



UNIX Console

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Overview

Purchase Details

UNIX Console costs \$199 USD per licence. A licence includes the right to run either the MacOS or Win32 Binary. To purchase UNIX Console via the Internet, open the URL:

<http://order.kagi.com/cgi-bin/r1.cgi?GG&>

Download

A demo version of UNIX Console can be downloaded via the Internet from the URL:

<http://www.macsos.com.au>

Synopsis

UNIX Console is a Solaris UNIX system analysis and performance tool for Power Macintosh and Windows 9x/NT computers. It consists of a series of modules that send commands to a remote UNIX server and displays a graphical interpretation of the results. Many modules make an analysis of the commands result set and highlight potential problems and suggest possible options. The modules will never override the current users access permission level on the server. Analyses are based on published work¹⁻⁸.

This application works best with Sun Microsystem's Solaris UNIX, although some modules may work on other platforms. At this stage only Solaris 2.6 is supported. No non-Solaris server-side components need be installed.

Features include:

- Dumb TELNET terminal
- Display of BSD printer spools
- Disk utilisation module
- Ethernet interface module
- RAM and SWAP utilisation
- Load analysis
- RAM usage
- CPU historical analysis
- Process Table Listing
- SAMBA and EtherShare client modules

Many modules require *root* access.



Features

Login

Use this module to login to the TELNETD server or to change the user ID after successfully logging in. The Server address can be a valid IP number or a fully qualified DNS name¹⁰. The user ID of the real-time socket[†] is set here. The default port number is set at 23 but can be altered to suit your particular telnet server setup.

Terminal

The Dumb Terminal module implements a basic 80x24 "Network Virtual Terminal" (NVT). This dumb 'stream editing' module does not emulate a VT100-compatible terminal^{11,12}. It does not allow displaying or editing of server-side documents via more, vi, less and similar full-screen terminal tools. Future versions may attempt to enhance this module. Macintosh users wishing to edit documents should download *BetterTelnet*¹³ and use it in parallel to UNIX Console. Backspace, Copy and Paste are supported, as are the HOME, END, Page Up and Page Down keys on the Macintosh platform.

The "File Manager" sub-module allows the UNIX file system to be traversed. By default, the users Home directory is initially displayed. Folders, files and link files are displayed with appropriate icons. Double click a folder to change into that directory. Selecting a row from the History popumenu returns the user to that directory. Use the little "up" or Back button to return to the previous directory. Double click documents to view the contents of small text files. Future versions will allow file modification and threaded file loading.

Users

This module lists all users present in /etc/passwd. Double clicking a user will reveal the details for the last five logins. The security popumenu allows four sub-tasks to be executed: "Show ROOT logins"; "Logins with no passwords"; "All system logins"; and "Logins with duplicate user ID's". The results are displayed in the same listbox. The last three security commands require *root* access^{2,4,5}.

Printers

Print jobs in BSD printer spools^{2,6} are displayed in the "BSD Spools" module. The status of print jobs can be determined by double clicking the print spool in the BSD listbox, or selecting the appropriate print spool and clicking the "Show" button.

Print jobs can be only stopped by *root* or the user who owns the print job. Normal UNIX permission's are not over-ruled.

Disks

Three modules are presented: Space; I/O Graph; and I/O History.

[†] The Real-Time socket is a second telnet connection that is automatically instantiated immediately after the initial login session has been successful negotiated. The Real-Time socket cycles through the Real-Time commands at a user defined period. The user ID of the Real-Time socket is that as defined by the CurrentID Login Module.



File System	Size kB	kB Used	kB Free	% used	Mounted on
/dev/dsk/c2t3d0s3	1969278	1759468	12883	100%	/home/disk18
/dev/dsk/c2t12d0s3	4154495	3733010	6036	100%	/home/disk30
/dev/dsk/c0t2d0s3	4350946	4255203	52234	99%	/home/disk102
/dev/dsk/c2t4d0s4	1969278	1723667	48684	98%	/home/disk21
/dev/dsk/c2t14d0s4	1969278	1683097	89254	95%	/home/disk17
/dev/dsk/c0t1d0s4	4352742	4080758	228457	95%	/home/disk101
/dev/dsk/c1t5d0s5	4131866	3844533	246015	94%	/home/disk8
/dev/dsk/c2t4d0s3	1969278	1660260	112091	94%	/home/disk20
/dev/dsk/c2t11d0s4	4154495	3459639	279407	93%	/home/disk19
/dev/dsk/c2t14d0s3	1969278	1580276	192075	90%	/home/disk16
/dev/dsk/c2t5d0s3	1969278	1545735	226616	88%	/home/disk22
/dev/dsk/c1t4d0s7	5017602	4242707	724719	86%	/home/disk11
/dev/dsk/c1t4d0s3	4131866	3429487	661061	84%	/home/disk4
/dev/dsk/c2t10d0s3	4154495	3119763	619283	84%	/home/disk12
/dev/dsk/c2t9d0s3	4158086	3089576	652702	83%	/home/disk28
/dev/dsk/c0t3d0s3	4352742	3410688	898527	80%	/home/disk104
/dev/dsk/c0t2d0s4	4352742	3318923	990292	78%	/home/disk103
/dev/dsk/c2t15d0s3	1969278	1342904	429447	76%	/home/disk2

Figure 1 - Disk Space Module

The Space module lists the usage statistics for disks connected to the server (Figure 1). This module calculates the total capacity of the disks on the server, the total used space as well as the total free disk space remaining. Each column can be sorted by clicking the appropriate listbox heading. This is a very convenient way to find the most full disks. After selecting a disk from the listbox, the Analysis popup menu will allow further actions to be taken. This popup menu will display the users that have home directories on the selected disk, or alternatively the largest (or just the top five) users of disk space on this disk. Double clicking a row will automatically reveal, in the lower listbox, the users who have home directories on this hard disk. Double click the users row and the disk usage for that home directory will be determined.

The Disk I/O History module will display the average access time (in ms) since boot time for each hard disk. The 'percentage busy' for each disk is also presented. Double click a disk to drill down to reveal the average access time for each disk slice.

The Disk I/O Graph module is a real-time data graphing tool. The data is collected by the real-time socket. The Disk I/O module displays a colour coded, real-time bar chart of current 'access time (in ms)' and 'percentage busy' for each disk.

Interfaces

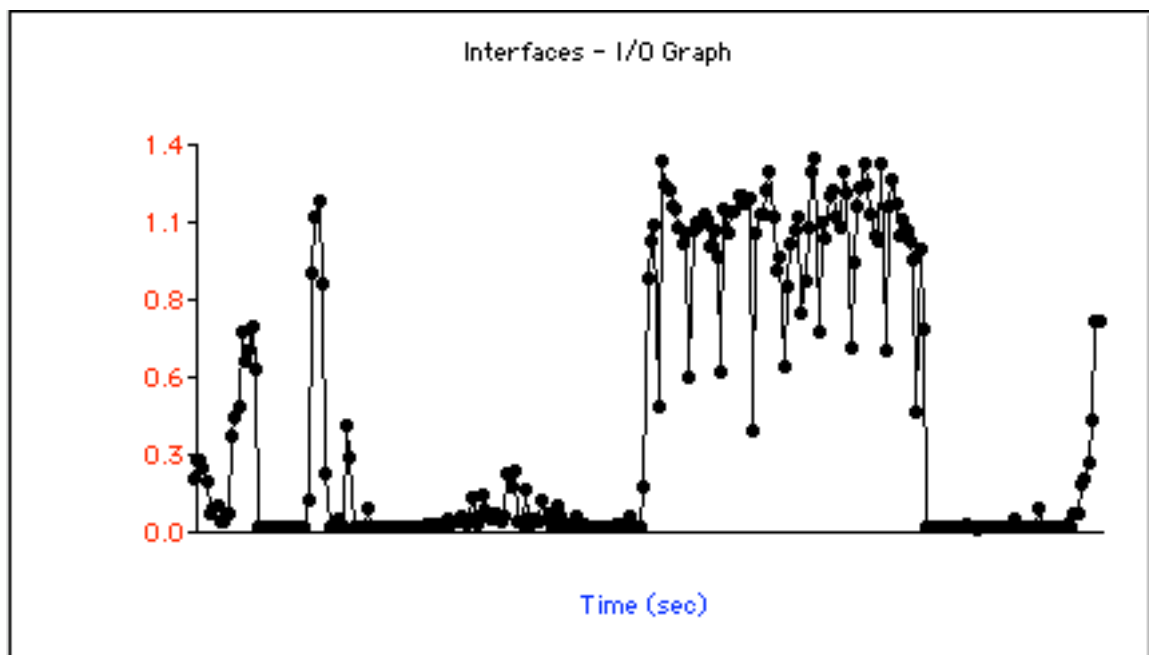
This section provides two interface modules, "I/O Graph" and "I/O History".



Inter...	In Packets	Err	Out Packets	Err	Collisions	%Collisions	Overall
lo0	2518901	0	2518901	0	0	0.00%	OK
hme0	103377741	0	102357096	0	0	0.00%	OK

Figure 2 - I/O History

The I/O History module lists a summary of eight separate packet metrics since boot (Figure 2). These metrics (Packets In, Packets In with Errors, Packets Out, Packets Out with Errors, Number of Collisions, Percentage Collisions, Percentage Utilisation, and Overall Analysis) record the number of packets received and sent for each interface as well as the total number of packets with errors. Furthermore the percentage of error packets for each interface is calculated and an analysis of the state of the interface is presented. The percentage of collisions for each interface is also calculated. This is an indication of the overall health of the network. Note that the collision metrics are irrelevant for non-ethernet interfaces.

**Figure 3 - I/O Graph**

I/O graph is a real-time analysis and performance module (Figure 3). Seven metrics are recorded or calculated for each interface (Packets In, Packets In with Errors, Packets Out, Packets Out with Errors, Number of Collisions, Percentage Collisions, Percentage Utilisation) and each metric can be graphically displayed. Each line bar graph is colour coded. If a value of a metric is within normal



bounds, the plotted node is coloured blue. As it approaches a more unfavourable value, it gets plotted red. For example, if the percentage of collisions is greater than 15% then the node being displayed in full red and extra warning is presented in the analysis text box as well¹.

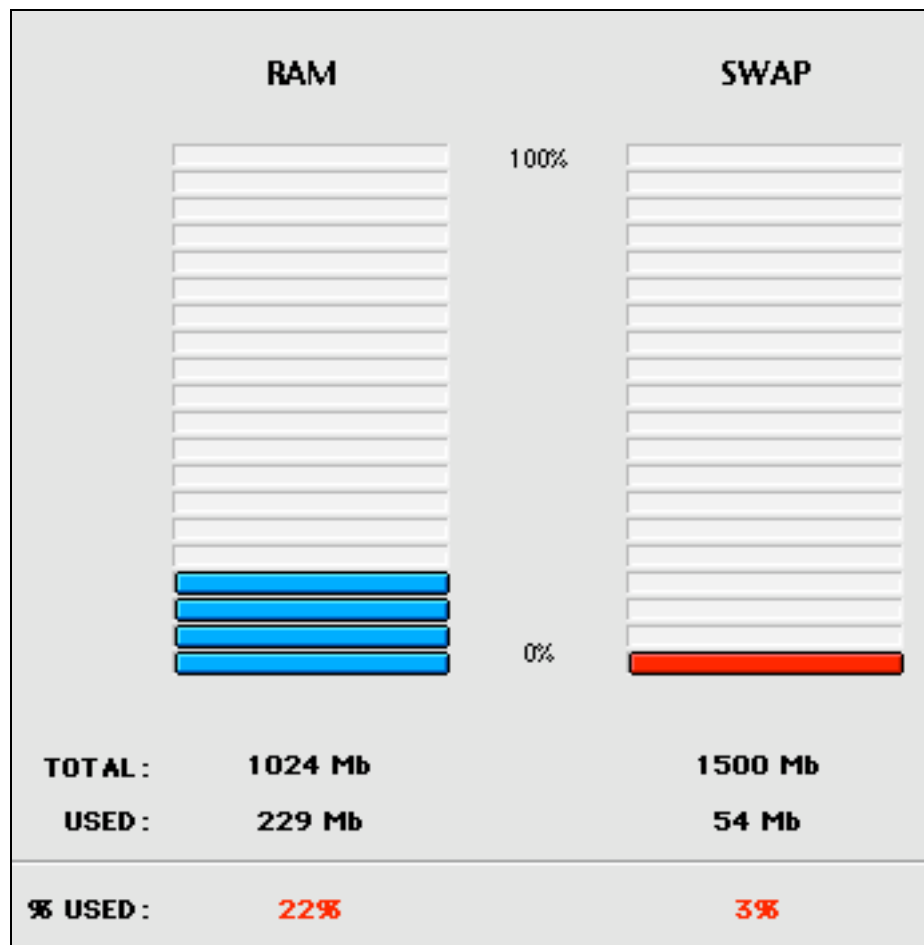
If the interface is in full-duplex mode the Collisions column should always be 0%. The Percentage Utilisation result is an approximate calculation of the actual usage of an ethernet interface as a percentage of the theoretical maximum throughput. This is an indication of the capacity of the interface to handle the ethernet traffic.

Load

This section provides two modules, "Session" and "History". The History module displays the average load for the server for time a console settings file has been saved. In effect, it is this console files history of load averages. The Session module is a real-time analysis of the load on the system and as such this graph is updated whilst the connection is active. The graph is colour coded. If the load is considered to be high the nodes become red¹.

RAM

This section provides four modules: "Usage"; "History"; "Paging"; and "Swapping".

**Figure 4 - RAM Utilisation**

The Usage module will present two LED thermometers displaying the percentage usage for each metric (Figure 4). The total RAM and SWAP available to the system will be calculated and displayed.

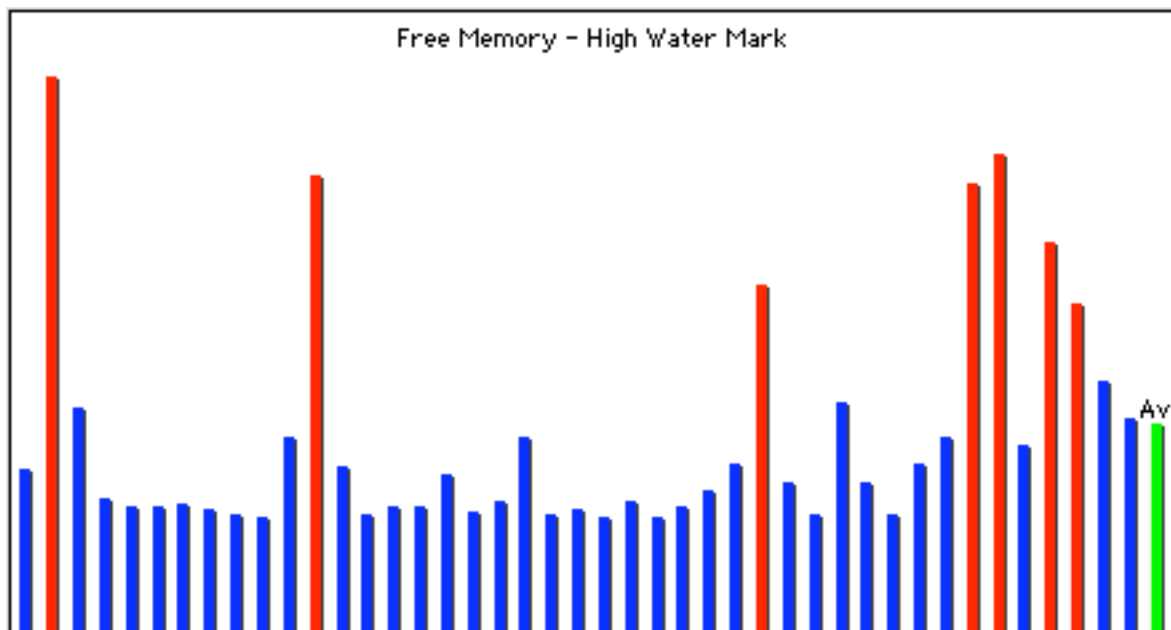


Figure 5 - RAM History

The History (Figure 5), Paging and Swapping modules display Bar graphs for data recorded by the System Accounting and Reporting daemon (SAR). SAR must be configured for these modules to display this historical information. On Solaris, SAR is already installed and is relatively easy to configure⁵.

If SAR is configured as described in the File System Administration Manual,^{4,5} there will be a report each day that can be browsed by these three modules.

CPU

The CPU History module also displays SAR data in a bar chart form, similar to the RAM History, Paging and Swapping modules. An analysis of the data is presented below the chart.

Processes

The Process module lists the current process table. Processes can be sent the HUP or KILL signals. The HUP signal has become the standard call for a process to re-read it's configuration file or otherwise take notice of changed settings that may affect it progress. The KILL button sends a KILL -9 signal which will tell the process to stop immediately and quit execution. Normal UNIX permissions apply. UNIX Console never over-rides the current users normal permission levels.

Servers

This Section has three modules, SAMBA, EtherShare and cron.



SAMBA¹⁴ is a free and open source SMB/CIFS server that runs on UNIX-like operating systems. This module lists the currently connected Windows clients. Short messages can be sent to these SMB clients¹⁵. The clients need the WinPopup.exe application to be running for the messages to be detected. Clients do not acknowledge receipt of the messages.

Server	User	Address	#	When	PID
▼ AFP	gerh	29.94.94.98	3	Fri 13:19	11000
		Application Server			
		ITBACKUP			
		~gerh			

Figure 6 - EtherShare Clients

EtherShare is the premier Apple File Protocol (AFP) and Print Spool Server for UNIX and LINUX systems from Helios, Germany¹⁶. This module (Figure 6) will list all AFP clients (even those Macintosh clients connected via AFP over IP) as well as PCShare clients[‡].

This module allows short message to be sent to Macintosh clients. No client side applications need to be running; the message is immediately visible as a modal dialog that the user must dismiss before proceeding. The Desktop Database for users home directories can be easily rebuilt by selecting the user in the listbox and clicking the "Rebuild" button.

Server	User	Address	#	When	PID
▶ 18	CRCm	/home/disk/crc/		readwrite	
▶ 19	samba	/usr/local/sam		readwrite	
▶ 20	Finance	/home/admin/		readwrite	
▼ 21	Application Se...	/home/disk1/App_Server	-	readwrite	
	gerh				

Figure 7 - EtherShare Volumes

The EtherShare also displays the volumes (ie 'Shares') presented by the EtherShare server (Figure 7). Double clicking a server will reveal all the users who are currently connected to this volume. To send an AFP message to all users of a volume, select the volume name and type in a short message and click the "Message" button. Individual messages to individual users of a specific volume can

[‡] PCShare is Helios' sister product to EtherShare. PCShare is a similar product that enables 16 bit Windows clients access to the same file system and print spools as the Macintosh EtherShare clients



also be sent in a similar manner. The Desktop Database for volumes can be rebuilt by selecting the volume in the listbox and clicking the "Rebuild" button.

The "cron" sub-module loads the current users crontab file. Future versions may add full GUI editing of crontab commands.

Preferences Window

The Preferences Window allows the user to customise the preferences file. The preferences file can be stored in the same folder as the application or in the operating systems Preference Folder. The preference file contains the registration details. In the absence of a preference file, a new preference file is automatically created in the system-wide Preferences folder.

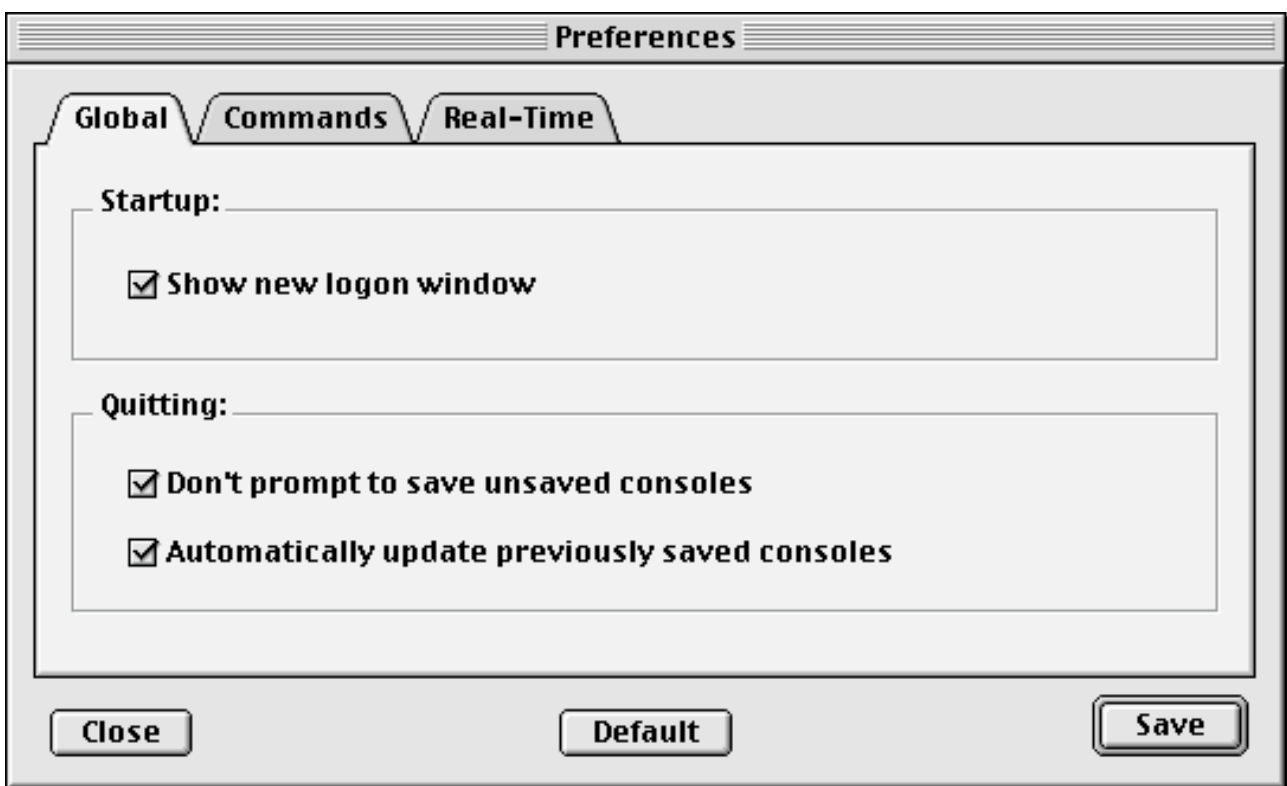


Figure 8 - Preferences Window

If you do not want a blank console window to be automatically opened after application startup, de-select the "Show new logon window" checkbox, from the "Global" tab (Figure 8).

If you want do not want UNIX Console to remind you to save unsaved console windows when closing the console window or quitting the application, check the "Don't prompt to save unsaved consoles". Furthermore, if you want to automatically save previously saved consoles, without a reminder dialog when closing or quitting, select "Automatically update previously saved consoles".



The "Commands" tab allow you to re-define the built-in commands. This may make some modules display or behave incorrectly or may have deleterious, unintended consequences. This procedure is not supported.

The third panel allows the user to modify the behaviour of the real-time socket.

Command Window

A Command Window can now display each command as it is set to the telnet server.



Figure 9 - Command Window

To display the Command Window (Figure 9), select "Show Command During Execution" in the Preferences Dialog. For users who would prefer to veto commands before they are sent to the server, select the "Require Confirmation before Execution" checkbox in the Preferences Window. All commands (other than those sent by the real-time socket) now require the user to press "Execute" or "Stop". Pressing "Stop" will stop the command being sent to the server. The command can be copied from the Command Window but not modified. This may be useful as a teaching tool.



Troubleshooting

Login

UNIX Console is a telnet client application, but does not implement all the extended options of the Telnet protocol as defined in RFC 854⁹ and subsequent RFC's.

If the Backspace command is not working, try typing:

stty erase ^h

where ^h is the Macintosh Delete key.

Under Win32, the backspace command in the terminal window appears to delete the shell prompt.

This is a cosmetic bug only.

Under Win32 the “Time” heading is not displayed for “EtherShare” clients. It is a bug in the development environment and will be fixed by REALsoftware soon. No workaround as yet.

Disks

NFS mounted disks may not necessarily be correctly displayed

Support

For support, please e-mail macsos@mac.com

Phone support is not yet available.

Acknowledgements

UNIX Console is © MacSOS, Australia, 2000.

UNIX Console was written in REALbasic, available from <http://www.realsoftware.com>

Chart Part is © and licensed from Tech Consulting, 1998. <software@techconsulting.com>

LED Thermometer Class was originally by Ian L. <catrap@bigfoot.com>

WindowMenuItem by Matt Neuburg <matt@tidbits.com>

CNumbersOnly inspired by NumbersOnly by Doug Holton <doug.holton@vanderbilt.edu>

MySortableListbox inspired by SortableListbox by Amar Sagoo, <asagoo@gmx.net>

CSpinButton by Einhugur Software <bjorn@einhugur.com>

CNetLink by Olivier Robert <olivier.robert3@libertysurf.fr>



Revision History

v1.0

Released 21 Jan. 2000.

v2.0

Released 19 April 2000.

- Free upgrade for those who supported UNIX Console by purchasing v1.0
- Now available as a Win32 application as well as a Power Macintosh application
- A restricted demonstration version of UNIX Console will be available for download from the web¹⁷.
- Reworked telnet engine
- Single click now loads the new module. In v1.0 you needed to double click to change to a new module
- Added extensive balloon help
- Modified the Preferences window to accommodate editing of more internal commands
- Fixed bug with UNIX Console not operating in echo mode for some Solaris servers
- Added Disk I/O throughput Modules. The Disk I/O History module displays the average time to access each disk since the last reboot. The user can drill down into each slice for each disk to find overloaded or faulty disks. The Disk I/O Graph module displays the current throughput breakdowns for access time (in ms) and percentage busy for each disk.
- Added percentage RAM Usage and percentage SWAP Used Modules. The total RAM and SWAP are displayed, as is an estimate of the utilisation of both.
- Fixed spelling mistake on front screen.
- Added the ability to send messages to CIFS Samba and AFP EtherShare clients.
- The Desktop database for EtherShare volumes can now be rebuilt
- Redrawing all graph modules is now much quicker.
- Added the ability to 'kill -HUP' and 'kill -9' processes in the Process module.
- Paste now works properly in the dumb terminal, as does page up and down.
- The dumb terminal is slightly less dumb with regards to 'more' and tcsh.
- The modules listbox is now hierarchical and expands to reveal the sub-modules.
- Added more exception handling.



- The last five telnet logins for selected users is now available from the Users Module.
- Rewrote "Ian's LED Thermometer" class and re-released the open source code changes¹⁷.
- Added a Find window.
- Enabled type-ahead row selection on most listboxes.
- Enabled single key selection of buttons in Dialog boxes.
- Printing is not yet enabled but you can drag charts to the desktop for printing.

v2.5

Released 1 July 2000.

- Disk usage statistics for Home directories can now be displayed. Double clicking on a user in the lower listbox of the "Disk – Space" module will present a window reporting the users disk space usage.
- crontab files can be viewed.
- Implemented a new sub-module, "File Manager" which includes a new file view window and "pushd" type navigation controls.
- An AFP message can now be sent to all or selected users connected to an EtherShare volume.
- A new "Command Window" is available which display each command as it is sent via the via the non-Real Time socket to the server. The ability to veto commands is now possible for the extra cautious.
- Added descriptive icons to most rows in listboxes.
- Option click a listbox header to reverse the current sort order.
- Renamed "Load- Graph" to be "Load – Session" as it is less confusing.
- Clicking the modules listbox header will collapse all module headings.
- Clicking the modules listbox footer will expand all module headings.
- Tidied up a lot of the internal code.

v2.6

Released 22 August 2000.

- Fixed BSD printing spool bug introduced in 2.5
- Vastly improved real-time graph display much faster. Point the mouse over a node to get more relevant information.
- Fixed Win32 build so that the main window is visible.
- Compiled with REALbasic 3.0a6

v2.7

Released 9 May 2003.

- Now runs native under OS X 10.2 and greater.
- Win32 build not available in 2.7
- Fixed File Manager popup which could contain user commands
- Win32 version is back to being a multi document interface application.
- Window title is now the Server name by default
- More Win32 bug fixes
- Fixed the incorrect calculation of the packets per seconds for interfaces.



- Enlarged the dumb terminal text size to make it easier to read on Win32 systems
- Main Console window is now resizeable
- Added setfocus to listbox call when using headers to sort listbox. This enables type-ahead listbox row selection after sorting.
- Calculation of swap now includes file based swap stores.
- Started work on LINUX version, but it is not yet enabled.
- Zoom in (Command Drag) and Zoom out (Command-Option Drag) is now enabled for REAL-TIME graphs. The graph will not update in a zoomed state. To allow the graph to display the real-time information again, hold down the command and option buttons and zoom back out to the original scale.
- Listboxes now have user-definable column widths (the widths are not stored between application launches)
- MacOS X version released.
- Click the column header to sort the list in numeric or alphabetic order. Clicking the header again reverses the sort order.
- printing enabled for Win32, Classic and X systems.
- LINUX system disabled in this release. I want to concentrate on MacOS X.
- Exchanged Micono's screenshot tool with MonkeyBread plugin.
- Free upgrade for those who supported UNIX Console by purchasing v1.0
- Compiled with REALbasic 4.5.3fc2

v3.2

Released 3 December 2004

- Maintenance release
- Faster graphs scanning
- Windows graph nodes now show like HelpTags rather than a small floating window
- resizeable console windows
- Printing implemented



Future Versions

- Allow read-write file access instead of the current read-only file browsing capabilities.
- More security options
- VT100 terminal to replace the dumb terminal.
- ssh protocol
- inetd security analysis module.
- Increase the analysis reporting and strengthen the recommendations
- Web log statistics module.
- File browser and file manager modules with write access.
- GUI File Editor (Macintosh like not *vi* like).
- syslogd faults browser.
- Implement printing
- FTP module
- File permission editor.
- Group information display window
- crontab editor window
- Folder/File move/delete/copy/duplicate commands
- User add/delete commands

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MacSOS, Australia, 2000.



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