



**PROJECT ATHENA
SYSTEM RELEASE NOTES**

Athena System Release 7.7

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1 Introduction

This document describes the software changes in Athena System Release 7.7. It contains an overview of the important changes, and detail on changes in the release as a whole. Many thanks to Bill Cattey for his contributions to this document. Also thanks to Jeff Schiller.

2 Operating System Changes

2.1 Supported Architectures

Release 7.7 supports the following architectures:

```
DECstation Ultrix 4.2A
IBM RISC/6000 AIX 3.2
SUN Solaris 2.3
```

The VAX platform is no longer supported for new releases.

2.2 DECstation Ultrix 4.2A

There are no major user visible changes on the DECstation platform with respect to Ultrix for this release. Three changes were made to the kernel:

- A bug in the select system call that could cause the kernel to die a horrible death has been fixed, patch courtesy of Jeff Schiller.
- A patch to fix the "select collision" bug has been applied, which should improve system performance on busy machines. See transaction 277 in the lore discuss meeting for some explanation.
- The kernel was changed to support the system call interface used by AFS 3.3 clients.

2.3 IBM RISC/6000 AIX 3.2

Late this summer the RISC/6000s will be upgraded to AIX version 3.2.5. This new version of AIX supports the GT1x graphics adapter which IBM now ships with model 220's.

2.4 SUN Solaris 2.3

- A new version of the Solaris operating system, Solaris 2.3, is included in Athena release 7.7. Solaris 2.3 is much better than release 2.1 (used in 7.6); it includes many bug fixes and is considerably faster, especially in the network area.
- The Athena software has been modified to be better integrated with the Solaris operating system.
 - Many of the outstanding bugs up to March of '94 have been fixed.

- The signal handling code in much of the software has been updated to correctly use the signal semantics provided by Solaris. Many bugs in the last Athena release for Solaris were caused by continuing to use BSD signal handling under a System V based operating system.
- The dependencies on the BSD compatibility library (ucblib) have been removed. This library was used in the original Solaris port due to limited porting time. However, this library's emulation has proven somewhat unreliable, and we have built release 7.7 without it.
- The following "server" pieces of the Athena release have been ported and incorporated in the release:
 - ftpd
 - klogind (to be fixed)
 - rkinitd
 - vos and bos
 - mkserv
 - athena inetd

These changes make Solaris more desirable as a private Athenized Workstation.

The following binaries differ from the stock Solaris binaries.

- ld.so
- find

The following patches were applied to the stock distribution of Solaris 2.3. For more information see appendix A.

- 101311 GT os driver, openwindows server, xgl pipeline patch
- 101316 Socket library is not signal safe
- 101317 lp jumbo patch
- 101318 Jumbo patch for kernel (includes libc, sendmail, lockd)
- 101327 security and miscellaneous tar fixes
- 101329 Jumbo NIS+ patch, automountd security, autofs and loopback
- 101331 fixes for package utilities (pkgadd, pkgrm etc)
- 101332 rpc.bootparamd returns the wrong domainname when serving a subdomain.
- 101343 troff .HM .FM margin macros causes page numbering format error
- 101344 Jumbo NFS patch
- 101347 system hangs due to mblk memory leak
- 101362 OpenWindows 3.3: Server (Xsun) Jumbo Patch
- 101378 WIDE scsi negotiation and esp and isp driver fixes

- 101406 SS10-51 or SS600-51 may hard hang or watchdog reset
- 101409 Jumbo linker patch
- 101411 ufs jumbo patch
- 101415 ptm pts write service routines; process hung in ldtermclose
- 101418 ncheck -s doesn't work properly
- 101425 fixes to ppp
- 101484 Binary compatibility package (BCP) jumbo patch
- 101489 libthread.so.1 jumbo patch
- 101494 rdist will not remove remote directories
- 101515 xwd/xpr failures w/ xcolor, helpviewer, -compact
- 101543 OpenWindows 3.3: textedit can only update (save) files in current dir
- 101556 OpenWindows 3.3: Saving a out from PostScript to raster does not work
- 101575 xargs miscalculates arg list size of exactly 570 in 2.3
- 101578 nawk patch, pattern matching gets confused by 8bit characters
- 101610 csh variable name limited to 18 characters, instead of 20
- 101613 fixes for sh, jsh, rsh
- 101642 Jumbo mailx patch
- 101653 case mapping in ftp doesn't work for the mget subcommand
- 101687 Xsun hang on ZX/SX using XDrawArc()
- 101694 tcl driver patch - AF_UNIX SOCK_DGRAM sockets suffer data loss

3 Andrew Changes

With Athena release 7.7 comes version 6.2 of the Andrew User Interface System. This release remedies many core dumps, and is in general cleaner code. There are only a few user visible changes.

3.1 User Visible changes

There are three user visible changes:

3.1.1 Cut and Paste

EZ more closely follows the conventions we expect when we highlight text for pasting between windows.

Old Way to select from EZ and paste into Xterm:

Highlight a string

Type M-w to copy the region to the Cut buffer

put the mouse in your X term window

press middle button to paste

note: everybody currently forgets the M-w,
curses under their breath, and tries again.

New Way:

Highlight a string

put the mouse in your X term window

press middle button to paste

note: if you did the M-w command out of habit,
nothing bad would happen. It would act the same.

3.1.2 Insert hyperlink

A new item **Insert hyperlink** has been added to the **Special** menu card. This is a quick way of inserting a hypermedia link into your EZ document. For more information ask for help on **hyplink** in **ahelp**.

3.1.3 Style guide in eos/grade

The operation of the **Guide** button in **eos** and **grade** is different.

Instead of opening a window on the style guide file (with the guide living in one of the buffers of the **eos/grade** application that started it) a separate EZ is started. This way, you will never see the style guide in your **grade** window, and killing the style guide will not affect the work you are doing in **eos/grade**.

There are four significant consequences to operating the guide this way:

1. When you exit **eos** or **grade**, the guide does not die. You must exit the guide itself explicitly. (This may be a little inconvenient.)

2. When you exit the guide, `eos/grade` does not die. (This will probably be considered a boon to graders, and a mild inconvenience to users of `eos`.)
3. When the guide cannot find the style guide, instead of seeing an alert box warning of this fact, a style guide comes up demanding an initial file.
4. Recovery from the style guide not being found is inconvenient:
 - Specify ANY arbitrary file to complete the question and exit the guide.
 - Type control-G to interrupt the prompting for the initial file, and then exit the guide.

A new environment variable, "EOS_GUIDE" has been added to enable other classes to specify their own style guide in the Athena `.environment` file of class members. For example:

```
setenv EOS_GUIDE /mit/2.10/notes.ez
```

3.2 Bug Fixes of Note

The translators between EZ and RTF format (`2rtf` and `rtf2`) have FINALLY been put into working order. You can now edit your Microsoft Word documents in EZ when you have to, and edit your EZ documents in Microsoft Word when you want to. For details on using these tools select `2rtf` or `rtf2` from the **Programs** panel in `ahelp`.

Whitespace is treated better when text is converted to ASCII by `ez2ascii`.

The `bush` hierarchical file browser no longer core dumps on the Sun.

3.3 New functionality

Figure has been revised to include printing in landscape mode. Added `FigureMatteColor` preferences (default white) which overrides the `BackgroundColor` preference for figure insets.

3.4 Of Interest to Power Users

Support has been added for customizing the mapping of Andrew and X11 fonts to troff fonts. See `atk/text/PrintFontMap.*` for examples.

Added `CheckOwnerHome` preference description. This value determines whether a lookup is done in order to find the home directory of the owner of a file being viewed by EZ. The file-owner's home directory is used to *fold* the full pathname down to something shorter, like `~/foo/bar` for displaying in the title-bar of the EZ window. Defaults to: yes.

4 Other Changes

4.1 AFS

The client software has been upgraded to AFS 3.3. This version of AFS has improved network characteristics and can better handle slow (dialup) links. Transarc has made several changes to improve the reliability and

stability of the client software. Several changes have been made to the AFS cache manager locking to improve the performance on multi-user machines (eg. Athena timesharing dialup servers). This only applies to the RS6000 and to the SparcStations; the Ultrix machines are still be running 3.2b.

4.2 Discuss

- dsmail now supports chaining of transactions by subject header.

4.3 Emacs

Emacs has been upgraded to version 18.59. The main feature of this version is that it is more portable, and correctly undumps under Solaris. Hence when starting emacs on the Sun, you no longer need to wait for it to do lots of initialization.

4.4 gshd (a remote maintenance shell)

There is a new entry in `inetd.conf` pointing to a program called `gshd`.

4.4.1 Purpose

The purpose of this facility is to provide a mechanism (when necessary) to run an arbitrary program on all public workstations remotely. Note: This is an “rsh” service not a “login” service. The primary purpose is to be able to run an integrity checker that can adapt to the “threat” environment. In other words if we discover that someone is regularly editing `rc.local`, then we can have the integrity checker fix it regularly.

4.4.2 Implementation

The authentication in `rshd` is based on a system called the Generic Data Signature Service (GDSS, see `/mit/gdss/gdss.txt` for more details). This is an RSA based public key system, so that `gshd` can be written in such a way that even though the binary is world readable the security of the system is not compromised because of it. The `gshd` system will provide authorized users from Information Systems remote root access to workstations.

4.4.3 Policy of Use

Very few individuals in Information Systems will have access to this facility (usually only after a demonstrated need), and the use of the facility will require management approval. Misuse of this facility will be considered a serious situation.

4.4.4 Private Workstations

Athena Release 7.7 will put the `gshd` entry into the `inetd.conf` file of private workstations as well as public ones. Private workstation owners uncomfortable with the presence of this facility should edit their `inetd.conf` file and comment out or remove the `gshd` entry, and then send a HUP signal to the `inetd` process (or kill and restart it, or simply reboot the machine).

4.5 MH

MH has been upgraded to version 6.8. For more detailed information please see appendix E.

4.6 Moira

The moira binaries, formerly on the packs, are now links into the `/afs/athena/system/moira` binary directories. These binaries are server dependent and should not be tied to the release cycle.

4.7 Olh

The Olh suite of programs, formerly on the packs, are now linked into the `/afs/athena/system/help` binary directories. This has been done in preparation for the upcoming evolution in the online help system.

4.8 Telnet

Telnet sessions to hosts running Kerberos-authenticated telnetd may be protected from network eavesdropping. For example,

```
telnet -safe athena.dialup.mit.edu
```

will establish a Kerberos-authenticated, encrypted telnet session to an Athena dialup machine. To run the Kerberos-authenticated telnetd, Private Athena workstation owners may want to modify the telnet line in `/etc/athena/inetd.conf` (`/etc/inetd.conf` on the DECstation platform) to read:

```
telnet stream tcp nowait unswitched root /etc/athena/telnetd telnetd -a off
```

Manual pages are provided.

4.9 T_EX

New versions of the T_EX suite of software (including METAFONT, T_EX, L^AT_EX, AMS-T_EX, xdvi, and dvips) have been installed. Features include support for 600dpi resolution printers and better text display by xdvi, utilizing anti-aliasing. dvi2ps is no longer in the release; it has been superseded by dvips. Please note that dvips, while performing the same functions, has a somewhat different command syntax.

4.10 T_MAC

Formerly, nroff would always do the wrong thing with manual pages from BSD 4.3network2 or higher. If you have such a man page, you may now insert the line

```
.so /usr/athena/lib/tmac/tmac.doc
```

at the top of your man page to help nroff get the right macros. Unfortunately, catman will still not put an entry in the whatis file.

4.11 xlogin

A number of changes have been made to the *xlogin* system.

- *xlogin* now defines the environment variable *hosttype* on all platforms. Since some shells define this variable and some do not, this provides consistency through all of them.
- *dm* defines, and *xlogin* passes on, the environment variable *OPENWINHOME* under Solaris 2.3, to enable binaries linked with Sun's X libraries to function correctly.
- *xlogin* now allows a user to be in only 13 groups (15 under Solaris). This change was made to enable NFS attaches of RS/6000 filesystems to function correctly. This group limitation does not affect the use of AFS filesystems, and so has limited impact.
- *xlogin* now directs users to contact the Athena Hotline rather than Operations when a workstation fails to reactivate properly.
- *dm* now removes the defaults from the X server's access control list after starting the X server, closing a potential security hole. See *dm(8)* and the User Release Notes for more details.
- *dm* now maintains an open connection to the X server for the lifetime of the server. This connection was previously maintained by the global *xsession* script via a hack in the *xlogin* code, but that hack was not reliable on all platforms. This connection is created to prevent the X server from resetting when the only application connected to the X server exits. This typically happens when the user runs *config_console* from her customized startup scripts.
- On PUBLIC workstations, *xlogin* now makes sure remote access to the workstation (as defined by *inetd.conf*'s switched entries) is turned off and that no other users remain on the workstation before prompting a new user to log in. See *xlogin(8)* and *reactivate(8)* for details.