

Cisco Networking Academy Program NETLAB Academy Edition

Student Guide



Academy Edition

www.netdevgroup.com

NETLAB

Curriculum Server

Total Lab Management

Classroom Lecture Tool

Remote Lab Solution

Document Version: 1.x - Release Date:

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1 Overview

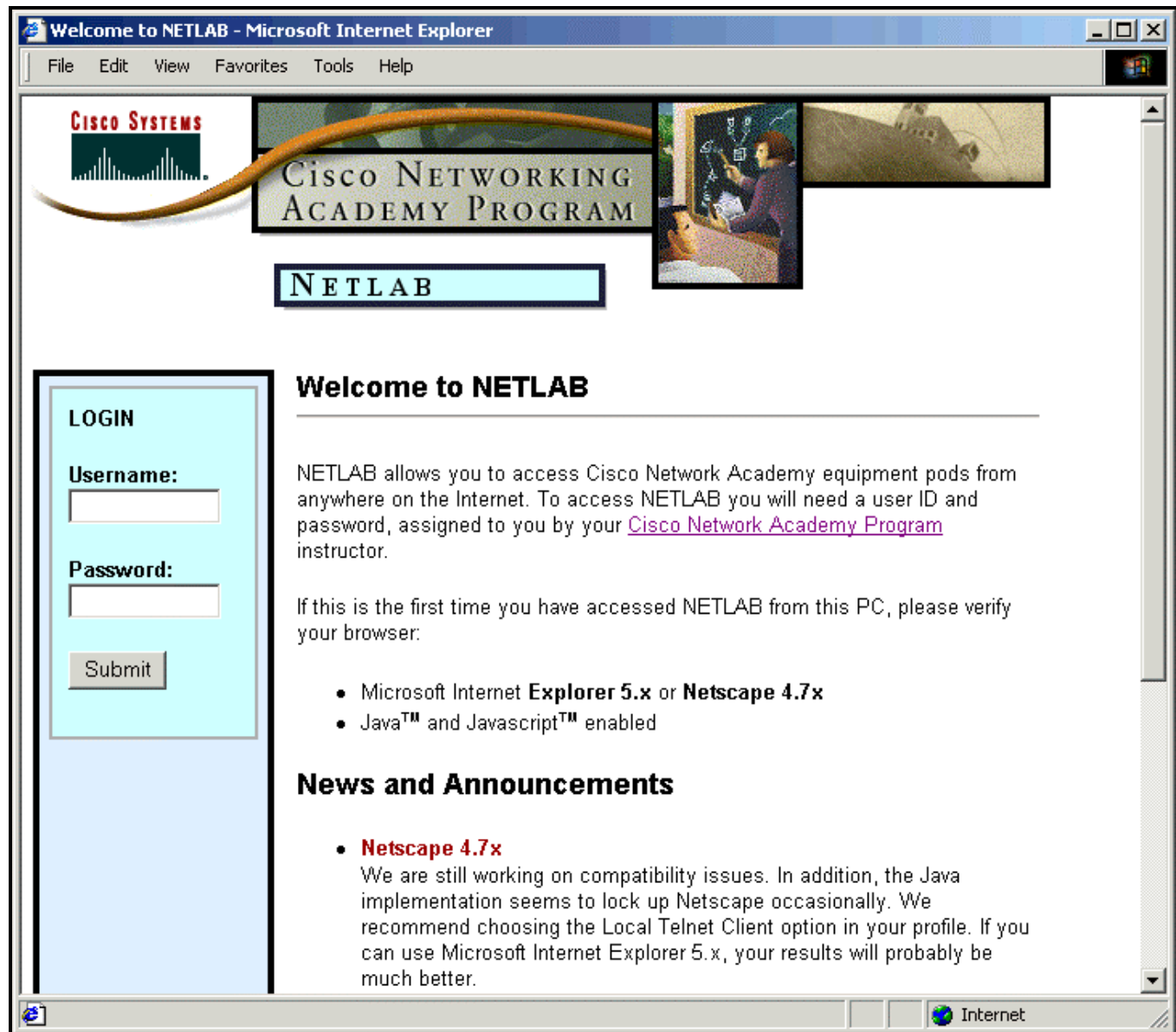
This course is designed to teach students to use the features of the NETLAB system. After reading this tutorial, students should be able to do the following:

- Log into the NETLAB system
- Navigate the NETLAB student interface
- Change the user profile
- Reserve time on the NETLAB equipment
- Complete online labs
- Create and edit configuration files
- Access online curriculum and labs
- Log out of NETLAB

This course is not designed to teach students to program Cisco routers or switches. Before using the NETLAB equipment, students should understand the following:

- The standard Cisco Networking Academy equipment bundle and topology
- The using of the Cisco IOS help system
- Saving configuration changes to the router

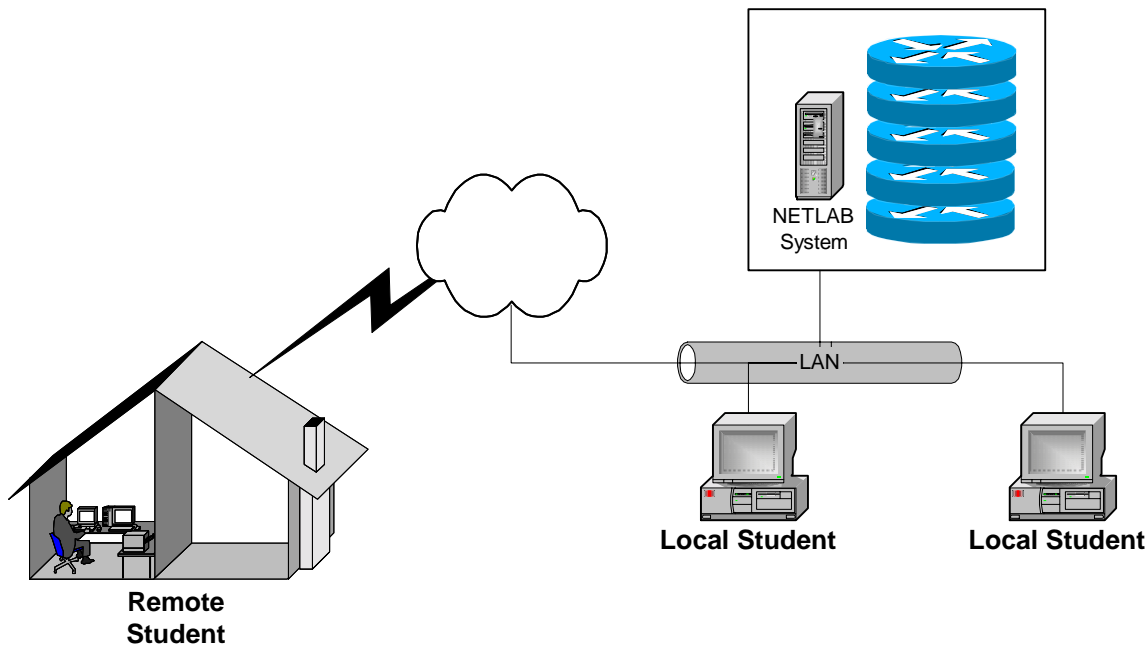
1.1 What is NETLAB?



NETLAB is a hardware/software combination that allows students and instructors to access real Cisco equipment using an Internet connection and a Web browser. The networking hardware is identical to the lab bundles used in Cisco Networking Academies worldwide. This uniform design allows students to maintain a consistency of topology in order to practice configuration commands covered in the Academy curriculum and labs.

NETLAB can be available from any location via an Internet connection. Valid login information along with the URL or IP address of the server, allow access to the equipment. Depending on how the instructor has decided to use NETLAB in the Cisco Networking Academy, students will be allowed to log in, create and edit configuration files, and program one or more routers. Students may also work in teams to program an entire topology or schedule individual time to practice new commands.

1.2 How is NETLAB Used in the Academy Program?



Since the NETLAB environment includes equipment similar to that used by Cisco Networking Academy programs, students can practice configuration tasks just as they would using their Networking Academy equipment. However, because the NETLAB equipment can be accessed from any PC and browser connected to the Internet, students can perform these configuration tasks from virtually anywhere. While this usually means that students will be accessing the equipment in the evening or on the weekends from home or some other online location, some instructors may choose to implement use of the NETLAB system within the classroom. This is especially useful when students are just beginning to learn new configuration tasks, since the instructor can lead the class through a lab by using the Instructor-led lab features of NETLAB. During instructor-led sessions, the instructor can issue configuration commands to one or more devices while each student observes the process within a Telnet session initiated by NETLAB.

Another way instructors have used NETLAB within the classroom is through the team approach. A team of students is given the assignment of configuring one of the routers in the topology. The team can share access and control over the router using NETLAB, while other teams work to configure other routers in the topology. Since NETLAB can save and store these configuration files, it is easy for the instructor to evaluate each team's performance.

NETLAB has also been used by Instructors to review student's work on real gear. During each lab reservation NETLAB records every command and router output in log files. Student's final equipment configurations can be saved for instructor review. This feature allows instructors to determine student's ability to implement the concepts learned in the classroom. Instructors are also able to identify and correct common mistakes made by students during lab exercises.

2 Logging In

Before you can begin to use the NETLAB system, your instructor must assign a username and password for you on the NETLAB system at your site. The username will be a unique ID that you will use to access the NETLAB system each time you log in. The temporary password assigned by your instructor will expire on your first login and must be changed before you can begin using the system.

Although most computers and browsers will work well with the NETLAB software, you should review the minimum suggested requirements prior to accessing the NETLAB server. The three most critical components to ensure proper operation are video settings, browser software version and Java Virtual Machine software requirements.

Additionally, NETLAB recommends certain system and browser settings:

What is the recommended client configuration for NETLAB?

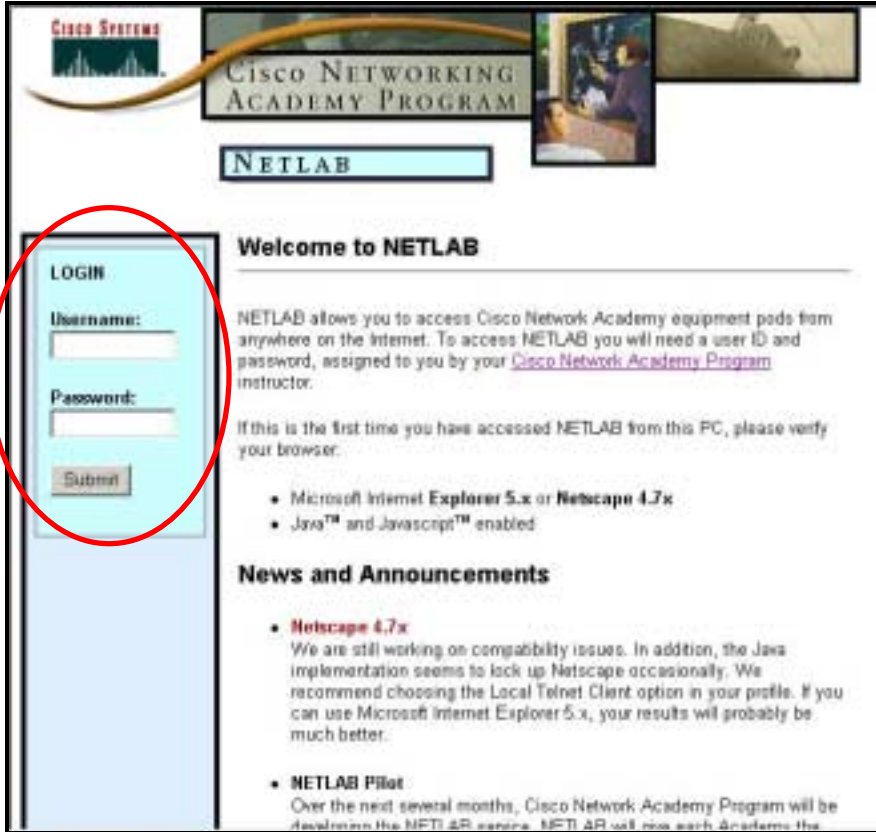
If you are accessing NETLAB for the first time from your PC, please verify your browser:

- Microsoft Internet Explorer 5.x or Netscape 4.7x
- Java™ and Javascript™ enabled

Recommendations:

Component	Notes
Video - Screen Resolution	800x600 or higher resolution recommended. Works OK with 640x480 resolution but looks better with 800x600. Best viewed at 1024x768 resolution.
Browser	<p>Internet Explorer 5.5 - Extensively tested with this version, therefore the recommended browser choice. Please use MSIE 5.5 if you are looking for stability.</p> <p>Internet Explorer 6.0 - Per request, NETLAB allows login from MSIE 6.x browsers. May have some compatibility issues, requires further testing. Java is not included in the MSIE 6 release, you'll need to obtain the Java VM engine from Microsoft if you want to use the the Java Telnet Applet option in NETLAB. (Note: You may already have Java VM from a previous MSIE version.)</p> <p>Netscape 4.7x - We are still working on compatibility issues. In addition, the Java implementation seems to lock up Netscape occasionally. We recommend choosing the Local Telnet Client option in your profile.</p>
Java Virtual Machine (JVM)	MS JVM for IE - Required for the Java Telnet Applet.

2.1 Initial Login



To begin using NETLAB you will need access information, including the URL or IP address of the NETLAB server and your Username and Password. Using your web browser, access the NETLAB server at the IP address or URL associated with your Academy's NETLAB. If your NETLAB system is behind a firewall, the IP address may be different for inside and outside access.

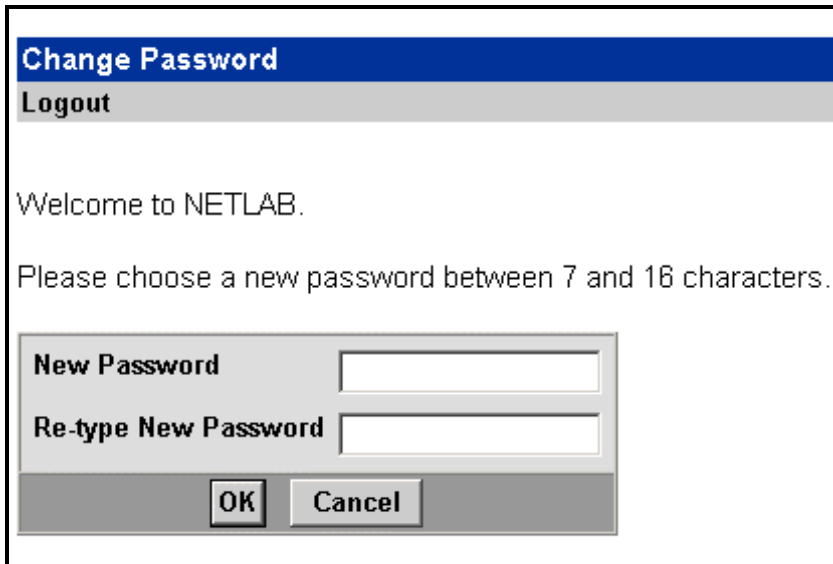
From the initial NETLAB welcome screen, you may see News and Announcements from your system administrator regarding your access privileges or other important information from the NETLAB development team. Read all items before logging in.

If this is your first log in, you will be required to change your password after you successfully provide your Username and initial Password. You should be prepared to do this, since the NETLAB server will require a password that meets minimum requirements. For example, you will not be allowed to use a password that is found in the dictionary or is less than the required length. You should plan to choose a password that is easy for you to remember, but hard for others to guess.

In the left portion of the screen you will see input boxes for your **Username** and **Password**. Click in the **Username** box and type the case-sensitive username provided by your instructor. Tab or click to the **Password** input box and provide your initial password. Both the username and password are case sensitive, so be sure to enter them properly. Click **Submit** to log in.

2.2 Changing Initial Password

If this is the first time you have logged into the NETLAB server you will be prompted to change your password after you click **Submit**. This step is not optional; choosing **Cancel** will log you out of the server, and require you to log in again. Your new password must be between 7 and 16 characters and must not consist of easily guessed “dictionary” words. For instance “awesome” would not be a suitable password; however, “awesome123” would be acceptable. You should have a password in mind before arriving at this prompt, so that you will have time to think of a password that will satisfy the requirements.



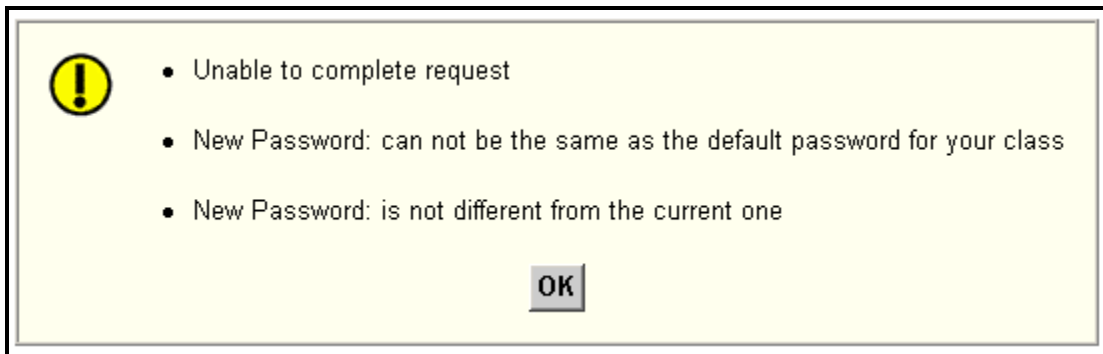
The dialog box has a blue title bar with the text "Change Password". Below the title bar is a grey bar with the text "Logout". The main area of the dialog box contains the text "Welcome to NETLAB." followed by "Please choose a new password between 7 and 16 characters." Below this text are two input fields: "New Password" and "Re-type New Password". At the bottom of the dialog box are two buttons: "OK" and "Cancel".

If you choose a password that is unacceptable, you will receive an error message from the NETLAB software and will be required to choose another password.



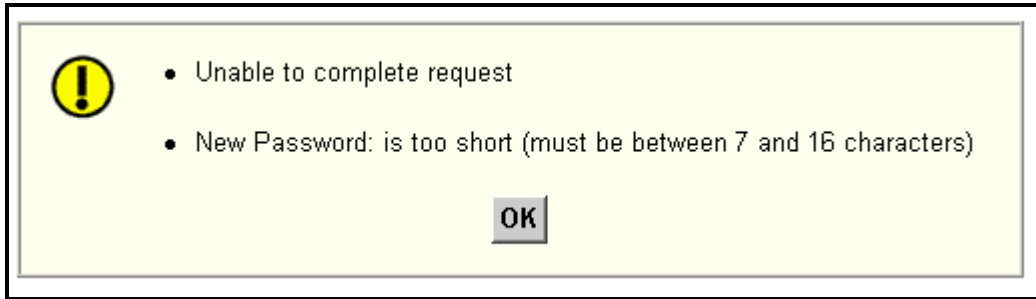
The error message dialog box has a yellow background and a black border. It contains a yellow warning icon (an exclamation mark inside a triangle) on the left. To the right of the icon is a bulleted list with two items: "Unable to complete request" and "New Password: too simple, found in the dictionary". At the bottom center of the dialog box is an "OK" button.

Additionally, you cannot reuse your initial password. The initial password is the password that was assigned to you by your NETLAB instructor.

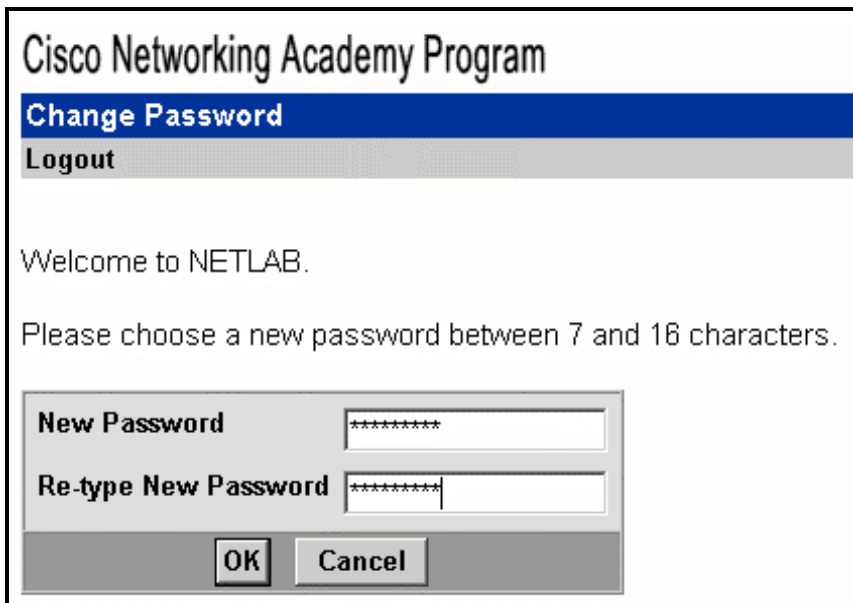


The error message dialog box has a yellow background and a black border. It contains a yellow warning icon (an exclamation mark inside a triangle) on the left. To the right of the icon is a bulleted list with three items: "Unable to complete request", "New Password: can not be the same as the default password for your class", and "New Password: is not different from the current one". At the bottom center of the dialog box is an "OK" button.

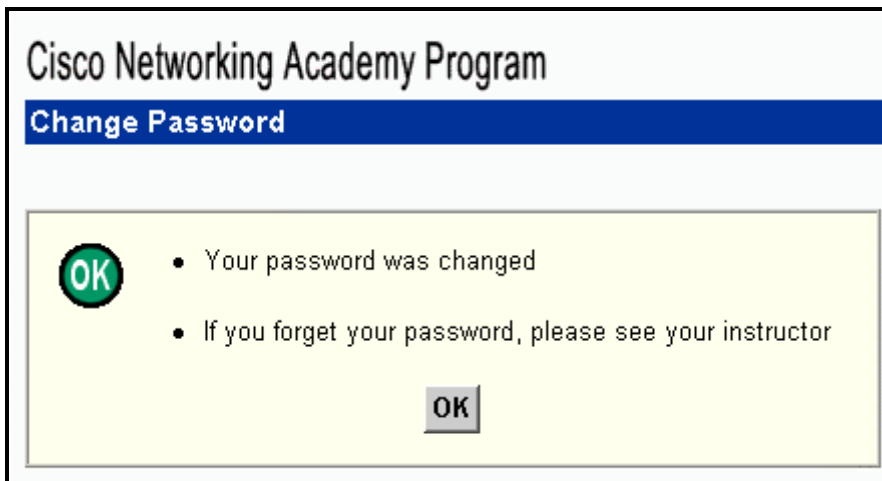
You must also choose a password of the appropriate length. You should be prepared to choose a password of more than 7 or less than 16 characters. If your password is too short or too long, you will receive an error message and must choose another password. If an error message is displayed, the password is not changed.



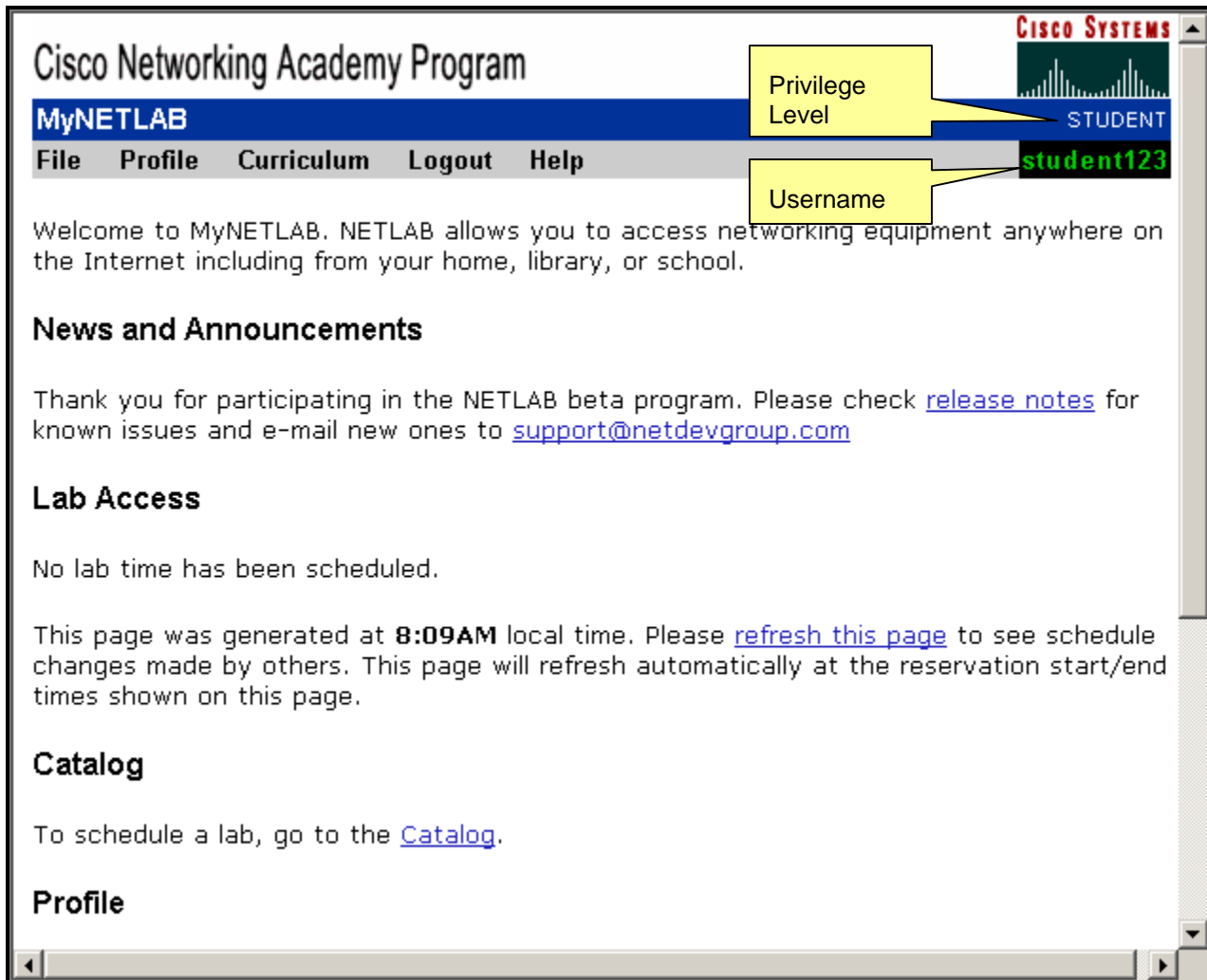
After choosing an appropriate password, type the new password in the **New Password** box, and then re-type the password. Your new password will display as asterisks. If you mistype the password in either of the boxes, you will receive an error message, since the passwords will not match. You can delete and retype both passwords to ensure that your password has been changed to the desired word or phrase.



Click **OK** to use the new password. You will see confirmation that your password has been changed. Click **OK** to continue.



3 Student Interface: MyNETLAB



After you have successfully changed your password, you will see the **Student Interface**. Notice that the privilege level (student) and Username (student123) are displayed under the Cisco logo. Each section of the interface has functionality that you should become familiar with before attempting any labs.

The first part of the screen is a menu system. The menu choices include **File**, **Profile**, **Curriculum**, **Logout** and **Help**. The menu or the hyperlinks within the page text are used to perform the tasks associated with using NETLAB.

Below the menu section, in the main page area, you should see text areas and hyperlinks. The first area, **News and Announcements**, might contain information from your instructor pertaining to your use or scheduling of the NETLAB resources. Read the text in this area each time you log in.

The next section, **Lab Access**, will display any current or future reservations for you or your team. For instance, your instructor may schedule instructor-led time for you and your fellow classmates. That time would appear here. Additionally you may be allowed to schedule individual or team access times that would also appear here.

The **Catalog** link is used to view the lab catalog and reserve time on the NETLAB equipment. This link may or may not appear depending on the settings for your class. Your instructor may allow students or teams to make their own reservations or may choose to control all reservations.

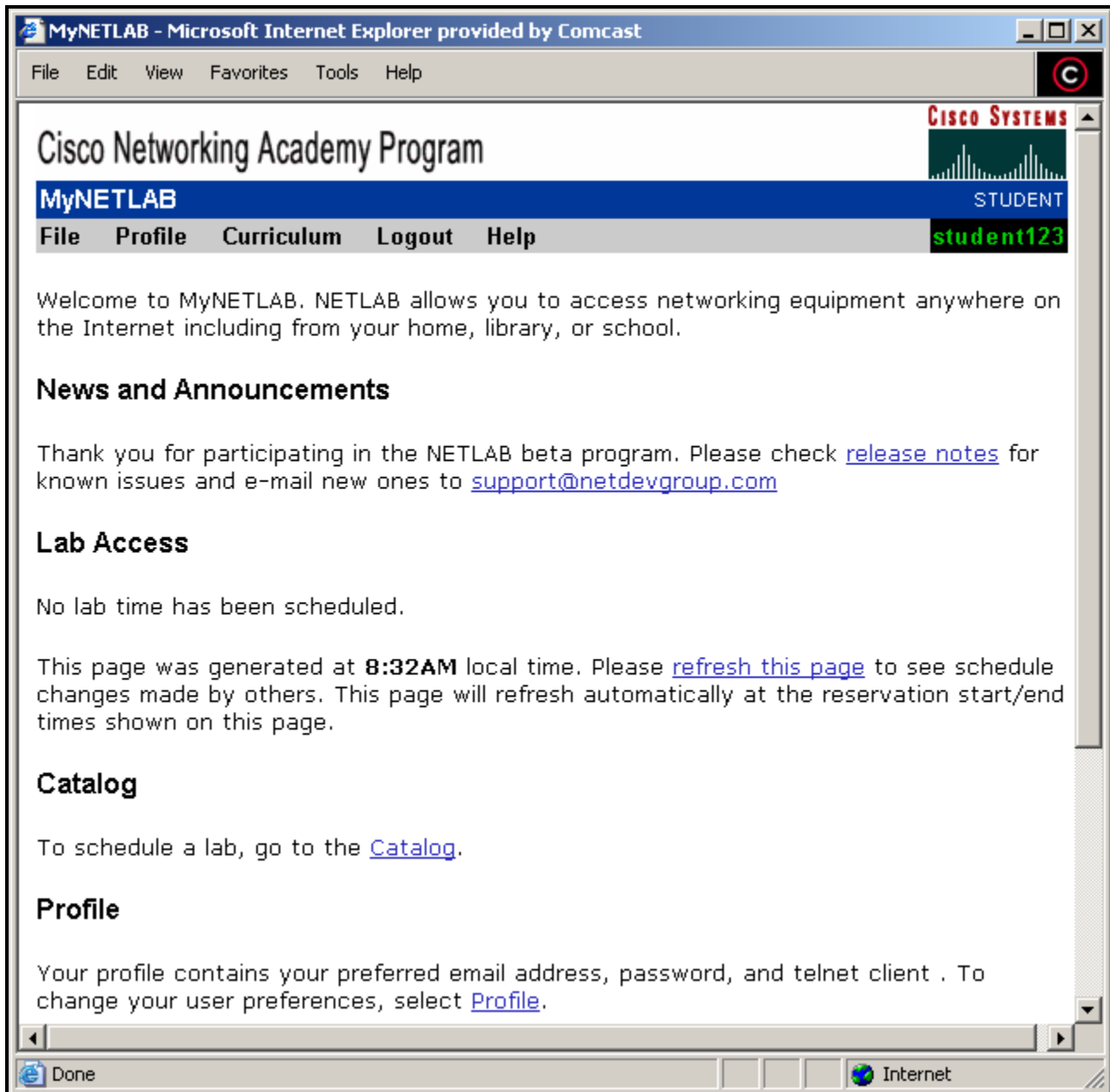
The section under **Profile** provides a link that allows you to change your user preferences. Preferences include email address, password, time zone, or telnet client.

You can receive help by clicking the links under the **Help** section. The **Help** link will display a content ordered, searchable help file. The FAQ link will display a series of questions and answers that other users have found helpful.

The last section, **Logout**, provides an additional means of logging out of the NETLAB environment. Be sure to log out when you are finished.

3.1 Student Profile

It may be necessary for you to access your profile in order to make changes to your account preferences. The settings that can be viewed and changed include your password, email address, time zone and Telnet client. You can access your profile from the menu at the top of the student interface or from the link under the **Profile** section.



The screenshot shows a web browser window titled "MyNETLAB - Microsoft Internet Explorer provided by Comcast". The browser's menu bar includes "File", "Edit", "View", "Favorites", "Tools", and "Help". The page content is for the "Cisco Networking Academy Program" and features a "MyNETLAB" header with a "STUDENT" label and a user ID of "student123". A navigation menu contains "File", "Profile", "Curriculum", "Logout", and "Help". The main content area includes a welcome message, a "News and Announcements" section with a thank-you note and links to "release notes" and "support@netdevgroup.com", a "Lab Access" section stating "No lab time has been scheduled.", a "Catalog" section with a link to "Catalog", and a "Profile" section with instructions to change user preferences.

MyNETLAB - Microsoft Internet Explorer provided by Comcast

File Edit View Favorites Tools Help

CISCO SYSTEMS

Cisco Networking Academy Program

MyNETLAB STUDENT

File Profile Curriculum Logout Help student123

Welcome to MyNETLAB. NETLAB allows you to access networking equipment anywhere on the Internet including from your home, library, or school.

News and Announcements

Thank you for participating in the NETLAB beta program. Please check [release notes](#) for known issues and e-mail new ones to support@netdevgroup.com

Lab Access

No lab time has been scheduled.

This page was generated at **8:32AM** local time. Please [refresh this page](#) to see schedule changes made by others. This page will refresh automatically at the reservation start/end times shown on this page.

Catalog

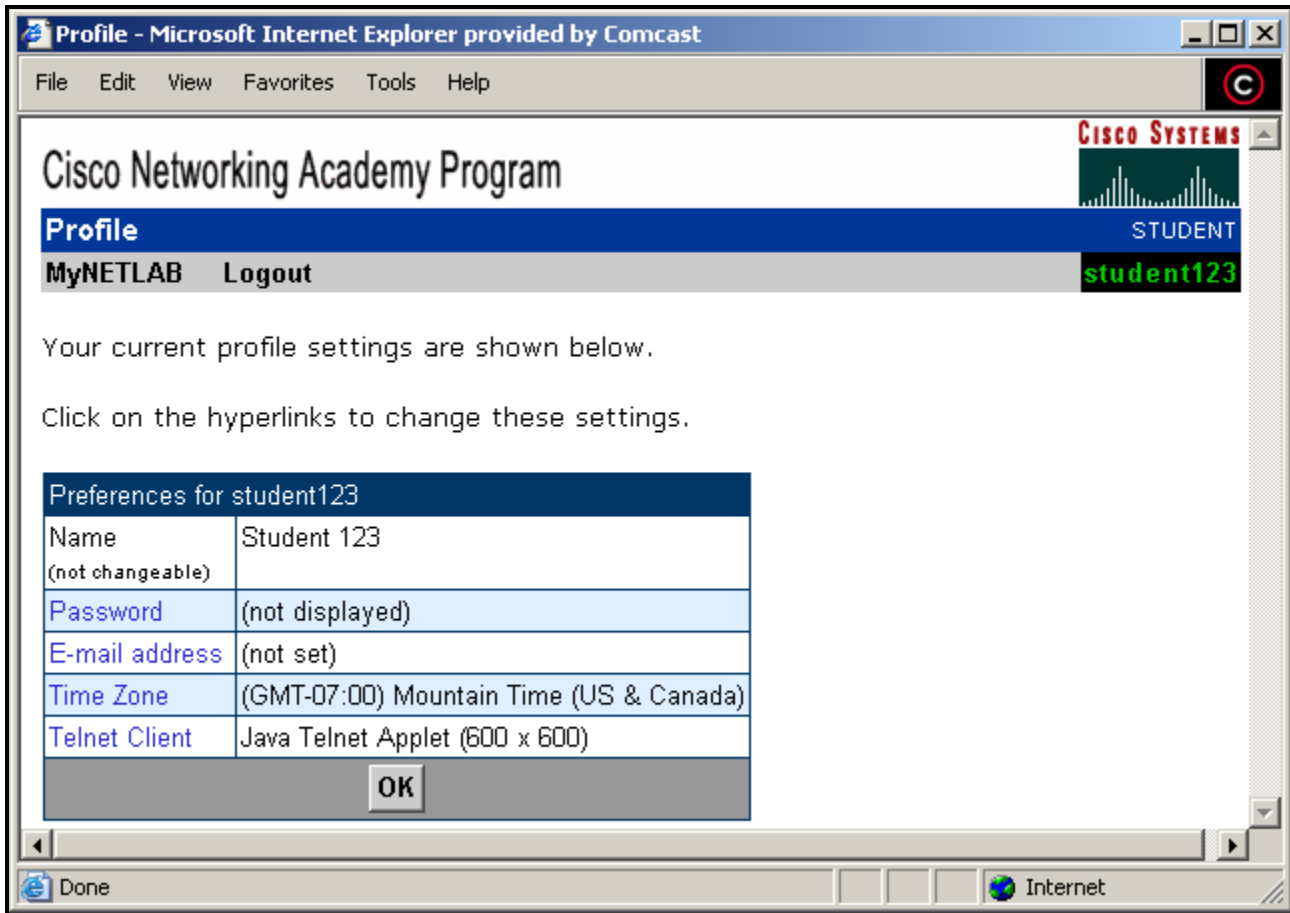
To schedule a lab, go to the [Catalog](#).

Profile

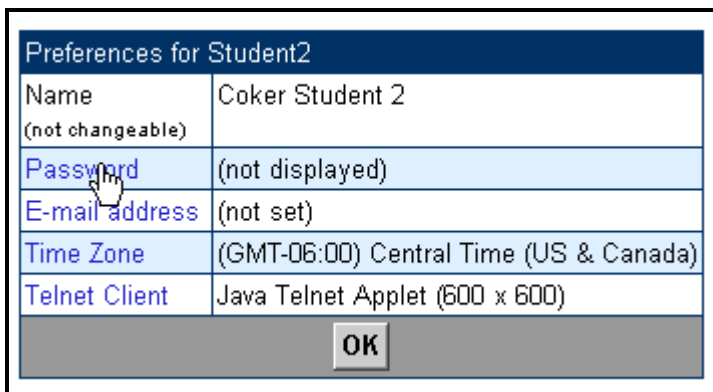
Your profile contains your preferred email address, password, and telnet client . To change your user preferences, select [Profile](#).

Done Internet

You will see the preferences for your account listed. Each of the preferences can be modified using the blue hyperlink for that value. Notice that **Name** cannot be changed.



The password for this student is changed by selecting the **Password** hyperlink. The password is not displayed.



Clicking the hyperlink will open the password change dialog box, which will allow you to change your password. Before you can change your password, you must enter the current password. The new password should be entered and retyped. Remember to choose a password that contains between 7 and 16 characters and is not easily guessed. Click **OK** to confirm the new password.



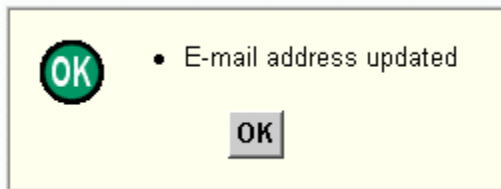
A dialog box for changing a password. It contains three text input fields labeled "Current Password", "New Password", and "Re-type New Password". At the bottom, there are two buttons: "OK" and "Cancel".

Change your email setting by clicking the **E-mail address** link and providing your email address. If an existing email address is displayed, it can be deleted or overtyped. When the new email address is entered correctly, click **OK** to confirm and save.



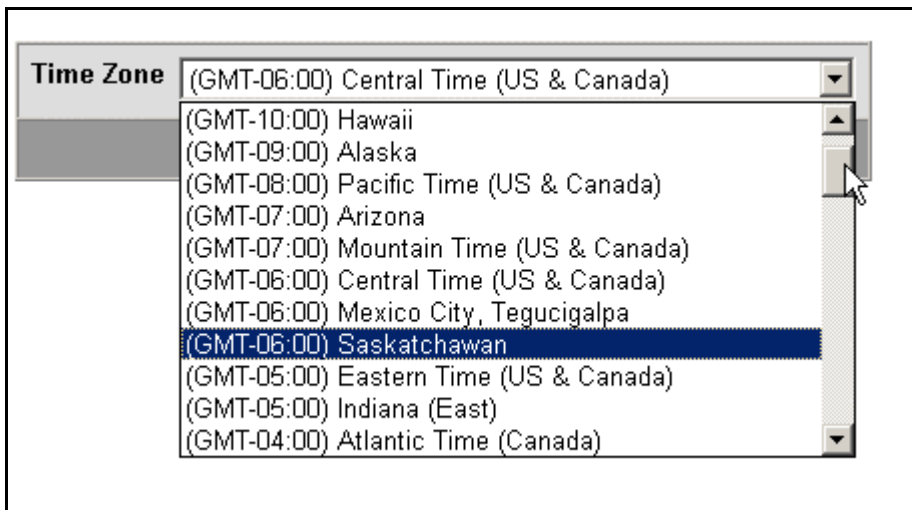
A dialog box for changing an email address. It features a single text input field labeled "E-mail Address" and two buttons at the bottom: "OK" and "Cancel".

When the email address has been changed, you will see a confirmation message.



A confirmation message dialog box with a yellow background. It contains a green circular icon with the text "OK" inside, followed by a bullet point and the text "E-mail address updated". Below this is a button labeled "OK".

To change your time zone settings, click the **Time Zone** link. Choose a time zone from the drop down list. Check with your instructor to make sure that you have selected the correct time zone. If the wrong time zone is set in the student profile, reservations will not become active at the expected time.



A dropdown menu for selecting a time zone. The label "Time Zone" is on the left. The dropdown list shows several options, each with a time offset and a name: "(GMT-06:00) Central Time (US & Canada)", "(GMT-10:00) Hawaii", "(GMT-09:00) Alaska", "(GMT-08:00) Pacific Time (US & Canada)", "(GMT-07:00) Arizona", "(GMT-07:00) Mountain Time (US & Canada)", "(GMT-06:00) Central Time (US & Canada)", "(GMT-06:00) Mexico City, Tegucigalpa", "(GMT-06:00) Saskatchewan", "(GMT-05:00) Eastern Time (US & Canada)", "(GMT-05:00) Indiana (East)", and "(GMT-04:00) Atlantic Time (Canada)". The "Saskatchewan" option is currently selected and highlighted in blue.

Telnet client settings can be adjusted by clicking the **Telnet Client** hyperlink. These settings should only be changed when a user experiences problems with the default telnet client settings. When changing these settings it is important to read the instructions carefully.

The screenshot shows a configuration dialog box for the NETLAB Telnet Client. It has a title bar and a close button. The dialog is divided into several sections:

- Client:** Three radio buttons are present: "Java Telnet Applet", "Local Telnet Client", and "NETLAB Telnet Applet (Beta)". The "NETLAB Telnet Applet (Beta)" option is selected.
- Automatic Login:** A checkbox labeled "automatically login to device when connecting" is checked. Below this, in smaller text, it says "(Java and NETLAB applet only)".
- Initial Width/Height:** Two spin boxes are set to "600", separated by an "x" symbol. Below this, in smaller text, it says "(Java and NETLAB applets only)".
- Color Scheme:** A dropdown menu is set to "Use a different color for each device". Below this, in smaller text, it says "(NETLAB applet only)".
- Font Size:** A spin box is set to "12", followed by the text "point". Below this, in smaller text, it says "(NETLAB applet only)".

At the bottom of the dialog are two buttons: "OK" and "Cancel".

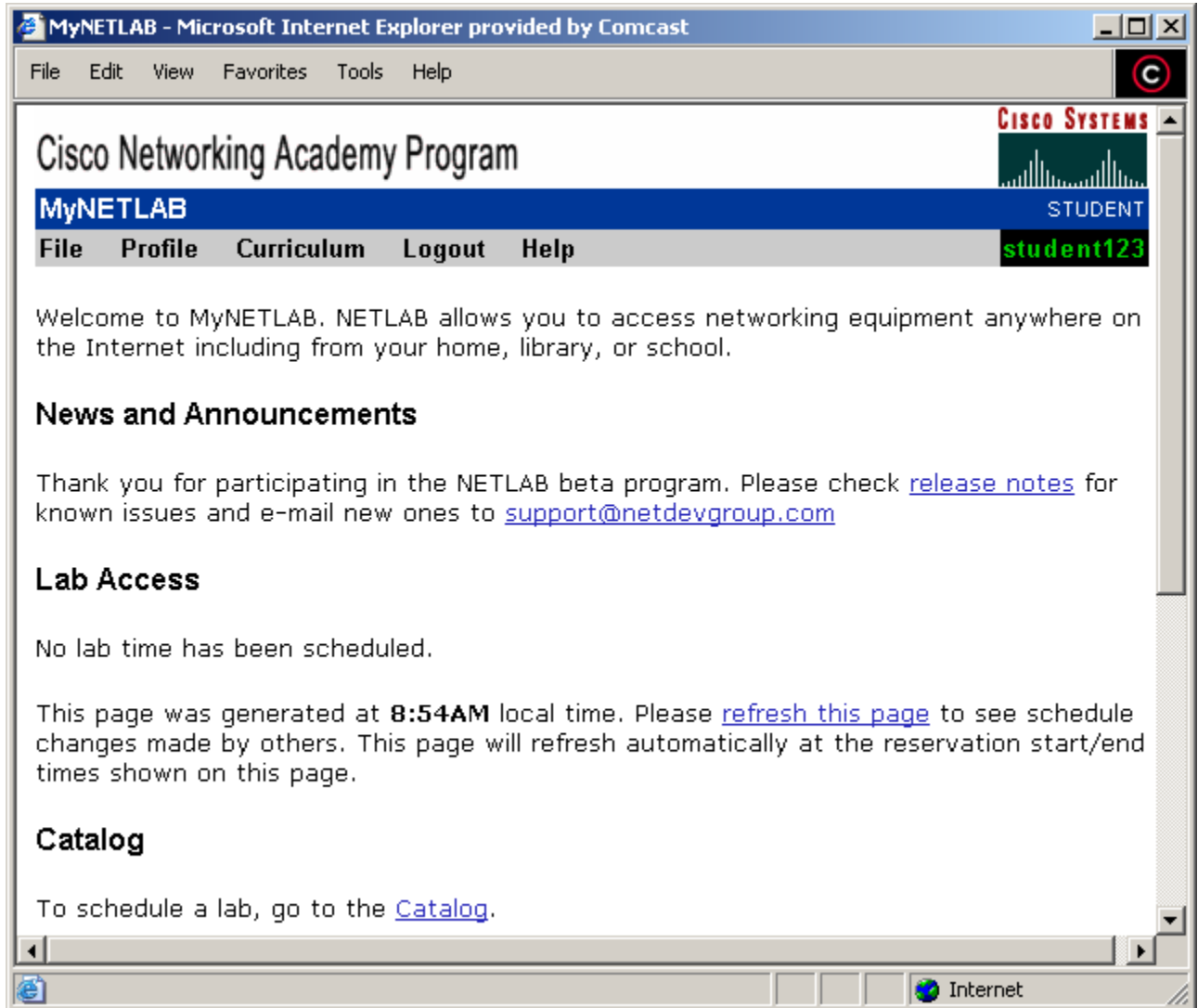
NETLAB uses Telnet to communicate with devices in the equipment pod. NETLAB users have. The following three options when selecting a telnet client:

- **Java Telnet Applet*** provides a consistent interface and automatic login. As a Java applet, it may load slowly the first time over a slow network connection.
- **Local Telnet Client** option will prompt for your NETLAB user ID and password each time you connect to a device. Your browser (or client computer) must be configured to associate URL's in the form of telnet:// with your local Telnet client application. To verify this, click here - your Telnet application should start if your client is configured properly.
- **NETLAB Telnet Applet (Beta)*** provides an alternative Java-based Telnet applet streamlined for NETLAB. It operates in line mode, which is suitable for devices with a command line interface. It loads quickly, provides automatic login, can be resized in Microsoft Internet Explorer, and can provide a different color scheme for each device.

** Windows XP users: Both the Java Telnet Applet and NETLAB Telnet Applet require JavaTM. Microsoft no longer supports or distributes a Java plug-in. You can get the Java plug-in for Windows XP from java.sun.com.*

4 Scheduling Self Study Time


If your instructor has configured NETLAB to allow students or teams to schedule their own lab time, you will see a link for the **Catalog** on the MyNETLAB screen. The **Catalog** includes a listing of Cisco Networking Academy labs that can be completed using NETLAB. If you have been directed to complete one of the labs, you will be able to select that lab from the list.



Use the **Catalog** link to open the self-scheduling utility to reserve the equipment for a particular lab or a block of time for yourself or your team. The columns display the lab number, lab name, time required to complete the lab and a link to view the lab content.

Selecting one of the listed labs will reserve the equipment bundle for 1 hour, and give you the option of loading selected configurations into the routers. Selecting a 1 or 2 hour reservation with no associated exercise allows you to use the equipment for any configuration tasks for that time slot. Please note that 10 minutes at the end of every reservation is allocated to NETLAB processes. Configuration of the devices cannot be performed during this time.

Cisco Networking Academy Program



Catalog
STUDENT

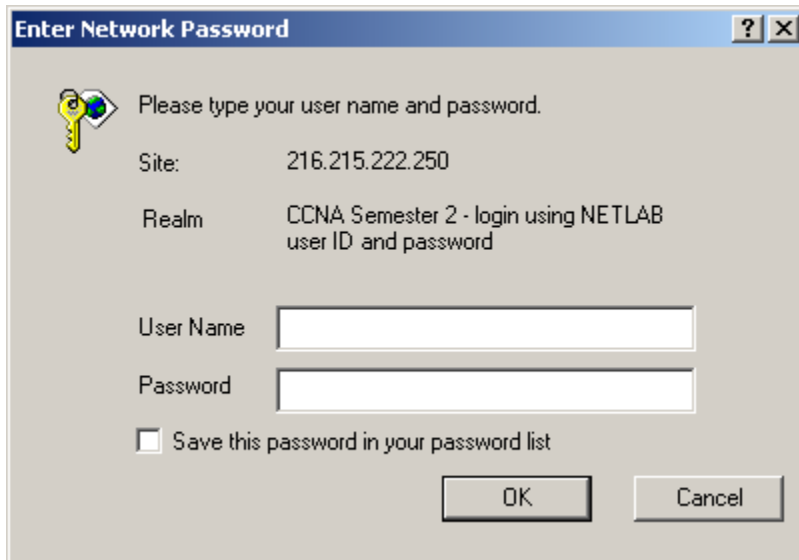
MyNetlab Logout
sony

- Please select an exercise from the catalog by clicking the *name*.
- Click *content* to preview the exercise content in another window.
- Note: content may be provided by another web site and a separate login may be required.

10 minutes at the end of each reservation is allocated to prepare NETLAB for the next time slot. This is reflected in the time requirements listed for each exercise.



Catalog of Lab Exercises and Content			
Lab	Exercise Name (click to schedule)	Time Required	Content
	1 hour CCNA pod reservation - no exercise	50 minutes	n/a
	2 hour CCNA pod reservation - no exercise	1 hour 50 minutes	n/a
2.2.3.2	Routers - Connectivity	50 minutes	content
3.2.1	Router user interface	50 minutes	content
3.2.2	Router user interface modes	50 minutes	content
4.2.4	Router show commands	50 minutes	content
4.3.5	CDP neighbors	50 minutes	content
4.4.2	Remote telnet access	50 minutes	content
4.4.3	ICMP ping	50 minutes	content
4.4.4	Traceroute command	50 minutes	content
4.4.7	Show interface & clear counters	50 minutes	content
4.5.1	Troubleshooting tools challenge	50 minutes	content
5.2.3	Router setup command	50 minutes	content
5.3.1	Router setup challenge	50 minutes	content
6.1.4	Router Configuration TFTP	50 minutes	content
6.2.1	Basic router configuration	50 minutes	content
6.2.5	Router interface config	50 minutes	content

You can choose to see the lab content by clicking the 'content' link. In order to view the lab content, a student must provide a NETLAB username and password. These are the same credentials used to access the NETLAB system. You will see that the authentication used here is associated with one of the semesters of the CCNA curriculum.



The image shows a Windows-style dialog box titled "Enter Network Password". It contains a key icon and the text "Please type your user name and password." Below this, there are two fields: "Site:" with the value "216.215.222.250" and "Realm:" with the value "CCNA Semester 2 - login using NETLAB user ID and password". There are two input fields for "User Name" and "Password". At the bottom, there is a checkbox labeled "Save this password in your password list" which is unchecked. There are "OK" and "Cancel" buttons at the bottom right.

After authenticating and clicking **OK**, a separate browser window will be opened to display the lab content. This window can remain open throughout the lab session or can be printed and completed during an online session.

  **Lab 4.3.5 CDP neighbors**

Estimated time: 30 min.

Objectives:

- Use CDP commands to get information about neighboring networks and routers
- Display information on how CDP is configured for its advertisement and discover frame transmission.
- Display CDP updates received on the local router.

Background:

In this lab you will use the **show cdp** command. Cisco Discovery Protocol (CDP) discovers and shows information about directly connected Cisco devices (routers and switches). CDP is a Cisco proprietary protocol that runs at the data link layer (layer 2) of the OSI model. This allows devices that may be running different network layer 3 protocols such as IP or IPX to learn about each other. CDP begins automatically upon a device's system startup, however if you are using Cisco IOS Release 10.3 or newer version of IOS you must enable it on each of the device's interfaces by using the **cdp enable** command. Using the command **show cdp interface** you will gather information CDP uses for its advertisement and discovery frame transmission. Use **show cdp neighbors** and **show cdp neighbors detail** to display the CDP updates received on the local router.

Tools / Preparation:

Additionally, you can choose the back directional arrow at the top left of the lab window to see the curriculum content associated with this lab. This action will open an additional browser window showing the online curriculum.

New Page 1 - Microsoft Internet Explorer provided by Comcast
_ □ ×

File Edit View Favorites Tools Help
C

1

Router Lab Topology

2

4.2 Router Show Commands

4.2.4 Lab: router show commands

📄

Lab Activity

This lab will help you become familiar with the router **show** commands. The show commands are the most important information gathering commands available for the router. The **show running-config** (or "show run") is probably the single most valuable command to help determine the current status of a router because it displays the active configuration file running in RAM. The **show startup-config** (or "show start") command displays the backup configuration file that is stored in non-volatile or

Semester 2 - Chapter Menu

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Internet

1/9/03

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After choosing one of the labs from the **Catalog** list, you will proceed to choosing the day and time for your reservation. The **Reservation Calendar** defaults to the current day. The display will reflect the number of pods installed at your Academy site. Each pod provides access to the standard 5-router topology used throughout the CNAP curriculum.

The screenshot displays the Cisco Networking Academy Program Reservation Calendar. At the top, it says "Cisco Networking Academy Program" and "Cisco Systems". Below that, it says "Reservation Calendar" and "STUDENT". There are links for "MyNetlab" and "Logout", and a "sony" logo. The main area shows a monthly calendar for March 2002, with the 11th highlighted. To the right, a large display shows "Monday March 11 2002". Below the calendar, there is a "Today's Date and Local Time" box showing "Mar 11, 2002 10:38 AM Central Time (US & Canada)". The bottom part of the screenshot shows a table of time slots from 7am to 1pm. A reservation for "669 team A" is shown at 11am, with a plus sign (+) next to it. Other time slots have plus signs (+) next to them, indicating they are available for reservation.

Reservations can be made on the same day or any day up to the class end date. The calendar defaults to the current date, and displays the current time in the **Today's Date and Local Time** display box. The time displayed will reflect the student's time zone setting configured in the profile. Reservation start and end times will be displayed relative to the each user's time zone setting.

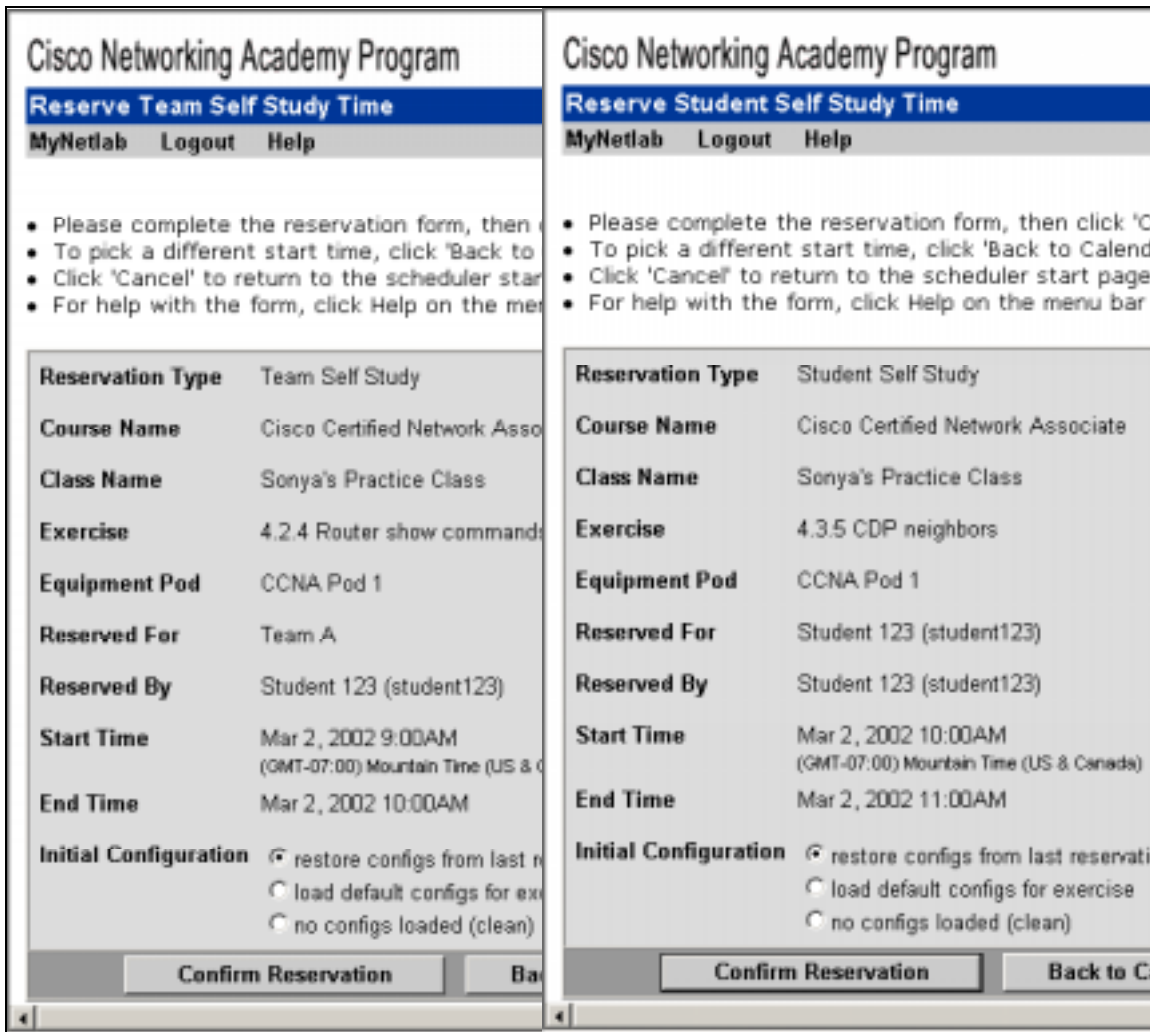
If the reservation is for today's date, the student can scroll down to find an available time. A time slot is available if no other reservation appears during that time and the (+) symbol appears. The time slot is reserved by selecting the (+) next to the beginning time for the reservation. Another date can be selected by clicking the date in the small monthly calendar. Another month can be selected with the control buttons on either side of the month name.

You may see that some unreserved time slots do not have the (+) symbol indicating that the time can be selected. Only time slots of one hour or more can be reserved. If the time between reservations is not at least one hour, it will not be available.

After selecting an available time slot, choose an **Initial Configuration** from the bottom of the window. Choices for this setting include:

- Restore configs from last reservation – Select this option to load the config files that were saved from your last reservation. This might be useful when a reservation cannot be completed during the allotted time and must be continued during another reservation time.
- Load default configs for exercise – This option will load the config files for all devices to allow students to begin the reservation with the network configured according to the lab directions.
- No configs loaded – If the devices in the topology should be unconfigured when the lab begins, select this option.

You may notice that the display for individual student and team reservations differ slightly, with the details for an individual student listing the student name and the team reservation listing only the student team with the name of the student who made the reservation. Remember that your instructor will determine if students make reservations for themselves or for their team.



Check the details of your new reservation and confirm by selecting **Confirm Reservation**. You will see a display allowing you to create another reservation or return to the main screen.

Cisco Networking Academy Program **CISCO SYSTEMS**

- Reservation for student sonya confirmed
- Click 'Make Another Reservation', to return to the calendar and schedule additional time for this class

After making a reservation, you will return to the main MyNETLAB screen. In the **Lab Access** section of this page, you will see your lab reservations. The start and end time, type of reservation, exercise selected and pod for this reservation will be displayed in the table. The details of each reservation can be viewed by selected the ID for the reservation.

Lab Access

The following instructor-led classroom reservations are scheduled.

Classroom Reservations - My Academy					
ID	Status	Start / End Time	Class Name	Primary Instructor	Pod
671	future	Mar 11, 2002 12:30PM Mar 11, 2002 1:30PM	Sonya's Practice Class	Sonya Coker	CCNA Pod 2

The following lab reservations have been made for you or your team.

Student / Team Labs In Progress					
ID	Status	Start / End Time	Student / Team	Class / Exercise	Pod
669	now <input type="button" value="ENTER LAB"/>	Mar 11, 2002 10:30AM Mar 11, 2002 11:30AM	Team A	Sonya's Practice Class 4.3.5 - CDP neighbors	CCNA Pod 1
670	future	Mar 11, 2002 11:30AM Mar 11, 2002 12:30PM	Sonya Coker	Sonya's Practice Class 4.4.3 - ICMP ping	CCNA Pod 2

This page was generated at **10:46AM** local time. Please [refresh this page](#) to see schedule changes made by others. This page will refresh automatically at the reservation start/end times shown on this page.

Catalog

Note that the reservation status will initially be listed as a future reservation. You will not be able to access the equipment until the scheduled reservation time. When the time for your reservation arrives, the status display will change to “now” and prompt you to **Enter Lab**. This allows you to access the equipment for your lab exercise.

Remember that you can always check your reservation status from the main screen. All reservations for you or your team will be displayed and listed as future reservations or currently active.

Lab Access

The following lab reservations have been made for you or your team.

Student / Team Labs In Progress					
ID	Status	Start / End Time	Student / Team	Class / Exercise	Pod
82	now ENTER LAB	Oct 3, 2001 9:00AM Oct 3, 2001 10:00AM	Sonya Coker	Sonya's Practice Class - 1 hour CCNA pod reservation - no exercise	CCNA Pod 1

4.1 Deleting a Reservation

If you are unable to use the equipment for a time you have reserved for yourself or your team, you should delete your reservation in order to allow someone else to use that time slot. You can delete reservations that you created. You cannot delete Instructor-led classroom reservations or reservations that you did not create. If another team member created a reservation for your team, that student must delete the reservation. If the instructor created reservations for you or your team, the instructor must delete those reservations.

In order to delete a reservation that you created, select the reservation ID from the list of lab reservations under the **Lab Access** section of the MyNETLAB main page. Remember that even though the Student/Team column may have your name or team listed, if you did not create the reservation, you cannot delete it.

The screenshot shows a web browser window titled "MyNETLAB - Microsoft Internet Explorer provided by Comcast". The browser's menu bar includes "File", "Edit", "View", "Favorites", "Tools", and "Help". The main content area is titled "Lab Access" and contains the following text: "The following instructor-led classroom reservations are scheduled." Below this text is a table titled "Classroom Reservations - My Academy".

ID	Status	Start / End Time	Class Name	Primary Instructor	Pod
651	future	Mar 4, 2002 2:30PM Mar 4, 2002 3:30PM	Sonya's Practice Class	Sonya Coker	CCNA Pod 1

Below the first table is the text: "The following lab reservations have been made for you or your team." This is followed by a table titled "Student / Team Labs In Progress".

ID	Status	Start / End Time	Student / Team	Class / Exercise	Pod
642	future	Mar 7, 2002 5:00AM Mar 7, 2002 6:00AM	Team A	Sonya's Practice Class 4.2.4 - Router show commands	CCNA Pod 1
650	future	Mar 4, 2002 12:30PM Mar 4, 2002 1:30PM	Student 123	Sonya's Practice Class 3.2.1 - Router user interface	CCNA Pod 1
649	future	Mar 4, 2002 11:30AM Mar 4, 2002 12:30PM	Team A	Sonya's Practice Class 3.2.1 - Router user interface	CCNA Pod 1

The browser's status bar at the bottom shows "Internet" and a globe icon.

If you selected a team or individual reservation that you created, you will see the **Display Reservation** page containing the **Delete** button for the reservation. The **Delete** button will only appear for those reservations that can be deleted by you. You can delete the selected reservation by clicking the **Delete** button. Please note that there is no confirmation for this action.

Cisco Networking Academy Program

CISCO SYSTEMS

STUDENT

MyNetlab Logout Help student123

Reservation 642	
Reservation Type	Team Self Study
Course Name	Cisco Certified Network Associate
Class Name	Sonya's Practice Class
Exercise	4.2.4 Router show commands
Equipment Pod	CCNA Pod 1
Reserved For	Team A
Reserved By	Student 123 (student123)
Start Time	Mar 7, 2002 5:00AM (GMT-07:00) Mountain Time (US & Canada)
End Time	Mar 7, 2002 6:00AM
Initial Configuration	load last saved config (if any)

OK Delete


A message appears indicating that the reservation has been deleted. There is no undo action for the delete process.

Cisco Networking Academy Program

CISCO SYSTEMS

STUDENT

MyNetlab Logout student123

 • Reservation 652 deleted

OK

Done Internet

If you select a reservation that you did not create, you can view the reservation details, but you cannot delete the reservation. The detail screen will show who created the reservation. If this is a team member, that team member should delete the reservation. If your instructor created the reservation, your instructor must delete it.

The screenshot shows a Microsoft Internet Explorer browser window titled "Display Reservation - Microsoft Internet Explorer provided by Comcast". The browser's address bar is empty, and the status bar at the bottom shows "Done" and "Internet". The main content area displays the Cisco Networking Academy Program logo and navigation links: "MyNetlab", "Logout", and "Help". A "STUDENT" label is visible in the top right corner, with the username "student123" displayed below it. The central focus is a table titled "Reservation 650" with the following details:

Reservation 650	
Reservation Type	Student Self Study
Course Name	Cisco Certified Network Associate
Class Name	Sonya's Practice Class
Exercise	3.2.1 Router user interface
Equipment Pod	CCNA Pod 1
Reserved For	Student 123 (student123)
Reserved By	Sonya Coker (Sonya)
Start Time	Mar 4, 2002 12:30PM (GMT-07:00) Mountain Time (US & Canada)
End Time	Mar 4, 2002 1:30PM
Initial Configuration	load last saved config (if any)

An "OK" button is located at the bottom of the reservation details table.

5 Online Labs

Plan to access the NETLAB system prior to your reservation. This will allow you to read any current system announcements and maximize your reservation time. You may also want to review curriculum or lab content using the NETLAB links.

When your scheduled lab becomes active, you can enter the lab by selecting the **Enter Lab** button from the main screen. Please note that this may require a screen refresh from your browser. After entering the lab, the **Lab Access** screens will be displayed allowing you to complete the selected lab exercise. The **Lab Access** screen features a tabbed interface. The total time remaining for the lab will update throughout the reservation.

Each tab in the **Lab Access** interface provides functionality to students during online lab sessions.

Cisco Networking Academy Program

Lab Access
STUDENT

MyNetlab Logout
student123

INITIALIZING

CCNA Pod 1 49 minutes remaining


Topology
Action
Status
Connections
Load
Save

Note: The Hubs depicted above are not configurable.

4.3.5 CDP neighbors
Show Content

5.1 Topology Tab

The **Topology** tab displays the standard topology used by NETLAB. This includes the IP addressing scheme and physical or logical connections. This tab can be used to access the router command line interface to perform configuration of each network device. Connections to devices can be made from this tab by clicking the icon for the device. The bottom of the Topology tab displays the lab exercise selected for this session and a link to review the content for this lab. Connections to devices can be made from this tab by clicking the icon for the device. If the devices are still loading or booting, the **INITIALIZING** prompt will appear.

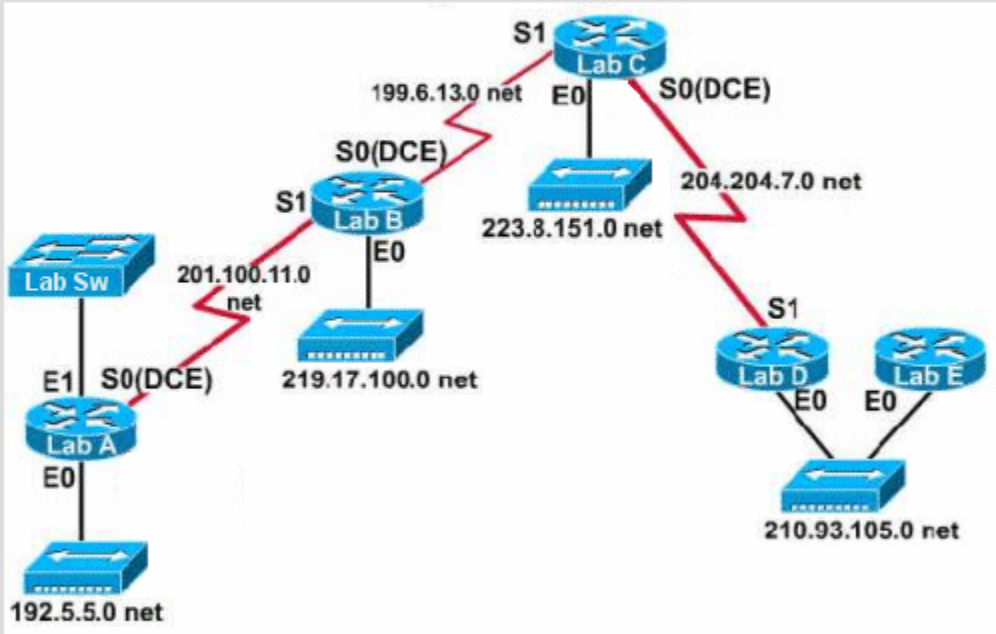
Cisco Networking Academy Program

Lab AccessSTUDENT

MyNetlab Logoutstudent123

CCNA Pod 1 38 minutes remaining I'M DONE

TopologyActionStatusConnectionsLoadSave



Note: The Hubs depicted above are not configurable.

4.3.5 CDP neighborsShow Content

5.2 Action Tab

The **Action** tab is used to perform power cycling, device scrubbing, or password recovery on one or more devices in the topology. Selecting the **Action** command from the drop down menu next to a single device will perform the action on that device only. Selecting the **Action** command from the drop down menu under “**Action on Entire Pod**” will perform the selected action on each device in the topology. Connections to devices can be made from this tab by clicking the hyperlink for the device.

The text box located on this tab displays the passwords NETLAB will use to access the devices. If the equipment passwords are not configured to match these, NETLAB may not be able to complete the requested action. If this type of error occurs, the ALERTS icon will flash. Errors can be retrieved by clicking on the icon.



The screenshot shows the 'Action' tab in the NETLAB interface. At the top, there are navigation tabs: 'Topology', 'Action', 'Status', 'Connections', 'Load', and 'Save'. Below these is a table with columns 'Name', 'Type', and 'Action'. The table lists devices Lab_A through Lab_Sw. A dropdown menu is open for Lab_Sw, showing options: '-select-', 'power off', 'power on', 'power recycle', 'scrub device', and 'password recover'. To the right of the table is a dropdown menu labeled 'Action on Entire Pod'. Below the table is a text box containing the text: 'NETLAB assumes the passwords for each device: console: **router** enable secret: **cisco**'.







Name	Type	Action
Lab_A	Cisco 2514	-select-
Lab_B	Cisco 2501	-select-
Lab_C	Cisco 2501	-select-
Lab_D	Cisco 2501	-select-
Lab_E	Cisco 2501	-select-
Lab_Sw	Cisco 1924EN	-select- power off power on power recycle scrub device password recover

Action on Entire Pod: -select-

NETLAB assumes the passwords for each device:
console: **router** enable secret: **cisco**

5.3 Status Tab

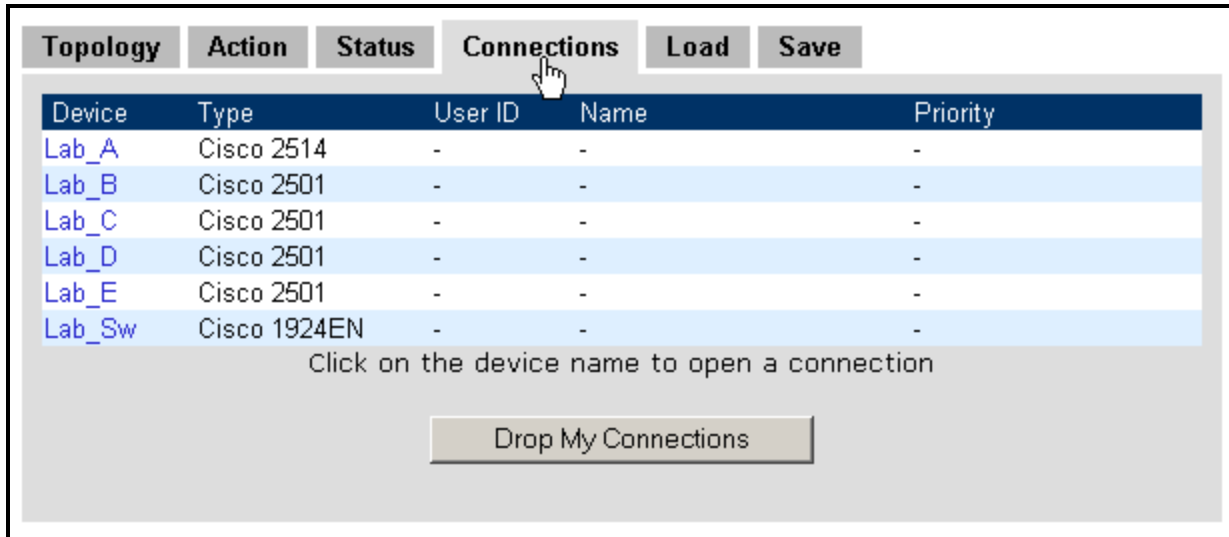
The **Status** tab displays the current status of each device in the topology as well as the number of users attached to that device. If this reservation is an instructor-led or team session, other users will be attached to devices during a lab session. Devices are listed as normal when they are in normal operation mode. If a device is currently booting up as part of a request to reload or scrub, the device's status will indicate the operation in progress. Connections to devices can be made from this tab by clicking the hyperlink for the device.

Topology	Action	Status	Connections	Load	Save
Device	Type	Power	Users	Status	
Lab_A	Cisco 2514	 ON	0	normal	
Lab_B	Cisco 2501	 ON	0	normal	
Lab_C	Cisco 2501	 ON	0	normal	
Lab_D	Cisco 2501	 ON	0	normal	
Lab_E	Cisco 2501	 ON	0	normal	
Lab_Sw	Cisco 1924EN	 ON	0	normal	

Click on the device name to open a connection

5.4 Connections Tab

The **Connections** tab displays the user ID and names of other users, if any, attached to each device. The **User ID** and **Name** of the attached users will display beside each device that the user is connected to. Each user attached to the device is assigned a **Priority** to determine who can assert exclusive control over the devices when more than one user is sharing the device's console port. Instructors have priority over students. NETLAB automated operations have priority over both instructors and students. This tab also contains a button to **Drop My Connections** that allows connected users to quickly disconnect from all devices. Connections to devices can be made from this tab by clicking the hyperlink for the device.



The screenshot shows a web interface with a navigation bar containing buttons for 'Topology', 'Action', 'Status', 'Connections', 'Load', and 'Save'. The 'Connections' button is highlighted with a mouse cursor. Below the navigation bar is a table with the following data:

Device	Type	User ID	Name	Priority
Lab_A	Cisco 2514	-	-	-
Lab_B	Cisco 2501	-	-	-
Lab_C	Cisco 2501	-	-	-
Lab_D	Cisco 2501	-	-	-
Lab_E	Cisco 2501	-	-	-
Lab_Sw	Cisco 1924EN	-	-	-

Click on the device name to open a connection

Drop My Connections

5.5 Load Tab

The **Load** tab is used to load saved configuration files into one or more devices. These saved configuration files can be the result of a previously saved session, or files created and edited offline. The file path is displayed under the **Current Folder** heading. Individual files are displayed along with configuration folders containing files for each device in the topology. The date each file or folder was last updated is also displayed. The folder titled "**LAST_SAVED**" contains the configuration files from the most recent session. Files are only loaded from this screen; they cannot be edited here. To edit files the student must use the **File Manager**, which is accessible from the main page.

A user can choose to load a configuration file into a single device by selecting a file. All devices can be loaded by selecting a configuration folder. If all devices will be configured from saved files, it is more efficient to save all device configuration files into a single folder. This folder can then be used to load all devices.

Remember that NETLAB will display the passwords it will use to access the devices for this loading process. If the currently configured passwords do not match these, NETLAB may be unable to access the devices to load the files.

Selecting a configuration folder from the list displays the folder contents and allows the user to load all devices with the saved files. Additionally the user has the option of erasing the devices prior to loading these files. If the erase option is selected, NETLAB will perform a write erase/reload prior loading the selected configuration file. This may take several minutes, and can be observed by opening a connection to the device. Erasing prior to loading files may be necessary if the passwords have been misconfigured or forgotten. If the erase option is not selected, NETLAB will overlay the configuration "on top of" the existing configuration - this is faster but may produce "side effects" depending on the current device configuration. The devices are loaded by selecting the **Load All Devices** button.

The load action can be observed in each device by opening a connection to the device.

Topology Action Status Connections Load Save

Current Folder
/cnap/academies/My Academy/instructors/Sonya/.LAST_SAVED

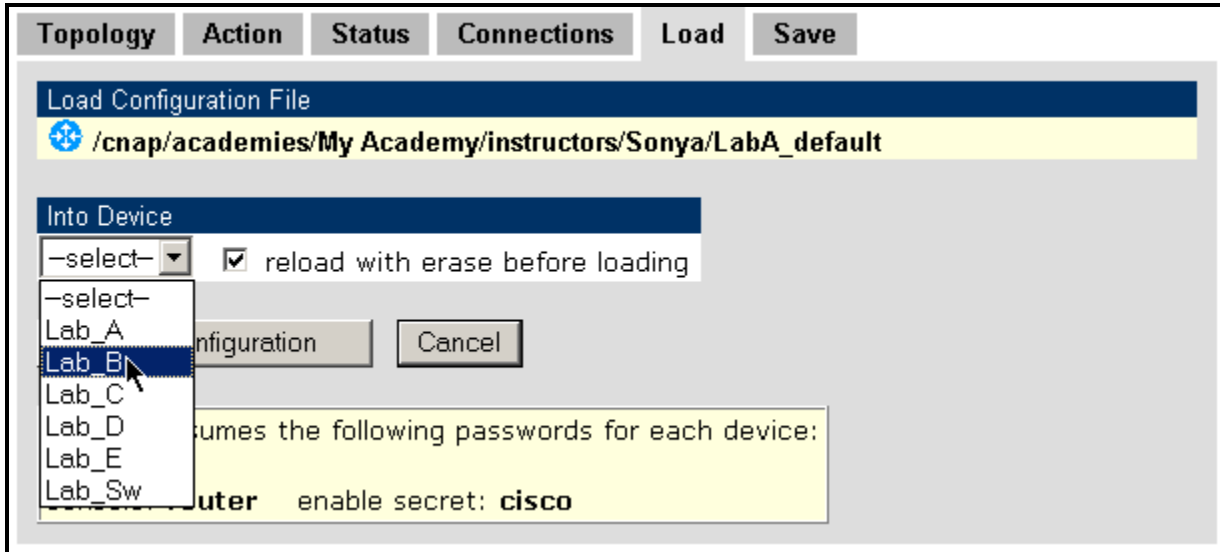
Name	Type	Owner	Size	Updated
go up one level	folder			
Lab_A	config	Sonya	730	Dec 27, 2001 1:20PM
Lab_B	config	Sonya	1180	Dec 27, 2001 1:22PM
Lab_C	config	Sonya	1342	Dec 27, 2001 1:22PM
Lab_D	config	Sonya	1107	Dec 27, 2001 1:22PM
Lab_E	config	Sonya	664	Dec 27, 2001 1:20PM
Lab_Sw	config	Sonya	949	Dec 27, 2001 1:20PM

Folder contains 6 item(s)

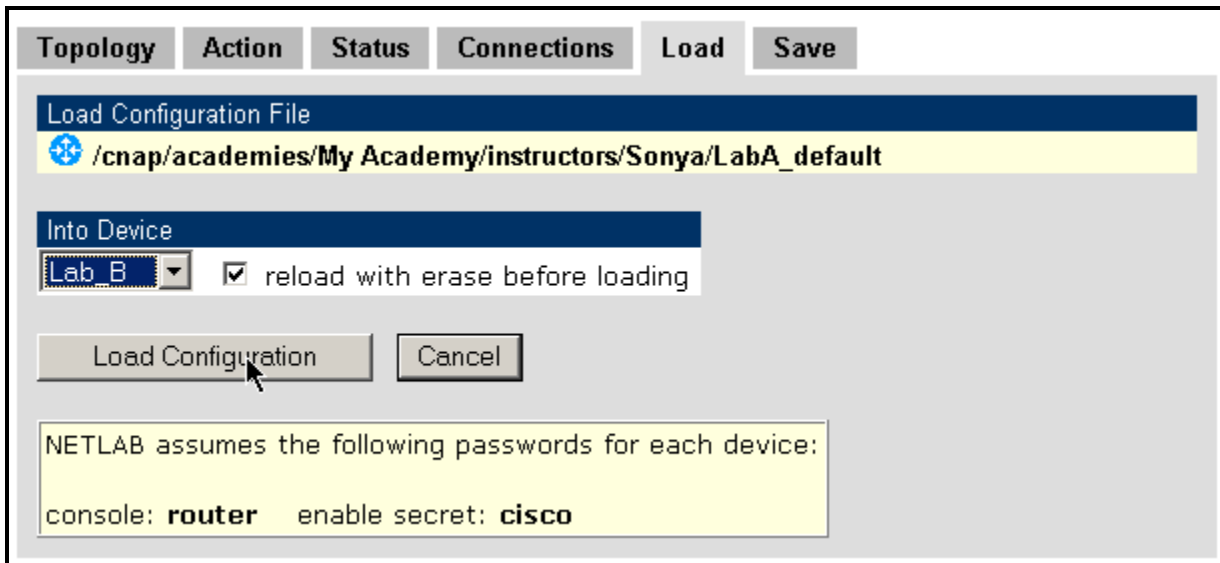
Load All Devices reload with erase before loading

NETLAB assumes the following passwords for each device:
console: **router** enable secret: **cisco**

If a single configuration file is selected from the list, the user must select the device for this configuration file. The selected device will be configured with the contents of the saved file. A device is selected from the drop down list in the **Into Device** field. This device can be erased prior to loading the configuration file by selecting the checkbox, or the configuration file can be merged with the existing configuration for the device. Remember, merging with the existing configuration is faster, but may leave unwanted configuration statements.



The device is loaded when the user selects the **Load Configuration** button. The process can be observed by opening a connection to the device.



5.6 Save Tab

The **Save tab** is used to save configuration files of one or more devices into selected folders. Configurations can be saved at any point in the reservation. There are two options when saving configuration files. If configuration files for all devices will be saved, a configuration folder should be created to hold the files. In the “**Save All In Configuration Folder Named**” text box, the student should give the folder a descriptive name that will allow it to be identified for later use. Clicking the **Save All** button will save the configuration for each device in this new folder. This folder will be created in the directory listed at the top of the page. Please note that if the folder name already exists it can be overwritten by selecting the “**Overwrite existing configurations**” checkbox. If this box is unchecked, and the folder already exists in this directory, the user will be prompted to provide an alternate folder name.

If all device configurations will not be saved, files for the targeted devices can be saved individually. For each configuration file a descriptive name should be created in the “**Save Configuration File Name**” text box prior to clicking the **Save** button next to that device. This configuration file will be saved in the listed directory. Again, files can be overwritten depending on the state of the overwrite checkbox.

Topology **Action** **Status** **Connections** **Load** **Save**

Configurations Will Be Saved In

/cnap/academies/My Academy/classes/Sonya's Practice Class/student123 Change Folder

Save All In Configuration Folder Named

Save All

Device	Save Configuration File Name	
Lab_A	<input type="text" value="Lab_A"/>	Save
Lab_B	<input type="text" value="Lab_B"/>	Save
Lab_C	<input type="text" value="Lab_C"/>	Save
Lab_D	<input type="text" value="Lab_D"/>	Save
Lab_E	<input type="text" value="Lab_E"/>	Save
Lab_Sw	<input type="text" value="Lab_Sw"/>	Save

Overwrite existing configurations

NETLAB assumes the following passwords for each device:
console: **router** enable secret: **cisco**

If the student wishes to change the location of the saved files or folders, the **Change Folder** button can be used to navigate to another directory location. This selection should be made prior to saving folders or files. The folder structure is hierarchical and can be used to save the configurations from multiple sessions. These files can later be retrieved, edited, or loaded into devices in the topology. The folder structure is created from the **File Manager** accessible from the main page.

If other configuration folders exist for this student, one of those folders can be selected to contain the configuration files. To use another folder, select the folder from the list.

The screenshot shows the Cisco Networking Academy Program interface. At the top right is the Cisco Systems logo. Below it, the text "Lab Access" is displayed in a blue bar, with "STUDENT" and "student123" to its right. Underneath, "MyNetlab Logout" is visible. A progress indicator shows "CCNA Pod 1" with "27 minutes remaining" and an "I'M DONE" button. A navigation bar contains buttons for "Topology", "Action", "Status", "Connections", "Load", and "Save". The main content area is titled "Configurations Will Be Saved In" and shows a directory path: "/cnap/academies/My Academy/classes/Sonya's Practice Class/student123". A "Use This Folder" button is next to the path. Below this is a table listing folders:

Name	Type	Owner	Size	Updated
CDP Neighbors	folder	student123		

Below the table, it says "Folder contains 1 item(s)".

Check the directory string for the correct folder selection and choose **Use This Folder** to proceed. Remember to **Save** or **Save All** button from the next screen to save the configuration files.

The screenshot shows the Cisco Networking Academy Program interface. At the top right is the Cisco Systems logo. Below it, the text "Lab Access" is displayed in a blue bar, with "STUDENT" and "student123" to its right. Underneath, "MyNetlab Logout" is visible. A progress indicator shows "CCNA Pod 1" with "26 minutes remaining" and an "I'M DONE" button. A navigation bar contains buttons for "Topology", "Action", "Status", "Connections", "Load", and "Save". The main content area is titled "Configurations Will Be Saved In" and shows a directory path: "/cnap/academies/My Academy/classes/Sonya's Practice Class/student123/CDP Neighbors". A "Use This Folder" button is next to the path. Below this is a table listing folders:

Name	Type	Owner	Size	Updated
go up one level	folder			

Below the table, it says "Folder contains 0 item(s)".

6 Telnet Sessions

NETLAB devices are accessed by opening a Telnet session through one of the tabs on the **Lab Access** interface. The Telnet session will connect you to the device's console port through an access server (not shown in the topology diagram). Because all sessions are made through the console ports, NETLAB does not depend on the configuration of the network topology to access lab equipment.

Remember that the **Lab Access** interface can only be viewed after the user has joined a current lab reservation by clicking the **Enter Lab** button for an active lab.

Your Personal Reservations				
ID	Status	Start / End Time	Instructor	Pod
373	now	Dec 27, 2001 11:00AM Dec 27, 2001 1:30PM	Sonya Coker	CCNA Pod 1
	ENTER LAB			

Once an active lab is entered, the user can begin a Telnet session to one or more devices from the **Topology**, **Action**, **Status**, or **Connections** tabs by clicking the icon or name of the device. More than one Telnet session can be started, allowing the user to open connections to each device in the topology. These Telnet windows can be minimized or tiled on the desktop for easy access.

To open a connection to a device from the **Topology** tab, click the device icon.

Topology
Action
Status
Connections
Load
Save

Note: The Hubs depicted above are not configurable.

4.3.5 CDP neighbors
Show Content

To open a connection from the **Action** tab, click the device hyperlink.

Topology **Action** Status Connections Load Save

Name	Type	Action	Action on Entire Pod
Lab_A	Cisco 2514	-select-	-select-
Lab_B	Cisco 2501	-select-	-select-
Lab_C	Cisco 2501	-select-	-select-
Lab_D	Cisco 2501	-select-	-select-
Lab_E	Cisco 2501	-select-	-select-
Lab_Sw	Cisco 1924EN	-select-	-select-

NETLAB assumes the following passwords for each device:
console: **router** enable secret: **cisco**

To open a connection from the **Status** tab, click the device hyperlink.

Topology **Action** **Status** Connections Load Save

Device	Type	Power	Users	Status
Lab_A	Cisco 2514	● ON	0	normal
Lab_B	Cisco 2501	● ON	0	normal
Lab_C	Cisco 2501	● ON	0	normal
Lab_D	Cisco 2501	● ON	0	normal
Lab_E	Cisco 2501	● ON	0	normal
Lab_Sw	Cisco 1924EN	● ON	0	normal

Click on the device name to open a connection

To open a connection from the **Connections** tab, click the device hyperlink.

Topology **Action** **Status** **Connections** Load Save

Device	Type	User ID	Name	Priority
Lab_A	Cisco 2514	-	-	-
Lab_B	Cisco 2501	-	-	-
Lab_C	Cisco 2501	-	-	-
Lab_D	Cisco 2501	-	-	-
Lab_E	Cisco 2501	-	-	-
Lab_Sw	Cisco 1924EN	-	-	-

Click on the device name to open a connection

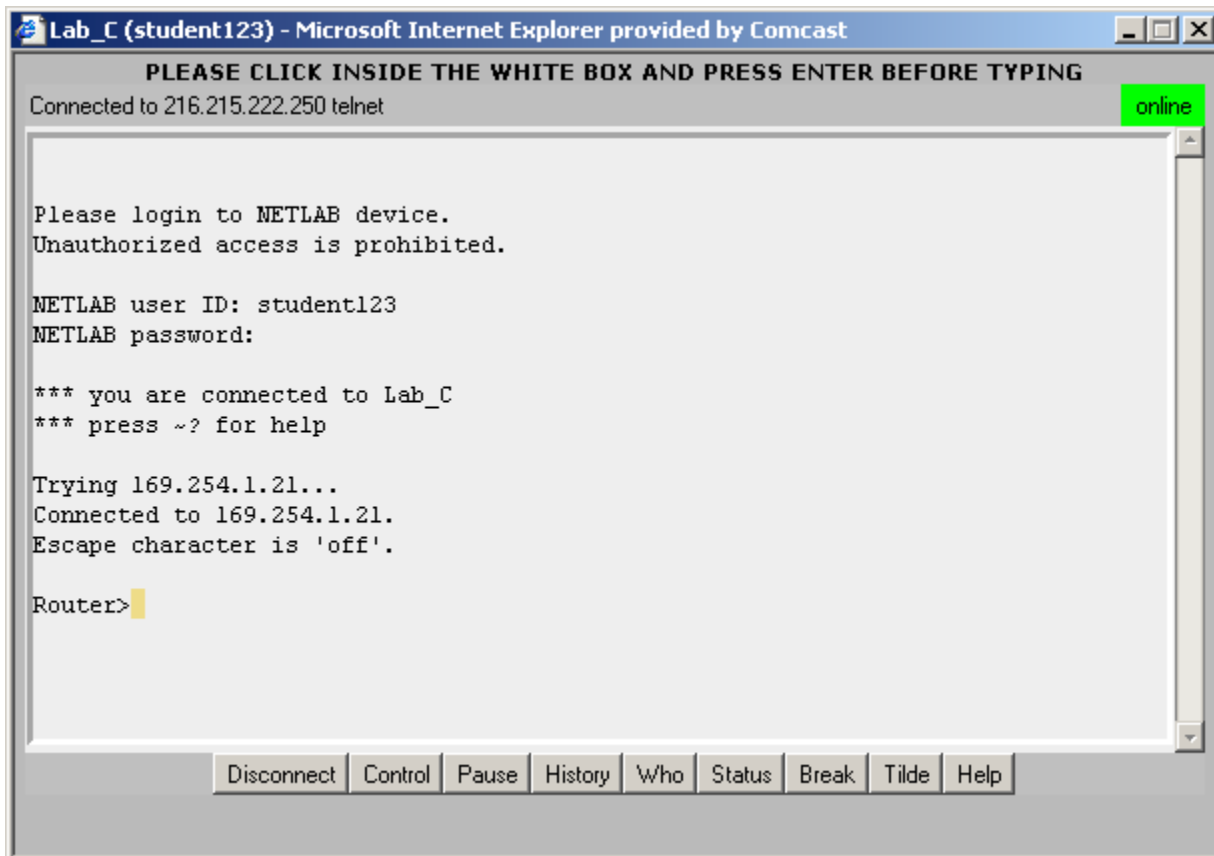
Drop My Connections

After opening a session to a device through one of these tabs, the configured Telnet client will open.

7 Telnet Client

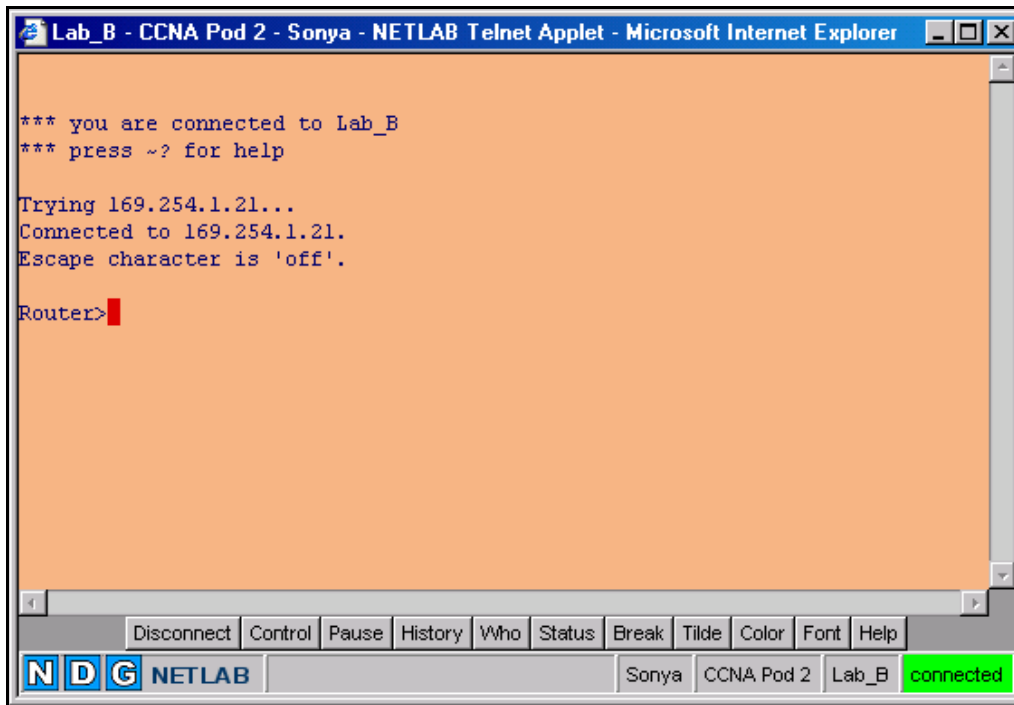
Depending on the settings in the user's profile, the Telnet session will be opened using one of the Java applets or in a local Telnet client application. If one of the Java applets has been selected, the applet will open a separate browser window for each device. The user will be logged in automatically.

Both the standard Java telnet applet and the NETLAB applet have controls useful to both instructors and students.

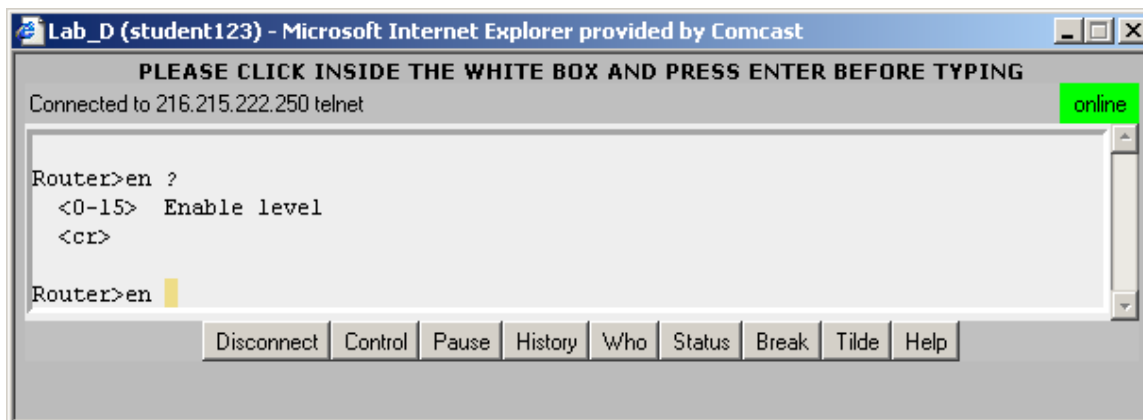


NETLAB Student Guide

The NETLAB Telnet Applet has some additional functionality. Each device can be assigned a different color background, allowing users to quickly see which devices are connected. The windows can be sized and adjusted on the fly. A bottom status bar allows users to quickly assess which pod and device each window is connected to.

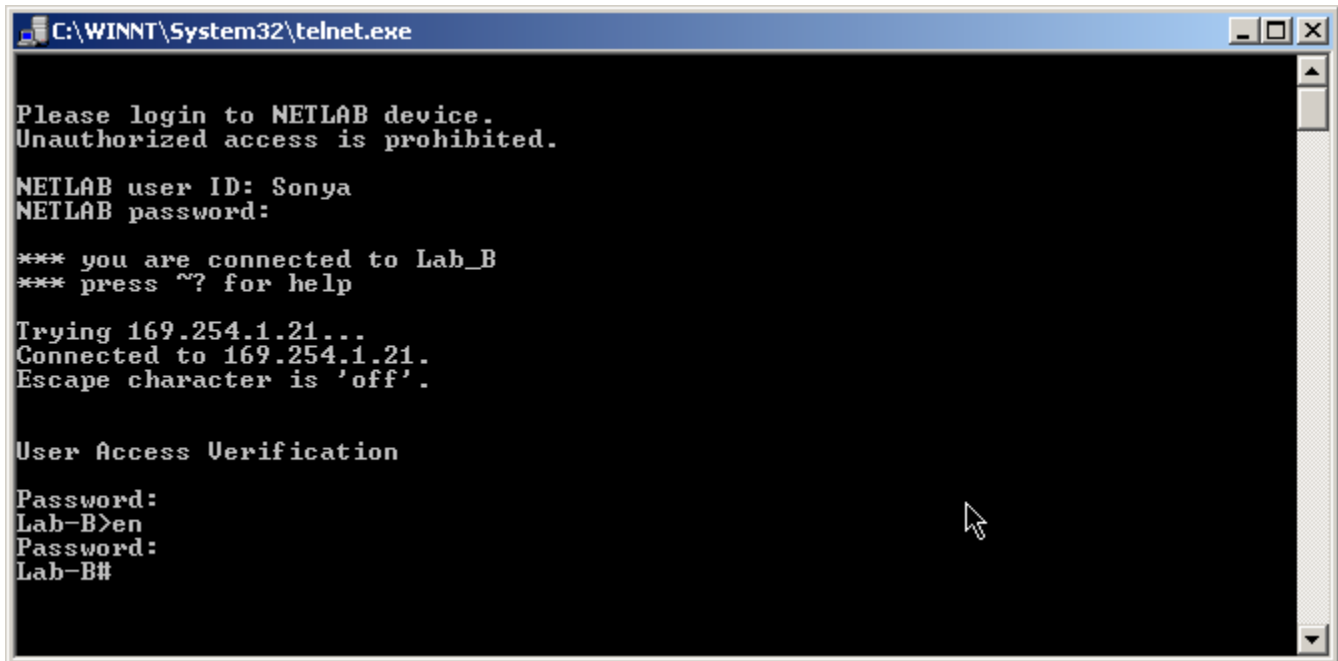


The Java Telnet Applet provides full access to the router interface, supporting all commands from the command line interface. Router IOS help and command completion are supported.



If the local Telnet client is chosen in the user's NETLAB profile, the local Telnet application will open and require the user to log in with the NETLAB user ID and password. Please note that the username and password required here are the same as the ID and password required to log in to the NETLAB system. This window will not include the control buttons, but will support full router configuration functionality.

When prompted for the user ID and password, enter the values used to connect to NETLAB. If the router has been loaded with an existing configuration, it may be necessary to provide passwords to access the router.



```
C:\WINNT\System32\telnet.exe

Please login to NETLAB device.
Unauthorized access is prohibited.

NETLAB user ID: Sonya
NETLAB password:

*** you are connected to Lab_B
*** press ^? for help

Trying 169.254.1.21...
Connected to 169.254.1.21.
Escape character is 'off'.

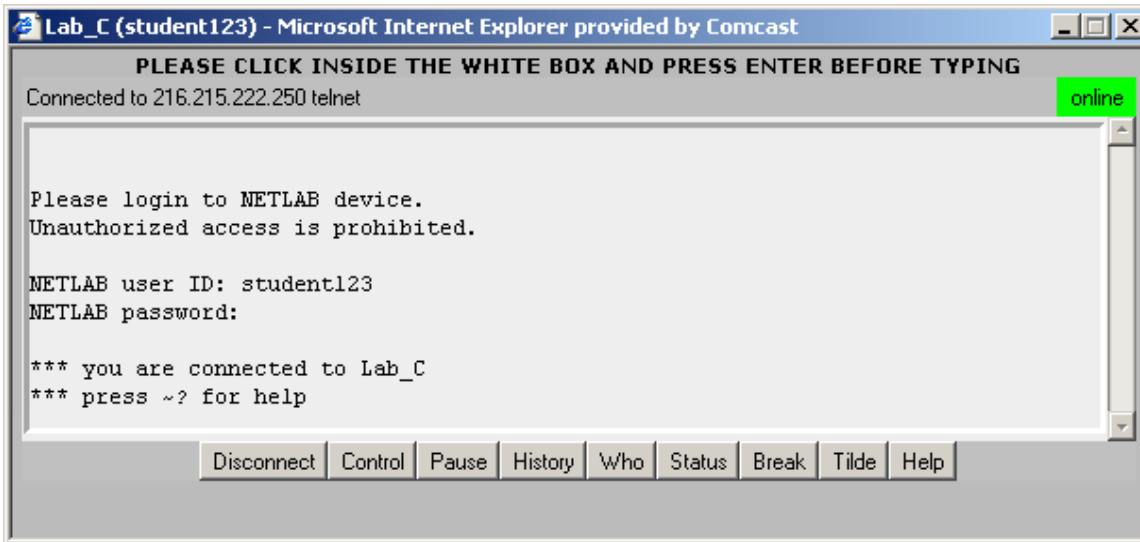
User Access Verification

Password:
Lab-B>en
Password:
Lab-B#
```

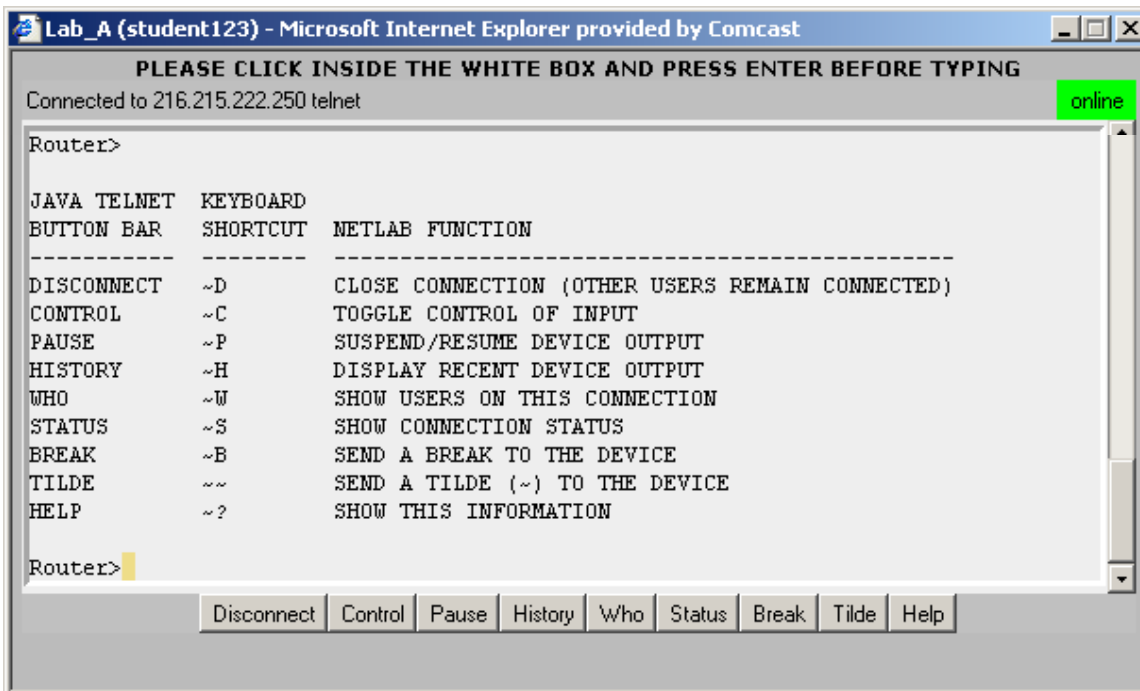
7.1 Java Telnet Applet

When using either of the Java telnet clients, the user gains access to the special session control features via buttons instead of using a key combination with tilde (~). After the Java Telnet applet window opens, the user is prompted to click inside the Telnet window before typing any commands. The NETLAB environment supports all Cisco IOS commands, as well as the extensive selection of help topics.

User authentication information is automatically passed to the java applet, logging the user into the session. The user is prompted to click inside the window before typing any router commands.



Unique to the NETLAB environment are the information and control buttons along the bottom of the Java Telnet applet window. These buttons add functionality to your lab session, allowing you to perform some of the tasks necessary to complete your exercises.



NETLAB Student Guide

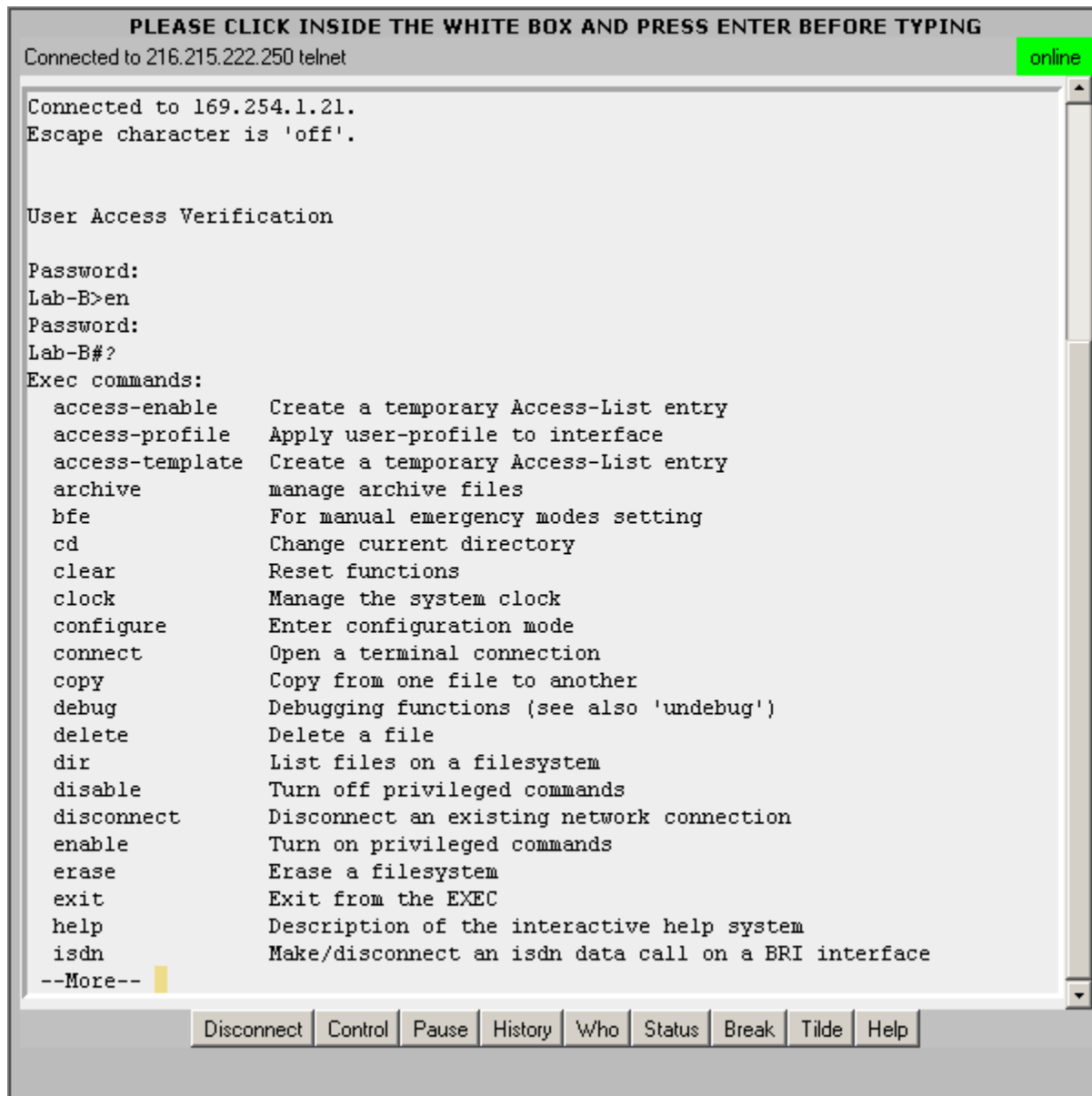
Note that these buttons are only supported in the Java Telnet applet. If you have configured your session to use the local Telnet client, these buttons will not appear. However, there are keyboard sequences that will provide the same functionality as the buttons. Press “~?” to see a list.

Control functions are available when using the local Telnet client:

DISCONNECT	~D	CLOSE CONNECTION (OTHER USERS REMAIN CONNECTED)
CONTROL	~C	TOGGLE CONTROL OF INPUT
PAUSE	~P	SUSPEND/RESUME DEVICE OUTPUT
HISTORY	~H	DISPLAY RECENT DEVICE OUTPUT
WHO	~W	SHOW USERS ON THIS CONNECTION
STATUS	~S	SHOW CONNECTION STATUS
BREAK	~B	SEND A BREAK TO THE DEVICE
TILDE	~~	SEND A TILDE (~) TO THE DEVICE
HELP	~H	SHOW THIS INFORMATION

7.2 Java Telnet Applet Buttons

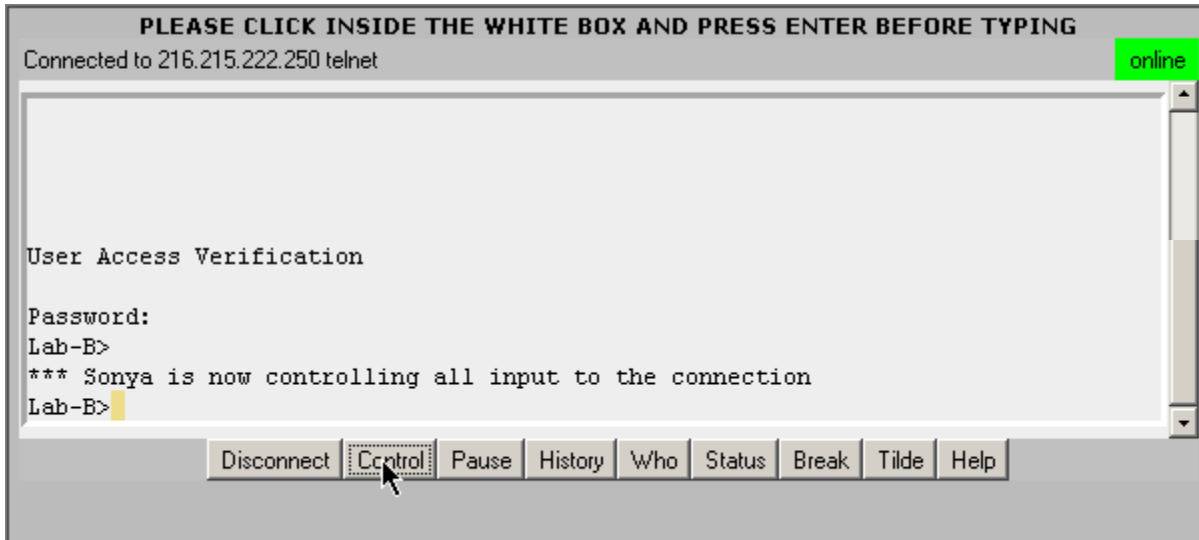
When using either of the Java telnet clients, the user gains access to the special session control features via buttons instead of using a key combination with tilde (~). After the Java Telnet applet window opens, the user is prompted to click inside the Telnet window before typing any commands. The NETLAB environment supports all Cisco IOS commands, as well as the extensive selection of help topics.



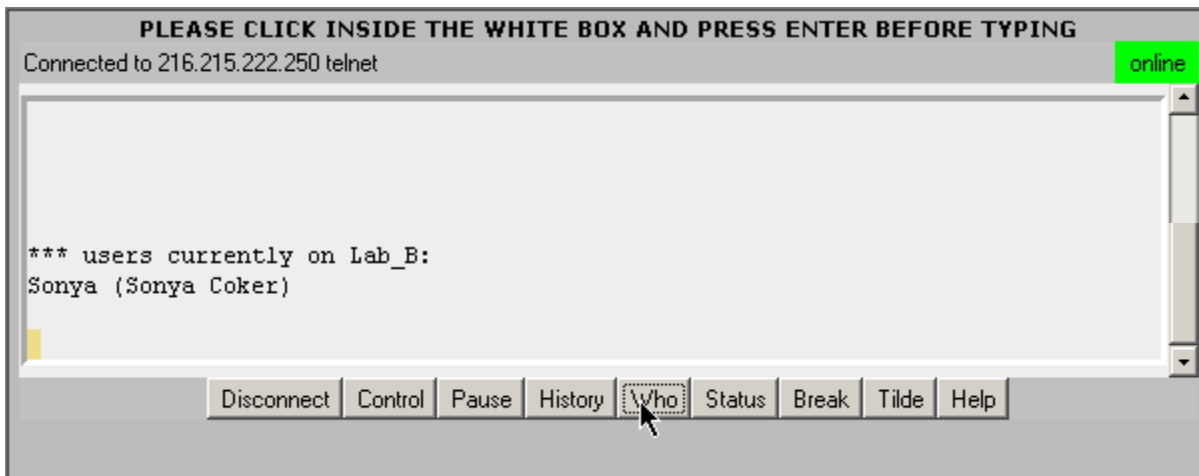
Unique to the NETLAB environment are the information and control buttons along the bottom of the Java Telnet applet window. These buttons add functionality to your lab session, allowing you to perform some of the tasks necessary to complete your exercises. Note that these buttons are only supported in the Java Telnet applets. If you have configured your session to use the local Telnet client, these buttons will not appear. However, there are keyboard sequences that will provide the same functionality as the buttons. Press “~?” to see a list.

In a session, you may be configuring one device while other users configure other devices in the topology. Users can also share the device. Each user simply establishes a Telnet session to the same device console. When sharing access, you should be familiar with using the **Control** and **Who** buttons. Clicking the **Control** button, allows you to assume configuration control over the device. Other users in your session may then watch your configuration commands, but will not be able to type commands while you control the device. Control can be transferred to other users during the session to allow those users to make configuration changes. A user who wants to control the device should click the **Control** button for that device.

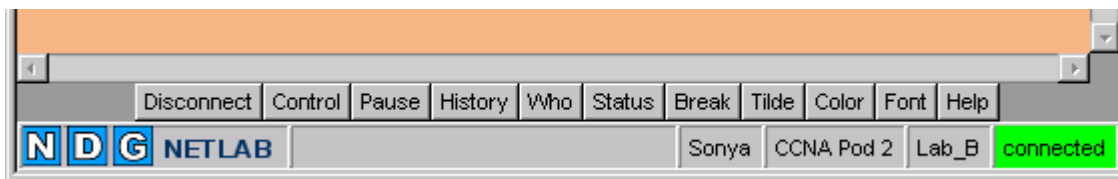
Note: it is not necessary to take control of a device when it is being shared, but this may be helpful in preventing users from typing over each other.



The **Who** button displays the list of users currently attached to the selected device. If this session consists of a single user, only that user's name appears in the list. If multiple users are attached to the device, those user ID's will appear in the list.



When using the NETLAB java applet, the additional **Color** and **Font** buttons allow the user to change background colors and font sizes on the fly.



Other buttons located at the bottom of the Telnet window allow you to recall the device output **history**, **pause** device output to the screen, view **help** for these buttons, and **disconnect** the session. A disconnected session can be identified by the red offline designation in the upper right hand corner. Other users connected to this device will remain connected unless the reservation has expired. The Telnet session can be resumed as long as the lab reservation is still active. Connections can be reestablished to devices using the same methods used to originally connect.

The **break** button can be used to send a break signal to the router to perform password recovery. The **tilde** button is used to send the tilde character.

PLEASE CLICK INSIDE THE WHITE BOX AND PRESS ENTER BEFORE TYPING

Connected to 216.215.222.250 telnet online

```
*** TERMINAL OUTPUT SUSPENDED (PAUSED). PRESS ~P TO RESUME
*** TERMINAL OUTPUT RE-ENABLED.
Lab-C#Trying 169.254.1.21...
Connected to 169.254.1.21.
Escape character is 'off'.

User Access Verification

Password:
Lab-C>en
Password:
Lab-C#
*** you are connected to Lab_C
*** press ~? for help

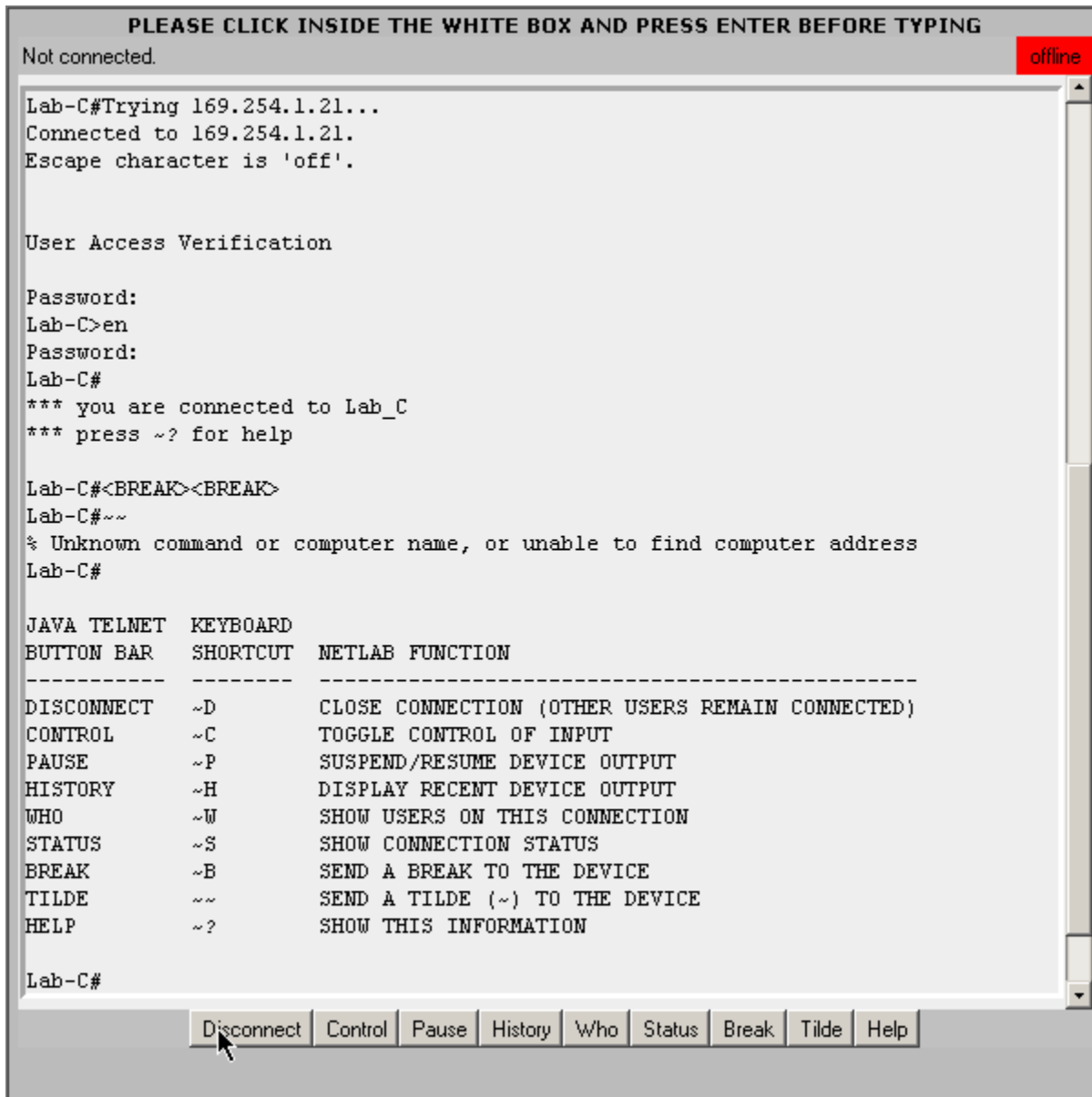
Lab-C#<BREAK><BREAK>
Lab-C#~
% Unknown command or computer name, or unable to find computer address
Lab-C#

JAVA TELNET  KEYBOARD
BUTTON BAR   SHORTCUT  NETLAB FUNCTION
-----
DISCONNECT   ~D          CLOSE CONNECTION (OTHER USERS REMAIN CONNECTED)
CONTROL      ~C          TOGGLE CONTROL OF INPUT
PAUSE        ~P          SUSPEND/RESUME DEVICE OUTPUT
HISTORY      ~H          DISPLAY RECENT DEVICE OUTPUT
WHO          ~W          SHOW USERS ON THIS CONNECTION
STATUS       ~S          SHOW CONNECTION STATUS
BREAK        ~B          SEND A BREAK TO THE DEVICE
TILDE        ~~          SEND A TILDE (~) TO THE DEVICE
```

Buttons: Disconnect | Control | Pause | History | Who | Status | Break | Tilde | Help

7.3 Disconnecting Sessions

To disconnect individual Telnet sessions, the user can select the **Disconnect** button at the bottom of the Java Telnet window. The textbox at the top of the window will change to red and display "offline" to confirm that the session was disconnected. Other users connected to the device will remain connected.



Additionally, selecting the **Drop My Connections** button from the **Connections** tab of the **Lab Access** interface can drop all connections. Closing connections does not disconnect other users or end the lab reservation. If the lab reservation has been completed, the user should select the **I'M DONE** or **WE'RE DONE** button from the **Lab Access** interface. This action may free the devices for new reservations if there is sufficient time remaining (unused 30 minute blocks AFTER the completion of the scrub process that prepares the lab for the next reservation.)

Cisco Networking Academy Program

Lab Access

MyNetlab Logout

STUDENT student123

CCNA Pod 1 16 minutes remaining I'M DONE

Topology	Action	Status	Connections	Load	Save
Device	Type	User ID	Name	Priority	
Lab_A	Cisco 2514	student123	Student 123	1	
Lab_B	Cisco 2501	-	-	-	
Lab_C	Cisco 2501	-	-	-	
Lab_D	Cisco 2501	-	-	-	
Lab_E	Cisco 2501	-	-	-	
Lab_Sw	Cisco 1924EN	-	-	-	

Click on the device name to open a connection

Drop My Connections

8 Saving Configuration Files

One of the features of the NETLAB system that makes it ideal for networking students is the ability to save the configuration file for one or more devices. There are many reasons why students might want to save configuration files from their lab sessions:

- Files can be submitted for graded work to your instructor.
- Time limitations may prevent a student from completely configuring one or more devices. Saved configurations can be retrieved for later labs, allowing a student to “pick up where they left off.”
- Saved configuration files can be studied to prepare for applied skills finals.
- Errors in your configuration can be seen more easily when you can compare your configuration to the “correct” configuration.

If you plan to save the configuration files for one or more devices in your topology, you must keep a watchful eye on the time remaining in your reservation. You should allow 5-10 minutes at the end of your reservation to save your configuration files and scrub the devices for the next student.

Configuration files can be saved individually for one device or as a group for all devices in the topology. If you have only performed configuration tasks for a single device, the configuration for that device can be saved. If you have performed configuration tasks on multiple devices, the configurations for all devices can be stored in a new folder. You can accept the default names for the individual configuration files or select other names. The configuration folder should be named prior to saving. This folder can be named for the lab exercise for easy retrieval or named for the skill practiced during the session.

CCNA Pod 1 9 minutes remaining **I'M DONE**

Topology **Action** **Status** **Connections** **Load** **Save**

Configurations Will Be Saved In
 /cnap/academies/My Academy/classes/Sonya's Practice
 Class/sonya/initial configuration practice **Change Folder**

Save All In Current Configuration Folder
 initial configuration practice **Save All**

Device	Save Configuration File Name	
Lab_A	Lab_A	Save
Lab_B	Lab_B	Save
Lab_C	Lab_C	Save
Lab_D	Lab_D	Save
Lab_E	Lab_E	Save
Lab_Sw	Lab_Sw	Save

Overwrite existing configurations

NETLAB displays a save progress window with the details of the save operation.

- saving configuration for sony on Lab_A : **Submitted**
- saving configuration for sony on Lab_B : **Submitted**
- saving configuration for sony on Lab_C : **Submitted**
- saving configuration for sony on Lab_D : **Submitted**
- saving configuration for sony on Lab_E : **Submitted**
- saving configuration for sony on Lab_Sw : **Submitted**

*Your request may be delayed by other jobs.
Any errors encountered will be sent as alerts.*

After the save operation is completed, click the **I'm Done** button at the top of the **Lab Access** window to close your session and return to the main screen. Remember that once you click the **I'm Done** button, you will not be allowed to go back into the lab. Should you need to access the equipment again, you will need to schedule another session.

9 File Manager

One of the most useful features of the NETLAB environment for both students and teachers within the Cisco Networking Academy Program is the **File Manager**. The **File Manager** is the management system for your configuration files and folders. Using the File Manger main menu you can create, edit, or delete the following: configuration files, configuration folders, and ordinary folders. These files and folders are accessible with or without an active reservation, allowing users to manage files at any time.

Files are managed through the **File** link on the main page.

Cisco Networking Academy Program

MyNETLAB STUDENT
student123

File Profile Curriculum Logout Help

Welcome to MyNETLAB. NETLAB allows you to access networking equipment anywhere on the Internet including from your home, library, or school.

News and Announcements

Thank you for participating in the NETLAB beta program. Please check [release notes](#) for known issues and e-mail new ones to support@netdevgroup.com




Lab Access

The following lab reservations have been made for you or your team.

Student / Team Labs In Progress					
ID	Status	Start / End Time	Student / Team	Class / Exercise	Pod
642	future	Mar 7, 2002 5:00AM Mar 7, 2002 6:00AM	Team A	Sonya's Practice Class 4.2.4 - Router show commands	CCNA Pod 1

This page was generated at **11:28AM** local time. Please [refresh this page](#) to see schedule changes made by others. This page will refresh automatically at the reservation start/end times shown on this page.

The **File Manger** page opens allowing users to create, edit or delete configuration files or folders.

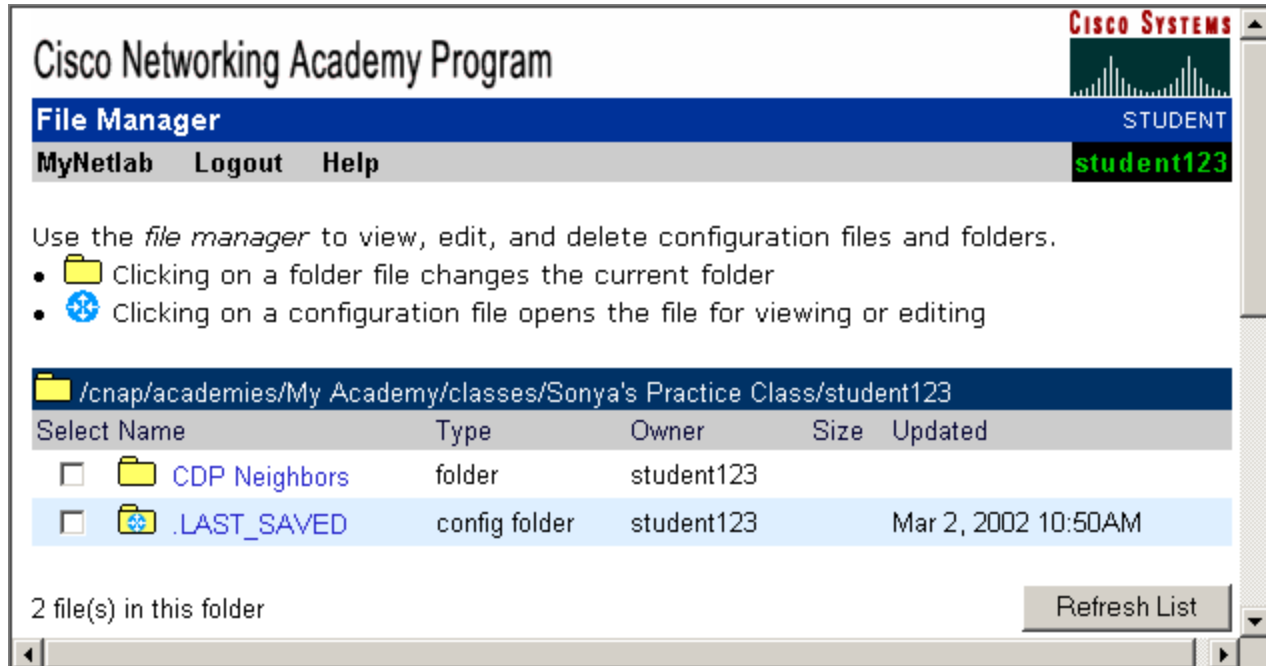
The first part of the **File Manager** main screen contains details about the icons used to represent each type of item. You can see that the router icon, , is used to represent configuration files for individual devices. Folder icons include configuration folder icons  and ordinary folder icons . Configuration folders contain configuration files for multiple devices. Ordinary folders contain individual configuration files or other folders.

Configuration Folders are special folders used for 'Load All' and 'Save All' operations.

- When you issue a 'Load All' request to NETLAB, you are requesting that the entire equipment pod be loaded with configuration files from a named configuration folder. Any configuration file whose file name match the name of the device are loaded into the device. Configuration files whose names do not match a device name are not loaded in a 'Load All' operation.
- When you issue a 'Save All' request to NETLAB, you are requesting that the configuration of each device in the equipment pod be saved. NETLAB will create a configuration folder using the name specified and

create a configuration for each device in this folder. The name of each configuration file will be that of the device it was saved from.

Note: Only configuration files may be created in configuration folders. In other words, you cannot create sub-folders in configuration folders.



9.1 Interface Name Translation

A NETLAB server may contain pods of various router hardware types. The IOS commands used to configure router interfaces for one hardware type may not be compatible with other hardware types in your pods. For example, if you have 2600 series routers in Pod A and 2500 series routers in Pod B, a configuration file created with commands compatible with the 2600 series routers will not work if loaded into the 2500 series routers. This incompatibility is evident in the interface commands.

Configuring an Ethernet interface on a **2600 series** router:

```
2600_router# interface fastethernet 0/0
2600_router# ip address 10.10.10.2
```


Configuring an Ethernet interface on a **2500 series** router:

```
2500_router# interface ethernet 0
2500_router# ip address 10.10.10.2
```

A user may not be able to reserve the router pod that a configuration file was created for. It may be necessary for users to make minor edits to configuration files before loading these files into the routers of another pod.

Configuration files and folders created using **Save** tab of the **Lab Access** interface will contain metadata allowing the configuration commands to work with multiple router hardware platforms. Using the Save tab will ensure that configuration files and folders will work across router hardware types.

9.2 Navigation

The folder structure is hierarchical and easily navigated in much the same way a Windows directory is navigated. The current directory information is displayed at the top of the window. Folders are opened by clicking the folder name. Other directories are accessed by clicking the  icon that allows the user to go up one level in the

directory structure. The root directory for the user is accessed by clicking the **My Home Folder** button. The Refresh List is used to rebuild the list after a folder or file has been added.

Cisco Networking Academy Program

File Manager

MyNetlab Logout Help

STUDENT
student123

Use the *file manager* to view, edit, and delete configuration files and folders.

- Clicking on a folder file changes the current folder
- Clicking on a configuration file opens the file for viewing or editing

/cnap/academies/My Academy/classes/Sonya's Practice Class/student123/CDP Neighbors

Select	Name	Type	Owner	Size	Updated
	go up one level	folder			
<input type="checkbox"/>	Lab_A	config	student123	727	Mar 2, 2002 10:24AM

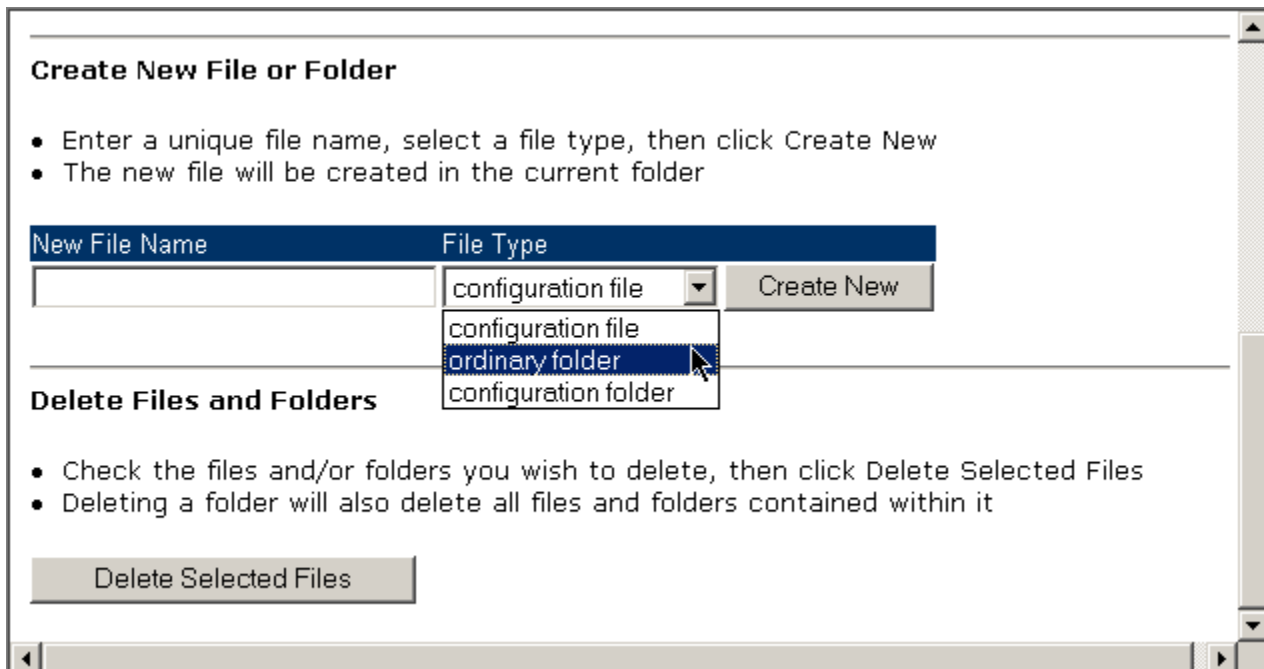
1 file(s) in this folder

Refresh List My Home Folder

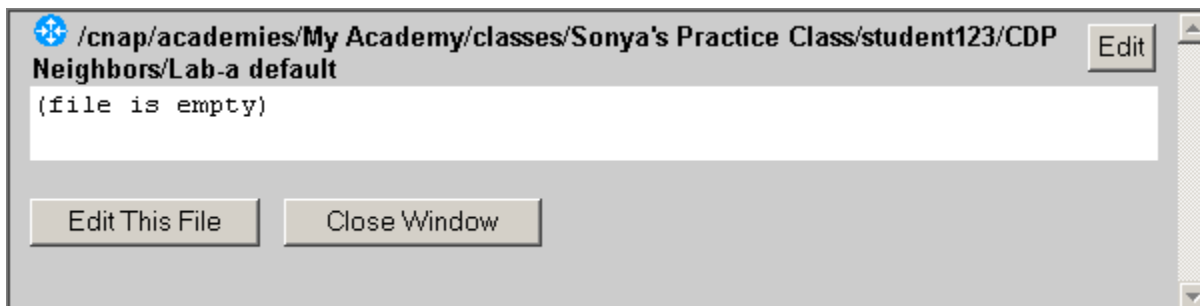
9.3 Creating and Editing Configuration Files or Folders

You can create a configuration file or folder outside of a lab session by creating, naming, and editing the file or folder. You can create a configuration file offline when you want to practice your router commands or create files to use in later sessions. These files can be created whether or not you have access to a router pod. These configuration files can be saved and later applied to one or more routers in the topology during a lab session.

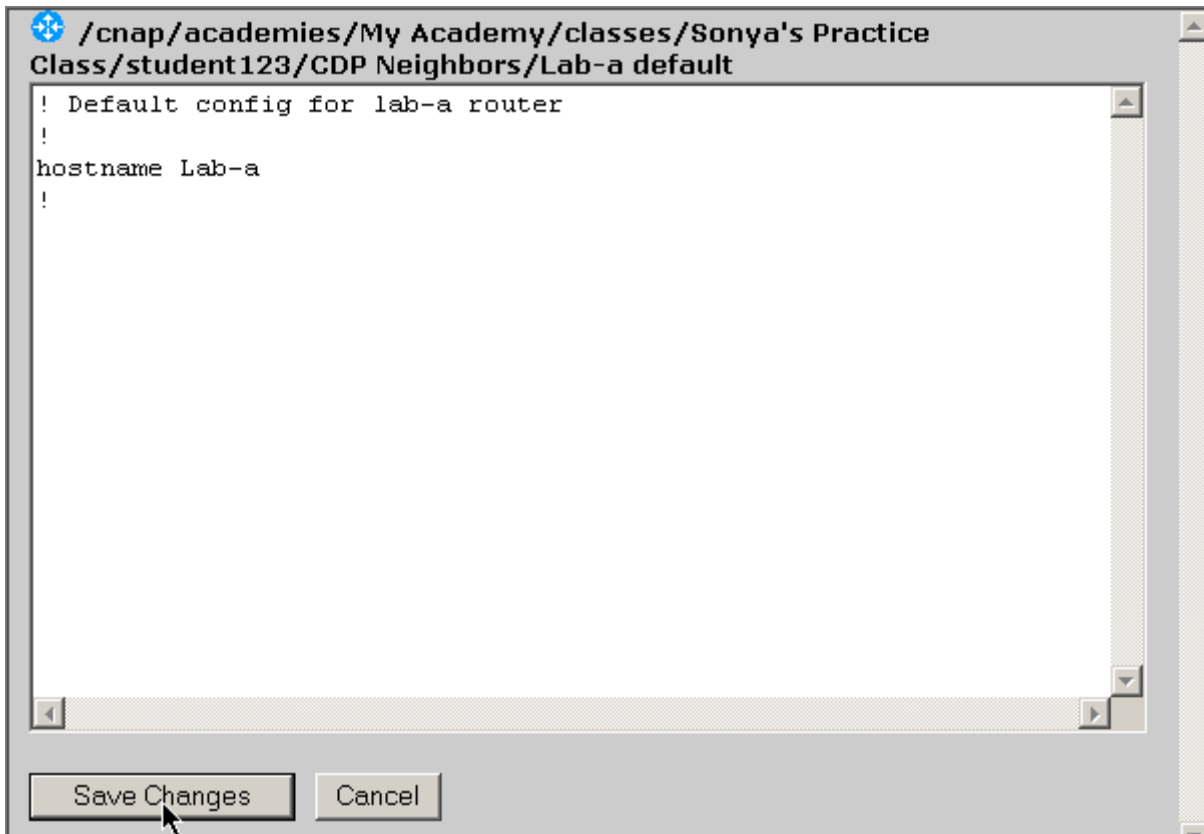
To create a new configuration file or folder, you should type a name, select the file type, and select **Create New**. If you create a folder, you will need to create individual files within the folder if you plan to use it to load all devices during a lab session.



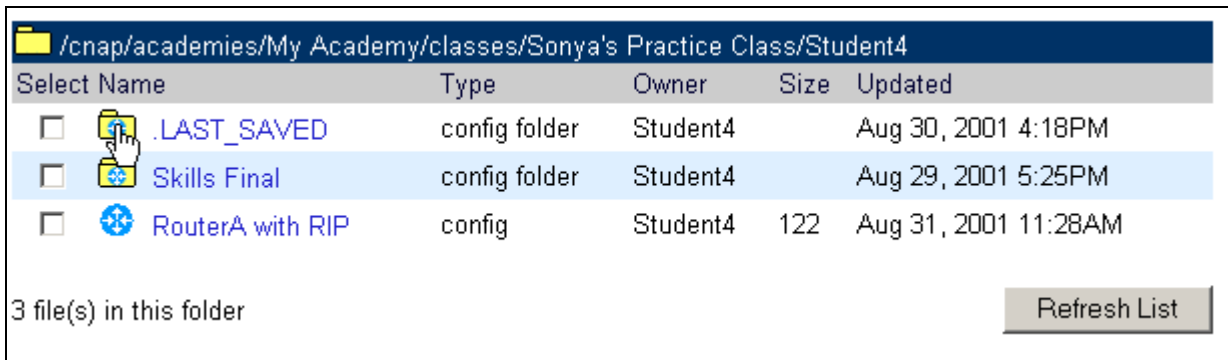
To create a new configuration file, you should type a name for the file and select **Create New**. You will then see a message about your configuration file that lists the full path to the file and any configuration commands contained in the file. Since this is a new file, you should see that the file is empty.



You can edit the configuration file by choosing either **Edit this File** or just **Edit**. When you do so, you will be able to type configuration commands into the text area. You should add any router commands you want included in this file, and click **Save Changes** to save and exit. This configuration file will be saved to your folder.

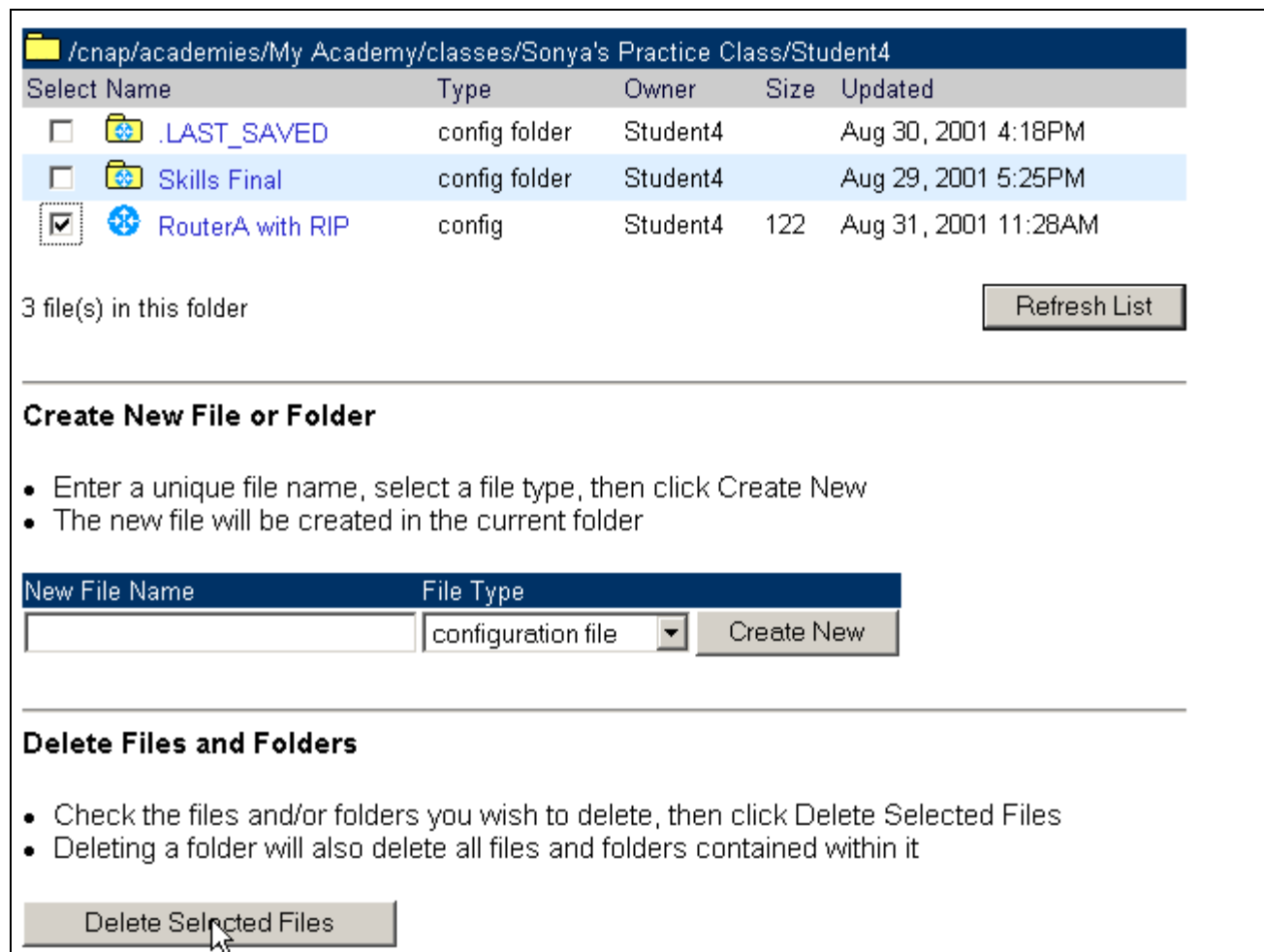


Another method of creating a router configuration file is by saving your router configurations before leaving a lab session. These saved configuration files can be part of a configuration folder or individual files for each device. Each lab session will result in a new configuration folder titled "**LAST_SAVED**" that contains the configuration files for each device at the end of the last session. The individual configuration files in this folder can be viewed or edited by selected the folder from the list.



9.4 Deleting Files or Folders

You might choose to delete configuration files or folders when you are finished using them. To do so, click the check box next to the file or folder and click the **Delete Selected Files** button.



The screenshot shows a file manager window with the following table of files and folders:

Select	Name	Type	Owner	Size	Updated
<input type="checkbox"/>	.LAST_SAVED	config folder	Student4		Aug 30, 2001 4:18PM
<input type="checkbox"/>	Skills Final	config folder	Student4		Aug 29, 2001 5:25PM
<input checked="" type="checkbox"/>	RouterA with RIP	config	Student4	122	Aug 31, 2001 11:28AM

3 file(s) in this folder Refresh List

Create New File or Folder

- Enter a unique file name, select a file type, then click Create New
- The new file will be created in the current folder

New File Name: File Type: configuration file Create New

Delete Files and Folders

- Check the files and/or folders you wish to delete, then click Delete Selected Files
- Deleting a folder will also delete all files and folders contained within it

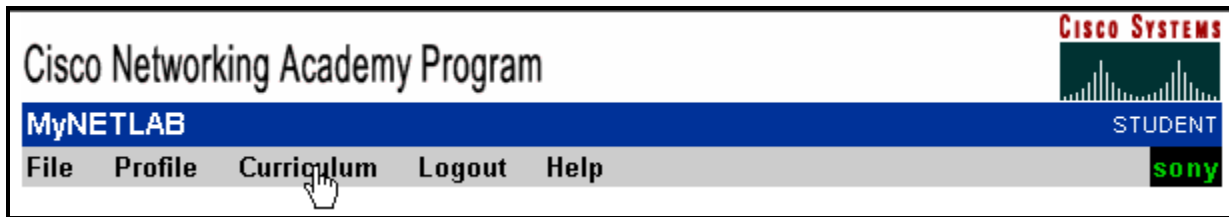
Delete Selected Files

You must confirm the deletion by selecting **OK** from the confirmation window. You can select **Cancel** here to cancel the deletion of the file or folder and return to the **File Manager**. Remember that you can always return to the main screen by selecting **MyNETLAB** from the menu.



10 Curriculum

The NETLAB server contains links to the curriculum for the CCNA Academy course in which you are enrolled. To access the online curriculum, click the **Curriculum** menu item at the top of the MyNETLAB main page.



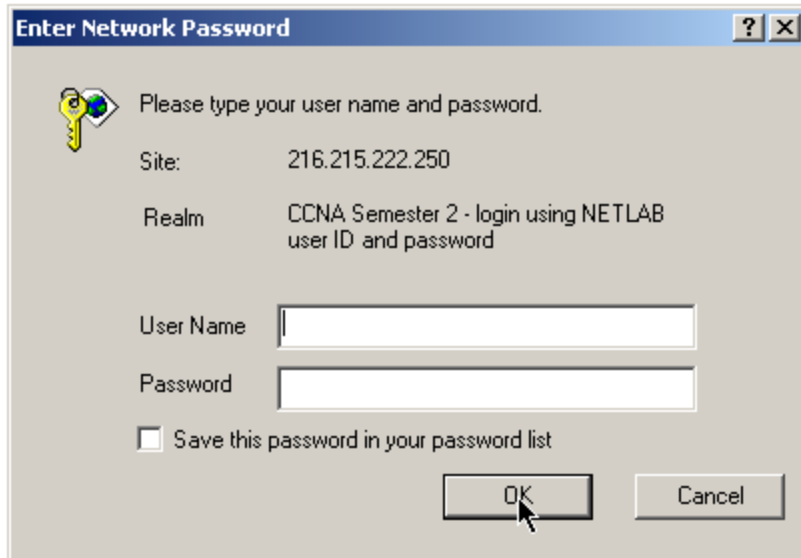
The **Curriculum** page will display links for all online curriculum available to you based on your student account type. This curriculum list may include content for semesters you have already completed as well as for semesters you will complete at a later time. To view the online curriculum for one of the listed semesters, click the hyperlink for that semester.

The following subjects are available.

Subject	Language	Comments
CCNA v2.1.2 - Semester 1	English	
CCNA v2.1.2 - Semester 2	English	
CCNA v2.1.2 - Semester 3	English	
CCNA v2.1.2 - Semester 4	English	

[[Return to MyNetlab](#)]

Before you can view online curriculum, you must provide your NETLAB username and password. This is the same username and password combination that you used to access the NETLAB server. Please note that this may or may not be the same as the username and password combination that you use to access the Cisco Networking Academy student site.



The image shows a Windows-style dialog box titled "Enter Network Password". It contains the following elements:

- A key icon and the text: "Please type your user name and password."
- Site: 216.215.222.250
- Realm: CCNA Semester 2 - login using NETLAB user ID and password
- User Name: [text input field]
- Password: [password input field]
- Save this password in your password list
- OK and Cancel buttons at the bottom.

If your username and password are correct, an additional browser window will be opened to display the selected curriculum. This browser window is independent of the NETLAB browser window and can be closed without effecting your NETLAB session.



If the username or password that you provide is incorrect, you will be denied access to the curriculum. Remember that usernames and passwords are case sensitive. If you are denied access, you should contact your instructor to check the correct spelling and format of your username or have your password reset.


Authorization Required

This server could not verify that you are authorized to access the document requested. Either you supplied the wrong credentials (e.g., bad password), or your browser doesn't understand how to supply the credentials required.

Apache/1.3.22 Server at 10.0.0.10 Port 80

11 Logging Out

When you are finished accessing the resources of the NETLAB system, be sure to log out. This prevents someone from accessing your profile from a previous connection and ensures that the system will be accessible to you for your next session. You can log out by selecting Logout from the main menu, or by clicking the Logout link on the main page.

Cisco Networking Academy Program 

MyNETLAB STUDENT

File Profile Logout Student2

Welcome to MyNETLAB. NETLAB allows you to access networking equipment anywhere on the Internet including from your home, library, or school.

News and Announcements

Thank you for participating in the NETLAB beta program. Please check [release notes](#) for known issues and e-mail new ones to support@netdevgroup.com

Lab Access

No lab time has been scheduled.

Profile

Your profile contains your preferred email address, password, and telnet client . To change your user preferences, select [Profile](#).

Help

You may select [Help](#) or review the NETLAB [FAQ](#).

Logout

Select [Logout](#) to exit NETLAB.