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Chapter 1

Introduction

1.1 Overview of the CIS IT Organization

The CIS IT group is a subset of the Department of Computer and Information Sciences staff and is responsible for managing all of the production, research and academic IT infrastructure in the Department of Computer and Information Sciences here at UAB. This includes all of the hardware in the computing labs, the datacenter and the offices, as well as all of the software, services and accounts that run on all of those systems.

We provide both reactive (e.g. Helpdesk response, hardware break/fix) and proactive (e.g. custom app code development, strategic initiatives such as new lab deployment) services, and each team member splits time between the two types of tasks.

The CIS IT staff is comprised of both full time employees and student workers. Although the staff grows and shrinks over time, as of the time of this writing the staff is managed by Sr. Systems Analyst Larry Owen and Systems Analyst Alex Filby, and includes 2 full time employees and a staff of half-time student workers.

As a result of our small staff size and irregular schedule, we are not a 24/7 on-call operation. However, we rely upon a number of technologies such as our Helpdesk and documentation such as our User Guides to provide our end users with a high level of support.
1.2 New User Quickstart

If you’ve just arrived at UAB CIS and you just want to know the steps required to get started with CIS IT, here is a quick summary of steps you should follow. For more in-depth information, please read the remainder of this guide.

There are several prerequisites before you may use CIS IT:

- You must be affiliated with UAB (e.g. student, faculty, staff, visiting student, research collaborator)
- You must already have a working BlazerID and email account (see http://www.uab.edu/blazerid)
- You must be registered for CIS courses, pursuing a degree in the CIS department or have another CIS-related activity which requires access to CIS resources.

Once you have fulfilled the prerequisites, complete the following steps:

1. Fill out the CIS Account Application, found at https://cis.uab.edu/accountapplication
2. Visit with Janet Tatum in the front office to request key card access to relevant rooms.

1.3 Getting Access to CIS Resources

1.3.1 Applying for a CIS Account

All CIS systems require a CIS account to login. Your UAB Blazer account is not used to access CIS resources.

To obtain a CIS account, fill out the online CIS Account Application, found at https://cis.uab.edu/accountapplication.

Please be patient; this process may take up to 2 business days to complete. You will receive an email at your blazerid@uab.edu email address when the account is ready for use.

1.3.2 Physical Access to CIS Resources

The following department resources require a student ID keycard which is correctly programmed.
CHAPTER 1. INTRODUCTION

- **Campbell Hall (after hours)** Available to all CIS graduate students.

- **Undergraduate Lab CH154/154A/154B** Available to all undergraduate CIS majors or minors, graduate CIS students, and any other students enrolled in CS105 or above which have specific need to use the lab computers for their CS classes.

- **Graduate Lab CH135/135A** Available to all CIS graduate students. See Janet Tatum.

- **Teaching Labs CH145, CH137A, CH430 and CH435** (For Teaching Assistants Only. Not for students taking classes in these rooms.) Send a request to the CIS Helpdesk specifying the class which you are teaching.

- **Research Labs** Available to all students assigned to work in the lab, with permission of the supervising faculty member.

1.4 CIS IT Policies

This section contains policies which govern the use of CIS IT. All users of CIS IT are governed by these policies. Use of our IT resources is understood to mean that you accept all provisions set forth in these policies and agree to abide by their terms.

1.4.1 Acceptable Use Policy

Introduction

This policy governs what activities are deemed acceptable when using CIS IT. The most recent version of this policy is available at https://cis.uab.edu/media/2014/08/CIS-IT-Acceptable-Usage-Policy.pdf.

CIS IT Acceptable Usage Policy

In managing the limited resources available to the CIS community, we strive for fair, equitable and accountable use of the resources by all authorized users. This means that resource management and security are the responsibility of all users. Note: For the purposes of this document, CIS resources refers to the network, computers, software, disk space, web space, printers, computer labs, special purpose hardware and any other equipment, resource or service owned or provided by the CIS department to its users.
Section 1. Authorized usage only

Accounts and access to CIS resources are issued to you and are to be used solely by you. You may not give anyone else access to these resources. If you do so, your account and/or access may be removed on a permanent basis. It is your responsibility to keep your accounts secure. If you are found using accounts or resources for which you have not been authorized, your own accounts may also be disabled permanently. This includes attempts to alter hardware, software or network configurations or connect personal equipment to the network without permission.

Section 2. Academic use only

Academic usage only CIS resources are provided for the sole purpose of supporting your academic computing needs related to the CIS academic program. CIS resources are not be used for personal purposes unrelated to your CIS academic work. This includes the storage of files not related to your academic work. This policy extends to any web space which you may be granted. Excessive use of CIS resources for personal purposes may be treated as theft of services.

Section 3. Illegal activities

It is strictly forbidden to use CIS resources for illegal purposes. Examples of illegal usage include, but are not limited to, attempts to gain access to computer systems for which you are not authorized and the sharing or downloading of copyrighted material such as music, videos or books. Any illegal activities will be treated as attempted theft of services.

Section 4. File access

Even if permissions on another user’s account permit you to view, copy, create or remove files, you may not do so without prior explicit permission from the owner of the file. Unauthorized file access will be treated as theft. This includes using other disk resources as a way to avoid disk space quotas.

Section 5. Email usage

Each student is responsible for reading all email from faculty and staff sent to both your CIS email address and your BlazerID email address (note that for new accounts the default behavior is to automatically forward CIS email to your BlazerID address). Announcements and policy changes announced by email to either of these addresses is considered formal notice and the student shall be held responsible for reading this information. You may not use CIS email resources to send unsolicited emails for the purposes of seeking employment, selling or buying services or merchandise or any other similar activity.
1.4.2 Account Lifecycle Policy

Accounts in the CIS department have one of the following statuses: Active, Archived, Alumnus. Each status has a different level of services and access associated with it. This policy explains the functionality associated with each status and when accounts transition between the various statuses.

**Explanation of Account Statuses**

- **Active** The account owner is currently involved in an ongoing activity in the department (e.g. taking a CS class, performing research). Accounts with Active status have full access to the department resources afforded to their student level (e.g. Undergraduate, Masters, PhD).

- **Archived** The student has not participated in CIS department activity for some period of time. Accounts that are in Archived status no longer have the ability to authenticate and login to CIS resources or access any data that is stored in the account. The account data is moved to an archive area and is no longer included in the daily backup process. Websites associated with this account are no longer publicly visible.

- **Alumnus** The student has received a degree from the CIS department and is not currently involved in an ongoing activity with the department. Accounts that are in Alumnus status function identically to accounts in Archived status with the exception that the account owner may be entitled to certain functionality available only to alumni of the department, as outlined in the Alumni Services Policy.

**Account Status Transitions**

All new accounts start in Active status. The possible transitions are possible throughout the lifetime of an account.

**Active to Archived**

An account will transfer from Active to Archived status after some period of inactivity, where activity is defined as being registered for a CIS class, participating in a CIS research effort, or some other indication that the account is being used regularly.
CHAPTER 1. INTRODUCTION

This period of time varies depending on the student’s prior relationship with the department. For instance, CS101 students that do not go on to higher level CIS classes are typically moved to Archived status within a semester after completing CS101, whereas CIS majors’ accounts are typically kept in Active status for a full year past their last activity unless there is conclusive information that they are permanently inactive.

The grace period between the start of the inactive period and the transfer of the account to Archived status is intended to be used by the account owner to transfer their data elsewhere and to otherwise tie up loose ends associated with ending a formal relationship with the CIS department. Once an account is archived, these tasks are difficult or impossible to achieve.

Archived to Active

An account will remain in Archived status for a finite period of time. An account can transfer back to Active status if the account owner re-engages with the department by registering for a class, participating in research, or other similar activities.

Active to Alumnus

An account will transfer from Active to Alumnus status some period of time after the account owner receives a degree from CIS, if the account otherwise meets all of the requirements for Archived status. Note that Active status trumps Alumnus status e.g. if a student receives a Bachelors’ Degree and then starts a Masters’ Degree, the account will remain in active status.

The grace period between the conferral of the degree and the transfer of the account to Archived status is intended to be used by the account owner to transfer their data elsewhere and to otherwise tie up loose ends associated with ending a formal relationship with the CIS department. Once an account is archived, these tasks are difficult or impossible to achieve.

1.4.3 Alumni Services Policy

At the time of writing, the Alumni Services policy is still in development, but it is expected that this policy will define a set of services that the department will offer accounts with alumnus status. These services might include: email forwarding, alumni database access, newsletters, optional mailing list, and listing of links to a personal web site URL.
1.5 Using the CIS Helpdesk

The CIS Helpdesk is the preferred way to seek help for all CIS-provided IT services. To open a CIS Helpdesk ticket, send an email to helpdesk@cis.uab.edu.

When you open a ticket with the CIS Helpdesk, you will receive an email receipt soon after submitting your request. This receipt, and all other emails from the Helpdesk, will have a special subject line tag that contains a ticket number. It is very important that future communications between you and the Helpdesk about this issue contain this subject line tag. The easiest way to ensure this is to simply reply to the Helpdesk email when communicating about your request.

The Helpdesk processes thousands of requests each year, so it’s important to help the IT staff quickly understand the issue you are reporting. Here are four simple steps for getting timely and successful results.

1. **Use Descriptive Subjects.** We often get tickets with a subject line of help or no subject at all. Please provide a descriptive subject, such as Subversion authentication is failing for cs693 repository.

2. **Fully Explain the Problem.** If it is a software problem, please provide the exact error message that you are receiving. Describe the behavior you expected, and the behavior you actually observed. If it is a hardware problem, please describe the symptoms and/or machine behavior.

3. **Tell Us How to Reproduce the Problem.** Tell us what you did to produce the error, so that we can reproduce it to study the problem.

4. **Tell Us What You’ve Already Tried.** Let us know of your own attempts to solve the problem, and the results. If you think you know the problem, describe a suggested fix.

**Example of a poor Helpdesk request:**

<table>
<thead>
<tr>
<th>Subject: Help</th>
</tr>
</thead>
<tbody>
<tr>
<td>I tried to edit my course’s web page but cannot. Please help.</td>
</tr>
</tbody>
</table>

This is troublesome for several reasons. The subject line is vague and does not help us assign the ticket to the right person or easily find the ticket in the Helpdesk. The problem description is too general; there are many different reasons why a user might not be able to edit a file, and this report does not say which file or for which course. It does not tell us what error message was received. Finally, it does not tell us what investigation the user has done or what they think the problem might be, so the IT staff may end
up spending time redoing what you have already tried, delaying a resolution to the issue.

Example of a good Helpdesk request:

<table>
<thead>
<tr>
<th>Subject</th>
<th>joeuser does not have permission to edit CS306 web files.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>I am the TA for CS306 and attempted to update the course web pages in /nethome/webfiles/courses/cs306/summer2007/ by logging into the vulcan machines and editing them using vi. However, I received the error permission denied when attempting to save my changes. I was successful doing this last week, but as of last night it does not work.</td>
</tr>
<tr>
<td></td>
<td>The file in question is index.html. If you attempt to edit and save that file as 'joeuser' on vulcan1, you receive the error above.</td>
</tr>
<tr>
<td></td>
<td>I have examined the permissions on index.html. The file is owned by 'jane' and is in group 'cs306web'. The owner and group both have write permissions. Perhaps it was accidentally removed from the 'cs306web' group?</td>
</tr>
</tbody>
</table>

This is descriptive, thorough and to the point.

Following these guidelines will help CIS IT serve you better, and will provide a better IT experience for the entire CIS community.

CIS IT Staff Office

The Helpdesk is the best option for submitting requests to CIS IT because of the limited staff and irregular hours of operation. However, if immediate help is truly needed, the IT Staff office is located in room CH151 and the phone number for that office is 934-8610.

These methods of contact should be reserved for emergency use only, and we cannot guarantee that personnel will always be present to speak to you in person or over the phone. For normal requests, please submit a Helpdesk ticket.

Research Lab IT Requests

If you are a student assigned to a specific research lab, and you wish to request changes or additions to the IT in the lab, please discuss your request with the supervising faculty member for your lab. All requests for changes to research labs must originate from the supervising faculty member. CIS IT cannot make changes to research labs based on student requests.
1.6 Relationship to Other IT on Campus

The IT resources available to you at UAB are managed by a number of different entities on campus. In particular, the list below includes common IT resources that are not managed by CIS IT, and pointers on how to seek help for those resources.

- **Wireless Network** - UAB IT provides the UABSecure network in most of the buildings on campus as well as some outdoor areas. This includes Campbell Hall, which has nearly complete coverage for UAB-Secure. Information about connecting to UABSecure can be found at [http://www.uab.edu/wireless/](http://www.uab.edu/wireless/) All questions regarding the use of the wireless network should be directed to the AskIT Helpdesk at askit.uab.edu.

- **Blazer Email** - CIS undergraduates and some CIS graduate students have their CIS email address automatically forwarded to UAB Blazer email. The Blazer Email system is managed by UAB IT. Questions regarding the use of this email system should be directed to the AskIT Helpdesk at askit@uab.edu.

- **Blazernet** - UAB Blazernet is a one-stop web portal for many of the administrative systems that students need to access. This system is maintained by UAB IT. Questions regarding the use of Blazernet should be directed to the AskIT Helpdesk at askit@uab.edu. (The above services and more are fully described in UAB’s Student Computing Guide. Visit [http://www.uab.edu/it/](http://www.uab.edu/it/), click the Student tab, and then click Computing Guide.)

- **Baseline IT vs. class-related IT** - The CIS IT staff is focused on supporting the baseline IT that is relevant across the entire department. However, this being a Computer Science department, we also have several classes that require usage of specialized software and/or resources. (For example, our distributed, and parallel computing classes require that students use the HPC software and resources on the department’s cluster computers.) In such cases, the instructor will provide you with specific instructions on how to use the required software, and if you have questions you should ask the instructor.
Chapter 2

Getting to Know CIS IT Resources

2.1 How CIS IT Manages Department Resources

2.1.1 Introduction

There is a substantial amount of IT required throughout CIS in order to support the academic, research and production computing needs of the department. CIS IT’s mission is to manage this wide array of information technology hardware and provide our end users with the best possible computing experience. These computing assets include:

- **CIS Data Center** - An 800 sq. ft. facility with over 300 servers running production, academic and research compute loads.
- **CIS Laboratories** - There are more than 175 computers spread across 14 open, teaching and research labs throughout the department.
- **CIS Offices** - All of the office PCs and circulating laptops are managed by CIS IT.
- **A/V Equipment** - Projectors, touchscreen monitors, document projectors and videoconferencing equipment found in our teaching labs and meeting rooms.
- **Printers** - There are over a dozen printers throughout the department.
- **Miscellaneous Equipment** - e.g. plasma display boards, tape library robot, visualization wall, security camera network.
In addition to the hardware assets of the department, CIS also manages a wide array of software and services. These include:

- **Departmental Production Services** - Web sites, email and mailing lists, file services, user account management, domain name service, DHCP service, data backup, databases, Subversion repositories, certificate authority, CIS Helpdesk.

- **Research Support** - 2 HPC Clusters, various research project servers.

- **Curriculum Support** - Class services such as databases, wikis, Subversion repositories, compilers, servers, libraries and other software packages, CS101 support.

- **Client Workstation Support** - Three operating systems (Windows, Linux, Mac) and dozens of software packages on each platform.

- **Laboratory Support** - Instructor classroom management software, automated image management and software deployment.

- **Custom Code Development** - Web site custom modules, account management, inventory tracking, High School Programming Contest support.

As evidenced by the above lists, there is a significant amount of IT hardware, software and services that are present in the department and available for your use. CIS IT has a number of policies and procedures in place to make the management of the department’s resources consistent and sustainable.

### 2.1.2 System Management and Updating

Nearly all computers in the department are deployed and managed via automated software systems which install the operating system, deploy and configure all of the software packages, create the proper configuration for that computer’s location and function, and manage updates over time. The CIS IT staff validates and configures each software package, driver and OS prior to deploying it into the department. This provides a consistent computing experience for our users regardless of the particular machine they are using.

As a result of these automated systems, making changes to department systems is a more complex process than it would be on a typical personal computer. Proposed changes to software, drivers or operating systems must be studied carefully. There are many reasons why an update or change may be delayed or prevented altogether.
• A software package may not be packaged in a way that is compatible with automated deployment, requiring the CIS IT staff to create one from scratch. In some cases, this is not possible.

• There may be concerns regarding backwards compatibility for other users.

• There may be a desire to avoid disruptions in the middle of the academic semester.

• There may be licensing restrictions.

• The operating system vendor may not have released an updated package for that software.

• There may be an incompatibility with a UAB or CIS application.

When managing an IT environment of this size and complexity, decisions are made with a greater emphasis on manageability than would be the case if only a few machines were being managed or if there were only one platform to support. While CIS IT tries to provide state of the art hardware, software and services to the department, this must also be balanced with the cost of managing the systems. For this reason, CIS IT strives to avoid custom software solutions, favoring standard software packages that are available from OS vendors or trusted 3rd party sources.

2.1.3 Physical and Electronic Monitoring and Protection of Resources

In order to protect the department’s investments in IT from physical security threats, environmental concerns, and policy violations, CIS IT employs a number of monitoring tools. All CIS users should be aware that these mechanisms are in place and that CIS IT takes your privacy very seriously, and monitors resources only to the extent necessary for protection of our assets. Some of the monitoring mechanisms are outlined in the list below.

• **Security Cameras.** CIS IT monitors security cameras in key laboratories and other spaces throughout the department. The video footage is used to help investigate situations such as thefts, suspicious persons activity, and suspected equipment abuse. Historical archives of captured footage are retained indefinitely.

• **Session Logging.** Logs are kept of user logins and other actions performed on the network. These logs are not routinely examined unless there is reasonable suspicion of illegitimate use of our IT resources, as outlined in the CIS Acceptable Use Policy.
• **Workstation Monitoring.** Each teaching lab has special software which allows the instructor to take control over the student workstations in various ways. This includes the ability to observe and control the student desktops, as well as broadcast the instructor station to all of the student desktops.

• **Physical Access Restrictions.** A number of our facilities have their entries protected by electronic card readers. This helps to ensure that our facilities are only used by the intended audience.

These mechanisms are in place to ensure the safe and fair use of our facilities and IT. Safety and security are the responsibility of all CIS users. Please do your part by ensuring that you do not distribute your access credentials to others or let unknown people into secure areas of the department. If you see anything suspicious, please report it to CIS IT or to any of the department’s faculty or staff members.

### 2.2 Laboratories

#### 2.2.1 Open Labs

**Graduate Lab**

The Graduate Lab consists of two adjacent rooms (CH135 and CH135A) and contains six Linux workstations. The Graduate Lab is open during all hours when the building is open. Requires a key card to gain access.

**Undergraduate Lab**

The Undergraduate Lab consists of three adjacent rooms designated CH154, CH154A, CH154B. Rooms CH154 and CH154A contain 6 Windows 7 workstations, and CH154B contains 2 iMac OS X 10.5 workstations and 3 Debian Linux workstations. One Windows 7 workstation is reserved for the TA when on duty. The Undergraduate Lab is open during all hours when the building is open. Requires a key card to gain access.

#### 2.2.2 Closed Labs

Closed Labs are open only for scheduled classes and events led by an instructor.
CH145 Lab

The CH145 instruction lab contains 20 Linux student workstations, and one Linux instructor workstation.

CH430 Lab

The CH430 instruction lab contains 20 Linux student workstations, and one Linux instructor workstation.

CH435

The CH435 instruction lab contains 36 Windows 7 student workstations and one Windows 7 instructor workstation.

CH137A

The CH137A instruction lab contains 20 Debian Linux student workstations, and one Linux instructor workstation.

2.3 Data Center

2.3.1 Data Center Resources

The UAB CIS Department has a production data center located within the department’s first floor wing of Campbell Hall. This data center, or server room, contains the server-class machines responsible for most IT services we provide. Examples include the Windows domain controllers, mail server, backup server, and others. This room is also equipped with a 30-ton air conditioner and additional 5-ton units which remove the heat produced by these servers.

The CIS data center also contains the high-performance computing resources available to CIS students and faculty. These resources are used for both research by the UAB community as well as curriculum support. Various departments throughout the university, such as Genetics, Microbiology, and Chemistry, use the computational power of these resources to do research through computer simulations. Courses in the HPC track (distributed, parallel and grid computing) also utilize this equipment.
2.4 Checkout Library

CIS IT maintains a library of equipment that can be checked out by students and faculty for academic use. The following are available for checkout:

- Laptops
- Projectors
- Digital Cameras

Users who wish to check out equipment should send an email to the Helpdesk. Please include the following information:

- Desired Equipment
- Reason that equipment is needed
- Time period of use
Chapter 3

Account Usage and Management

3.1 Passwords

Your CIS account is used to access a variety of services, each of which will require you to logon using a combination of your username and password. The default password for your CIS account will be the one specified on your CIS account application form unless otherwise noted in your account creation e-mail.

Your CIS account is independent of your UAB BlazerID, though the two accounts may share the same name. The CIS Account Verification utility may be used to:

- Determine the existence of your CIS account,
- Change the password for your account,
- And verify any account features associated with your account.

This tool should be a user’s first stop when facing any difficulties using their account.

3.1.1 Changing your password

If you need to change or reset your password:

- Navigate to the CIS Account Verification website <https://cis.uab.edu/cisv/>
- Input your BlazerID and BlazerID password, and select either
– "Set CIS Password to current BlazerID password"
– "Reset your CIS password manually" and then input your preferred new password
• Finally, click process.

3.2 Home Directories

A user with his or her CIS account in the Active status is allowed access to network-based file storage. This storage is referred to as the user’s "home directory" and can be used for discretionary storage of any data the user needs to complete his or her coursework. For more information see 5.1.1: Home Directories.

3.3 Remote Access to CIS Resources

You may access your CIS Linux account from any Internet-enabled computer by using SSH to connect to one of the department Linux machines. This will allow you to access your files that are saved to your Linux and Mac home directory as well as your Z: drive on Windows. You can also run Linux applications such as text editors and compilers that are available on the Vulcan machines.

Note that from outside of the department, you first need to SSH to our departments SSH gateway, moat.cis.uab.edu. Moat will then redirect your connection to one of our Vulcan machines.

3.3.1 Linux and Mac SSH Client

If you are using Linux or Mac, the system already comes with an SSH client simply use the ssh command from a command line.

3.3.2 Windows SSH Client

To use SSH from a personal Windows system, you must download an SSH client. CIS IT recommends PuTTY, a free SSH client, which is available from http://www.chiark.greenend.org.uk/~sgtatham/putty/. WinSCP, available from http://www.winscp.net/, is recommended for file transfers.
3.3.3 Using PuTTY

PuTTY is an SSH client which can be used to access CIS department Linux machines. You can use the following steps to connect to the CIS network.

1. Download the putty.exe file to your desktop
2. Double click on the icon to open PuTTY.
3. In the PuTTY Configuration window, type "moat.cis.uab.edu" for the Host Name.
4. At the "login as:" prompt type your CIS user name.
5. Type in your CIS password when prompted.

You should now be logged in to a Vulcan.

3.3.4 Remote Desktop Tunneling to a Personal Workstation

For students who have a regular workstation in the CIS department (typically students in the research labs) it may be useful to have remote access to the computer on occasion in order to work off-site. The PuTTY ssh client can be used to facilitate such a connection by tunneling to the workstation on the CIS network from an off-site computer and forwarding the traffic from the remote desktop. The following instructions assume the use of a Windows OS. Remote connections must be allowed on the computer and the user must have administrative privileges on that workstation for the remote desktop services to work. Remote connections can be enabled in the System Properties menu on the Remote tab.

Running PuTTY from the off-site computer, look in the 'Category' pane to the left and navigate to Connection->SSH->Tunnels and there you will see two fields to specify a source and destination port for port forwarding through the tunnel. The "Source port" is the port on your local computer that you want the traffic to be forwarded to (you will use this to connect to the Remote Desktop session later), and the "Destination" is the hostname (or IP address) of the workstation on the CIS network followed by the specific port number for the Remote Desktop traffic from Windows: port 3389. The source port can be set to any arbitrarily large port number (such as port 10000) which is not reserved for another service, although using port 3390 works sufficiently. Once you have entered the data click Add. An example is shown in the screenshot below.
Then go back and click on "Session" and type in \texttt{moat.cis.uab.edu} as the hostname to SSH to, and optionally you can save a connection profile that stores all these settings under the "Saved Sessions" display. Once you log into moat leave the PuTTY terminal open but minimize it and type \texttt{mstsc} in the run box to open up the Microsoft Terminal Service Client/Remote Desktop Connection box. Then type in localhost:[portnumber] where port number is the source port you designated in PuTTY for the traffic sent to your local machine. It then should open and show you the login screen of your workstation remotely where you can then operate as if you were on the network.

\textbf{Linux and Mac Tunneling}

To set up a tunnel with a Linux or Mac computer you will need to open a command terminal and ssh through \texttt{moat.cis.uab.edu} with some additional arguments following the pattern:

\begin{verbatim}
"ssh -L localport:YourPcName:3389username@moat.cis.uab.edu -N"
\end{verbatim}

The "localport" number can be any port number that is not reserved, and the 3389 is the same port mentioned above that accepts remote desktop connections.

Once you press enter it will only ask you to type in your password to get to moat, and then once you hit enter again the terminal will appear to do nothing other than place the cursor on the next line however it is now connected. You can then minimize it and use your remote desktop application on your computer to connect to the remote host as "localhost:10000". Once you do that it should connect to the remote workstation as usual. You will have a working connection as long as the terminal with the ssh session is still active.

If you need a remote desktop application for Linux \texttt{rdesktop} (command line based) or \texttt{Terminal Server Client} can be used, and Macs have remote desktop clients that can be downloaded and installed as well.

\subsection*{3.3.5 Using WinSCP}

WinSCP is a file transfers application which can be used to access your files remotely.

1. Download and install WinSCP.
2. Run the WinSCP program.
CHAPTER 3. ACCOUNT USAGE AND MANAGEMENT

3. Enter the following information into the WinSCP Login window:
   - **Host name:** "moat.cis.uab.edu"
   - **User name:** your CIS user name
   - **Password:** your CIS password

4. In the "File protocol" drop down menu select "SCP".
5. Click "Login".
6. Select "Yes" when prompted to add the server’s host key.

You will see a window that is divided into two panes. The files displayed on the left are on your local computer. The files displayed on the right are in your CIS home directory. You can transfer files by dragging them between the two panes.
Chapter 4

Software

4.1 Subscription Libraries

The UAB CIS department has partnered with third-party software companies to provide students and faculty with discounted or in some cases entirely free commercial software. These partnerships are either directly between CIS and the vendor or through the UAB IT department. Each partnership is subject to its own licensing agreement.

4.1.1 UAB Software

[Note: Software in this section is not managed or provided by CIS IT. It is provided by UAB Central IT. For your convenience, we have provided some basic information about these programs in this guide. Please see http://www.uab.edu/it/ for more information. ] The university has several contracts and programs in place to allow students and other campus users access to various software packages at either no additional charge or for a reduced price for use on personal machines. The software falls into one of three categories:

1. **Site License** - UAB has purchased a campus-wide license for this software. It is available for your use at no extra charge. There may be usage restrictions on some of the software titles in this section, and there may also be a nominal charge for the media, which is typically available at the bookstore for students. Example titles: Microsoft Office, Microsoft Forefront Anti-Virus for Windows, Sophos Anti-Virus for Mac.

2. **Volume Discount License** - UAB was able to negotiate a reduced price for a bulk quantity of licenses. Most of these titles are free for...
use by the UAB community - the only difference is that the University must keep track and count the number of copies of the software being used, in order to comply with the license agreement. Example titles: Visio, SAS.

3. **Freeware License** - These software titles are free to use under the license provided with the software. Example titles: TN3270 Emulator Software for Mac.

Full software lists and detailed information on how to obtain this software can be found at [http://www.uab.edu/it/software/](http://www.uab.edu/it/software/). Please note that presence of these software titles in UAB’s software library does not guarantee that they will be available for use on CIS-owned machines.

### 4.1.2 Microsoft Dreamspark

Microsoft’s Dreamspark Premium, part of the Microsoft Developer Network Academic Alliance (MS-DNAA), is available to all STEM students, including CIS students. Dreamspark provides access to Microsoft software for learning, teaching, and research purposes. Further information and access can be found at [http://www.uab.edu/it/home/component/k2/item/322-dreamspark](http://www.uab.edu/it/home/component/k2/item/322-dreamspark), or by following the MS-DNAA link under the IT header on the CIS website.
Chapter 5

Network Services

5.1 File Services

5.1.1 Home Directories

Introduction

Every CIS account has a home directory on the network that is used to store your files. This directory is available to you whenever you are using CIS lab computer. On Windows, the home directory is available as your Z: drive, while on Linux and Mac, this is located under /nethome/students/blazerid. This means that you may access your network files regardless of which platform you are currently using, as long as you are connected to a CIS computer.

Cross-Platform Notes

Files which are manipulated and saved on one platform (e.g. Windows) will be available from the others (e.g. Linux and Mac, which acts just like Linux in this case). Users should be aware that Linux and Windows filesystems have some different characteristics which may not be obvious. The following three examples are the most common sources of confusion for users:

1. Windows filenames may contain extended characters such as spaces and exclamation points, whereas to access such files while using a Linux shell may involve escaping such characters with a backslash ‘\’ character.

2. Windows is case-insensitive with regards to filenames, but Linux will treat two similarly named files with different cases, such as ’ReadMe.txt’
and ‘readme.txt’, as unique files. For the least confusion, the we rec-
ommend using simple, short filenames where possible.

3. Linux files which begin with a dot ‘.’ character are considered hidden
files and are not displayed by default by the ‘ls’ command. These
files will also, by default, be treated as hidden files when viewed from
Windows. However, files explicitly set to be hidden from Windows
will not be hidden on Linux unless the filename begins with the dot
character.

To prevent potential confusion, it is recommended that you use all lowercase
letters in filenames, and avoid using spaces within filenames.

**Special Files and Directories**

Special files and directories within a user’s home directory are used to either
provide configuration information or access points for other department ser-
VICES. These files should not be deleted or modified unless the user is aware
of the complete implications of such an action.

- **svnaccess** (where applicable) - this folder contains the svn configura-
tion file necessary to access the user’s own subversion repository.

- **webfiles** (where applicable) - any files placed within this directory are
automatically published to the user’s website.

**Quotas**

Currently, there are no quotas enforced on the network home directories.
However, scans are performed regularly and students who are using an exces-
sive amount of storage will be required to remove some of their data.

CIS IT reserves the right to enforce quotas in the future at any time

**Remote Access**

You may transfer files to and from your CIS network home directory by es-
ablishing an SFTP or SCP session with moat.cis.uab.edu. SFTP and SCP
are file transfer variants of the SSH protocol and are used in a very similar
manner. There are several file transfer programs available for Windows that
support the SFTP and/or SCP protocol. These include: WinSCP, FileZilla,
SSH Secure Shell’s SFTP window, and Putty’s pscp.exe and psftp.exe exec-
tutables. From a Linux or Mac client, sftp and scp are both available via
the terminal command line.
Appropriate Use

All usage of the CIS-provided network storage is bound by the CIS Acceptable Use Policy. This means that data contained within a user's home directory is deemed to be the private property of that individual. Security mechanisms such as username/password authentication systems are in place to prevent unauthorized access to these files from others. Although such mechanisms are in place, it is the user's responsibility to make sure that their data is not made publicly available to others. For example, users must take care to logout of department resources such as Windows or Unix desktops when their sessions are completed.

Conversely, even if a user inadvertently sets permissions on a file or directory such that other users can access those files or forgets to log out of a workstation, this does not automatically grant other users the right to examine the files. You must still receive explicit permission from the file owner prior to accessing any of their files.

The CIS IT staff reserves the right to access users' home directories when necessary to troubleshoot problems, add new functionality to existing systems, or verify that a user has not violated the CIS IT Acceptable Usage Policy. Scans are performed to detect if users are using the CIS storage space allocated for their account to store non-CIS related materials. Users should not use their CIS storage to store large amounts of personal material such as photo albums and personal documents. The storage is intended to support CIS-related computing. We are particularly interested in ensuring that our storage is not used to store illegally downloaded materials. We take such violations very seriously, and offenders are subject to the disciplinary actions outlined in the CIS Acceptable Use Policy.

5.2 Email Services

5.2.1 Student Email

Students are granted a blazerid@cis.uab.edu email alias which automatically forwards to the student's blazerid@uab.edu email account. It is up to the student to ensure that they either actively check their blazerid@uab.edu account or forward that account to an account that they check regularly. Students can setup forwarding for their UAB email account at their BlazerID management page, www.uab.edu/blazerid. CIS IT does not manage UAB BlazerID email systems; please contact AskIT <askit@uab.edu> with questions or issues with your UAB BlazerID email system.
5.2.2 Mailing Lists

There are multiple mailing list and similar technologies in use by the department and it is important to understand how each works, as this is a common source of confusion for students.

- **CEDS** - "Class E-mail Distribution Service". Provided by UAB IT. Users must be specifically authorized to use CEDS. CEDS provides a mechanism to automatically send e-mail to an entire class or group of classes. Only registered students will receive mail sent to a class via CEDS. CIS instructors use CEDS regularly to communicate with classes.

Note that with CEDS, students cannot be added to or removed from the list. The lists are generated on the fly every time an email is sent through them, and are completely dependent upon the information in the UAB administrative databases. If you are not receiving mail from your professor who is using a CEDS list to email the class, it is because your record does not show that you are enrolled in the class. This needs to be addressed with the professor and if you are indeed registered, then you should contact the UAB AskIT Helpdesk at <askit@uab.edu>.

- **CIS Mailman Mailing Lists** - CIS uses the Mailman mailing list software to manage several mailing lists in the department. These lists are more traditional, with membership lists that can be edited by CIS IT or other authorized personnel. Example lists that are managed via Mailman include: CIS undergraduate and graduate students, CIS IT news, CIS Cluster Users, and UAB ACM. Mailman list administrators and moderators are assigned on a per-list basis. CIS IT has the ability to create custom mailing lists for department-related purposes. Please contact the CIS Helpdesk for more information if you are in need of mailing list software.

5.3 Personal CIS Web Space

The CIS department provides personal web space to CIS students and faculty for academic use. Students can view their personal web site by visiting students.cis.uab.edu/blazerid.

**Publishing content to your Web Space**

A student’s web content resides in the webfiles subdirectory of the students home directory on UNIX systems or in the webfiles folder in the Z: drive on
Windows. Students can modify their home page by editing the index.html file that is in the webfiles directory.

5.4 Subversion Source Code Repository

This page provides brief instructions on the specifics of the CIS setup and how to access and configure your repository. General usage of Subversion is not covered here. We recommend consulting the free online book, Version Control with Subversion, which can be found at http://svnbook.red-bean.com/. The CIS IT team will also run Subversion training sessions if a large group can commit to attend (e.g. for a specific research lab or class).

5.4.1 Accessing CIS Subversion

Access to the CIS Subversion repositories is through https access only. We do not provide local filesystem access to the subversion repositories.

5.4.2 Users’ Personal SVN Repository

Each CIS user is issued a personal SVN repository. This repository is located at https://svn.cis.uab.edu/users/username. Generally, you do not use a regular web browser to access your repository (doing so only gives you read only access to the latest revision). Instead, you use a Subversion client. On the department’s Linux systems, this is in the form of the 'svn' command line program. On Windows we recommend using TortoiseSVN. Instructions on using these tools is beyond the scope of this document, but plenty of documentation is available at the command line for 'svn' and online for TortoiseSVN.

The access control for this repository is completely controlled by the user via the file ~username/svnaccess/username.svnaccess found in your home directory. This file contains instructions regarding the syntax and usage of the file, and how to set up various project areas with different access permissions.

By default, each user’s repository is set to allow full read-write access by themselves and no anonymous access or access by any other CIS users. This can be changed following the instructions in the access file.
5.4.3 Research Group and Special Project Repositories

These repositories are administered by the faculty member in charge of the lab or project. Please contact those individuals if you need access to one of these repositories.

5.5 Git Source Code Repository

This section provides brief instructions on the specifics of the CIS Gitlab setup, and how to access your repositories. General Git instructions are outside of the scope of this document. We recommend the book, Pro Git, which is available free online at http://git-scm.com/book.

5.5.1 Accessing CIS Git

Access to the CIS Gitlab is through https for the web interface and through SSH only for access to individual repositories.

5.5.2 Users’ Personal Git Repositories

Each CIS user is allotted up to 10 personal git repositories by default, more can be allocated on request. The web interface can be found at git.cis.uab.edu. Accounts will be generated automatically when you sign in with a valid CIS account. Most repository interaction will be done through the web interface: creating new repositories, adding other users to projects, etc. The web interface includes additional features such as per project issue tracking and wiki pages.

The only method by which you can checkout and submit code, is by adding SSH Keys to your profile https://git.cis.uab.edu/profile/keys. Upon project creation, project specific access information and initial setup instructions will be displayed for the user.

5.5.3 Research Group and Special Project Repositories

Our installation supports the creation of groups. Those needing a group created for a research group should contact helpdesk.