

Departmental Library Management on AIX

SYNOPSIS

This document describes the basics of departmental library management as it is performed on the AIX operating system with the utilities provided by Information Technology Services (ITS) and Instructional Application Services (IAS). This User Guide is intended for faculty and staff members with a general knowledge of the UNIX operating system.

INTRODUCTION

The purpose of departmental User Libraries is to provide a location where departments can support their own software that is used primarily by students and faculty within their own department, or shared with relatively few additional departments. This software is then available to the general user community through a single command (`ul i b`) which provides on-line help and will guide the user to the desired software in the desired library.

There are two major components to the departmental library:

- The software interface to the departmental library files or software.

- The structure of the individual libraries themselves.

SPECIAL NOTES WHEN READING THIS DOCUMENT

Throughout this document, you will see references to the "home" directory. This is the directory that the user will be located in when they first log in, before any commands are executed.

The character "~" when given as part of a directory path indicates that the path starts at the home directory and proceeds downward.

SOFTWARE INTERFACE

The software interface itself can be complex or simple, depending on the level of support provided to the naive user. This software interface must exist in the current execution path, or the current path must be altered to include this software. The software interface will then take care of the locations of the libraries by keeping track of their location within a specific directory tree. The actual libraries could be located anywhere in the file system with soft links to the library tree structure.

For example:

`/ul i b`

Would be the parent directory to all departmental libraries. Under it would be a directory for each department. These directories must use acceptable abbreviations for the department that a user would expect to find.

NOTE: The subdirectories below "`/ul i b`" are actually symbolic links to the actual location of the departmental libraries. The departmental libraries are scattered over the cluster of CPUs to spread the file system load. For best support and transportability within the cluster, always refer to the top level

	directory as <code>"/ulib"</code> instead of its actual location.
<code>/ulib/csc</code>	Would be the directory entry for Computer Science. The actual computer science directory could be linked to this point from anywhere else in the file system.
<code>/ulib/me</code>	Would be the directory entry for Mechanical Engineering.

LIBRARY STRUCTURE

In order for Information Technology Services and Information Systems to provide support for departmental libraries (e.g., generic documentation/user guides; help to students in general access labs) some level of standardization is desirable. Below is a proposal for the structure of the departmental libraries under AIX.

<code>/ulib</code>	As described above.
<code>/ulib/dept</code>	Also described above.
<code>~/aliases</code>	directory containing departmental alias files for use with the system mailer.
<code>~/gopher</code>	directory containing one or more pointers to the gopher information tree. You must fill out a Provider Form before placing information in this area. Contact User Support Services at 756-7000 for additional information.
<code>~/public_html</code>	symbolic link to a subdirectory containing HTML documents. . You must fill out a Provider Form before placing information in this area. Contact User Support Services at 756-7000 for additional information.
<code>~/bin</code>	directory containing executable binaries and scripts.
<code>~/src</code>	directory containing source files.
<code>~/lib</code>	directory containing subroutine libraries.
<code>~/man</code>	directory containing documentation files.
<code>~/man/man1</code>	nroff source files for documents.
<code>~/man/cat1</code>	pre-formatted man files.
<code>~/data</code>	directory containing user accessible data files.
<code>~/test</code>	directory containing data sets to be used in testing software.
<code>~/work</code>	directory for development of software.
<code>~/smp1</code>	directory containing sample source files.

These directories will be installed within the account when it is created. All relevant files would also be installed in the directory structure as needed to support the software. These files would include library management utilities and index files

that would allow the library software to inform the user of what's available in a homogeneous manner.

One of the reasons for a departmental library is to provide a common place for scripts and executables for users where the files may be updated without users being aware of the maintenance activity. If a user has a copy of a script in his own directory, he may not have access to the most recent version.

SUPPORT LEVELS

In order to receive support from ITS and IAS, and be of benefit to the entire University, all libraries must follow this format. Departments which wish to develop their own scripts to use their libraries may do so realizing that IAS will not be able to support their users who encounter problems.

DIRECTORY AND FILE SPECIFICATIONS

In order to provide uniform service to any user wishing to access the departmental libraries, files and directories must be maintained to specifications. The specifications are:

A. FIRST LEVEL SUBDIRECTORIES:

First level subdirectories must be maintained as outlined in Section IV. Additional first level subdirectories and lower level subdirectories may be added, but will have to be supported by departmental generated scripts. The exceptions to the second level subdirectories are the `~/man/man1` and `~/man/cat1` subdirectories under the `~/man` first level subdirectory.

B. MAN FILES:

There should be a man (or manual file) file for each library entity. These files should be stored in the `~/man/man1` subdirectory in nroff source form formatted in the same manner as the usual system man pages. A template source document will be provided to assist in the development of these man pages. Pre-formatted versions of the man files should be stored in the `~/man/cat1` subdirectory for access by the departmental library access utility.

As users develop man files, they may wish to check on their progress. To do so, they may enter:

```
% nroff -man man_filename.1<CR>
```

Note that `-man` tells `nroff` to use the "man" macros in formatting the man page.

NOTE: All man page files in the departmental library under `~/man/man1` or `~/man/cat1` must end with a file suffix of ".1"

C. EXECUTABLE FILES:

All executable files and scripts must be stored in the first level subdirectory `~/bin` to be executed by the departmental library access utility. It is recommended that these scripts be written in the Bourne shell as that is the current default shell for scripts. All scripts should contain the following on their first line to indicate the proper shell environment for execution:

```
#!/bin/sh
```

Where `sh` may be replaced with any valid shell language located in the system directory `/bin`.

D. USER ACCESSIBLE SOURCE FILES AND DATA FILES:

All files that are to be made available to the user must be in the appropriate first level subdirectory. Source files must be stored in `~/src`, sample files must be stored in `~/smp1`, and data files must be stored in `~/data` to be made available via the library access utility. The files being made available to the user must also have their protection bits set such that the user may read the file.

Full sources for packages should be stored in second level directories below `~/src` with the appropriate permissions set on the secondary directory and the included files.

E. LIBRARY INDEXES:

Library indexes must be stored in the library's home directory and have the name "index". The file must be publicly readable. The format of the file must be uniform to provide a uniform look throughout the departmental library system. The current format is as follows:

<u>Columns</u>	<u>Description</u>
1- 15	Application name field. The application file name for the entry type.
16- 17	Blank
18- 27	Type of entry. Entry types must be one of the following: man, data, run, sample.
28- 29	Blank
30- 75	Entry synopsis. This text describes the entry for the user. The synopsis may occupy one or more lines, but must remain within the specified columns.

F. MASTER INDEX:

The master index will be maintained by IAS. The master index will contain information about the library system including information on each of the departmental libraries. The current format of this index is as follows:

<u>Columns</u>	<u>Description</u>
1- 8	Department abbreviation. This is the officially university recognized department abbreviation.
9- 10	Blank
11- 30	Full department name.
31- 32	Blank
33- 75	Information regarding the departmental library including a contact name and phone number if available for user questions.

G. LIBRARY NEWS FILE:

Each library should maintain a news file promoting the latest changes and newest software installed. The file should be called `news` in the libraries home directory. The Master library must also have such a file for general library news.

H. FILE ACCESSIBILITY

`ulib` does not run with any special privileges when a user executes it. Because of this, any files that the user must have access to must be made public to them by properly setting the access bits on the files and directories, if necessary. Initially, all directories in which `ulib` expects to find user readable data in are set up as publicly readable.

An appropriate permission for a text or data file for general user access would be:

```
-rw-r--r--
```

These permissions can be set with the system command `chmod` as follows:

```
% chmod a+r filename<CR>
```

An appropriate permission for an executable binary or shell script would be

```
-rwxr-xr-x
```

These permissions can be set with the `chmod` command by typing

```
% chmod a+rx filename<CR>
```

Additional variations are possible by adding alternate groups to the departmental library account. By default, the account is in the account group "`ulib`". By adding appropriate alternate groups such as "`faculty`", "`student`" or "`staff`", files can be set up for access only to those groups, or to everyone but one of the groups.

WHAT ELSE CAN THE
DEPARTMENTAL
LIBRARY BE USED
FOR?

Departmental libraries have many uses and these uses are growing. The following sections outline the additional uses which have received official support. For further questions on what departmental libraries may be used for, contact User Support at 756-7000.

DEPARTMENTAL
ALIASES

There are many ways of setting up and maintaining departmental aliases. They allow for a variety of control and documentation for data within the aliases. The following subsections describe the various components that make up the alias support for departmental libraries. If, as a departmental librarian, you do not see a function here that you would find valuable in supporting your department, please contact User Support Services at 756-7000.

A. ALIASES IN THEIR RAW FORM

Departmental aliases are stored in the `~/aliases` directory. The aliases are stored under a file name that matches the name of the alias. The name of the alias must contain the department abbreviation at its very beginning to insure uniqueness.

The format of the alias file is as follows:

```
user id@site.domain.suf
```

```
or
```

```
"Descriptive Information" <user id@site.domain.suf>
```

where "`user id`" is the login id or registered mail name for the user; "`site`" is the machine name where the user will receive their mail (an example would be

"oboe"); "domain" is the domain in which the machine exists (ours is "calpoly"); and "suf" is the suffix for the Internet address ("edu" for an Internet educational site). Also note that if the user is on a network other than the Internet, "site.domain.suf" is replaced with an appropriate value.

Either form may be used within a file. With the second form, the double quotes and the greater-than and less-than signs are required. "Descriptive Information" may be anything that allows you to document the user or the purpose for the line, it is not received by the users. It is separated from the email address contained in angled braces by a single space.

For sites with campus mail servers, the "site." designation may be dropped if the user is registered with the campus mail server. If the user is on the AIX cluster at Cal Poly, the "@site.domain.suf" information may be left off entirely.

In order for an alias to be usable on the system, ITS must add the alias to the system file which will point to the department alias files. To initiate this, obtain and complete the form "Request for Mail Aliases" from IAS in Building 14, Room 114..

B. ALIAS TOOLS

The following alias management tools are available to departmental librarians. They are broken into two categories. The first are tools which have actions on the system alias database. The second are tools which have actions on the data files themselves (stored in the subdirectory "~/.aliases"). Most of these tools are available via the "unixmenu" command under the "Information Providing" main menu item, "Email Alias Management Tools" sub-menu item.

1. SYSTEM DATABASE ALIAS TOOLS

Under the menu heading "System Alias Maintenance Utilities" are various utilities which allow the departmental librarian to make requests and view items within the system alias database. These items and their functions are:

a. Add a Course Alias

Entering the information will generate a mail message which requests the course alias be added. Departments may only add course aliases for course prefixes which their department officially teaches.

b. Add a Departmental/Club Alias

Currently the results of the questions asked will generate a mail message which requests the departmental alias be added. Departmental aliases must begin with the departmental abbreviation.

c. Change Expiration Date of Aliases in the System Database

This will allow the departmental librarian to extend the expiration date of an alias out to no more than one year from the current date.

d. Delete an Alias

Currently this item will generate a mail message which requests the removal of an alias from the system database. **NOTE:** DO NOT use

this option as a method of clearing out course aliases at the end of a quarter, then re-adding them the next quarter. See "Clear Alias Contents of ALL DATA" for more information on how to perform this function. "Delete an Alias" is provided as a method of getting rid of an alias when it no longer serves a useful purpose.

e. List Current Aliases in the System Database

This item will provide a formatted alphabetical list of all of the aliases within the system database. It is always a good idea to check this list first before requesting a new alias.

f. List Expired Aliases in the System Database

This item will list all of the aliases with expiration dates prior to the current date. It is intended as a tool to allow the removal of old, un-needed aliases. Expired aliases which remain on the system for extended periods may result in warnings from the system and possible alias deletion.

g. List Alias Parameters in System Database

Provides a list of the parameters associated with a single system alias for a given departmental library. It contains such information as creation date, who created it (account), expiration date, a brief description, etc..

2. ALIAS DATA FILE TOOLS

Under the menu heading "Alias Datafile Maintenance Utilities" are various utilities which allow the departmental librarian to maintain the data within the alias data files. These items and their functions are:

a. Block an alias from user adding themselves

This item creates a file with the prefix of "block. " and the remainder matching the alias filename that you do not want users to add themselves to. Data within a file which has been blocked must be maintained with other tools. Please see "To Allow Users To Add Themselves to an Alias" later in this section.

b. Clear Alias Contents of ALL DATA

This item replaces the contents of an alias datafile with an empty file. We recommend that this be done with class aliases at the end of each quarter when the data will no longer be used for that class section.

c. Convert a Pine Group Address to a alias data file in the current directory

This item (which is located in the menu above the sub-menu "Alias Datafile Maintenance Utilities" will, given the name of a Pine group address, convert it into a system alias datafile in the current working directory.

- d. Convert a Elm Group Address to an alias data file in the current directory

This item (which is located in the menu above the sub-menu "Alias Datafile Maintenance Utilities" will, given the name of a Elm group address, convert it into a system alias datafile in the current working directory.

- e. Edit Alias Contents

This item brings up the alias data file in the default editor (set in the EDITOR environment variable, *pi co* is the default). Please see the section entitled "Aliases In Their Raw Form" for the format of the alias data files.

- f. List Alias Contents

This item lists the data contained within an alias data file within the departmental library.

- g. Unblock an alias from users adding themselves

This item removes a file with the prefix of "block. " and the remainder matching the alias that you want users to add themselves to. Please see "To Allow Users To Add Themselves to an Alias" later in this section.

- h. To Allow Users To Add Themselves to an Alias

To allow users to add themselves to ANY alias data file which has not been blocked, the departmental librarian must complete the following steps:

- i. If you don't use "*elm*", create a subdirectory called ".elm" under your home directory by entering the following

```
% mkdir $HOME/.elm<CR>
```

- ii. Create a file called "filter-rules" within the .elm subdirectory with the following contents (if you already have a "filter-rules", just append the following to it):

```
#Rule to process user adds to an alias
if (subject matches /^ADD2ALIAS:/) then execute
    "/usr/local/share/lib/unixmenu/bin/adduser2alias
    %s %r"
```

NOTE: The second through fourth lines are actually one single line and should be entered as a single line.

- iii. Create a ".forward" file in your home directory which contains:

```
"|/local/bin/filter -o/ulib/login_ID/.elm/filter_errors"
```

where "*login_ID*" is the departmental library account name which is entered at the "login:" prompt while logging into the system.

NOTE: The quotes must be entered and the spacing is critical.

At that point all incoming mail will be filtered and mail matching the rule will cause execution of the `adduser2alias` script.

NOTE: This will open up adds to any alias you own unless the utility described above in the sub-section "Block an alias from user adding themselves" is used to block each alias which you do not want users to be able to add themselves.

Users may add themselves to the alias by running

`% /usr/local/share/lib/unixmenu/bin/addme2alias<CR>`

or by using "`unixmenu`" and selecting the items "Mail Services / Office Automation", then the sub-item "Add your account to a system alias owned by another user". The adding user will be requested to enter the owner of the alias and the name of the alias itself that they wish to be added to. When the request has been processed, the requesting user will be mailed with the result of the add attempt.

**PROVIDING
INFORMATION FOR
YOUR DEPARTMENT**

Departmental libraries are the springboard for providing information on the department to the campus and the Internet via Gopher and the World Wide Web. Any university department may request to become a provider by completing the "Gopher Provider Request Form" which may be obtained from User Support Services at 756-7000 or in Building 14 Room 114.

**OTHER DEPARTMENTAL
FILES**

The departmental library is the perfect location for many departmental files that need to be shared on the system. A suitable place for these files is in one or more first level directories below the home directory. If you do not wish the average beginning user to see these files, you may attach a period to the beginning of the directory name and they will not be visible unless the `-a` option is used with the `ls` command.

An example of another use of the departmental library for department files is a common calendar file (a file which may be included in other user's calendar files via the `#include` directive). For more information, refer to the man page for `calendar`.

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NOTES