TOTAL AMIGA

Issue 17, Winter 2003/4

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Features

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Reviews

PhotoFolio 2.4
StarAm Plan
ArakAttack
AmigaArena CD

Tutorials

Mac: Reloaded
Image Enhancement
C Programming

AmigaOS 4: Hands On

We get to try a development version of the OS everyone's been waiting for!
Plus: News of an OS 4 pre-release for AmigaOne owners.

For Amigans, By Amigans, On Amigas!

TOTAL AMIGA
Issue 17
Spring 2004

Contents

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Editorial

Welcome to another issue of Total Amiga. It's been a while since we've been this late with an edition so my apologies for keeping you waiting. Several other tasks were competing for my time during the production of this issue which meant I just couldn't spare the amount of time each week I normally do. These included pressures at work and also completing work for an English A-Level I'm taking at evening classes.

The other reason for the delay was that before Christmas, Mick Sutton, several other SEAL members and myself attended several OS 4 demonstrations with Mick's AmigaOne running OS 4. We were in the happy position of giving the first ever such demo in the UK on the 9th of November. You can find some short reports and pictures from the various events on the SEAL website: http://www.seal-amiga.co.uk.

Having a development version of OS 4 on his AmigaOne has allowed Mick to write a very interesting feature on the new OS which you can find on page 12 of this issue. Also of interest to current and potential Amiga One owners is the news that a pre-release CD version of the new OS will soon be available (see the news item over the page). As I write this Mick has just received a test version of the CD which is very impressive, especially the simple installation procedure, so hopefully many more people will be enjoying OS 4 soon.

It's been a quiet few months for software releases so we've taken the opportunity to catch up with a few existing programs that have never been reviewed in Total Amiga. Sometimes programs really surprise you and that was definitely the case with StarAm Plan which I review on page 26. At first it seemed rather simple and quirky. However as I used it more I found it surprisingly powerful... find out what it can do in my review. Another excellent product we hadn't covered is PhotoFolio, a powerful picture cataloguer. If you got a digital camera for Christmas this is the review to read first!

I think many Amithlon owners will be pleased to read about ArakAttack (reviewed on page 22), this strangely named driver enables you to use the USB ports on your PC within the emulation. Another piece of good news is that the Poseidon USB stack (used by ArakAttack) can now be registered again and IOSpirit have a good value bundle in their on-line shop (see the news section for details).

To complete this issue we've got a solid set of tutorials for you to get your teeth into. Dave Pitcher is back with the second part of his "C" programming tutorial and Michael Carrillo has some suggestions for software to run on your Mac Emulator. In my Image processing tutorial you can learn how to re-touch images using the "clone" tool and a bit about image sharpening.

Before I go, I'm sure you'll notice that Eyetech's normal advertising is missing this issue. There is nothing sinister about this, they are just so busy that they could not prepare a new advert in time to meet even our delayed deadline and, unfortunately, the existing adverts were too out of date to run again.

I hope you enjoy the issue and we'll try to make the next one more timely!

Robert Williams

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About Total Amiga

Total Amiga is published quarterly by South Essex Amiga Link.

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Only Amiga Software Made it Possible

Total Amiga is designed and laid out using:

Hardware:
Home built x86 PC
AMD Athlon XP 2500+
nVidia gForce 2 MX400
512Mb RAM, 40Gb HDD.

Software:
Amithlon by Bernie Meyer et. al.
Amiga OS 3.9 by Amiga
PageStream 4.1 by Softlogik
ImageFX 4.5 by Nova Design
Perfect Paint 2.93
by Georges Halvadjian
Photogenics 5 by Paul Nolan
Final Writer 5 by Softwood
Ghostscript 8.00 from artofcode LLC ported to AmigaOS by Whoosh777.

There are also some essential utilities we couldn't live without: Directory Opus 5, SGrab, MCP, Turbo Print 7, MakeCD.

Our thanks to the creators of this and all the other great Amiga software out there.

Total Amiga is entirely created using Amiga software, no other platforms are used at any stage of the design or layout process.

Fonts

The body text of Total Amiga is set in Triumvirate Normal as supplied with PageStream, the heading typeface is Forgotten Futurist by Ray Larabie. Take a look at Ray's huge range of freeware fonts at http://www.larabiefonts.com and his commercial foundry at http://www.typodermic.com.

Legalese

Amiga OS 4.0 to be Pre-released

As you'll have read in this magazine and elsewhere, AmigaOS 4 on the AmigaOne is progressing well and has now been in active use by developers and testers for several months. As this news spread, and OS 4 was demonstrated in many parts of the world lots of AmigaOne owners posted to mailing lists and web forums saying they would like to try a version on their machines even if it wasn't the final release.

At the end of November, in an interview with AmigaWorld.net, Alan Redhouse revealed that a pre-release version of OS 4 will be made available to early bird customers before the final release. This was confirmed by Hyperion in an announcement posted to their website on Christmas day! Since the announcement we have heard that the OS 4 development team is working hard in getting the OS ready for the pre-release. This includes completing developments, fixing bugs and working on a slick installation procedure and documentation. Take a look at Mick Sutton's OS 4 Hands on Feature in this issue to get a feel for what the OS 4 pre-release will be like, however bear in mind that the version that is supplied with have many enhancements in reliability, speed and features over the version Mick looked at. The pre-release will also include development material such as source code, an initial version of the OS 4 SDK (software developer kit) and native compilers to allow programmers with an AmigaOne to start developing for the new OS.

We understand that OS 4 pre-release will be supplied to each AmigaOne early bird owner on CD. Installation will require an update to the AmigaOne's U-Boot BIOS, which, on most boards, is achieved by booting from a CD and issuing a simple command. A few very early AmigaOnes have their BIOS flash-ROM locked and will need to be sent to a dealer for reprogramming. With the BIOS updated the machine can then be booted from the OS4 CD-ROM which leads you through a guided installation process including partitioning your hard disk with the new Media Toolbox utility if required.

The pre-release CD distribution is currently being tested and is expected to be available soon, perhaps even by the time you read this. If we hear that the CD is ready before this issue is posted we will include an update sheet.

For more information on AmigaOS 4 visit the Amiga website: http://os.amiga.com

The official announcement from Hyperion is available on: http://www.hyperion-entertainment.com

Early Bird AmigaOne owners will soon have the pleasure of booting Amiga OS 4.0 on their systems for the first time!

News

Bytes...

Shinier GoldEd

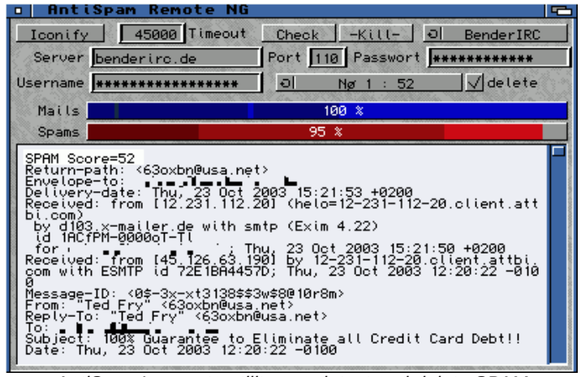
Dietmar Eilert has released a slew of updates for his comprehensive text editor package, GoldEd Studio AIX. MorphOS is now fully supported, this means that GoldEd runs properly on the platform and the MorphOS developer material has been integrated into the C/C++ module. The C/C++ module was then further upgraded to fix bugs in the gcc/ndk installation. GoldEd's WebWorld HTML publishing module has been enhanced to include the latest version of Tidy which checks your HTML code for errors and good style. These updates are available free for registered owners, the complete GoldEd Studio package costs 69.90Euro (about £50).

If you don't own GoldEd or have an older version two new demo versions are available, a "small" trial (4Mb) contains the editor and extensions but lacks the full C/C++ mode. The "full" trial weighs in at 84Mb but includes all the C/C++ functionality including compilers giving a complete integrated development environment. The demos are fully functional but limited to small documents, however Dietmar mentions that they may well be enough to handle web pages and the like. Download from:
http://golded.dietmar-eilert.de

Can That SPAM!

AntiSPAM is a spam (unsolicited commercial e-mail, often characterised by adverts for pornography and Viagra) blocking tool which uses a central database on an Internet server to collect mails that have been marked as SPAM by all its users. The program runs in the background and is supplied with a number of scripts to integrate it with the popular e-mailer, YAM. At start-up a fresh SPAM database is downloaded and any mail received is checked against it, if a message is identified as SPAM it is removed from the incoming folder. If any SPAM messages get through you can select them and run the "AddSpammer.rexx" script from a menu item to add this mail to the database that will assist all of AnitSPAM's users.

Also included in the package is AntiSPAM Remote, this tool will scan the e-mails waiting to be downloaded from your ISP's POP3 server and identify any SPAMs. All the mails that have been identified as SPAM are listed and marked for deletion. You can then check through the mails and choose to keep any that have been incorrectly identified. When you're happy AntiSPAM will delete the SPAMs in one go before you have to download them.



AntiSpam's remote utility can detect and delete SPAM messages before you download them.

AntiSPAM is freeware and can be downloaded from its website which also has more information and detailed installation instructions:
http://benderirc.de/antispam.html

Amithlon Movin' On

With all the legal wranglings, work on updates for Amithlon, the x86 Amiga emulator, from the original author stopped some time ago. While Amithlon itself works well one problem is that PC hardware is moving all the time and it is getting increasingly difficult to find compatible components, in particular motherboards and graphics cards. However Amithlon is based on an open source Linux kernel and this is the part that contains most of the hardware support. Gary Colville has been working for some time on Amithlon kernel updates and asked for donations on the Amithlon mailing list to enable him to purchase examples of the type of hardware users wanted to see supported. This work has lead to a new kernel version with new features and hardware support:

- Hardware-accelerated GeForce 4 Ti driver with full resolution and refresh-rate control.
- Non-accelerated GeForce 4 MX driver with full resolution and refresh-rate support.
- IDE DMA/UDMA now functions on recent VIA and nVidia nForce 2 chipsets.

Gary has also released new Linux drivers for various motherboard features which update those found in the last Amithlon updates package:

- A wide range of AC-97 audio codecs including the ALC650, AD1890 and VIA VT1616.
- Audio support functions in the Intel ICH4, VIA 8235/8237 and nVidia MCP south bridge chips.
- Broadcom 44xx 100MBit LAN chips.
- NVidia nForce2 integrated LAN.

The updated kernel is available as a free download from Gary's website at:
http://dialspace.dial.pipex.com/town/pipexdsl/s/asbf72/amithlon/

AmithlonUpdate

If you have Amithlon and have never managed to figure out how to install the updates available for the system then there is a treat in store for you! Guido Mersmann (who wrote the ArakAttack USB driver reviewed in this issue) has packaged all the updates together with a neat installer script which will update a system installed from the Amithlon CD to the latest version. The only manual installation step is to copy the new kernel onto your boot drive.

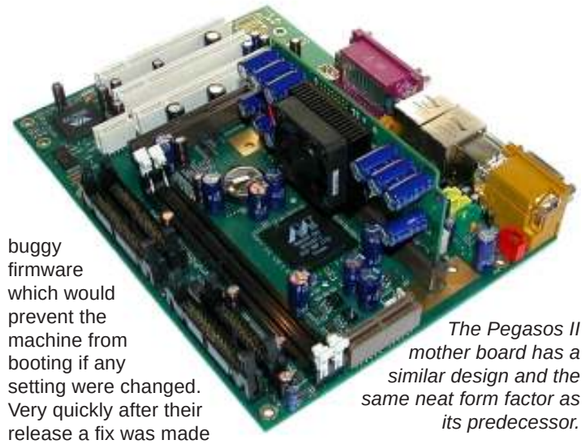
Amithlon Update can be found on Aminet in:
misc/emu/AmithlonUpdate.lha

Pegasos II Touches Down

The first batch of Pegasos II motherboards were shipped to users just before Christmas. This new version of Genesi's PowerPC motherboard is based on the Marvell Discovery II system controller which endows it with support for faster DDR-266MHz memory and an additional 1Gb/s Ethernet port (not currently supported under MorphOS). Apart from those changes the Pegasos II is very similar to the Pegasos I with features including:

- Processor card slot with either a 600MHz G3 or 1000MHz G4 PowerPC processor
- Micro ATX form factor (236mm x 172mm)
- 1 AGP slot
- 3 PCI Slots
- 3 USB 1.1 ports
- 2 Firewire ports
- 10/100Mb/s Ethernet port (in addition to the Gb port mentioned above)
- AC97 built-in sound with microphone and line inputs, and line and S/PDIF outputs.
- Standard ports including mouse, keyboard, parallel and serial.

The initial batch of Pegasos II board were supplied with buggy firmware which would prevent the machine from booting if any setting were changed. Very quickly after their release a fix was made available, but this should be applied before any firmware settings are made, if you buy a Pegasos II be sure to check the following web page for details:
http://www.bplan-gmbh.de/update_e.html



The Pegasos II mother board has a similar design and the same neat form factor as its predecessor.

Each Pegasos II is supplied with a copy of MorphOS 1.4 which has had the necessary changes made to run on the updated board. MorphOS is a new PowerPC operating system that can run Amiga 68k programs under JIT emulation and also supports WarpUp and PowerUp PPC programs.

Native PPC MorphOS programs are also available. For more details please take a look at Sam Byford's reviews of the Pegasos I and MorphOS in issues 15 and 16.

The recommended price for a Pegasos II board with a 1000MHz G4 processor is 499Euro (about £400 including VAT) and the 600MHz G3 model costs 299Euro (about £250 including VAT). For more details on the Pegasos, MorphOS, a list of dealers and an on-line shop visit Genesi's Pegasos website:
http://www.pegasosppc.com/

Learn With eTeacher

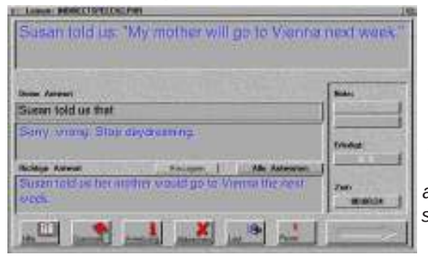
eTeacher is a multimedia training CD-ROM designed to help you learn a language, versions for English and German are available. The program features exercises which are accompanied with images and recorded speech so you can learn how words and phrases should be pronounced. Several types of exercise are included which focus on vocabulary, grammar and sentence structure. The level of difficulty can be adjusted so the program will grow with you as you learn. It has been designed to be simple to use and is suitable for both children and adults.

Version 6.2 has just been released and features:

- More than 200 exercises.
- 3 Hours of audio.
- 1000 Images.
- Context sensitive grammar assistance.

Modern Amiga systems with graphics cards and sound cards are supported and, of course, a CD-ROM is required. However eTeacher will also run on a more basic system, the minimum requirements being AmigaOS 2.0, a 68020 processor and 4Mb of RAM.

eTeacher is available from FunTimeWorld's on-line shop, the English and German versions are available separately at 29.89Euro (£20 approx.) each or as a bundle for 50Euro (£34):
http://www.funtime-world.de/



eTeacher has a simple interface suitable for all ages, the teacher sounds a bit strict though!

Bytes...

Amiga PoV

Amiga Point of View is a new magazine concentrating on classic Amiga games, it is available as a free download in PDF format. It includes game reviews, articles on aspects of Amiga gaming, walk-throughs, hints and tips, and many other features. The first issue was released just before Christmas and looks excellent with a really nice design and lots of interesting articles including:

- 9 reviews including Sensible Golf, Eye of the Beholder and Balance of Power.
- A feature on Team 17.
- How comics inspired Amiga games.
- Help on completing Quest for Glory, Zak McKracken and Switchblade.

This magazine looks excellent to me and if you are interested in classic games it's well worth the 19.5Mb download from:
http://apov.abime.net/

IOUpdates

Minor updates have been released for IOSpirit's whole family of graphics products for AmigaOS, MorphOS and Amithlon. VHIStudio 6.01 now supports MorphOS GUI skins and has a speed increase on that platform. The update also includes "support for new drivers" and bug fixes. fxScan 4.05 also works with MOS skins and now supports loading and saving images in the PNG format, remembers the file save format last used and has bug-fixes. In fxPaint 2.02 the fxAlbum utility has been updated with improved performance, a more intuitive delete function, support for wheel mice and the ability to ignore icon files. There are also several general bug-fixes in this update.

These three updates are free to owners of the VHIStudio 6, fxScan 4 and fxPaint 2 respectively, if you have registered your purchase you can log-in and download your update from the IOSpirit website:
http://www.iospirit.com

STFax Set Free

Simone Tellini has released STFax 4 as freeware. STFax can send and receive faxes using a fax-modem and also has the facility to run an interactive telephone system complete with menus and voice mail. STFax is a powerful program and was highly rated when it was released.

Download comm/misc/STFax4.lha from Aminet and then update to 4.1: biz/patch/STFax41Upd.lha.

Web Bytes...

www.amigaflame.com

AmigaFlame is one of the longest standing continuously updated Amiga websites that I can remember, it's forte is Amiga games. A regularly updated news section carries all the game related news and also other major Amiga related stories. Separate lists are available of games in development for classic Amigas and for the AmigaOne once OS4 is released. These lists are bang up-to-date including recent announcements such as Gorky 17. The site includes a history of games released for the Amiga from 1993 to 2002 and a separate list of recently released commercial games (which sadly only contains CrossFire II). There are pages of game reviews and cheats which haven't been added to recently but still contain useful information. The site is completed with a selection of Amiga links and a listing of Amiga game developers.

Considering the slow pace of the Amiga game market in recent years with very few titles released it's quite a surprise to find such an up-to-date site. Perhaps with the release of new hardware and OS 4 we'll see some more action and new releases.

Gorky17 for OS4

Hyperion have announced that they are working on porting Gorky17 to AmigaOS 4 in addition to a Linux version which is already under way. Interestingly the Amiga version is being developed by the Linux developers who have recently been "converted" to the Amiga and thus is not taking development time from AmigaOS 4 itself!

Gorky 17 is described as having a mix of strategy and RPG game play. The player commands a small team of NATO soldiers who are investigating the appearance of mutant creatures in a small Polish city. This story gives the game a Sci-Fi/horror theme with many sub quests to perform and secret areas to uncover.

The first screen-shots of the OS 4 version have been released and it has been demonstrated at some of the AmigaOS 4 On Tour events. A release date has not been announced but it seems reasonable to expect it soon after the full OS 4.0 is available.

Read the full announcement on the Hyperion website at: http://www.hyperion-entertainment.com/_amiga/news_031225.html

Gorky17 running in a window on OS4.

Classic Painting for OS4 and MOS

In separate announcements Cloanto has confirmed that Personal Paint 7.1 will be available for both MorphOS and AmigaOS 4. Personal Paint is a classic palette based paint program in the mould of Deluxe Paint which has always been ideal for tasks such as icon design and game graphics.

Under the agreement with Genesi, Cloanto will share the Personal Paint source code so Genesi can assist with the port. When complete Personal Paint will be bundled with MorphOS. In a similar agreement the sourcecode will be made available to Amiga Inc. so they can develop a PowerPC native OS 4 version. The updated version will be available as a free download from both Amiga and Cloanto.

Cloanto also announced that they are in talks with Amiga Inc. about a new OS 4 native version of Amiga Forever with the aim of allowing classic Amiga hardware dependent programs to run seamlessly on the AmigaOne hardware under OS 4.

Read the full announcements on the Cloanto site at: http://www.cloanto.com

Nova's Updates

Nova Design have made a new release of their image processor called ImageFX 4.5 Studio. This release includes full MorphOS compatibility and the PowerStation package which was previously an optional extra. PowerStation provides PPC native versions of many processor intensive ImageFX effects (listed below), the modules are compatible with Amiga PPC accelerators (they use the PowerUp system) and MorphOS:

- Liquid
- Fire
- Clouds
- Bubble
- JPEG loader and saver
- Gaussian Blur
- Lightning
- FXForge

ImageFX Studio costs $129.95 (£70 approx.), upgrades are available at $39.95 (£22) from 4.x, $59.95 (£32) from 3.x and $79.95 from 2.x. Pegasos owners with the SuperBundle can upgrade to the full version for $99.95 (£54).

Aladdin 4D, Nova's 3D animation package has also been given a new release, this time on CD-ROM. While the core program has not been upgraded you do get everything you need on the CD including all the available updates such as advanced 3D object loading which enables you to use objects distributed in other formats. Also included are a complete set of "Aladdin's Lamp" news letters in HTML format along with their accompanying demo and sample projects.

Aladdin 4D costs $99.95 (£54) and users of 5.x can upgrade to the latest release for $29.95 (£16).

For more details and to order either of these products visit the Nova Design website which now has a handy on-line shop: http://www.novadesign.com

DVD Writing Comes to Amiga

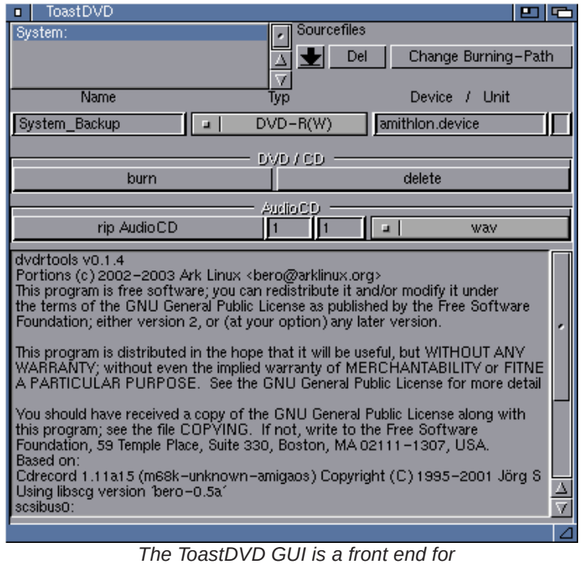
DVD writers have dropped dramatically in price over the last few months with the cheapest units now available at around £50 so it's great to see that the first piece of DVD writing software has just been made available. This is a port by "Schlonz" of the Linux package dvdrtools which consists of the following applications:

readcd - This utility reads data from a CD or DVD sector by sector into a track image file on your hard disk.
dvdrecord - The most important part of the package, this burns CDs and DVDs from an existing track image file.
mkisofs - Creates image files for data CDs from files on your system, you would use this to prepare a data disk to be written with dvdrecord. Both the ISO9660 format for CDs and UDF for DVDs are supported.
cdda2wav - Rips audio from CD tracks and saves them in standard audio file formats including the popular WAV.

All these utilities are command line driven and therefore have to be run from a shell, some non-amiga-specific documentation is available along with some notes on the ports website which should be enough to get you going. If you're not a shell person then you'll be pleased to hear that a simple GUI front end for this package has been written by Carsten Siegner and is also available from the port's website.

DVDRTools supports writing to CD-R, CD-RW, DVD-R and DVD-RW but does not support the DVD+ formats or DVD-RAM. The author states that most MMC compliant DVD drives should work which would include most modern DVD writers, he has successfully tested it with a 4X Toshiba DVD-R drive but reports that a LG 4020B 2X device did not work. I tried with an NEC ND-1300A 4X drive and while dvdrecord wrote CD-Rs successfully attempting to write a DVD-R disc produced an error message. So if you plan to give this a go be careful with your choice of drive.

Download the latest version of the port from: http://kuddelone.gmxhome.de/dvdrtools/dvdrtools-e.html



The ToastDVD GUI is a front end for dvdrtool's commandline programs.

ProTracker Comeback

A follow on to the classic Amiga family of sound tracker programs (SoundTracker, NoiseTracker, ProTracker) is currently in development. Protracker II is a completely new program which brings the classic tracker interface to modern hardware. Some of the features planned for the new version include:

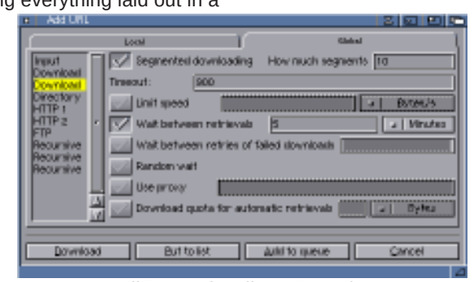
- Familiar keyboard short cuts and GUI layout.
- AHI Support.
- 32bit Internal mixing
- High quality 8-tap FIR resampling.
- Load: MOD, MOD2, DBM, XM, IT, S3M, MED and MT2.
- Save: MOD, MOD2, XM.
- 64 Tracks, 256 Patterns.
- Separate volume, panning, and effects on each track.

Protracker II is currently in development for MorphOS and Windows and versions for AmigaOS 4 and AROS are being considered. The estimated release date is March 2004. For more information visit the program's website at: http://www.kiritsu.com/protracker/

Get What You Want

WallGet is a graphical interface for the GNU wget utility which allows you to download files or even whole websites from a command line. The GUI gives you comfortable access to all wget's features and enables you to queue up files to be downloaded, the maximum number of files to be downloaded at one time can be set. Wget is a powerful program and this is reflected in WallGet's extensive range of download options, however having everything laid out in a GUI makes it easier to understand than trying to work out the command line options. Downloads can be initiated by calling an AREXX command and an example script is provided so WallGet can be integrated with your browser.

WallGet has a MUI interface and is available in versions for AmigaOS and MorphOS. Download the latest version from: http://www.ppa.ltd.pl/software/software-wgetgui_eng.html



WallGet packs all wget's options into a MUI interface.

Poseidon Update & Registrations

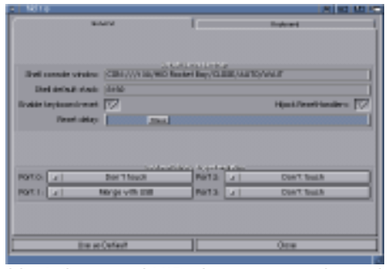
Once again we can report that Chris Hodges has been hard at work on his Poseidon USB stack and has released a new version. The major changes in this version are to the HID (human interface device) class which now supports joypads mapping them to the lowlevel.library so they will work with many modern games. Features such as analogue sticks and hat switches are also supported. Other HID improvements include support for feature items such as keyboard lights (caps lock etc.) and game controller rumble packs, and improved keyboard mapping. There have also been many other improvements and bug fixes, a few that stood out for me are that memory card readers built into Epson printers are now supported, some problems with certain Olympus digital cameras have been worked around and "PsdDevLister" now outputs a Google search string so you can look for information on a particular device (I had to mention that a I always smile a Poseidon's quirky features)!

Version 2.2 also marks the reopening of the Poseidon registration process so buyers of Elbox's Spider USB 2.0 card and Guido Mersmann's ArakAttack Amithlon/OpenPCI USB driver can register Poseidon and use their USB peripherals without the stack timing out. Poseidon can be registered by sending 25Euro (£18 approx.) to the author in cash or via a bank transfer.

If you would prefer to register using your credit card, IOSpirit are selling Poseidon in a package called MedusaUSB for 34.99Euro (£25). In addition to the USB stack Medusa includes a registered version of ArakAttack and full versions of IOUSB Scanner and IOUSB Digicam. The IOUSB products allow certain USB scanners and digital cameras to be used with fxScan and VHIStudio respectively. Medusa can be ordered through the IOSpirit on-line shop and is then released for immediate download from the website, keyfiles for Poseidon and ArakAttack are then supplied by the programs' authors.

Download the latest version of Poseidon from:
http://www.platon42.de/poseidon.html

For details of the Medusa USB package visit:
http://www.iospirit.de/medusa/



Poseidon's improved HID class supports joypads and changes to the default keyboard mapping using this window.

Plug-in to HD-Rec

A new beta demo version of Thilo Köhler's MIDI/audio sequencer has been released that includes many of the features of the final product.

HDRec handles MIDI and Audio tracks in the same time line window enabling you to combine the two. MIDI tracks can be played via external MIDI hardware or using the internal soft synth where effects can be applied. An integrated audio mixer with 16 stereo channels is included and high quality effects can be added to each channel. The 0.9 archive contains:

- Audio effects such as reverb, delay, chorus, EQ, etc.
- Sweeper softsynth plug-in with General MIDI instruments.
- XR-49 virtual master keyboard plug-in.
- AMixer pop-up plug-in.
- Demo songs.

The final product will be shareware, to download version 0.9 and get more information and screen-shots visit:
http://www.hd-rec.de/

HD-Rec's attractive GadTools based interface showing some of the new plug-ins.

Web Bytes...

maconamiga.amigaworld.net

Inspired by feedback from his Mac: Reloaded column in Total Amiga issue 15, Michael Carrillo has set up a website dedicated to Mac emulation on classic Amigas. The first section of the site deals with setting up your Amiga to run the emulation including information on what hardware you need and the emulators that are available. Then come detailed pages on setting up the two most popular emulators, ShapeShifter and Fusion, these take you through the process step-by-step complete with plenty of screen-shots. There is also an FAQ covering Fusion.

Having helped you get your emulator up and running, the site moves on to setting up your Mac hard drive, and installing MacOS. Again both topics are covered in detail with screen shots. Finally there is a list of a few essential Mac programs and an FAQ answering common MacOS problems.

In addition to all this solid information you'll also find links to useful sites, a gallery of screen-shots and forums where you can ask your own questions and discuss your emulation experiences with other users.

This is a very handy site that brings together all the information you need to get started in Mac emulation.

Fleecy Speaks

Amiga Inc's CTO sums up 2003 and looks forward to 2004.

Happy New Year to all Total Amiga readers from everyone at Amiga Inc.

2003 started with a whimper - no evidence of AmigaOS4.0, AmigaOnes but only running Linux and hope running thin in the community. The warmth of summer brought our platform bursting into life. AmigaOS4.0 Workbench demonstrated running on a CSPPC A4000. Leaks from beta testers about all the new systems and components that had been released to them. AmigaOS4.0 demonstrated on an AmigaOne at the Pianeta Amiga show in Italy. The AmigaOS4.0 roadshow organised by dealers and user groups that covered Europe and then spread to Australia and North America. Over a thousand Amigans now having seen the future of the Amiga with their own eyes and even played with it - AmigaOS4.0 on the AmigaOne.

At the heart of much of this work are the hours of effort put in by the community, from the AmigaOS4.0 developers to the AmigaOne dealers to the beta testers. Mick Sutton is one such community member - writer for Total Amiga, User Group stalwart, AmigaOne purchaser and now working with Amiga Inc to demonstrate the new platform at shows and user groups.

Although not privy to the latest versions (as he says, he needs the most stable system to show off, not the latest), he has been doing an awesome job, demonstrating exactly why the Amiga community is unique. As a treat for Total Amiga readers, Robert and he approached us and asked if they could do a preview and we obviously agreed. This issue this presents what is probably a world exclusive, the first preview of AmigaOS4.0 running on an AmigaOne.

So what about 2004? This WILL be the year that Amiga rises from the ashes after so many false starts and promises. Even as I type this, the AmigaOS4.0 beta tester CD is being given its final polish. This will be distributed first to the closed beta test list and then, when all that feedback has been taken and the product revised, the public AmigaOS4.0 beta distribution will be created. We hope to provide this to all AmigaOne owners. The beauty of this CD is that you just pop it into the AmigaOne and a few minutes later, you have AmigaOS4.0 on your new Amiga. (And about time too shout all the AmigaOne owners who have lost hair whilst playing with PPC Linux).

At the same time, the marketing effort for the AmigaOS4.0 launch will be started. New websites and a new name, the Amiga Power Platform (APP) will be unveiled to the world. The user groups and dealers will be pulled into a more formal global structure, so that we can all work together with the necessary resources to get the good news about the rebirth of the Amiga platform out to as many people as possible.

Unfortunately we still don't have a final release date for you. Such a date ultimately becomes self defeating because such a thing is highly unpredictable. The progress being made is obvious and for many Amigans this itself is enough. People can read about it or attend a local user group and see the latest builds for themselves.

We will only announce the release date when we have actual shippable product in front of us - CD, Manuals in a box (for the CSPPC version) or shrink-wrapped (for the AmigaONE OEM version). The upside of this is that you won't have long to wait between the announcement and the product being released.

The last decade in the world of Amiga has been a nightmare. Plain and simple. Bad luck. Lack of resources. Mistakes. Invaders. All have conspired to throttle our platform. In the end, history will show that it was the community that saved it - the Hyperions, the Eyetechs, the magazines, the user groups, the dealers and the users. Far from having been destroyed, the community is now sharper, tighter and more united than ever, and playing an integral role in the future.

In the heart tingling words of Marc Almond and Dave Ball - "Say Hello, Wave Goodbye".

Buzz Word...

Bringing you the latest comments and rumours from around the Amiga world.

Hello! Well it has been a while since your snooping agent was here, this was necessary to avoid being exposed. I have to keep my true identity under wraps.

Jim Collas. A lot was made of this story last time round, turns out my source was misinformed, don't worry though, he tells me he enjoys hospital food and the he will be out by Easter.

Amiga may have finally found an investor with loads of cash and it's a well known name apparently, rumours about this has been around for a long time though, so take this with a large pinch of salt.

Should this latest titbit prove correct, it looks likely that Bill McEwen Will be moving within Amiga to concentrate on Sales and Marketing. The favourite front runner for the position of CEO is none other than the Legendary Garry Hare as the man to come in and take charge at the helm.

Thendic vs Amiga Inc. Court Case

It looks like Mr. Bill Buck has pre-empted a Judge's decision and put up his own version of the final judgement prematurely on a Pegasos website. I don't think judges are very happy for petitioners to make their minds up for them in advance. This could mean that the Judge in charge of this case won't be looking too kindly on Mr. Buck now, it may push the judgement towards Amiga's favour.

Eyetech and Hyperion are busy preparing the final push to the AmigaOS Beta pre-release. Expect this to be out soon, with the final full release out before Issue 18 of Total Amiga Magazine hits your letter box.

Genesi, appear to be cutting back their Amiga community involvement on popular Amiga sites such as ANN.lu and Amiga.org, both webmasters of the afore mentioned sites no longer seem to be working for Genesi. The distancing of Genesi from the Amiga community goes further than one can imagine, a Genesi employee recently posted on a public forum that, Alan Redhouse would be having a bad hair day at AmiGBG whilst being worshipped by Fat Amiga Geeks. Charming.

Amigaworld.net

They say that imitation is the sincerest form of flattery, well just after announcing that they are not interested in the Amiga and its community, a few sites have appeared with the Amigaworld name, for example, Amigaworld.de which is a German language site. AmigaWorld.de is aimed at the Pegasos Machines, whilst not an official Genesi website, it is interesting that the links to the Amiga Market remain. Nothing like riding on the back of another name is there?

Where have we seen that before?

That's it for this issue, more interesting titbits, in Issue 18.

AmigaOS 4 On Tour & UK Demo Reports

With a number of AmigaOS 4 On Tour show happening across Europe in the middle of 2003, many UK users were feeling left out with no AmigaOS 4 demonstration near them. Because none of the UK user groups (who have organised shows in the past) had an OS 4 beta-tester as a member setting up a UK demo had been a problem, but not any more! Mick Sutton, SEAL's Chairman, got his Amiga One-XE G4 in July and when OS 4 running on the new PPC hardware was announced we finally had the prerequisites to demonstrate the new OS. With some excellent help from Fleecy Moss and OS 4 developers and testers Mick was able to get the OS up and running on his machine (read more about his experiences in the OS 4 Hands On feature in this issue).

ANT - 9/11/2003

We wanted to get the first demonstration off the ground quickly so, rather than organising an Amiga OS 4 On Tour event, we decided to start with demos at local usergroup meetings. The first meeting in the calendar was Amiga North Thames who meet in Enfield, North London.

Mick Sutton and SEAL members Robert Williams, Elliott Bird and Dave Kennedy turned up early to set things up, this went quickly as Mick had already had a trial run. At this event Mick had his AmigaOne loading the OS4 kernel image from a laptop PC via TFTP over an Ethernet connection. A terminal emulator on the PC was also used to display debug output from the AmigaOne's serial port. Once the kernel image was loaded at the beginning of the boot process the AmigaOne was able to run stand-alone, loading the operating system files from its hard disk.

Mick explained the state of OS4 as it was installed on his AmigaOne; he emphasised that it was an alpha development version meaning that bugs do exist and some software could crash it. When the AmigaOne had booted, the initial OS 4 screen looked much like any Amiga Workbench but with a subtle gradient on the title bar and a new-look AmiDock with semi-transparent background along the bottom of the screen.

Mick started by opening some Workbench windows to show the new look of the window borders, gadgets are in the classic AmigaOS layout but have a new look and the window borders are filled with attractive subtle gradients. The whole look is lighter and more modern than the OS3.x colour scheme. Opening Workbench windows, even those with many icons such as Prefs, seemed pretty fast and responsive. Another innovation is the antialiased font support that is implemented in such a way that most existing applications also get antialiased text in their interfaces. The new features of AmiDock were shown next including pop-up sub-docks and active "dockies" such as a clock icon that shows the time.

Robert Williams then took over to show OS 4's RoadShow TCP/IP stack and how some particularly disgusting colour effects could be achieved with the new GUI preferences (which controls the look of Reaction programs and Intuition). RoadShow is loaded on start-up when a network interface has been configured so there is no need for the user to start the stack. Mick has been able to connect his AmigaOne to the Internet via a broadband router using the 3com Ethernet controller built into the AmigaOne motherboard.

Various classic Amiga programs were then demonstrated running under 68K emulation including: Photogenics 5, Final Writer 5, Amiga Writer, PhotoAlbum, SnoopDos, IBrowse and SimpleMail. SimpleMail and IBrowse showed MUI applications working under OS 4, Mick also demonstrated the version of MUI included which is release 3.9.

With the applications demoed it was time to have some fun with an OS 4 PPC native version of Quake I. The game was launched from the command line and loaded quickly. Running in 640x480 with software rendering it looked very impressive: fast and smooth. A later test with the timedemo command showed that over 30FPS was being achieved.

It was great to see OS 4 demonstrated in the UK for the first time and most of the visitors seemed impressed.

SEAL - 11/11/2003

A few days after the ANT event was the next SEAL meeting so, of course, Mick took the opportunity to show off OS 4 to our members on their own "turf". Since the ANT meeting Mick had been able to setup his AmigaOne to boot from an OS 4 kernel image located on his hard disk so he could do without the Windows laptop that had been required for network boot. Otherwise the demo was similar to the ANT meeting although a couple of extra Amiga applications were demonstrated, BlackIRC and Soliton.

The line-up: three out of at least eight AmigaOnes being demonstrated at AmigaOS 4 On Tour South West.

Micromart Computer Fair - 30/11/2003

Mick Sutton and Robert Williams travelled up to Birmingham to attend the MicroMart Computer Fair, a show organised by MicroMart, a weekly UK magazine which features an "Amiga Mart" column by Sven Harvey.

The show took place on a Sunday, so bright and early they made their way to the National Exhibition Centre and got to the large hall where the show is held. SEAL exhibited on a table within the Eyetech/Stellar Dreams stand. Stellar Dreams is Sven Harvey's company and they are taking over the role of distributing AmigaOne systems in the UK.

On the SEAL table Mick set up his AmigaOne-XE G4 system running the development version of AmigaOS 4 which had been updated since the earlier demos. Also in attendance were Alan Redhouse from Eyetech, Fleecy Moss of Amiga Inc. and Carl Moppett (AKA JurassicCamper), another AmigaOS 4 tester who brought along his AmigaOne.

Eyetech had two MicroAmigaOne (MiniITX sized, 170mm square) motherboards displayed on their table. One was mounted inside a DVD player case to show the flexibility of the small form factor, and the other was up and running with Yellow Dog Linux. Among the applications demonstrated were Mac-on-Linux and a Windows desktop via a remote desktop connection to a PC.

The Stellar Dreams stand was crowded for most of the show. Visitors included dedicated Amigans who wanted to see OS 4, former Amiga users and a few punters interested to see something different.

AmigaOS 4 On Tour South West - 13/12/2003

This event, organised by the South West Amiga Group, was the first official UK AmigaOS 4 On Tour. It was held just outside Bath. SEAL members Mick Sutton, Robert Williams, Dave Kennedy and Elliott Bird travelled to the event with Mick's AmigaOne and copies of Total Amiga in tow.

At this show there were more AmigaOnes running OS 4 in one place than ever before (probably), I counted at least five machines up and running plus another three or four running Linux. Despite the "competition" Mick was able to woo the crowds with Quake 2 running with Warp3D on OS 4 for the first time. Although only the demos could be run reliably at this early stage, the game ran very smoothly with sound and looked great.

Eyetech, Fleecy Moss and Stellar Dreams attended the show to give an official presence. Eyetech has a similar display to the MicroMart show so more people could see the MicroAmigaOne in the flesh. Stellar Dreams had AmigaOne board and complete systems on sale at special show prices.

Fleecy Moss opened the show with a few encouraging word and towards the end of the event Alan Redhouse gave a presentation on the current status of the A1 and OS 4.

Altogether this was a good little show with plenty to see and do, it was great to see so many OS 4 systems in one place.

Report by Robert Williams

Amiga OS 4

Hands On

Mick "Lucky" Sutton has been running OS 4 on his AmigaOne-XE since November. In this feature he gives us his thought on the early version he's tried. Check out the back cover for colour screenshots.

I am in the fortunate position of having an early development version of Amiga OS4 on my AmigaOne. My role within the "team" has been to demonstrate the OS at several events around the UK. In this article I'm going to try to convey the features and more importantly the "feel" of using the new OS in print for those that were unable to attend, and of course update you with the developments I know of.

Early Days for Me!

The version of OS4 I have on my AmigaOne is by no means the latest development release, new and updated modules are being released on a daily basis but my machine needs to be in a stable state for demonstration purposes. Once all these modules have been tested by their developers and the small group of alpha testers, then a beta version will be released for wider testing, we understand that this should have happened by the time you read this. With this in mind the preview we are writing here is based on the alpha status OS I have installed on my machine, and any problems I mention are either being resolved or could have been fixed already.

Looks Like, Feels Like and is AmigaOS

Anyone familiar with Amiga OS3.0 and above will feel at home with OS4 from the very second they start using it! The windows have the familiar arrangement of gadgets and the directory structure of the system partition remains the same. The title bar at the top of the screen, the RAM disk and partition icons and Amidock are all there too. But, look a little closer and you will see subtle changes and improvements. The title bar has a 3D gradient, a boing ball at the left hand end and a message reads "Copyright (C) 1985-2003 Amiga, Inc. and Hyperion

The default look of OS4 is instantly familiar but has a fresh modern feel. Notice the pop-up "Multimedia" subdock and apologies for the AHI icon!

Entertainment All Rights Reserved", how long have we waited to see those words? The icons look very similar to the icons included with Amiga OS 3.9, however, the text under the icons (and in fact throughout OS4) is antialiased and Truetype fonts (as used on Windows and MacOS) are natively supported. Amidock also looks much slicker, you will notice that the background is semi transparent, there are separator bars to organise the dock into sections and you will discover there are icons that pop up sub-docks with further icons. Amidock has lots of improved functionality and many more options that we will cover later. In addition to these visual changes many parts of the OS have been ported to PPC, elements have been improved and new features have been added. Some enhancements are obvious straight away, you will find others as you explore the new OS and some are hidden deep under the bonnet but will be very helpful to developers.

The aim of the OS4 project is to have all parts of the OS running natively on the PowerPC processor, OS4 also includes built in 68k emulation which enables the current Amiga OS software to run and also those parts of the OS that haven't been ported. Currently I only have the interpreted emulator in my version of OS4, in the final release a JIT emulator (Petunia) will be included which will have much better performance. So what's the difference between these two methods of emulation? Interpreted emulation translates the instructions that make up a program from 68k to PPC code each and every time they are needed. JIT emulation "remembers" sequences of recently translated instructions so repetitive code can be emulated much more efficiently. Because most programs contain routines that are executed many times a JIT emulator offers much better performance, it's hard to say exactly what the speed improvement will be, but we expect a minimum increase of five times with some applications vastly improved over that.

I copied many 68k applications and a couple of games from my "classic" Amiga to my AmigaOne so I could try them with OS4. I was pleased to find that almost all of them ran "straight out of the box" with no problems, see boxout for a list of the applications I tried. The few applications that cause problems with my version of OS4 are Pagestream 4.x (has apparently been fixed), TV Paint and IBrowse 2.3 (works fine but causes problems on exit but this too is now sorted). 68881/68882 FPU instructions are not currently emulated by the interpreted emulator. As a result any program using FPU instructions will crash. I experienced this when trying to run image filters within Art Effect. A temporary solution is to install a non FPU version, if the program has one, but of course FPU emulation will be added for the final version. Since I have had an OS4 kernel upgrade many applications are more stable and general performance has increased. At the time of writing a further five kernel upgrades have been released to developers solving many of the problems I have noted above. From what I've seen I am confident that the release version of OS4 will have excellent compatibility with "classic" Amiga software. With my experience of 68k processors on the classic Amiga I estimate that the interpreted emulation achieves speeds similar to that of current classic 060 systems (a very useable speed), although this does vary between applications. I should reiterate that the JIT emulator will radically improve performance.

Even applications running under emulation use resources from the OS such as windows, menus and requesters, with OS4 these resources have been improved. Window borders are now filled with subtle colour gradients which give them a modern OS look. Menus get a make-over with a coloured background and a 3D look, the corners are rounded and they can pop-up under the pointer. Requesters have also been giver the fresh OS look. All programs that use OS gadgets or Reaction for their interface will get the make-over treatment, making them look much more modern. At the current stage of development (on my machine) opening and moving windows, and interacting with GUI's already feels very responsive and in most cases faster than my 060/BVision "classic" Amiga.

Drivers to Date

In my opinion a huge advantage of an AmigaOne is the fact that it uses generic PCI and AGP expansion cards. These cards whether they be graphics cards, sound cards or other types are widely available at reasonable costs compared to Amiga specific hardware (which is produced in low quantities). At this stage of development only a limited number of drivers are available for specific cards and motherboard features.

The 3DFX Voodoo 3 graphics card is supported in 2D using the Picasso 96 driver and in 3D via OS4 native Warp3D. The 3DFX driver should also work on Voodoo 4 and 5 cards with 3D support and on 3DFX Banshee cards in 2D only. Picasso 96 and parts of the graphics system are currently running under 68k emulation, but graphics performance is already very smooth and usable (faster than my A1200 with 060 and Bvision). Support for the popular ATI Radeon series of graphics chips will be included in the developer pre-release using a Picasso 96 driver from Forefront Technologies. In the final release the SNAP 2D graphics system will be integrated providing support for hundreds of graphics chipsets including ATI Radeon and nVidia gForce series. Hopefully 3D support can be implemented when the 2D drivers are available.

> "OS4 will make all of us who use Amigas very happy bunnies indeed"

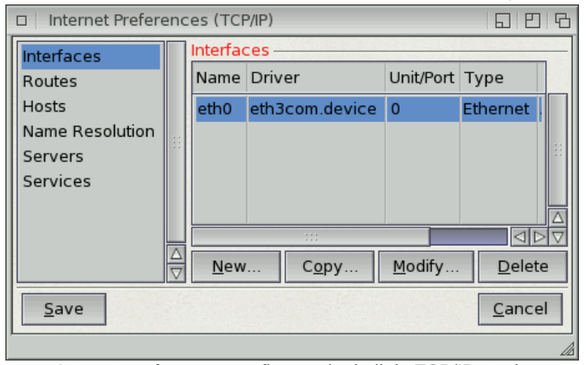
On the sound front, cards are supported by an OS4 native version of AHI, drivers are available for SoundBlaster Live!, Audigy, Audigy2 and Terratec 512i soundcards and many more cards will be supported in the near future. For those of you who have been used to the "Classic" Amiga's built in sound, could well be surprised by the difference in sound quality made by 16 bit soundcards, for example I found in Quake the sound was more realistic and immersive!

Compared to modern PC's and Macs the "classic" Amigas have slow PIO mode 0 IDE interfaces that achieve no more than 2 Mb/s. The AmigaOne motherboard has 2 UDMA 100 IDE channels which offer a theoretical maximum transfer rate of 100 Mb/s and use DMA (Direct Memory Access) to reduce CPU load during transfers. DMA capable drivers for OS4 are currently being tested and will be included in the final release. OS4 includes a new CD filesystem that also supports DVD discs. If you have a CD writer with Mount Rainier support then software is included to use a CD-RW like a hard disk for quick and easy back-ups.

Amiga OS4 supports the AmigaOne motherboard's 3Com 10/100 MB/s Ethernet controller with a standard SANA II driver which works with the new Roadshow TCP/IP stack (more on that later). Drivers for the motherboard's USB ports are not currently released, but the USB stack has been developed. Three USB control programs (to control the stack), a preferences program and USBInspector to view attached devices are included in readiness.

Roadshow

Until the release of OS 3.9 Amiga users had to pay for a TCP/IP stack (the software that connects to the Internet or other networks) such as Miami or Genesis. OS 3.9 included Genesis but it was still an independent application. Amiga OS4 introduces a brand new TCP/IP stack called Roadshow which is integrated into the OS and available immediately the computer is booted. For example if you have a broadband connection or connect to a LAN (Local Area Network) you can use the network without having to manually connect. A new "Internet" preferences program enables you to configure multiple network connections. The layout of the interface will be familiar to anyone who has configured either Miami or Genesis. Unlike Genesis and standard Miami, Roadshow supports DHCP which is used on many networks to automatically configure computers and devices as they are connected. Some broadband Internet connections require DHCP so Roadshow should be compatible without the use of a separate router. A new connection "wizard" is provided to guide you through the process of setting up an Internet connection via either a dial up modem, cable/ADSL modem or via a router. I was able to set up my broadband connection within a few minutes using the settings from Miami on my "classic" system! According to the developers Roadshow is the fastest TCP/IP stack ever developed on the Amiga.



Internet preferences configures the built-in TCP/IP stack. The network connection is available from boot up.

New Prefs

OS 4 is configured in the same way as OS 3.x, with a selection of programs in the Prefs drawer, most of which will be familiar to you. There are some brand new preferences programs and others have been enhanced to control the new features added. The changes I noticed are:

GUI - We all know that no two Workbenches look the same, but now with OS 4's GUI preferences there's a whole range of visual options without the need to use hacks such as Birdie and VisualPrefs. I couldn't hope to cover all the options here so I'll try to give you a feel for the options which are available. The options in GUI preferences effect window borders, the screen title bar and the look of applications using Reaction or GadTools for their interface (this includes all the preferences and other programs included with OS 4). The window title bar and borders can be a flat colour of your choice or a user defined gradient. The gradient manager is very powerful, gradients can be rendered at any angle and both convex and concave effects are possible

giving window borders and gadgets an enhanced “3D” look. There are various options for the design and size of window border gadgets (for example the close and depth gadgets) and the window title can be set to appear in the centre of the drag bar. The edges of each window are subtly shaded which blends into the gradient finishing off the look perfectly.

The look of the various gadget types used within program windows (buttons, lists, cycles etc.) are all configurable and the same settings apply to both GadTools and Reaction programs. Gadget borders can be either flat, standard 3D or a softer “Xen” look. All gadgets can be given a gradient effect and by default have an almost “brushed aluminium” look. The options for scroller gadgets both in window borders and within an application’s interface are particularly extensive, you’ll have hours of fun tweaking your knob settings! One option you’ll immediately notice is that, in a tabbed window, the active tab is now highlighted with a colour, once again a gradient effect can be applied.

In OS 4 the system menus used by almost all Amiga programs receive a huge makeover. Many of the options now available are similar to the popular hack MagicMenu, but, of course, now cleanly implemented in the OS. Menus can be set to appear at the top of the screen, under the mouse pointer or at the top of the screen only when the pointer is in the screen title bar. The menu background can be coloured and there is also a transparency option. All that you could do with MagicMenu, OS 4 adds the option to give the menus rounded corners and to fill them with a gradient.

The options in the “Control” section of the GUI prefs allow you to enable or disable some of the new features of Intuition, (the part of the operating system that looks after screens and windows) in OS 4. Windows can now be dragged off the edges of the screen (to quickly make more space), you can never drag a window so it cannot be moved back into view. You can opt to keep the contents of a window visible as it is moved or re-sized, I found this worked smoothly even with the early version of the graphics library and Picasso 96 I have installed.

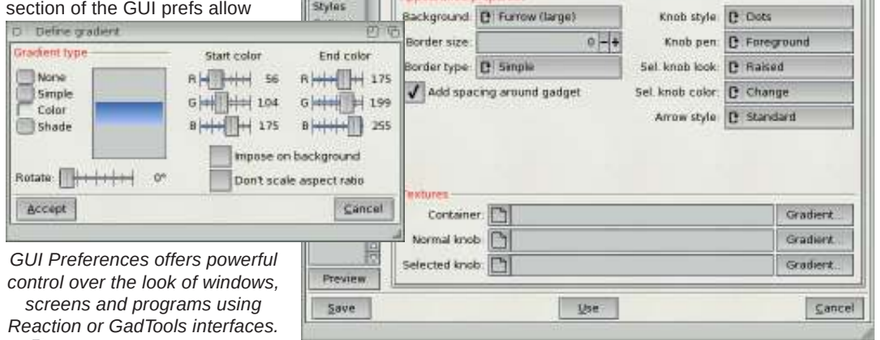
Palette - This preferences program is now used only to define the colours available in the Workbench screen palette, the functions to set the colour of window and screen items have been moved to GUI preferences. The palette preferences editor now has options to lock particular colours in the palette (similar to FullPalette if you have used that utility) but you probably will not need to use them on an AmigaOne (which has a graphics card by default).

PopupMenu - From what I can tell, this is the preferences program for PopupMenu.library which is now included with OS 4. This library enables developers to implement pop-up menus in their programs, an example of this is AmiDock where you can use a pop up menu to configure individual items in the dock. In the preferences program you can configure the look and the operation of these menus, this is independent from the OS menus used by most programs. Options include the spacing of menu items, borders and text styles.

Screens - I think this program is designed to let you customise the look of public screens opened by applications. You can choose to give them the default OS 4 look or a customised set of GUI settings. There is also the facility to create your own screen definitions (including screenmode, palette and GUI style), perhaps so you could create additional screens for applications and utilities that do not have the option to open their own screen. However, I was not able to get this to work, I do not know if the version I have is limited or if I’ve missed the point!

Time - This preferences program now has the option to update the time from a network time server.

There are also two other new prefs programs that are not yet implemented on the relatively old version of OS 4 I have on my AmigaOne. Amigainput will, I understand, enable gaming devices such as joysticks and joypads to be configured. The other is USB prefs which I mention in the drivers section.



GUI Preferences offers powerful control over the look of windows, screens and programs using Reaction or GadTools interfaces.

Compatibility

These are the “classic” Amiga programs that I have tried and work fine, not exactly a long list but an initial installation to get myself up and running using most programs I use on a daily basis.

Games
Quake (OS4 native, software rendered)
Quake II (OS4 native, Warp3D)
Soliton (68K Solitaire workbench game)

Applications
Amiga Writer 2.2 (68K Word Processor)
Final Writer 5.03(68K Word Processor)
Fiasco 2.2 (68K Database)
Money Matters 4.02 (68K Finances/Money management program)
TurboCalc 4.0 (68K Spreadsheet)
Cybershow 9.5a (68K Image viewing program)
Photo Album 6.6 (68K Image management program)
Photogenics 5 (68K Image manipulation and painting program)

Internet
IBrowse 2.3 (68K Browser)
Simplemail 0.21 (68K and OS4 native versions Mail program)
AmFTP 1.90 (68K FTP client)
BlackIRC 1.1 (68K IRC program)

Misc
ARcalc 2.0 (68K Calculator)
SnoopDos 3.0 (68K System snooper to help find your problems)
SGrab 1.22 (68K Screen/Window image grabbing tool)
AmiDiction 2.6a (68K on-line dictionary)

AmiDock

As we mentioned earlier Amidock has been vastly improved over the OS 3.9 version, the improvements come in two main areas, many more configuration options and a selection of plug-in “dockies”.

In addition to the icon display from OS 3.9, Amidock now has two other modes: text that shows just the name of each item and button which has a border around each name. These new modes are useful if you need to fit many dock items in a small space. The font used for item names can be changed and antialiased fonts are used. Besides the different background images a variable transparency can be set which reveals the backdrop behind the dock. The dragbar can be switched off giving the dock a cleaner look, you can also remove the border. All These settings can be applied to individual docks so each one can be customised to your heart’s content.

Key “Classic” Amiga applications (including those using MUI) run under emulation on AmigaOS 4. Here I’m running my favourite Internet programs, SimpleMail and IBrowse.

Dockies either add a new interactive icon to a dock or add new features, they are supplied as separate files in the tools/dockies directory. Several dockies have configuration options, these are accessible by right clicking on the docky’s icon. Some of the more interesting ones that come with OS4 include: Clock displays an analogue clock icon in the dock which shows the current time, there is even a second hand that moves in realtime. Lens is a small icon that shows a magnified portion of the workbench screen under the position of the mouse pointer, an option allows a larger area to be displayed within the dock. One of the most useful dockies is “SubDocks”, this adds an icon which pops up a new dock so you can organise your programs into categories. Minimizer shows how dockies can add a new feature to a whole dock, in this case it minimises the dock to its drag-bar after the pointer has moved away from the dock for a few seconds (even the delay is configurable). We understand that third party developers will be able to program new dockies to expand Amidock even further. A new tool “Access” now resides on Amidock which gives you access to different screens running. You may have for example Photogenics, Final Writer and say Quake running on their own screens and by clicking on the “Access” icon on Amidock you get a list up of all those screens, clicking on any of the named screens takes you to that screen. It’s very simple, but good to see something like this included within the OS.

Fonts

The new TypeManager program is used to make Truetype fonts available to the operating system and programs. For each installed font you can bring up a “Sample text” window which shows some text in that font (the startup-sequence by default), you can change the size and experiment with anti-aliasing and kerning options. If you have a font fetish you’ll love the “Modify Font” window which gives you a huge amount of information about each font. If you wish you can create bitmaps of various font sizes but we found font rendering to be so fast on the AmigaOne that you probably will not need to. The attributes of the selected font are displayed and you can change them if you wish (although they should already be set correctly by the designer).

The “Repertoire” window shows all the characters within a font and enables you to view different unicode character sets and pages. For most users the important point is that OS 4 now natively supports TrueType fonts which are widely available both commercially and as freeware.

The other key feature of the new font engine is anti-aliasing, this helps remove pixelisation from fonts making them easier to read at small sizes and look smoother at large sizes. Anti-aliasing works by softening the edge of a character with grey pixels (assuming black text on a white background) this fools the eye into seeing a smoother edge because the “jaggies” are disguised. Anti-aliasing can be disabled in the Font preferences program if you don’t like it.

Notepad

This is essentially an enhanced version of Editpad, the simple text editor supplied with OS3.5 and later. Notepad has new undo and redo commands and the find and replace feature has been improved with backwards, from top and wildcard options.

MediaToolBox

Mediatoolbox is the replacement for HDToolbox which has many functions, you may have seen the screenshots we published in earlier issues of Total Amiga. Currently I have an old IDE driver on my AmigaOne which means MediaToolbox cannot run, other AmigaOne betatesters are now running a new driver which works with MediaToolbox among numerous other improvements.

PartitionWizard

Ironically you can’t use Partition Wizard to partition your hard disk but it does provide many useful functions for both FFS and SFS partitions. For both file systems you can check the partition for corruption, repair any problems that are found, and recover previously deleted files. There is also an optimise (defrag) option for FFS partitions only. Partition Wizard brings some essential data security functions to AmigaOS that were only previously available with third-party software (if at all).

MUI 3.9

The latest version of the Magic User Interface is included with AmigaOS 4 for backwards compatibility with the many existing MUI applications. MUI has had a few enhancements since the last public release (3.8) these include splitting up the built-in and third-party preference options, more configurable bubble help and several new options for pop-up and program menus. The version of MUI supplied with OS 4 has been configured with a look that complements the default settings in GUI prefs.

Conclusion

Oh boy, I can’t wait for this product to hit the masses! As I stated earlier, it is a familiar friend that has been given a massive speed increase, a new modern styling makeover and extra functionallity. Amiga OS has at last got that “new” feel about it, something I haven’t experienced myself since the change from Amiga OS2.X to OS3.X, but even then I think the change is much greater this time. I don’t know if it’s going to put Amiga “back on the map” as it were, as that depends on so many other factors. OS4 will make all of us who use Amigas very happy bunnies indeed and that’s a great start!

Timber Tower

Nick Elliott wanted a tower that fitted his expanded A1200 perfectly, so he got out his carpentry tools...

Nick custom built his tower to house his A1200 system with Mediator PCI busboard.

When I first tried to put my A1200 in a tower case, I discovered that the motherboard with a Blizzard 1240 attached is about 4cm longer than the standard ATX housing. No problem, however, as I managed to squeeze the computer in on the diagonal. Unfortunately, when I bought a Mediator and Voodoo card a few years later, this somewhat clumsy solution no longer worked and for the next 2½ years, my Amiga existed as a collection of circuit boards, drives and cables spread out across my desk. Eventually, the build-up of dust and the risk of something getting damaged forced me to take action. I'm sure the cases designed for Amigas work well but they always seemed a little expensive, whilst normal PC ones were never the right size. I do a little carpentry in my spare time anyway, and wood is relatively cheap, easy to construct to an exact size and seemed entirely appropriate for a 'retro' computer. So I built my Amiga a wooden case, here's how I did it:

CAUTION

Whilst I had no problems, everything you do is obviously at your own risk.

You should ensure everything is unplugged before starting any work on your computer. I shouldn't think sawdust is very good for any bits of computer, but hard disks, floppy and CD drives are particularly sensitive – I left my drives in the kitchen and went through to take measurements rather than bring them into the garage.

If you are brave enough to take a soldering iron to your motherboard, heat sinks made from earthed crocodile clips can help protect sensitive components up- and down-stream from the area you're workng on.

Although safety goggles might look like the least important item on my list of tools, there's no way I'd do without them, even for drilling holes.

Design

I decided to use 'pineboard' as the raw material, which is basically lots of thin strips of pine glued together, cut into large sheets and planed flat. I chose it because it's cheap, gives a nicer end product than MDF, chipboard and the like, and, being a softwood, is easy to work with. I got mine from my local hardware shop, although it's also available (and more expensive) at DIY stores. The width of the design was dictated by the standard drive bays plus the frame to support everything, plus the 2 sides. The height was given by the motherboard plus accelerator. I could have made the tower just deep enough to house the motherboard plus the CD drives, but I have several 'dongles' hanging off the back of the motherboard such as my PC mouse adaptor and I wanted to contain these within the case, so I added an extra 100mm at the back and added a false rear. This meant I had to make extra leads to take the connections in to the motherboard, but I think the benefit of a clean enclosed rear is worth it. I think these things look better if there are no screws on the outside, so that meant a frame construction, with panels screwed on from the inside. That also enables a side panel to be removed without the thing collapsing.

> "...my Amiga existed as a collection of circuit boards, drives and cables spread out across my desk."

The Basics

I started by constructing the right side of the frame and attaching the motherboard to it. There are enough holes in the latter to enable it to be securely screwed in place, and I left the lower shielding in place as it gives good protection to the underside of the board. The 2 CD drives were then bolted to the frame, starting at the top and working down. I had to recess the bolts because I didn't have ones long enough to go through the thickness of the frame. My modem is coincidentally the same width as the CD drives and mounting it in the front enables me to see exactly what's 'coming and going'. It didn't have any mounting holes but a piece of board cut to width and secured beneath it held it securely. Attached to the underside of this is a caddy from an old PC tower, containing my floppy and hard drives. I made a face plate for the floppy from an off-cut of ply-wood and after carefully measuring up, routed out a groove for the disk. The eject button was made from a piece of dowel. This face plate was definitely the most fiddly bit of the whole construction. With the drive bay completed, I could make the rest of the frame. A thin piece of wood was trimmed to size at the back to support the PCI cards.

The Exterior

Once the frame was built, I could for the first time take measurements and determine the final size of the tower. I was then able to cut the top, bottom and side panels. The left side panel was cut 20mm taller than the frame height and 10mm deep grooves were routed in the left side of the top and bottom pieces and corresponding rails routed in the left panel, enabling it to be slid out for access once the case was complete. I cut slots in the right hand side panel to allow some venting for the blizzard fan which would be right up against the wood otherwise. Unfortunately, I started off cutting the grooves too close together, and the wood broke! An extra millimetre between the slots fixed that. Finally, the top side of the top and bottom panels were rounded over with the router. The front face panel was cut to size. I decided to use toggle switches as they fitted the 'retro' look, but I felt they would be vulnerable if they weren't recessed. To achieve this, I marked out an area on the front panel, drilled a hole inside it and, using the jigsaw, cut from this hole around the area. The edge was rounded over to finish. Lastly, a door was cut and rounded over to hide the drive bay and hinges, a catch and a handle from the hardware shop were fitted.

Parts List

In addition to various off-cuts of wood I had laying around and cables and the rear plate from an old tower case, I used:

1600x600x18mm pineboard	£21.33
2400x33x18mm pine	£2.00
Hinges, catch and door handle	£3.00
Toggle switch large	£1.29
Toggle switches small	£1.49 ea
LEDs	£0.18 ea
Bits to make connecting cables	£10.00 (approx)
Total	about **£50.00**

Tools

Because I list carpentry as one of my hobbies, I had quite a few tools at my disposal. Not all of them were necessary but the more you can get, the easier it is to produce good results. I used:

Router - Probably the most specialist power tool, but it makes a huge difference to what you can achieve. If you do get one, this more than anything is worth spending as much as you can afford on - accuracy is everything.

Jigsaw - Makes light work of cutting curves but a small hand saw will work just as well.

Circular Saw - Better for the straight cuts than a jigsaw, but again a hand saw will be fine if you're careful.

Drill/Driver - Essential, but any old cheap one will do. A pillar drill is a nice luxury if available.

Soldering Iron - A small one for delicate work is better for this.

Chisels - Make sure they're sharp, or they'll do more harm than good.

Safety Goggles - They're the cheapest item here, but probably the one thing you actually need!

Electrics

I bought 3 toggle switches from Maplin, the large one replaced the push switch on the AT power supply. The modem's 12 volt power lead is routed through the first small switch, the next is a spring-loaded switch attached to the reset point on the motherboard (see the boxout) and the last is connected my monitor switcher from Eyetech. Happily, the switch on this already matched the other switches, so there was no need to replace it. Over sized recess holes were needed in the rear of the wooden switch plate to allow the switches to actually poke through the 18mm thick wood. The LEDs that were originally fitted to the 1200 motherboard were seated on their own mini board with resistors in situ. To avoid the need for this, I ordered mini LEDs from Maplin with built-in resistance which can be connected direct to the motherboard pins. The 2 HD LEDs are of the same type. To find out where on the HD to attach them, I went to the manufacturers website and typed the serial number into the search box. In both cases, a specification sheet listed the connections. LEDs are diodes, which means they need to be connected the correct way round, but getting it wrong won't hurt anything - they just won't light up, so I just fitted them by trial and error. They were all fitted in the front panel in the same way as the switches - a 3mm hole drilled through from the front and a larger one drilled part way through from the rear. I had a spare 12v fan which I fitted towards the rear to aid air circulation; more about this later.

Round the Back

To save myself time, I fitted a hacked off rear panel from an old tower case I had. I could then fit some of the connections direct to this, or in pre-drilled blanking plates from Maplin. In addition to short carrier leads from the motherboard, connections were required for the power supply, sound card, external SCSI connector, modem power supply, modem rj45 lead and network card. Actually, I still haven't made all of these yet; I'm getting by just passing some of the leads into the case and connecting them directly. I can do this because the side panel slides off.

Behind the door, a CD-ROM, CD writer and modem are installed. The floppy drive is behind the neatly routed slot.

Conclusions

The case is certainly sturdy and offers good protection for the computer. There is space for the 4th PCI slot to be used if I buy a TV card in the future; a major upgrade, however, might require a bit more thought. I doubt though whether much more money will be spent on my trusty 1200 - hopefully either a Pegasos or AmigaOne will vying for my cash. The insulating properties of 18mm thick wood means that cooling could be a problem. The Voodoo card seems to generate most of the heat although I've had no problems from it so far. Although it's all a bit subjective, my CD writer seemed to perform better when it was cooler. I find putting the CDR in the drive at the last minute and not performing a test-write helps, but I do seem to have had more skippy audio disks just lately! Perhaps when I upgrade to broadband, I will remove the modem, separate the 2 CD drives and put a fan between them. I'm also considering a 2nd fan in the case to provide some proper circulation. Making the short connecting leads to fix to the back plate is a hassle and adds to the expense, but as I said, I think it's worth it to have a clean enclosed design. Hopefully, what I've said here has been interesting and perhaps even inspired you to create your own tower case. If you're unclear about anything or have any questions, you can find me on the Total Amiga mailing list.

Reset Switch

A few years ago, I read in Amiga Format about a hack you can make to a 1200 motherboard to fit a reset switch. There are several Test Points (TP) around the board, presumably left over from development, and when the left-most 2 pins on TP 1 (in front of the PCMCIA socket) are connected, the computer resets. God knows how that was discovered! You have to melt and remove the solder in the 2 points, and then attach either 2 bits of wire, or in my case I attached a small 2-pin PCB header. Having a reset switch is useful, but if you do decide to give it a go, BE CAREFUL. It's a tense few minutes whilst you reconnect everything to test it all works!

.info PhotoFolio 2.4

Robert Williams thinks he's found just the program to tame his gargantuan digital photo collection.

Developer
Steeple Software
http://steeplesoftware.dragonfruit.org

Distributor
Schatztruhe
www.schatztruhe.de

Price
2.0 on CD E34.95
2.3 upgrade* by e-mail $15.00
or on CD $20.00

*Upgrade available direct from the developer only, you must own version 2.0.

Compatibility
68020
AmigaOS 3.0
MUI 3.8

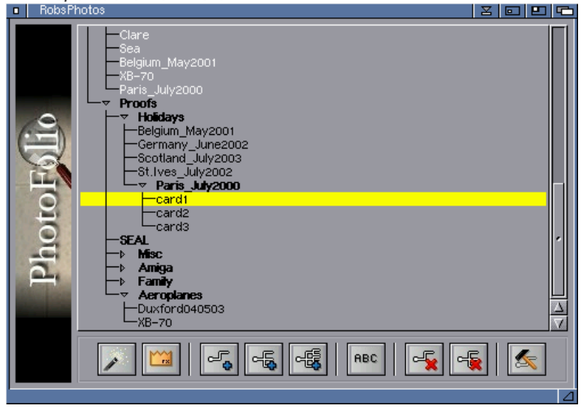
Test System
Amithlon
Athlon XP 2500+
256Mb RAM
AmigaOS 3.9

With the advent of relatively inexpensive digital cameras, scanners and also broad-band Internet connections many computer users now have hundreds, if not thousands of image files stored on their hard drives. Keeping all those images in order and finding a particular one when you need it can be a bit of a battle. This problem is made even worse if the images, like those that come from a digital camera, don't have descriptive file names.

In this review I'm looking at the latest version of PhotoFolio from Australian developer Steeple Software. PhotoFolio's main task is to make proofs (a small version of an image, more commonly called a thumbnail) of images within a directory for easy reference; you browse through a directory of images rather than meaningless file names. This concept is also extended by enabling you to create a "virtual catalogue" of image directories that doesn't necessarily follow their position on your hard drive or other storage media.

The main PhotoFolio window lists all the image directories you have defined.

Using the menus and buttons you can perform many operations from here.



Install

If you currently own PhotoFolio 2.x, version 2.3 is a paid upgrade which then gives you access to 2.4. Rather oddly if you want to buy the program for the first time you need to purchase the 2.0 CD from a dealer and then order the 2.3 upgrade from the developers, this makes the total cost of PhotoFolio slightly more than you might expect. Payment for the 2.3 upgrade is only accepted via the PayPal on-line payments service. A PhotoFolio 2.0 serial number is needed to purchase the upgrade so you'll have to wait for the CD to arrive before placing the order. Once your order has been processed access is granted to the 2.3 and 2.4 upgrades. Free upgrades are still available taking the program from version 2.0 to 2.2 so you can stick there if you just order the CD version, a full list of all the enhancements made in 2.3 and 2.4 is available on the developer's website.

While PhotoFolio's installation procedure is straightforward, there are at least three stages because of the updates involved. All the installers seem to work well and do proper version checks on the libraries and other files installed, offering you the option to update older versions if you wish. The first step in installation is to install version 2.0 from the CD. I then installed version 2.2 and some updated libraries from the website because I wanted to use the program while I waited for my 2.3+ update to come through. Once my order had been processed I applied the 2.3 and 2.4 updates. These have to be run one after the other as 2.4 does not include all the updated files from 2.3.

Usage

After all that faffing around I could finally run PhotoFolio for the first time. At this point a requester appears asking for your details and a serial number, this personalises your copy. The main PhotoFolio window then opens, dominating the window is a list view which is initially blank. You add directories you want to view to the list, but, as I mentioned before, it does not have to reflect the directory structure of your hard disk. Icons at the bottom of the window enable you to add a single directory, one level of sub directories or all the sub-directories within the directory you select. New sections can be added to the list and associated to a directory on disk or used to organise existing directories. For example you could create a section called "Holiday Photos" and add to it directories from several hard disk partitions and even from removable media such as a CD-ROM. PhotoFolio enables you to edit the names of directories after they have been added to the list so you can be more descriptive than you might be with a directory name on disk. Once all the directories you want to browse have been added, a project file can be saved so the list can be loaded during another session. You can also click on the saved project file's icon to load it straight into PhotoFolio. Some free text fields are provided so you can add information to the project file such as the subject, description and revision, you can also append the directories in one project to another. The project file just contains the paths to the selected directories and other settings, not the proof images themselves.

Interface

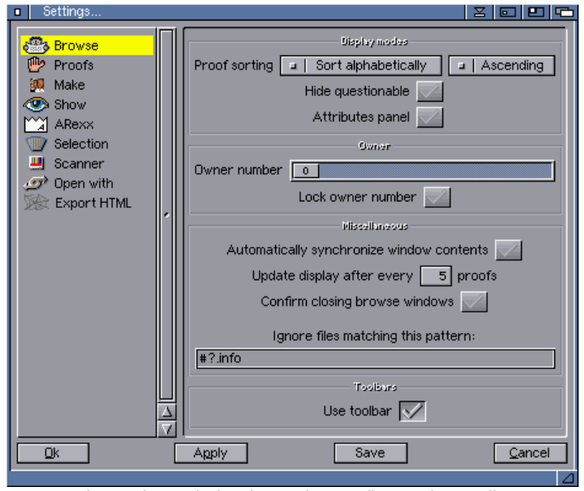
PhotoFolio uses MUI for its interface and relies on several features for its functionality. In many windows context sensitive menus are available by clicking the right mouse button over an item, and I'm pleased to see that their functionality is also duplicated in the main program menus. These context menus are particularly handy in the directory list and also for the proofs in the browse window.

Reviews

Drag and drop is used to re-organise the directory list and to enable intuitive moving of proofs between browse windows (and thus directories).

Browsing

Double clicking on any directory in your list brings up a browse window that displays a small proof (thumbnail) for each image in the directory. While PhotoFolio can generate the proof images on-the-fly when you open a browse window, a more efficient way of working is to generate proof files and save them to disk. Proofs can either reside within the image directory (non-linked) or be placed elsewhere on your hard disk where they are linked to the original images (you can select a default path for proofs in settings). An option is available to create proofs for all the image directories you have added to your list. When linked proofs for a particular directory have been created they appear in the main list under a new section called "Proofs". When you open a linked proofs directory or a directory for which non-linked proofs have been generated the browse window loads the proofs much more quickly because they are already saved scaled to the correct size. Each proof "knows" the location of the full-size image so, for example, when you double click on a proof the full-size image is loaded for viewing. One problem with the linked proofs approach could be that the proofs directory would get out of sync with the real images. PhotoFolio provides two tools to overcome this problem, firstly running the "Make Proofs" again will skip any images that already have a proof and simply generate any new proofs required. Secondly functions allow you to find any proofs which no longer have an associate images (called orphaned proofs in PhotoFolio) and delete them if needed. Finally if you move a directory of images on your hard disk the directory of linked proofs can be re-targeted at the new location.



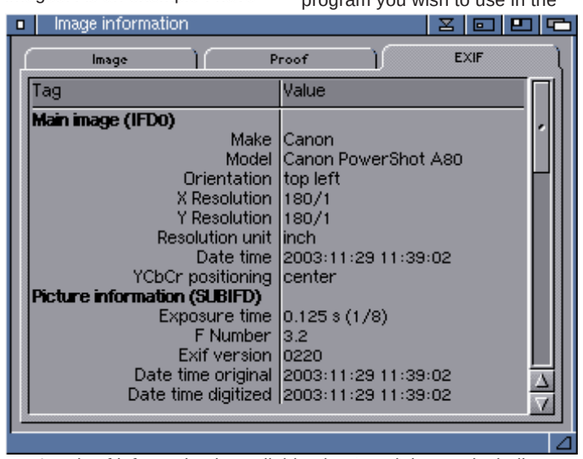
The settings window is used to configure PhotoFolio. This page shows the options for the "Browse" windows.

At the top of the browse window is a toolbar with buttons for common actions such as selecting proofs, file operations and running ARexx scripts. The body of the window is the area where the proofs themselves are displayed. Below each proof image is its file name, the size in pixels and the file size in bytes. One or more proofs can be selected by clicking on them and there is also the option to select based on a file name pattern using wild cards. Proofs can be sorted in a number of ways including alphabetically, by size and by file type. Another option is a natural sort which tries to correctly sort numbered images without leading zeros (so 2_holiday.jpg comes before 107_car.jpg, for example). The selected sort order is shown in the status bar along the bottom of the browse window along with the number of images and the number selected.

Oddly, as far as I can tell, there is no way to show a file date in the browse window of PhotoFolio (The only place I could find a date was in the EXIF section of the image information window) and none of the selection or sort options work on dates. Particularly when working with digital camera photos the date can be important so this seems a strange limitation.

Attributes

In addition to categorising your images or proofs in directories, PhotoFolio enables you to add several other levels of organisation to your collection. Each image can have an owner (from 0 to 255, a name can be associated with each owner), each owner then has up to four groups and each group can have up to 22 categories. This enable PhotoFolio to be used by several people (owners) and each person can categorise their own images. As an example I have three groups, Family, Work and SEAL for my images. Within the SEAL group I have categories for "Meetings", "Shows" and "Total Amiga". Once your photos have been categorised you can use the attributes panel (which opens on the left of the browse window) to filter the proofs shown to a particular category or categories. Another attribute option is to mark images as "questionable", these can then be hidden by default using a preferences option.



Loads of information is available about each image, including the EXIF information embedded by many digital cameras.

Viewing

Double clicking on a proof opens the associated image within an image viewer, there are several options so you can customise the view to your preferences. The simple built-in viewer shows the image in a window scaled to fit on the current screen. If you have multiple images selected, previous and next buttons appear at the bottom of the window so all of the selected images can be viewed in turn. Options in the image viewer's menu can be used to change the scale (to view the image full size for example), get image information or to perform some simple image processing operations. These include negative, flip, rotate, sharpen and gamma adjustment. If you have processed the image you can save your changes either over-writing the existing file or to a new file name.

Two other viewing options are available. The first is to use an external viewer of your choice giving maximum flexibility, in this case you need to specify the program you wish to use in the settings window. PhotoFolio can generate a list of the selected image files for those viewers that need it to handle multiple file names. The final option is to use a built-in viewer which uses the mysticview.library this offers more scaling options, a handy zoom feature and mouse panning but does not have the image processing options of the alternative internal viewer.

You can use PhotoFolio more simply as an image browser and viewer launched from a file manager such as Directory Opus by calling it with a shell command including the directory you wish to view as the argument. A browse window showing that directory will then be opened without showing the initial list window. Another option included is the directory viewer, this window enables you to explore a file system to find images, clicking on an image in the file list shows a thumbnail. Then you can get information on the selected image or open it fully in a view window. Strangely there is no way of transferring a found directory to the path list or opening a browse window.

HTML Folios

HTML pages showing the proofs of images in a browser can be generated using PhotoFolio's "Export as HTML" feature. Options allow the page title and information displayed with each image to be customised. You can decide how many columns and rows of proofs you want on each page and PhotoFolio will generate multiple linked pages if required. The page can be set to link to the images in their current location or for the full size images to be copied into the same directory as the HTML and proof files for easy upload to a website. The HTML pages created by PhotoFolio are fairly plain looking and link directly to each full-size image (rather than providing a page for each image with previous and next buttons). Because the HTML code uses nested tables I found it tricky to modify the PhotoFolio generated pages to integrate within the design of my own website. There is no option to use a customised template file.

File Operations

PhotoFolio isn't ideal for use as a disk browser as it's not easy to move between directories within a browse window; however the program does offer some useful file management tools. Images and proofs can be moved or copied between directories either using buttons on the tool bar or using drag and drop (but see the note below). There are two ways of renaming an image, using a context menu option the image file name becomes editable, using the rename toolbar button opens a new window allowing you to rename all the selected images one by one.

When performing file operations on linked proofs in PhotoFolio you need to be a little bit careful as it isn't always clear whether just the proof or the proof and the associated image will be effected. For example if you rename a proof both it and the associated image are renamed. However if you drag and drop a proof from one browse window to another only the proof is moved and the associated file remains in its original location. I understand the reasoning behind this (a proof directory can hold proofs pointing to several image directories so there's no way to know where the image should be moved to) but it is still rather confusing. Deleting a proof also deletes its original image but this is made clear in the "are you sure" message.

Browse windows are the key part of PhotoFolio, they enable you to view proofs of your images. This one shows the "Attributes" panel, used to filter the proofs displayed.

The information window gives you lots of extra detail about the selected proof and also the image to which it is linked. This includes things you would expect such as the dimensions in pixels, file size and bit depth. However there is also an EXIF tab which shows additional information that is often recorded in the image by a digital camera or other capture device. Here you can find out information about the camera used to take the photo (such as the model and manufacturer) and also the settings you made (or the camera automatically chose) to take the shot.

Results

In my experience, PhotoFolio is by far the most feature rich image cataloguing software on the Amiga. It has many features and several modes of operation and that results in quite a complex program. The separation of Proofs and their linked images does give more flexibility, but it does take some time to fully understand. There is a detailed user guide, supplied in both HTML and PDF formats, which helps you learn the program. Once I'd got my head around its way of working I now use PhotoFolio regularly and find it very reliable. Of its many features I find the comprehensive file management options and the EXIF information display the most useful and unique. I should also mention the powerful ARexx port that should allow PhotoFolio's functionality to be extended even further. If you have many images to deal with it will be well worth spending the time getting to know PhotoFolio.

Speed Test

I've been a registered user of PhotoAlbum, an alternative picture cataloguing program) for many years and one thing that still impresses me about this program is its speed so I was interested to see how PhotoFolio would stack up. To test it out, I rendered thumbnails of a directory containing 84 mixed IFF and JPEG files totalling 86Mb in both programs, the results were:

PhotoAlbum	13.50 seconds
PhotoFolio	19.00 seconds

So while PhotoFolio is slower it's not by an enormous margin.

Results

Pros

+ Powerful file management options.
+ Catalogue off-line images (CDs etc.).

Cons

- Conceptually quite complex.
- Lack of date functions.

Pretty Good!

Reviews

ArakAttack!

Fed up with having USB ports on your PC that can't be used within Amithlon? Robert Williams tries Guido Mersmann's strangely named driver for Poseidon that supports many motherboard USB cointrollers.

Amithlon gives you the capability to run AmigaOS on modern PC hardware in an almost seamless emulation; however its approach does mean that specific drivers are needed before common PC hardware can be used within the emulation. Recent releases by Amithlon's author have enabled many more network and sound cards to be used and now the USB ports on most PC motherboard are about to be enabled with the release of ArakAttack.

ArakAttack is a driver for the Poseidon USB stack which enables Poseidon to use standard UHCI and OHCI compatible USB controllers, most motherboard USB ports and many add-on PCI cards conform to one of these two standards. The current version of ArakAttack only supports USB 1.1 and not the more recent (and faster) USB 2.0 (which uses an EHCI controller). However, All systems which include USB 2.0 also support 1.1 and USB 2.0 peripherals are backwards compatible so ArakAttack should work fine but will be slower than a dedicated USB 2.0 driver. Both ArakAttack and Poseidon are shareware with demo versions which time-out quite quickly so you will need to register both to use your USB ports. The demo period should give you enough time to ensure the drivers will work on your system.

.info

Developer
Guido Mersmann

Distributor
IOSpirit
http://www.iospirit.de

Price
ArakAttack E20.00
Poseidon (req'd) E25.00

Medusa bundle from
IOSpirit..... E34.99

Requires
Poseidon USB stack.

Amithlon
PC Motherboard with USB controller or USB PCI card.
PowerPCI.library 2.14+
http://www.vmc.de/amithlon/eng_ami_soft.html

or

An Amiga with PCI bus board compatible with OpenPCI.library 1.20+
http://www.vmc.de/amithlon/eng_ami_soft.html

Test Systems
Amithlon with contrib3b and updated kernel.
VIA KT266 motherboard with USB 1.1.
VIA KT400 motherboard with USB 1.1/2.0
USB 1.1/2.0 PCI card
Note: USB 2.0 modes are not currently supported.

Installation

Please note that I don't have a system on which to test ArakAttack with OpenPCI so this review is based on experience on Amithlon only.

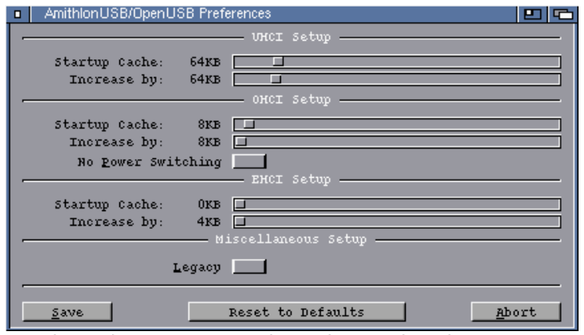
Before installing and configuring ArakAttack and Poseidon you need to make sure that your PC is correctly configured. This means going into the BIOS at start-up and checking that USB is enabled and USB legacy support is disabled. If the latter causes problems there is an option in ArakAttack's preferences that will make the driver try to turn off Legacy mode itself. Now the Poseidon USB stack should be installed using its installer followed by ArakAttack, both programs use the standard installer. If you are a registered ArakAttack user you need to select the appropriate option during installation and copy over your key file.

With everything installed it's time to setup Poseidon to use the ArakAttack driver. This is accomplished by adding multiple units of AmithlonUSB.device (or OpenUSB.device for OpenPCI systems) to the list of available USB controllers on the "Hardware" page of Trident (Poseidon's preferences program). The reason for adding multiple entries is that most PC motherboards and USB cards actually include multiple USB controllers, usually one for each pair of USB ports. For example my VIA KT400 based board has six USB ports and three controllers. The USB PCI card I tried has five ports and two controllers. Then the Poseidon stack is put on-line and the USB controllers are initialised, where a controller is found for a unit of the AmithlonUSB.device the "in use" flag changes to yes, any entries that are not initialised can be deleted and the Trident settings saved.

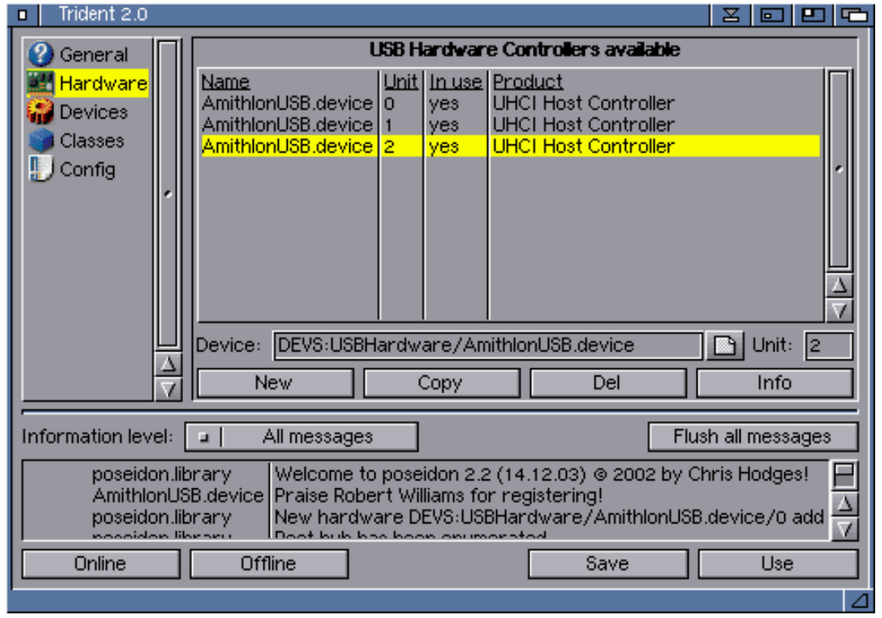
In Use

Because it works with Poseidon, ArakAttack supports the same USB devices as other Amiga USB cards using this stack. This includes mass storage device such as memory card readers and portable hard disks, human interface devices like keyboards and mice, printers and scanners (with third party software). If you buy ArakAttack in the Medusa USB bundle from IOSpirit you get their IOUSB drivers which enable certain USB scanners and digital cameras to work with fxScan and VHIStudio

> "I'm really chuffed that ArakAttack enables me to use Poseidon and my USB peripherals on Amithon."



The preferences program is used to tweak cache memory settings for best performance.



Most motherboards have multiple USB controllers, these show up in Trident, Poseidon's preferences program.

respectively. We've discussed Poseidon in depth several times in Total Amiga so I won't go any further here.

To make USB Human Interface devices, such as keyboards and mice, compatible with all Amiga programs Poseidon has to patch into the Amiga's input.device which would normally handle the built-in keyboard and mouse. To work properly this normally requires an updated input.device to be loaded by a line at the top of the startup-sequence, this line can be added by the Poseidon installer. According to the author of ArakAttack this update can cause problems on Amithlon so he suggests you remove it and use a new program called HIDClassPatch, supplied with ArakAttack, instead. I started out using this patch but I could not get my mouse to work properly, in fact it worked just the same with the patch installed or not. I found I had to use the new input.device but, so far, I haven't had any stability problems.

I found the ArakAttack and Poseidon combination to work very reliably with both the systems I tried it on. For a good test I hooked up my mouse via USB and have been using it regularly for weeks with no ill effects (despite using the new input.device), I find it hard to tell if I have the mouse connected via PS/2 or USB. One positive effect is that the mouse wheel now generates proper wheel-up and wheel-down events rather than cursor key presses as it does by default in Amithlon (I believe this is configurable but I'd never taken the time to figure it out). My other main use is with a card reader which I use to read image from my digital camera's memory cards. An icon appears for the card on Workbench as soon as it is inserted in the reader and again this works flawlessly, I have had no transfer errors or other problems.

Preferences

A simple preferences program is supplied with ArakAttack. This enables you to adjust the amount of startup cache memory allocated and the amount that is added when a new USB device is attached. There are separate settings for OHCI and UHCI controllers. Optimal values are explained in the documentation, I did some experimentation and found that changing the cache size did not make a big difference to transfer rates. Two other options are found in the preferences program: "No Power Switching" is used to work around a bug in some AMD USB controllers (I did not have an AMD controller to try this on) and "Legacy" can be enabled if you have problems disabling legacy support in your BIOS (see Installation above).

In the preferences program for the latest version of ArakAttack (as I type this) there are cache options for EHCI controllers so perhaps this indicates that USB 2.0 support isn't far off!

Need for Speed

ArakAttack seems to offer good performance for a USB 1.1 controller although in my experience it varies on the USB device and type of controller. With my Lacie Hexadrive memory card reader and a 32Mb Compact Flash card I achieved a transfer rate of 776Kb/s (Kilobytes per second) using the OHCI PCI card and 472Kb/s with the motherboard's UHCI controller. In contrast with a 20Gb USB hard disk the OHCI card achieved 863Kb/s compared to 996Kb/s with the UHCI controller.

Conclusion

Poseidon is one of my favourite pieces of Amiga software so I'm really chuffed that ArakAttack enables me to use it and my USB peripherals on Amithon. My only real gripe with ArakAttack was the double registration I had to make but now you can buy it with Poseidon direct from IOSpirit. Even if you register ArakAttack and Poseidon separately it is still the cheapest way of getting USB on an Amithlon system by some margin. Hopefully USB 2.0 support will come in the future but, from a personal point of view, my current mix of peripherals doesn't really require it, especially as ArakAttack already offers high USB 1.1 speeds. Best of all ArakAttack continues the trend that Poseidon started of being top-class reliable software from the first release, well done Guido!

Results

Pros
+ Reliable.
+ Works with many USB chipsets.
+ Good performance.

Cons
- Confusing HID patch documentation.
- No USB 2.0 support.

Pretty Good!

Audio Evolution 4.0

"The native audio solution for AmigaOS4"

New features in 4.0:

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- Unlimited undo
- Many grid options to align regions
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- Track height adjustment and higher quality waveform display
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- Effect parameter automation
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Looking for a way to use all the power of your PPC processor with OS4? *Audio Evolution 4* gives you unsurpassed power for home-studio recording and editing. The latest release focusses on time- saving non-linear and non-destructive editing, as seen on other platforms. Besides editing, *Audio Evolution 4* offers a wide range of realtime effects, including compression, noise gate, delays, reverb, chorus and 3-band EQ. Whether you put them as inserts on a channel or use them as auxillaries, the effect parameters are realtime adjustable and can

be fully automated. Together with all other mixing parameters, they can even be controlled remotely, using more ergonomic MIDI hardware.

So, if you are serious about audio, please check out the *Audio Evolution 4* demo, which is available from our website now!

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Visit: www.audio-evolution.com

For more product information, please visit www.audio-evolution.com or contact us at info@audio-evolution.com.

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info@compcity.nl

Reviews

StarAm Plan

There has been a bit of a drought of "office" applications for the Amiga in the last few years, so Robert Williams is pleased to find a shareware spreadsheet still in active development.

It's been a while since you could buy a commercial spreadsheet program for the Amiga, but we shouldn't forget some of the excellent shareware software that is available and is still being actively developed. StarAm Plan is one such application, this spreadsheet has a wide range of features and is available for a very modest shareware fee. StarAm Plan is a German program and although the user interface has been localised for English speaking users until recently there was no user guide in English, which made it hard to learn. The package now includes a fairly detailed English quick-start guide which will get you going; particularly if you've used other spreadsheet programs before.

.info

Developer
Thorsten Passow

Available from
Aminet:
biz/misc/StarAm_Plan.lha
or StarAm_Plan881.lha

Price
Shareware E15.00
(approx. £10.50)

Compatibility
AmigaOS 3.0+
68020+
2Mb Fast RAM
3Mb Hard disk space

Test Systems
Amithlon
AMD Athlon 2500+
512Mb RAM

AmigaOS 3.9

Installation

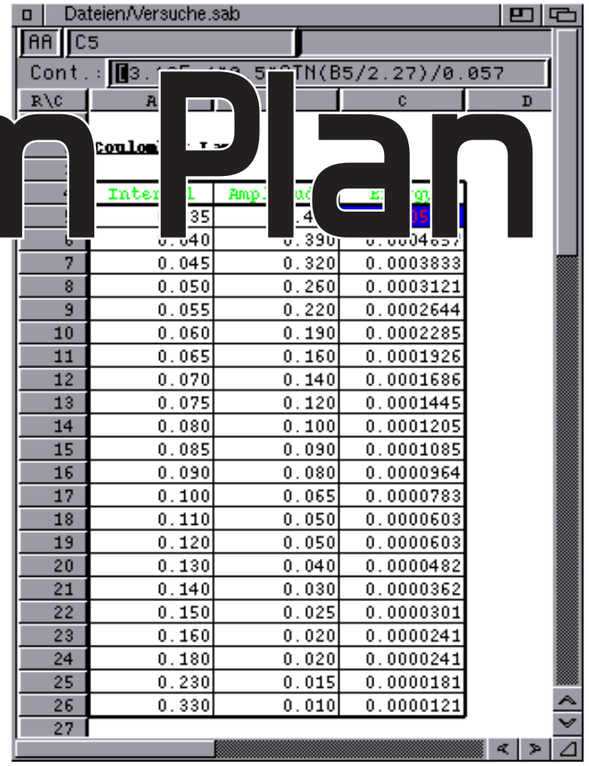
As we've come to expect, StarAm Plan uses the standard Amiga installer utility and makes a drawer for itself during installation. If you install an updated version it lets you choose which (if any) settings you have made should be overwritten by the defaults. The program's system requirements are minimal, it should even run on a basic A1200 with some additional fast RAM. A dedicated version for Amiga's with an FPU is available, so be sure to download the correct archive for your system.

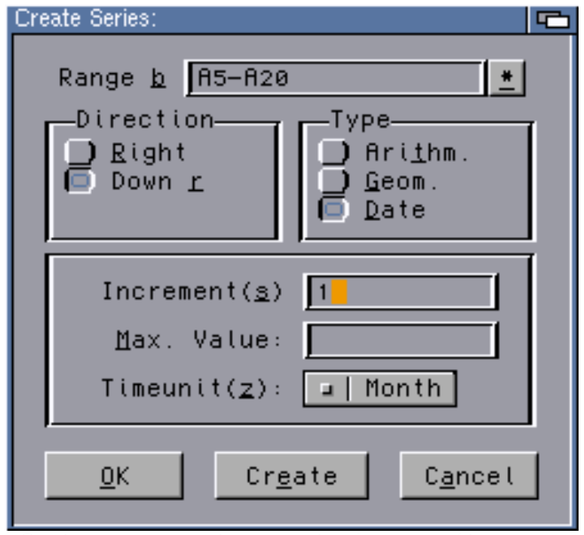
Although StarAm Plan is shareware there are no limitations or nag-requesters if you don't register; it's left entirely up to your conscience. The registration fee is very reasonable, so if you use the program please consider registering it and supporting the developer.

Basics

When StarAm Plan starts, you are presented with a small tool bar and a blank spreadsheet in a separate window. The program allows multiple sheets to be opened at one, each one has its own window. In the spreadsheet window is blank sheet with column and row headings, cell A1 is marked by a coloured cursor. If you are used to other spreadsheets the first thing you will notice is that you cannot immediately move the cursor by pressing the arrow keys or clicking on another cell. This is because StarAm Plan requires you to manually set the area of the sheet; rows are added by pressing Return and columns by pressing Tab. Once you know this has to be done, rows and columns can be added very quickly. There is also an option to add rows and columns using the arrow keys that is enabled using a menu item. By default StarAm Plan does not show grid lines around its cells, if you enable this option (Environment/Display/Grid) then the grid shows the rows and columns that have been added to the sheet.

Near the top of each sheet window is the "Cont." text field that shows the contents of the selected cell. If you begin to type the name of this field changes to "Input" showing that you are entering data into the cell. The data you have typed does not appear in the cell until you press Return. You can edit the existing contents of a cell by clicking on it and then in the "Cont." field. Cells can hold several different types of data including text, numbers, dates and times.

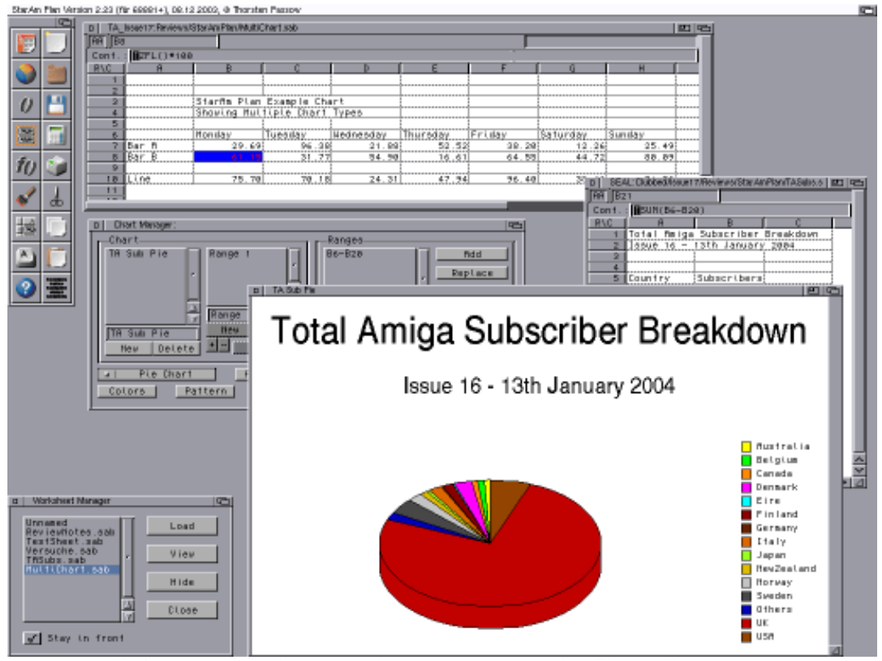




Create number and date series with a few clicks of the mouse.

Formulae

To enter a formula into your spreadsheet first press the Escape key which enters a formula identifier character into the "Input" gadget. Formulas can use constant values (12, 257 etc.) or references to other cells (A1, G357 etc.). You can use mathematical operators (add, subtract, divide, multiply etc.) and also any of StarAm Plan's built-in functions. These are used to perform more complex mathematical or other operations without the need to know exactly how they work. A function takes the following form: "name(options)", where name is the name of the function and options are the pieces of information it needs separated by hash (#) symbols (not commas). StarAm Plan's function names are almost all totally different to any spreadsheet I have come across. They all have three letter names and I guess they originated from the German meanings as most bear no relation to their function described in English. Functions related to text rather than numeric values start with a dollar ($) symbol so you can recognise them. Fortunately, there is a "Function" menu within the program which categorises the functions by their use and describes them in English. Selecting a function from this menu inserts it into the current formula at the cursor position. Take a look at the box-out for some of the commonly used functions available in StarAm Plan.



Multiple spreasheets and charts can be opened on the StarAm Plan screen. Palette windows, such as the Chart and Worksheet managers, can be left open while you work.

So, what is a spreadsheet?

The spreadsheet was one of the first applications to make personal computers very popular, especially in business circles. Suddenly there was a way of performing complex and long winded calculations using a computer in an easy to understand way. A spreadsheet consists of rows and columns making a grid. Each box made by the grid is called a cell. Usually, columns are given a letter reference and rows a number reference so you can refer to any cell using a letter and number code, for example the top left cell would be A1. Various types of information can be entered into cells including values (numbers) and text. Cells can hold formulae that perform calculations based on the values of other cells, once a formula has been entered its result is shown in the cell. This is where the spreadsheet becomes a powerful tool, because if you alter a value used by one or more formulae their results are automatically updated. This means a spreadsheet can be used to answer what-if questions and to experiment with different financial options.

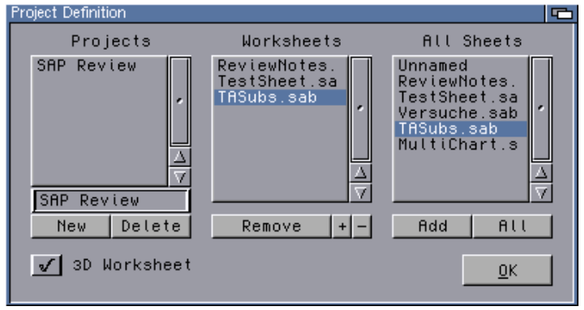
Over the years' spreadsheets have grown in complexity and power, modern programs can draw charts, have a wide range of built-in formulae and have many formatting and printing options.

If the range of built-in functions is not enough, StarAm Plan enables you to create your own functions by entering a formula and defining the inputs it requires. These then appear in the Function manager palette (which holds only user defined functions). Named ranges can be defined for easy insertion of cell ranges as can variables which hold a certain text or value. Both of these lists have their own palette window.

Although it is not possible to have multiple sheets within one StarAm Plan file, there is the option to group files within a project. A project can then be set into "3D" mode which enables one sheet in the project to reference another by way of a letter code (the first sheet is AA, the second AB and so on). If you just want to have easy access to your recently used spreadsheets you can use the "Worksheet Manager" window, this shows all the files loaded in past sessions (files can be removed from the list). Files in the window can be viewed, hidden if they are already open, or loaded if not. The "Worksheet Manager" can be left open as you work and there is an option to keep it in front of other StarAm Plan windows.

Making It Easier

Many features are included to make building your spreadsheet and analysing data within it easier. While you are entering a formula you can click on a cell or range of cells in the sheet to insert that reference into your formula at the cursor position. A search and replace function is available and, like many requesters in StarAm Plan, it can pick up the current range of cells selected in the sheet and search just that area. Formulas and other cell contents can be copied into other ranges and, if you specify it using the relocate option, any cell references in the formula are updated relative to their new position. A series of numbers, months or years can



Multiple worksheets can be added to a project. The 3D option allows referencing between sheets.

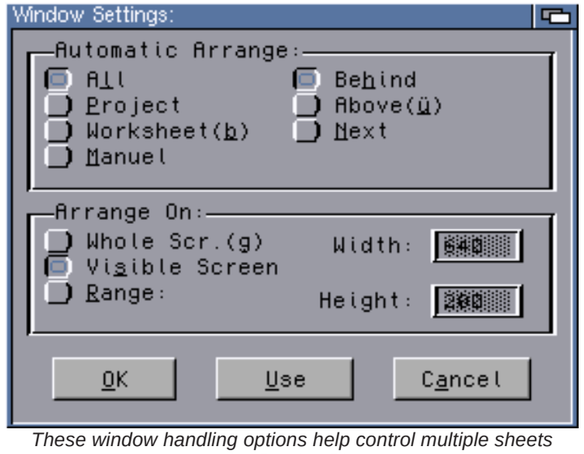
be generated in a range of cells with a user-defined interval. Another option transposes the selected range of cells between rows and columns or vice versa, very handy when dealing with imported data. A sort function for columns of data is provided but the options are limited to working on text or numbers and ascending or descending, this is a feature which could be greatly expanded.

Formatting

The data within a cell or cells can be formatted in a number of ways. Basic text formatting options are available such as left, right and centre alignments, bold, italics and underline. The width of each column can be adjusted by dragging its margin or entering a pixel value. There is also an automatic feature that sets the width to the widest contents when you double click the margin. Text can be given a colour from a choice of seven which are defined in an options window. Annoyingly the colours are only given a number in the formatting menu so I hope you have got a good memory! A border can be added to one or more sides of a cell but only one style, a single pixel black line, is available. Borders can be added quickly around a range of cells but if you apply a border to the top of one cell and the bottom of the one above it (for example) you get a double line which makes neat formatting a bit fiddly. I couldn't find a way to change a cell's background colour.

Other formatting options enable you to change the way data is displayed in a cell. Firstly you define what type of data is within the cell. The options are text, number, percentage, date, month, weekday and time. With that set additional options can be changed. Numbers can have their number of decimal places, currency symbol (and its position), rounding, and sign (positive or negative) set. Dates can be displayed in a variety of formats, either numerically or in words. Finally, there are protection options that can be used to stop a cell from being edited or even from being read on the screen

The Format Manager palette can be used to "pick-up" the all the formatting options of the selected cell, these are then given an identifying name. Selecting another cell and double clicking on the format in the palette will apply those settings to the selected cell. Even more cleverly, if you then change the options associated with that format all the cells given the format will change.



These window handling options help control multiple sheets open on the StarAm Plan screen.

StarAm Plan's Functions

To give you an idea of the functions available in StarAm Plan, here are the categories provided (in bold) with the number of functions in each (in brackets). Below the categories are some sample functions but this is only a small selection.

Statistical (20)
Average, Weighted average, Percentage...

Count (5)
Equal, Greater than, Less than...

Search (8)
Index, Column/Row Ref. ...

Financial (11)
Linear deprecation, Future value...

Exponential/Logarithmic (5)
General log, Exponent, Square root...

Trigonometric/Hyperbolic (14)
Sine, Arc sine, Tangent, Arc tangent...

Mathematic (9)
Integer, Round...

Boolean (5)
And, Or, Not...

Date/Time (10)
Weekday, Current date, Current time...

Text (20)
Find, Length, Upper, Lower...

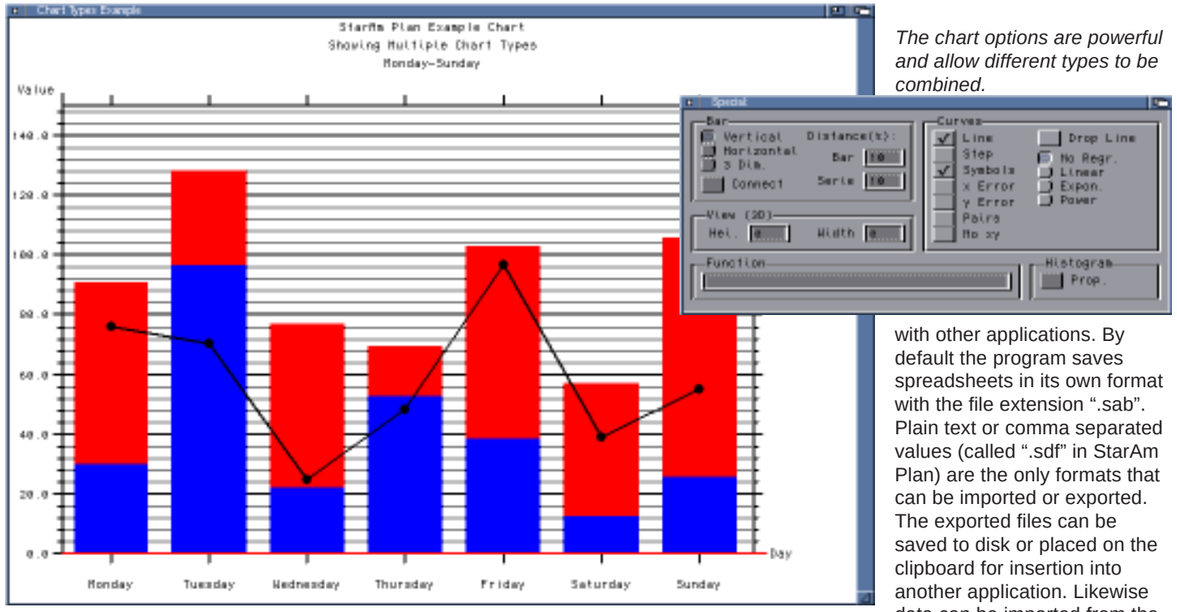
Others (13)
If, Random, Decimals...

You can use this feature, for example, to change all the headings in your spreadsheet from blue to green.

While StarAm Plan has a good range of formatting options, it's not in the same league os some of the Windows spreadsheets you might have used that have been designed to produce "presentation" type output. StarAm Plan concentrates on providing a powerful set of calculation and graphing options.

Charts

Often a graph or chart can put over information much more effectively than a page full of numbers. So it's good to see that StarAm Plan's charting options provide many ways to display your data in a more graphical manner. There are eight basic chart types including pie, bar, line and area. StarAm Plan cannot display a chart within the spreadsheet so any charts (and you can have as many as you like) using the data in the sheet are listed in the chart window. Like many windows within StarAm Plan, the chart window can be left open while you work. If a new sheet is selected the window updates to display the charts for the currently active sheet. Charts can be viewed either in a window along with the spreadsheets or on a separate screen. On my system I found



that opening charts on a 16 bit screen would cause the computer to hang. I set the charts to open on a separate 8 bit screen which solved the problem.

On chart types with axes (all of them except the pie chart type) multiple data sets can be overlaid and each data set can have its own chart type. Stacked bar, curve and function charts can be combined in this way, for example you could overlay a line over a bar chart. Both right and left "Y" axes can be used and you can choose to which axis a data set is mapped. In addition to plotting data from the spreadsheet it is also possible to plot lines based on a formula using the "function" chart type. Axis values and be automatically generated or manually set and there are separate Logarithmic options for "X" and "Y" axes.

The chart formatting options are pretty comprehensive, to start with, as you would expect, you can set a chart title and add a legend to identify each data set. The size and font of each of the text elements of the chart can be changed to any Amiga font (bitmap or scalable) installed on your system. Bar and pie chart types can have a 3D effect applied. The "System of co-ordinates" window enables you to format the axes of the chart as you require and there are options to show different levels of grid behind the data. Some chart types have specific options so, for example, you can set the spacing between bars in a bar chart or add error bars to a curve chart.

Your chart settings are saved with the sheet so the chart can be recalled at any time, reflecting any changes made to the data in the spreadsheet. Charts can be saved as an IFF file for insertion into other documents. You can also print a chart from within StarAm Plan, but separately rather than as part of the data spreadsheet.

Printing

StarAm Plan provides only a limited set of printing options with two printing modes, "Quality" or "Fast". Fast uses the font built into your printer and basically does a text dump of the spreadsheet, none of the formatting you set is taken into account. Header and footer text can be specified and is printed on each page, you can enter place holders so StarAm Plan automatically inserts the page number, date and other variables. Quality printing enables you to choose any installed font and size for printing, and if you choose a scalable font the text in the printed output looks nice and smooth. Formatting such as text colour and borders are retained and the output looks quite nice, the main limitation being that everything is printed in the same font. I had some problems with the printed output appearing in the wrong position on the page but this could be peculiar to my set-up. The main problem I had with StarAm Plan's printing is that there is no print preview option so preparing a document for printing tends to need several trial runs before you get everything to fit properly. I would also be nice to have the facility of carrying a number of header rows or columns onto subsequent printed pages for reference.

Import/Export

Unfortunately, StarAm Plan only has a limited range of options for exchanging its data with other applications. By default the program saves spreadsheets in its own format with the file extension ".sab". Plain text or comma separated values (called ".sdf" in StarAm Plan) are the only formats that can be imported or exported. The exported files can be saved to disk or placed on the clipboard for insertion into another application. Likewise data can be imported from the clipboard or a file.

The chart options are powerful and allow different types to be combined.

Conclusion

This program has really grown on me as I used it, initially I found the odd formula names, rather old fashioned looking interface and differences from the Windows spreadsheets I am used to at work quite off putting. However, once I had looked at the example spreadsheets and learnt some of the basics from the English Quick Start guide I was pleased to find it has many powerful functions and in general works very well. Even the printing options were much better than they first appeared. So long as you don't expect a 15Euro shareware product to be a complete clone of MS Excel I think most home users (and many professionals) will find StarAm Plan will fulfil their spreadsheet needs.

Results

Pros
+ Powerful functions.
+ Flexible charting.
+ Low price.

Cons
- Few "presentation" options.
- No print preview.
- Little file compatibility.

Pretty Good!

.info

Developer
Amiga Arena
www.amiga-arena.de

Distributor
Funtime World
www.funtime-world.de

Price
E10.00

Compatibility
AGA Amigas
Tested on A1200 and A4000D

Test Systems
A1200
Blizzard '030 50Mhz
16Mb Fast RAM

Supplied by
Amiga Arena

Amiga Arena Games Edition

Looking for some entertainment? With over 50 games Robert Williams thinks this CD should brighten up those dark winter evenings!

Over the last few years, Amiga Arena have been coming to agreements with authors and publishers to make some of their commercial and shareware software products available freely from the Amiga Arena website. The list of titles includes many games, and with this CD, Amiga Arena have collected together many of the games into a convenient distribution. The disc is supplied in a plastic DVD box with a professional looking printed insert; the CD itself is a recordable disc to allow for frequent updates. In fact an updated version has already been released since we got our review copy.

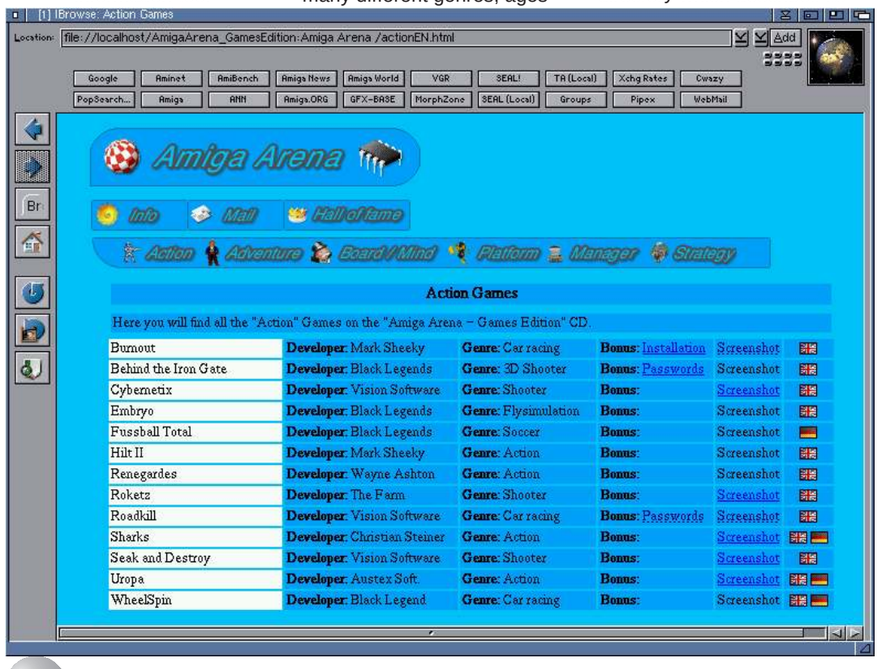
What's on the CD?

Over fifty games are included on the CD which comprise many different genres, ages and developers. Some games are supplied ready to be run straight from the CD, others must be installed and some are in ADF format so they can be played on UAE or floppy disks can be created for use on "real" Amiga hardware. ADF-Blitzer is included in the "Tools" drawer, this is a GUI based utility which can write an ADF file to a floppy disk. Some of the games which cannot be run from the CD can be installed on your hard disk with the shareware WHDLoad package. WHDLoad installers for many of the games on the CD are included, as is a copy of WHDLoad itself. A special deal has been arranged with WHDLoad's authors so owners of this CD can register for 10 Euro, half the normal price.

Documentation on the disc consists of a readme in each directory which describes its contents and a collection of HTML files which list all the games included sorted by genre. Each game has some information including the developer, subject, language and many have an accompanying screenshot. For some games additional information such as cheat codes or installation instructions have been included on the CD.

At the top level of the CD the games are arranged in categories based on their distribution method, these are ADF, CD (games that were originally distributed on CD) and HD installable. The games in each of these drawers are then divided into genres such as Action, Adventure and Platform. Some games appear in more than one category, for example both CD and ADF versions of Beneath a Steel Sky are available.

The games on the CD are indexed on nicely formatted HTML pages. Some games have handy additional information too.



Highlights

With so many games on this CD I couldn't possibly even mention each one in this review, so here are some of the highlights of each section of the disc:

Action

The action category is packed with fun and diverting games and, in my opinion, is one of the strongest in this collection. Some of the games included are: RoadKill - a fast-paced top-down view car racing game with a choice of vehicles. In addition to your driving skills you can also beat your opponents by knocking them off the track or with a variety of weapons! The longevity of the game is extended by a variety of power-ups and weapons to collect, also winning races earns you money to upgrade your car. Rocketz - a two player variation of the classic game "Thrust" in which you must guide your ship through a set of caverns fighting the effects of inertia as well as your enemy. Rocketz is slickly produced with a variety of levels and armament options for your ship. Babeanoid - this game takes the "bat and ball" genre to the extreme, you'll never have seen so many brick types, power-ups and special effects before! The graphics look great and have the hand-pixeled style of many classic Amiga games. Both positive and negative "power-ups" fall down the screen to be collected and include multi-ball, bigger bat and a bizarre effect where the whole screen waves while the game continues!

No shortage of variety, two highlights of Amiga Arena Games Edition are Dawnbringer's BabeAnoid and the classic adventure, Beneath a Steel Sky.

Adventure

This section includes two commercial titles that most Amiga users will recognise immediately both of which are from Revolution Software who have produced some of the best graphical adventure games. Lure of the Tempress - In this game you're set the mission of saving your village from the evil tempress of the title. This is a point-and-click adventure title with some real-time fighting sequences. Lure of the temptress is a quality production and worth playing even if it isn't quite up to the standards of Revolution's later title... Beneath a Steel Sky - this classic adventure was highly rated when it was released and stands up well today thanks to its attractive cartoon graphics which have a hand painted look, amusing dialogue and reasonably logical puzzles. The game has a science fiction story line with you cast as Robert Foster, an exile who is trying to find his origins in a totalitarian city while avoiding the police. Amiga Arena provide both the CD32 (CD) and floppy versions of BaSS on this disc, the CD32 version has the advantage of full spoken dialogue which enhances the experience.

Board and Puzzle

Another strong section, with plenty of puzzle games to keep the old little grey cells warmed up. Doktor - what games collection would be complete without a Tetris clone? This one has really nice graphics and a two player option. Beambender - This is a fun game in which you must place mirrors and other objects on a board to guide beams of light to reach an exit door. Unfortunately this is one of the games with no English documentation but which a bit of patience you should be able to work out what to do!

Platform

A variety of platform games which provide different takes on this classic genre. I enjoyed Monty the Wolf which is a vertical platformer where the aim is to collect jewels. Among it's unusual features are a bouncy ball as a weapon and items that can be picked up and moved around the levels giving an additional puzzle element to the game play.

Strategy

Four games make up the strategy section these include: Imperium Terranum II - this appears to be a space trading game in the style of Elite. FreeCiv - this is a turn based strategy game in the style of the classic Civilisation, the difference here is that you can play on-line with opponents all over the world. FreeCiv is open source and available for many platforms so you can compete with players on other computers too. An Amiga client and server are supplied on the CD; the client has a neat MUI interface with plenty of options.

Management

Various management games are included, you can be a film studio executive in Hollywood Manager, a holiday organiser in Flamingo tours and, of course, a football manager in Samba Partie World Cup. Unfortunately (for those of us who only speak English) these games are only available in German. The only management sim supplied in English is Tactical Manager, another Football game.

Problems

Generally I found this CD to be well produced, however a couple of games did not work, Burnout reported a missing file and the HD version of Lure of the Temptress was set-up to use the JST loader system not included on the CD. However I'm informed by Amiga Arena that the CD has been upgraded since our review copy was produced so hopefully these minor problems have been cleared up. I should also point out that most of the games on this CD are designed to use the Amiga chipset for graphics, so if you only have graphics card output or use Amithlon then very few will work.

Conclusion

While many of the games on this CD can now be found freely on the Internet it's great to have them all collected together in one place. The quality and depth of the titles does vary quite a lot, however amongst the 50 or so included you're bound to find a few you really like. With the latest version of the CD even more games have been added so there's an even wider choice. Amiga Arena Games Edition is a well put-together disc at a very reasonable price.

Results

Pros
+ Wide range of games and genres.
+ Well Organised and presented.
+ Low Price.

Cons
- Variable game quality.

Pretty Good!

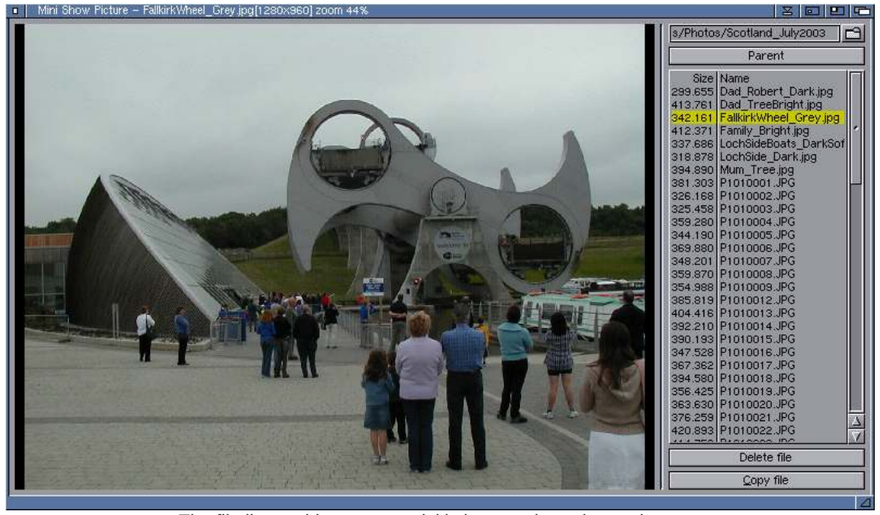
PD Paradise

MiniShowPicture 1.50

Developer: Pawel Stefanski **License:** Freeware
From: http://www.ppa.ltd.pl/software/software-msp.html
Reqirements: AmigaOS 3+ or MorphOS, datatypes.

As you might guess from the name, this is a simple picture viewing utility; however it is a bit different in having a file browser as part of the interface. When you run MiniShowPicutre it opens a MUI window consisting of a large picture viewing area on the left and a file list on the right. At the top of the file list you can select a directory, and the list displays all the files and sub-directories within it. Double clicking on a sub-directory opens it in the file list and a parent button are provided so you can browse to any directory on the current volume. Images can be browsed entirely from the keyboard: the up and down arrows select files and directories in the list, pressing the right arrow with a sub-directory selected enters that directory and left arrow opens the parent directory.

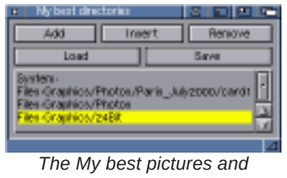
When you click on an image in the file list, it is displayed in the viewing area. MiniShowPicture uses datatypes so all image formats that have a datatype installed on your system are supported. With the correct datatype MSP can even be used to view icons and Postscript files. The last two buttons in the main window enable the selected image to be deleted or copied to another directory. One quibble I had is that delete has the keyboard short-cut of spacebar which is often the "next image" key in other image viewers, so it's easy to press by mistake.



The file list enables you to quickly browse through your images.

Fortunately, there is a "are you sure" message.

The "My best pictures" window enables you to keep a list of your most often viewed images for easy access, regardless of where they are located on your hard disk. This feature works rather like a web browser hotlist, you simply click the "Add" button while viewing a picture to add it to the list. Any image in the "My best pictures" window can be displayed by clicking on its name. The contents of the list can be saved and loaded at any time so you could have multiple lists based on different topics. In a very similar vein, is the "My best directories" window that works in the same way but for image directories on any disk.



The My best pictures and directories windows bring hotlist functions to MSP.

The preference's window is used to configure some aspects of MiniShowPicture. Here you can choose to open one or both of the "My best..." windows and set that the image should be scaled to fit in the viewing area. If scaling is selected you can decide whether the image's aspect ratio should be maintained or if it should be stretched to fit the space. Unusually you can leave the preference's window open while viewing images and the options I have mentioned so far take effect immediately they are selected. Other options available include which directory and "My best" lists should be loaded at start-up and the width of the file list (specified as a percentage of the main window).

> "...a great way of browsing the images on your system that I've not seen in an Amiga program before."

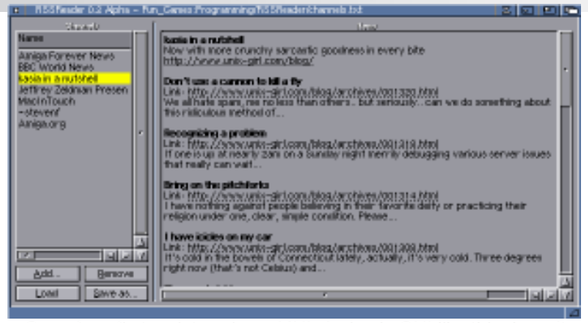
The author of MiniShowPicture has obviously aimed to keep his program simple, and generally that doesn't bother me. For example, personally I have no real need for the image processing features that are included in some image viewers. However, there is one feature missing from this program that I find essential. If you choose to view the image at full size it is not possible to scroll, so images larger than the screen cannot be viewed properly. You can scale the image to view it all but, obviously, you don't get all the details. I would also like to see options to rotate and rename images within the program, both of these options are very handy for digital camera users.

MiniShowPicture has . In general, its simple design works well, but there are a couple of areas that could easily be improved: the delete function and the lack of scroll bars. The author has released several new versions recently so I hope he keeps up the good work!

rxMUI 32.9/40.0

Developer: Alfonso Ranieri **License:** Freeware
From: http://digilander.libero.it/asoft/
Reqirements: AmigaOS 3+, MUI 3.8+, various MUI custom classes.

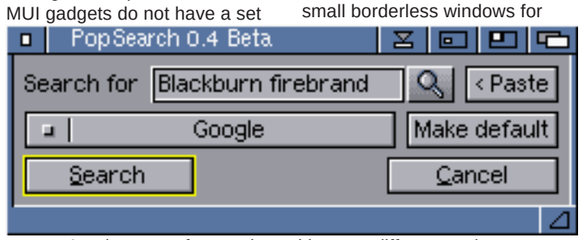
ARexx is one of the hidden gems of AmigaOS, it is a flexible interpreted programming language that allows simple programs to be written in minutes. What makes ARexx so great is its ability to integrate with programs with an ARexx port and the option to add function libraries which seamlessly add additional capabilities to the language. One feature lacking in the basic ARexx distribution is the facility to create graphical user interfaces, so a user can comfortably interact with the ARexx program. Over the years several solutions to this problem have been released and in this review I'm looking at rxMUI, an ARexx function library that allows an ARexx script to build a Magic User Interface GUI.



One of my first scripts using rxMUI. A simple GUI like this doesn't take long to program and benefits from MUI's features.

When you add rxMUI.library to your script a range of new functions becomes available. One of the aims of rxMUI's programmer is to bring some of MUI's object oriented programming philosophy to ARexx, so a user interface is built from a collection of objects which have attributes (a piece of information related to an object, for example the name of a button) and methods (an action they can be asked to perform, for example a list could be refreshed). To build a user interface you build up a tree-like structure within interrelated ARexx stem variables that defines all the objects within interface. The tree is started with an application object which has attributes that define the application. Then windows can be added and within each one groups of gadgets. Gadgets can be arranged horizontally or vertically within a group and groups can be nested within one another making very complex arrangements possible. Within MUI gadgets do not have a set position and most have a flexible size, this means your GUI will be font-sensitive and resizeable with no additional effort. rxMUI does not include a graphical interface builder so getting a GUI right can be a bit fiddly. I find it best to plan out what I want on paper first, working out what groups are required, and then commit the design to code. As ARexx scripts don't need to be compiled it's easy to run a work-in-progress script and make adjustments as needed.

One of the best things about rxMUI is that it supports all MUI's features and many of the third party MUI custom classes that have been released. Functions are supplied to create most basic objects (including buttons, labels, string gadgets and check boxes) that you will need in your GUI using one line of code. More complex objects such as lists, tabbed views, gauges and custom classes are created by defining a new object of the required class and setting its attributes. Custom classes enable powerful features to be added to a GUI with all the programming already take care of. To give you an idea of the flexibility they offer here are some of the classes supported by rxMUI: CompactWindow.mcc is a replacement for MUI's window class which creates small borderless windows for palettes and utilities with minimal interfaces. MysticView.mcc inserts a powerful image viewer into your interface. TheBar.mcc lets you create graphical toolbars which can be repositioned within the program window. When the GUI is completely defined a single function call causes rxMUI to scan the tree you have defined and build-up the interface.



Another one of my scripts with some different gadgets.

With the interface built the next job is to define what actions will occur when the user interacts with it. This is done using the "Notify" function. Notifications can be set on a gadget so that when a specified attribute changes an action will be carried out. The action could be to run a subroutine within the script or to issue one or more ARexx instructions. It is possible to pick up attributes within these instructions so you can make one gadget effect another without loads of additional code. For example it is possible to make a list view with the facility to add, delete and move rows only with Notify commands.

Documentation for rxMUI is supplied in HTML and AmigaGuide formats. It provides a useful reference guide but is rather lacking in tutorial content. All the functions are described with examples and the basics of object creation, notifications and object handling are explained. Each of the MUI classes supported is listed and any attributes and methods whose implementation differs in rxMUI are explained. However, to get a complete listing of all the attributes and methods supported by a class you will need to read the MUI documentation which can be found in the Developer/Autodocs/ directory of your MUI installation. An autodoc reader such as Martin's Reader (Aminet: text/misc/MartinsReader.lha) is useful for dealing with the MUI docs.

Even if you've programmed with ARexx before, the description of rxMUI so far may sound a little daunting, and its true that getting started does require you to learn some new concepts. However, there is a saving grace in the number and variety of example scripts provided which number no less than 75! The examples provided range from very simple, with one or two objects, to complete small applications using multiple custom classes. There seems to be at least one example using each custom class. In many cases you will be able to base your GUI quite closely on one of the examples or at least use the basic structure. If you do make an error in your script, rxMUI takes care of things behind the scenes. This means it should not be possible to crash the Amiga or corrupt memory, instead an error requester pops up with a description of the problem and a line reference for debugging. If you are still having problems there is an rxMUI mailing list on Yahoo Groups which is read by the author and several experienced rxMUI coders who should be able to answer your questions.

Of all the ARexx GUI solutions I have used rxMUI is certainly the most powerful. Once I was used to the methodology I found I could produce quite complex GUIs quickly and many GUI actions could be handled by the notifications system without needing lots of code. By using MUI the GUI gets cool features like customisation, font-sensitivity and resizeability without any additional programming effort. Finally, custom classes allow features to be incorporated into an ARexx GUI that would normally be out of reach. Altogether I cannot recommend rxMUI highly enough, it makes a simple ARexx script look like a professional application!

PowerIcons 1.05

Developer: Elena Novaretti **License:** Freeware **From:** http://www.elena-fractals.it/
Reqirements: AmigaOS 3.5/3.9, 16 or 24bit Workbench screen (graphics card).

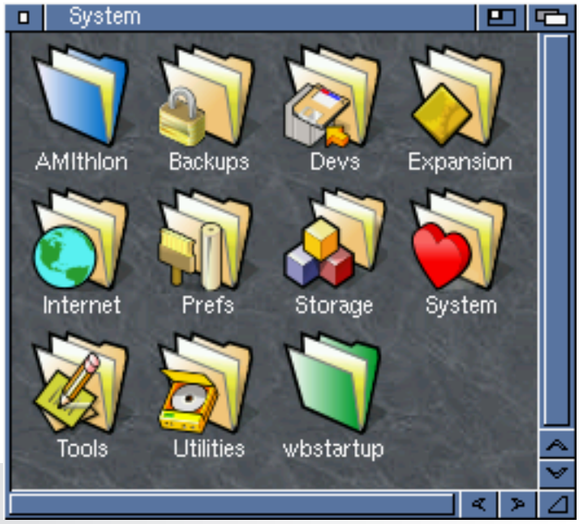
The Amiga icons system has some unique features and over the years we have seen some brilliant icon designs including Magic Workbench, New Icons and, most recently, Glow Icons. However, even with a graphics card icons have always been limited to a maximum of 256 colours. PowerIcons is a patch that adds support for 24bit icons with an alpha channel and improves the rendering of traditional icons too.

Each pixel of a 24bit icon can be any one of over 16 million colours allowing smoother, more detailed icons to be drawn. The alpha channel means that any pixel can be set to blend into the background making realistic shadows and smoothed edges possible whatever backdrop image you choose. Normally, all the icons displayed on your Workbench screen must be rendered from the same 256 colour palette. With PowerIcons this restriction is removed so even normal icons will look their best. When you select "Show/All files" in Workbench, files without icons are given a default icon so you can see them, PowerIcons can show these default icons with a user definable level of transparency so you can easily see which files have an icon attached. Finally, there are two options to spruce up the text of the icon name, a border or a shadow can be added both of which are rendered using transparency for a smooth effect.

24bit icons do have a couple of limitations compared to standard Amiga icons. Firstly they only have one image so, when you select a 24bit icon it is highlighted with a blueish tint (the colour is configurable) rather than changing to another image. This has the advantage of making which icons are selected very clear but removes the possibility of the nice "animations" found on some Amiga icons. The second limitation is that when a 24bit icon is dragged it is displayed as a rectangular dotted outline rather than the icon image, apparently this is a limitation of Workbench that cannot be overcome.

To use PowerIcons you will need to be running Workbench with a 16 or 24bit display (which means a graphics card is essential) and you will also need a reasonably fast machine as the 24bit icons are more processor intensive to render. Unfortunately, the patch does not work with Workbench replacements like Scalos or Directory Opus 5, although it does with some utilities that use icons such as Amidock. A 24bit icon is simply a 24bit image saved in the PNG format and renamed with a ".info" extension so you can make your own icons or download PNG icons designed for other platforms (see the KDEView review in this section). The patch enables the Workbench information window or alternatives such as RaWbInfo to replace and existing icon with a 24bit one retaining tooltypes and other icon data. 24bit icons do not contain a normal Amiga icon image; so if you decide to stop using PowerIcons you will need to put all your original icons back. Therefore, I suggest making a backup before trying it.

PowerIcons works very well and, with well-drawn icons, there is a very noticeable improvement in quality. In addition to its basic task, PowerIcons also has other handy features to make standard Amiga icons look and work better. Whether these improvements outweigh the limitations I've noted is entirely up to you. At the end of the day this is eye candy and that's important to some people and less so to others. Fortunately, you can try out PowerIcons without installing it by double clicking on its icon and browsing through the sample 24bit icons supplied.

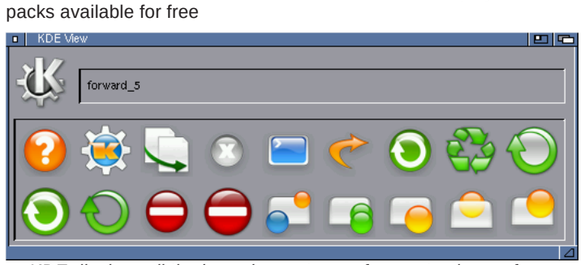


24 bit folder icons from the "Wasp" set used to replace the standard Workbench drawer icons.

KDEView 1.0

Developer: Pietro Ghizzoni
License: Freeware
From: http://www.ibaden.it
Reqirements: PowerIcons, dearchiver.

As I mentioned in the PowerIcons review, the PNG image format is already in use for icons on other platforms. One example of this is the KDE desktop manager commonly used on Linux systems. At the website http://www.kde-look.org there are many quality icon packs available for free download. Each pack consists of a number of PNG icons with each image in a selection of sizes, all within an archive. KDEView is a handy utility which enables you to view the icons within one of these packs without moving the files around or renaming them with .info so PowerIcons will display them.



KDE displays all the icons in a category for you to choose from.

To use the program you first need to download an icon pack and de-archive it. Normally the tar archive format is used with either gzip (.tar.gz) or bzip2 (.tar.bz2) compression. Both these formats can be handled by the OS 3.9 UnArc utility, but you will need to uncompress the .tar file first and then de-archive it so it's a two stage process. With that done you simply Load KDEView and select one of the directories full of icons (.png files) in the location where you de-archived the icon pack. The KDEView window shows all the icons in that location and you can select the size you require from a menu. For some reason the icon display area in the window doesn't have scroll bars (this is becoming a theme of this PD Paradise) but if there are too many icons to fit you can scroll with the cursor keys.

Once you've found a 24bit icon you like then you can drag an icon from your Workbench onto it and the Workbench icon will be replaced. This seems a bit backwards but in practice it works well. The icon replacement procedure retains the icon type, tool types, default tool and other icon information.

That's all there is to it, a simple program that works well. Perhaps in the future some scroll bars and the facility to handle icon pack archives transparently could be built in to make it even better!

Mac: Reloaded

Part 2 of Michael Carrillo's emulation series.

Following from my previous Mac Reloaded article in the last issue and after so much interest, I have decided to take it a bit further by giving by giving you mini reviews of programs I have found useful and work on the Amiga via Mac emulation.

Before I start, I got an E-mail from someone wanting to know how to change the awful drive icons that come with Fusion. Download Aaron (MacOS system enhancer) which contains a nice drive icon you can use: www.kaleidoscope.net/greg/aaron.html. (Aaron isn't required if you are using system 8.0 or later, but you can still use the icon. Click on the drive icon and select from the apple pull down menus FILE/Get Info. A System window will pop up, click on the Drive Icon, a border around it will appear and once more from the Pull down menu select Edit/Copy. Click on Drive you want to change icon with repeat the same process, but this time do Edit/Paste. Close window and it's done. Look on Google for Mac Icons, "Steves-Icon-set" is a good start.

Sim Tower

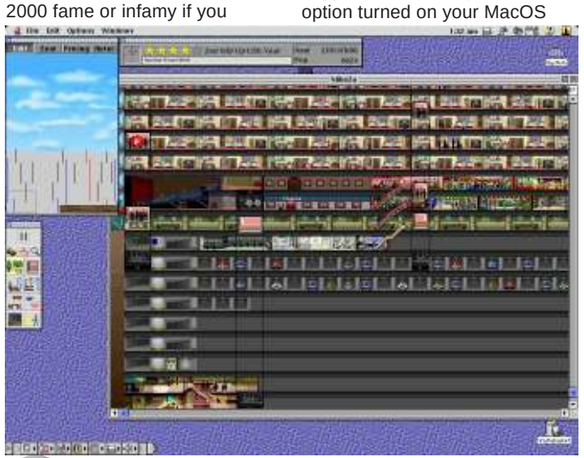
Game Type: Sim
Aim of the Game: To reach as far up as you can go and get your tower awarded 5 Stars.

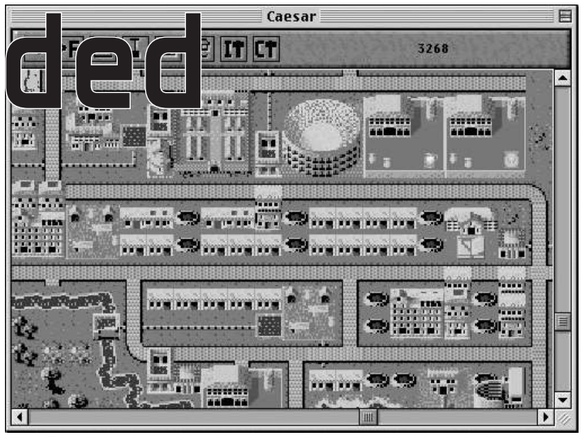
Summary:
This game was written by Maxis in 1990, yes them of SimCity 2000 fame or infamy if you remember how bad the Amiga version was. However Sim Tower is a bit of a classic, good enough to play at least the once. You start off with a bit of cash and one star. Build a lobby, add some Offices or Condos above the first two floors, reserve the first two floors for retail space. Make money from building and selling condos (one off) and getting an income every quarter from the Office Rentals. Add Stairs or lifts to connect them up, then watch people come in to your tower and spend money at your retail outlets such as fast food.

The game progresses as you add more people or floor space which increases your star rating. Eventually you can add Express Elevators, Cinemas, meeting halls, restaurants and hotel rooms. Whilst down in the basement you can add Waste Recyling, Car Parking and an Underground Station.

Tip: Ensure every 15th floor is a lobby, and serve them by Express Elevators only.

Sim Tower is a game that you can while away many hours playing and not realise, those with an 040/25mhz processor or lower will have to disable animations and most background noises in order to keep this game going. Also you can get more speed by closing the main window during periods (double click on top Window bar) whilst you are waiting for something to happen. Make sure you have this option turned on your MacOS (look in control - Windowshade).





Play classic games that were never released for the Amiga.

Overall: 85% (in context for system it is running on and not compared to present day)

Caesar

Game Type: Sim
Aim of game: To become Caesar of the Roman empire.

Summary:
Imagine Sim City set in Roman times and you get an idea what this game is all about! This time though, you also have to deal in politics, keeping the citizens happy, making money, defence, attack etc. You Start of by looking for a place to begin a settlement so that you can build a city, you add such things as walls, public baths, roads, temples, housing etc. Once you have a population, you can start attending the Forum and start wielding political power or checking on how you are doing in terms of ratings, population, taxes, civic spending etc.

Industry and water to all isn't half your problems in this game, it's about making your city a successful viable economic powerhouse, without this you will never move up. Build markets, temples, theatres, in fact everything you need to make a successful city. You can build more than one city as various terrains provide different resources for your industry, such as wheat, Ivory, copper or glass.

Tip: As with all cities, found yours near a river.

If you like a challenge then Caesar, despite its poor graphics, (by today's standards) has tons of options and challenges that will keep the most ardent Sim fan coming back for more.

Caesar is the sort of game that cannot be rushed into, if you can find a copy of the manual do so, it will help tremendously. Don't think that this is the sort of game that you can pick up and run with, it isn't, but it is ultimately rewarding. However, if you want to better it, look out for Caesar II. Just as long as you check if will work on your system first!

Overall: 88% (in context for system it is running on and not compared to present day)

Wolfenstien 3D

Game Type: 3D Shooter
Aim of the Game: Shoot everything in sight and complete your mission.

Summary:
Ever played Doom? If so you may just love this, its incredibly similar, but the graphics are more cartoon-ish, less realistic and set in World War II. Having said that, its still worth a go as even by today's standards the game play is still quite addictive. You are locked in the castle dungeon, you find a weapon and decide to make an escape, armed with a revolver at first, you exit your cell in a desperate bid for freedom! Trouble is that this castle crawling with Nazi Guards who are hell bent on making sure you don't leave the place feet first and in one piece!

There are the usual secret entrances, food/health bonuses, extra ammunition etc or in other words the usual fare for this type of game. Keep shooting the baddies and work your way through the levels meanwhile your opponents keep getting nastier and tougher. The sound is okay, nothing out of this planet, but admittedly you feel a good deal of satisfaction when you hear a Nazi opponent bite the dust. There's not much more to be said about this game, except that if you want a good pass-time then you cant do much worse than loading this up and having a blast. Thank god for the save games too!

(Note: If your system is an 040/25mhz or below you this game will run in a small desktop window, you can change the settings, but it could be unplayable.)

Overall: 82% (Its no Quake III or whatever, but in context for the system it is running on, it isn't half bad!)

Maelstrom Game

Type: Arcade Shooter
Aim of the game: Destroy all the asteroids!

Summary:
Yes its asteroids on the Mac. Only this is one heck of a conversion. Maelstrom does for the Mac what Super Sturdust did for the Amiga. It takes the classic game asteroids and improves it in spades. Shoot all the asteroids, and avoid a few unpleasant surprises. Having said that, this version has loads of power ups, bonuses. Add to that the very witty special sound effects and the graphics which are superb considering their age.

If you want a quick shoot em up session, this is one hell of a game to do it with but be warned. Maelsrom has the "one more go" factor, once you start, you cant put it down!

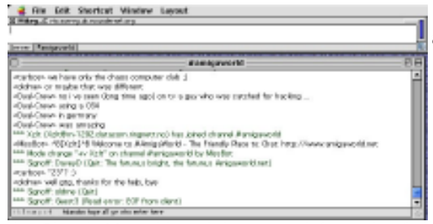
Overall: 90% (This game still stands the test of time despite the years)

MacIRC 68k

Type: Application

Summary:
Mac IRC 68k is as the title says an Internet Relay Chat client for the Classic Mac although its quite old and if has a few features missing, its also the only IRC client available that is Free! Development of this program ceased years ago and it is now freeware. This is just one of the easiest ways for you to get an IRC client running on your Amiga for nothing, its dead easy to set up and use (I did say some features were missing!). If you feel you must have the "Bells and Whistles" then check out Ircle 3.1 which is still Shareware, however you do get a 30 day free trial offer with it so you can decide if its worth it.

Tip! If you have never tried IRC and would like to, check out a previous issue of Total Amiga Magazine which contained all the information for getting on-line to an IRC channel.



Older Mac applications such as MacIRC are still very handy.

Overall:
MacIRC 68k - 78%
Ircle 3.1 - 88%

Where to Download

All games available from http://mac.the-underdogs.org

MacIRC 68k available from (make sure you download the 68k Version!): http://www.macirc.com/download.html

Ircle 3.1 (68k Version): http://www.ircle.com/download.shtml

Image Enhancement

TUTORIAL

Unsightly telegraph pole growing out of your head? Then why not visit Robert Williams' image clinic!

Part Two: Re-touching & Sharpening

In the second part of this tutorial I'll be explaining two more techniques for improving the look of digital images. These processes can be applied equally well to any image no matter how it has been captured, whether through a digital camera, with a scanner or a video digitiser. I'll be concentrating on Nova Design's excellent ImageFX but at the end of each section I'll mention how you can achieve similar effects in other Amiga image processing programs.

Re-touching

It would often improve a picture if some unwanted object could be removed. The classic example is a telegraph pole growing out of someone's head, but these sort of errors are perhaps less likely with digital cameras because you can check the photo you have just taken. On the other hand sometimes an immoveable object, for example an electricity pylon in a picturesque landscape, spoils an otherwise well composed image. My example image for this part of the tutorial has a figure with an unfortunately placed tree, but you can use the technique to remove any type of object. The technique we're going to use will allow us to copy other areas of the image over the object we want to remove effectively hiding it. In ImageFX this uses the "Pantograph" drawing mode, in other applications it is commonly called "clone".

NOTE: All the images used in this tutorial can be downloaded from the Issue 17 page of the Total Amiga website: http://www.totalamiga.org.

ImageFX

Start by opening the file you want to edit in ImageFX by clicking on the "Open" button in the main toolbox. We're going to perform some quite detailed editing so it's a good idea to zoom in on the object you want to remove so it almost fills the image window. To do this you can either click on the "+" button in the bottom border of the image window and then scroll to find the area, or point at the area you want to magnify with the mouse pointer and press the "M" key,

A section of the original image, complete with the errant tree!

this zooms in centred on the pointer position.

Open the "Drawing Options" palette by double clicking on any of the drawing tools except air brush or text then select "Pantograph" from the "Style" cycle gadget. The pantograph drawing style will allow us to select and area of the image and draw it onto another area with any of the standard drawing tools. We want to create a subtle effect that blends in with the rest of the image, so the best drawing tool to use in this case is the air brush, because it has a nice soft edge. To set up the air brush drawing tool, double click on its icon to open the "Airbrush Options" window. I found the default "Radius" and "Nozzle" settings of 5 and 50 respectively were about right for my image but you can adjust them at any time if you need to cover a larger or smaller area. Make sure you check the "Realtime" option, this causes ImageFX to update the image window while you paint which is essential for this process.

Now we're ready to begin covering up that tree! I'm going to start with the sky area, this is a smooth blue colour and, because it has no prominent features, should be easy to copy over the tree. First we have to select the area we want to copy from, to do this hold down the "Alt" key and left click on the sky where you want to copy from. The sky has a subtle vertical gradient from an intense blue at the top to a milky blue/green at the bottom so make sure you select an area in line horizontally with the area you want to cover. When you click a small square should appear, this indicates where pixels will be copied from. Release "Alt" and move the mouse to the area you want to cover, now click the left mouse button and start drawing as normal. You should notice that the image is copied from the area you selected. Notice that as you draw with the mouse the square marker follows your movements so you can see exactly what is being copied. However when you release the mouse button the marker does not move, this means you can copy the same area to several places without moving the marker manually. It is usually wise to select a new source area occasionally by "Alt" clicking on the image to avoid copying one particular are en masse.

TIP. When you a copying an area of an image with clone be careful not to duplicate prominent features. For example in my sky their are a couple of tiny clouds on the horizon, if you copy those it will be obvious the image has been doctored.

As you work down the image you'll come to the horizon where the sky joins the hills, be careful in this area to leave a nice flowing line that blends into the rest of the horizon. I found the best way was to find another area of horizon with a similar profile and then copy it over in one piece by selecting it as my new source ("Alt"-click).

TIP. As you work in ImageFX you may find that some garbage has built up on the image where the marker has not been re-drawn properly, this takes the from of small vertical lines. To clear these, and see the image as it really is, press the "R" key on your keyboard to redraw the image window.

With the sky completed you can now move on to the land and water, this is an example of a more complex retouching task because there is quite a lot of detail in the area behind the tree. I tackled this by taking each area of a different colour or texture in the background in turn and filled over the tree to match the neighbouring background. Remember that the object of the exercise is not to guess what the area behind the tree really looked like but to produce a convincing background. As with the sky, take care not to duplicate features, it's easy to end up identical clumps of trees which is a dead give-away! To avoid this I find drawing in small stages, even with single clicks of the mouse, is a good option. Drawing in this way also has the advantage that you can step back through your work in small stages using ImageFX's "UNDO" button.

TIP. When doing this kind of work it can be useful to have some additional undo steps. To set the number, click on the "Prefs" button in the main toolbox and increase the number of "Undo Levels".

As with the horizon you'll also need to treat the joins between the land and water, and water and head with some care to get a realistic effect that blends in with the rest of the image. If you have problems you can try lightly blurring the edited area into the rest of the image. To do this open the "Drawing Options" palette and set the "Style" to "Normal" and the "Mode" to "Blur" then paint over the areas you want to blur with the air brush tool.

TIP. In ImageFX you can choose to have commonly used palette windows open when you start the program. To do this open the "Prefs" window, click on the "Interface" button then uncheck the "Close Child Windows Immediately" option, click "Okay" and then "Use". Now open all the windows you commonly use and arrange them on the screen. Finally open "Prefs" again, click "Save" and choose "Default.prefs" in the file requester.

Other Uses for Pantograph/Clone

Apart from removing unwanted objects from an image, this technique can be used at any time when you want to seamlessly copy part of an image. One common task would be to repair old or damaged images, you can use clone to cover up tears or cracks with the surrounding background.

Other Applications

Perfect Paint - The equivalent tool in Perfect Paint is called Rubber stamp and works a little differently to ImageFX's Pantograph. To activate the tool click on the "Rubber Stamp" icon in the tool box, it is just above the palette area to the left of the boing ball. Now you need to select a brush to paint with, I found one of the soft round brushes from the selection at the top right of the toolbox worked best. When you move your pointer over the image you should now see two cursors, one "blob" representing the area covered by the brush you selected and a cross hair which indicates where the image will be copied from. The difference to ImageFX is that in Perfect Paint the cross hair moves with your pointer all the time, even when you are not painting. To set the relationship between the source (cross hair) and destination (blob) move the blob over the area you want to copy from, hold down the left shift key, then click and drag out a line to the destination. The relationship between the two cursors should now be changed to match your selection.

Art Effect - Art Effect's tool is called "Cloner" and is represented by a rubber stamp icon in the main toolbox window (to the right of the airbrush). To use cloner, click on its icon then move your pointer over the image. To set the source area click on the image while holding down the left "Alt" key. Now start to draw in the destination area and you will see a cross hair appear where you Alt-clicked. If you want to move the destination without changing the source (to make another copy of a feature) move the pointer to the new area and click while holding the right "Alt" key. The clone tool draws with the brush you have selected; to change brushes double click on the clone icon to open the "Brush Manager" window and click on a brush image to select it.

Photogenics 5 - "Clone" is also the name given to this tool by Photogenics 5 and it is located in the main toolbar two icons to the left of the "Fill paint layer" icon. Click on the clone tool, notice that the clone options are now shown in "Tool" tab of the "Options" palette. Move your pointer over the image, hold down the "Control" key, click on the source area and drag to the destination area. The offset boxes in the tool palette are populated with the relationship you have created. Now when you start to draw the

Perfect Paint's rubber stamp tool shows you where the image will be copied from (the cross-hair) and where your brush will cover (the "blob").

Tree... be... gone!

The end result is quite satisfying and the trickery is hard to spot (I hope!).

image is copied from the source area. You can change the relationship between source and destination areas at any time by control-dragging on the image. Remember you can use any of Photogenics drawing tools and adjust the size and density of the brush while using the clone tool. You can also rub off any errors by drawing with the right mouse button.

Sharpening

Most digitised images, no matter how they have been obtained, look somewhat softer than in "real life", this is a natural result of the digitising process which splits the image up into pixels and then takes the average colour and intensity for that pixel. Taking a simple example, if the area of the original image covered by a pixel were half black and half white, the end result would be a grey pixel. In most digital cameras this softening takes on another dimension because each photosite (an individual light sensitive area on the CCD chip that relates to one pixel in the image) on a CCD sensor can only pick up one colour (usually red, green or blue). The photosites on the sensor are arranged in a Bayer pattern (see box-out) and a demosaicing algorithm in the camera's firmware converts this back to a full colour image, this again introduces softness. Because modern digital cameras have such high resolutions and often have built-in sharpening this is an effect you may never have noticed.

TIP. If your digital camera offers a user-selectable level of sharpening it is worth experimenting with this setting. Try reducing the level of sharpening and then sharpen in your software where you have more control and can vary the amount of sharpening to suit the particular image.

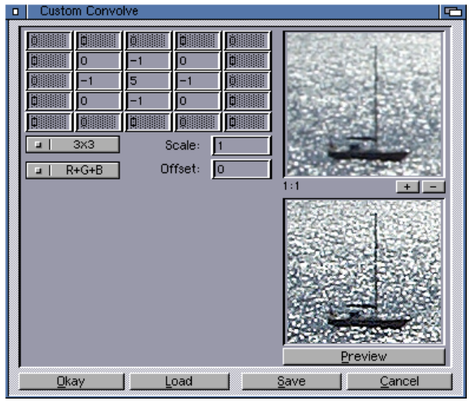
If your images have been scanned from printed matter (such as books and magazines rather than photographs) then the image will probably have been softened in the scanning process. This is because images on the printed page are usually made up from dots of coloured inks arranged in a half-tone pattern. When they are scanned the scanner either picks up the individual

dots or, at lower resolutions, an unsightly moire effect can be produced. The normal way to remove this is to scan at a higher resolution and then scale the image down, this averages the colour of the pixels in a similar way to the original digitising process and produces a softer image.

Most image processing software offers several sharpening tools which can help improve the sharpness of an image. It is important to note that these tools cannot usually correct an image that is out of focus, what we are talking about here is revealing a little more detail in an already well focused image. Sharpening tools work by increasing the contrast of already high contrast areas of the image. This works because detailed areas of the image are usually represented by contrasts (by definition a nearly flat plane of colour has little detail) and if you enhance these it makes the detail more apparent and sharper looking.

Negative Sharpening Results

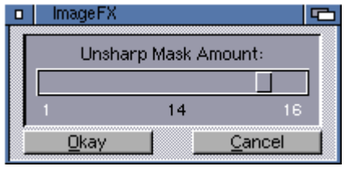
Sharpening an image can have negative effects, these normally appear if you sharpen an image too strongly. Because sharpening tools are increasing the contrast in areas of an image if you over do them these areas become too pronounced, this is indicated by white halos around bright areas and black halos around dark ones. Sharpening can sometimes emphasise unsightly areas of the image such as image compression and film grain artefacts. It is wise to ensure that images you intend to process have a minimum of artefacts to begin with by using the highest quality setting on your digital camera and avoiding saving scans in a lossy format such as JPEG.



Several sharpening presets are provided for ImageFX's "Custom Convolve" effect.

In my experience the sharpening tools in ImageFX are not particularly sophisticated compared to those on other programs (both on the Amiga and other platforms) however you can get good results with a bit of ingenuity. Also take a look at my comments about the other programs at the bottom of this section because both Photogenics 5 and the ArtEffect Plug-ins Collection contain excellent sharpening tools.

ImageFX



The "UnSharp-Mask" effect has only one parameter but beware, the lower the setting the stronger the result!

Nova Design's image processor has three different sharpening tools which all have slightly different effects:

Custom Sharpen Convolves

Three sharpen convolution matrices are supplied for use with the custom convolution tool. To access these load the image you wish to sharpen, click on the "Convolve" button and then "Custom". In the window that opens you will see a grid of boxes where you can enter a custom matrix. Fortunately the sharpening matrices have been defined for us so click on the "Load" button. A file requester appears where you can select a preset file, the three we are interested in are "SharpenLow", "SharpenMedium" and "SharpenHigh". Select one of the options and click "OK" to load it, the matrix will be populated for the effect you selected. Now try the "Preview" button to see the effect in the preview window.

TIP: Remember that you can scroll the preview by clicking and dragging in the top ("before") area.

If the effect isn't quite what you want you can edit the values in the matrix; I found that increasing the value in the centre box made the effect stronger and vice versa. Overall these simple convolution effects are quite crude and probably won't be much use for improving photos, however you might find them useful for special effects.

Sharpen Convolve

This is a basic sharpening tool and produces a slightly cruder effect than unsharp mask, although in all honesty I can't see a huge amount of difference myself. The effect is accessed from the "Sharpen" button on the "Convolve" palette. You can vary the strength of the effect with the Amount slider with 1 being the weakest.

TIP: If you don't want to apply an effect to the whole image image, remember you can select an area using the region tools. To use these choose a region type from the cycle gadget in the main toolbox (it shows "Full" by default) and then draw out the region you want on the image. To return to processing the whole image change the setting back to "Full".

Unsharp Mask

Unsharp masking is the sharpening tool usually used in professional applications on other platforms. To use it open the "Convolve" palette and click the "Unsharp Mask" window. Like the "Shapen" effect an "Amount" slider is the only control over the process however this time the lowest amount (1) has the strongest effect while 16 is the weakest.

TIP: If you want to compare the effect of sharpening with the original image open the "Buffer" palette and click "Copy To Swap" to make a copy of the image.

Lessening the Effect

If you're sharpening an already well focused image or one with some artifacts you may find that the built-in sharpening tools are too harsh and do not offer sufficient control. You can get over this by sharpening a copy of the image and then blending it with the original using layers.

Start by opening the image you want to sharpen if you haven't already done so. If you've already sharpened the image, close it and open the original. Open the "Layer Manager" palette by clicking the icon to the left of the "R", "G", and "B" buttons in the main toolbox. In the "Layer Manager" click on the down pointing arrow at the top right of the window to open a pop-up menu. From the menu select "New Layer" to create a new, blank, layer. We won't be using this layer, but adding it switches ImageFX into layer mode so the other options we need become available. Click on the "Background" layer in the list (this is the original image) and then choose "Clone Layer" from the pop-up menu to create a copy. By default ImageFX offsets the copy from the original; to correct this double click on the new layer in the list to open the "Layer Settings" window. Set the "Offset X" and "Y" values to 0, then click "Okay".

NOTE: You must press return or tab out of each box for the settings to "stick". The image window should update at once.

Now select the layer you added first in the list ("Layer 1") and choose "Delete Layer" from the pop-up menu, it has served its purpose. Now we can apply the sharpen effect. Make sure the top layer is selected then apply your chosen sharpening effect (or any other effect you choose) using any settings you want. As we're going to tone down the effect you may want to apply a stronger effect than you need to have a wider range of adjustment. Now you can use the "Blend %" slider to vary the strength of the effect; as you move the slider to the left more of the unprocessed background image shows through.

Completion

When you are happy with the image use the "Flatten Layers" command from the pop-up menu; then the image can be saved in a standard format such as IFF ILBM or JPEG of use in other programs. If you think you might want to change the level of sharpening later, save the layered image as an INGF before flattening to keep the effect editable and the original image layer.

Other Applications

Perfect Paint - A simple sharpen tool is available as one of Perfect Paint's image processing effects. To use the tool click on the effects button (immediately above the boing ball) in the toolbar to open the "EFFECTS" window. Choose "Other" from the cycle gadget and click on "Sharpen" in the list. At this point it is useful to click the "Compose Requester" button and make sure "Show Each Time" is checked in the window that opens. Click on the "Prefs" button in the "EFFECTS" window to open the sharpen effect's settings window, set the "Power" of the effect with the aid of the preview thumbnail (you can scroll the thumbnail by dragging inside it). Now choose a drawing tool with which you want to apply the effect, if you want to cover the whole image it's best to choose a filled box. Draw over the area you want to effect, when you release the mouse button the effect is applied and the "COMPOSE REQUESTER" appears. Here you can use the "Opacity" slider to blend the effect into the background very much as we did with layers in ImageFX.

This example image shows the effects of sharpening. The left side is original, the middle section has been slightly sharpened to bring out the detail and the right has been over-sharpened leaving a bright halo effect around its edges.

Art Effect 4 - ArtEffect 4's sharpen tool can be found in the "Filter"/"Sharpen" submenu and is similar to Perfect Paint and ImageFX's tools in that its main control is a "Strength" setting. In addition there are two sharpening modes, "fine" or "coarse", the former does allow a very subtle effect to be achieved without resorting to blending with the original image. If you still wish to reduce the effect you can do so using ArtEffect's layers facility using the same technique as ImageFX.

"UnSharp-Mask" from the ArtEffect plug-ins collection is one of the most powerful on the Amiga with plenty of parameters including the handy "Finetune" option.

Art Effect Plug-ins Collection - If you're lucky enough to own the ArtEffect and the excellent plug-ins collection then, in my opinion, you have the best sharpening tool on the Amiga in the form of the "Sharpen"/"UnSharpMask" filter. This tool is very similar to that found in professional applications on other platforms. Its main advantage is that it gives you several different parameters to adjust so you can get just the effect required. When you select the UnSharpMask filter you're presented with a settings window with four sliders: "Radius" sets the area that will be checked for contrast and has a direct relationship on the strength of the resulting effect; "Amount" sets the amount of sharpening applied and "Threshold" sets how much contrast there must be before an area is sharpened. A "Finetune" slider lets you vary the final effect very slightly to get just the look you want. While this sounds complex, a decent sized preview image is updated in real time so it doesn't take long to get the hang of how the sliders relate to one another. I normally start by setting a low threshold and then adjusting the "Radius" to roughly the number of pixels of blur I see (normally only 2 or 3). Then I use "Amount" to get the effect I want and finally "Finetune".

Photogenics 5 - Photogenics' "Convolve"/"UnSharpMask" paint mode runs the ArtEffect Plug-ins Collection very close but is not quite so adjustable. To use it, open your image, fill the paint layer and then choose the "UnSharpMask" paint mode from the pop-up list in the main toolbar at the top of the screen. The "Mode Options" are shown in the "Options" palette and include "Amount", "Radius" and "Threshold" controls which work in the same way as the ArtEffect filter (see above for a description). You can get another level of control with the transparency option on the "Control" tab which blends the effect layer into the background.

Conclusion

With the techniques I've described in these last two tutorials you should be well on the way to making big improvements to many digital images. In the next part of the tutorial I plan to cover colour manipulation, concentrating on ImageFX's curves tool but covering the other applications too.

If you have any comments or suggestions for this series don't hesitate to contact me using the addresses inside the front cover.

Bayer Filter

Each photosite on a digital camera's sensor can only detect one colour component of light, determined by a filter placed above it. The filters are arranged in a Bayer pattern:

R	G	R	G	R	G	R
G	B	G	B	G	B	G
R	G	R	G	R	G	R
G	B	G	B	G	B	G
R	G	R	G	R	G	R
G	B	G	B	G	B	G
R	G	R	G	R	G	R

There are twice as many green sites as red or blue because the human eye is more sensitive to green. A de-mosaicing algorythm in the camera is used to convert the captured data to a full colour image.

Learn C
The Universal Language

In Total Amiga's first major programming tutorial Dave Pitcher introduces "C", the most common progamming language on the Amiga.

Part 1
- Storing Information
- Variables, Symbols and Types
- Arrays

Part 2
- **Decision making**
- **Loops**
- **Functions**

Part 3
- Exec and DOS
- Reaction
- Game part 1

Part 4
- AHI
- Libraries in OS4
- Game part 2

So far in part one we have introduced the concept of values being stored at addresses, the idea of the null terminated string and how basic data-types such as char, long and float are stored and manipulated by C in the computers memory.

We now need to move on to how the program is run by the operating system, in this case AmigaOS to explain some of the most important parts of a program - the arguments you can pass to it.

When you type the name of an executable program, the operating system loads the code and looks for an entry-point called "main". This is the starting address of the program and instructions will be executed in this program until what is called the "stopping condition" is met. This can be anything from the last instruction in the program being executed, an unexpected specific call to terminate or finally a programming error which causes the program to reboot the operating system in error.

Recall one of our examples from part one of this tutorial (in Total Amiga issue 16):

Example2:

```
#include <stdio.h>
int main(void)
{
   long a;
   char b;
   unsigned char fx;
   float hiThereMum;

   a=123456;
   b='X';
   fx='X';
   hiThereMum=-20.44445;

   printf("a==%d \n",a);
   printf("b==%c \n",b);
   printf("fx==%c \n",fx);
   printf("hiThereMum==%f \n",»
   hiThereMum);
}
```

Download

Download DCC from Aminet at this location:

http://us.aminet.net/dev/c/dice-3.16.lha

Install it (installation instructions, we know people never follow the readme).

The lines in bold are what we have a thorough understanding of, those that are not in bold are as yet unexplained.

We spoke of the "main" entry-point in the program - this is where the program starts executing. The example so far shows a version which accepts no arguments and returns a datatype called "int":

```
int main(void)
```

Void indicates that no data is expected to be passed into the function call. Returning data from the entrypoint is a place where the program is forced to interact with the operating system therefore it has to return an integer.

This is all very well, but if you wanted to write a program that accepted "arguments" (that is string data passed by parameter) from the command line then you need a different main definition:

```
int main(int argc, char * argv [])
```

This accepts two parameters from the operating system itself - first the number of parameters specified on the command line and an array of strings containing one parameter per array element. Confused? Lets have an example:

If we were to compile a program, called "myprog" that accepted arguments (i.e. used the second prototype with int argc and char * [] argv) then we could call it like this:

```
Work:Programming/Tutorial> myprog each »
one of these words is a parameter
```

The operating system would set argc to 8 and the array would be set as follows:

```
argv[0]="myprog"
argv[1]="each"
argv[2]="one"
argv[3]="of"
argv[4]="these"
argv[5]="words"
argv[6]="is"
argv[7]="a"
argv[8]="parameter"
```

Why 8 parameters and not the 7 that we would expect? As you can see the first parameter (argv[0]) is always the name of the executable that was called. If we renamed the executable "myprog" to "wibble" we would get passed "wibble" as argv[0].

The following example shows the number of arguments passed to the program, and prints out each one with its address in the array to the console:

Example 6:

```
#include <stdio.h>

int main(int argc, char * argv[])
{
   int i;

   printf("There are %d arguments.»
   \n",argc);
   for (i=0;i<argc;i++)
   {
   printf("Argument %d is %s.»
   \n",i,argv[i]);
   }
}
```

Examples

Some of the examples in this tutorial have lines that are too long to fit in our columns. For those lines we use the following symbol:

»

to indicate that you should continue on the same line in your editor.

The example source code is also available for download from the Total Amiga website:
http://www.totalamiga.org

Create a file called tutorial6.c and type the example above into it. Now compile it into a file called "tutorial6":

```
Work:Programming/Tutorial> dcc -o »
tutorial6 tutorial6.c
```

It will compile without error.

```
Work:Programming/Tutorial> tutorial6
```

Now run it passing it various strings and see if the theory becomes clearer.

Try with:

```
Work:Programming/Tutorial> tutorial6 »
hi there dilbert

Work:Programming/Tutorial> tutorial6 »
hi there DoGbERt

Work:Programming/Tutorial> tutorial6 »
"hi there mum" this is a bit of fun.
```

Decision Making

There are going to be few programs that you write that do not require that you make some kind of decision within them. Whether it is working out whether a player has no energy or not or whether their sprite has reached the boundaries of the screen, the "conditional" statement is one of the most valuable in programming.

The most popular conditional to use is the "if" statement. The if statement takes an argument which is known as a logical expression that must evaluate to true, or false. Enclosed in { } braces is the code to execute if the statement is true and the optionally you can have an "else" statement followed by { } braces containing the code to execute if the statement is false.

The format is:

```
if (...expression...)
{
   Code to execute if expression is true.
}
else
{
   Code to execute if expression is false.
}
```

There are alternative formats, the simplest being:

```
if (...expression...)
{
   Code to execute if expression is true.
}
```

Also we have the possibility to insert other evaluations in the conditional statements:

```
if (...expression...)
{
   Code to execute if expression is true.
} else if (...another expression...)
{
   Code to execute if this expression is
   true.
} else if (...another expression...)
   Code to execute if this expression is
   true.
} else
{
   Code to execute if none of the
   expressions are true.
}
```

A list of useful operators to use in an expression can be found in the "Operators" box out.

Example 7:

```
#include <stdio.h>

int main(int argc, char * argv[])
{
   if (56 > 4 && 12 < 22)
   {
      printf("This is the code »
      that gets executed when »
      this is true\n");
   }
   else
   {
      printf("This is the code that »
      gets executed when this is »
      false\n");
   }
}
```

Create a file called tutorial7.c and type the example above into it. Now compile it into a file called "tutorial7":

```
Work:Programming/Tutorial> dcc -o »
tutorial7 tutorial7.c
```

It will compile without error.

```
Work:Programming/Tutorial> tutorial7
```

It is important that you play with the expression until get the message to print out "This is the code that gets executed when this is false".

What are the braces { } ?

These litter C programs and it is important that you understand them. They enclose (or encapsulate if you are going to be posh) "blocks" of code. Within that block of code any variables that get created within it can only be accessed by the code in the block, or in a block that is created within that block. The character "{" starts a scope and "}" ends a scope. Confused? Fair enough. Lets show some examples:

```
{
   int x;
   x=14;
   {
      float y;

      y=6.0;
      x=20;
   }
   if (x == 14)
   {
      printf("Pigs might fly.\n");
   }
   else
   {
      printf("Correct\n");
   }
}
```

In this example a block of code is created with an integer variable "x" being declared and then set to 14, a child block of code is created which declares a floating point variable "y".which is assigned to 6.0. In the child block x is further modified to be equal to 20.

When the child block of code is complete it is important to note that any variables declared within this scope are automatically deleted.

We are now back in the parent scope, modifications made to variables declared in the parent scope are still kept current. So when we start to continue in the parent scope and we go into the condition what gets printed is "Correct" because x is now 20.

To illustrate the point further (that "y" gets deleted and is not accessible from the parent scope) the following example will not compile:

```
{
   int x;

   x=14;
   {
      float y;

      y=6.0;
      x=20;
   }
      if (x == 14)
   {
      printf("Pigs might fly.\n");
   }
   else
   {
      printf("Correct\n");
   }
   y=y+2.1;
}
```

The line that says "y=y+2.1;" causes a

Operators

Useful operations to use in an expression:

==	Logical equivalence.
!=	Not equal to.
>	Greater than.
<	Less than.
&&	Logical "AND" (for chains of expressions where A must be true and B must be true and C must be true).
||	Logical "OR" (for chains of expressions where A could be true OR B could be true or both).

None of these operators should be used on strings.

compile error. That is because “y” was not declared in the same block, or a parent block to the current block. This is known as “scope visibility”.

Correct the following example so that it compiles:

Example 8:

```
#include <stdio.h>
int main(int argc, char * argv[])
{
   int i;

   i=20532;
   {
      int j;

      j=14;
   }
   if (j<14)
   {
      printf(“Oh no!\n”);
   }
   printf(“%d\n”,i);
}
```

Create a file called tutorial8.c and type the example above into it. Now compile it into a file called “tutorial8":

```
Work:Programming/Tutorial> dcc -o »
tutorial8 tutorial8.c
```

It will compile with an error, see if you can fix it with your new knowledge of scopes.

```
Work:Programming/Tutorial> tutorial8
```

In a child scope you can declare new variables with the same name as ones you have created in the parent scope. During the child scopes life it will maintain the properties of the latest declaration and once it exits the scope the program reverts to the old declaration and the old value of that variable.

Adapt the previous example so that it uses the same variable symbol in both declared blocks of code (scope) but the child redeclares the symbol to a different type.

You will have noticed that the if statement is followed by its own block. This is a useful observation, it means if blocks follow the same rules for all blocks. These are called scoping rules. The pattern for implementing a block is:

Assignments

You may be expecting C to initialise a variable that you declare with a default value, such as “0" for an integer. Please do not be fooled - this is far from the case. C does NOT initialise any variables with any values, you need to do that yourself. A common programming error is to fail to initialise a variable and then use it - each time you run it you may end up with a different value in that memory location - depending on what has run before!

Start the block (with a {).

Declare all the variables used within.

Instructions.

End the block (with a }).

All declarative statements, in C, have to start before the instructions. In C derivatives this rule is looser but it is still good practice to put the declarations in one place.

Starting a child scope is an instruction, as are conditionals and assignments.

Loops

There are two main types of loops - the first is the simplest to understand in C and it is called the “while” loop. It uses the sample “expression” clause as the “if” statement we introduced to you before - in that it evaluates an expression to true or false. Whilst the expression is true, it repeats the code in the block that is put after it. Once it is false, it proceeds to the instruction at the end of the block of code.

The format is:

```
while (...expression...)
{
   ...instructions...
}
```

The following example will never ever finish, this is called an “infinite” loop.

```
int i=0;
while(i<10)
{
    printf(“i=%d\n”,i);
}
```

In order to use while loops the expression should relate to something that is made false when you want it to finish occuring:

```
int i=0;
while(i<10)
{
    printf(“i=%d\n”,i);
    i=i+1;
}
```

Once symbol i exceeds the value 10 the loop will exit. In fact if the expression were never true, the while loop would not execute its code at all:

```
int i=0;
while(i>10)
{
   printf(“I never get executed!\n”);
}
```

The second style of loop is a “for” loop, this includes the computation of when to stop in the expression statement. The syntax is:

for (initialisation instruction; expression; » value modification instruction)

If we wanted to count the numbers from 0 to 10 on symbol i we would use it as follows.

1. We want to initialise i to 0, therefore the initialisation instruction is i=0.
2. We want to exit when i reaches 10, therefore the expression is i<10.
3. Each time the block is run, we want to increment the value, therefore the value modification instruction is i=i+1.

So another illustrative code sample:

```
int i;
for (i=0; i<10;i=i+1)
{
    printf(“i=%d\n”,i);
}
```

At this time, you should be used to constructing your own code examples. Write a program that uses the “while” loop format to count from zero to 200, and the for loop format to count back from 200 to 0. If you call the symbol that contiains the number as “i” then you can reuse the printf(“i=%d\n”,i); line as it stands above without modification. This is tutorial 8.

Functions

A function call is an isolated subsection of a program that only gets executed if it is invoked, by name, in what as known as a function call.

A function call is divided into two parts, the first part is the “prototype” (specification) and the second part is implementation. Implementation is the same as any block of code that we have seen before except the following extra rules apply:

1. You cannot implement a function in the middle of another block of code, it has to be implemented outside any other block of code (at the same level of coding as the “main” function call).

2. Only variables defined in the prototype (called parameters) and variables declared within the implementation block are available to the function.

Functions are defined like so:

data_type_it_returns »
name_of_function(comma delimited list »
of declarations (the parameters))
{
   Implementation
}

Example:

```
long addTwoNumbers(long number1, long »
number2);

long addTwoNumbers(long number1, long »
number2)
{
    return number1 + number2;
}
```

Functions are then called by their name and by passing in symbols or values that meet the prototype definition. Above our example addTwoNumbers is expected to return a long type and take in a long type followed by another long time.

```
void main(void)
{
   long sum;
   sum=addTwoNumbers(20,40);
}

...symbols example...

void main(void)
{
   long sum;
   long x;
   long y;

   x=20;
   y=40;

   sum=addTwoNumbers(x,y);
}
```

Note here that the names of the symbols filled in to a call to a function do not have to be the same as the names of the symbols defined on the function prototype. This is because the symbols “number1" and “number2" are symbols that are used inside the implementation of addTwoNumbers and only have visibility there. Remember rule 2? Likewise addTwoNumbers has no idea of the symbols “x” and “y”. It is given a COPY of the VALUE OF the symbols passed on the function call. In a logical way this looks like so:

We define a symbol called x and a symbol called y. We populate the value of x with 20 and the value of y with 40. We make a call to addTwoNumbers passing in x and y. The computer takes a copy of the values of symbols “x” and “y” and places the copy into the symbols “number1" and “number2". We then add “number1" and “number2" together and set this as our return value (the keyword return indentifies the value that is returned). The computer takes a copy of this returned value and places it in symbol “sum”.

Because the computer creates a copy of the data passed into the parameter ordinarily we would not be able to make a modification that directly effects the value of “x” and “y”. Ordinarily!

Recall from the first tutorial we can find out the address of something and use that with what is called a pointer type? Keep this in mind now:

The task we want to achieve is modifying the value stored at the address repesented in our program by symbol “x” in a function call.

We know that we cannot use an ordinary prototype like we had before as this will just result on data being copied and modifications not made to the original. We know that we can use a pointer to look at the original data – because that is what printf uses – a pointer to character that contains the address of the start of the string. We know that the computer will take a copy of whatever value is passed by parameter. We know that we can use the “&” modifier to get the address of a symbol.

The answer is staring us in the face, we pass the address into the parameter call, that gets copied and then use a pointer declaration to store the address on the other side. This gets us so far. Let us illustrate with a new example, function call “modifyX”:

```
void modifyX(long * X)
{
   do something with X
}

int main(void)
{
    long myx=12;
    modifyX(&myx);
}
```

So, in function modifyX, pointer to long type “X” is going to be set to the address of the symbol “myx”. We know the value stored at the address of symbol “myx” is 12, but how do we get to it? At the moment all we have is a rather useless address. C comes with an operator, designed specifically for this purpose, it is called the dereference operator and its identity is * and must be used as a prefix to the symbol you wish to dereference. It means treat the contents of this symbol as a pointer to an address and allow me direct access to the data stored at the target address.

So lets implement modifyX to double the value of whatever symbol is passed to it:

```
void modifyX(long * X)
{
    *X=*X * 2;
}
```

This is a deliberately confusing example. From left to right:

*X will say allow me to use the data stored at the address contained as the value of X.

= is the assignment operator

* is the multiply operator

2 is the value 2.

Therefore the sentence translates to:

Data stored at address contained in value of X...

assign to...

Data stored at address contained in value of X...

Multiplied by 2

In our example, the data storead at the address contained as the value of X is the value of symbol myx which is 12. We are directly modifying the contents of myx from the function call!

To illustrate, we have tutorial 9:

Example 9:

```
#include <stdio.h>

void modifyXWontWork(long X)
{
   X=X-20;
}

void modifyXWillWork(long * X)
{
   *X=*X-20;
}

int main(int argc, char * argv[])
{
   long myValue;

   myValue=40;

   printf(“variable myValue is %d\n”»
   ,myValue);
   modifyXWontWork(myValue);
   printf(“variable myValue is %d\n”»
   ,myValue);
   modifyXWillWork(&myValue);
   printf(“variable myValue is %d\n”»
   ,myValue);
}
```

Create a file called tutorial9.c and type the example above into it. Now compile it into a file called “tutorial9":

```
Work:Programming/Tutorial> dcc -o »
tutorial9 tutorial9.c

Work:Programming/Tutorial> tutorial9
```

The first function call (modifyXWontWork) is an example off “pass by value”. The second is an example of “pass by reference (address)”.

If you implemented it as instructed, you should see the following output:

```
variable myValue is 40
variable myValue is 40
variable myValue is 20
```

Remember we mentioned prototypes can be seperated from implementation? This is how we get round having to implement all function calls before our “main” program. Try just cutting and pasting the two function calls modifyXWontWork and modifyXWillWork to below the “main” program implementation like in example 10:

Example 10:

```
#include <stdio.h>

int main(int argc, char * argv[])
{
   long myValue;

   myValue=40;

   printf(“variable myValue is %d\n”»
   ,myValue);
   modifyXWontWork(myValue);
   printf(“variable myValue is %d\n”»
   ,myValue);
   modifyXWillWork(&myValue);
   printf(“variable myValue is %d\n”»
   ,myValue);
}

void modifyXWontWork(long X)
{
   X=X-20;
}

void modifyXWillWork(long * X)
{
```

```
   *X=*X-20;
}
```

If you compiled this, the calls to modifyXWontWork and modifyXWillWork will cause a compiler error when it gets to “main”. To fix this, seperate the prototype from the implementation and copy the prototypes above the “main” program like in example 11:

Example 11:

```
void modifyXWontWork(long X);
void modifyXWillWork(long * X);

int main(int argc, char * argv[])
{
   long myValue;

   myValue=40;

   printf(“variable myValue is %d\n”
   ,myValue);
   modifyXWontWork(myValue);
   printf(“variable myValue is %d\n”
   ,myValue);
   modifyXWillWork(&myValue);
   printf(“variable myValue is %d\n”
   ,myValue);
}

void modifyXWontWork(long X)
{
   X=X-20;
}

void modifyXWillWork(long * X)
{
   *X=*X-20;
}
```

This WILL work and it forms part of the grounding you need to understand how to build a reusable function library.

Includes

There are bits in the code called “compiler directives” or “preprocessor instructions”, these are prefixed by # as the first letter in the line. What follows is an instruction to the compiler to do something before it turns the program source into an “object” file.

The ones you will run across are shown in the “Include Examples” box-out.

So, lets look at #include. This allows someone to pull together a list of prototypes for functions you can use in a seperate location, and even the implementation, and “include” them in your program by specifying the filename. From example 9, chop out the two files and put them in a new file called “tutorial_include”:

```
void modifyXWontWork(long X)
{
   X=X-20;
}

void modifyXWillWork(long * X)
{
   *X=*X-20;
}
```

Now, even though they are no longer present in tutorial9.c we need to use them in order to be able to successfully compile tutorial9. So we need to “include” that file. Add the following include directive at the top of tutorial9.c:

```
#include <stdio.h>
#include “tutorial_include”

int main(int argc, char * argv[])
{
   long myValue;

   myValue=40;

   printf(“variable myValue is %d\n”
   ,myValue);
   modifyXWontWork(myValue);
   printf(“variable myValue is %d\n”
   ,myValue);
   modifyXWillWork(&myValue);
   printf(“variable myValue is %d\n”
   ,myValue);
}
```

Now recompile this and you will see it will work OK. Now we can explain the “#include <stdio.h>“ entry. You can deduce that it is going to include a file called “stdio.h” but why use < and > instead of “ and “?

This is because it has a special meaning to the compiler. Using “ “ around the filename you want to include indicates to the compiler it must search in the current directory, using < and > indicates it should search what are called “include paths”. For now, using “ and “ with your own code should suffice.

Recall what we did above, seperating prototype from implementation? Well normally the prototypes are seperated into a seperate file (postfixed by .h - example: myfuncs.h) and the implementation in another (postfixed by .c) and the .c file includes the .h file, allowing other programmers to use the same prototypes but not see your implementation. They use your implementation at link time.

You create myfuncs.h, which contains your prototypes, and myfuncs.c which contains your implementation (“includes” myfuncs.h, but has no “main”) and compile this into an “object” file (myfuncs.o).

Then the third party programmer creates their file, say, theirprogram.c, which #includes “myfuncs.h” and compiles with that to produce theirprogram.o. In order to use your implementation they have to LINK with myfuncs.o in order to produce an executable.

If that went over your head, don’t worry as we press on through the next two tutorials it will all become clear - it just needs context!

In Part 3, we will move onto a broad explanation of “printf”, Reaction GUIs, the AmigaOS Exec design for running programs that multitask, and get on with the Tetris example!

Include Examples

#include *followed by the name of another file to place at this point*
examples: *#include “myfunctions.h”*
#include <stdio.h>

#define *followed by a symbol to replace and its value*
examples: *#define HI_SCORE_MAXIMUM 200*
#define MYNAME “David Pitcher”

The compiler works in a cycle like this:

- Check the file exists.
- Preprocess the file (handle any compiler directives - prefixed by #).
- Compile the preprocessed file into an object file.
- Link it to try to create an executable

Web Site

The Total Amiga web site contains a whole host of features and regularly updated information about the magazine including back issues for free download in PDF format.

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Next Issue

Features

- Making the Internet friendlier - our feature helps you deal with SPAM e-mail and browsing annoyances.

Reviews

- CrossFire II and much more.

Support

- Our C and image manipulation tutorials continue. Have ideas for a new tutorial you’d like to see? Let us know, contact details inside the cover.

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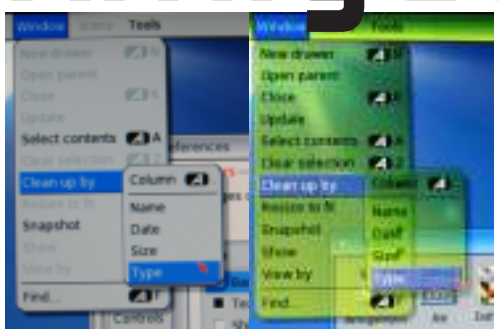
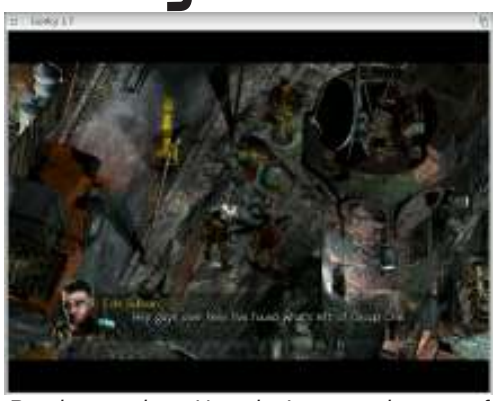
Note: Total Amiga is produced by volunteers and this means sometimes issues run late and planned contents change. If you’re concerned about the status of the next issue please look at http://www.totalamiga.org or contact us (contact details inside front cover).

AmigaOS 4 Hands On



Menu madness (above): create the look you want with OS 4's powerful GUI customisation features. Mick Sutton's OS 4 development version Workbench (right). One of the latest OS 4 screenshots released (below) show lots of 68K applications running under emulation.

Gorky17



Read more about Hyperion's up-coming port of this sci-fi RPG for OS 4 in the news section.

Timber Tower

Is this the ultimate "do it yourself" A1200 tower? Find out how it was made in the owner's feature on page 18.

Image Enhancement Tutorial

Here are the before and after images from Robert Williams' tutorial on page 38.

Above: the original image complete with excess vegetation.
Right: As if by magic it's gone! Find out how we did it in ImageFX, Photogenics, PerfectPaint and ArtEffect.