User's Guide to Instructional Labs

Release 1.1

Instructional Support Staff

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This document has been compiled by the Instructional Support Group (ISG) as an introduction to the UNIX™ operating system and the Instructional Facilities. Because resources change periodically, the manual is also evolving and will continue to be revised.

Parts of this document have been adapted, with permission, from documents produced by the Iowa State University Computer Center and MIT Project Athena. These materials are subject to the following copyrights, respectively:

Acknowledgements

Thanks and acknowledgements go to Iowa State University for allowing us to borrow heavily from their User's Guide to Project Vincent. We have not attempted to credit the exact source in each location, but would like to note that sections of this manual use Iowa State's text extensively. Thank you also to Massachusetts Institute of Technology (MIT) whose Project Athena manual was the basis for the Project Vincent manual. Additionally, Marie Mayer, Publications Editor, Computation Center, Iowa State University, provided us with the Iowa State LaTeX files, and Ethan Munson answered many LaTeX and dvi questions during the course of this project. Special thanks to Hoofar Razavi, Scott Silvey, Kevin Mullally, Rob McNicholas, and Matt Wright for their help with proof reading and corrections.

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Preface

About this manual

The intent of this manual is to provide an introduction to UNIX and the different components of the EECS Instructional Systems. Although the information contained within these covers will get you started, it should not be considered complete or adequate to answer all of the questions that you will encounter regarding UNIX. Most local bookstores carry a wide variety of UNIX books. Please see Appendix **??** for a list of suggested books.

Please note that this manual will still be revised over time to reflect changes in the system as it is further developed.

Conventions Used in This Manual

To make this manual easier to read and understand, a number of conventions have been adopted in presenting the information. A summary of these is presented in the following sections.

Prompts and Examples

Prompts that are supplied by the workstation are shown in a `typewriter` font. For example, you'll see `%` throughout the manual, as this is a standard prompt used within the C shell. The `typewriter` font is also used to display examples of login sessions, e.g., showing the results of issuing various commands.

Commands and Options

The names of commands and options are shown in **boldface** type. User-specified input, such as filenames, is represented by *italics*. For example, the syntax for the **more** command is:

more *filename*

where *filename* indicates that the user should substitute a specific filename.

Keys and Key Sequences

Often you will be required to press a certain key or combination of keys other than alphabetic, numeric, or special characters. For example, pressing the "return"[1] key will be shown as **Return** and pressing the space bar will be shown

[1] Most applications will only accept the key labeled "Return"; the key labeled "Enter" on the numeric keypad may not be substituted.

as **SPACE**. In some instances, you must press and hold down two keys at the same time. For example, pressing the key marked **Ctrl** along with **d** is used throughout UNIX™ to terminate a particular function or process. That key sequence will be shown as *CTRL-d*.

There are two keys that will be referred to frequently which are not marked on the keyboard in the same way that the documentation refers to them. They are the “Meta” key and the “ESC” (or Escape) key. The **Meta** key is labeled “Compose Character” or “ALT” on most keyboards.

Manual layout

Part I: Instructional help

Chapter 1, Instructional Computer Facilities

A good description of what Instructional offers in regards to facilities and computer accounts.

Chapter 2, xxxx Account Settings Tailoring xxxxxx

Chapter 3, xxxx Security xxxxxx

Chapter 4, xxxx Disk usage and quotas xxxx

Chapter 5, xxxx Instructional software xxxx

Chapter 6, xxxx General Help xxxx

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Part II: UNIX and NT tutorials

Chapter 8, xxxx Cshell xxxx

Chapter 9, xxxx Debugging xxxx

Chapter 10, xxxx XWindow Setups xxxx

Chapter 11, xxxx NT Internals xxxx

Chapter 12, xxxx Text Manipulation xxxx

Chapter 13, xxxx E-mail xxxx

Reporting Errors in the Manual

Although we strive to review and edit all documentation carefully, sometimes mistakes slip through. As well, system changes may occur which are not yet reflected in the documentation. If you find what you believe is an error, either a typographical error or an error in content, please notify the Instructional Staff, 384/386 Cory Hall or 333 Soda Hall, (errors@imail.EECS.Berkeley.edu). Your input will be greatly appreciated.

CHAPTER

ONE

Instructional Computer Facilities

The information in this section, with any current updates, is also available on-line in the file /share/b/pub/EECS.facilities. See Section 1.7.

1.1 Overview of EECS Facilities

Instructional Support Group (ISG) maintains a variety of computer systems for use by CS and EECS students, professors, researchers and staff. All of the systems are on the Ethernet (provides local networking) and most are linked to the Internet (provides world-wide networking). These systems all run the UNIX™ operating system.

Here are some systems commonly used for EECS instruction:

Instructional Labs

Location	Required Access	# of Computers	Operating System
310 Davis Hall	cardkey	45	Solaris 8, Sunray's
349 Davis Hall	cardkey	45	Solaris 8, Sunray's
111 Cory Hall	cardkey	6	Mac OSX
111 Cory Hall	cardkey	14	Windows 2000
117 Cory Hall	open access	10	Windows 2000
119 Cory Hall	open access	16	Windows 2000
199 Cory Hall	open access	28	Solaris 8, Sunray's
271 Soda Hall	open access	35	Solaris 8, Sunray's
273 Soda Hall	open access	30	Solaris 8, Sunray's
275 Soda Hall	open access	34	Solaris 8, Sunray's
277 Soda Hall	open access	30	Solaris 8 x86
330 Soda Hall	open access	27	Windows 2000
349 Soda Hall	cardkey	12	Windows 2000

Location	Required Access	Printer Name
310 Davis	open access	lwdv310
349 Davis	open access	lwdv349
111 Cory	open access	lw111
117 Cory	open access	lw117
119 Cory	open access	lw119
199 Cory	open access	lw199
274 Soda	open access	lw274
330 Soda	open access	lw330
349 Soda	cardkey	lw349

1.2 Individual Accounts for EECS Faculty

EECS faculty members may request a personal account by sending e-mail to “root@hera”.

1.3 Computer Accounts

1.3.1 What is an “instructional” account?

The department of Electrical Engineering & Computer Science maintains its own computers to be used for EECS coursework. There are two types of accounts: named and class accounts. A named account has a login that resembles the user’s name; a class account login resembles the course name (such as ”ee141-xx”). A UNIX account will work on all Instructional UNIX computers and NT account’s will work on all Instructional NT computers.

UNIX named accounts are requested by students, using the ’newacct’ utility (see below). For many courses, no other account is needed - a student can use the named account to do assignments for various courses.

UNIX class accounts are created at the request of faculty, who distribute account forms to the students in class. Class accounts are set up to serve special needs of a course and expire at the end of each semester.

NT class accounts are set up for a class at the instructor’s request. These accounts expire at the end of the semester. Long-term named accounts are not available on the Instructional NT systems.

1.3.2 Who is qualified to have an instructional account?

Undergraduates who are declared as EECS, L&S CS majors, EE/CS graduate students and CS Reentry students are given long-term named accounts on the EECS Instructional UNIX systems. The account remains active as long as the student is in the department. It is not not expired or turned off at the end of each semester. For some courses, temporary ’class’ accounts may also be issued.

For an undeclared or non-EECS major, the accounts that are issued depend upon the course(s) taken. If a course uses EECS class accounts, the instructor will distribute the account forms and that may be the only account that is issued. Students should try ’newacct’ (see below) to see if they can get named accounts.

Undeclared students who are candidates for acceptance in the major may be eligible for *named* accounts, with the approval of the CS Division office (Barbara Hightower, 339 Soda). Approval would have to be requested again each semester until the student becomes a declared major.

1.3.3 What computers can I use for EECS coursework?

The EECS Instructional systems are UNIX and Windows NT systems. They are located in the southwest corner of the first floor of Cory Hall and on the second and third floors of Soda Hall. For a current description of the facilities, please see bulletin boards near 199 Cory and 271,330 Soda, or browse our WEB site at http://iesg.eecs.berkeley.edu.

Although EECS students will have access to a variety of computers, many instructors will specify a particular operating system (HPUX, Windows NT, Solaris x86, DEC UNIX) that is best for the software used by that course. The file **/share/b/pub/Tbl_of_Classes** includes information about the computing requirements of specific classes.

Note that EECS Instructional UNIX accounts are not valid on non-EECS systems such as Uclink or the campus microcomputer labs.

1.3.4 How do I obtain my instructional account?

New accounts:
To request a new "named" account, users should login to any EECS Instructional system as the user "newacct". You can do this in 2 ways:

1. Type "**newacct**" at the login window of any workstation in an EECS lab, such as 105 Cory or 273 Soda.
2. Type "**ssh cory.eecs -l newacct**" from another UNIX computer account or over a modem if you call from home.

You will be asked for your Student ID number and name. If your entries are valid, you will be asked to choose a login (i.e. your "computer name"). The account will usually be created by 1PM on the next business day, and you can go to 391 Cory after that to obtain your account form and password. You will have to show a valid student ID card at that time.

The **newacct** procedure may reject the requests for some users, typically if they do not have a Student ID Number or if they are not pre-enrolled in any EECS course. In that case, **newacct** will inform the student to complete an EECS Instructional Account Request Form, available outside 386 Cory.

When you first log in to your new account, you'll be asked to enter the EECS classes you are taking. Later, you can use the "validate" command to modify that. This information may be used to allow you to access software that is restricted to your class.

1.3.5 Where do I go for help about an instructional account?

If you have trouble with your account, contact a member of the EECS Instructional group by sending email to root@cory (NOT root@eecs or root@cs) or visiting **384/386 Cory Hall or 333 Soda Hall.** Tutorial help and guidance about UNIX, the terminals and printers is also available from the **XCF** group of student volunteers in 311 Soda or from the CSUA volunteers in 343 Soda.

1.4 Other Accounts for Students

The following computer facilities are available for students to get personal, long-term computer accounts. All are on the campus network and can be reached by modems.

System name	Location of terminals	Account eligibility, cost, and where to ask questions
soda	343 Soda	members of the CSUA; free; go to 343 Soda Hall or send e-mail to “root@soda”.
ocf	72 Barrows	all UCB students; free; go to 72 Barrows Hall or send e-mail to “root@ocf”.
uclink	various	UCB students, staff and faculty; free; go to 241 Evans, send e-mail to “consult@uclink” or call 642-7355.

1.5 Services Provided to EECS Faculty

1.5.1 Technical Support

Instructors and TAs who detect a problem with the Instructional facilities are requested to call or send e-mail to the Manager of Instructional Systems (Kevin Mullally, 643-6141, kevinm@cory) or to call the main TCS number to leave a message (642-6744).

1.5.2 Application Software Support

The Instructional Systems Support Group has the task of providing computer systems and peripherals, and the standard UNIX operating system software for EECS instructional lab work. Other popular application programs are supported, such as Chez Scheme, Saber C, Franz Lisp, and SUPREM. (Run the **software** command on most EECS Instructional systems to see more information about supported software.)

Other applications used for instruction are maintained by the instructors. When an instructor wishes to install a new application, he or she should consult with the Manager of Instructional Systems. Issues to be considered will include the system load, costs and maintenance efforts that the software will impose.

For vendor-supplied software, our staff usually will do the installation and keep the tapes and documentation. The staff may provide a copy of the documentation for use in the lab room, but the instructor is responsible for making copies for the entire class.

If the instructor provides the software, our staff will install it if “root” permission is required. The tasks of debugging and testing are the responsibility of the user.

1.6 What Faculty Should Do for Help

Faculty and TAs are encouraged to contact the Administrator of the system they are using, either by e-mail or by phone. This will assure quick attention to the problem. For Instructional computer systems, contact the Manager of Instructional Systems: Kevin Mullally, 643-6141, kevinm@cory. Also, all of the methods described in the following section are available.

1.7 What Students Should Do for Help

There are many different ways to find information or obtain help. Depending on the nature of your question or problem, you may want to use one or more of the following methods for obtaining assistance:

1. Read the on-line Manual Pages. (See Section **??**.)

2. Read the various help files stored in the /usr/pub directory of all EECS Instructional computers. Type "**cd /usr/pub; ls**" for a list of files.
3. Read the various help files available via "anonymous FTP". (See Section **??**.)
4. Read current information posted on big green bulletin boards near 199 Cory and 273 Soda and in the EECS Instructional lab rooms.
5. Solicit advice and help from TCS by sending e-mail to "root" on your computer.
6. See the Instructional staff in 384 Cory or 333 Soda.
7. The Experimental Computing Facility (XCF) offers walk-in help, tutorial classes and handouts. The XCF is run by students and is located in 311 Soda Hall.
8. The Computer Science Undergraduate Association (CSUA) in 343 Soda Hall can provide some assistance.
9. Read the various help files available through "Infocal" by typing: `http://infocal.berkeley.edu`.
10. Use the **netscape** or **mosaic** programs. See Section **??**.)

1.8 Access to Terminal Rooms and Printers

Most of the labs will require access by cardkey (so will the building itself on evenings and weekends). The Instructional labs are provided for students to complete coursework, so access is linked to the current enrollment in an EECS course. Students are pre-approved for cardkeys when their instructors submit a class list to 391 Cory.

1.8.1 How to get a Card Key

1. Students are given access permission by their instructors, who submit a signed class list to 391 Cory.
2. Once the list has been submitted, students should go to 391 Cory to obtain new cardkeys or to have an existing one updated.

1.8.2 Access Policy

- The Instructional UNIX labs in Cory and Soda Halls are usually unlocked from 7am-6:30pm on weekdays when classes are in session.
- The PC and electronic labs will always require a cardkey.
- Access to the buildings and to individual labs will require a cardkey after 6:30pm and on weekends, vacations and holidiays.

Please note that there is a campus escort service that will walk you from the labs to the dormitories or parking lots. Call 642-WALK for assistance. This is highly recommended if you are working in the computer labs at night.

Information on card key procedures and access is subject to change. Current information about the Instructional labs is available on-line in the file /usr/pub/EECS.facilities. See Section 1.7 for details.

1.9 Dialup Access

Users can access EECS Instructional systems via modems on the following terminal servers.

MODEM PHONE NUMBERS

Numbers[1]	Baud Rate	Device Accessed
642-6679	auto, up to 14.4kb	modems on a terminal server
642-0070	auto, up to 28.8kb	modems on a terminal server
642-5131	auto, up to 14.4kb	modems on a terminal server
642-7773	auto, up to 2400	modems on a terminal server
642-7654	auto, up to 28.8kb	modems on a terminal server [2]
642-9600	auto, up to 14.4kb	IST modems on a terminal server [3]
643-0165	same, with 15 minute limit	IST modems on a terminal server [3]

[1]These numbers access a "hunt group" of modems. If one is busy, the next is tried automatically. Each of these hunt groups includes at least 16 modems. So, you can dial a single number to reach the next available modem in the group.

[2]Optimized for high speed use only and are primarily meant for SLIP and PPP applications. Connection speed on your workstation should be set for: 38.4kb, no parity, 8 data bits, stop bit. Direct questions to 'dialups@eecs' please.

[3]Access to EECS instructional machines from the Information Systems & Technology (IST) terminal servers may vary from time to time. Users who are have trouble getting to EECS instructional machines from the IST terminal servers should notify 'dialups@eecs' as well as report the problem to the IST Trouble Desk at 642-4920.

When connecting from a modem, use these line settings:

parity: none, Data bits: 8, Stop bits: 1
or
parity: even, Data bits: 7, Stop bits: 1

Most software will work with either setting. The first one is preferable; however, some older file transfer software may only work with the second one.

1.9.1 Home Internet Access with PPP or SLIP

Information Services and Technology (IST) provides this service for UCB students, faculty, and staff. Please read **/usr/pub/home-ip.help** for details.

1.9.2 Terminal Server Example

Changes are being made to the campus and departmental modems during Summer 1996. In order to use the modems, you may need to provide your home-ip username and password. Please read **/usr/pub/dialups** *and/or* **/usr/pub/home-ip.help** *for the latest details on this.*

Here is an example of the screen that should appear on your terminal once the terminal server answers your modem. You may need to enter <RETURN> a number of times to get the "annex:" prompt:

```
Annex Command Line Interpreter * Copyright 1988 Xylogics, Inc.
Checking authorization, Please wait...
>>> Welcome to Cory Hall Modems

   Type ''rlogin <machine> -l <user>'' to login.
```

```
                          (this is the letter ‘‘el’’, not the number ‘‘one’’)
   After logging out, please type ‘‘hangup’’ to reset session.
   Type ‘‘help’’ if you need more information.

annex:  rlogin volga -l e243-xr
Password:
...message of the day, user’s login scripts, etc ...
...after we’re done ...
volga> logout
CLI: Connection closed.
annex:  hangup
Resetting line and disconnecting.
```

This information is also available on-line. See Section 1.7 for details.

1.9.3 File Transfers

For more detailed information about file transfers, please see the file /usr/pub/dialups or the information on Gopher.