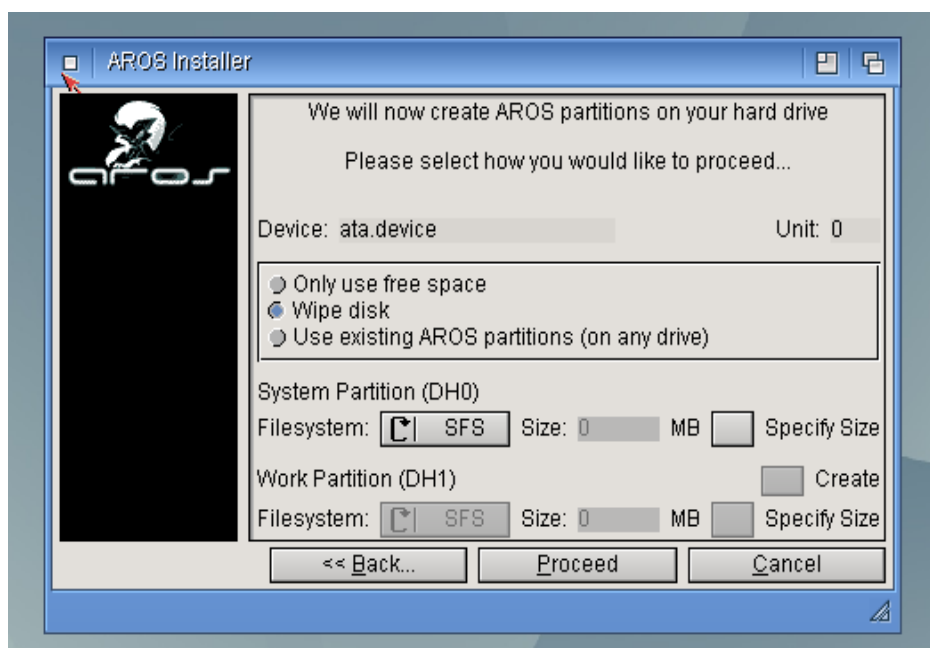
3. The first time you install VmwAROS, please kill anything already present on your hard drive by selecting the **wipe disk** option. If you can't, or you're installing VmwAROS using the remaining free space of your hard drive, just select **Only use free space**.

4. Check the **Specify Size** option on the right.

5. Select an amount of **megabytes** for your AROS system partition. It will be formatted with FFS filesystem. This is mandatory in order to boot this version of AROS and to run some programs, which still have problems using other filesystems. Giving a size limit will activate the other options.

> **The correct size:**
> Bare AROS system needs less than 100 MB to install. However VmwAROS comes with a discrete amount of software, which require a minimum of 1200 MB. Please select a reasonably thin system partition (500MB – 1GB), and a reasonably large work one (1GB – 4GB or greater).

6. Unless there are good motivations not to do so (for instance, your hard drive is just too small), please create a Work Partition by checking the **Create** option in the right bottom corner.

7. Just leave the **Specify Size** unchecked to let AROS use all the available space for the work partition. This will be formatted with the faster SFS filesystem.

8. When asked, **reboot**. It will take just a bunch of seconds.

9. Repeat points 1 and 2, however, this time select **Use existing AROS partitions** and click on proceed.
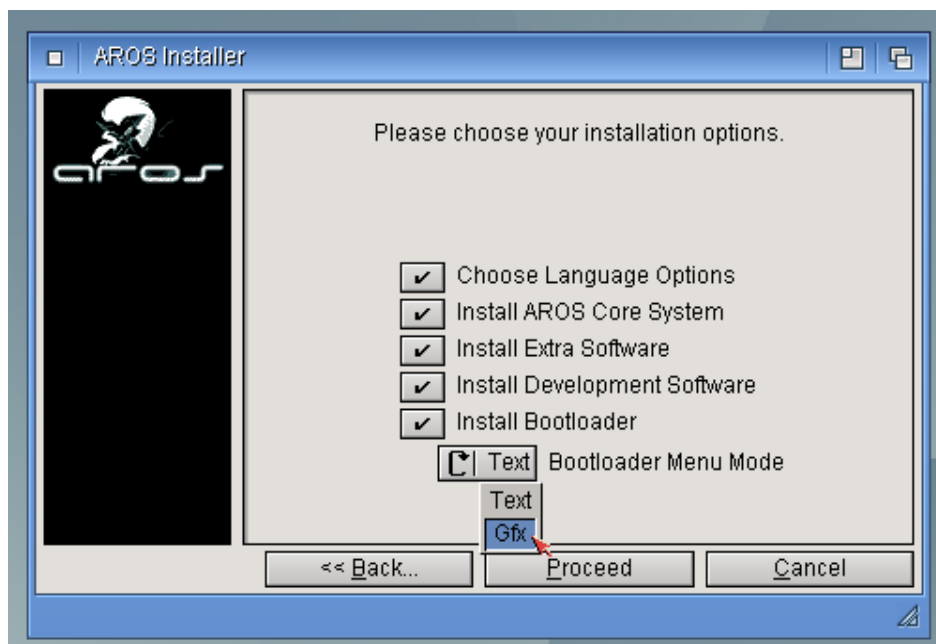
10. To install a complete VmwAROS system, just check all the options above. By unchecking **Extra** and **Development** software, you'll get a bare and barely usable AROS installation. You can also choose to have either a graphic or a text boot menu.
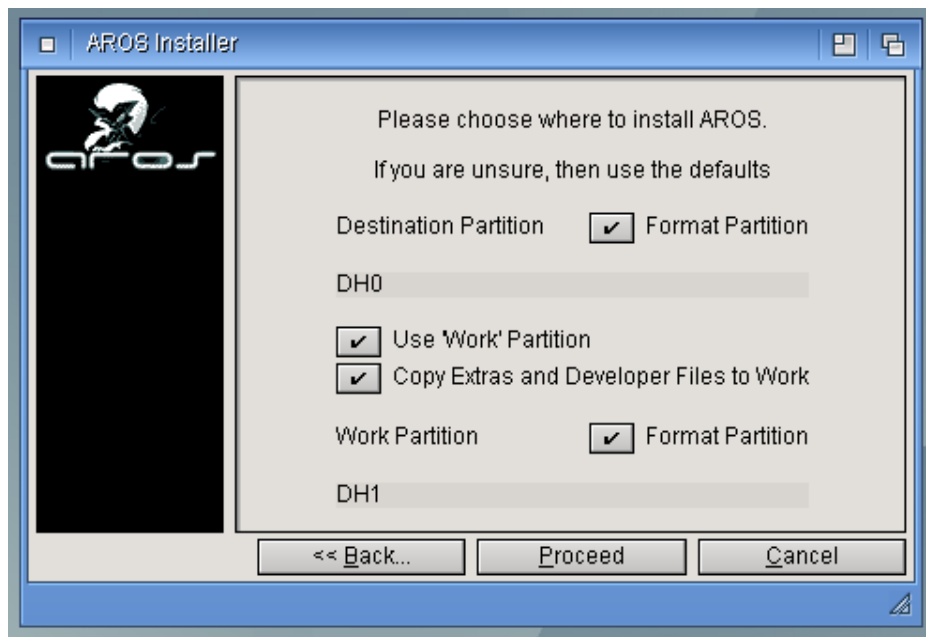
11. This is really important: if you're planning to take advantage of SFS' major speed and improvements, you'll need to install **Extras and Developer Files to Work**. In order to make this happen, just check **all** the options here.

Moving Extras:

The Extras drawer of VmwAROS Live is slightly different from the usual AROS one! It contains all the contributed programs which compose the distribution itself. If you install it on the system partition, you can always move to the work one later, by dragging and dropping its icon. Remember, however, to edit the file *s:startup-sequence* as follows:
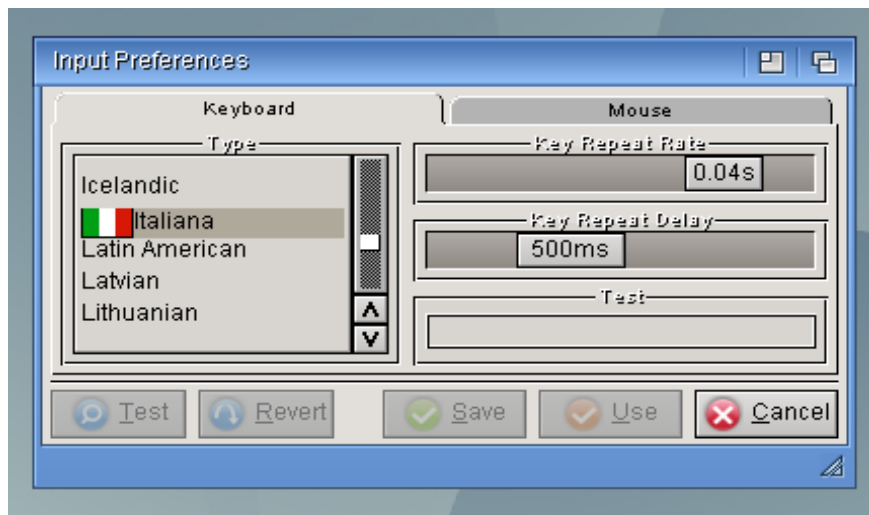
The lines:

```
Assign EXISTS Extras: >nil:
If WARN
    If Exists $EXTRASPATH
        Assign Extras: $EXTRASPATH
    EndIf
Endif
Assign EXISTS Extras: >nil:
If WARN
    Assign Extras: sys:Extras
EndIf
```
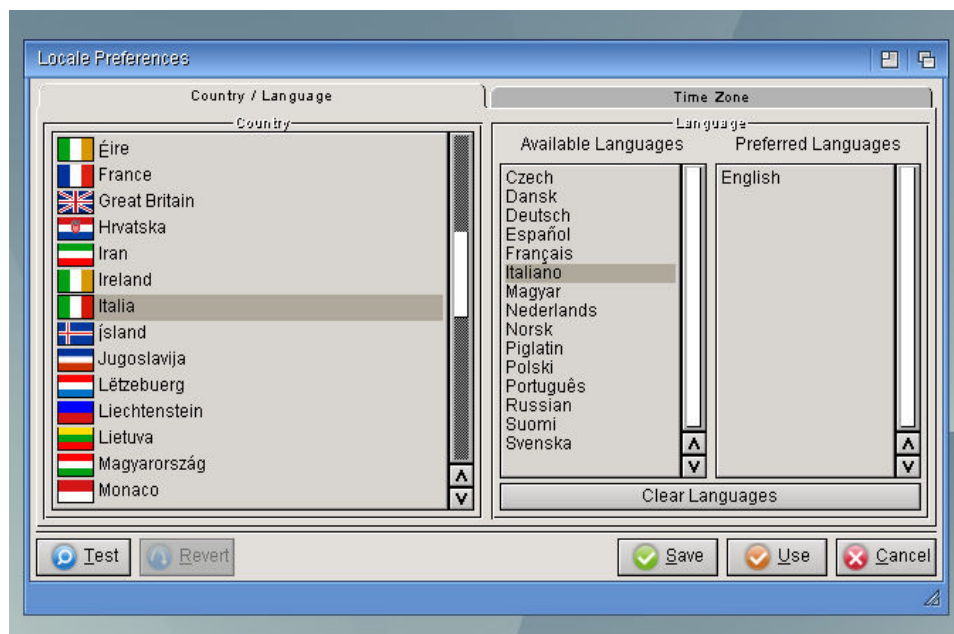
Should simply become:

```
Assign Extras: Work:Extras
```

Remember to correct this whenever you'll update your AROS system files.

---

12. If you selected to choose language options at step 10, please select your keyboard layout in the left side of this window. This can be made later, by launching the **Input** panel in **Prefs**.

13. If you selected to choose language options at step 10, please select your default language. The first one appearing in the right side will be used by **Wanderer** and other applications. The second one will be used only if catalogs for the default language aren't available. Language will fall back to English if no other language is available.

This can be selected also later, by opening the **Locale** panel of the **Prefs** drawer.

14. Files will be copied. Please wait until the installation program has finished. It may take from few minutes to half an hour, depending on your hardware. When finished, just remove VmwAROS cd-rom and reset your PC, to boot AROS from the hard drive.

4. First boot (VmwAROS LIVE! only)

If you're experiencing boot problems, **don't worry!** Starting from VmwAROS beta 0.8 there is a new fancy feature called **EMERGENCY MODE** which provide a older, but yet pleasantly functional kernel with basic ATA support:

In order to reach the *EMERGENCY MODE* you prefer. Don't forget you'll have to select a *EMERGENCY MODE* also after installing VmwAROS on the hard drive, in order to boot it correctly. Please read the following sections about customizing the early boot menu in order to keep the emergency modes only at your startup.

VmwAROS starts by default at 1024x768 at 32bpp color depth. Some video cards might not work either in 16 or in 32 bit modes, depending on the GPU specs. Just try some resolutions, you'll surely find one that works and fits your need.

You'll find also "**AROS Nvidia**" and "**AROS ATI**" ones. These are accelerated driver for Nvidia and AMD/ATI cards. Try to select them if you know which card is installed on your system. These drivers have 2D accelerated functions and work better on most configurations. Sometimes, however, they hang completely or leave some garbage on the screen while scrolling and moving windows. To get rid of them, just select a VESA mode at startup. All ATI and NVIDIA cards are backward compatible to VESA modes. Select 32 bpps to get the most of them.

There is also an *experimental* support for **VMware's emulated video card**, but it's painfully slow on some versions of this virtual machine. Try it at your own risk. Vmware Gfx hidd has a known issue: it starts at 640x480 pixel on a 1024x768 window. Please launch ScreenMode in the Prefs drawer to fix this. Vmware GFX hidd should be compatible with VMware Workstation 5.x and similar line products, and won't run on other VM technologies like Virtualbox or VirtualPC. Sometimes it hangs on VMware Workstation 6.x range of products, and that's why it isn't the default choice in the VmwAROS virtual environment.

4.1 Modifying the initial menu (you need to install VmwAROS to hard drive)

Scrolling that long list of resolutions every time is boring, right? Well, there's a speedy way to get rid of it. Just open the editor

and load the grub.cfg file located in the /boot/grub directory. You'll find something like this:

```
# Timeout for menu
set timeout=5

# Set default boot entry as VESA Gfx @ 1024x768-16bpp
set default=3
```

followed by groups of lines like these:

```
menuentry "AROS with VESA Gfx @ 1024x768-32bpp" {
    serial --speed=9600
    multiboot /boot/aros-pc-i386.gz vesa=1024x768x32 ATA=32bit
}
```

well, every one of these will manage an entry of the early startup menu. Just delete all the lines you don't need, and you're almost done. Just notice the first four lines, that

you must keep: the timeout value indicates the number of seconds to show the startup menu, while the default one select the option which will be chosen automatically. Please notice that the count begins with 0, not with 1, so to choose the second entry, you have to insert 1 here and not 2. And so on. For example, a script like this:

```
# Timeout for menu
set timeout=8

# Set default boot entry as VESA Gfx @ 1024x768-16bpp
set default=1

if font /boot/grub/unifont.pff ; then
     insmod /boot/grub/vbe.mod
     ..........etc............
     background_image /boot/grub/splash.png
fi

menuentry "AROS with NVIDIA Gfx" {
    serial --speed=9600
    multiboot /boot/aros-pc-i386.gz gfx=hidd.gfx.nv lib=DRIVERS:nvidia.hidd
ATA=32bit
}

menuentry "AROS with ATI Gfx" {
    serial --speed=9600
    multiboot /boot/aros-pc-i386.gz gfx=RadeonDriver lib=DRIVERS:radeon.hidd
ATA=32bit
}

menuentry "AROS with VMWareSVGA Gfx" {
    serial --speed=9600
    multiboot /boot/aros-pc-i386.gz gfx=hidd.gfx.vmwaresvga lib=vmwaresvga.hidd
ATA=32bit
}
```

will keep only 3 choices, the hardware accelerated ones. Let's assume we wish to boot AROS using always the Nvidia GeForce driver. We should just set the *default* value to 1.

Stuck Pointer? No keyboard?
If your USB mouse is not recognized, try opening a shell (rAros+W) and use one of these commands:

`C:loadresource DRIVERS:uhci.hidd`
for UHCI USB contollers or

`C:loadresource DRIVERS:ohci.hidd`
for OHCI ones.

Your PC mounts at least one of these. If your USB keyboard is not supported, plase set USB legacy support in your BIOS. It should be enough to activate the keyboard at the next boot. Add the working line in your **S:user-startup** file to make it permanent.

Using the emergency mode on the hard drive

Emergency mode is a customized kernel which allow booting and using AROS on some incompatible hardware. Unluckily, emergency mode can't be used on SFS system partitions, because it conflicts with sfs.handler. If you wish to use the emergency mode on your hard drive, you'll have to follow this procedure:

1. When installing on the hard drive (see chapter 3), be sure the AROS: partition (normally DH0) is formatted as a FFS-intl one.

Just look at the "System Partition (DH0)" option in the middle of this window. If it's grayed out, you'll need to enable it by wiping the disc before. You can do that with HDToolBox. You Work: partition can still be formatted with SFS (and this is recommended). **To summarize: System partition must be FFS-intl, Work partition must be SFS.**

2. When installing AROS system files on a FFS partition, you'll be prompted that some files have to be overwritten. Just overwrite them every time, or click on **All** to continue.

Unluckily the Emergency Mode kernel won't work everywhere, and it will probably hang AROS at startup. So, please, keep it as "last hope" option. If Emergency Mode kernel won't help you, we are really sorry, but it's due to a hardware incompatibility between AROS system files and your hardware.

This is not completely bad, since it may help AROS developers to fix a bug and make AROS compatible with a wider range of architectures. Please open a bug in the AROS bugtracker at this address, http://snurl.com/arosbug.

In the meanwhile, please use VmwAROS VE or VmwAROS Live! in the provided QEMU environment (see chapter 1.2.2).

4.2 Customizing AROS

All AROS settings can be accessed and changed from the Prefs drawer in AROS:. Most of options are self-explanatory, so we won't talk about them. Some other allow deep system customization, and would need too space for a quick guide like this. VmwAROS comes with João Ralha's AROS manuals: please read them for any further information. We will cover here only the common operations.

4.2.1 Changing screen resolution

Screen resolution and colour depth can be accessed only when using ATI or Nvidia accelerated drivers (by selecting one of them during boot). Just launch **ScreenMode** to change them.
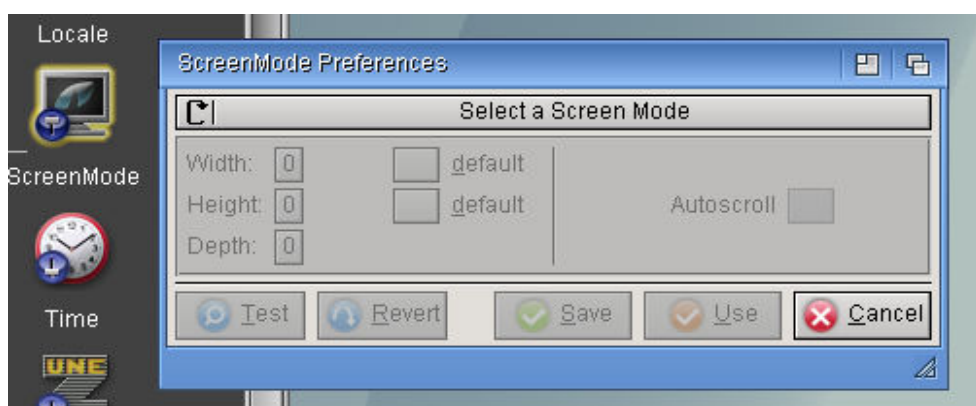
4.2.2 Changing desktop appearance

You can change desktop and windows wallpaper, icon spacing and behaviour, label length, font and effects by launching the Wanderer applet.
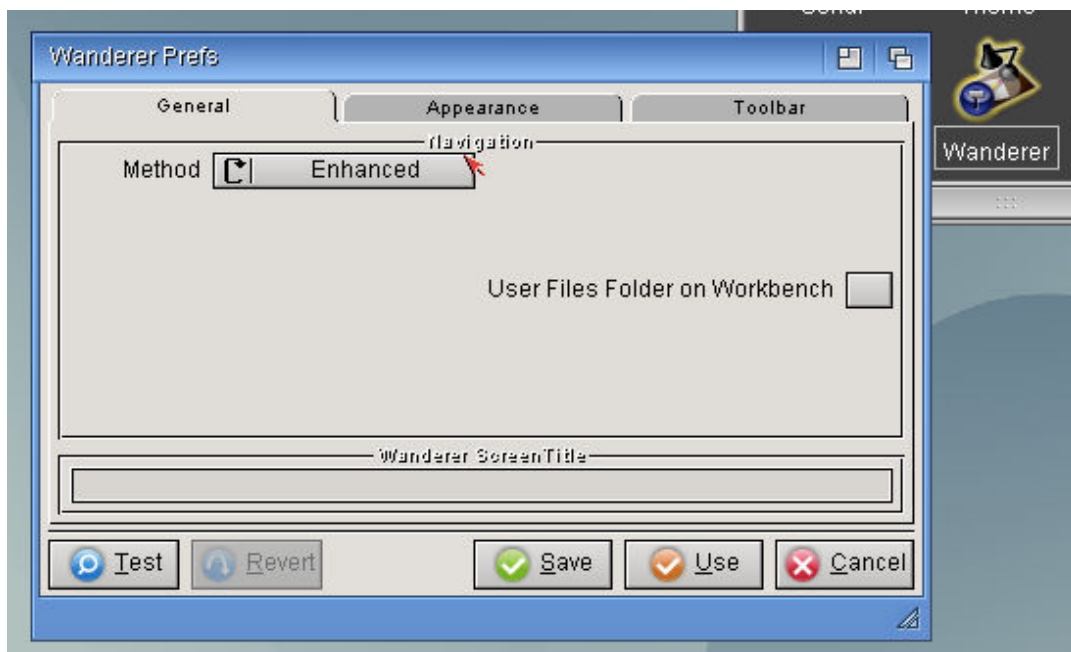

The General tab allow switching between the *Enhanced* (default) Wanderer behaviour and the *Classic* one. The former opens new drawers in the same window, the latter in a new one, exactly as AmigaOS 3.x. Please notice the **Wanderer Screen Title** option in the bottom of the page: it changes the default message on the top title bar of the screen (normally *Wanderer %pc graphics mem %pf other mem*).
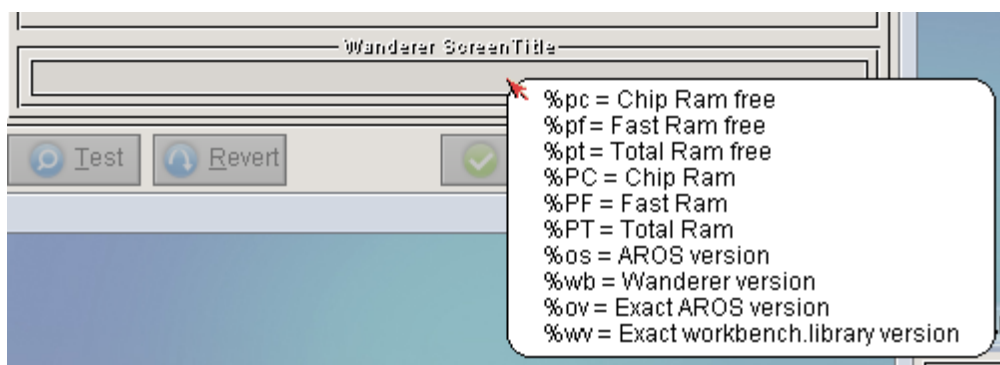

Now the **Toolbar tab**:
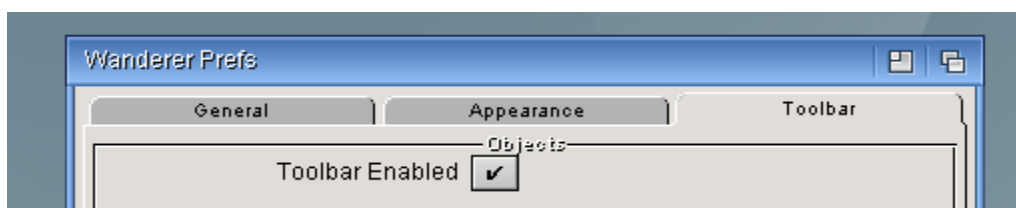
The **Toolbar Enabled** selector decides whether showing the path bar in every window or not. Eliminating it, you get more "old Amiga feeling". You will prefer enabling it again.
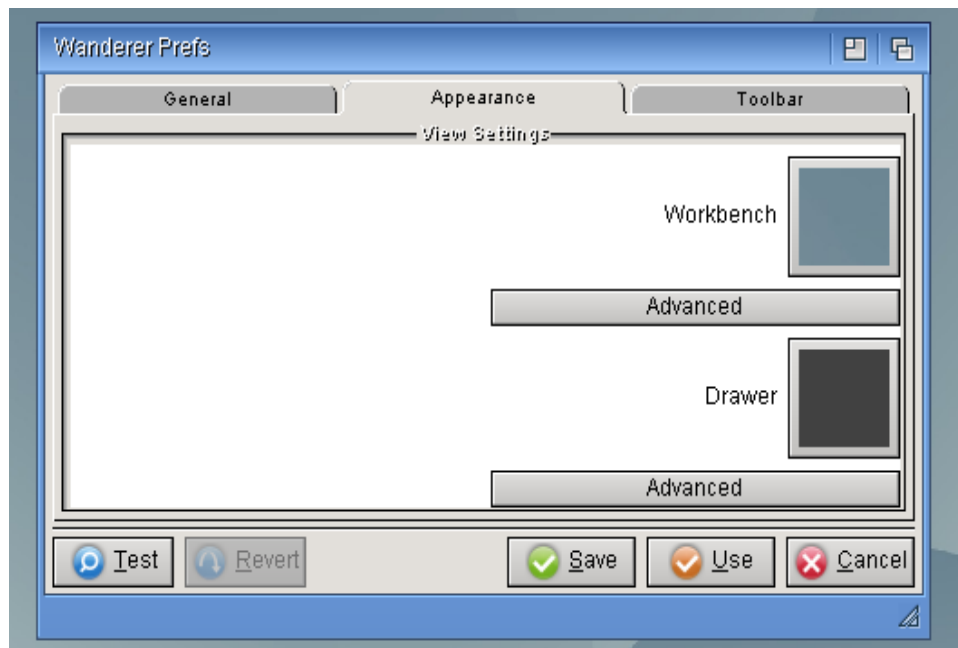
The **Appearance** tab is maybe the most interesting one. Click on the Workbench and Drawer buttons (the right cyan and orange squares in the upper shot) to change wallpaper. You can select either any datatype-supported image or a colour effect. You'll find some nice wallpapers starting from the SYS:Prefs/Presets/Patterns directory.

Now, let's click on Advanced. A more complex options window will appear:
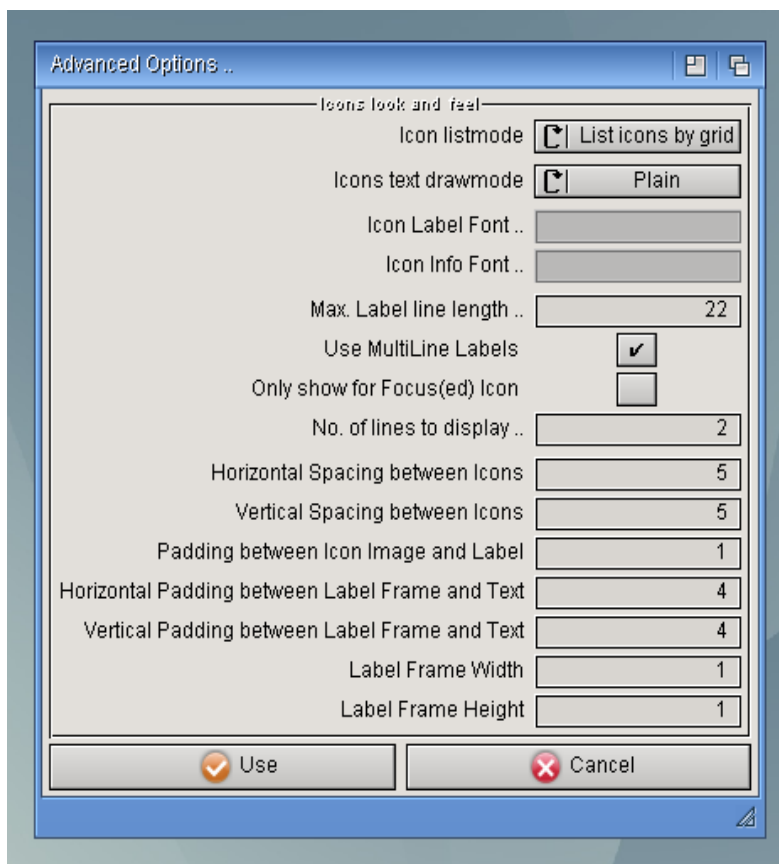
< The Draw Mode option will select how the background image will fit in the screen

< The following options will decide how icons appear and font/dimensions of labels under them. Change the Max Label line length if you see truncated file names on your volumes.

4.3 Enabling sound (VmwAROS LIVE! only)

Sound will be normally disabled by default. Only few audio chipsets are currently supported. VMware one is not one of them, unluckily. But maybe your computer's one is. Just look at the beginning of this guide for a handsome list of supported chipsets. Anyway, to enable sound you'll need the **AHI** preference applet in **Prefs**.

AHI is the de-facto *AmigaOS and derived* standard audio layer. More informations about this are available at http://arp2.berlios.de/ahi.
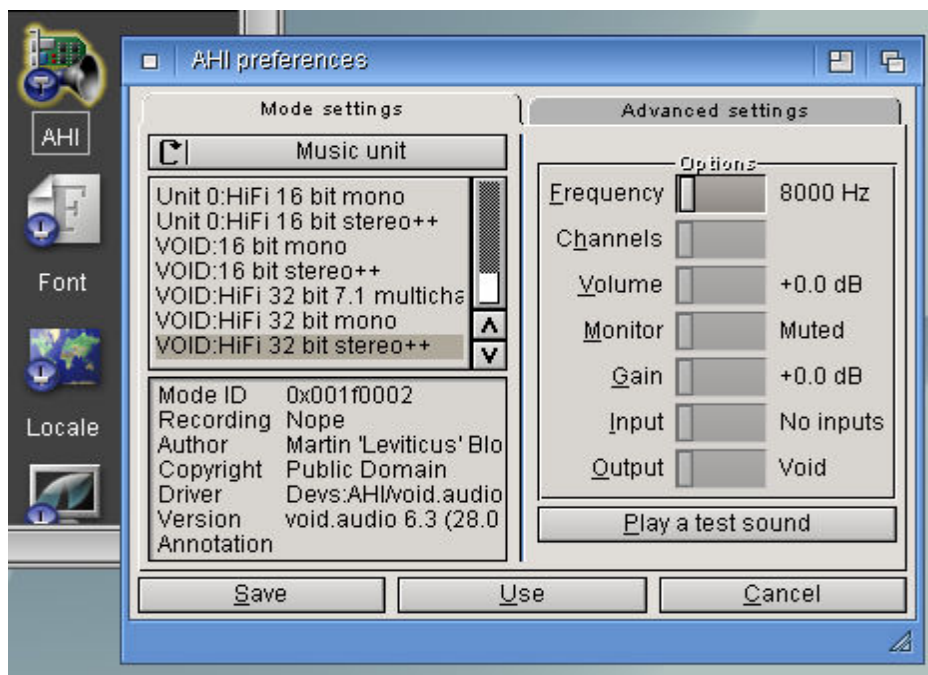
Please select your hardware in the left top window and associate it to your *Music unit* and *Unit 0* devices. If your hardware is supported, you'll be allowed to change options in the right side of the window. Play a test sound to check whether your card is working or not. Some quite old AC97 chipsets are working, but the best option for hearing sound in AROS is using a cheap and easy-to-spot **Creative SoundBlaster Live!** card. AROS fully supports the EMU10K1 audio processor. Click on SAVE to make your choice permanent.

Still no sound in applications?
VmwAROS Live! applications are set up without sound. This is an heritage of the virtual machine version, where sound is totally unavailable. Please remove all VICE entries in AmiStart with "(no sound)" in their name and replace them with the normal ones. You'll need to edit also configuration scripts for ScummVM (Beneath a Steel Sky) and maybe for other applications too.

Sound in VMware
Sound in VMware is not available. This is not a VmwAROS issue, but AROS' itself. A bounty for a proper AROS driver is already open. If you are smart enough to code a driver, please take it (you will be rewarded). Or maybe consider contributing. More informations at http://thenostromo.com/teamaros2/index.php?number=72.

4.4 Configuring the network

Networking on AROS is still a mess. AROS recently got DHCP support, however there's no *autoprobe* yet for network cards and, as usual, there is still a limited number of NIC drivers available. Luckily, those drivers cover a wide range of network cards and it's extremely easy to find one.

> **Network in VMware**
> Network under VMware is already configured to take advantage of DHCP and VMware network card, which is fully supported. VmwAROS 0.7 and VmwAROS Live 0.7 (and succcessors) won't need any networking configuration inside the virtual machine. You can even boot VmwAROS Live! under VMware, and the network will work immediately. Please notice you need a **bridged** virtual card.

In order to configure the network, you need to have VmwAROS Live! already installed on your hard drive (configuration files must be saved and system rebooted). When ready, just launch **ConfigIP** from the **Prefs** drawer.
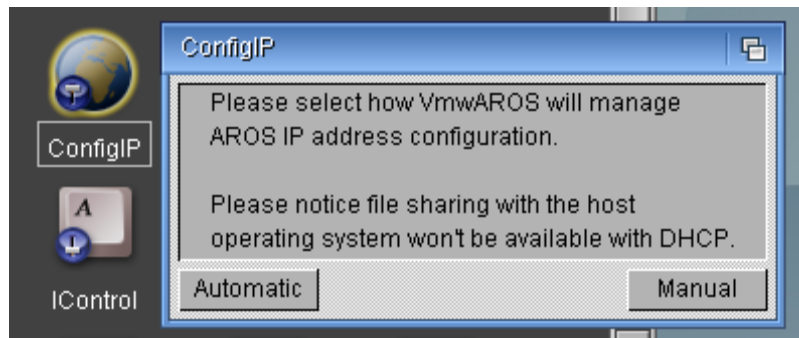
4.4.1 First/Manual configuration

Before configuring the IP address, you need to tell AROS what NIC driver to use. Please launch **ConfigIP** and select **Manual**. Several configuration files will be opened on the screen. If you plan to use DHCP to get a IP address from the server, ignore the first file.

● *Netdb-myhost*

This file stores informations about the local host and the network itself. Look at these lines:

```
HOST 192.168.2.211 arosbox.arosnet arosbox
HOST 192.168.2.1 gateway

; Domain names
DOMAIN arosnet 192.168.2

; Name servers
NAMESERVER 192.168.2.1
```

The HOST entries contain AROS IP address, a name for the host complete with domain and the host name only. Just edit as you wish, using ad address according to your local network. For instance, if your router is 192.168.0.100, and your computer are 192.168.0.10 and 192.168.0.11, you should give AROS another IP address starting with the first three numbers (192.168.0.) and another number, different from 100, 10 and 11:

20 might be a good choice. So correct it to 192.168.0.20.

Place also your router/server address (192.168.0.100) in the second line (remove 192.168.2.1 and place 192.168.0.100). You need to know this information.

In the DOMAIN field, please give your local network a name (if it hasn't any/don't know, just leave 'arosnet' as is) and place the first three numbers of your IP address (192.168.0) without the final one.

In the NAMESERVER field please put your internet provider's DNS server. You are encouraged to place your router's address too, because many router have also some DNS powers. When you're done, save and exit.

- ● *Interfaces*

This is little more complicated to explain. Anyway, don't worry. It's many times easier to do. Just look at the first uncommented line (commented ones start with #).

```
eth0 DEV=DEVS:networks/pcnet32.device UNIT=0 IP=192.168.2.211 UP
```

eth0 is the network card address. You might have more than a network card and configure them all by assigning names like eth1, eth2 and so on, but not for now. Please just pickup the most compatible one and call it eth0.

The string `DEV=DEVS:networks/pcnet32.device` assigns to eth0: the network device pcnet32.device, which is the one used by QEMU and VMware. You probably need to use some other. To do this, please comment the whole line (by placing a # as starting character) and scroll the text file down, you'll find some other similar lines like:

```
#eth0 DEV=DEVS:networks/etherlink3.device UNIT=0 IP=192.168.0.188 UP
#eth0 DEV=DEVS:networks/nforce.device UNIT=0 IP=192.168.0.188 UP
#eth0 DEV=DEVS:networks/prm-rtl8029.device UNIT=0 NOTRACKING IP=192.168.0.188 UP
#eth0 DEV=DEVS:networks/prism2.device UNIT=0 IP=192.168.0.188 UP
#eth0 DEV=DEVS:networks/intelpro100.device UNIT=0 IP=192.168.0.188 UP
#eth0 DEV=DEVS:networks/tap.device UNIT=0 IP=192.168.0.188 UP
```

Well, just select the driver that fits your network card needs, and uncomment it, by removing the initial # character. Let's assume you have a cheap and easy to find Realtek 8029 based network card. You need the prm-rtl8029.device, so uncomment this line:

```
eth0 DEV=DEVS:networks/prm-rtl8029.device UNIT=0 NOTRACKING IP=192.168.0.188 UP
```

...and change the IP address according to the one you chose for the netdb-myhost file:

```
eth0 DEV=DEVS:networks/prm-rtl8029.device UNIT=0 NOTRACKING IP=192.168.0.20 UP
```

You're done with this file, save it and exit.

- ● *Static-routes*

This is damn easier than the others. Just place your router/gateway's IP address over the current one. If it was 192.168.0.100, just change the only uncommented line to:

```
DEFAULT GATEWAY 192.168.0.100
```

- *Yafs.ini*

When using manual networking, VmwAROS starts automatically a FTP server called YAFS, which allows easy transfer of files from/to AROS. You just need any FTP client on the other computers of the network (or in the host operating system when using VMware). The current version need the IP address specified in its configuration file, so it can't work with DHCP. Please detect these two lines:

```
; Address=xxx.xxx.xxx.xxx, where xxx.xxx.xxx.xxx is the IP address .. number.
Address=192.168.2.211
```

and change Address= with the host (AROS) local IP address once more 192.168.0.20 following our example:

```
Address=192.168.0.20
```

Please don't change the other parameters of this file, or you probably won't be able to transfer files anymore.

4.4.2 Using DHCP

DHCP makes network configuration easier. It will look the local network for a DHCP server and will assign a IP address to AROS. Launch **ConfigIP** and select **Automatic**. You will be prompted to reboot the system. You're ready to surf the web, chat with IRC, read your emails and so on.

The **first time** you configure the network, however, you need to set up your network card. So launch **ConfigIP** and select **Manual**. Ignore all the other files, but edit the **Interfaces** one as explained in paragraph 4.4.1. You don't need to change anything else: DHCP will poll the network to get local, gateway and DNS addresses. If you have still problems surfing the web, please select Manual configuration and set up VmwAROS accordingly.

What is my address?
In order to show your current IP address, you need to use the **ifconfig -a** command. Either press **rAros+W** or **rAros+E** and enter **ifconfig -a**. An output like this will be shown:

```
lo0: flags=9<UP,LOOPBACK> mtu 1536
        inet 127.0.0.1 netmask 0xff000000
eth0: flags=863<UP,BROADCAST,NOTRAILERS,RUNNING,SIMPLEX>
        address: 00:0c:29:05:2e:af
        inet 192.168.2.211 netmask 0xffffff00 broadcast ]
```

just look at the last line, after *inet*: this is your current IP address. If you don't see any **eth0:** entry, it means your network is not completely up and running.

4.5 Configuring VmwAROS services

VmwAROS comes with the network already configured, and with some services that make life easier for the user, but at the expense of some clock cycles. If you don't need some of them, you can easily gain some speed (even at boot-up) disabling them. Just run the VmwAROS preference tool in prefs and click **OK**:
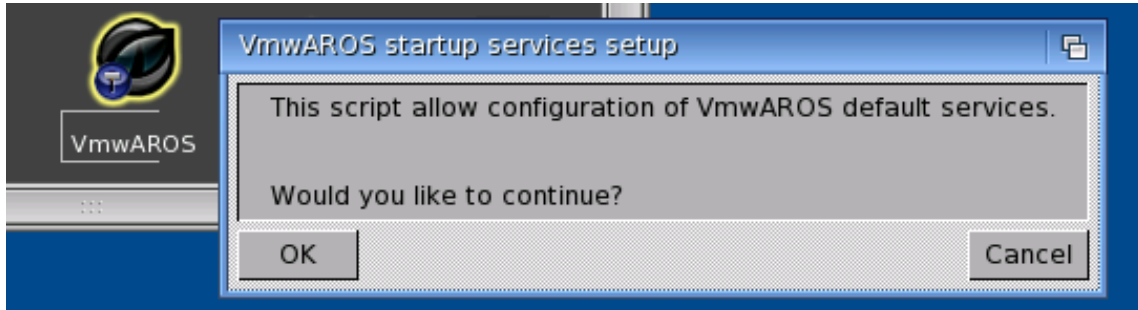
4.5.1 Enabling/disabling networking

The first question is about the whole networking support. VmwAROS comes with network up and running, but you can have reasons to disable it. For example, if your network card is not supported by AROS, you haven't any good motivation to keep networking running: you wouldn't use it anyway. Choose DISABLE to prevent AROSTCP from loading. Disabling networking will also turn off file sharing.

4.5.2 Enabling/disabling file sharing

There are many ways to transfer files from/to AROS. The best one is VmwAROS' embedded FTP server (**YAFS**), which runs automatically when network is enabled and DHCP is disabled. If you don't need it, however, you can turn it off. Turning on file sharing will enable networking too.

4.5.3 Enabling/disabling AmiStart

AmiStart is the nice dock/toolbar sitting on the bottom of the screen. It helps VmwAROS being a user-friendly operating system, since it is really fine for browsing files and executing applications. However, AmiStart seldom create glitches and little compatibility issues with other applications (for example, **DirectoryOpus** and **PoorPDF**), so maybe you'd like to disable it.

Users of VmwAROS using old hardware will prefer disabling AmiStart, since it needs memory to run, and can slowdown the AROS experience while opening its menus.

5. Transferring files from/to VmwAROS

In order to activate file sharing with the host operating system (VmwAROS) and/or the other computers among the network (VmwAROS Live!) you need AROS networking manually configured, with a **fixed IP address** and a **supported network card**. Please read chapter 4.2 for details.

> **Note for VmwAROS 0.1-0.6 users:**
> VmwAROS 0.7 and forthcoming new versions of VmwAROS won't have fixed IP address set as default any more, but will use DHCP instead. Please open **ConfigIP** and select Manual configuration. By saving all the files without editing them, you will get exactly the same default configuration of older VmwAROS releases.

Once the network has been setup with ConfigIP, a thin file server called YAFS will be launched at startup, when booting AROS, and will allow access to a particular directory called PUB: (and located in extras:pub/). You only need to configure a FTP client on any other computer connected to the network (or the host operating system for VMware users) and you're done. Please use these parameters:
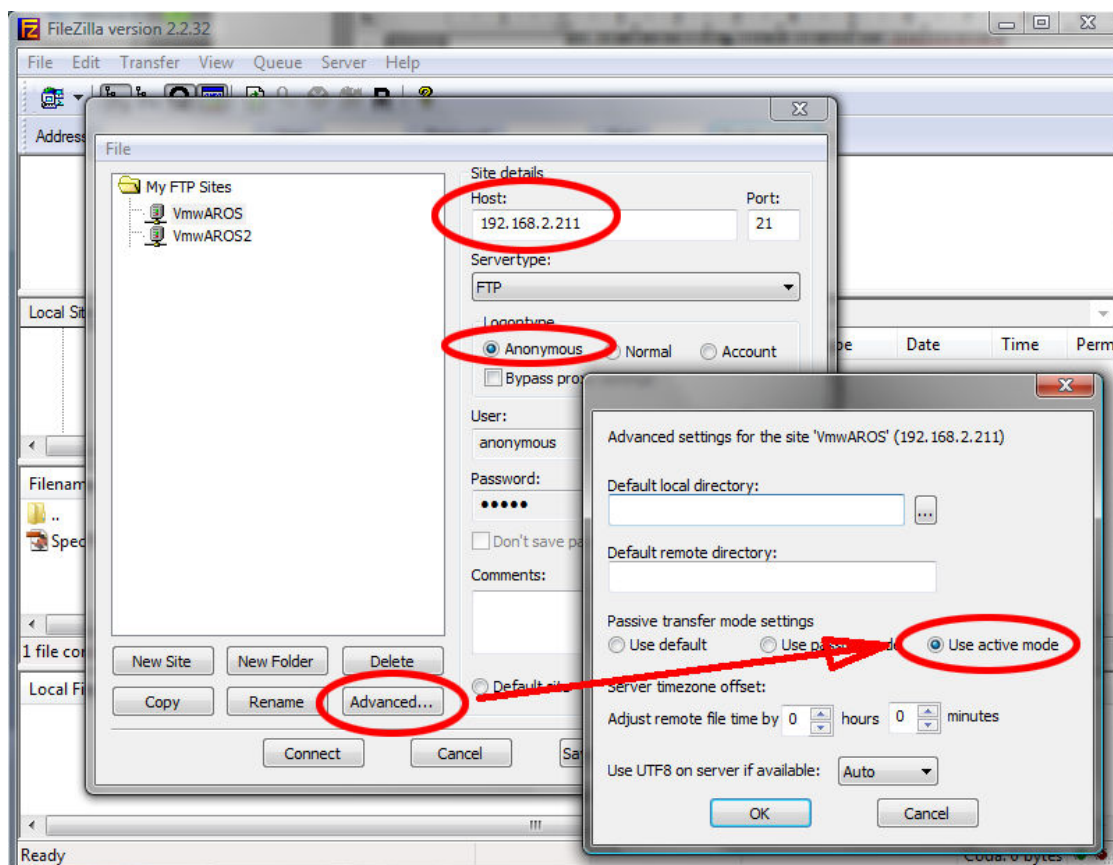
FTP site: *your AROS machine IP address*
**Login**: anonymous
Password: *write anything here*
FTP type: active

Please notice the last parameter. It's important you set the FTP site as active, or you won't be able to access your AROS machine. Most sites and ftp client use default passive mode. Here's an example configuration of FileZilla:

## 6. Keeping AROS system files updated (VmwAROS or Live! installed on HD)

You have not to wait for a new release of VmwAROS in order to have a more advanced AROS system. VmwAROS provides its own technology to keep system files up to date. Just download a fresh AROS nightly build from www.aros.org (you need the x86-PC-boot-ISO) and burn it onto a CD-RW media. Before updating VmwAROS system files, please be sure the new nightly is booting and behaving correctly. When you're ready, place the CD-ROM in your drive and launch **VmwUpdate** from the **VmwAROS > My Software > System menu** of AmiStart (or in the *Utilities* drawer of VmwAROS system partition).
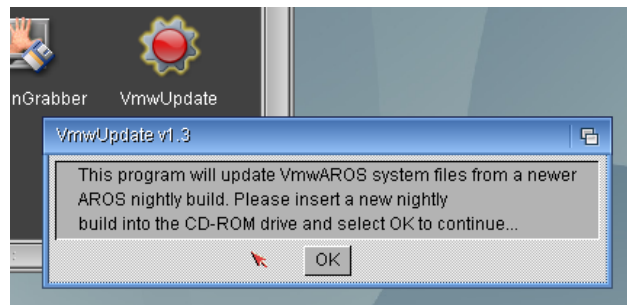
VmwUpdate window will appear. Click OK and Yes to proceed. Be aware that your existing AROS files will be overwritten. So, if you aren't sure, before updating make a backup of your important data or, if you're using a virtual machine, create a *snapshot* of your current state: it will help you reverting to the old situation if something goes wrong. VmwUpdate can be used to install older AROS version too. It will keep a copy of your current kernel files on the drive, and won't change your menu.lst boot settings.

6.1 The muimaster.library issue

Some programs on VmwAROS need a older version of this library to run correctly. Others, however, need the newer one. To complicate this, the older version is entitled ad 'version 41', while the newer as 'version 19'. VmwAROS provides a customized library which reports version 41 while keeping compatibility with newer v19. If you get compatibility problems with MarranoFTP and others, just open **SwitchMuiMaster** and select the version that fits your needs. Please select **Custom** for maximus compatibility, **v19(new)** for software development, and **v41(old)** if you have issues with a very old program you resumed somewhere.
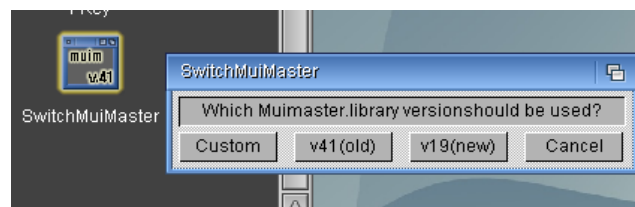

> **Note:**
> When first run, SwitchMuiMaster copies the current (whatever it is) muimaster.library in its directory, with the name '*newmaster*'. Please remember to delete this file after updating AROS files with VmwUpdate, or an old muimaster.library will be kept all the time! File is located in *sys:Tools/Commodities*.

6. Running AmigaOS® software inside VmwAROS

VmwAROS allows Amiga users to keep their habits. Or, at least, it gives basic support to old Amiga 68K applications using the **E-Uae emulator**. This technology is called **AmiBridge**.

6.1 What you need

AmiBridge needs original Amiga ROM images and a working installation of AmigaOS 2.0+. The best option to get them is buying Amiga Forever from Cloanto, www.amigaforever.com, which provides all the needed files. Due to AF popularity among Amiga users and former-users, AmiBridge offers direct support for it. Anyway, you'll find this drawer in Extras:AmiBridge:
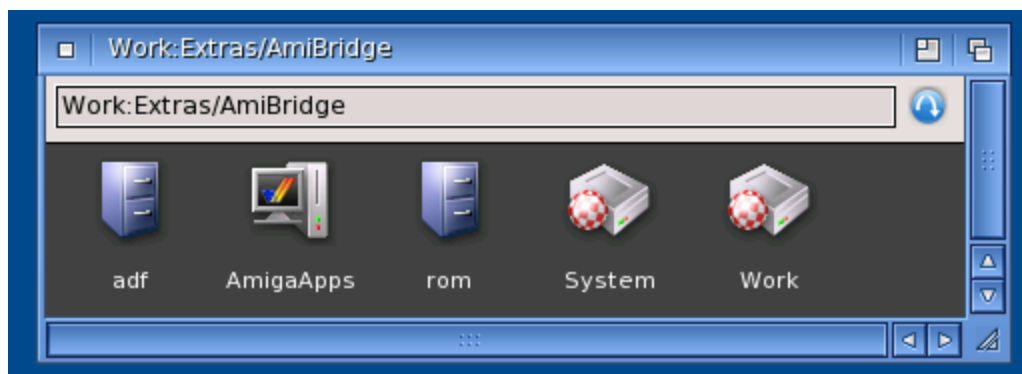
- AmigaOS system files must be copied in the System drawer (which has a disk icon with a boing ball over it)
- Application files must be copied in the Work drawer (with a similar icon)
- Amiga ROM images must be placed in the "rom" drawer.

If you're using Amiga Forever 2006, everything is far easier, since all needed files will be automatically copied from the AF CD-ROM in the right position. It is possible that older/newer releases of Amiga Forever behave differently. In this case, you only need to copy the right files in the right drawers manually. Don't forget to keep the "View" option in Wanderer set to "All files".

Look in the AmigaApp drawer and launch the ADD_PROGRAM icon. If you have Amiga Forever, mount its CD and press **AmigaForever**.
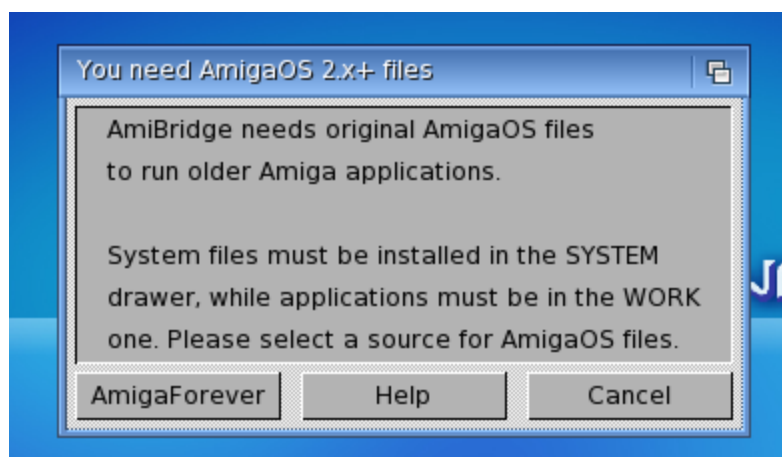
Once you'll have added system files, the Workbench icon will appear automatically. If it doesn't, please use Wanderer option to update window's contents. You'll get something like this:
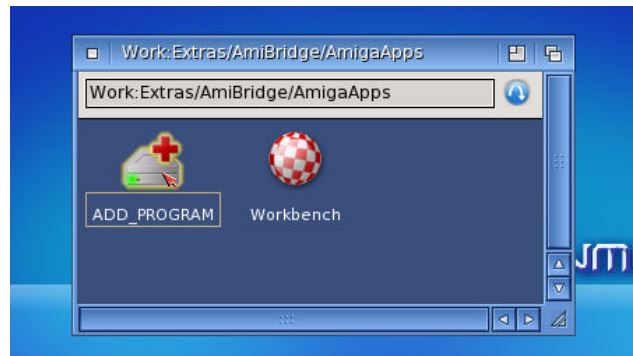
By clicking on the Workbench icon, you familiar Amiga Workbench screen will appear in a fixed-size 720x566 pixel E-Uae window.
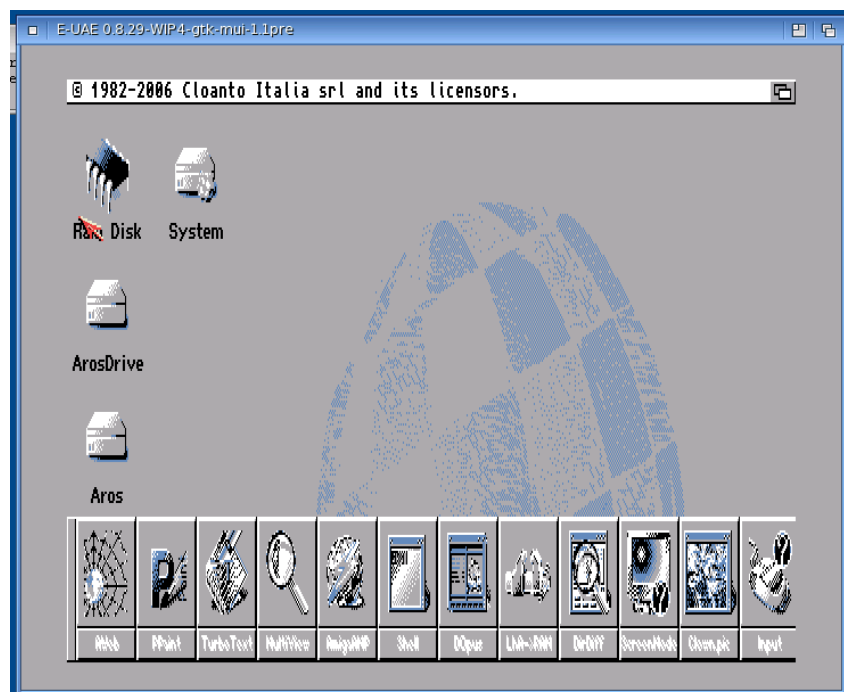
6.2 Configuring the AmigaOS environment

The Amiga Environment within AmiBridge is common to all your applications. So maybe you'd like to configure it as you like. We'd suggest, however, to choose these settings:

6.2.1 The AmigaOS side

Inside AmiBridge, you'll see four volumes mounted:

- **System**: is the AmigaOS operating system volume
- **Work**: is the AmigaOS applications volume
- **AROS**: is the AROS operating system volume, read-only
- **ArosDrive**: is the AROS extras: path

Except for the AROS one, you'll get read and write access to all other drives. So you can

load your AROS documents inside AmigaOS applications, and save your projects in any AROS drawer, allowing easy exchange of data. For security reasons, AROS system volume has been set read only. Clipboard is not shared, so you can't cut/copy/paste between AROS and AmigaOS applications. This may change in future.

> **Note:**
> **AmiBridge** is not a true *integration* of 68K code into AROS but, as the name itself indicates, a technology meant to build a bridge between the two worlds. It allow using an old application where a new AROS one hasn't been ported or created yet.

In order to gain a better Amiga environment, please open system:prefs drawer and launch **ScreenMode** and **OverScan** preference panels.
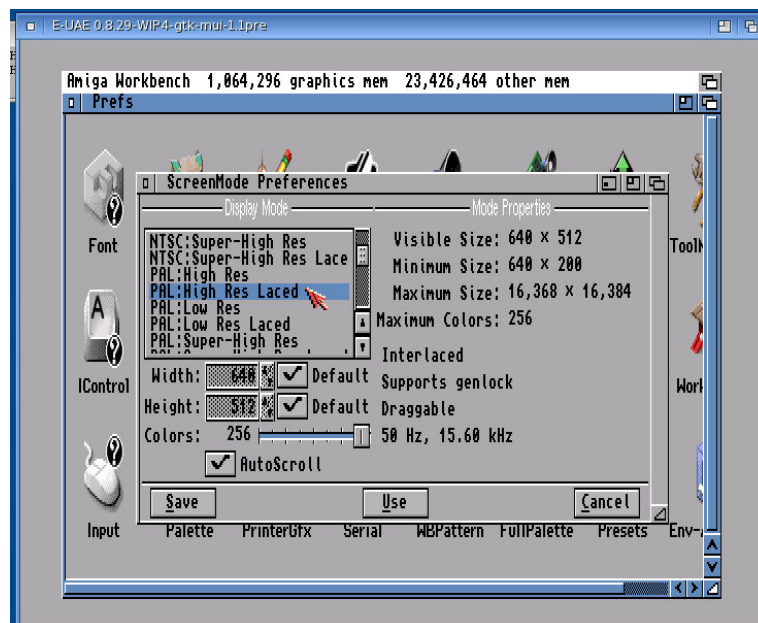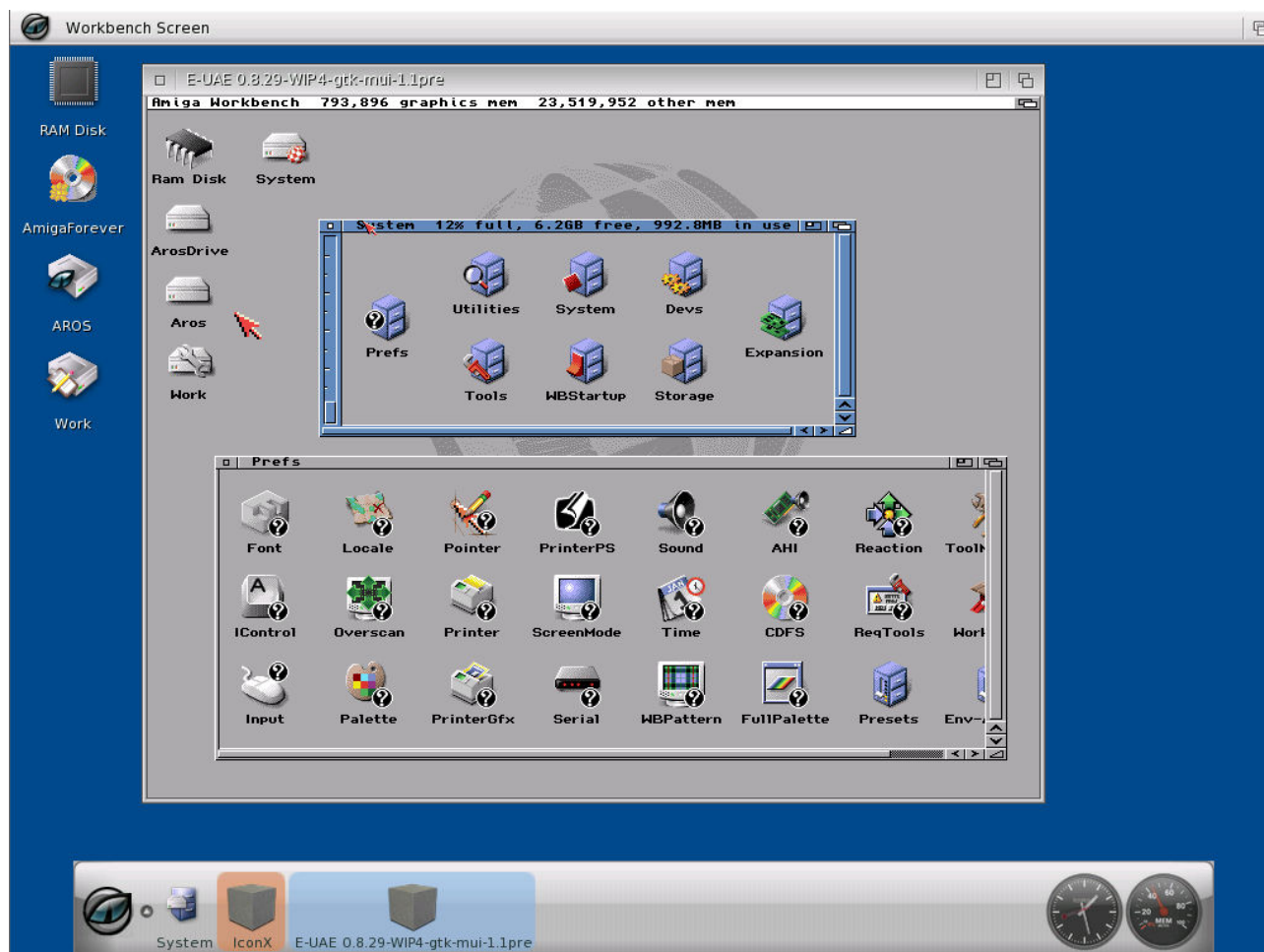

In ScreenMode, select "PAL: High Res Laced" and save.

In Overscan, set the maximum wide area for both text and graphics, then save.

You'd get the Amiga Workbench looking like the following image:

Note:
You can get better performance by using a *Picasso96* screenmode. To do so, just choose a **ueagfx** mode in **ScreenMode**. However, there are two drawbacks: **Picasso modes aren't always compatible with Amiga applications and turning back to a ECS/AGA mode might crash E-Uae and AROS too**. If you're using Amiga Forever 2006 with an **AmigaOS 3.X** installation, you can turn back to suggested modes using the two prefs files you can find in **extras:AmiBridge/backup**. This drawer keeps also a second security copy of AmigaOS' *s:startup-sequence* and *s:user-startup* files.
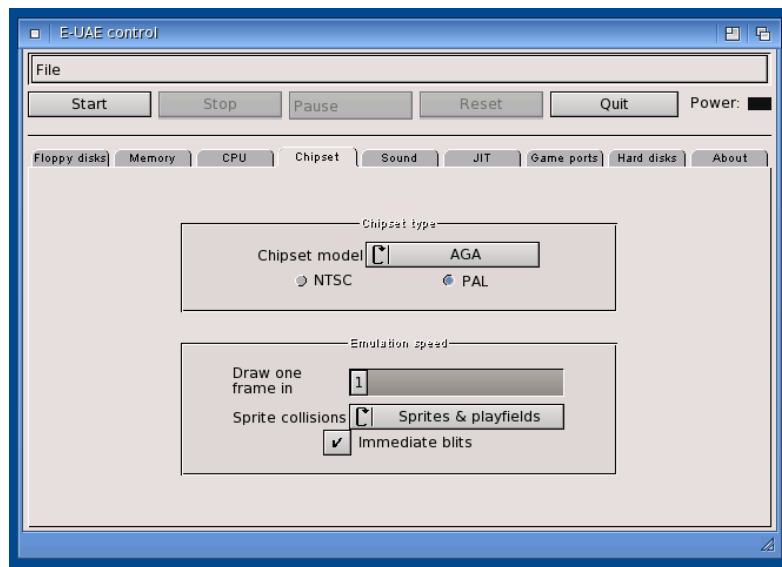
Note:
When using AmiBridge, you'll notice two pointers on the Amiga window. Unluckily, this is an issue of the emulator and may be fixed in future releases of E-Uae. For now, please remember that the one you should look in your Amiga application is the bigger AmigaOS one. In Picasso modes, the two pointers are extremely similar.

If you're not using Amiga Forever, you'll likely need to configure the emulator from AROS.

6.2.2 The AROS side

There's room for customization also in AROS. Just open the Prefs drawer and launch the AmiBridge icon. You'll start E-Uae with its own GUI, which allow customization of the

Amiga Environment. Here you can add or modify volumes, set better options for graphic and sound, and make any change to better fit your needs. Remember to save changes using the "File" option embedded in the application: unluckily, you won't use the global righ-click menu typical of Amiga and AROS software.
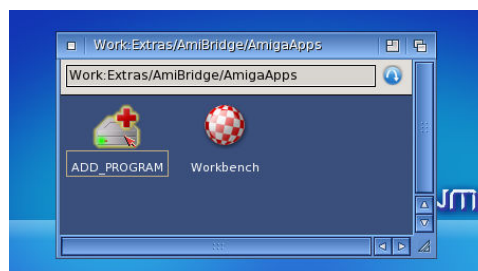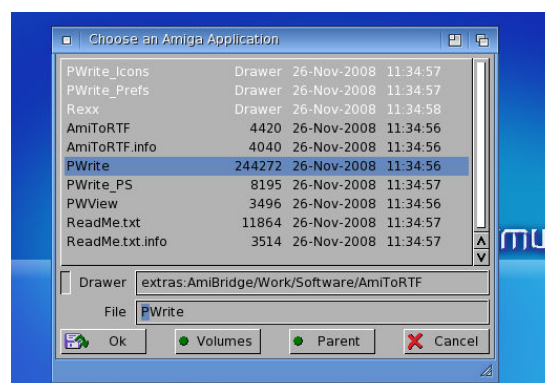

Note:
To close E-Uae GUI, **never use the close gadget on the top left corner**, because it will crash E-Uae and maybe AROS too. Use the **Quit** button on the right, instead.

6.3 Adding an application

From the AmigaApps drawer (or even using the same AmiStart menu in "my software") run ADD_PROGRAM:


A new file requester will appear. Just choose an application:

Remember that **to choose an application, you must select its executable file**, and NOT its icon. AmiBridge will place the default starting directory to extras:AmiBridge/Work, which is where all Amiga applications should be placed (here, and **nowhere else**). Choosing a file which is not in this path or which isn't a executable program might give unpredictable results (the most common is E-Uae crashing or running nothing).

AmiBridge will create a new startup script for that application in the AmigaApps directory. To run your Amiga app straight from AROS you won't have anything more to do, than launching its own script. In the next screenshot, you can see **Personal Write** running inside a VmwAROS window (sorry for the Italian words...):
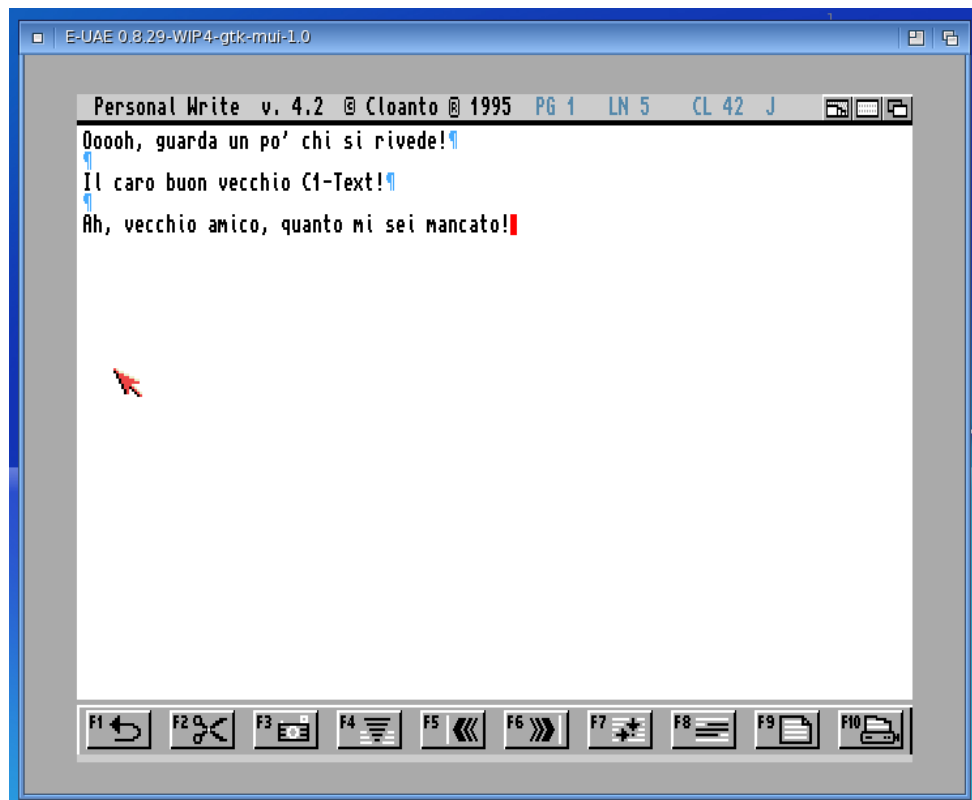
6.4 Advanced settings

There's more about **AmiBridge** you should know. Any time you add an applications, a new hidden drawer appears in the AmigaApps directory, named as **S_** followed by the *executable name*. For instance, a *Pwrite* script will have also a *S_Pwrite* drawer. You can *expose* it with Wanderer's *show -> all files* option in the *Window* menu.

Inside these *S_* drawers, you'll find the customized *startup-sequence* and *user-startup* used by AmiBridge to launch that application inside E-Uae. If you need to add ASSIGNs or other environment variables to run your app correctly, just edit these startup files with the AROS editor.

7. Applications you should know about

Ok, we have learnt how to use VmwAROS tools and functions. Now it's time to discover what you can actually DO with VmwAROS' collection of software. There are many many things you can do.

7.1 Browsing the web with Webkit Preview

WebkitPreview was meant to be a demo version of the upcoming web browser from Robert Norris, Traveller. Unluckily, the development of Traveller has been abandoned, but anyway this is the best browser you can actually find on AROS. Other options are Mosaic and the HTML datatype for MultiView, which support only the most basic functions of hypertexts. A port of NetSurf is on the works, though. WebkitPreview has many limitations: there's neither Java nor Javascript support, CSS compatibility is limited and no interaction with forms is possible. But it can be used to browse websites if mandatory. To use it correctly, launch it from AmiStart and insert the web address complete with http://.

7.2 Chat with AiRcOs and WookieChat

VmwAROS provides two IRC client. WookieChat is the most powerful one, with many customization options, colorful output window and support for most of mIRC and AmIRC features. There is a channel dedicated to AROS use and development on the freedone network. WookieChat is already configured to join this channel, all you have to do is choose a username.

## 7.3 Stay in touch with SimpleMail
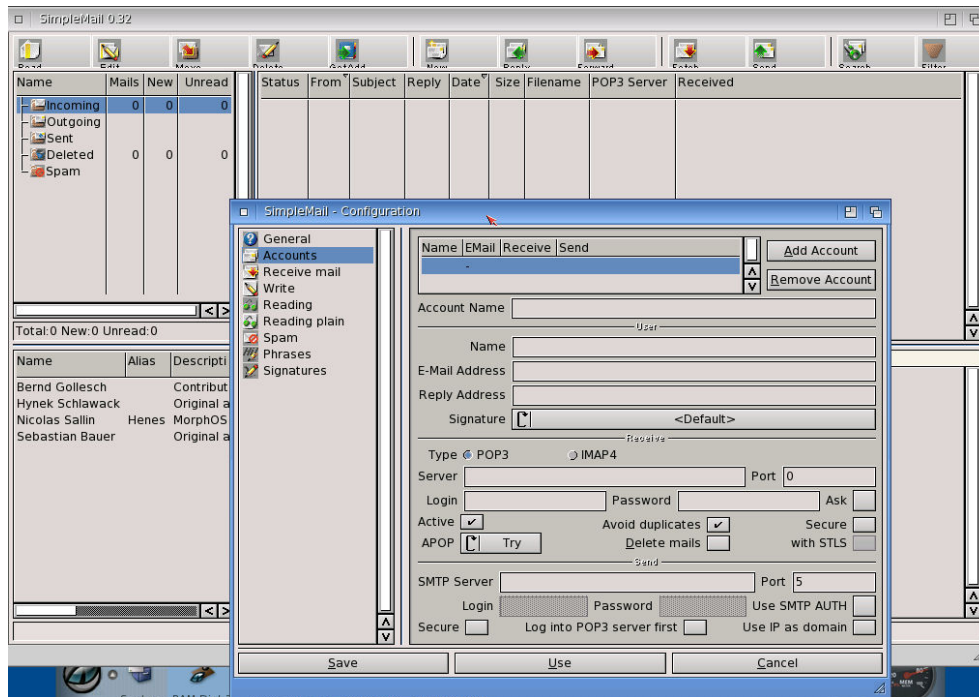
SimpleMail is VmwAROS' default mail client (and it is the most advanced one for AROS, too). It allows multiple accounts and offers most of the more up-to-date features of any mail client on other operating systems.

> **Note:**
> SimpleMail is still beta software, so please don't use it for your most important correspondence. For your safety, please use the option to keep a copy of messages on the server for some days.

7.4 Read your PDF files with PoorPDF
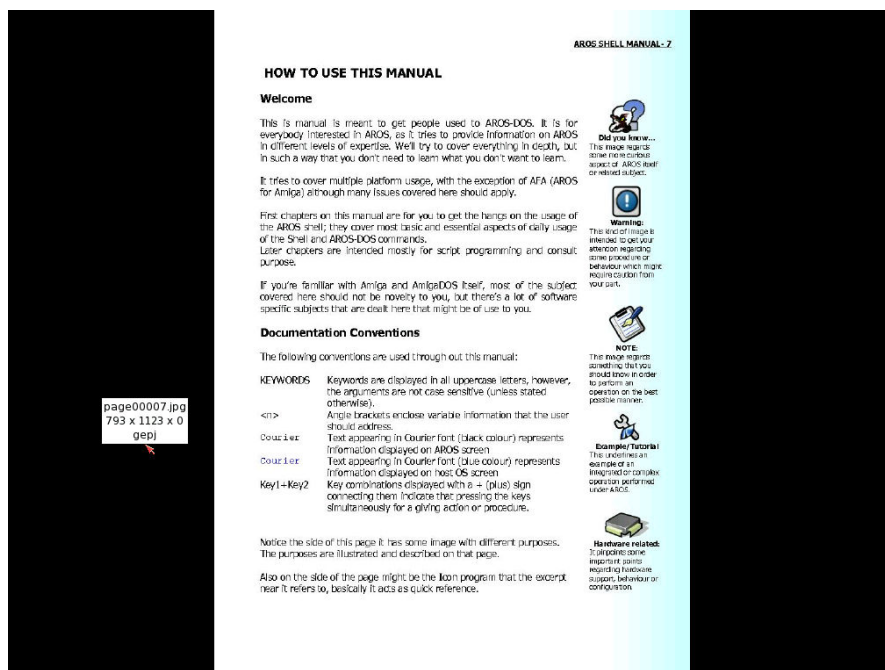
PoorPDF is VmwAROS' embedded PDF reader. Maybe it's not state of the art, but it allows reading most PDF files around in a easy way. It uses a port of GhostScript for render pages and PicShow to show them on the screen. PDF files can be opened both by double clicking on their icons, and by formerly runnung PoorPDF from AmiStart or Wanderer.

## 7.5 Play many SDL games and some great classics

The Commodore Amiga® had been a great gaming platform. WmwAROS offers a wide choice of games you can relax with: the shareware episodes of **Doom** and **Quake**, a big selection of SDL library-based games like **Blob Wars**, **X-Penguin** and others, the great *Revolution Software* classic adventure **Beneath a Steel Sky** and many, many others. And, if it is not enough, VmwAROS also provides emulators for all 8-bit Commodore computers, for the Sony PlayStation™ and other exciting gaming platforms of the gold age.
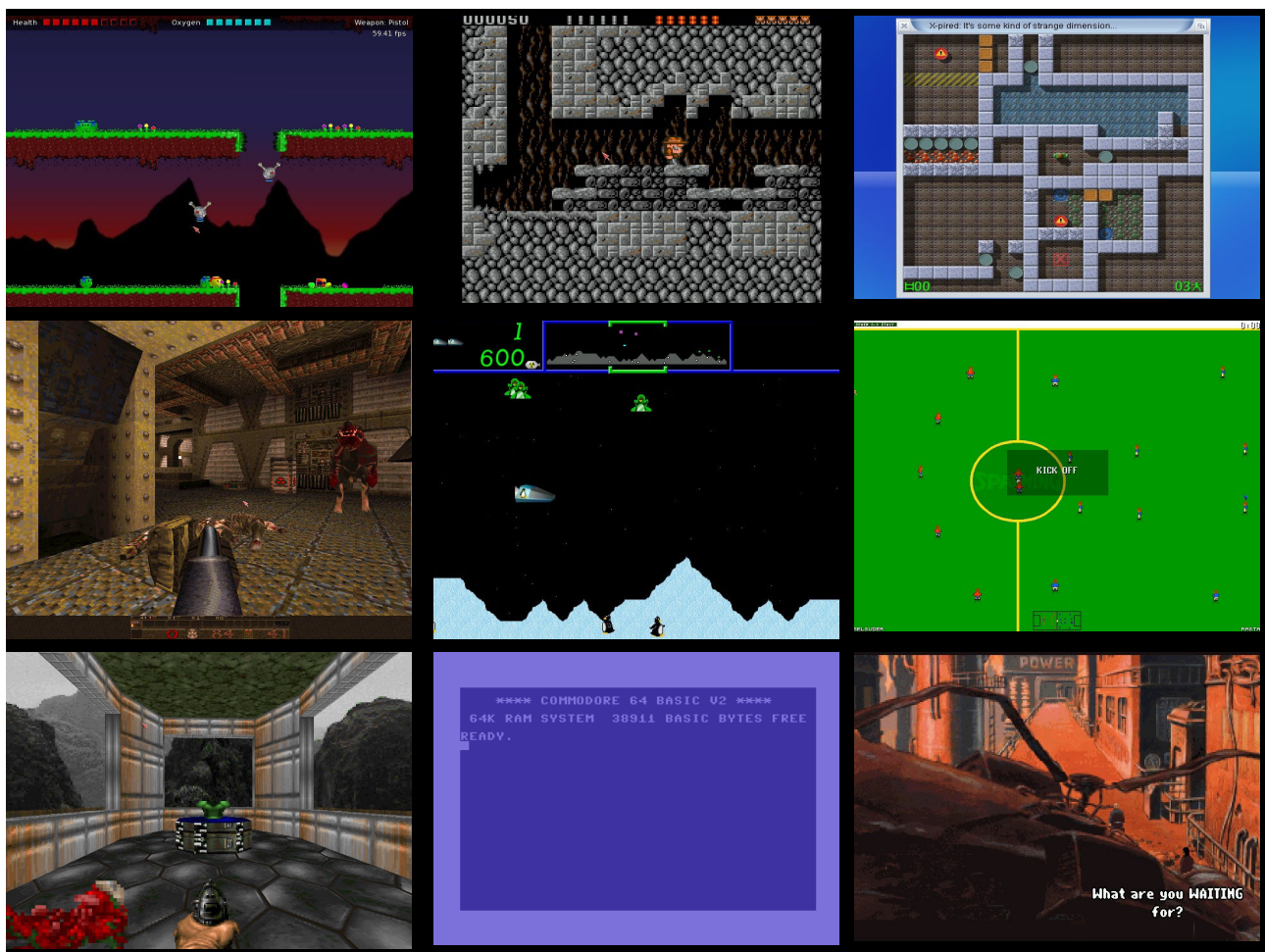
If you have problems running games and emulators with the ATI or Nvidia driver, please boot VmwAROS in VESA mode, with a 32 bit palette.

7.6 Paint your pictures with LunaPaint

LunaPaint has probably been the first real AROS-based application. It's a paint and photo-editing software using layers and nowadays features, with a simple menu and tool-based graphic interface. Load and edit your images or create a new one from scratch: LunaPaint will help your creativity in a funny way.
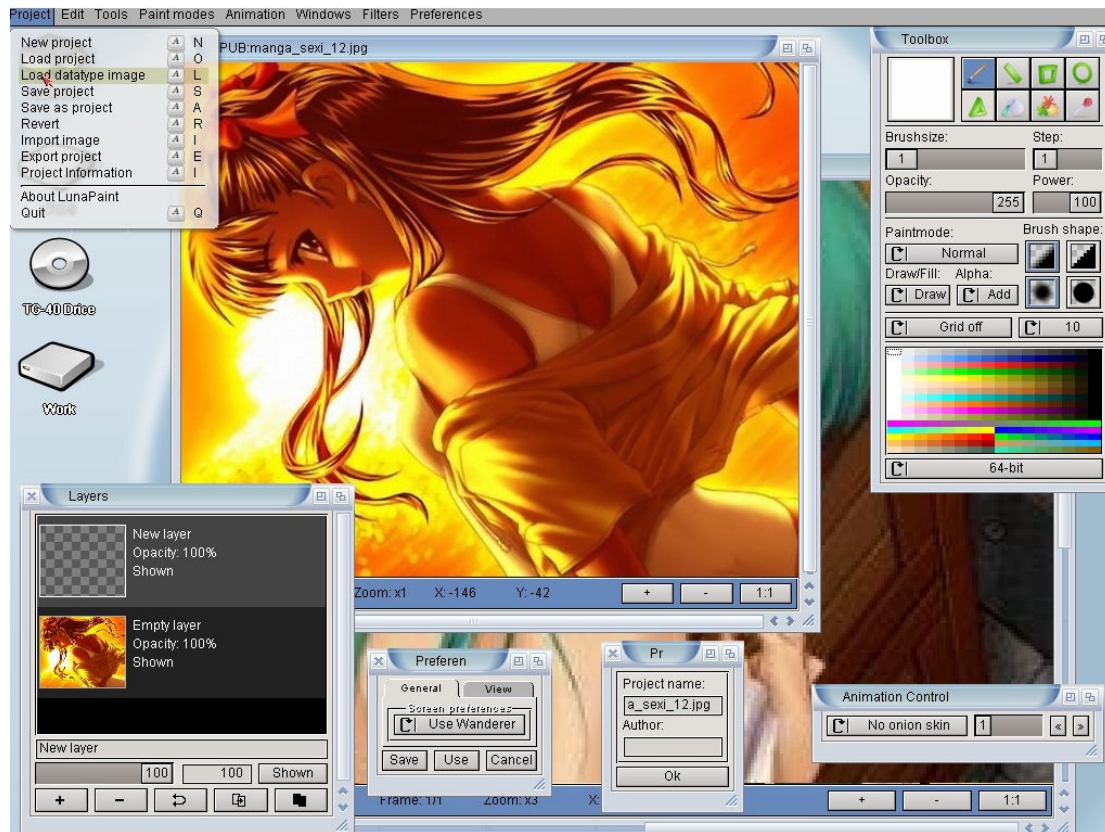
7.7 Develop your applications with GCC and Murks! IDE

VmwAROS provides a full development chain based on gcc version 4.4.2 which includes all needed tools to build AROS itself and its applications. Murks!IDE is a graphic integrated development environment which should speed up your work. Along with gcc, you can find also languages (python, perl, lua, PortablE, false, bwbasic), libraries (SDL, mesa, libidl, etc) and many, many examples.
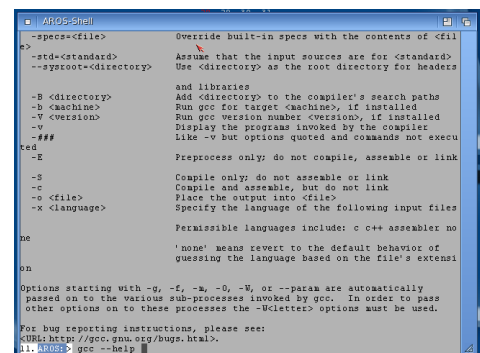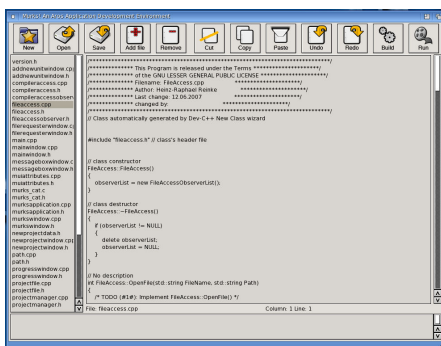
7.8 And many, many more

Just click and discover! And don't forget this is only the beginning...