



Instructor Guide

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This guide documents features available in **NETLAB+ VE version 20.5.0** and later.

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Contents

Introduction	3
1 Initial Login.....	4
1.1 Change Password During Initial Login.....	5
1.2 Change E-mail Address During Initial Login	8
1.3 Change Date and Time Settings During Initial Login	8
2 MyNETLAB Interface.....	10
2.1 Modify User Settings.....	10
2.1.1 Instructor Community and Privileges	11
2.1.2 Change Password.....	13
2.1.3 Change E-mail	14
2.1.4 Change Date and Time Settings.....	14
2.2 Logout.....	16
3 Manage Classes.....	17
3.1 Add Classes.....	18
3.2 Edit Class Information	22
3.4 Add Lead Instructors	26
3.5 Remove Lead Instructors	28
3.6 Manage a Class Roster	29
3.6.1 Add Learners to the Class Roster	29
3.6.2 View User Account Details from the Class Roster	31
3.6.3 Drop Learners from the Class Roster	33
3.6.4 View User Labs from the Class Roster	35
3.6.5 Group the Class Roster Into Teams	36
3.6.6 Reset Account Passwords for One or More Learners.....	39
3.7 Add Content to a Class	41
3.8 Remove Content from a Class.....	43
3.9 Delete Classes.....	44
4 Manage User Accounts.....	47
4.1 Add Accounts.....	48
4.1.1 Importing Data from a File.....	48
4.1.1.1 Importing Data Example A.....	50
4.1.1.2 Importing Data Example B.....	53
4.1.2 Entering Account Data	58
4.2 Edit Accounts.....	62
4.3 Delete Accounts	65
4.4 Reset Account Passwords	66
5 Manage Pod ACLs.....	68
6 Usage.....	71
6.1 Class Usage.....	72
6.2 Account Usage.....	75
6.3 Lab Usage	78
6.3.1 Lab History and Screenshots.....	84
7 Pod Designer	88
7.1 Accessing Pod Designer.....	89
7.2 Viewing Pod Designs	90
8 Lab Designer.....	92

8.1	Accessing Lab Designer	93
8.2	Viewing Lab Designs	94
9	Manage Configuration Files	96
9.1	Configuration File Management Outside of a Lab Reservation	96
9.1.1	Viewing and Editing Configuration Files	98
9.1.2	Creating Folders and Files	99
9.1.3	Deleting Folders and Files	101
9.1.4	Configuration History	101
9.2	Configuration File Usage During Lab Reservations	104
9.2.1	Saving Configuration Files During a Lab Reservation	105
9.2.2	Loading Configuration Files During a Lab Reservation	106
9.2.3	Erasing the Configuration on a Device During a Lab Reservation	115
10	Schedule Lab Reservations	116
10.1	Schedule Instructor-led Training	117
10.2	Schedule Lab for Myself	124
10.3	Schedule Lab for a Student	130
10.4	Schedule Lab for a Team	136
10.5	View or Cancel Reservations	142
11	Enter a Lab Session	145
11.1	Explore the Tabbed Sections of the Lab Access Interface	146
11.1.1	Topology Tab	147
11.1.2	Content Tab	148
11.1.2.1	Configure the Browser to Display Content	149
11.1.3	Status Tab	151
11.2	Access a Device	152
11.2.1	Copy Selected Text	154
11.2.2	Paste to Terminal	155
11.2.3	Undock and Dock Device Windows	158
11.2.4	Password Recovery	160
11.2.5	Terminal Settings	162
11.3	Pod-wide Device Automation	166
11.4	Screenshots of Remote PCs	167
11.5	Display Sizing Options for Remote PCs	169
11.6	Extend a Reservation	170
11.7	Switch to a Different Lab Exercise	172
11.8	End a Reservation	173

Introduction

This is the *NETLAB+ Instructor Guide*, for the virtual edition of NETLAB+.

NETLAB+ is a remote access solution that allows academic institutions to deliver a hands-on IT training experience with a wide variety of curriculum content options. The training environment that NETLAB+ provides enables learners to schedule and complete lab exercises for information technology courses. NETLAB+ is a versatile solution for facilitating IT training in a variety of disciplines, including networking, virtualization, storage, and cybersecurity.

The material in this guide focuses on the activities typically performed by instructors who have been issued an instructor account on a NETLAB+ VE system to set up class information, manage student accounts, and schedule/enter lab reservations for instructor-led training and personal use.






1 Initial Login



Your NETLAB+ administrator will provide you with the URL or IP address of the NETLAB+ system you will use, along with a username and password.

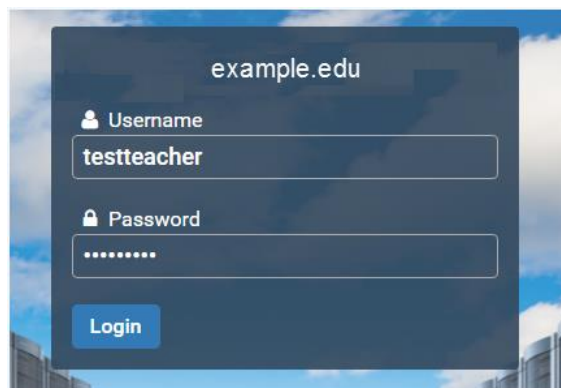
1. To access the login page, open a web browser and type in the URL or IP address of the NETLAB+ system. Using the most recent available version of the browser you select is recommended. Supported browsers are listed in the table below.



Cookies and JavaScript must be enabled in your browser. The latest information on supported web browsers is available from **Help > Supported Web Browsers** when signed in to a NETLAB+ account.

	Browser	Minimum Version	Support/Experience
	Google Chrome	54.0	* * * * *
	Mozilla Firefox	46.0	* * * *
	Apple Safari (MAC only)	11.0.3	* * * *
	Microsoft Edge	40.15063.674.0	* *
	Microsoft Internet Explorer		No longer supported

2. Enter your Username  and Password  into the fields in the login box and then click the **Login** button. The graphics on the page may be different from the example shown below. You will be prompted to change your initial password; see the next section for details.



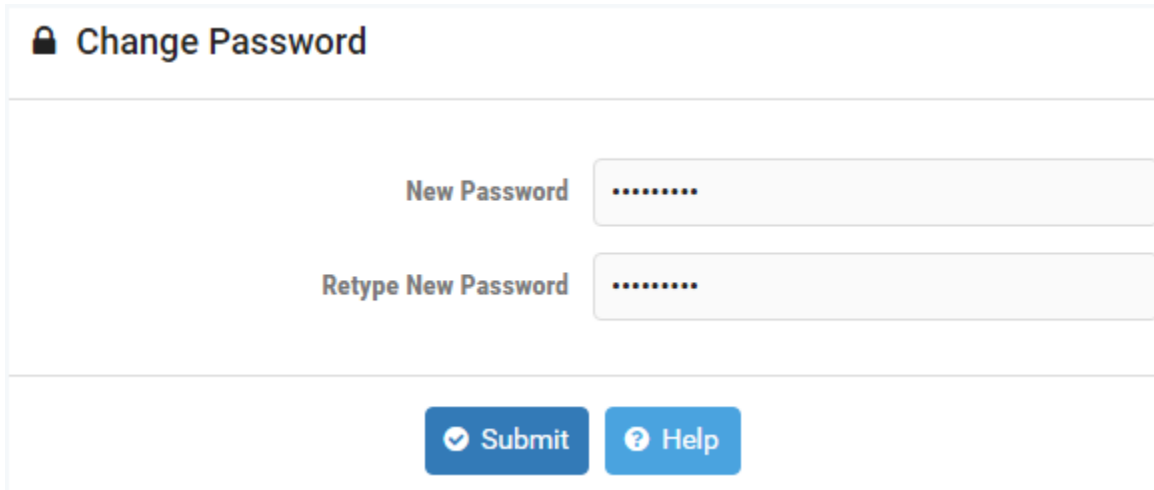
1.1 Change Password During Initial Login

During your first login, you will be required to change your password after you successfully provide your username and initial password. NETLAB+ enforces strong passwords.

Passwords must meet the following requirements:

- **Not found in the common dictionary and not too simple**
- **7 or more ASCII characters**
- **Contain both numbers and letters**

One strategy you may find helpful in selecting a new password is to combine a word together with numbers. For example, you could not use the word “airplane” but you could use “airplane789”. You may not reuse your initial password.



The screenshot shows a web form titled "Change Password" with a lock icon. It contains two input fields: "New Password" and "Retype New Password", both with masked characters (dots). Below the fields are two buttons: "Submit" (with a checkmark icon) and "Help" (with a question mark icon).



Notice the **Help** button. You can click the **Help** button on this and other NETLAB+ pages to display information to assist you in entering information and making selections. To hide the help information, click the button again.

Change Password

New Password
Enter your new password here.

Retype New Password
Enter your new password again for confirmation.

1. Enter your selection into the **New Password** field.
2. Enter the password once again in the **Retype New Password** field and then click **Submit**.



An error message will be displayed if the password entered does not meet the requirements. The message will indicate why the password was unacceptable.

Examples of typical password errors:

- The error message shown below indicates that the password entered did not meet the minimum length requirement.

New Password

Password must be 7 or more characters.

- The error message shown below indicates that the new password entered is a simple word found in the common dictionary and, therefore, not eligible to be a password on the system.

New Password

Password cannot be a common dictionary word.

- If the values in the two password fields do not match, an error message will be displayed, similar to the one shown below.

Retype New Password

**The provided passwords do not match.
Please try again.**




If you receive an error, correct the information in the fields as needed and click **Submit** again.



Make note of your new password, you will need it each time you log into the NETLAB+ system.

1.2 Change E-mail Address During Initial Login

The next field you will be prompted to enter is your **E-mail Address**. This field may already contain a value if an e-mail address was entered at the time your account was created. You may edit the e-mail address if needed. Entering an e-mail address is optional.

 **Change E-mail Address**

E-mail Address

- Update the **E-mail Address** field as desired and click **Submit**. The e-mail address must be in a valid format (example, *username@domain.xxx*); otherwise, an error message will be displayed.

E-mail Address

Invalid email address



If you receive an error, correct the information as needed and click **Submit** again.

1.3 Change Date and Time Settings During Initial Login



Next, you will select your local time zone and your preferences for dates, times, and calendars. These settings are especially important to ensure that information is displayed accurately when using the scheduler.




When traveling, you can change your time zone to match the local time.


Date and Time Settings

Time Zone	(GMT-05:00) Eastern Time (US & Canada) ▼
Date Display Format	YYYY-MM-DD ▼
Time Display Format	24 Hour ▼
First Day of Week	Sunday ▼

 Submit  Help

1. Select the **Time Zone** where you are located. NETLAB+ will adjust for Daylight Savings Time.
2. Choose the **Date Display Format** you prefer. This is the style that dates will be displayed (for example, *YYYY-MM-DD*).
3. Select the **Time Display Format**. Time may be displayed in 12-hour (AM/PM) format or 24-hour format.
4. Select the **First Day of the Week** to be shown in the scheduling calendar. Sunday is the default.
5. When you are finished making any necessary modifications, click **Submit**.

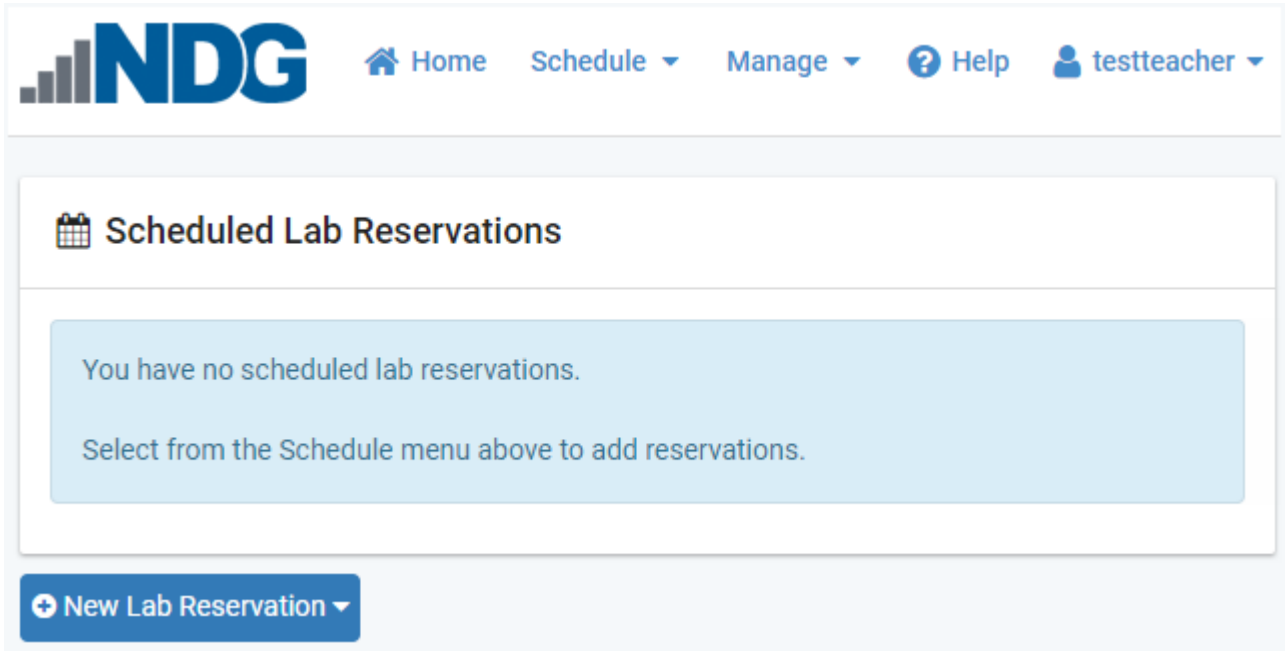
 • You can change your settings again later by choosing settings from the user menu option.


 Understood

6. As noted in the message displayed, these settings may be changed as needed. Click **Understood**.
7. The MyNETLAB page will be displayed.

2 MyNETLAB Interface

After a successful login, the MyNETLAB page will be displayed. Any scheduled lab reservations will be displayed here. If this is your first time logging into the system, it is likely that there are no scheduled lab reservations to display.



 [Home](#) [Schedule](#) [Manage](#) [Help](#) [testteacher](#)

Scheduled Lab Reservations

You have no scheduled lab reservations.

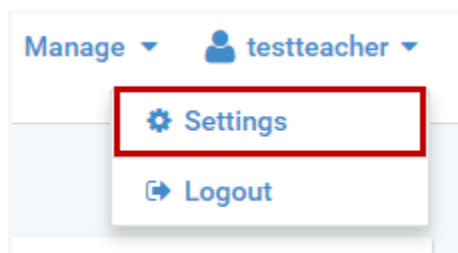
Select from the Schedule menu above to add reservations.

[New Lab Reservation](#)

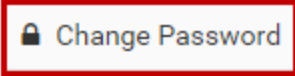

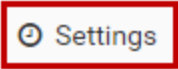


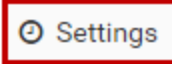
2.1 Modify User Settings

The settings you made during your initial login may be modified at any time, as needed.

- To access the Settings page, click your username in the top-right corner and select **Settings**.



The Settings page will display the current settings for your instructor account.

Community default		
Username	testteacher	
First Name	Testteacher	
Last Name	Sample	
Display Name	Test Teacher	
Email	testteacher@example.edu	
Privileges • Normal Instructor		
Date and Time	 (GMT-05:00) Eastern Time (US & Canada)  YYYY-MM-DD  24 Hour (Digital)	

2.1.1 Instructor Community and Privileges

Each instructor account is a member of a *community*. A *community* is a distinct group of instructors, students, and classes. Your community membership is listed on the instructor Settings page (see example above). Your NETLAB+ system may include multiple communities or a single community (the *default* community).



Instructor privileges are described in the summary below. Contact your NETLAB+ Administrator if your responsibilities require that your privilege level be modified.

Summary of Instructor Privileges

Normal Instructor Privileges (no additional privileges selected)

- Can create and manage student accounts in their community.
- Can create and manage classes for which they are a lead.
- Can cancel lab reservations made by students in their classes.
- Cannot manage other instructor accounts.

Community Administrator

- Can create and manage student accounts in their community.
- Can create and manage instructor accounts in their community.
- Can create and manage classes in their community.
- Can attend all lab reservations in their community (except personal instructor reservations).
- Can cancel lab reservations made by instructors and students in their community.

System-Wide Account Manager

- Can create and manage student accounts in any community.
- Can create and manage instructor accounts in any community.
- Can create and manage classes in any community.
- Can attend all lab reservations in any community (except personal instructor reservations).
- Can cancel any lab reservation.

Pod Designer

- Can access the Pod Designer tool. The *Pod Designer* is used to create a custom pod layout. A pod design is a template used to create one or more actual pods on a NETLAB+ system.

Lab Designer

- Can access the Lab Designer tool. The *Lab Designer* provides a means of creating a series of custom laboratory exercises that may be made available for class use. A lab design is a set of labs and related reference material that may include documents, images, and preset configuration files for each lab exercise.

Pod Access Control List (ACL) Manager

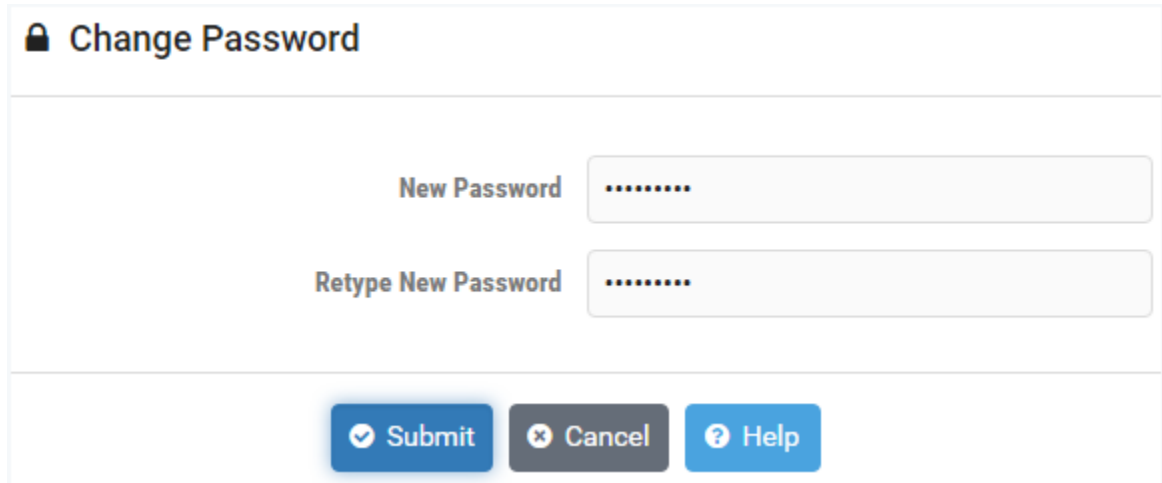
- Instructors may be appointed as Pod ACL managers.



Pod ACL manager access is granted by the NETLAB+ Administrator on a per-pod basis see the [Manage Pod ACLs](#) section.

2.1.2 Change Password

1. Click the Change Password button on the Settings page to display the **Change Password** page.



The screenshot shows a web form titled "Change Password" with a lock icon. It contains two input fields: "New Password" and "Retype New Password", both with masked characters (dots). Below the fields are three buttons: "Submit" (blue with a checkmark), "Cancel" (grey with an 'x'), and "Help" (blue with a question mark).

Passwords must meet the following requirements:

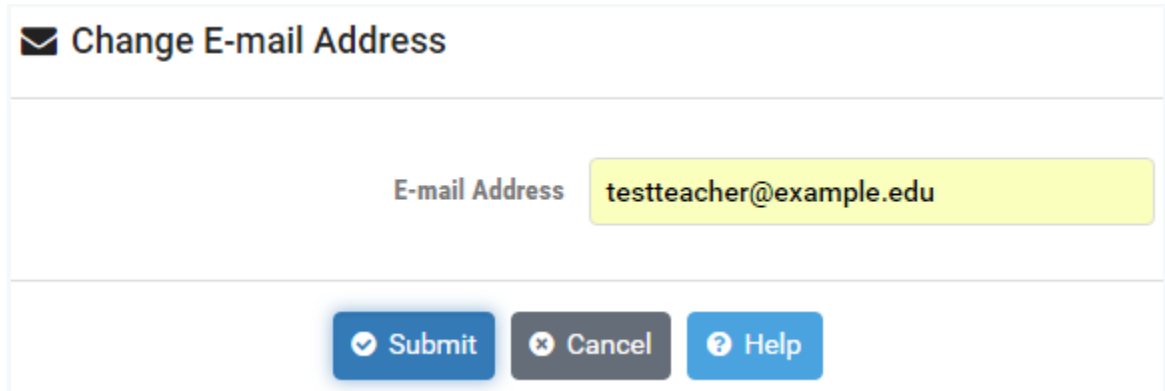
- **Not found in the common dictionary and not too simple**
 - **7 or more ASCII characters**
 - **Contain both numbers and letters**
2. Enter your selection into the **New Password** field.
 3. Enter the password once again in the **Retype New Password** field.
 4. To proceed with updating your password, select the **Submit** button. You will return to the MyNETLAB page. (Or, if you decide that you do not want to change your password, you may select the **Cancel** button to return to the MyNETLAB page with your password remaining unchanged.



If you receive an error, correct the information in the fields as needed and click **Submit** again.

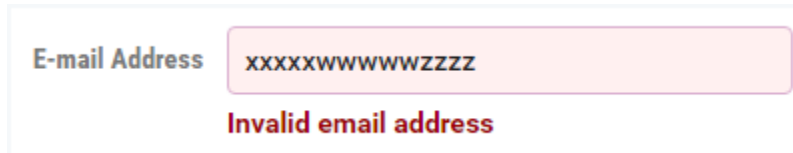
2.1.3 Change E-mail

1. Click the Change E-mail button on the Settings page to display the **Change E-mail Address** page. Entering an e-mail address is optional.



The screenshot shows a web form titled "Change E-mail Address" with an envelope icon. Below the title is a text input field labeled "E-mail Address" containing the text "testteacher@example.edu". At the bottom of the form are three buttons: "Submit" (blue with a checkmark), "Cancel" (grey with an 'x'), and "Help" (blue with a question mark).

2. Update the **E-mail Address** field as desired. Click **Submit** to save changes and return to the MyNETLAB page. (Or, select **Cancel** to return with no changes made). The e-mail address must be in a valid format (example, *username@domain.xxx*); otherwise, an error message will be displayed.



The screenshot shows the "E-mail Address" field with the text "xxxxxwwwwzzzz" entered. Below the field, the text "Invalid email address" is displayed in red.



If you receive an error, correct the information in the fields as needed and click **Submit** again.

2.1.4 Change Date and Time Settings

1. Click the Settings button on the Settings page to display the **Date and Time Settings** page. These settings are especially important to ensure that information is displayed accurately when using the scheduler.



When traveling, you can change your time zone to match the local time.



Recall that you can display help information for guidance on updating the values on a page by clicking the **Help** button. The Date and Time Settings page is shown below, with help displayed.

🕒 Date and Time Settings

Time Zone (GMT-05:00) Eastern Time (US & Canada) ▼
The time zone where you are located. NETLAB+ will adjust for Daylight Savings Time.

Date Display Format YYYY-MM-DD ▼
The style in which dates will be displayed.

Time Display Format 24 Hour ▼
Display times in 12 hour (AM/PM) format, or 24 hour format.

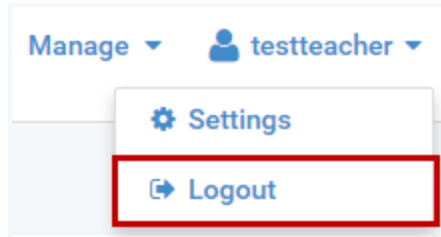
First Day of Week Sunday ▼
Sets the first day of the week to be shown in a calendar.

2. Select the **Time Zone** where you are located. NETLAB+ will adjust for Daylight Savings Time.
3. Choose the **Date Display Format** you prefer. This is the style that dates will be displayed (for example, *YYYY-MM-DD*).
4. Select the **Time Display Format**. Time may be displayed in 12-hour (AM/PM) format or 24-hour format.
5. Set the **First Day of the Week** to be shown in the scheduling calendar.
6. When you are finished making modifications, click **Submit**. The MyNETLAB page will be displayed. (Or, to return to the MyNETLAB page without saving changes, click **Cancel**.)

2.2 Logout

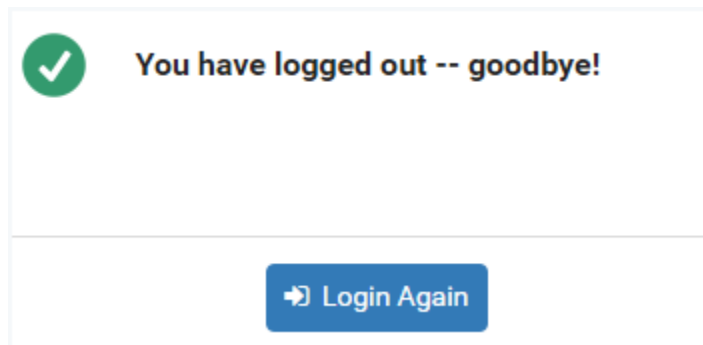
The **Logout** link is used for logging out of the NETLAB+ system.

1. Click your username in the top-right corner of the MyNETLAB page and select **Logout**.



Logging out of the system is particularly important when using a shared computer, to prevent others from gaining access to your account.

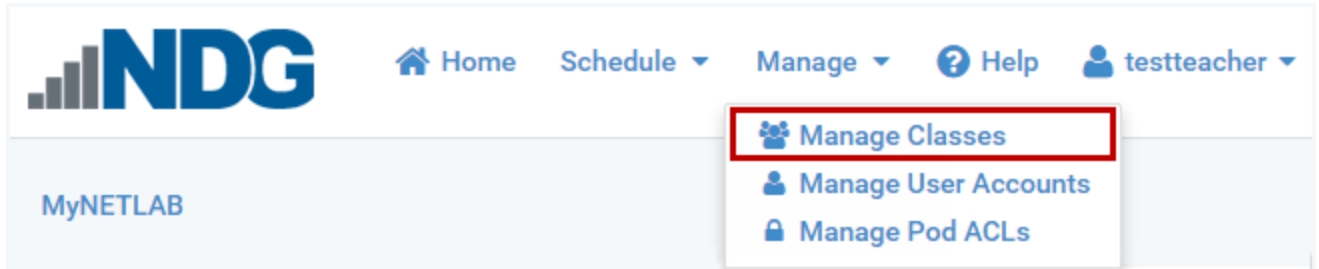
2. A confirmation message will display, select the button if you want to **Login Again** and return to the login screen.



3 Manage Classes



Information for each class using the NETLAB+ system must be entered. To manage classes and rosters, click **Manage** in the upper-right corner of the Home page and select the **Manage Classes** dropdown option.



The screenshot shows the top navigation bar of the NETLAB+ system. The 'Manage' dropdown menu is open, and the 'Manage Classes' option is highlighted with a red box. Other options in the menu include 'Manage User Accounts' and 'Manage Pod ACLs'. The user is logged in as 'testteacher'.

A list of the classes that have been created in your community will be displayed. Classes are listed with the name of the class, lead instructor, the number enrolled, and end date (if specified).

ID	Name	Leads	Enrolled	End Date	Action
25	CCNA Routing and Switching Fall 2019	Tester Jones, Test Teacher	3	None	<input type="button" value="v"/>
2	EMC ISM Summer 2018	Test Instructor	3	None	<input type="button" value="v"/>
29	Ethical Hacking 2018	None	2	None	<input type="button" value="v"/>
19	Ethical Hacking Fall 2017	Test Teacher	3	None	<input type="button" value="v"/>
35	Ethical Hacking Fall 2019	None	0	None	<input type="button" value="v"/>


3.1 Add Classes

1. To add a class to the system, select the **Add Class** button at the bottom of the Classes page
2. Enter the class information into the **New Class** form. The **Name** field is required; other fields may be filled out now (refer to the field descriptions below), or later through the Edit function. Click **Submit**.



It is best practice to use a class name that defines the time-frame that the class is offered, such as including "Spring 2019" as part of the name.


Having a descriptive class name and using the class for that semester only (as opposed to editing and reusing the class record for another semester) will help to ensure that usage statistics provide an accurate representation of system use.




New Class

Community

Name

Start Date 

End Date 

Self Study Access **Students**
 Teams

Lab Time Limits **Enforce lab author's time limits**
 Ignore lab author's time limits


Maximum Length of Reservation


Reservation Extensions Allowed


Minimum Time Between Reservations

Maximum Screenshots Per Lab

Multiple Labs in Same Reservation **Enabled**

 **Submit**

 **Cancel**

 **Help**

Field Descriptions - Class (Add/Edit)

- **Community:** The NETLAB+ system may contain multiple communities. Each community reflects a separate autonomous group that is using the NETLAB+ system. An instructor with normal privileges may add classes within their assigned community only.
- **ID:** Each class is assigned a unique numeric identification number. This number will be displayed once the class has been added.
- **Name:** The name of the class must be unique on the NETLAB+ system. It is best practice to use a class name that defines the time-frame that the class is offered, such as including "Fall 2019" as part of the name.

Having a descriptive class name and using the class for the specified semester only (as opposed to editing and reusing the class record for another semester) will help to ensure that usage statistics provide an accurate representation of system use.

- **Start Date:** An optional starting date for the class. New pod reservations for this class may not be made before this date.

If the starting date is changed later, existing reservations are not affected.

- **End Date:** An optional ending date for the class. New pod reservations for this class (student or instructor) may not be made after this date.

If the ending date is changed later, existing reservations are not affected.

- **Self Study Access - Students, Teams:** If selected, individual users in the roster can schedule lab reservations. If Students is selected, individual students in the roster can schedule lab reservations. Team reservations may be made if Teams is selected (team assignments must be made by the instructor).

- **Lab Time Limits**

- **Enforce lab author's time limits (if any):** When a lab author specifies a time limit for a lab exercise, NETLAB+ will always use this limit to determine the length of an individual reservation. When a lab time limit is enforced, the Maximum Length of Reservation setting (described below) will have no effect on the reservation length. The time limit is only imposed upon learners making their own individual reservations. Individual or team reservations created by the lead instructor on behalf of individual learners or teams in the class are not restricted by the lab author's time limit.

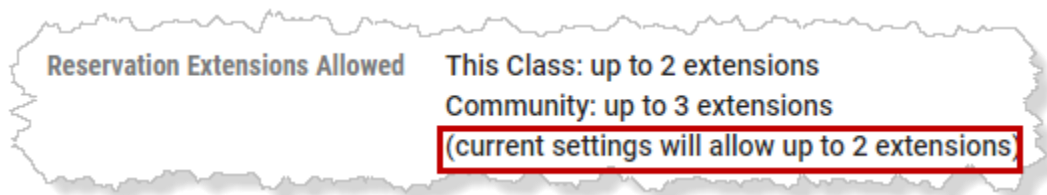
- **Do not enforce lab author's time limits:** NETLAB+ will disregard any time limits set by lab authors. Individuals may determine how much time is allocated for any lab, up to the Maximum Length of Reservation setting (see below).
- **Maximum Length of Reservation:** Sets the maximum length (in hours) of an individual lab reservation. Lab exercises can also have a time limit. The lower of the two times is used. The maximum time lengths of lab reservations for all classes within a community are subject to community maximums if a community maximum has been set. You may not establish a higher (less restrictive) maximum for the class; it will not override the community maximum. A lower (more restrictive) maximum time length for the class may be enforced by setting a value that is lower than the community maximum.

Lead instructors and instructor-led reservations are not bound by this restriction.

- **Reservation Extensions Allowed:** The maximum number of times a reservation can be extended by a student or team, provided the next time slot for the reserved pod is available. An extension adds 30 minutes to the reservation. An extension can be requested from the lab interface when there are 15 minutes or less available on the Time Remaining clock. This setting does not limit instructors; they may always request an extension in the final 15 minutes if the next time slot is available.

As an instructor with normal privileges, you may set the number of reservation extensions for classes for which you are the lead instructor. The number of extensions that a student or team can request in a single reservation will be the more restrictive of the community and class settings. Be sure to review the class settings for Reservation Extensions Allowed, which will indicate the current settings.

Example: If the class setting allows 2 extensions and the community setting allows 3 extensions, the more restrictive setting of up to 2 reservation extensions will be allowed.)



- **Restrictions for All Users:**
 - An extension cannot be made before T-00:15 on the displayed Time Remaining. This is about 26 minutes from the blocked end time and 16 minutes of the usable time remaining.
 - The next 30-minute time slot must not be already scheduled by another reservation.

- The extension cannot exceed the maximum pods in use limit and/or proactive resource awareness settings selected by the NETLAB+ administrator.
- **Restrictions for Students and Teams:**
 - The number of extensions that a student or team can request is limited by community and class settings.
 - For backward setting compatibility, communities and classes do not allow extensions to be made by students or teams by default.
 - The administrator must specifically allow extensions for students and teams per community.
 - The instructor must specifically allow extensions for students and teams per class.
 - A learner may not extend an ILT reservation. Only a lead instructor can extend an ILT reservation.
- **Minimum Time Between Reservations:** Sets the minimum amount of time between successive reservations made by an individual or team. This setting can be used to prevent excessive scheduling of labs. For example, a setting of **48 hours** prevents the same individual or team from scheduling lab exercises less than 48 hours apart. The default value, **no limit** will allow a student to make unlimited reservations. The minimum time between reservations for all classes within a community is subject to community minimums if a community minimum has been set. You may not establish a lower (less restrictive) minimum for the class; it will not override the community minimum. A higher (more restrictive) minimum time between lab reservations for the class may be enforced by setting a value that is higher than the community minimum.






Lead instructors and instructor-led reservations are not bound by this restriction

- **Maximum Screenshots Per Lab:** The maximum number of screenshots a student may take in a single lab. A value of 0 effectively disables the screenshot feature for the class. The screenshots feature is available only if it has been enabled for the community by the Administrator.
- **Multiple Labs in Same Reservation:** If enabled, a student or team may change lab exercises within the same reservation. The Exercise tab will be displayed during lab access. Only labs compatible with the reserved pod type will be available for selection. This option only affects Student or Team reservations. Instructor-led training reservations always allow the lead instructor to change exercises.


3.2 Edit Class Information

Follow the steps below to edit information for a class.

1. Edit the information for an existing class by clicking the class name in the class list displayed on the class manager page. Here, we will select the record for the recently created **Ethical Hacking Fall 2019** class.

ID	Name	Leads	Enrolled	End Date	Action
25	CCNA Routing and Switching Fall 2019	Tester Jones, Test Teacher	3	None	
2	EMC ISM Summer 2018	Test Instructor	3	None	
35	Ethical Hacking Fall 2019	None	0	None	
33	Routing and Switching Spring 2019	Jane Doe	2	None	
31	Security Summer 2018	None	0	None	

2. A page showing the current settings for the class will be displayed. Select the **Edit** button to make the information for the displayed class available for editing.

 Ethical Hacking Spring 2019

Settings **Leads** 1 **Roster** 8 **Content**

ID 30

Name Ethical Hacking Spring 2019

Start Date None

End Date None

Self Study Access Students
Teams

Lab Time Limits Enforce lab author's time limits

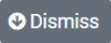


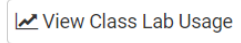


Maximum Length of Reservation 1.0 hours

Reservation Extensions Allowed This Class: up to 2 extensions
Community: up to 3 extensions
(current settings will allow up to 2 extensions)

Minimum Time Between Reservations unrestricted

Maximum Screenshots Per Lab 20

Multiple Labs in Same Reservation Enabled











Notice the options available from the Settings tab of the class details page that provide additional data about the class. These options are also available from the MyNETLAB page, but selecting them from this page allows easy access to class level information:

- The **View Reservations** option will display a list of scheduled lab reservations for this class (see the [View or Cancel Reservations](#) section for details).
- Select the option to **View Class Lab Usage** to view lab usage statistics for this class (see the [Lab Usage](#) section for details).


3. The fields on the class edit page are identical to those on the new class page. Edit the information as needed. Please see the [Add Classes](#) section for a detailed description of each field on the page. When you have finished editing, click **Submit**.


 Ethical Hacking Fall 2019

Community

ID

Name

Start Date None 

End Date None 

Self Study Access Students
 Teams

Lab Time Limits Enforce lab author's time limits
 Ignore lab author's time limits

Maximum Length of Reservation

Reservation Extensions Allowed

Minimum Time Between Reservations

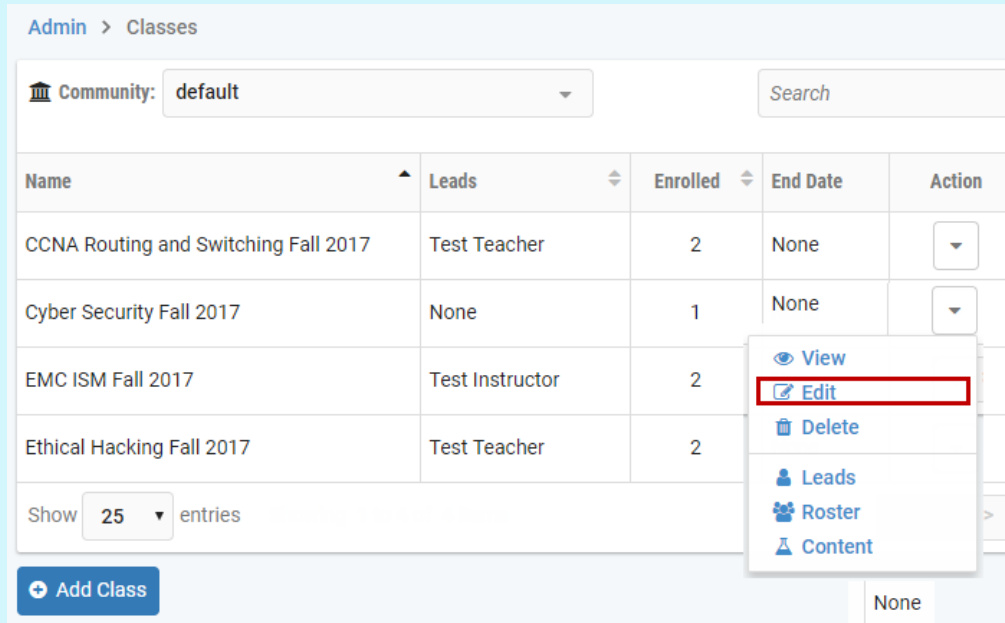
Maximum Screenshots Per Lab

Multiple Labs in Same Reservation Enabled



The NETLAB+ user interface is designed to be versatile and provides multiple ways to access the options frequently used.

As you gain experience with the NETLAB+ system, you will notice that there is often more than one way to access an option. For example, in addition to the method described above in this section, the option to **Edit** a class record is also available from the Action dropdown on the class list.



Name	Leads	Enrolled	End Date	Action
CCNA Routing and Switching Fall 2017	Test Teacher	2	None	▼
Cyber Security Fall 2017	None	1	None	▼
EMC ISM Fall 2017	Test Instructor	2		<ul style="list-style-type: none"> View Edit Delete Leads Roster Content
Ethical Hacking Fall 2017	Test Teacher	2		

3.3 Export LTI Cartridge



Learning Tools Interoperability (LTI) is a standard protocol developed by the IMS Global Learning Consortium for integrating any Learning Management System (LMS) with any learning application. The option to export an LTI cartridge for a class is available if LTI Integration has been enabled for your community by your NETLAB+ administrator.

NETLAB+ supports integration with your school's LMS. Follow the steps below to obtain the common cartridge needed for LTI integration for the class.

1. If the option to enable LTI Integration has been enabled at the community level, you may select the option to **Export an LTI Cartridge** that you can import into your school's LMS in order to configure access to the class.

Ethical Hacking Spring 2019

Settings Leads **1** Roster **8** Content

ID	30
Name	Ethical Hacking Spring 2019
Start Date	None
End Date	None
Self Study Access	Students Teams
Lab Time Limits	Enforce lab author's time limits
Maximum Length of Reservation	1.0 hours
Reservation Extensions Allowed	This Class: up to 2 extensions Community: up to 3 extensions (current settings will allow up to 2 extensions)
Minimum Time Between Reservations	unrestricted
Maximum Screenshots Per Lab	20
Multiple Labs in Same Reservation	Enabled

[Dismiss](#) [Edit](#) [View Reservations](#) [View Class Lab Usage](#) [Export LTI Cartridge](#) [Delete Class](#)

2. The **Export Class Common Cartridge** page will be displayed. Clicking the **Export** button will prompt you to download an `.imsc` file that is conformant with the IMS Common Cartridge v1.0 standard. If you have the necessary permissions, you may import the cartridge into your LMS class to add the associated content.

Export Class Common Cartridge

Clicking the export button below will prompt you to download an `.imsc` file that is conformant with the IMS Common Cartridge v1.0 standard. If you have the necessary permissions, you may import the cartridge into your LMS class to add the associated content. Please refer to your LMS's documentation regarding the importation of Common Cartridge files as well as the configuration and use of LTI external tools. After the file is uploaded to the LMS, you will need the **Consumer Key** and the **Shared Secret** to configure the NETLAB+ VE external tool for your class.

Consumer Key:

Shared Secret:

[Export](#) [Cancel](#)




Please refer to your LMS's documentation regarding the importation of Common Cartridge files as well as the configuration and use of LTI external tools. After the file is uploaded to the LMS, you will need the **Consumer Key** and the **Shared Secret** to configure the NETLAB+ VE external tool for your class.


3.4 Add Lead Instructors

When a class record is created by an instructor, the instructor is automatically assigned as a lead instructor. Additional lead instructors may be added to the class. Typical actions performed by lead instructors:

- Lead instructors may update class settings.
 - Lead instructors may make reservations for instructor-led training sessions for the class.
 - Lead instructors may allow individual students to make reservations themselves, depending on the settings selected for the class.
 - A lead instructor has the option to participate in any lab reservation associated with the class.
 - A lead instructor may manage the class roster.
 - A lead instructor may select the content to be enabled for the class.
1. To add lead instructors to a class, select the **Leads** tab of the class record, and then click the button to **Add Lead Instructors**.

 **Ethical Hacking Spring 2018**





Settings **Leads 1** Roster 0 Content

Username	Display Name	Email	Type	Action
 testteacher	Test Teacher	testteacher@example.edu	instructor	<input type="button" value="v"/>





In the example above, notice that **testteacher**, the instructor who created the class, has already been automatically added as a lead instructor.

- A list of the instructors in the community is displayed. Select additional lead instructor(s) for the class by checking the **Select** checkbox and then pressing the **Add Selected** button.

	Username	Sorted Name	Email	Type	Select
	janedoe	Doe, Jane		instructor	<input type="checkbox"/>
	testerjones	Jones, Tester	testerjones	instructor	<input checked="" type="checkbox"/>
	testinstructor	Ndg, Testinstructor		instructor	Lead
	testteacher	Teacher, Test	testteacher	instructor	<input type="checkbox"/>

Showing 1 to 4 of 4 items

The selected instructor, *testerjones*, is now added to the Leads list.

Settings					
Leads 2		Roster 0		Content	
Username	Sorted Name	Email	Type	Action	
 testerjones	Jones, Tester	testerjones	instructor	<input type="button" value="v"/>	
 testinstructor	Ndg, Testinstructor		instructor	<input type="button" value="v"/>	

Showing 1 to 2 of 2 items

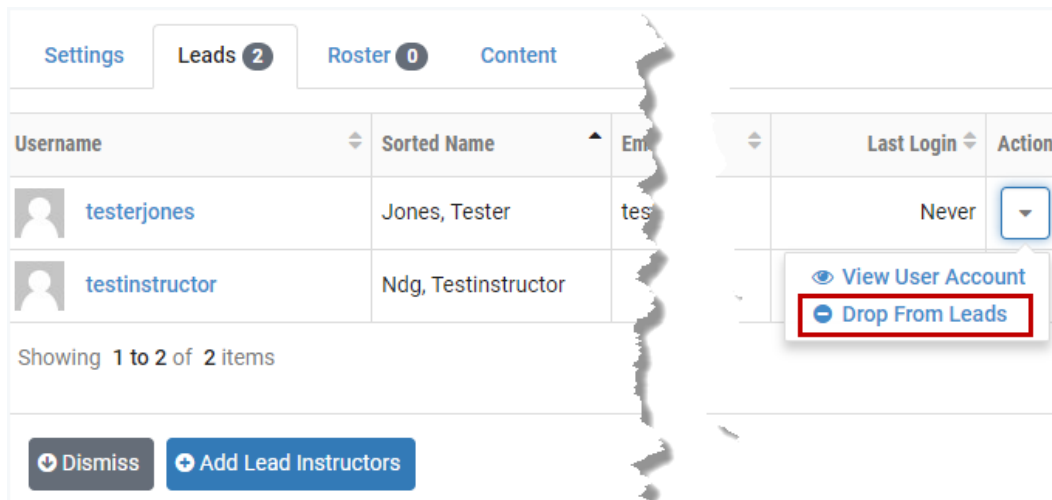
3.5 Remove Lead Instructors

A lead instructor may be dropped from a class. A lead instructor may remove him/herself or another lead instructor from the list of leads.

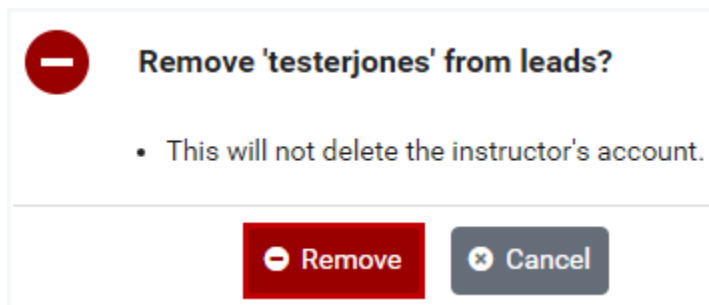


Instructors may only remove a lead instructor if there is at least one other lead instructor assigned to manage the class. This restriction ensures that the class information remains accessible and manageable by at least one lead instructor.

1. To remove a lead instructor from a class, select the **Leads** tab of the class record to display the list of lead instructors.
2. Select the **Drop from Leads** option on the Action dropdown of the record for the lead instructor to be removed.



3. You will be prompted to confirm that the lead instructor should be removed from the class.



4. Click **Remove** to confirm.



Removing an instructor as class lead will not remove the instructor's user account from the NETLAB+ system.

3.6 Manage a Class Roster

A class *roster* is a list of members, which may include student accounts, instructor accounts, or both. All members must belong to the same community. A class may contain one or more *lead instructors* (trainers). All other users in the roster (who are not leads) are *learners*.

As students join and withdraw from a class, you will need to make periodic changes to the class roster. Details are provided in the subsections below.

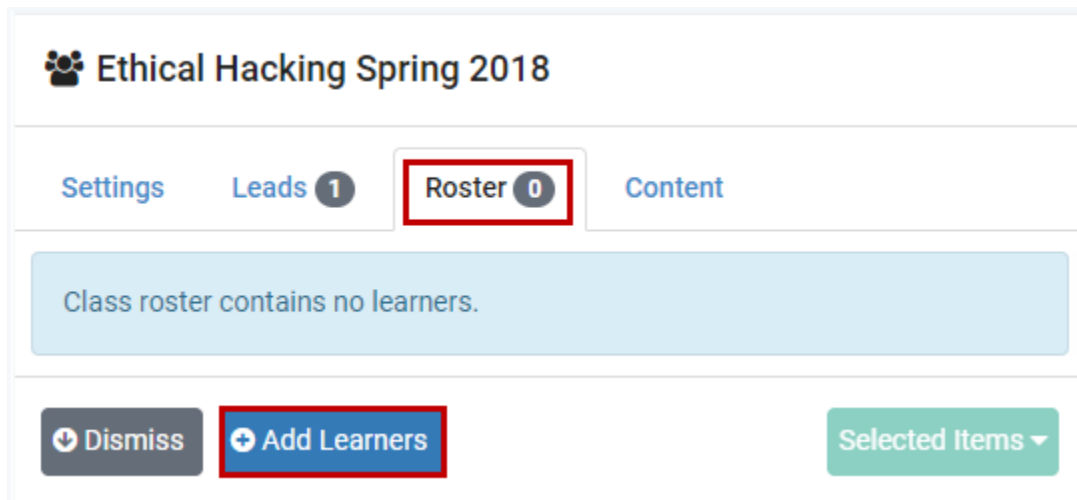
3.6.1 Add Learners to the Class Roster

One method of adding learners to a class is to select learners from the list of user accounts in the community. This is a good approach when accounts have already been created for the learners that you want to add to the class roster.



Learners can also be assigned to a class during the process of creating a user account. See the [Manage User Accounts](#) section for details.

1. Select the **Roster** tab on the class page to add learners. A list of learners assigned to the class will be displayed, or the page will indicate that learners have not yet been added to the class roster. Click the **Add Learners** button.



Ethical Hacking Spring 2018

Settings Leads **1** **Roster 0** Content










Class roster contains no learners.

Dismiss Add Learners Selected Items ▾

- A list of the user accounts in the community will be displayed. The list includes both instructors and students. Add learners to the class roster by clicking the appropriate Select checkbox(es) and then click the **Add Selected** button.









To customize the order of the list, select any of the column headers and click to toggle between sorting the list in ascending/descending order. Notice that the user list below is ordered by Username.

	Username	Sorted Name	Email	Type	Select
	bbradley66	Bradley, Betty Jo		student	<input checked="" type="checkbox"/>
	adevane63	Devane, Anna		student	<input checked="" type="checkbox"/>
	janedoe	Doe, Jane		instructor	<input checked="" type="checkbox"/>
	sdrucker65	Drucker, Sam		student	<input type="checkbox"/>
	cfaison61	Faison, Cesar Xavier		student	<input checked="" type="checkbox"/>
	testinstructor	Ndg, Testinstructor		instructor	Lead
	teststudent	Ndg, Teststudent	teststud	student	<input checked="" type="checkbox"/>
	testteacher	Teacher, Test	testteac	instructor	<input type="checkbox"/>
	imatester	Tester, Ima	imatester	student	<input checked="" type="checkbox"/>

In the example above, six learners have been selected, five students and one instructor (instructors may be added to classes as learners or lead instructors). Notice also that the list shows that **testinstructor** has already been selected as a class lead instructor.

The learners are now listed in the class roster. Notice that the date of the Last Login into NETLAB+ is listed for each class member.

Ethical Hacking Spring 2018				
Settings		Leads 1	Roster 6	Cont
Username	Sorted Name	Team	Last Login	Action
 bbradley66	Bradley, Betty Jo	None	Never	<input type="button" value="v"/> <input type="checkbox"/>
 adevane63	Devane, Anna	None	Never	<input type="button" value="v"/> <input type="checkbox"/>
 janedoe	Doe, Jane	None	2017-12-07	<input type="button" value="v"/> <input type="checkbox"/>
 cfaison61	Faison, Cesar Xavier	None	Never	<input type="button" value="v"/> <input type="checkbox"/>
 teststudent	Ndg, Teststudent	None	2018-03-15	<input type="button" value="v"/> <input type="checkbox"/>
 imatester	Tester, Ima	None	Never	<input type="button" value="v"/> <input type="checkbox"/>

3.6.2 View User Account Details from the Class Roster

There are several options available from the class roster that allow you to view additional information pertinent to individual class members, including viewing user account details.

1. Click the **Action** dropdown on any of the detail rows and select **View User Account**.

Settings Leads **1** Roster **6** Content

Username	Sorted Name	Team	Last Login	Action
bbradley66	Bradley, Betty Jo	None	Never	<input type="checkbox"/>
adevane63	Devane, Anna	None	Never	<input type="checkbox"/>
janedoe	Doe, Jane	None	2017-12-07	<input type="checkbox"/>
cfaison61	Faison, Cesar Xavier	None	Never	<input type="checkbox"/>
teststudent	Ndg, Teststudent	None	2018-03-15	<input type="checkbox"/>
imatester	Tester, Ima	None		<input type="checkbox"/>

Show 25 entries Showing 1 to 6 of 6 items

Dismiss Add Learners Selected Items

[View User Account](#)

[Drop From Roster](#)

[View User Labs](#)

- The User detail page will be displayed. Please refer to the [Manage User Accounts](#) section for more information on the options available from this page. Click **Dismiss** to return to the class roster.

User

Community default

Username teststudent

Full Name Test Student

Display Name Test Student

Sorted Name Ndg, Teststudent

Email teststudent@example.edu

Type student




Logins enabled




Last Login 2018-03-15 19:29:25

Dismiss Edit Reset Password Delete

3.6.3 Drop Learners from the Class Roster

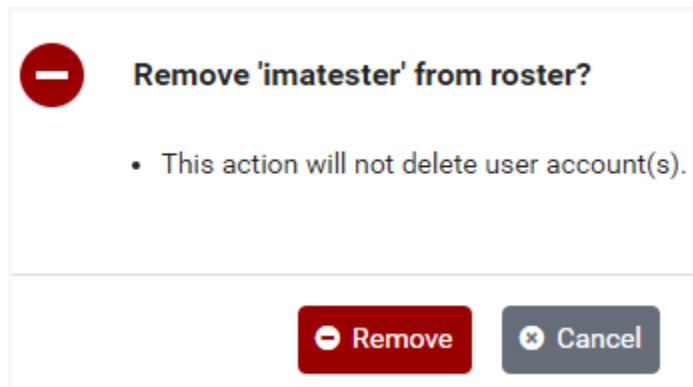
1. A learner may be removed from the class roster by selecting the **Drop From Roster** option on the Action dropdown.

Settings Leads 1 Roster 3 Content					
Username	Sorted Name	Email	Last Login	Action	<input type="checkbox"/>
 janedoe	Doe, Jane		2017-12-07	<input type="button" value="v"/>	<input type="checkbox"/>
 teststudent	Ndg, Teststudent	teststudent@example.edu	2018-02-13	<input type="button" value="v"/>	<input type="checkbox"/>
 imatester	Tester, Ima	imatester@example.com	Never	<input type="button" value="v"/>	<input type="checkbox"/>

-  View User Account
-  Drop From Roster
-  View User Labs

Selected Items

2. You will be prompted to confirm the removal of the learner from the class roster. Click **Remove** to confirm the action.



Dropping a learner from the roster does not delete their user account. The account remains on the system and may be added to other class rosters.



Need to drop multiple users? You may use the following method to drop multiple learners at once:

1. Check the Select boxes for each respective user.
2. Click the Selected Items button and select **Drop from Roster**.
3. You will be prompted to confirm the action.

Ethical Hacking Spring 2018

Settings Leads **1** Roster **6** Content

Username	Sorted Name	Team	Last Login	Action	<input type="checkbox"/>
bbradley66	Bradley, Betty Jo	None	Never	<input type="checkbox"/>	<input type="checkbox"/>
adevane63	Devane, Anna	None	Never	<input type="checkbox"/>	<input type="checkbox"/>
janedoe	Doe, Jane	None	2017-12-07	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
cfaison61	Faison, Cesar Xavier	None	Never	<input type="checkbox"/>	<input type="checkbox"/>
teststudent	Ndg, Teststudent	None	2018-03-15	<input type="checkbox"/>	<input type="checkbox"/>
imatester	Tester, Ima	None	Never	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Show entries Showing 1 to 6 of 6 items




3.6.4 View User Labs from the Class Roster




There are several options available from the class roster that allow you to view additional information pertinent to individual class members, including viewing lab usage details.

1. Click the **Action** dropdown on any of the detail rows and select **View User Labs**.

Ethical Hacking Fall 2017

Settings Leads **1** Roster **3** Content

Username	Sorted Name	Email	Last Login	Action
 janedoe	Doe, Jane		2017-12-07	<input type="checkbox"/>
 teststudent	Ndg, Teststudent	teststudent@example.edu	2018-02-13	<input type="checkbox"/>
 testuser	Ndg, Testuser	testuser@example.edu	2018-02-13	<input type="checkbox"/>

-  View User Account
-  Drop From Roster
-  View User Labs

Selected Items

2. The lab usage details will be displayed, showing the labs completed by the learner for this class. For more discussion on lab usage reporting, please see the [Lab Usage](#) section. Click **Dismiss** to return to the roster.

Lab Usage: Ethical Hacking Fall 2017

User ID	Name	Reservation	Exercise	Start Time	Hours Attended
testuser	Ndg, Testuser	86	Lab 01: Reconnaissance with Nmap and Amap	2018-02-12	0.40
testuser	Ndg, Testuser	59	Lab 02: Social Engineering Attacks with Social Engineering Toolkit	2017-08-02	0.73
testuser	Ndg, Testuser	55	Lab 01: Reconnaissance with Nmap and Amap	2017-05-15	0.63
Page Total:					1.76
Table Total:					1.76

Show entries Showing 1 to 3 of 3 items

3.6.5 Group the Class Roster Into Teams

Classes can be configured to allow students to have self-study lab access both as individuals and as part of an assigned team. The use of teams is optional.



The class setting for self-study lab access must be enabled for teams, in order for team members to be able to schedule lab reservations themselves. See the [Add Classes](#) section for details on class settings.

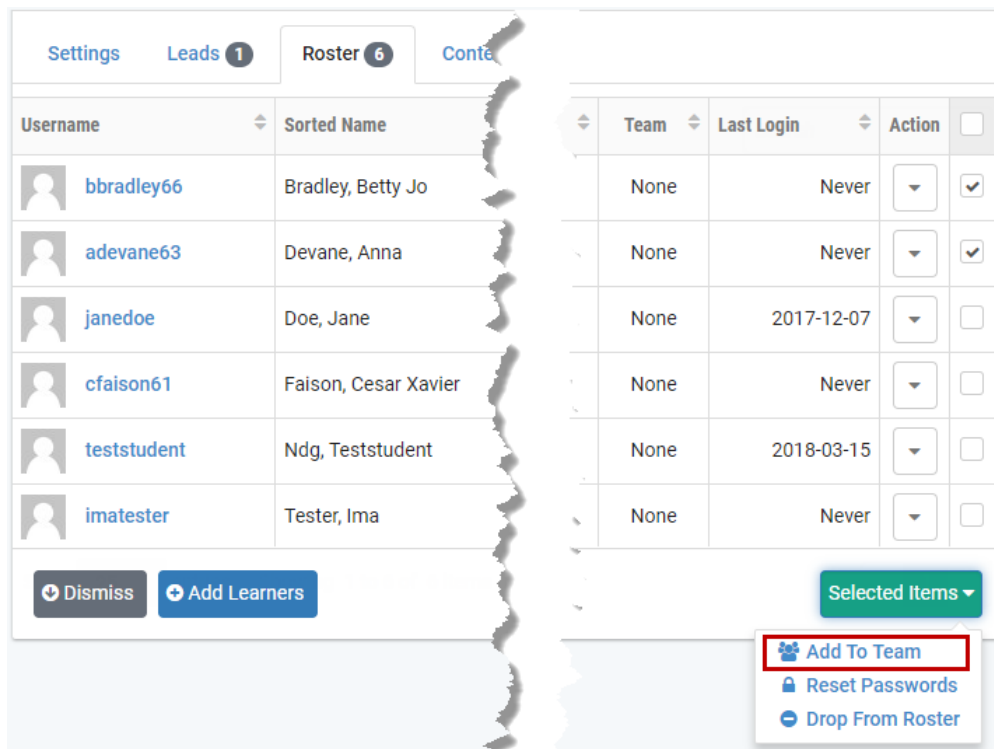
You may place class members into teams labeled A to Z. Teams allow students to work in groups for self-study reservations and share access to equipment at the same time. Students may not change their own team assignment; however, the lead instructor(s) can adjust team assignments as needed.



Lead instructors are not assigned to a team and may participate in the lab reservations for any team.

Here, we will group the 6 learners on the *Ethical Hacking Spring 2018* class roster into 3 teams. We will select the learners to add to each team.

1. Using the checkboxes, select the members of the class roster to be placed together on a team. We will assign the first 2 learners on the roster to a team.
2. Click the Selected Items box and select the option to **Add to Team**.

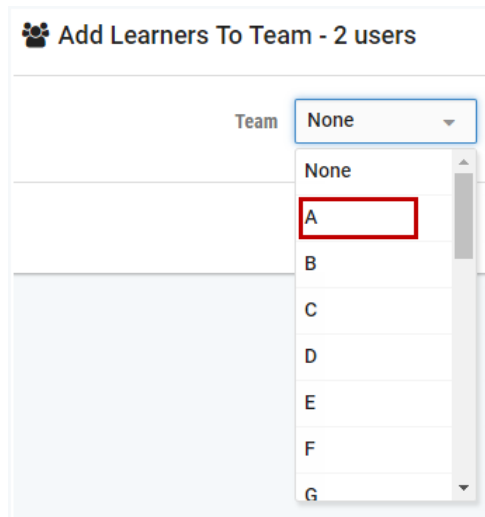


Username	Sorted Name	Team	Last Login	Action	<input type="checkbox"/>
bbradley66	Bradley, Betty Jo	None	Never	<input type="button" value="v"/>	<input checked="" type="checkbox"/>
adevane63	Devane, Anna	None	Never	<input type="button" value="v"/>	<input checked="" type="checkbox"/>
janedoe	Doe, Jane	None	2017-12-07	<input type="button" value="v"/>	<input type="checkbox"/>
cfaison61	Faison, Cesar Xavier	None	Never	<input type="button" value="v"/>	<input type="checkbox"/>
teststudent	Ndg, Teststudent	None	2018-03-15	<input type="button" value="v"/>	<input type="checkbox"/>
imatester	Tester, Ima	None	Never	<input type="button" value="v"/>	<input type="checkbox"/>

Selected Items

-
-
-

- The Add Learner to Team page will be displayed and will indicate that 2 users will be assigned. On the **Team** dropdown, select **A**.

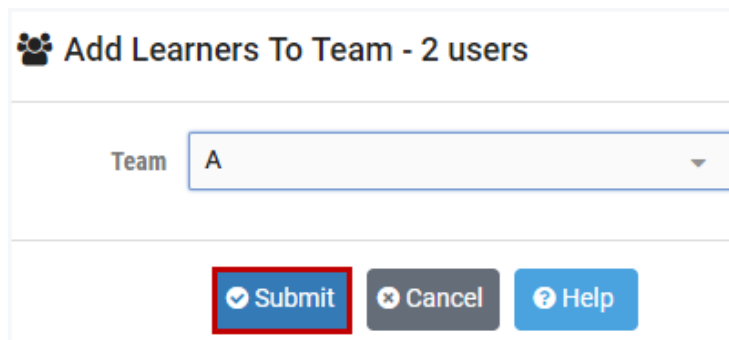


Add Learners To Team - 2 users

Team **None** ▼

- None
- A**
- B
- C
- D
- E
- F
- G

- Click the **Submit** button.



Add Learners To Team - 2 users

Team **A** ▼

Submit **Cancel** **Help**

- The team assignment of **A** is now shown on the class roster for the 2 selected roster members.

The screenshot shows the 'Roster' tab with a list of users and a corresponding table of team assignments. The 'Team' column for the first two users is highlighted with a red box.

Username	Sorted Name	Team	Last Login	Action
bbradley66	Bradley, Betty Jo	A	Never	<input checked="" type="checkbox"/>
adevane63	Devane, Anna	A	Never	<input checked="" type="checkbox"/>
janedoe	Doe, Jane	None	2017-12-07	<input type="checkbox"/>
cfaison61	Faison, Cesar Xavier	None	Never	<input type="checkbox"/>
teststudent	Ndg, Teststudent	None	2018-03-15	<input type="checkbox"/>
imatester	Tester, Ima	None	Never	<input type="checkbox"/>

- Repeat the process of selecting members of the class roster and making assignments for each team. In the example below, teams **B** and **C** have been assigned; all members of the class roster have been added to a team.

The screenshot shows the 'Roster' tab with a list of users and a corresponding table of team assignments. The 'Team' column for all users is highlighted with a red box.

Username	Sorted Name	Team	Last Login	Action
bbradley66	Bradley, Betty Jo	A	Never	<input type="checkbox"/>
adevane63	Devane, Anna	A	Never	<input type="checkbox"/>
janedoe	Doe, Jane	B	2017-12-07	<input type="checkbox"/>
cfaison61	Faison, Cesar Xavier	B	Never	<input type="checkbox"/>
teststudent	Ndg, Teststudent	C	2018-03-15	<input type="checkbox"/>
imatester	Tester, Ima	C	Never	<input type="checkbox"/>

3.6.6 Reset Account Passwords for One or More Learners

It may be necessary to reset an account password if a user has lost or forgotten their current password. If you need to reset the password for multiple users in a class, you may do so by performing the following steps.






Users will be required to reset their password during their next login. The option to [Reset Account Passwords](#) is also available through the account management options.

1. Check the Select boxes for each respective user on the class roster (the checkbox at the top of the column may be used to select all users).
2. Click the Selected Items button and select **Reset Passwords**.

Ethical Hacking Fall 2017

Settings
Leads **1**
Roster **3**
Content

Username	Sorted Name	Email	Action	
 janedoe	Doe, Jane		▼	<input type="checkbox"/>
 teststude	Ndg, Teststudent	teststudent@example.edu	▼	<input checked="" type="checkbox"/>
 testuser	Ndg, Testuser	testuser@example.edu	▼	<input checked="" type="checkbox"/>

Show 25 ▼ g 1 to 3 of 3 items
< 1 >

Dismiss
Add Learners

Selected Items ▼

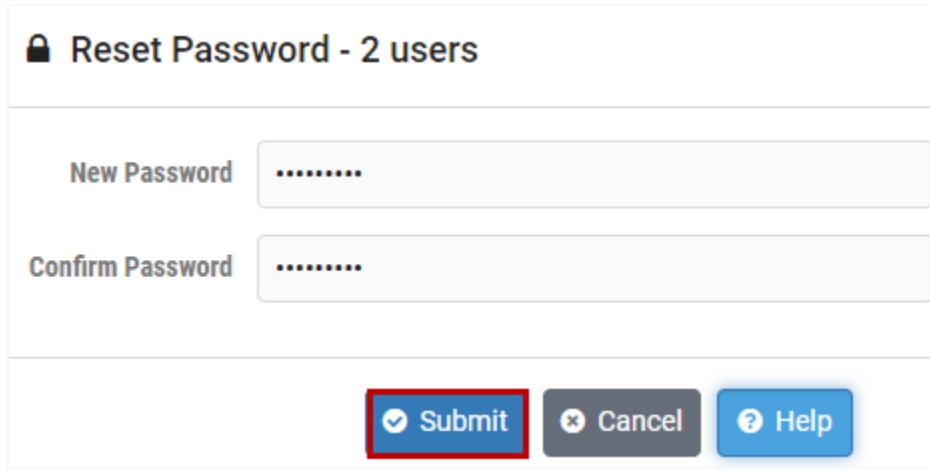
Drop From Roster

Reset Passwords

- The Reset Password page will be displayed. Enter the new, temporary password for the account(s) and then re-enter it to confirm. Click **Submit**.

Passwords must meet the following requirements:

- Not found in the dictionary and not too simple
- Between 7 and 16 characters
- Contain both numbers and letters

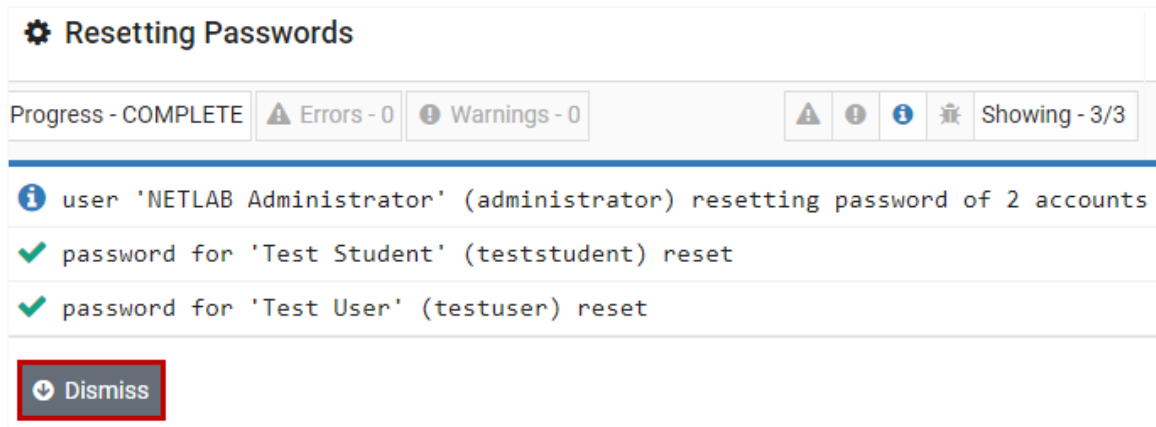


Reset Password - 2 users

New Password

Confirm Password

- You will see system log entries indicating the progress of the password reset for each user. When complete, click **Dismiss**.



Resetting Passwords

Progress - COMPLETE ▲ Errors - 0 ⓘ Warnings - 0 ▲ ⓘ ⓘ ⚙ Showing - 3/3

ⓘ user 'NETLAB Administrator' (administrator) resetting password of 2 accounts

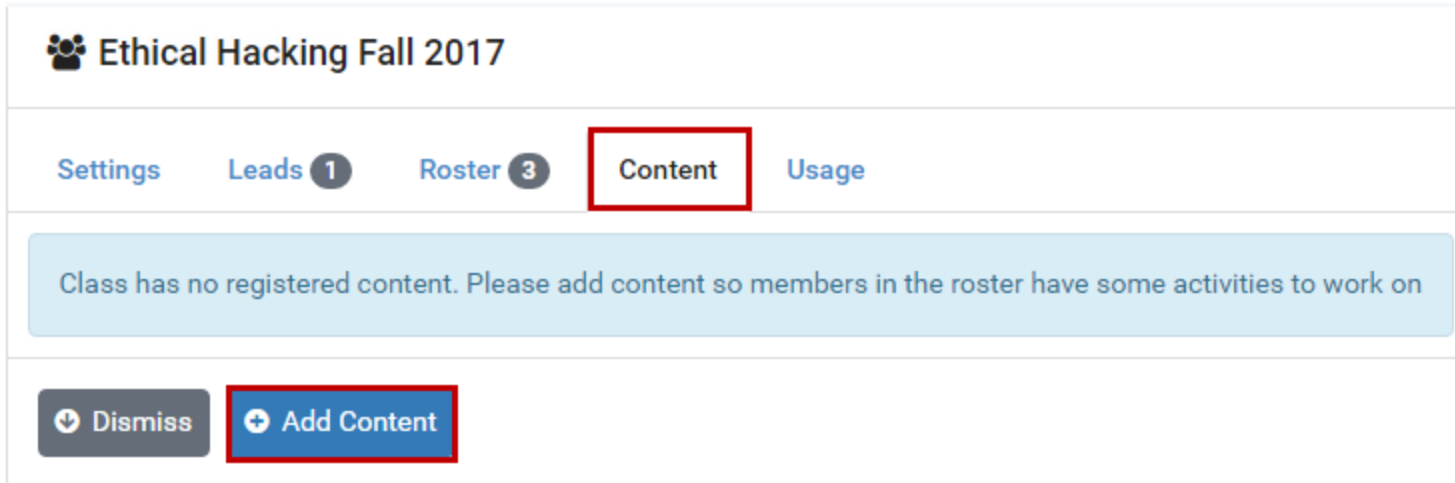
✓ password for 'Test Student' (teststudent) reset

✓ password for 'Test User' (testuser) reset

3.7 Add Content to a Class

Selecting the content for a class will make available the appropriate instructional material (typically, lab exercises for scheduled lab reservations).

1. Select the Content tab on the class record and click the **Add Content** button.



Ethical Hacking Fall 2017

Settings Leads **1** Roster **3** **Content** Usage

Class has no registered content. Please add content so members in the roster have some activities to work on

Dismiss Add Content

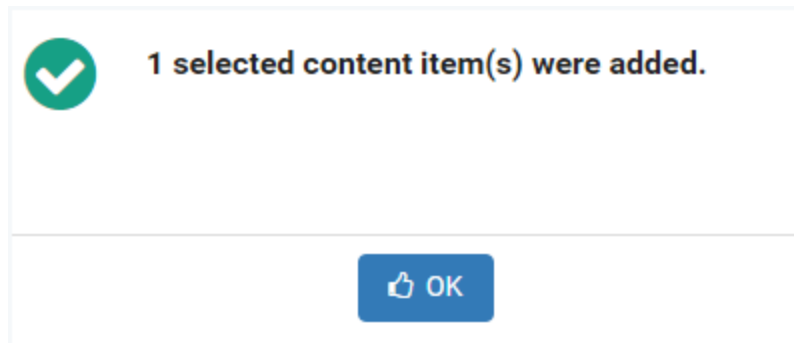
2. A list of **Available Lab Content** is displayed. In the example below, the content for NDG Ethical Hacking is selected for the class.



The Available Lab Content on your system will vary, depending on the courses that have been added to your NETLAB+ system and the vendor programs in which your organization participates.

Available Lab Content					Search
Name	Author ID	GID	Scope	Select	
Cisco ITE v6 - English	AECITE6EN	...BDED	Global	<input type="checkbox"/>	
EMC CIS 1	EMCCIS01	...065D	Global	<input type="checkbox"/>	
EMC ISMv2	EMCISMV2	...D2E9	Global	<input type="checkbox"/>	
NDG Ethical Hacking	NDGEH	...BC75	Global	<input checked="" type="checkbox"/>	
NISGTC A+ v2	DOLAPV2	...CDC4	Global	<input type="checkbox"/>	

- Click the **Add Selected Content** button. A message will confirm that the content has been added.



- Click **OK** to return to the class details.

NDG Ethical Hacking is now included in the content list. The total number of **Labs** performed and number of **Hours** of lab reservation time currently indicate zero, since the content has just been added.

Ethical Hacking Fall 2017

Settings Leads **1** Roster **3** Content Usage

Search

Name	Labs	Hours	Action
NDG Ethical Hacking	0	0.0	▼

Showing 1 to 1 of 1 items

Dismiss Add Content

3.8 Remove Content from a Class

The option to **Remove Content** is available on the Action dropdown of the Content tab for a class.

Ethical Hacking Fall 2017

Settings Leads **1** Roster **3** Content Usage

Search

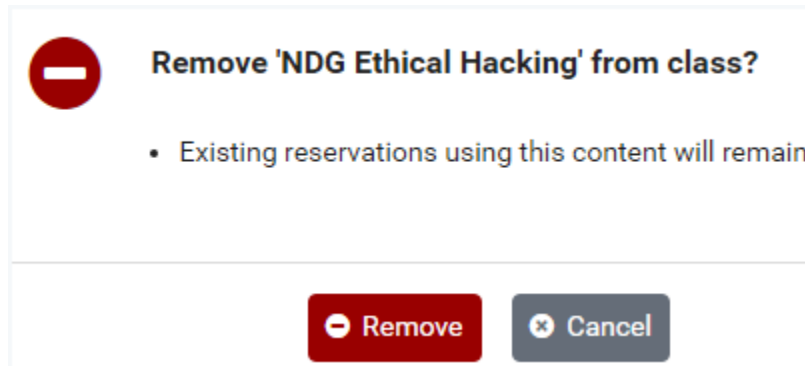
Name	Labs	Hours	Action
NDG Ethical Hacking	0	0.0	▼

Showing 1 to 1 of 1 items

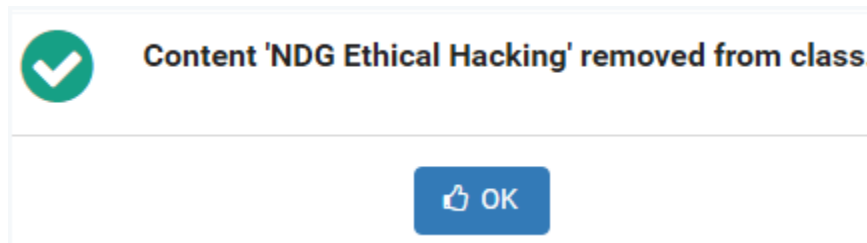
Remove Content

Dismiss Add Content

1. Select **Remove Content** on the Action dropdown. You will be prompted to verify that you want the content removed. As noted, removing the content will not affect lab reservations already made for this class.



2. Select **Remove** to confirm that you want to remove the content. A message will verify that the content has been removed from the class.



3. Select **OK**.

3.9 Delete Classes


Class records may be removed from the NETLAB+ system. All information associated with the class, including the class roster, will be removed from the system. The option to delete the accounts for students exclusively enrolled in the class may be selected.

In the steps below, we will delete the Cyber Security Fall 2017 class, but before we proceed, let us examine the class roster. There are four learners enrolled. Assume the following for the example below:

- Two of the learners in the class roster, *teststudent* and *testuser*, are enrolled in an Ethical Hacking class, in addition to being enrolled in the Cyber Security Fall 2017 class.
- The other two student accounts (highlighted below) *student1* and *student2*, are enrolled in the Cyber Security Fall 2017 class **exclusively**; these learners are not enrolled in any other classes. You may choose to delete these accounts when deleting the class.







Cyber Security Fall 2017	
Settings	Leads 1
Roster 4	Content
Username	Sorted Name
 teststudent	Ndg, Teststudent
 testuser	Ndg, Testuser
 student1@example.edu	One, Student
 student2@example.edu	Two, Student

1. To delete a class record, select a class on the class list and click the **Delete** option on the Action dropdown.

Name	Leads	Enrolled	End Date	Action
Cyber Security Fall 2017	Test Teacher	4	None	
EMC ISM Fall 2017	Test Instructor	2	None	
Ethical Hacking Fall 2017	Test Teacher	2	None	

Show entries of 4 of 4 items

[+ Add Class](#)

-  View
-  Edit
-  Delete
-  Leads
-  Roster
-  Content

2. When deleting a class, you may choose to either retain or delete the student accounts on the class roster. Accounts will not be deleted if the student is enrolled in other classes. Below, the checkbox is selected to **delete student accounts exclusively in this class roster**. Click **Delete**.

?

Delete class 'Cyber Security Fall 2017'?

delete student accounts exclusively in this class roster

If checked, student accounts that are listed in this class roster will also be deleted provided that they do not appear in other class rosters.

Delete

Cancel

3. The class has been deleted from the NETLAB+ system. Select **OK** to return to the list of classes.

✓

Class 'Cyber Security Fall 2017' deleted.

OK

Because the option to **delete student accounts exclusively in this class roster** was checked, two student accounts, *student1* and *student2*, have been deleted. The *teststudent* and *testuser* accounts are still present on the system (see the Accounts list below, see also the [Manage User Accounts](#) section).

🏠

Community: default

Username	Sorted Name
janedoe	Doe, Jane
testinstructor	Ndg, Testinstructor
teststudent	Ndg, Teststudent
testteacher	Teacher, Test
testuser	Ndg, Testuser

Show

10

entries
Showing 1 to 5 of 5 items

4 Manage User Accounts

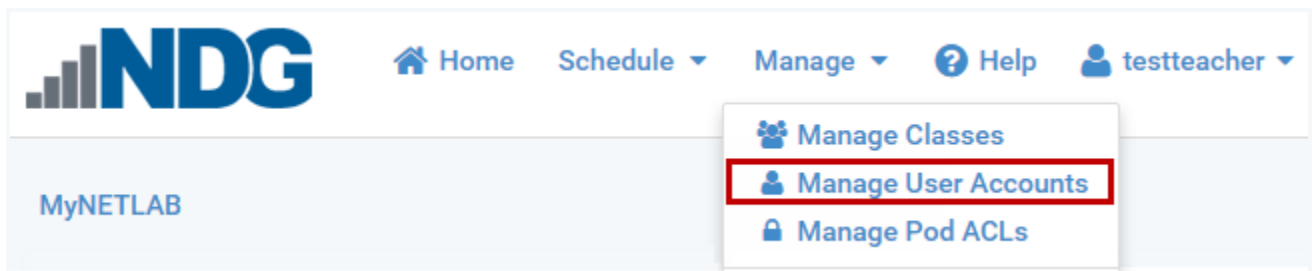


This function is used to add, delete, and modify user account information. A student account should be created for each student to allow them to participate in lab reservations.








As an instructor with normal privileges, you have access to manage student accounts. Instructor accounts may be managed by instructors with community administrator privileges or system-wide privileges, or the administrator. Contact your NETLAB+ Administrator if your responsibilities require that your privilege level be modified.

To manage user accounts, click **Manage** in the upper-right corner of the Home page and select the **Manage User Accounts** dropdown option.



The screenshot shows the top navigation bar of the NETLAB+ interface. The 'Manage' dropdown menu is open, and the 'Manage User Accounts' option is highlighted with a red box. Other options in the menu include 'Manage Classes' and 'Manage Pod ACLs'. The user 'testteacher' is logged in.

A list of all users in the community will be displayed.

Username	Sorted Name	Email	Type	Action
 janedoe	Doe, Jane		instructor	<input type="button" value="▼"/>
 testinstructor	Ndg, Testinstructor		instructor	<input type="button" value="▼"/>
 teststudent	Ndg, Teststudent		student	<input type="button" value="▼"/>
 testuser	Ndg, Testuser	testuser@example.edu	student	<input type="button" value="▼"/>
 ライオン	ライオン	lion@example.edu	student	<input type="button" value="▼"/>



Notice that the last account shown in the example above contains Japanese characters. The UTF-8 character set is supported.

4.1 Add Accounts

An account should be created for each user to allow them to participate in lab reservations. There are two methods of adding user accounts to NETLAB+ VE, which are explained in detail in the subsections below.

- **Importing data from a file:** If you have the information needed to create the user accounts in a file (see requirements below), you may import this information into NETLAB+. This is a good choice when you have a file available from a class roster or LMS and many accounts to add.
- **Entering data:** Create user accounts individually by entering the data into a form. This is a good option when you just need to add a few accounts quickly.

4.1.1 Importing Data from a File

User account information can be imported into NETLAB+ from a comma or tab-delimited file (*.csv or *.txt). An account should be created for each user to allow them to participate in lab reservations. Account information may be imported into NETLAB+ from a file with these characteristics:

1. The file must be in a comma or tab-delimited file format (*.csv or *.txt).
2. The first row of the file may contain column headers that identify each field to import.
3. The file may contain additional, extraneous columns of data. You will select which columns are used by NETLAB+.
4. The file must include the data fields, as described below.



You will achieve the best possible results with NETLAB+ recognizing your input data by using the specified field names (bolded below) as column headers, although some variation is acceptable.

Field Descriptions - Account Information File

Required Fields (these fields must be included in the input file):

- **Username:** A user identifier that is unique to each user. **REQUIRED**
The username credential used to log in to the account. The Username can contain letters, numbers, and the following punctuation characters: period (.), at sign (@), hash (#), underscore (_), and hyphen (-). The UTF-8 character set is supported.

- Name Information for each user. **REQUIRED (choose Option 1 or 2).** You have two options as to how this information may be imported, depending on the data available in your input file. The UTF-8 character set is supported.

Option 1: Your file includes name data in one field:

- **Full Name:** The name given to a user at birth. The user's complete name including any inherited names, given names, or initials. Note that certain titles, prefixes, and suffixes can interfere with name processing and automation.

Option 2: Your file includes name data in two fields:

- **Given/First Name:** The name given to a user at birth.
- **Family/Last Name:** The name shared by the user's family.



Select either Option 1 or Option 2. If your input file includes the Fullname (name information in a single field), there is no need to specify the Given/Firstname, Family Last Name fields.



When using Option 2, be aware that the import process will function even if you have users that only have a Given/Firstname or only have a Family/Last Name. The import process has the flexibility to accept usernames with just one word (see user "Prince" in Example 1, below).

Optional Fields (you have the option to import this information into NETLAB+)

- **Display Name:** Users (instructors and students) will see this name in collaborative applications, such as instructor-led training. If this field is not included in the input file, it will be automatically populated during the input process. You may edit the Display Name as needed.

This name may be visible to student accounts. Do not use personally identifiable information in this field when privacy must be maintained.

- **Sorted Name:** This name will be seen by instructors and administrators in sorted lists. If this field is not included in the input file, it will be automatically populated during the input process. You may edit the Sorted Name as needed.

Using the Sorted Name field allows the option of displaying lists, such as class rosters, in order by *last name, first name*.

- **Email:** An email address for the user.

- **Initial Password:** The account users will be required to change this password during their initial login. Passwords must meet the following requirements:
 - Not found in the dictionary and not too simple
 - Between 7 and 16 characters
 - Contain both numbers and letters

To import a file:

1. Select a comma or tab-delimited file from the local file system that contains the account data to be imported. Files used for importing accounts must contain lines with an equal number of commas or tab-separated values and carry a ".csv" or ".txt" file extension.
2. Identify the required information in the input file (see information above on the required fields).
3. After the account information has been imported from the file, you will complete the process of adding accounts on the Enter New Account Information page, where you will have the option to change the community setting and modify the account type (student vs. instructor) as needed, depending on your instructor privileges.

4.1.1.1 Importing Data Example A

In this example, we will import account data from a comma-delimited file. Let's look at the file using a spreadsheet program, so we can view the data and make the appropriate choices for importing account information.

user_accounts_import_test_a.csv					
	A	B	C	D	E
1	Username	Given/First Name	Family/Last Name	Housing	
2	croberts21	Carly	Roberts	dorm	
3	tgarmin22	Todd	Garmin	dorm	
4	jsmith23	John	Smith	off campus	
5	tbarnes24	Ted	Barnes	dorm	
6	prince16	Prince		fraternity	
7					

Notice a few important things about this file:





- The file name `user_accounts_import_test_a.csv` is a comma-delimited file, which is an acceptable format for importing.
- The file includes the recommended column headers in the first row.
- The file includes the required **Username** field.
- The file includes name information in a format meeting one of the two acceptable options (see above). In this case, the fields, **Given/First Name** and


Family/Last Name are present, which meets the requirements for Name Information Option 2.


- In the 6th row, the record displayed ("Prince") does not have a value in the Family/Last Name field. This user's name is a single word only, and that is OK.
- An additional field, Housing, is present in the file. This data has no relevance to this process; however, it is not necessary to remove this data from the file; it will simply be ignored.


To Import the data:

1. On the accounts page, select the option to **Import Accounts**.

Username	Sorted Name	Email	Type	Action
 imatester	Tester, Ima		student	
 testuser	Ndg, Testuser		student	

2. Select the **Import File**  button.
3. Navigate your file system and select the file that includes the data that you want to import. Here, we will import **user_accounts_import_test_a.csv**.


 **Import Accounts**

Import File 

4. Select the **Submit** button.
5. The data that NETLAB+ was able to extract from the file is shown in a table. Notice that the last column, which contains the unneeded housing data, is grayed out, and the checkbox at the top is not selected. This is fine since we do not want to import this data.



The import process is designed to behave in an intuitive manner. It will examine your file to draw logical conclusions regarding the data you will be importing. If necessary, you may make adjustments by selecting/deselecting the check boxes indicating each column of data to be imported and resetting the dropdowns indicating the field that the column contains.

 File Data: user_accounts_import_test_a.csv

Username	First/Given Name	Last/Family/Surname	None
croberts21	Carly	Roberts	dorm
tgarmin22	Todd	Garmin	dorm
jsmith23	John	Smith	off campus
tbarnes24	Ted	Barnes	dorm
prince16	Prince		fraternity

6. Select the **Submit** button.
7. The imported information will be included on the **Import Accounts** page. The process of adding the new accounts will be completed here.
 - a. An initial password must be specified. If initial passwords were not included with the imported account data (as in this example), a Default Initial Password must be entered, which will be used for all new accounts being created on this page.



Recall that the import data in this example included name information separated in two fields (first name, last name). The input process has combined this data to create the values for Full Name, Display Name and Sort Name.

- b. The import process has generated Full Names based on the input data provided and populated the Full Name for each record. The values may be edited as needed.

- c. The import process has generated Display Names based on the input data provided and populated the Display Name field for each record. The values may be edited as needed.
- d. The import process has generated Sorted Names based on the input data provided and populated the Sorted Name field for each record. The values may be edited as needed.
- e. We did not import email addresses, nor have we entered them here. Assume for this example that students will enter their email addresses themselves when they initially access their accounts.

Import Accounts

Community: Default Initial Password:

Type: Logins: enabled

Add to Classes:

Status	Username	Initial Password	Full Name	Display Name	Sorted Name	Email
<input type="checkbox"/>	<input type="text" value="croberts21"/>	<input type="password"/>	<input type="text" value="Carly Roberts"/>	<input type="text" value="Carly Roberts"/>	<input type="text" value="Roberts, Carly"/>	<input type="text"/>
<input type="checkbox"/>	<input type="text" value="tgarmin22"/>	<input type="password"/>	<input type="text" value="Todd Garmin"/>	<input type="text" value="Todd Garmin"/>	<input type="text" value="Garmin, Todd"/>	<input type="text"/>
<input type="checkbox"/>	<input type="text" value="jsmith23"/>	<input type="password"/>	<input type="text" value="John Smith"/>	<input type="text" value="John Smith"/>	<input type="text" value="Smith, John"/>	<input type="text"/>
<input type="checkbox"/>	<input type="text" value="tbarnes24"/>	<input type="password"/>	<input type="text" value="Ted Barnes"/>	<input type="text" value="Ted Barnes"/>	<input type="text" value="Barnes, Ted"/>	<input type="text"/>
<input type="checkbox"/>	<input type="text" value="prince16"/>	<input type="password"/>	<input type="text" value="Prince"/>	<input type="text" value="Prince"/>	<input type="text" value="Prince"/>	<input type="text"/>

8. Once again, select the **Submit** button. This will complete the process of adding the new accounts to your system.


4.1.1.2 Importing Data Example B

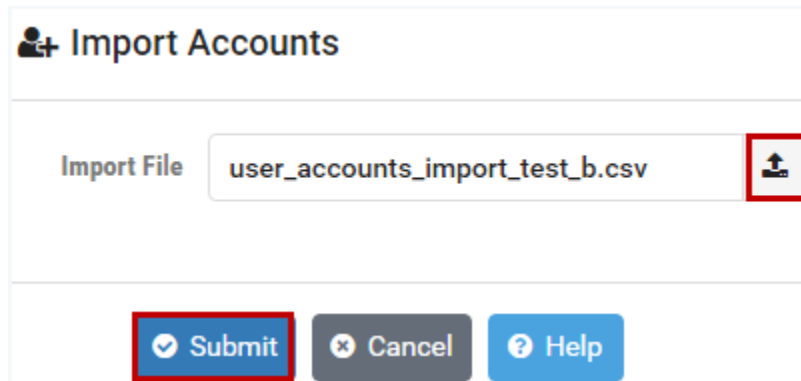
In this example, we will again import account data from a comma-delimited file. Let's look at the file using a spreadsheet program, so we can view the data and make the appropriate choices for importing account information.

user_accounts_import_test_b.csv						
	A	B	C	D	E	F
1	cfaison61	Cesar Xavier Faison	bus	History		
2	rscorpio62	Robert A. Scorpio	train	Technology		
3	adevane63	Anna Devane	onsite	Literature		
4	sunshine64	Sebastian Sunshine	bicycle	Technology		
5	sdrucker65	Sam Drucker	car	Accounting		
6	bbradley66	Betty Jo Bradley	train	Veterinary		
7	bbradley66	Betty Jo Bradley	train	Veterinary		
8						

Notice a few important things about this file:

- The file name `user_accounts_import_test_b.csv` is a comma-delimited file, which is an acceptable format for importing.
- The file does not include the recommended column headings. As you will see, we can still use the file "as is"; however, the import process may require user intervention to determine the appropriate data to import.
- The file includes a column with a unique identifier to be used as a **Username**.
- The file includes name information in a format meeting one of the three acceptable options (see above). In this case, a single name field containing both Given/First Name and Family/Last Name is present, which can be used as **Display Name**, Name Information Option 3.
- Two additional columns are present in the file. This data has no relevance to this process; however, it is not necessary to remove this data from the file; it will simply be ignored.
- The file includes an error, a duplicate record (see lines 6 & 7). We will see how this error will be identified in the import process below.

1. As in Example 1, select **Import Accounts > Import File**  .
2. Navigate your file system and select the file that includes the data that you want to import. Here, we will import `user_accounts_import_test_b.csv`.



The screenshot shows a dialog box titled "Import Accounts" with a user icon. Below the title is an "Import File" label and a text input field containing the filename "user_accounts_import_test_b.csv". To the right of the input field is a small icon of a document with an upward arrow, which is highlighted with a red box. At the bottom of the dialog are three buttons: "Submit" (with a checkmark icon, highlighted with a red box), "Cancel" (with an 'x' icon), and "Help" (with a question mark icon).

3. Select the **Submit** button.
4. The data that NETLAB+ was able to extract from the file is shown in a table. All of the table data is grayed out since the import process did not have sufficient information to determine what fields contain input data.

File Data: user_accounts_import_test_b.csv

None ▼ None ▼ None ▼ None ▼

cfaison61	Cesar Xavier Faison	bus	History
rscorpio62	Robert A. Scorpio	train	Technology
adevane63	Anna Devane	onsite	Literature
sunshine64	Sebastian Sunshine	bicycle	Technology
sdrucker65	Sam Drucker	car	Accounting
bbradley66	Betty Jo Bradley	train	Veterinary
bbradley66	Betty Jo Bradley	train	Veterinary

Submit Cancel Help

- Select the first column and set the dropdown to **Username**.

File Data: user_accounts_import_test_b.csv

Username ▼ None ▼ None ▼

cfaison61	Cesar Xavier Faison	bus
rscorpio62	Robert A. Scorpio	train
adevane63	Anna Devane	onsite
sunshine64	Sebastian Sunshine	bicycle
sdrucker65	Sam Drucker	car
bbradley66	Betty Jo Bradley	train
bbradley66	Betty Jo Bradley	train

Submit Cancel Help

6. Select the second column and set the dropdown to **Full Name**.

File Data: user_accounts_import_test_b.csv

Username	Full Name	None
cfaison61	Cesar Xavier Faison	bus
rscorpio62	Robert A. Scorpio	train
adevane63	Anna Devane	onsite
sunshine64	Sebastian Sunshine	bicycle
sdrucker65	Sam Drucker	car
bbradley66	Betty Jo Bradley	train
bbradley66	Betty Jo Bradley	train

7. The other data columns that are still grayed out are not needed and will not be imported. Click the **Submit** button.
8. The imported information will be included on the **Import Accounts** page. The process of adding the new accounts will be completed here.
- An initial password must be specified. If initial passwords were not included with the imported account data (as in this example), a Default Initial Password must be entered, which will be used for all new accounts being created on this page.
 - The import process has generated Display Names based on the input data provided and populated the Display Name field for each record. The values may be edited as needed.
 - The import process has generated Sorted Names based on the input data provided and populated the Sorted Name field for each record. The values may be edited as needed.
 - We did not import email addresses, nor have we entered them here. Assume for this example that students will enter their email addresses themselves when they initially access their accounts.
 - Notice the list of accounts to be imported includes a duplicate for username *bbradley66* (last record in the list).

9. Click the **Submit** button.

Import Accounts


Community: Default Initial Password:

Type: Logins: enabled

Add to Classes:

Status	Username	Initial Password	Full Name	Display Name	Sorted Name	Email
?	<input type="text" value="cfaison61"/>	<input type="text"/>	<input type="text" value="Cesar Xavier Fais"/>	<input type="text" value="Cesar Xavier Fais"/>	<input type="text" value="Faison, Cesar Xav"/>	<input type="text"/>
?	<input type="text" value="rscorpio62"/>	<input type="text"/>	<input type="text" value="Robert A. Scorpic"/>	<input type="text" value="Robert A. Scorpic"/>	<input type="text" value="Scorpio, Robert A"/>	<input type="text"/>
?	<input type="text" value="adevane63"/>	<input type="text"/>	<input type="text" value="Anna Devane"/>	<input type="text" value="Anna Devane"/>	<input type="text" value="Devane, Anna"/>	<input type="text"/>
?	<input type="text" value="sunshine64"/>	<input type="text"/>	<input type="text" value="Sebastian Sunshi"/>	<input type="text" value="Sebastian Sunshi"/>	<input type="text" value="Sunshine, Sebast"/>	<input type="text"/>
?	<input type="text" value="sdrucker65"/>	<input type="text"/>	<input type="text" value="Sam Drucker"/>	<input type="text" value="Sam Drucker"/>	<input type="text" value="Drucker, Sam"/>	<input type="text"/>
?	<input type="text" value="bbradley66"/>	<input type="text"/>	<input type="text" value="Betty Jo Bradley"/>	<input type="text" value="Betty Jo Bradley"/>	<input type="text" value="Bradley, Betty Jo"/>	<input type="text"/>
?	<input type="text" value="bbradley66"/>	<input type="text"/>	<input type="text" value="Betty Jo Bradley"/>	<input type="text" value="Betty Jo Bradley"/>	<input type="text" value="Bradley, Betty Jo"/>	<input type="text"/>

10. An alert message will indicate that 6 accounts were imported successfully, but the duplicate record was not imported. Usernames must be unique in NETLAB+. Click **Understood**. This will complete the process of adding accounts to your system.



Of 7 accounts, 6 were imported successfully, but the following 1 could not be imported:

- **bbradley66**

due to the following errors:









- **the requested name was not unique**

Please check the account information for these users and attempt to add or import them again.

4.1.2 Entering Account Data

An account should be created for each user to allow them to participate in labs and have access to content.

1. Select the **Add Accounts** button at the bottom of the user account list.

Username	Sorted Name	Email	Type	Action
 janedoe	Doe, Jane		instructor	
 testinstructor	Ndg, Testinstructor		instructor	
 teststudent	Ndg, Teststudent		student	
 testuser	Ndg, Testuser		student	

Show entries 1 to 4 of 4 items < 1 >


[+ Add Accounts](#)

2. The New Account page will be displayed. Complete the form with the appropriate details for the new user. Refer to the field descriptions at the end of this section. In the example below, a student account is being created for user **techjones**.

New Account

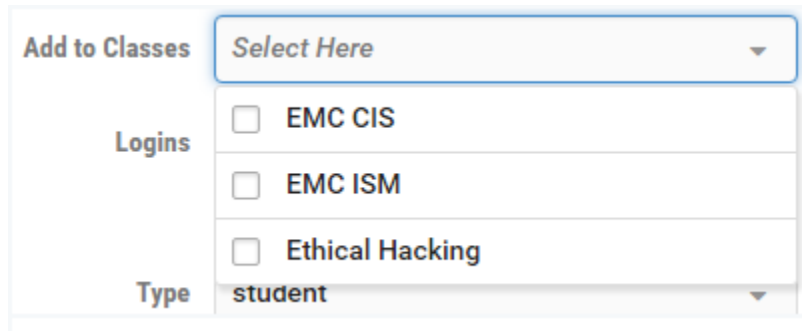
Community	default	Username	techjones
Initial Password	Full Name	Tech Jones
Add to Classes	Select Here	Display Name	Tech Jones
Logins	<input checked="" type="checkbox"/> enabled	Sorted Name	Jones, Tech
Type	student	Email	techjones@example.edu

3. Select **Submit** at the bottom of the page to add the new account to the system.
4. A confirmation message will indicate that the account has been added. Select **Add More Users** to add more accounts or select **Done** to return to the Accounts list.

 **Account 'techjones' added.**

Field Descriptions - Account (New/Edit)

- **Community:** All users belong to a community. If only one community is present on the system, all users will be members of the **default** community.
- **Initial Password:** Assign an **Initial Password** to the accounts by entering a value for the initial password. The account users will be required to change this password during their initial login. Passwords must meet the following requirements:
 - Not found in the dictionary and not too simple
 - Between 7 and 16 characters
 - Contain both numbers and letters
- **Add to Classes:** Add the user to the class roster for one or more classes available in the community. The dropdown will display a list of available classes, which may be checked to select.




In many cases, you may find it convenient to add a student to a class roster at the same time that you create the student account. You may also add users to a class roster after the user accounts have been created. See the [Add Learners to the Class Roster](#) section.

- **Logins enabled:** Check to enable logins for this user. If unchecked, logins will be disabled for this user.
- **Account Type:** The account type: **student or instructor**, must be selected for each account. Once an instructor record is created, the instructor may be assigned as a lead instructor for a class or may join a class as a *learner*. A class may contain one or more *lead instructors* (trainers). All other users in the roster (who are not leads) are *learners*.

An instructor with normal privileges may add student accounts only.

- **Username:** The username credential used to log in to the account. Username can contain letters, numbers, and the following punctuation characters: period

(.), at sign (@), hash (#), underscore (_), and hyphen (-). The UTF-8 character set is supported.

- **Full Name:** This name will be used by instructors and administrators for managing the user account. Users with student accounts will see their own full name in their user settings. Users with student accounts will not see the full names of other users during collaborative activities such as instructor-led training. The UTF-8 character set is supported.
- **Display Name:** Users (instructors and students) will see this name in collaborative applications, such as instructor-led training. This field will be automatically populated based on the value you enter into the Full Name field. You may edit the Display Name as needed.

This name may be visible to student accounts. Do not use personally identifiable information in this field when privacy must be maintained.

- **Sorted Name:** This name will be seen by instructors and administrators in sorted lists. This field will be automatically populated based on the value you enter into the Full Name field. You may edit the Sorted Name as needed.
- **Email:** The user's email address. Entering an email address is optional; account users will be prompted to add/update their email address and time zone information when they initially log in to their account.

4.2 Edit Accounts

1. Locate the record(s) you wish to edit by entering a full or partial User Id or name in the search box. This may allow you to avoid scrolling through a long list if there are a large number of accounts in your community. The results of your search query will be displayed in a list.

Admin > Accounts

Community: default

Username	Email	Type	Action
techjones	techjones@example.edu	student	<input type="button" value="▼"/>
testerjones	testerjones@example.edu	student	<input type="button" value="▼"/>

Show 10 entries

[+ Add Accounts](#)

- Select an account by clicking on a **Username**. The User tab of the account detail page will be displayed.

User

Classes

Community default

Username techjones

Full Name Tech Jones

Display Name Tech Jones

Sorted Name Jones, Tech

Email techjones@example.edu

Type Student

Enable Logins enabled

Last Login 2019-05-31 20:43:34

⏪ Dismiss

✎ Edit

🔒 Reset Password

🗑 Delete

- Click on the **Classes** tab to see a list of the classes in which the user is enrolled as a learner or lead instructor.

User

Classes

ID	Name	Membership	End Date	Action
25	CCNA Routing and Switching Fall 2019	Learner	None	▼

Showing 1 to 1 of 1 items

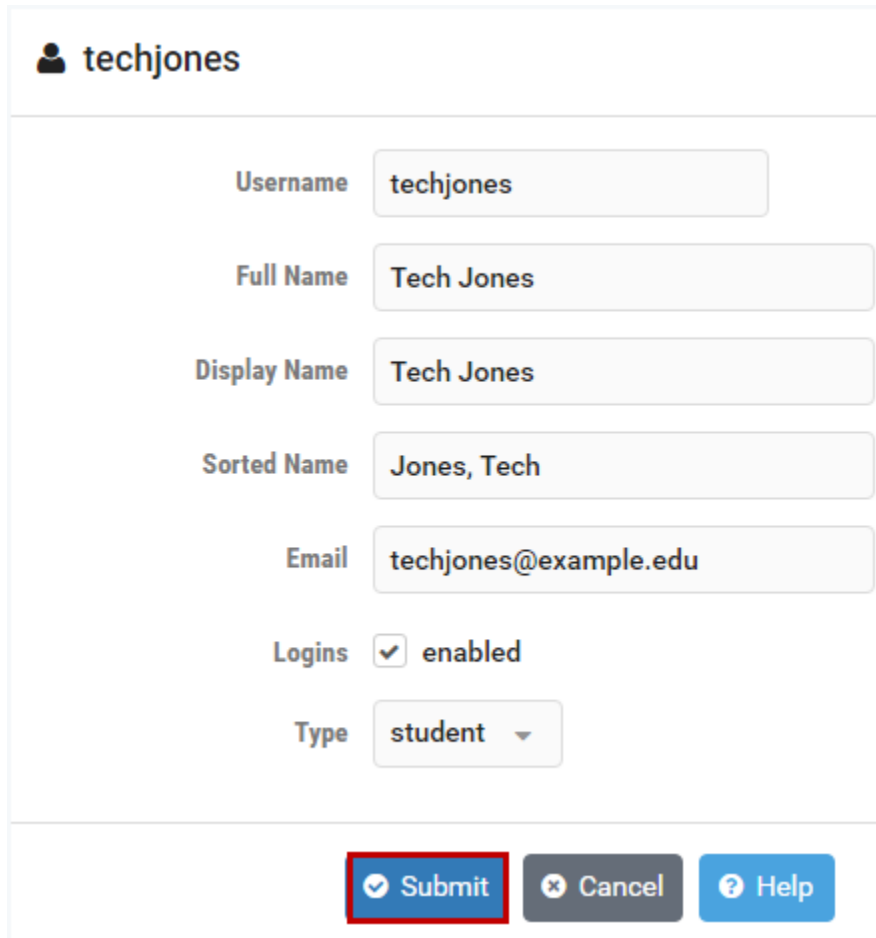
⏪ Dismiss

✎ Edit

🔒 Reset Password

🗑 Delete

- To proceed to the edit page for this account, select the **Edit** button. The account edit page may be used to modify the account name, email address and to enable and disable account logins. When account logins are disabled, the user will not be able to login to the NETLAB+ system.



The screenshot shows the account edit page for a user named 'techjones'. The page is titled 'techjones' with a user icon. Below the title, there are several input fields and controls:

- Username:** techjones
- Full Name:** Tech Jones
- Display Name:** Tech Jones
- Sorted Name:** Jones, Tech
- Email:** techjones@example.edu
- Logins:** enabled
- Type:** student (dropdown menu)

At the bottom of the form, there are three buttons: **Submit** (highlighted with a red box), **Cancel**, and **Help**.

- Select **Submit** to save changes to the account record.

Please refer to the [Entering Account Data](#) section for a detailed description of the fields on this page or select the Help button to display the field descriptions.

4.3 Delete Accounts

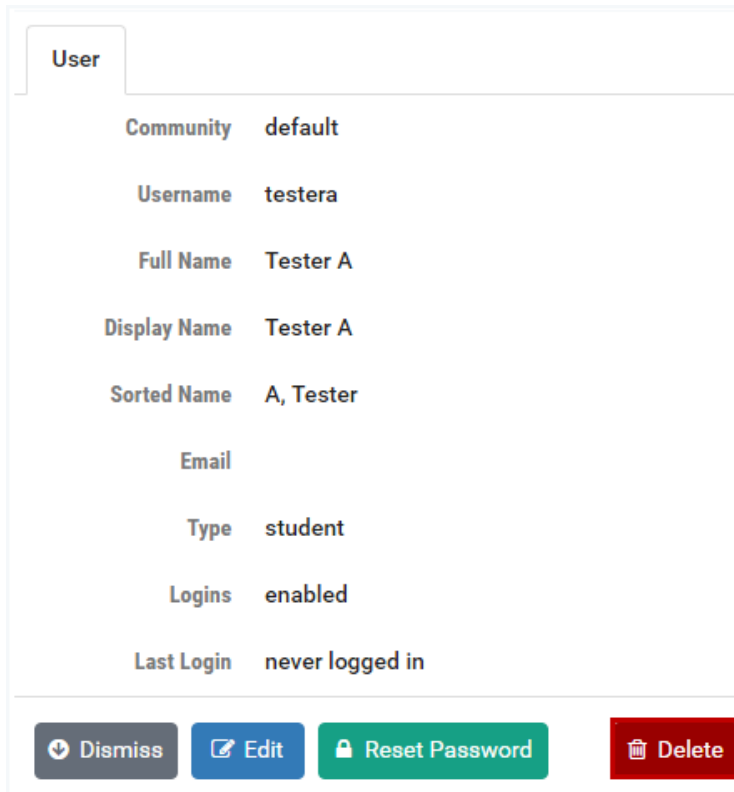
As an instructor with normal privileges, you may delete student accounts in your community.

Considerations before you delete an account:

- Keep in mind that accounts may be assigned to multiple classes.
- If the accounts are for students who will continue to use your NETLAB+ system in other classes, you can keep the accounts and add them to the class roster of other classes as needed.

To delete an account, perform the following steps:

1. As described in the [Edit Accounts](#) section, select the account detail page of the account you want to delete, and then click **Delete**.

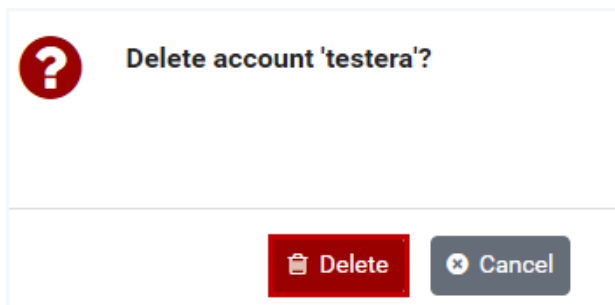


The screenshot shows the 'User' account detail page for a user named 'testera'. The page displays the following information:

Community	default
Username	testera
Full Name	Tester A
Display Name	Tester A
Sorted Name	A, Tester
Email	
Type	student
Logins	enabled
Last Login	never logged in

At the bottom of the page, there are four buttons: **Dismiss** (grey), **Edit** (blue), **Reset Password** (green), and **Delete** (red).

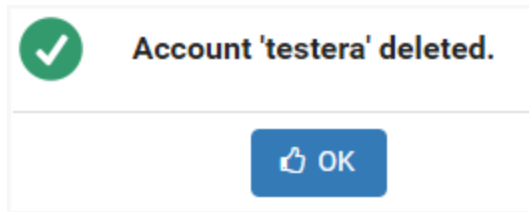
2. Click **Delete** to confirm that you want to delete the account.



The screenshot shows a confirmation dialog box with a red question mark icon. The text reads: **Delete account 'testera'?**

At the bottom of the dialog, there are two buttons: **Delete** (red) and **Cancel** (grey).

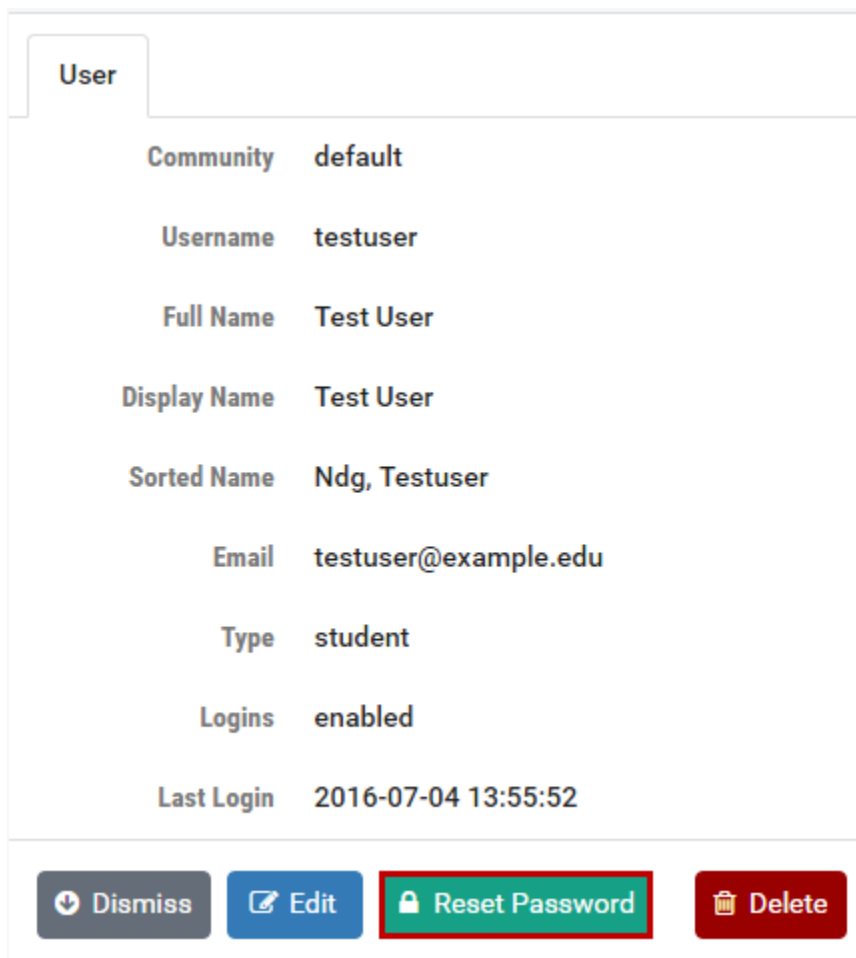
3. A message will indicate the account has been deleted, click **OK**.



4.4 Reset Account Passwords

It may be necessary to reset an account password if a user has lost or forgotten their current password. You may use the reset password function. Upon initial login following the reset, the user will be required to change the password.

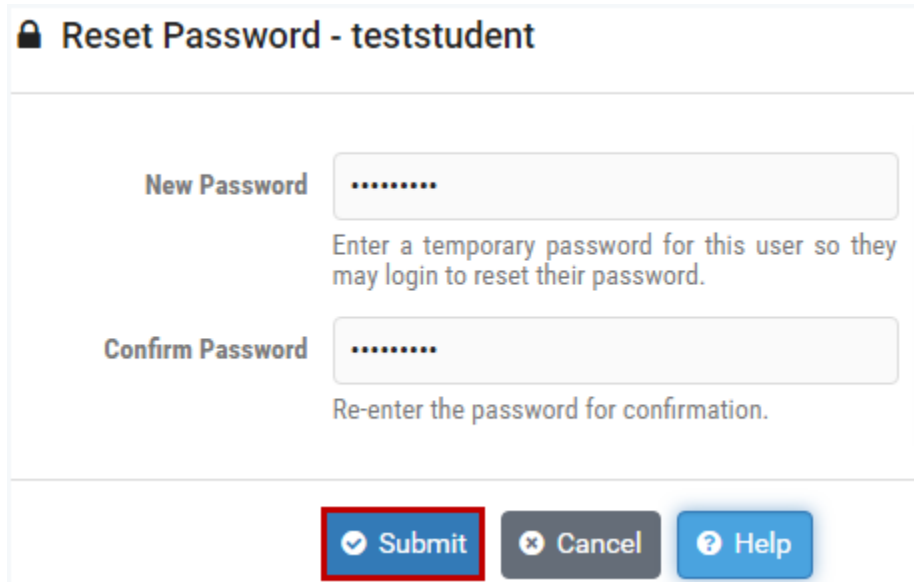
1. As described in the [Edit Accounts](#) section, select the account detail page of the account for which you want to reset the password.



2. Select the **Reset Password** button to display the password reset screen.

Passwords must meet the following requirements:

- **Not found in the dictionary and not too simple**
- **Between 7 and 16 characters**
- **Contain both numbers and letters**



Reset Password - teststudent

New Password

Enter a temporary password for this user so they may login to reset their password.

Confirm Password

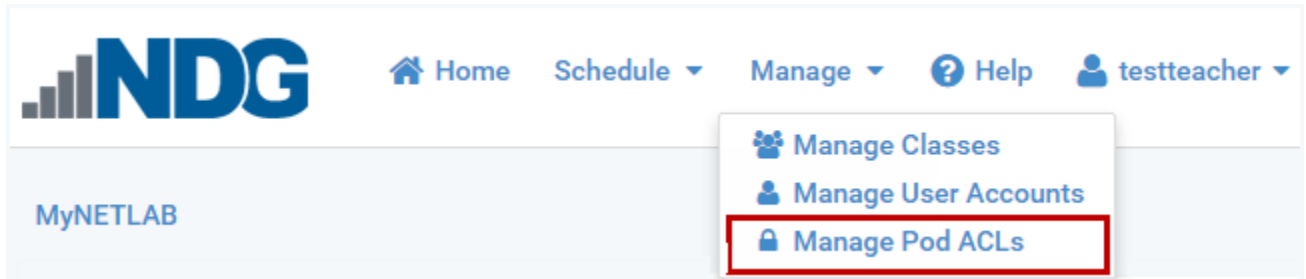
Re-enter the password for confirmation.

3. Enter the new, temporary password for the account and then re-enter it to confirm.
4. Click **Submit**.

5 Manage Pod ACLs







If the NETLAB+ Administrator has appointed you to be a Pod Access Control List (ACL) Manager for a pod, you will have access to manage the ACL rules of the pod. Perform the following steps to manage Pod ACLs:

1. Click **Manage** in the upper-right corner of the Home page and select the **Manage Pod ACLs** dropdown option.




2. A list of the pods for which you have permission to manage the ACL is displayed. On the Action dropdown for a pod, select **Manage Pod ACLs**.

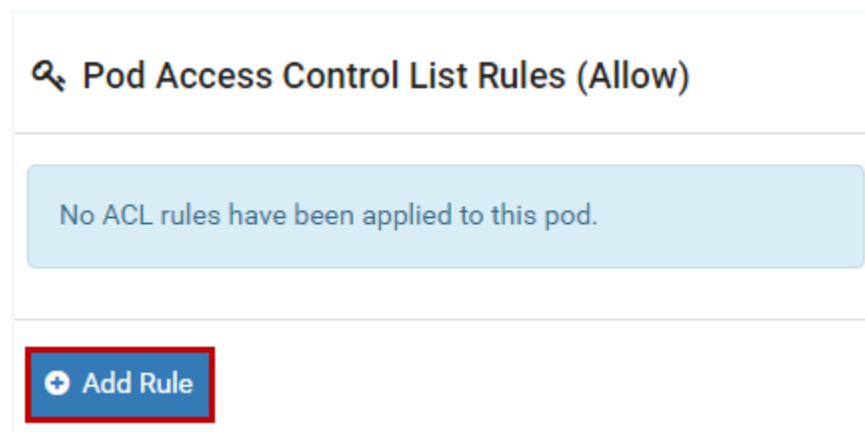
Pod List Search

Pod ID	Type	Pod Name	Type	Activity	State	Action
3301	 Academy ISM v2	EMC_JSMv2_POD1	Normal	IDLE	ONLINE	
3302	 Academy ISM v2	EMC_JSMv2_POD2	Normal	IDLE	OFFLINE	
3303	 NDG Security Ethical Hacking	Ethical_Hacking_Pod_1	Normal	IDLE	OFFLINE	

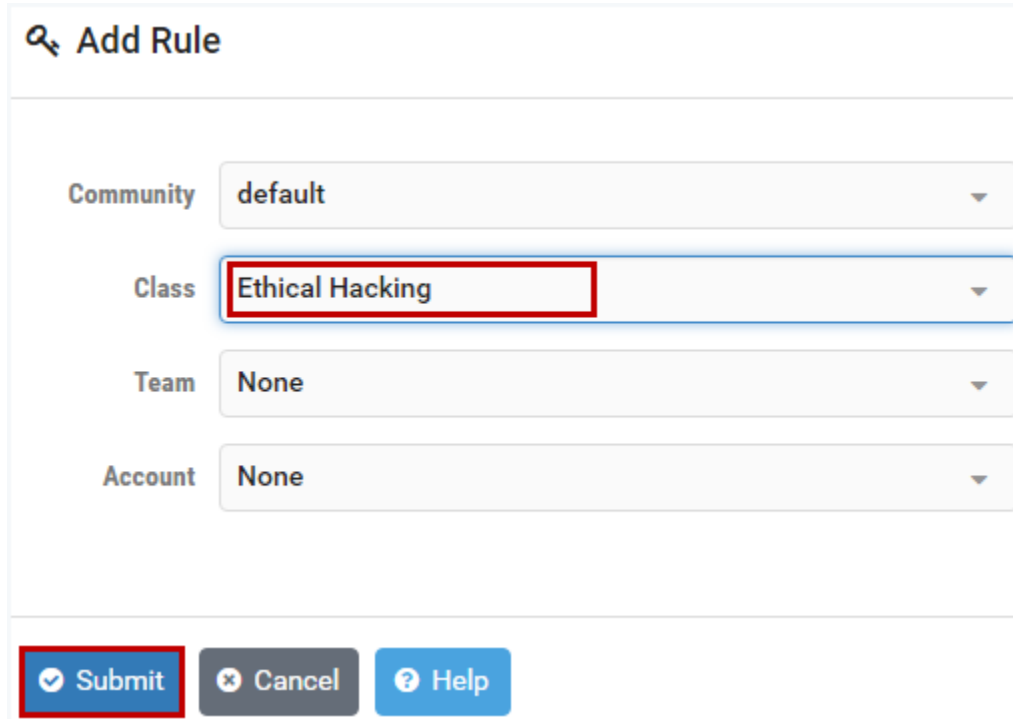
Show 10 entries Showing 1 page



3. The Pod Access Control List Rules page will be displayed. Click **Add Rule**.



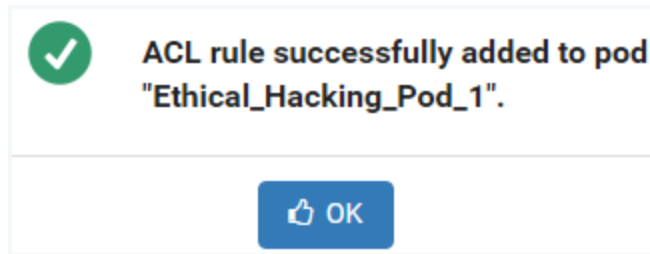
- The **Add Rule** page will be displayed. For details on completing this page, see the field descriptions below for guidance or select Help. In the example below, we will add a pod rule that will allow all learners in the *Ethical Hacking* class to access the pod by selecting the class name in the **Class** field and then clicking **Submit**.



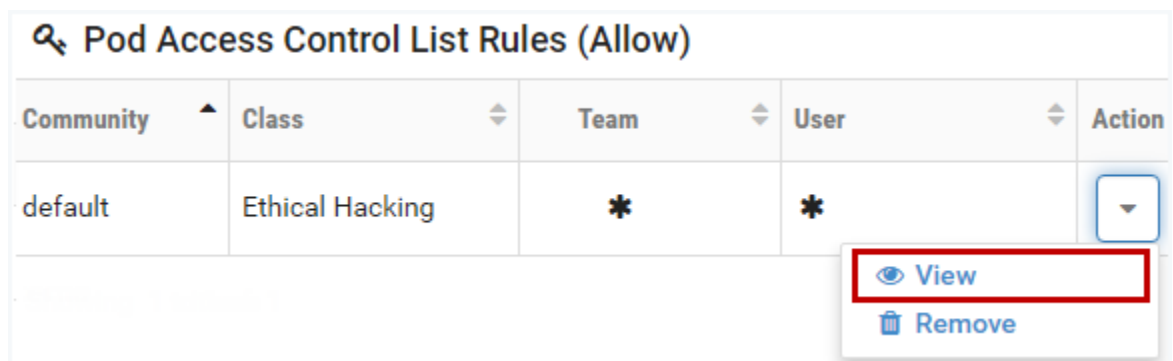
Field Descriptions - Add Rule page

- Community:** As an instructor with normal privileges, you may assign pod rules within your community only.
- Class:** Select the class that will be allowed to schedule this pod.
- Team:** Select the team that will be allowed to schedule this pod. A Team (a subset of a class) may only be selected if a Class has been selected. Please note that Team and Account selections are mutually exclusive.
- Account:** Select the account that will be allowed to schedule this pod. Please note that Account and Team selections are mutually exclusive.

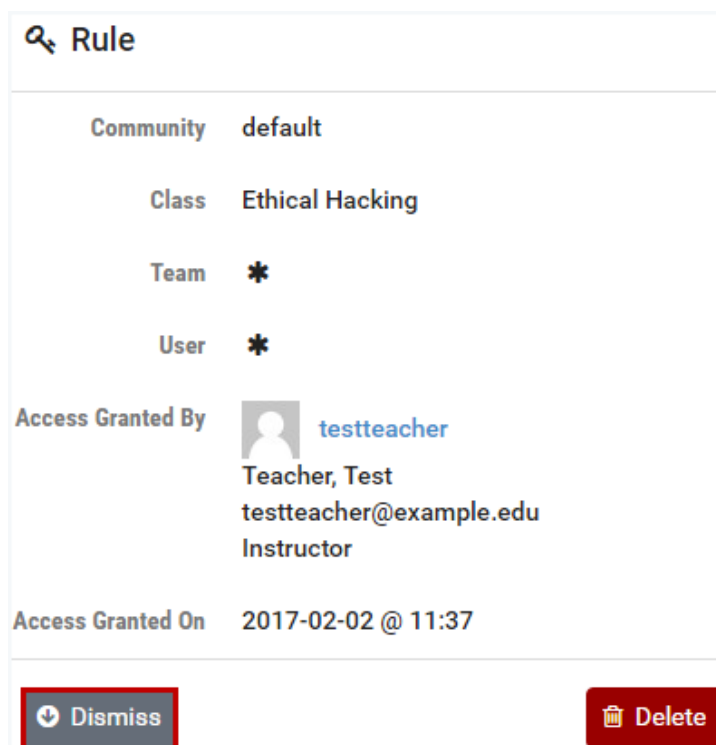
5. A message will indicate that the ACL rule has been added to the pod. Click **OK**.



6. The pod rule that specifies all members (notice the "*" wildcard indicator in the Team and User fields) of the *Ethical Hacking* class have access to the pod is now displayed in the Pod Access Control List Rules. To review the details of a pod rule, select **View** on the Action dropdown.



7. Details of the rule are displayed; the option to delete the rule is also available. Click **Dismiss**.

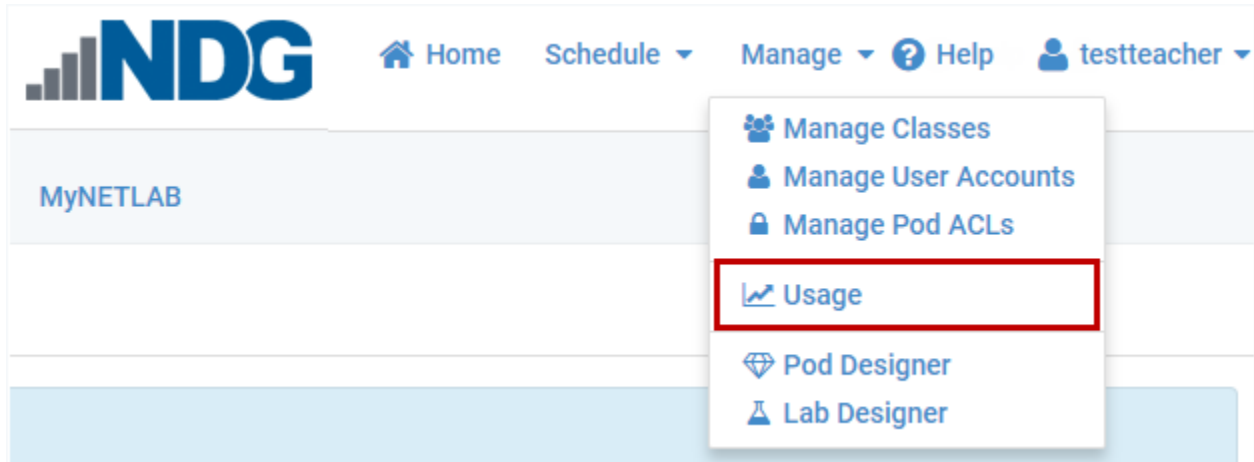


6 Usage

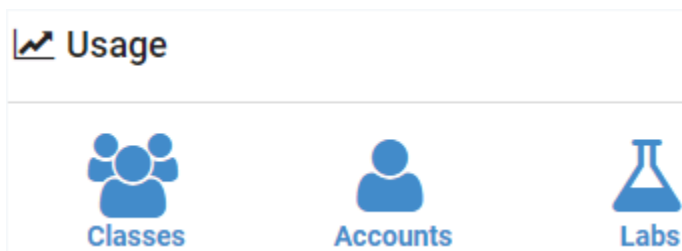


Usage reporting provides valuable feedback on the use of your NETLAB+ system, allowing you to examine user activity at a variety of levels. The reporting information can be exported to a CSV file, allowing you to add the data to your own spreadsheets or reporting system.

To see usage information, click **Manage** in the upper-right corner of the Home page and select the **Usage** dropdown option.



The Usage page will be displayed. There are several levels of reporting available, each with a selection of sorting options. Usage information includes Reservations Made, Labs Attended, Hours Reserved, and Hours Attended, summarized according to your selection of usage level.



Usage Levels (see subsections below for details):

- **Classes:** Usage is reported for selected classes.
- **Accounts:** Usage is reported for individual users.
- **Labs:** Total number of labs and lab hours per user.

6.1 Class Usage





Usage information at the class level is displayed when class usage reporting is selected. The report may be customized by selecting options (see field descriptions below).

1. To generate usage reporting at the class level, select **MyNETLAB > Classes**.
2. Use the options on the page to construct a query to search the log entries (optional, see field descriptions below).
3. Click **Submit** to view the results.


Class Usage


Scope Include only active communities and classes
 Include historical communities and classes

Communities XYZ Example College 

Classes Security Plus Fall 2017 

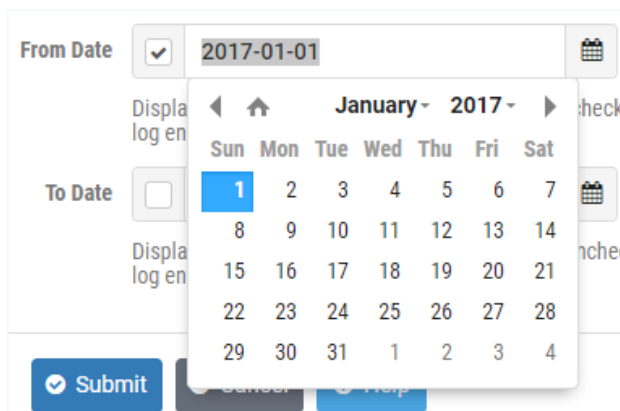
Reservation Types Student
 Team
 Instructor
 Class (ILT)

From Date None 

To Date None 

Field Descriptions - Class Usage

- **Scope:** Select the scope of communities and classes to be displayed on the report.
 - **Include only active communities and classes:** Choose to limit community and class selections to those that currently exist or expand selections to include deleted items that only reside in historical records. Typically, instructors will be more interested in active communities and classes, which will provide a view of what students are doing in the classes they are teaching.
 - **Include historical communities and classes:** The inclusion of historical data is useful for looking at how NETLAB+ is being utilized, in general, over longer periods of time.
- **Communities:** Your community will be shown here. As an instructor with normal privileges, you may view usage information within your own community for classes you lead.
- **Classes:** Classes for which you are a lead instructor are listed. The reporting will include data for all the classes you select.
- **Reservation Types:** Select the type(s) of reservations to include in the usage report.
- **From Date and To Date:** An optional From Date and/or To Date may be applied by selecting the checkbox and then selecting a date on the calendar pop-up. The information displayed will be limited by the selected date range. If left unchecked, the report will contain usage information starting from the earliest log entry available, through the present.



The screenshot shows a form with two date selection fields: "From Date" and "To Date". The "From Date" field has a checked checkbox and is set to "2017-01-01". The "To Date" field has an unchecked checkbox. A calendar pop-up is displayed over the "From Date" field, showing the month of January 2017. The calendar has a header "January - 2017" and a grid of days. The 1st of January is highlighted in blue. Below the calendar, there is a "Submit" button and a "Cancel" button.

- The Class Usage report is displayed. The information includes Class Name, Community, Reservations Made, Labs Attended, Hours Reserved, and Hours Attended. You may sort the data in ascending/descending order by clicking any of the header fields. Next, we will export the data by selecting **Export**.

Class Usage Search

Class Name	Community	Reservations Made	Labs Attended	Hours Reserved	Hours Attended
Security Plus Fall 2017	XYZ Example College	7	7	5.60	1.82
Page Total:		7	7	5.60	1.82
Table Total:		7	7	5.60	1.82

Showing 1 to 1 of 1 items

Dismiss
Export

- The data has been exported to a file, **class_usage.csv**. Locate the file in your computer's downloads folder (the folder name may vary depending on your preferences and settings). The file can be viewed with a spreadsheet program or text editor.

class_usage.csv ☆

	A	B	C	D	E	F	G	H	I	J
1	cls_id	cls_name	cls_uuid	com_full_name	com_id	com_uuid	labs_attended	num_reserved	time_attended_m	time_reserved_min
2	23	Security Plus Fall 2017	3b6b1470-4ec4-	XYZ Example College	2	ae24f883-aa31-4	7	7	109	336.1666667
3										

- When you are finished reviewing the information in NETLAB+, click **Dismiss**.

Class Usage Search

Class Name	Community	Reservations Made	Labs Attended	Hours Reserved	Hours Attended
Security Plus Fall 2017	XYZ Example College	7	7	5.60	1.82
Page Total:		7	7	5.60	1.82
Table Total:		7	7	5.60	1.82

Showing 1 to 1 of 1 items

Dismiss
Export

6.2 Account Usage



Usage information at the individual account level is displayed when account usage reporting is selected. The report may be customized by selecting options (see field descriptions below).

1. To generate usage reporting at the account level, select **MyNETLAB > Accounts**.
2. Use the options on the page to construct a query to search the log entries (optional, see field descriptions below).
3. Click **Submit** to view the results.


Account Usage


Scope Include only active communities and classes
 Include historical communities and classes

Communities

Classes

Reservation Types Student
 Team
 Instructor
 Class (ILT)

From Date 

To Date 


Field Descriptions - Account Usage

- **Scope:** Select the scope of communities and classes to be displayed on the report.
 - **Include only active communities and classes:** Choose to limit community and class selections to those that currently exist or expand selections to include deleted items that only reside in historical records. Typically, instructors will be more interested in active communities and classes, which will provide a view of what students are doing in the classes they are teaching.
 - **Include historical communities and classes:** The inclusion of historical data is useful for looking at how NETLAB+ is being utilized, in general, over longer periods of time.
- **Communities:** Your community will be shown here. As an instructor with normal privileges, you may view usage information within your own community for classes you lead.
- **Classes:** Classes for which you are a lead instructor are listed. The reporting will include data for all the classes you select.
- **Reservation Types:** Select the type(s) of reservations to include in the usage report.
- **From Date and To Date:** An optional From Date and/or To Date may be applied by selecting the checkbox and then selecting a date on the calendar pop-up. The information displayed will be limited by the selected date range. If left unchecked, the report will contain usage information starting from the earliest log entry available, through the present.









4. The Account Usage report is displayed. The information includes User ID, Name, Email, Community, Reservations Made, Labs Attended, Hours Reserved, and Hours Attended. You may sort the data in ascending/descending order by clicking any of the header fields. Notice in the example below, we are displaying information for only one of the communities on the system. When you are finished reviewing the information, click **Dismiss**.



The Account Usage data may be exported to an **account_usage.csv** file. Refer to the previous section for an example of exporting usage data.



 **Account Usage**

Search


User ID 	Name 	Email 	Community 	Reservations Made 	Labs Attended 	Hours Reserved 	Hours Attended 
msample	Sample, Monica		XYZ Example College	1	1	0.82	0.30
studentone	One, Student		XYZ Example College	5	5	3.78	1.33
studenttwo	Two, Student		XYZ Example College	1	1	1.00	0.18
Page Total:				7	7	5.60	1.81
Table Total:				7	7	5.60	1.81

Show 25 entries
Showing 1 to 3 of 3 items

<
1
>

 Dismiss
 Export


6.3 Lab Usage


 Usage information at the lab level is displayed when Lab Usage reporting is selected. The report may be customized by selecting options (see field descriptions below). Lab Usage data may be aggregated (grouped) by labs and/or accounts.

1. To generate usage reporting at the lab level, select **MyNETLAB > Labs**.
2. Use the options on the page to construct a query to search the log entries (optional, see field descriptions below). In the example below, the option to aggregate is not selected (we will show that in a second example, below).
3. Click **Submit** to view the results.

Lab Usage


Scope Include only active communities and classes
 Include historical communities and classes


Community XYZ Example College 

Class Security Plus Fall 2017 

Reservation Types Student
 Team
 Instructor
 Class (ILT)

Aggregate By Labs
 Accounts

From Date None 

To Date None 


Field Descriptions - Lab Usage

- **Scope:** Select the scope of communities and classes to be displayed on the report.
 - **Include only active communities and classes:** Choose to limit community and class selections to those that currently exist or expand selections to include deleted items that only reside in historical records. Typically, instructors will be more interested in active communities and classes, which will provide a view of what students are doing in the classes they are teaching.
 - **Include historical communities and classes:** The inclusion of historical data is useful for looking at how NETLAB+ is being utilized, in general, over longer periods of time.
- **Communities:** Your community will be shown here. As an instructor with normal privileges, you may view usage information within your own community for classes you lead.
- **Classes:** Classes for which you are a lead instructor are listed. The reporting will include data for all the classes you select.
- **Reservation Types:** Select the type(s) of reservations to include in the usage report.
- **Aggregate By:** Choose the Labs and/or Accounts option to aggregate (group) the lab usage information
- **From Date and To Date:** An optional From Date and/or To Date may be applied by selecting the checkbox and then selecting a date on the calendar pop-up. The information displayed will be limited by the selected date range. If left unchecked, the report will contain usage information starting from the earliest log entry available, through the present.

4. The Lab Usage report is displayed. The information includes User ID, Name, Email, Community, Reservations Made, Labs Attended, Hours Reserved, and Hours Attended. You may sort the data in ascending/descending order by clicking any of the header fields. In the example below, the data is sorted by User ID. The report includes detail for every lab attended for each user. Click any of the detail rows of the report to view the lab history, specific to the reservation. We'll discuss lab history in the next section. Click Dismiss to return to the previous page.

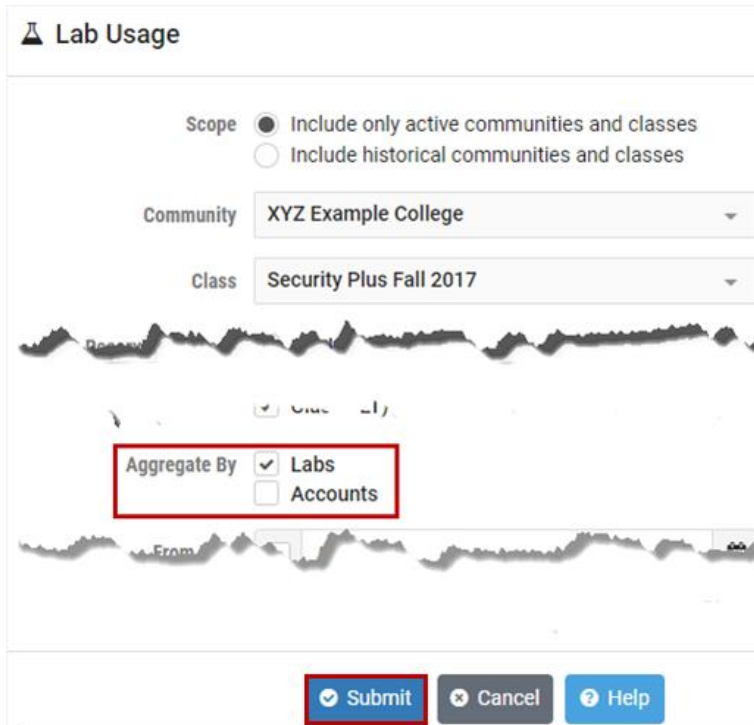


The Lab Usage data may be exported to a **lab_usage.csv** file. Refer to the [Class Usage](#) section above for an example of exporting usage data.

 Lab Usage: Security Plus Fall 2017 <input type="text" value="Search"/>				
User ID	Name	Exercise	Start Time	Hours Attended
studentone	One, Student	Lab 01: Network Devices and Technologies- Capturing Network Traffic	2017-08-02	0.15
studentone	One, Student	Lab 03: Protocols and Default Network Ports - Connecting to a Remote System	2017-08-02	0.23
studenttwo	Two, Student	Lab 01: Network Devices and Technologies- Capturing Network Traffic	2017-08-02	0.18
studentone	One, Student	Lab 02: Configuring the pfSense Firewall	2017-08-02	0.35
studentone	One, Student	Lab 01: Network Devices and Technologies- Capturing Network Traffic	2017-08-02	0.28
msample	Sample, Monica	Lab 01: Network Devices and Technologies- Capturing Network Traffic	2017-08-02	0.30
			Page Total:	1.81
			Table Total:	1.81

In this example, we will generate the report again, but this time, we will aggregate our results by labs.

1. From the Lab Usage page, select **Labs** and click **Submit**.



Lab Usage

Scope Include only active communities and classes
 Include historical communities and classes

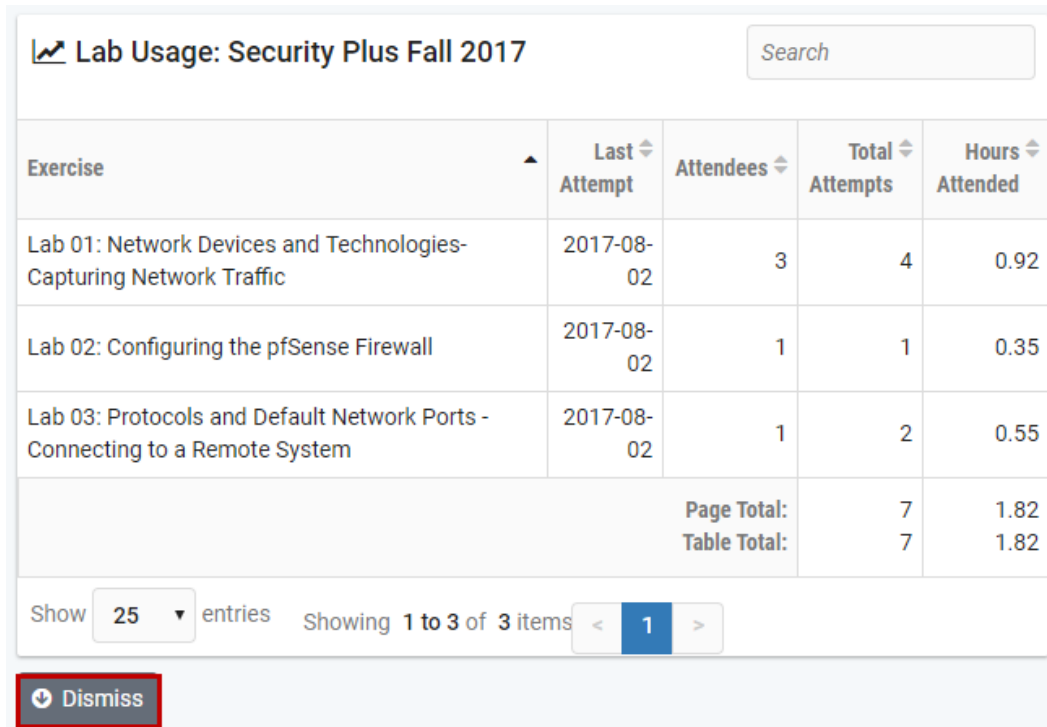
Community XYZ Example College

Class Security Plus Fall 2017

Aggregate By Labs
 Accounts

Submit Cancel Help

2. Now, our report shows one detail line per lab, with summary information for the number of Attendees, Total Attempts, and Hours Attended for all learners in the class. Click **Dismiss**.



Lab Usage: Security Plus Fall 2017

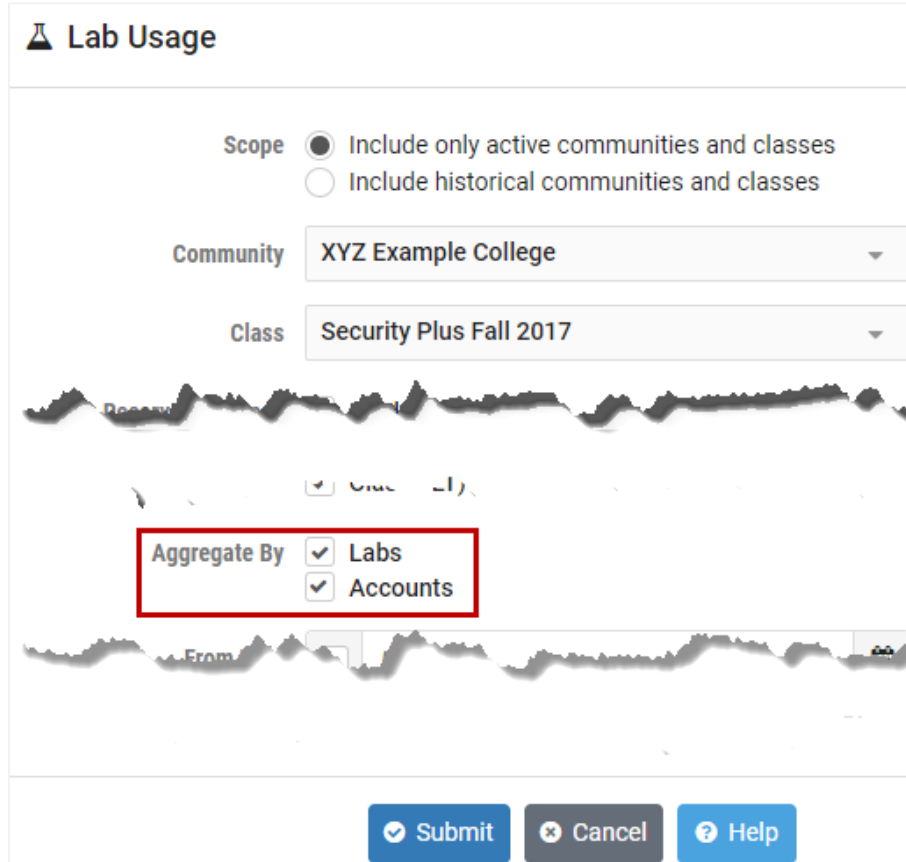
Exercise	Last Attempt	Attendees	Total Attempts	Hours Attended
Lab 01: Network Devices and Technologies-Capturing Network Traffic	2017-08-02	3	4	0.92
Lab 02: Configuring the pfSense Firewall	2017-08-02	1	1	0.35
Lab 03: Protocols and Default Network Ports - Connecting to a Remote System	2017-08-02	1	2	0.55
Page Total:			7	1.82
Table Total:			7	1.82

Show 25 entries Showing 1 to 3 of 3 items < 1 >

Dismiss

For this example, we will generate the report again, aggregating our results by both **Labs** and **Accounts**.

1. Select the options as shown and click **Submit**.



Lab Usage

Scope Include only active communities and classes
 Include historical communities and classes


Community XYZ Example College

Class Security Plus Fall 2017

Aggregate By Labs
 Accounts

Submit Cancel Help

2. Here is an excerpt of the results; notice the report is now grouped by account. When you are finished viewing the results, click **Dismiss**.

 Lab Usage: Security Plus Fall 2017

Sample, Monica

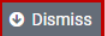

Name	Initial Attempt	Times Attended	Hours Attended
Lab 01: Network Devices and Technologies- Capturing Network Traffic	2017-08-02	1	0.30
		Page Total:	1
		Table Total:	1

One, Student

Name	Initial Attempt	Times Attended	Hours Attended
Lab 01: Network Devices and Technologies- Capturing Network Traffic	2017-08-02	2	0.43
Lab 02: Configuring the pfSense Firewall	2017-08-02	1	0.35
Lab 03: Protocols and Default Network Ports - Connecting to a Remote System	2017-08-02	2	0.55
		Page Total:	5
		Table Total:	5

Two, Student

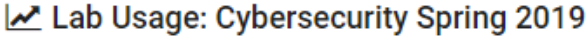
Name	Initial Attempt	Times Attended	Hours Attended
Lab 01: Network Devices and Technologies- Capturing Network Traffic	2017-08-02	1	0.18
		Page Total:	1
		Table Total:	1

6.3.1 Lab History and Screenshots

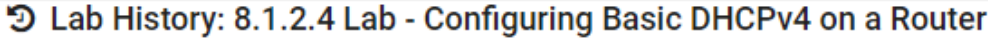
In the previous section, we discussed how to generate a lab usage report. We will now take a look at lab history details for a reservation listed on the report.

1. To see the lab history for a reservation listed on a Lab Usage report, click on a reservation detail row on the report.

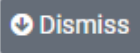
 Lab Usage: Cybersecurity Spring 2019

User ID	Name	Reservation	Exercise	Date	Hours Attended
testinstructor	Instructor, Test	76	8.1.2.4 Lab - Configuring Basic DHCPv4 on a Router	2019-03-25	0.18
Page Total:					0.18
Table Total:					0.18

2. The Lab History **Summary** tab will be displayed, showing details specific to the reservation.

 Lab History: 8.1.2.4 Lab - Configuring Basic DHCPv4 on a Router

Summary	Devices	PCs
Community	default	
Class	Cybersecurity Spring 2019	
Reservation ID	76	
Pod ID	1	
Pod Name	MAP-ASA-01	
Exercise	8.1.2.4 Lab - Configuring Basic DHCPv4 on a Router	
Attendees	Test Instructor	
Date/Time	2019-03-25 15:28	
Duration (Hrs.)	0.18	

 Dismiss

- If the lab topology includes lab devices (physical devices, such as routers and switches), you will find details of your interaction with those devices on the **Devices** tab. The display options are listed below. Click **Dismiss** to return to the lab list (it may be necessary to scroll down if you are on the Devices tab).

Display Options on the Devices Tab

- **Command Index:** A listing of the commands entered during the lab.
- **Session Logs:** A log of the activity occurring on the selected device.
- **Final Configs:** The configuration file saved by NETLAB+ at the end of the lab session for the selected device.
- **User Configs:** Configuration files saved by the user during the lab session for the selected device.

Here, the **Command Index** has been selected.

Lab History: 8.1.2.4 Lab - Configuring Basic DHCPv4 on a Router

Summary **Devices** PCs

Display **Command Index**

Time	Command Index	Device	Command
00:05:37	Session Logs	R3	show version
	Final Configs		
	User Configs		

Partial Log: R3

```
Router>show version

Cisco IOS Software, C2900 Software (C2900-UNIVERSALK9-M), Version 15.4(3)M2, RELEASE SOFTWARE
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2015 by Cisco Systems, Inc.
Compiled Fri 06-Feb-15 17:29 by prod_rel_team

ROM: System Bootstrap, Version 15.0(1r)M15, RELEASE SOFTWARE (fc1)
```

In the example below, the **Final Configs** for device **R3** are displayed.

🔍 Lab History: 8.1.2.4 Lab - Configuring Basic DHCPv4 on a Router

Summary **Devices** PCs

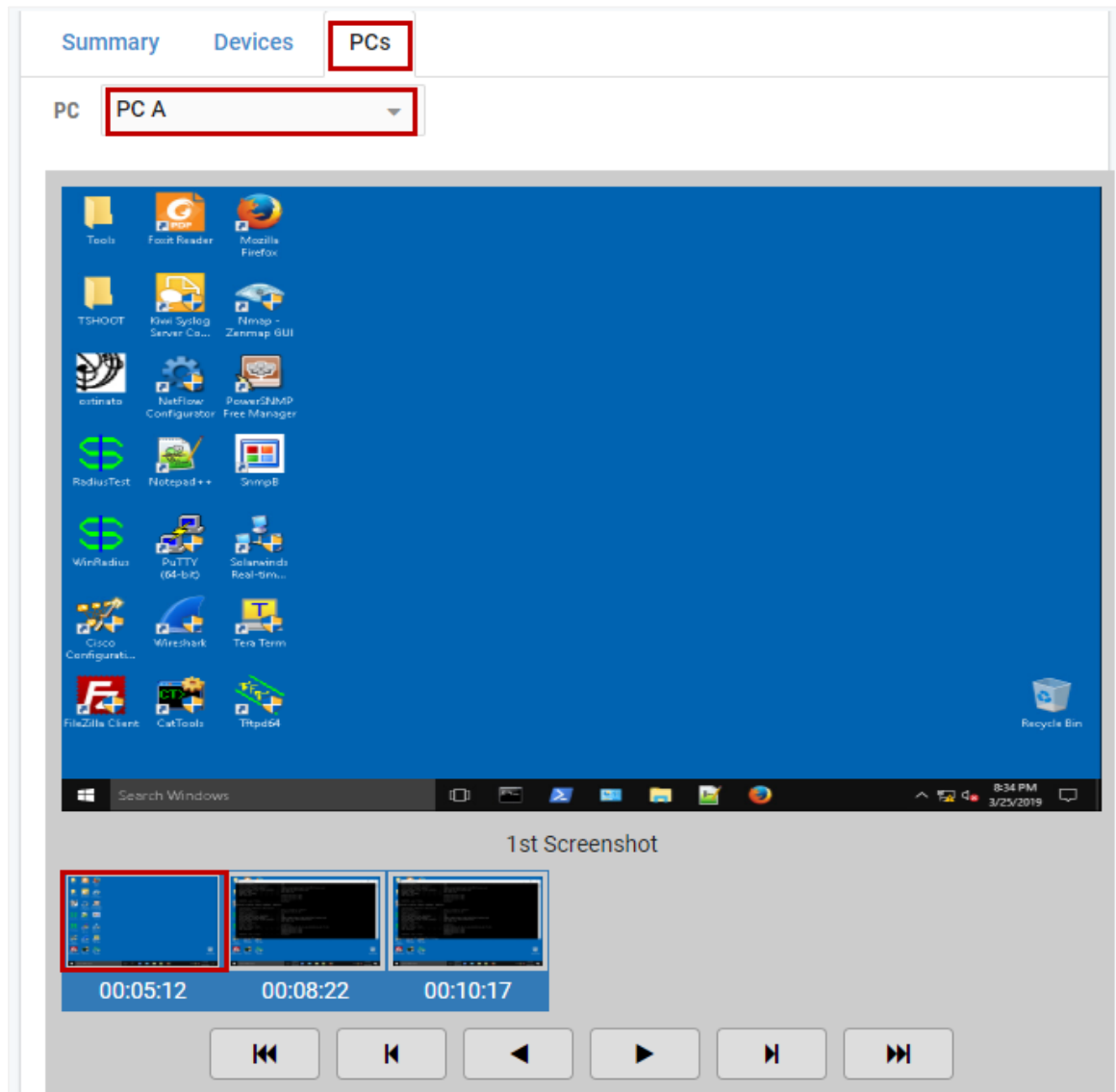
Display **Final Configs** Device **R3**

```
!! NETLAB+ saved configuration: time="2019-03-25 19:40:37 UTC" device="R3" hardware
!
! Last configuration change at 19:39:25 UTC Mon Mar 25 2019
!
version 15.5
service timestamps debug datetime msec
service timestamps log datetime msec
no platform punt-keepalive disable-kernel-core
!
hostname Router
!
boot-start-marker
boot-end-marker
!
!
vrf definition Mgmt-intf
!
address-family ipv4
exit-address-family
!
address-family ipv6
exit-address-family
```

- If the lab topology includes PCs, click on the **PCs** tab to view any screenshots of remote PCs that were captured during the lab session. If more than one PC is included in the topology, select a device on the dropdown (for example, **PC A** is selected below). Thumbnail images are displayed at the bottom of the page. Click on any thumbnail to display the screenshot. You may also scroll through the screenshots using the button controls below the thumbnails.



In the picture below, notice the timestamps under the thumbnails. These indicate the point at which the image was taken as hours, minutes, and seconds from the beginning of lab.



The screenshot displays the NETLAB+ interface. At the top, there are three tabs: 'Summary', 'Devices', and 'PCs'. The 'PCs' tab is selected and highlighted with a red box. Below the tabs, there is a dropdown menu labeled 'PC' with 'PC A' selected, also highlighted with a red box. The main area shows a screenshot of a Windows desktop with various application icons. Below the desktop screenshot, there are three thumbnail images of the desktop, each with a timestamp below it: '00:05:12', '00:08:22', and '00:10:17'. The first thumbnail is highlighted with a red box. Below the thumbnails are several navigation buttons: a double left arrow, a single left arrow, a right arrow, a single right arrow, and a double right arrow.

7 Pod Designer



Pod Designer is used in order to create a custom pod layout. A *pod design* is a template used to create one or more actual pods on a NETLAB+ system.

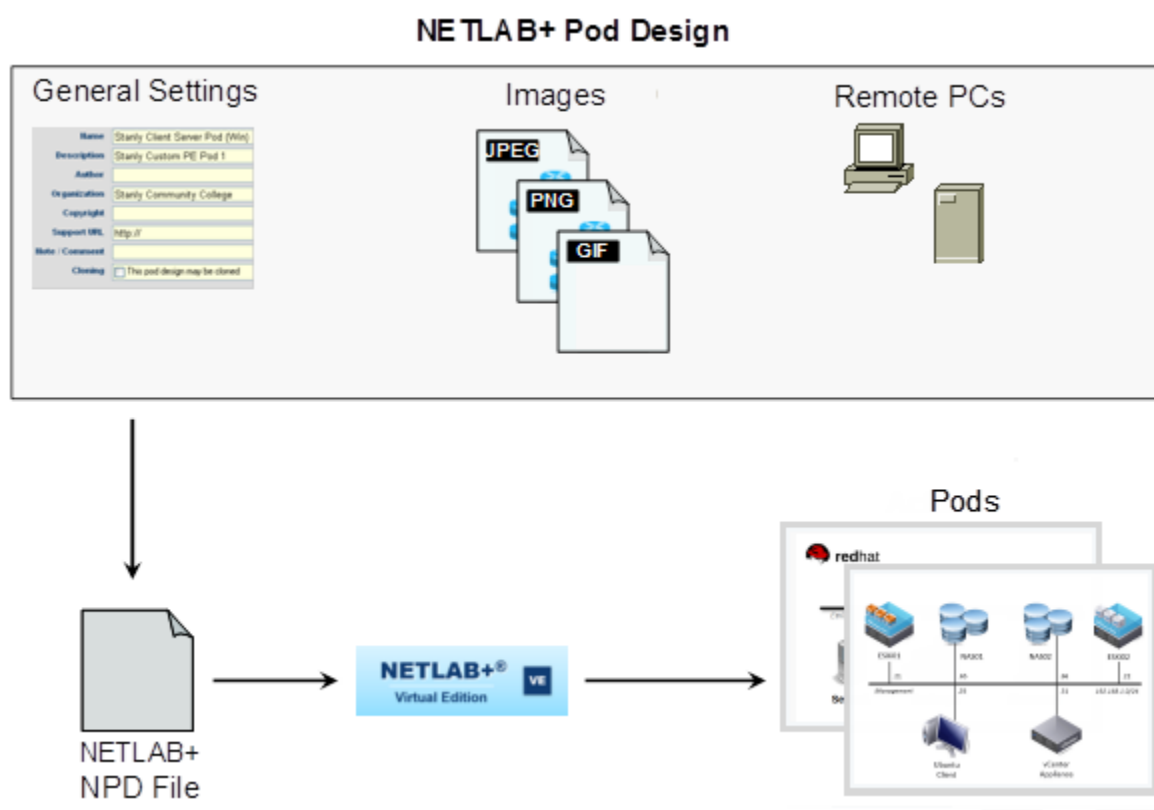
The Pod Designer tool is used to gather the required information about remote PCs and images. This data is stored in a *Pod Design File*. Pod design files are portable. They can be shared, exported, and installed on other NETLAB+ systems. A set of options and passwords control how the pod design can be used.



As an instructor, you will have access to the Pod Designer if the NETLAB+ Administrator has enabled your instructor account to use the tool.

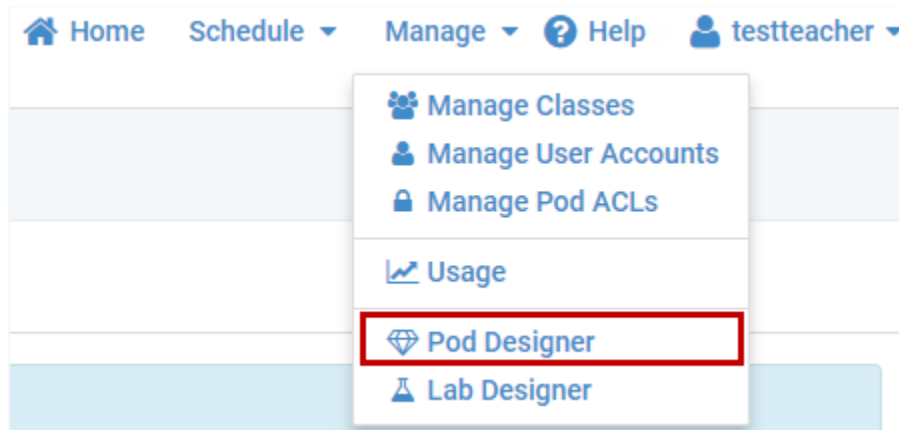
See the subsections below for details on performing basic tasks in Pod Designer, including viewing a list of installed pod designs and pod design details.

Please refer to the [NETLAB+ Pod Design Guide](#) for details on implementing custom pod designs.




7.1 Accessing Pod Designer

1. To access the Pod Designer, click **Manage** in the upper-right corner of the Home page and select the **Pod Designer** dropdown option.



As an instructor, you will have access to the Pod Designer if the NETLAB+ Administrator has enabled your instructor account with access to the tool. Contact your NETLAB+ Administrator if an error message indicates that you do not have access.

2. If this is your first time accessing the Pod Designer, you will be required to accept the terms and conditions. Review the notice and then click **Accept**.

 **Terms and Conditions**

NOTICE OF TERMS REGARDING POD AND LAB DESIGN COMPONENTS

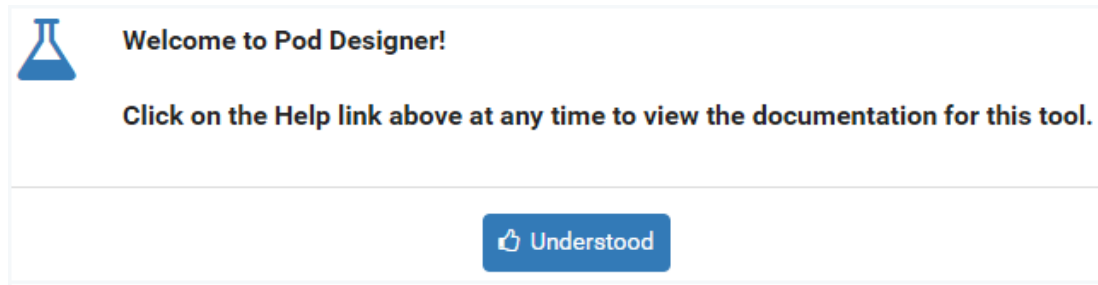
This Notice contains binding terms regarding use of features included in the Pod Designer and Lab Designer components of the NETLAB+ software provided to you (Customer) by Network Development Group, Inc. ("NDG"). By using these tools, you agree that you are authorized to bind and do hereby bind your employer to the terms of this Notice. This Notice supplements the existing agreement terms (Agreement) between NDG and Customer regarding use of NDG software. The Agreement is hereby modified and supplemented by mutual consent with the terms of this Notice.

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3. A welcome message will be displayed, click **Understood**.



7.2 Viewing Pod Designs

To see a list of the pod designs available on your NETLAB+ system:

1. The **Pod Design List** is displayed when the Pod Designer option is selected on the Manage dropdown (see the previous section for info on first-time access).
2. To see the pod designs have been installed in the local NETLAB+ pod type database on this system, click **Show Installed Pod Designs**.

Pod Designer Search									
Name	Build	Commit	Author ID	GID	Author	Size	Modified		
NISGTC Network+	12	Yes	DOLNETP	...15D6	NDGTH	124K	2014-02-10		
NISGTC Security+	9	Yes	DOLSECPV2	...5A23	NDGJJ	35K	2015-08-21		
RHSA7	3	Yes	RHSA7	...A22E	NDGJJ	37K	2016-01-13		
VMware VCA DCV 6	4	Yes	VMVCADC6	...F6DE	NDGJJ	32K	2016-01-15		
VMware vSphere ICM 6	4	Yes	VCPICM6F1	...78BE	NDGTK	72K	2016-01-14		

Dismiss
Create New Pod Design
Show Installed Pod Designs
Import Pod Design

3. The currently installed pod designs will be displayed. The **Used** column indicates the number of instantiated pods of each type. Click on a pod for additional details and management options. Select the **View** option on the Action dropdown to see additional details for any of the pods displayed.

Manage Installed Pod Designs Search

Name	Build	Author/Org	Used	Icon/Type	Action
NISGTC Network+	12	NDGTH NISGTC	4	n/a	<div style="border: 1px solid red; padding: 2px;">View</div> <div style="border: 1px solid red; padding: 2px;">Uninstall</div>
NISGTC Security+	9	NDGJJ NISGTC	3	n/a	
RHSA7	3	NDGJJ NDG	0	n/a	
VMware VCA DCV 6	4	NDGJJ NDG	0	n/a	
VMware vSphere ICM 6	4	NDGTK NDG	0	n/a	

Dismiss

4. Details of the pod design are displayed. Click **Dismiss** to return to the list of installed pod designs.

NISGTC Network+

Name	NISGTC Network+
Build	12
Author ID	DOLNETP
Global ID	0025_9015_B226_519E_15D6
Description	NISGTC Network+ Pod
Author	NDGTH
Organization	NISGTC
Copyright	2014
Support URL	http://netdevgroup.com/content/networkplus/
Note / Comment	
Origin	Academy Edition
Used	0
Can Uninstall	Yes, by administrator

Dismiss

8 Lab Designer



The *Lab Designer* provides a means of creating a series of custom laboratory exercises that may be made available for class use.

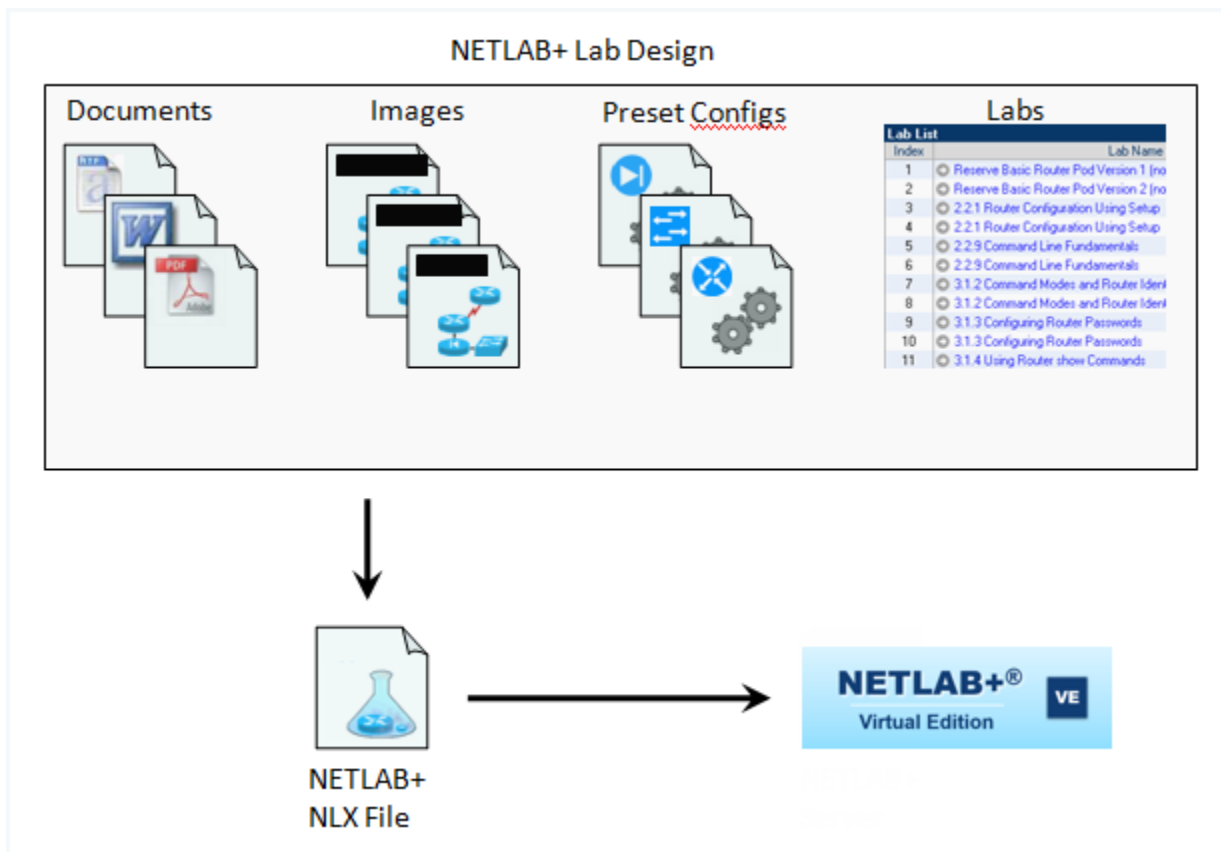
A lab design is a set of labs and related reference material that may include documents, images, and preset configuration files for each lab exercise. This data is stored in a *Lab Design File*. Lab design files are portable. They can be shared, exported, and installed on other NETLAB+ systems. A set of options and passwords control how the lab design can be used.



As an instructor, you will have access to the Lab Designer if the NETLAB+ Administrator has enabled your instructor account to use the tool.

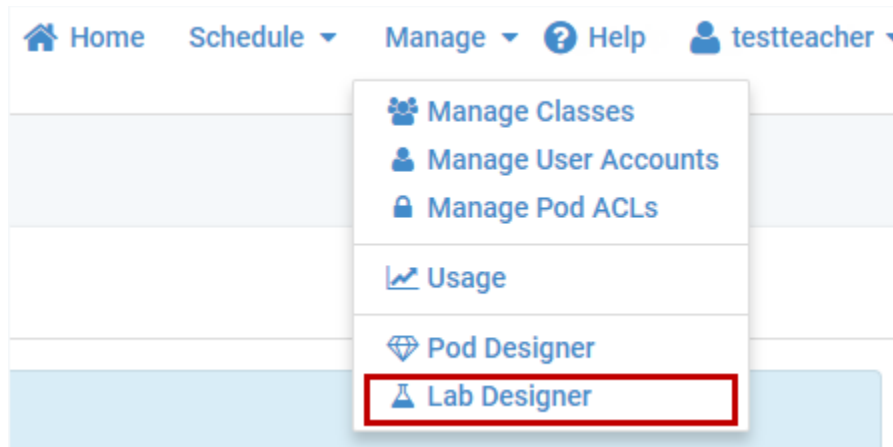
See the subsections below for details on performing basic tasks in Lab Designer, including viewing, and managing access to lab designs.

Please refer to the [NETLAB+ Lab Design Guide](#) for details on implementing custom lab designs.




8.1 Accessing Lab Designer

1. To access the Lab Designer, click **Manage** in the upper-right corner of the Home page and select the **Lab Designer** dropdown option.



As an instructor, you will have access to the Lab Designer if the NETLAB+ Administrator has enabled your instructor account with access to the tool. Contact your NETLAB+ Administrator if an error message indicates that you do not have access.

2. If this is your first time accessing the Lab Designer, you will be required to accept the terms and conditions. Review the notice and then click **Accept**.

 **Terms and Conditions**

NOTICE OF TERMS REGARDING POD AND LAB DESIGN COMPONENTS

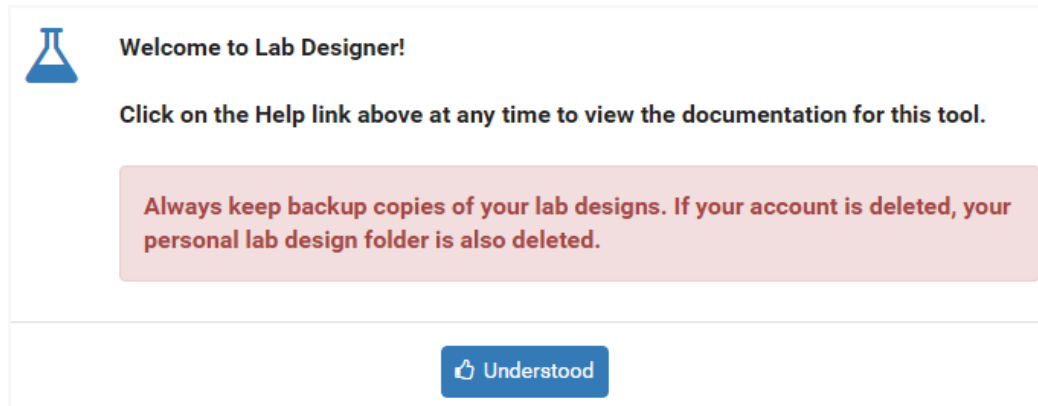
This Notice contains binding terms regarding use of features included in the Pod Designer and Lab Designer components of the NETLAB+ software provided to you (Customer) by Network Development Group, Inc. ("NDG"). By using these tools, you agree that you are authorized to bind and do hereby bind your employer to the terms of this Notice. This Notice supplements the existing agreement terms (Agreement) between NDG and Customer regarding use of NDG software. The Agreement is hereby modified and supplemented by mutual consent with the terms of this Notice.

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Customer represents and warrants that: (a) the Content is owned by Customer, or to the extent owned by a third-party Customer has obtained the written agreement of such third party to provide the Content to NDG for access, use and copying under the license in this Agreement; (b) the Content does not violate any third-party copyright, trademark, trade secret or other intellectual property right; and (c) the Content does not include and will not transmit any information, software, or other materials constituting a virus, trojan horse, worm or other harmful computer programming routine that might damage the Software or any NDG service. Customer further acknowledges and agrees that NDG shall have no responsibility for any access or use by Authorized Users of the Content, including but not limited to any reverse engineering by Authorized Users of the Content.

Customer agrees to indemnify and hold harmless NDG and its employees, agents, affiliates, officers and directors against suits, claims, loss, damage, expense, penalty or liability arising from any breach of the above warranties or otherwise relating to the Content, unless due to the gross negligence or intentional misconduct of NDG.

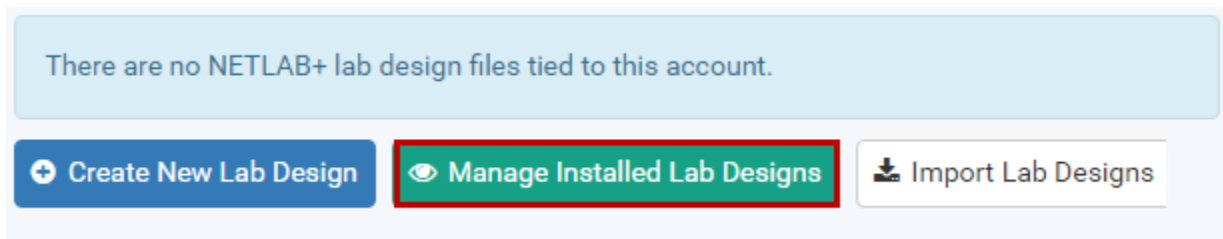
3. A welcome message will be displayed, click **Understood**.



8.2 Viewing Lab Designs

To see a list of the lab designs available on your NETLAB+ system:

1. The **Lab Design List** is displayed when the Lab Designer option is selected on the Administrator interface. This list shows the lab design files that are tied to your account. These lab designs may be viewed and modified by you. If there are no lab designs tied to your account (as shown here), this list will be empty.
2. A lab design must be installed before it can be used by the system. Click **Manage Installed Lab Designs** to install lab designs and make them available to users.



3. The currently installed lab designs will be displayed. The scope of a lab design can be public or private (see the Access column). Private lab designs can be used only by one instructor (the trustee). The Classes column indicates the number of classes that use the design. Select the **View** option on the Action dropdown for additional details and management options for any of the labs displayed.

Installed Lab Designs								Search
Name	Build	Author ID	GID	Access	Trustee	Classes	Action	
NISGTC Network+	7	DOLNETP	...1590	Public	n/a	0	View Uninstall	
NISGTC Security+	8	DOLSECPV2	...F227	Public	n/a	0		
VMware VCA DCV 6	3	VMVCADC6	...F7C8	Public	n/a	0		
VMware vSphere ICM 6	6	VMWICM6	...A430	Public	n/a	0		


[Dismiss](#)

- Details of the lab design are displayed. Click **Dismiss** to return to the list of installed lab designs.

NISGTC Network+	
Name	NISGTC Network+
Build	7
Author ID	DOLNETP
Global ID	0025_9015_B226_519E_1590
Description	NISGTC Network+
Author	NDGTH
Organization	NISGTC
Copyright	2014
Support URL	http://netdevgroup.com/content/networkplus/
Note / Comment	
Access	Public (at time build was installed)
Trustee	n/a
Authorized Communities	1: default
Can Uninstall	Yes, administrator only

[Dismiss](#)

9 Manage Configuration Files

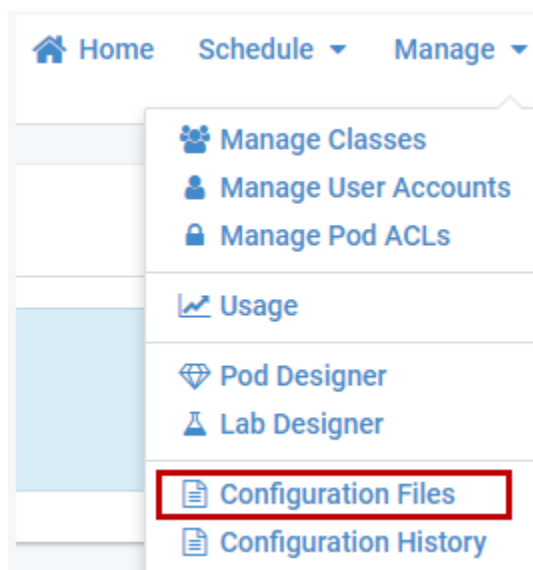
 The File Manager is used to view, add, change, or delete configuration files and folders. NETLAB+ can upload and download configuration files to console-based devices such as routers, switches, and firewall devices in the lab. These files are stored in the NETLAB+ file system. The NETLAB+ file manager provides access to files and folders.

- *Files* contain the actual device configurations.
- *Folders* may contain other folders and configuration files. Folders may be either class (shared) folders or account (specific to the user) folders.
 - The files in the class-shared folder may be accessed by the students enrolled in the class. Students may view files, copy files, and load devices with configuration files and folders. Students do not have access to add, edit, or delete items in the class-shared folder.
 - Account folders may be accessed by the user or by the NETLAB+ Administrator.

9.1 Configuration File Management Outside of a Lab Reservation

Using the File Manager, you can create and edit configuration files and folders. You may find it useful to create a configuration file outside of a lab reservation when you want to practice your router commands or create files to use in later sessions. These files can be created/edited 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.

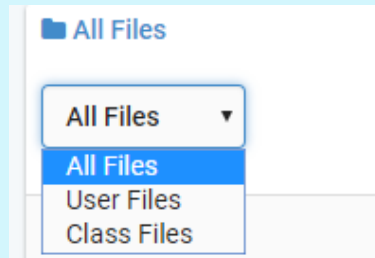
1. From the MyNETLAB home page, click the Manage option and select **Configuration Files**.



- A list of folders will be displayed. Notice the list includes both account folders and class folders. In the subsections below, we will show examples of editing a configuration file and creating configuration files and folders.







The default list display is All Files. You may change the display option to filter the list to show User Files or Class Files only.



MyNETLAB > File Manager

All Files

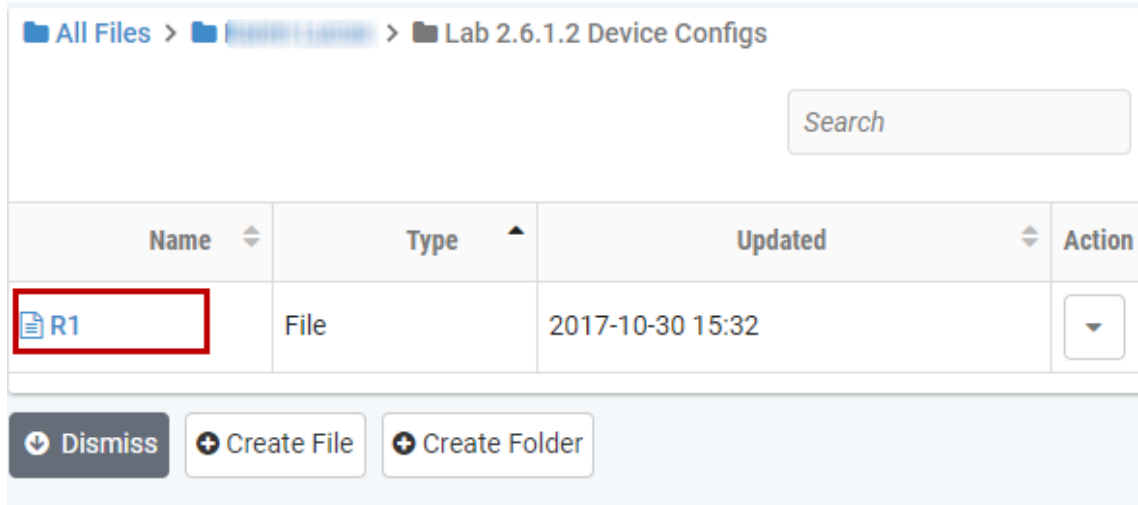
All Files



Name	Type
 Test Teacher (testteacher)	Account Folder
 CCNA Routing and Switching Fall 2017	Class Folder
 Cyber Security	Class Folder
 Ethical Hacking	Class Folder

9.1.1 Viewing and Editing Configuration Files

Configuration files may be viewed and edited outside of a lab reservation. Your file can be saved and later applied to one or more lab devices in the topology during a lab session. For the purpose of this example, we assume that the configuration files and folders referenced have been created during a recent lab session (see [Saving Configuration Files During a Lab Reservation](#)).

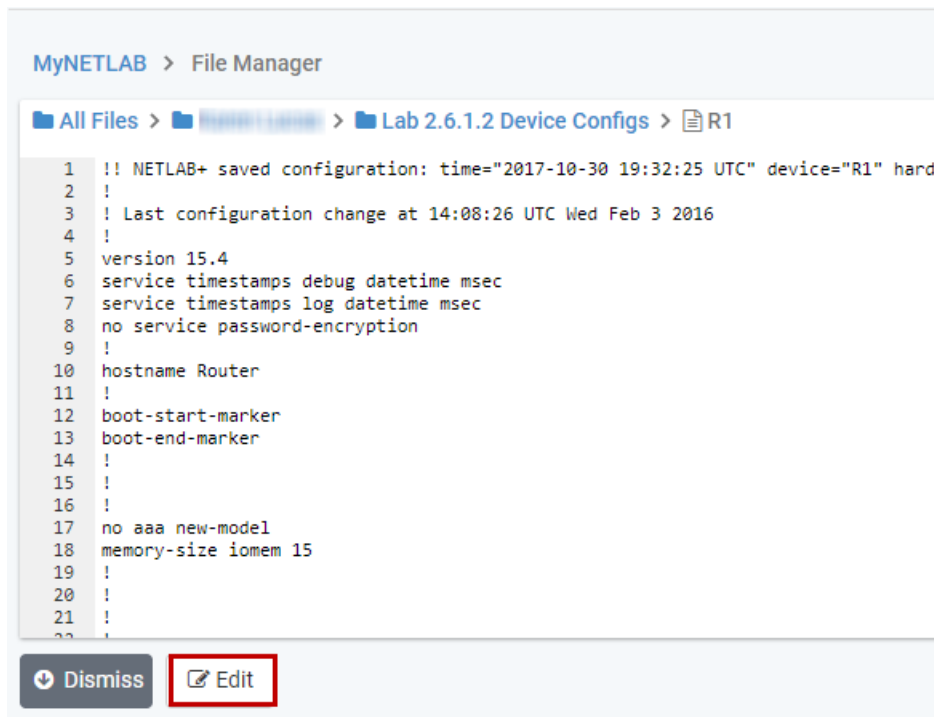
1. Select the *Lab 2.5.1.2 Device Configs* folder and then click the **R1** file to open it.



Name	Type	Updated	Action
 R1	File	2017-10-30 15:32	

Buttons: Dismiss, Create File, Create Folder

2. The *R1* file is displayed. For this example, we will not only view the file but also edit it. Click the **Edit** button.



MyNETLAB > File Manager

All Files > Lab 2.6.1.2 Device Configs > R1

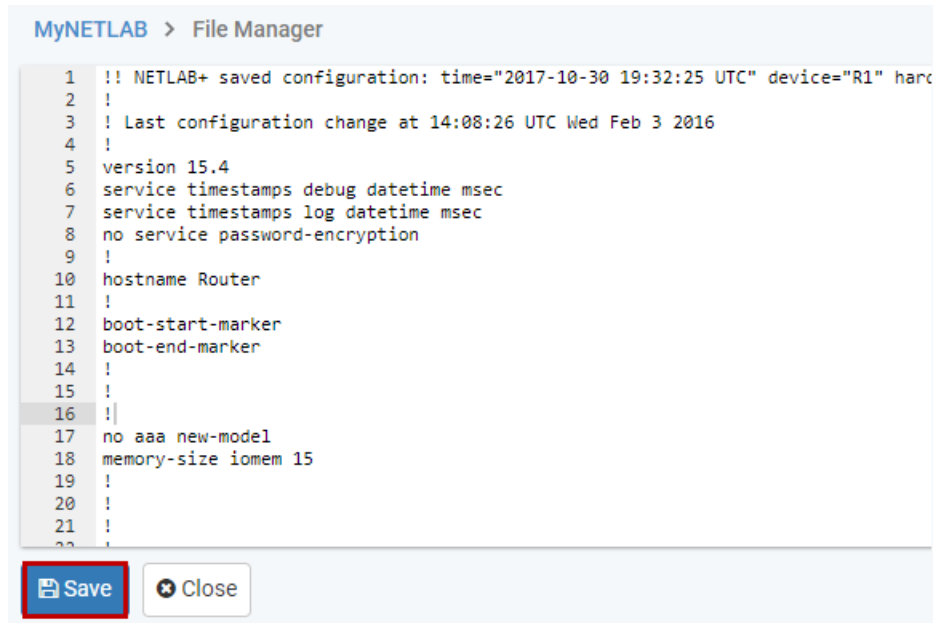
```

1  !! NETLAB+ saved configuration: time="2017-10-30 19:32:25 UTC" device="R1" hard
2  !
3  ! Last configuration change at 14:08:26 UTC Wed Feb 3 2016
4  !
5  version 15.4
6  service timestamps debug datetime msec
7  service timestamps log datetime msec
8  no service password-encryption
9  !
10 hostname Router
11 !
12 boot-start-marker
13 boot-end-marker
14 !
15 !
16 !
17 no aaa new-model
18 memory-size iomem 15
19 !
20 !
21 !
22 !

```

Buttons: Dismiss, Edit

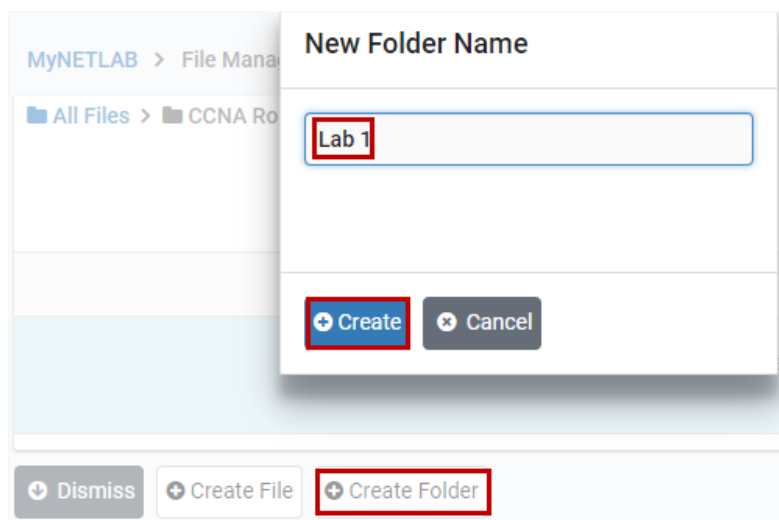
- Click inside the window and edit the file as desired. Select **Save** to save the modified version.



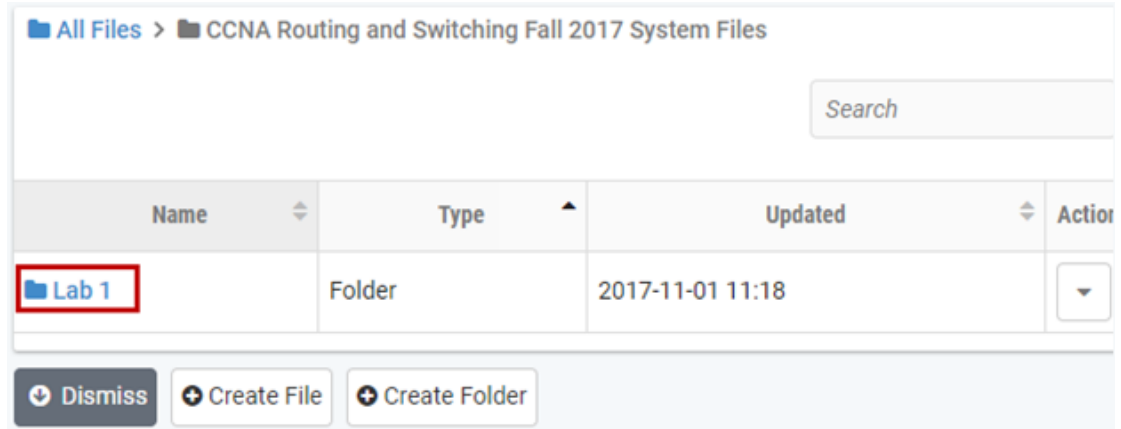
9.1.2 Creating Folders and Files

Configuration files and folders may be created outside of a lab reservation. Your files can be saved and later applied to one or more lab devices in the topology during a lab session.

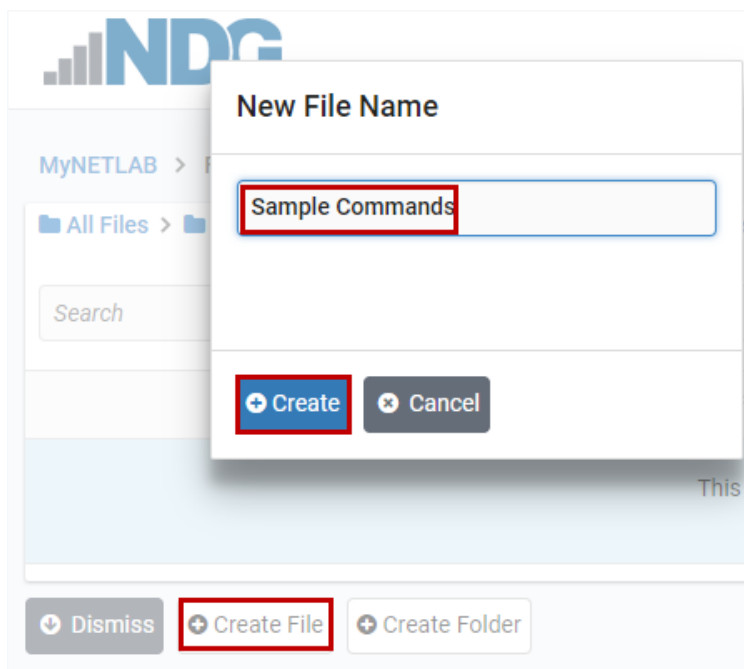
- In this example, we will be creating a folder and configuration file in the *CCNA Fall 2017 Routing and Switching* folder. To create a subfolder for your file, select **Create Folder**, enter a folder name, and then select **Create**.



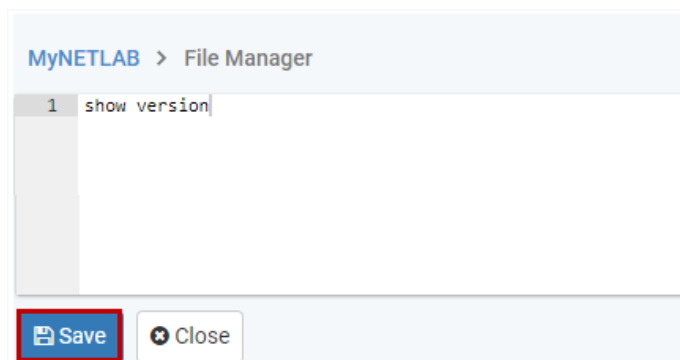
- The **Lab 1** folder will be displayed in the folder list. Click the folder name to select it as the current folder.



- Select the **Create File** button, enter a file name, and then click **Create**.

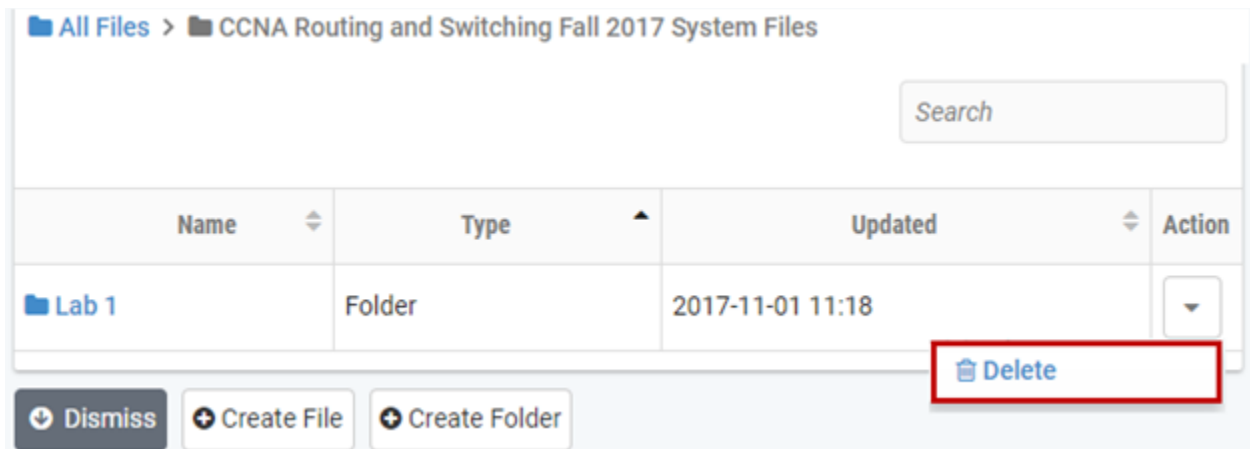


- After entering CLI commands, select **Save** to store the configuration file.



9.1.3 Deleting Folders and Files

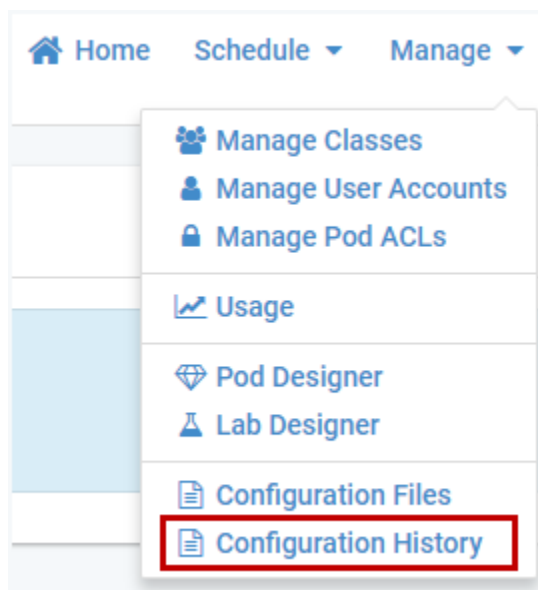
To delete a file or folder in the current directory, click the Action dropdown and select **Delete**.



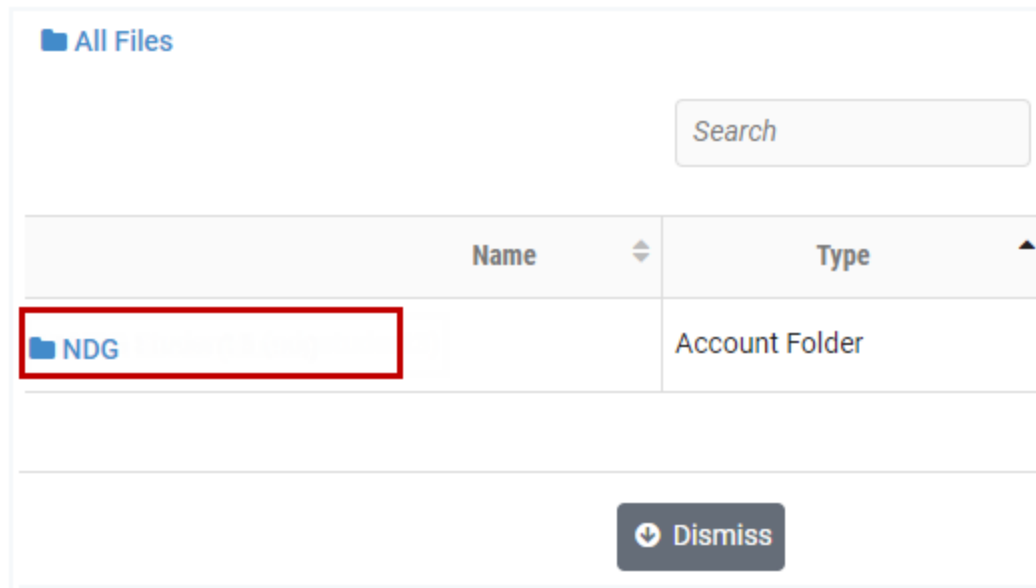
9.1.4 Configuration History

Configuration files for all lab devices in a topology are saved automatically by NETLAB+ at the end of a lab reservation, creating a saved "history". The files are stored in a folder named for the lab exercise. You may view these configuration files outside of a lab reservation.

1. From the MyNETLAB home page, click the Manage option and select **Configuration History**.



- The History Manager will be displayed. Select the account folder.















- You will see Config Group folders that contain configuration files that were automatically saved by NETLAB+ at the end of each lab reservation. Select a folder by clicking on the name. In this example, we select the folder from a reservation completed on 2018-06-14, lab exercise 2.6.1.2 (CCNA Security).

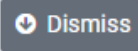


The contents of the page will vary. You may see configuration files that were saved for individual devices. The list may also include folders for other classes and accounts.

Name	Type	Updated	Action
2.2.4.5 Lab - Configuring IPv6 Static and Default Routes	Config Group	2018-06-15 11:50	▼
3.2.1.9 Lab - Configuring Basic RIPv2	Config Group	2018-06-14 12:20	▼
2.6.1.2 Lab - Securing the Router for Administrative Access	Config Group	2018-06-14 10:44	▼
S1	Final Lab Config	2018-06-15 11:50	▼
R2	Final Lab Config	2018-06-15 11:50	▼
R3	Final Lab Config	2018-06-15 11:50	▼
S3	Final Lab Config	2018-06-15 11:50	▼
S2	Final Lab Config	2018-06-15 11:50	▼

- The configuration files saved at the end of the lab reservation for each device in the lab topology are listed (file type is Final Lab Config). You may **View** any file by selecting the option on the Action dropdown.

Name	Type	Updated	Action
 R1	Final Lab Config	2018-06-14 10:44	
 S3	Final Lab Config	2018-06-14 10:44	
 R3	Final Lab Config	2018-06-14 10:44	
 S1	Final Lab Config	2018-06-14 10:44	
 S2	Final Lab Config	2018-06-14 10:44	
 R2	Final Lab Config	2018-06-14 10:44	

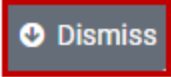


- The configuration file is displayed. When you are finished viewing the file, click **Dismiss**.

```





1  !! NETLAB+ saved configuration: time="2018-06-14 14:44:51 UTC" device="R1"
2  !
3  ! Last configuration change at 20:21:35 UTC Mon Jun 12 2017
4  !
5  version 15.4
6  service timestamps debug datetime msec
7  service timestamps log datetime msec
8  no service password-encryption
9  !
10 hostname Router
11 !
12 boot-start-marker
13 boot-end-marker
14 !
15 !
16 !
17 no aaa new-model
18 memory-size iomem 15
19 !
20 !
21 !
22 !

```



9.2 Configuration File Usage During Lab Reservations

In the subsections below, we will show how to save, load, and erase configuration files during a lab reservation. To illustrate these processes, we have created a lab reservation on a Multi-purpose Academy Pod (MAP). The MAP includes 3 routers and 3 switches.

Lab Reservations		Search	
ID	Date/Time	Description	Pod
1399	 2017-10-26 11:30  2017-10-26 12:30  50 mins. <input type="button" value="Enter Lab"/>	Individual Instructor Pod Reservation (private) Class: 2.6.1.2 Lab - Securing the Router for Administrative Access	CCNA_MAP_4  MULTI-PURPOSE ACADEMY POD 3 Routers, 3 Switches

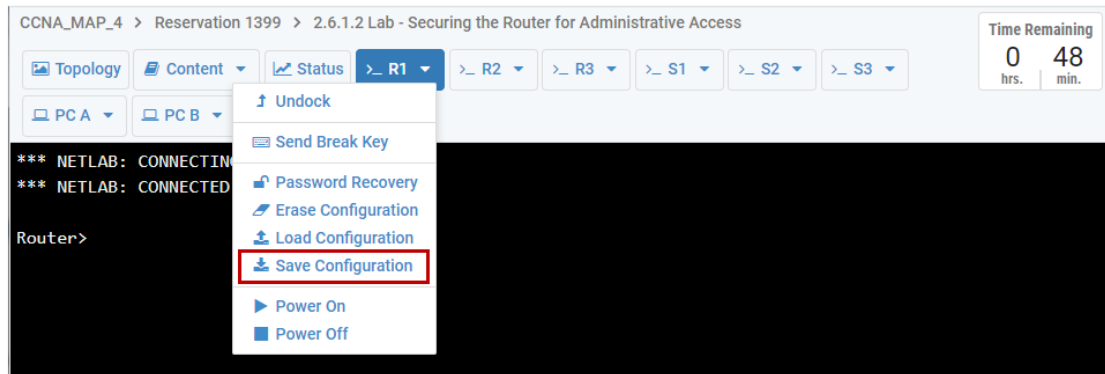


This section assumes some basic knowledge of how to [Schedule Lab Reservations](#) and [Enter a Lab Session](#).

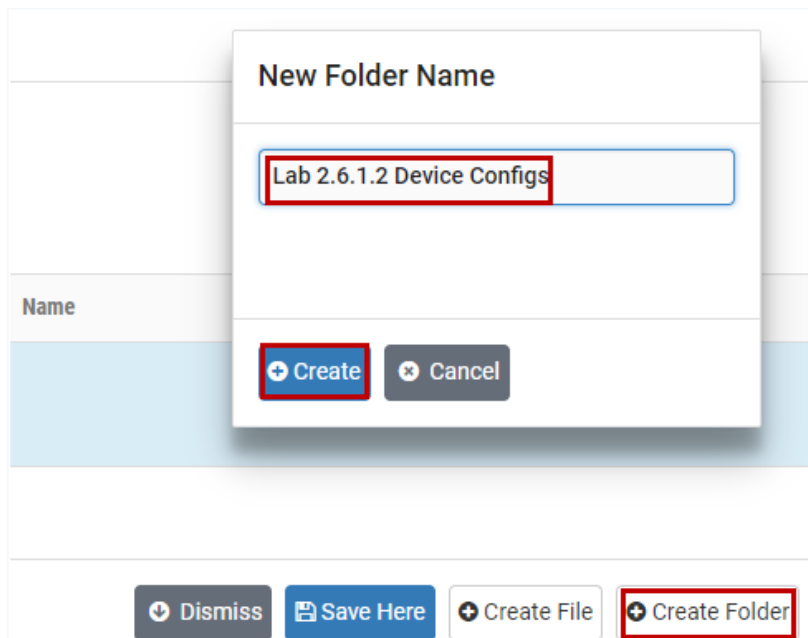
9.2.1 Saving Configuration Files During a Lab Reservation

When saving a configuration, NETLAB+ captures the output from the 'show running' or equivalent commands.

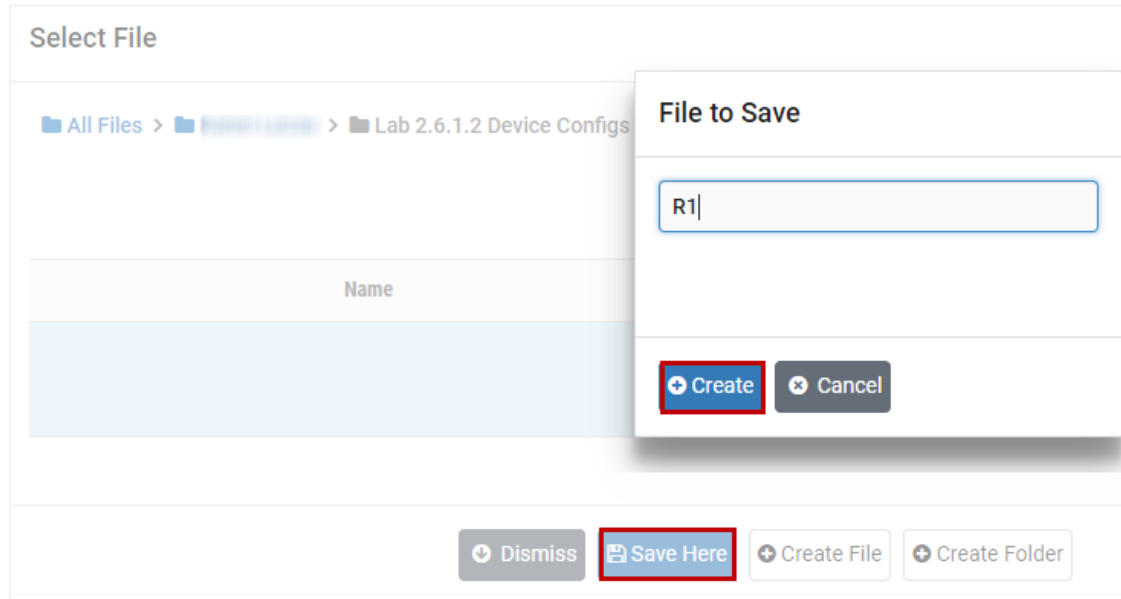
1. To save a configuration file during a lab reservation, select the device (R1 in this example). Click the R1 button again to display the dropdown menu and select the option to **Save Configuration**.



2. You have the option to create a subfolder for your file(s), which can be helpful in keeping your files organized. Here, we will create a folder for device configuration files for this lab by selecting **Create Folder**, entering a folder name, and then selecting **Create**.



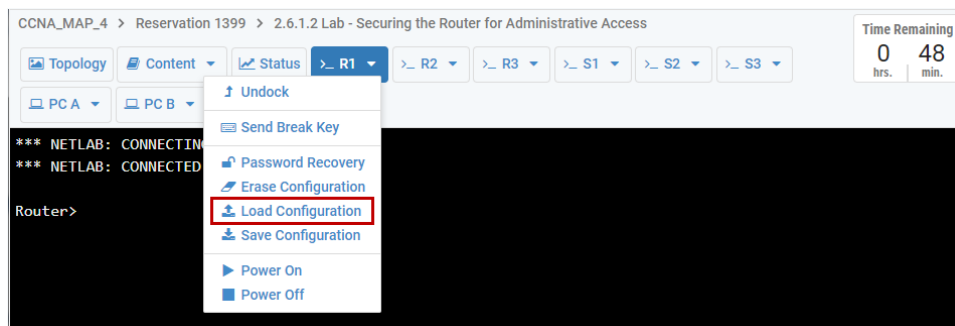
- Click the name of the new folder to select it as the current folder. Select the option to **Save Here**. The pop-up box will show the default file name as *R1* since we are saving the configuration of the R1 device. Click **Create**. The file will be saved in the *Lab 2.6.1.2 Device Configs* folder.



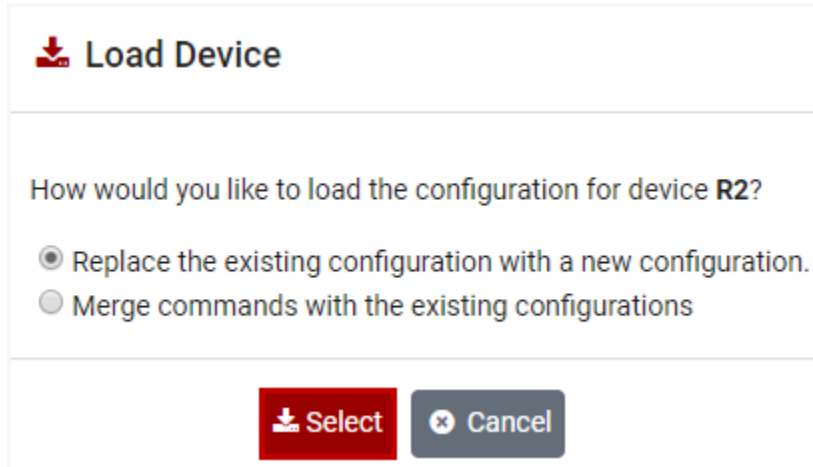
9.2.2 Loading Configuration Files During a Lab Reservation


When loading a configuration into a device, NETLAB+ will enter configuration mode and send each line of the configuration file as if you had typed it manually.

- To load a configuration file during a lab reservation, select the device (R1 in this example). Click the R1 button again to display the dropdown menu and select the option to **Load Configuration**.





- The Load Device pop-up window will be displayed. You may choose to replace the existing configuration or merge commands with the existing configuration on the device. For this example, we will choose to **Replace the existing configuration with a new configuration** and click the **Select** button.



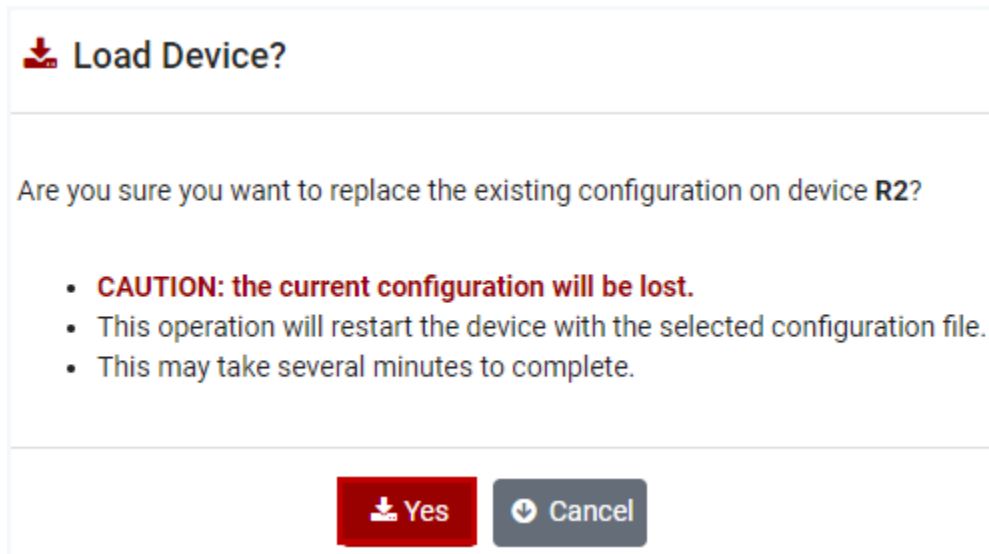
 **Load Device**


How would you like to load the configuration for device **R2**?

Replace the existing configuration with a new configuration.
 Merge commands with the existing configurations



- Confirm your choice to replace the existing configuration on the device by selecting **Yes**.



 **Load Device?**

Are you sure you want to replace the existing configuration on device **R2**?


- CAUTION: the current configuration will be lost.**
- This operation will restart the device with the selected configuration file.
- This may take several minutes to complete.

4. Select the source location of the configuration file. For this example, we will select History, which will allow us to use a configuration file saved from a previous lab session.




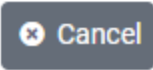
Configuration files for all lab devices in a topology are saved automatically by NETLAB+ at the end of each lab reservation. The files are stored in a folder named for the lab exercise. These folders may be accessed by selecting to load configurations from History, as shown below.

 **Source Location**


Where would you like to load the configuration from?


File System

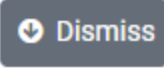
History

5. Select the account folder by clicking the folder name.

 **All Files**

Name	Type
 NDG	Account Folder



- The Select File page will be displayed. You will see Config Group folders that contain configuration files that were automatically saved by NETLAB+ during previous lab reservations. Select a folder by clicking on the name. In this example, we select the folder from a reservation completed on 2018-06-14, lab exercise 2.6.1.2 (CCNA Security).



The contents of the Select File page will vary. You may see configuration files that were saved for individual devices. The list may also include folders for other classes and accounts.

Name	Type	Updated	Action
2.2.4.5 Lab - Configuring IPv6 Static and Default Routes	Config Group	2018-06-15 11:50	▼
3.2.1.9 Lab - Configuring Basic RIPV2	Config Group	2018-06-14 12:20	▼
2.6.1.2 Lab - Securing the Router for Administrative Access	Config Group	2018-06-14 10:44	▼
S1	Final Lab Config	2018-06-15 11:50	▼
R2	Final Lab Config	2018-06-15 11:50	▼
R3	Final Lab Config	2018-06-15 11:50	▼
S3	Final Lab Config	2018-06-15 11:50	▼
S2	Final Lab Config	2018-06-15 11:50	▼

[Dismiss](#)

- The configuration files saved at the end of the lab reservation for each device in the lab topology are listed (file type is Final Lab Config). You may **View** any file by selecting the option on the Action dropdown.

Name	Type	Updated	Action
R1	Final Lab Config	2018-06-14 10:44	▼
S3	Final Lab Config	2018-06-14 10:44	<div style="border: 2px solid red; padding: 2px;"> View Select </div>
R3	Final Lab Config	2018-06-14 10:44	▼
S1	Final Lab Config	2018-06-14 10:44	▼
S2	Final Lab Config	2018-06-14 10:44	▼
R2	Final Lab Config	2018-06-14 10:44	▼

- The configuration file is displayed. You may choose to load this file on the device by clicking the **Select** button.

```

1  !! NETLAB+ saved configuration: time="2018-06-14 14:44:51 UTC"
2  !
3  ! Last configuration change at 20:21:35 UTC Mon Jun 12 2017
4  !
5  version 15.4
6  service timestamps debug datetime msec
7  service timestamps log datetime msec
8  no service password-encryption
9  !
10 hostname Router
11 !
12 boot-start-marker
13 boot-end-marker
14 !
15 !
16 !
17 no aaa new-model
18 memory-size iomem 15
19 !

```

- You will see the configuration loading. Keyboard input will be disabled while the automation is in progress.

```

CISCO2901/K9 platform with 524288 Kbytes of main memory
Main memory is configured to 72/-1(On-board/DIMM0) bit mode with ECC enabled

Readonly ROMMON initialized
<BREAK><BREAK><BREAK>rommon 1 >
rommon 1 >
rommon 1 > # NETLAB SYNC 1 #
rommon 2 > # NETLAB SYNC 2 #
rommon 3 > # NETLAB SYNC 3 #
rommon 4 > dir flash:
program load complete, entry point: 0x80803000, size: 0x1b340
Directory of flash:

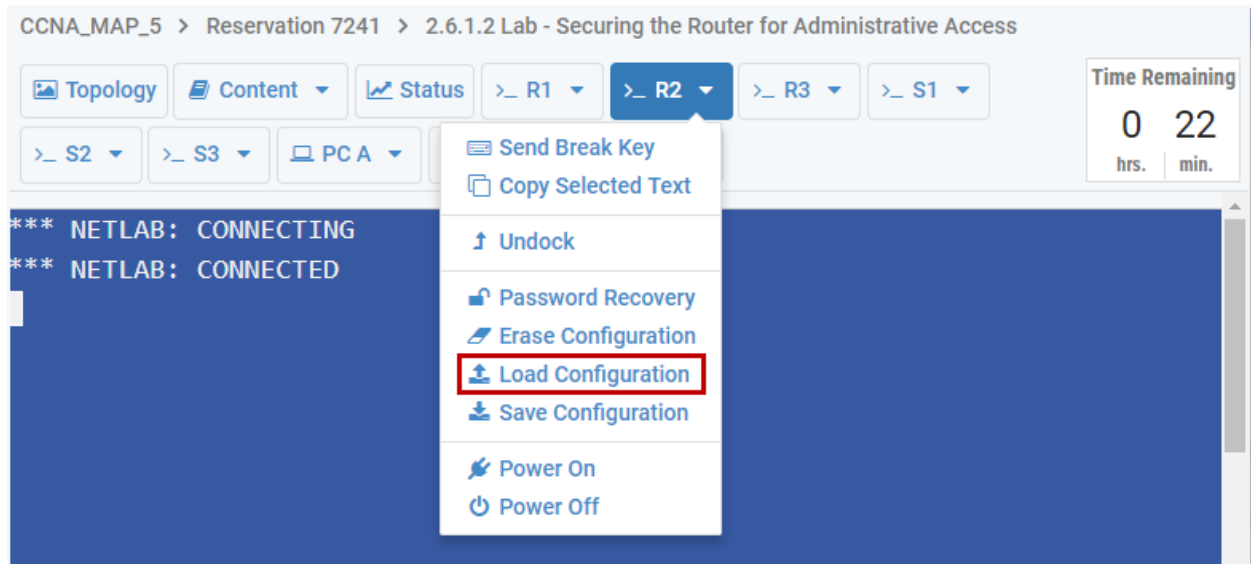
7      104134844  -rw-      c2900-universalk9-mz.SPA.154-3.M2.bin
25434      0      drw-      n
2      1793      -rw-      exit
4      1609      -rw-      R1-running-config-backup
5      0      drw-      ipsdir
3      1805      -rw-      running-config
rommon 5 > confreg 0x2142

```


⏹ KEYBOARD INPUT DISABLED (AUTOMATION IN PROGRESS)

R1
80 X 24
TX
RX
↶
↷

- Next, we will load a configuration file into device R2. To load a configuration file during a lab reservation, select the device (R2 in this example). Click the R2 button again to display the dropdown menu and select the option to **Load Configuration**.



- To load a configuration file without erasing the current configuration on a device, select the option to **Merge commands with the existing configurations**.

 **Load Device**

How would you like to load the configuration for device **R2**?

Replace the existing configuration with a new configuration.


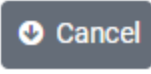
Merge commands with the existing configurations

12. Confirm your intention to modify the existing configuration by clicking the **Yes** button.

Load Device?

Are you sure you want to modify the existing configuration on device **R2**?

- **CAUTION: This may alter the current configuration.**
- This operation will merge the current configuration with the selected configuration file.

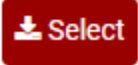
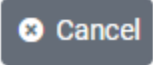
 

13. For this example, we will use a file that was saved by the user during a previous lab reservation. Select the option to load a configuration from the **File System**.

Source Location

Where would you like to load the configuration from?

File System
 History

14. The Select File page will be displayed. The list of files/folders includes class and account folders. Select a folder by clicking on the folder name.



The contents of the Select File page will vary. You may see configuration files that were saved for individual devices. The list may also include folders for other classes and accounts.

Select File

📁 All Files

All Files ▾
Search

Name	Type
📁 NDG	Account Folder
📁 CCNA Summer Routing and Switching 2018	Class Folder
📁 Ethical Hacking	Class Folder

⬇️ Dismiss

15. The class folder in this example contains a file that was previously saved by the instructor. To view the file, click the file name.

Select File

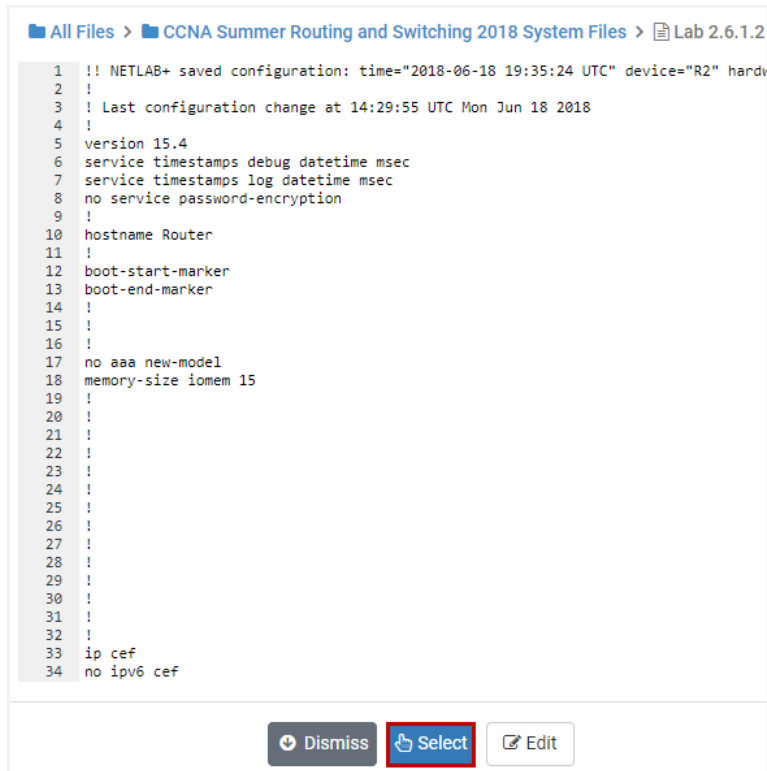
📁 All Files > 📁 CCNA Summer Routing and Switching 2018 System Files

Search

Name	Type	Updated	Action
📄 Lab 2.6.1.2 Config for R2	File	2018-06-18 15:35	▾

⬇️ Dismiss
➕ Create File
➕ Create Folder

16. The configuration file will be displayed. Click **Select** to load the file.

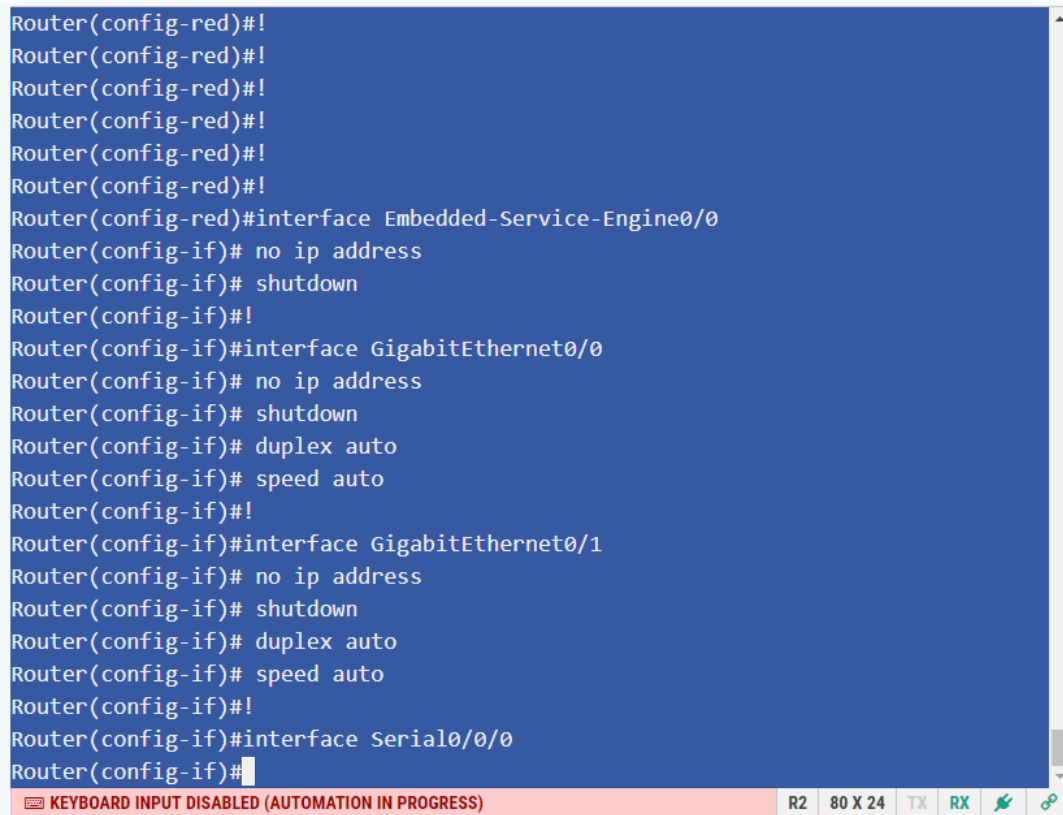


```

1  !! NETLAB+ saved configuration: time="2018-06-18 19:35:24 UTC" device="R2" hardw
2  !
3  ! Last configuration change at 14:29:55 UTC Mon Jun 18 2018
4  !
5  version 15.4
6  service timestamps debug datetime msec
7  service timestamps log datetime msec
8  no service password-encryption
9  !
10 hostname Router
11 !
12 boot-start-marker
13 boot-end-marker
14 !
15 !
16 !
17 no aaa new-model
18 memory-size iomem 15
19 !
20 !
21 !
22 !
23 !
24 !
25 !
26 !
27 !
28 !
29 !
30 !
31 !
32 !
33 ip cef
34 no ipv6 cef
  
```

Dismiss Select Edit

17. You will see the configuration loading. Keyboard input will be disabled while the automation is in progress.



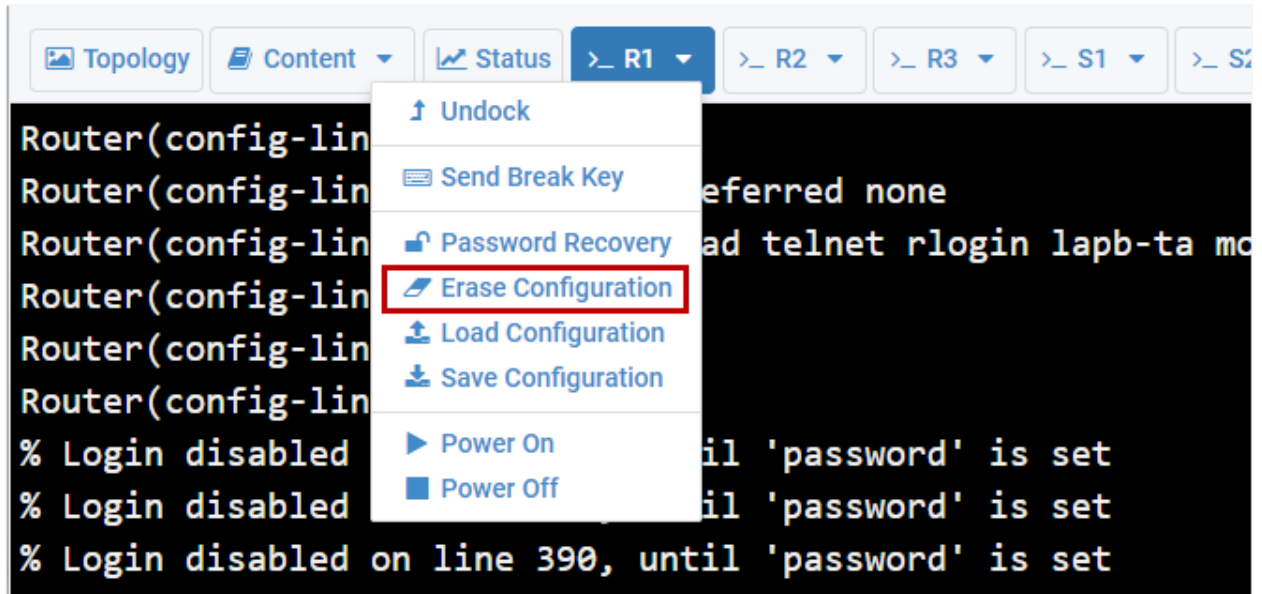
```

Router(config-red)#!
Router(config-red)#!
Router(config-red)#!
Router(config-red)#!
Router(config-red)#!
Router(config-red)#!
Router(config-red)#interface Embedded-Service-Engine0/0
Router(config-if)# no ip address
Router(config-if)# shutdown
Router(config-if)#!
Router(config-if)#interface GigabitEthernet0/0
Router(config-if)# no ip address
Router(config-if)# shutdown
Router(config-if)# duplex auto
Router(config-if)# speed auto
Router(config-if)#!
Router(config-if)#interface GigabitEthernet0/1
Router(config-if)# no ip address
Router(config-if)# shutdown
Router(config-if)# duplex auto
Router(config-if)# speed auto
Router(config-if)#!
Router(config-if)#interface Serial0/0/0
Router(config-if)#
  
```

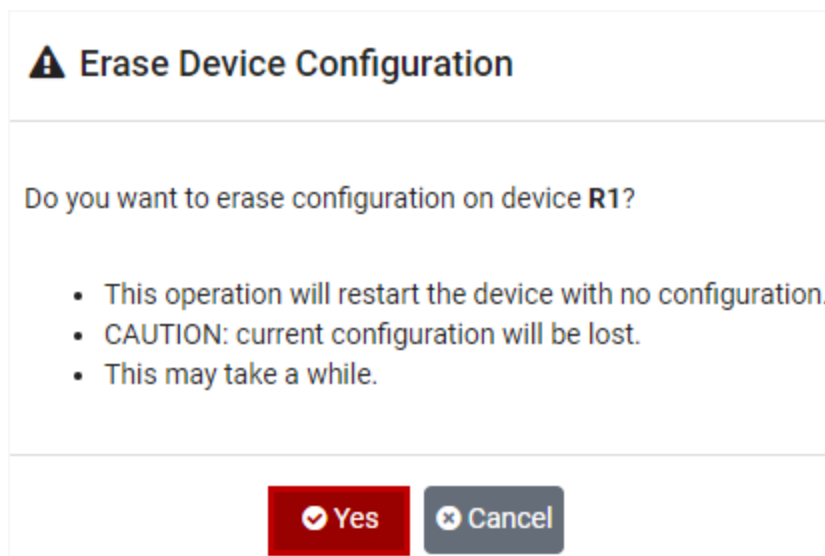
KEYBOARD INPUT DISABLED (AUTOMATION IN PROGRESS) R2 80 X 24 TX RX

9.2.3 Erasing the Configuration on a Device During a Lab Reservation

1. To erase the configuration on a device during a lab reservation, select the device (R1 in this example). Click the R1 button again to display the dropdown menu and select the option to **Erase Configuration**.

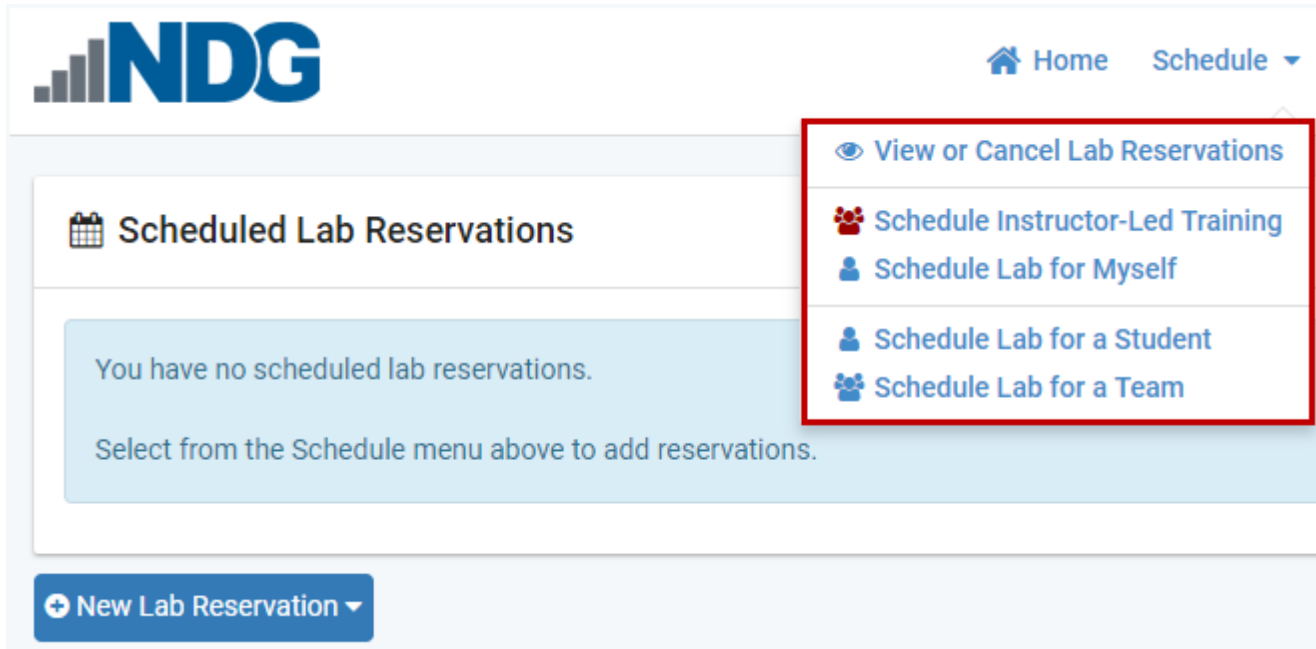


2. A warning message will be displayed. Select **Yes** to confirm that you want to erase the configuration.



10 Schedule Lab Reservations

NETLAB+ includes a scheduling feature to facilitate scheduled lab access. Reservations can be scheduled for instructor-led training, personal use, for use by a student, or for use by a team. The scheduling options are displayed by clicking **Schedule** on the top menu bar as shown below, or by selecting the New Lab Reservation button.



The screenshot shows the NETLAB+ interface. At the top left is the NDG logo. At the top right are navigation links for 'Home' and 'Schedule'. Below the navigation is a section titled 'Scheduled Lab Reservations' with a calendar icon. A message states: 'You have no scheduled lab reservations. Select from the Schedule menu above to add reservations.' A blue button labeled 'New Lab Reservation' is at the bottom left. A red box highlights the 'Schedule' dropdown menu, which contains the following options:

- View or Cancel Lab Reservations
- Schedule Instructor-Led Training
- Schedule Lab for Myself
- Schedule Lab for a Student
- Schedule Lab for a Team

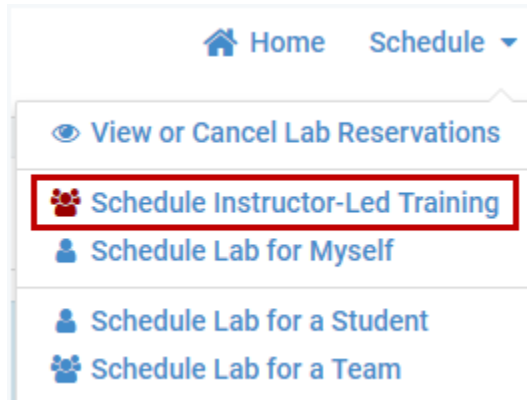
The following options are explained in detail in the subsections below.

- **View or Cancel Lab Reservations:** See a list of the lab reservations currently scheduled.
- **Schedule Instructor-Led Training:** Use this option for lecturing or guiding a class of learners. With this option, you and a designated class will share the same lab reservation time.
- **Schedule Lab for Myself:** Use lab equipment for your own practice.
- **Schedule Lab for a Student:** Designate a student to work on a specific exercise or free time to gain practice.
- **Schedule Lab for a Team:** With this type of reservation, you can allow your students to share lab time as teams.


10.1 Schedule Instructor-led Training

You may make reservations for instructor-led training for any class that you are a lead instructor. With this option, you and a designated class will share the same lab reservation. Use this option for lecturing or guiding an entire class of students.

1. Select **Schedule Instructor-Led Training** as the scheduling option.



2. A list of all classes for which you have been designated lead instructor will be displayed. Select the class that will be using the lab reservation by clicking anywhere on the row. In the example below, the ***Ethical Hacking Spring 2018*** class is selected.

 Classes You Lead				
Name	Leads	Enrolled	Start Dat	End Date
EMC ISM Fall 2017	Test Instructor	3	None	None
Ethical Hacking Spring 2018	Test Instructor	7	None	None




If you are a lead instructor of one class only, the Classes You Lead page will not be displayed. Instead, the list of lab exercises (as shown below) will be displayed immediately.

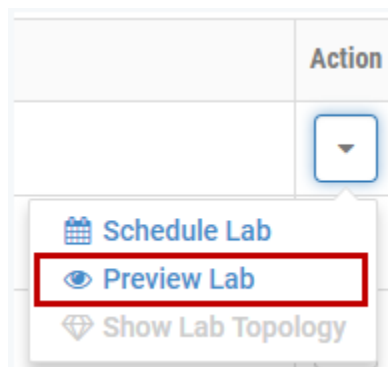
- A list of lab exercises associated with the class will be displayed. Select a lab exercise by clicking the lab name.



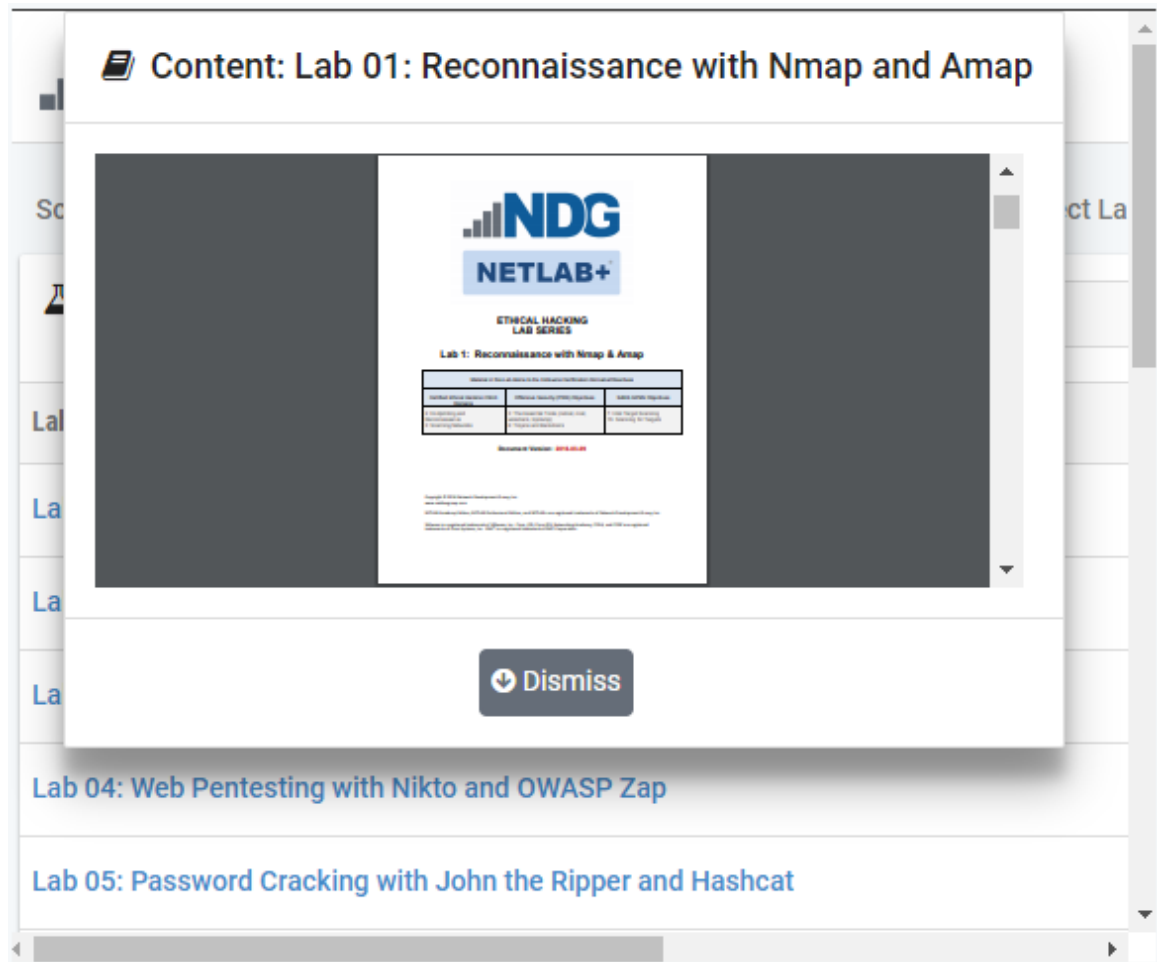
You may search for a lab by entering a value in the search box in the upper-right corner.

 NDG Ethical Hacking <input type="text" value="Search"/>	
Lab Name	Action
Lab 01: Reconnaissance with Nmap and Amap	<input type="button" value="▼"/>
Lab 02: Social Engineering Attacks with Social Engineering Toolkit	<input type="button" value="▼"/>
Lab 03: Metasploit Framework Fundamentals	<input type="button" value="▼"/>
Lab 04: Web Pentesting with Nikto and OWASP Zap	<input type="button" value="▼"/>
Lab 05: Password Cracking with John the Ripper and Hashcat	<input type="button" value="▼"/>
Lab 06: Creating and Installing SSL Certificates	<input type="button" value="▼"/>

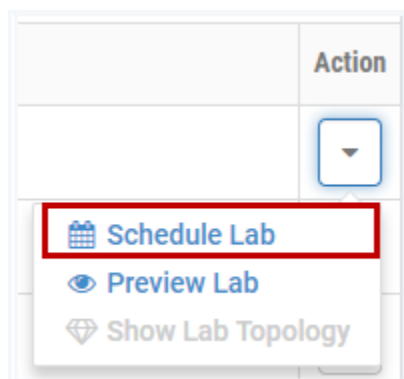
- To see a preview of the instructional material associated with a lab, select **Preview Lab** on the Action dropdown at the end of the lab list row (previewing the lab is optional).



- The content will be displayed. The options available to zoom, view, download, and print the content will vary, depending on your browser settings. Select **Dismiss** to return to the list of labs.



- To schedule a lab session to perform Lab 01, select **Schedule Lab** on the Action dropdown at the end of the lab list row.



The Pod Scheduler will be displayed, allowing you to schedule a lab reservation for the selected lab.

📅 Pod Scheduler

◀ ⬆ June - 2018 ▶

Sun	Mon	Tue	Wed	Thu	Fri	Sat
27	28	29	30	31	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30


Selected Day

June

29



2018

Current Time



10:03

Eastern Time (US & Canada)

	Ethical_Hacking_Pod_1 	Ethical_Hacking_Pod_2 	
09:00			
10:00			
11:00		Reservation 101	
12:00			

Pod Scheduler Features:

- **Calendar:** Use the calendar in the upper-left corner to select the date for the reservation by clicking on the date of your choice. You may scroll from month to month by selecting the ◀ and ▶ buttons. Select the ⬆ button to reset the selected day to today's date.
- **Selected Day:** The day selected on the calendar is shown here. It is initially set to today's date but can be modified by making a new selection on the calendar.
- **Current Time:** Displays the current time according to your time zone settings. The time may be displayed using 12-hour or 24-hour time, depending on your settings.
- **Schedule Table:** The columns of the table show the pods available to you for scheduling the selected lab. The number of pods available will depend upon the

number and type of pods that have been installed on your NETLAB+ system. Consult your instructor or NETLAB+ administrator if you have questions about the pods available to you. The rows of the table show reservation times. The solid red line indicates the current time.

- To select a lab reservation time, scroll the table as needed to display available time-slots. The time-slots below the red line (current time) may be selected if available. Select a lab reservation time on a pod by clicking the appropriate box.



If you want to start your lab reservation now, select the time-slot immediately below the red line.

	Ethical_Hacking_Pod_1  Ethical Hacking	Ethical_Hacking_Pod_2  Ethical Hacking
09:00		
10:00	Select Here to Start a Lab Now on Pod 1	
11:00		Reservation 101
12:00		
13:00		
14:00		

In the example above, notice that the 11:00 time-slot for Pod 2 is not available since a reservation for that time has already been made.

8. Details of the lab reservation are displayed. In this example, a reservation for an instructor-led training reservation has been selected on Pod 1. Review the details, change the End Time if needed (see picture below) and then click **Submit**.

Add Reservation

Pod Ethical_Hacking_Pod_1


Reservation Type Instructor-Led Training

Class Name Ethical Hacking Spring 2018

Lab Exercise Lab 01: Reconnaissance with Nmap and Amap

Time Zone Eastern Time (US & Canada)

Start Time 2018-06-29 10:30

End Time 2018-06-29 11:30 

Length of Reservation 50 mins.



Keep in mind that the last 10 minutes of a lab reservation is used for system cleanup and reset. As shown in the example above, the Length of Reservation for a 1-hour timeslot is 50 minutes.



The End Time may be modified by clicking the End Time field and selecting a new time on the pop-up calendar (subject to pod availability). Time limits are not enforced for instructor-led training reservations.

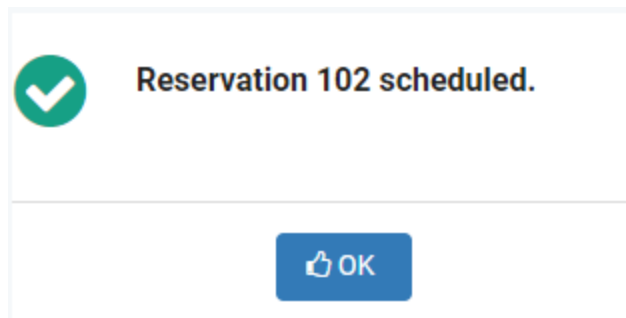
End Time **2018-06-29 11:30**

Reservation






June 2018

Sun	Mon	Tue	Wed	Thu	Fri	Sat	
27	28	29	30	31	1	2	11:30
	3	4	5	6	7	8	12:00
	10	11	12	13	14	15	12:30
	17	18	19	20	21	22	13:00
	24	25	26	27	28	29	13:30
						30	14:00







9. A confirmation message will display. Select **OK** to return to the MyNETLAB page.



The lab reservation for instructor-led training is now displayed on the MyNETLAB page. This information will also display on the MyNETLAB page for all learner accounts in the class roster, allowing them to enter and participate in the lab reservation.

 Lab Reservations			
ID	Date/Time	Description	Pod
102	 2018-06-29 10:30  2018-06-29 11:30  50 mins.	ILT: Ethical Hacking Spring 2018 Class: Lab 01: Reconnaissance with Nmap and Amap	Ethical_Hacking_Pod_1 

At the scheduled time, the **Enter Lab** button will display. Notice that the description shows that this is an ILT (instructor-led training) reservation.

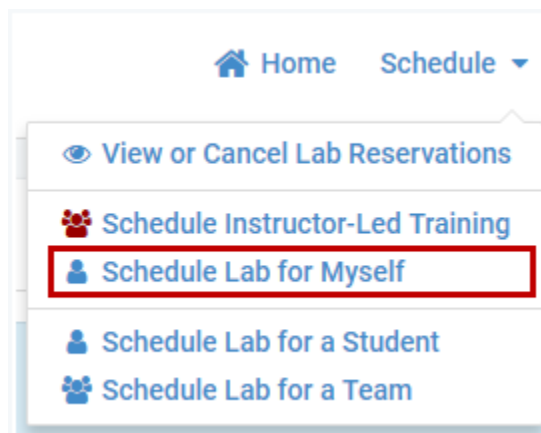
 Lab Reservations Search			
ID	Date/Time	Description	Pod
102	 2018-06-29 10:30  2018-06-29 11:30  50 mins. <div style="border: 2px solid red; padding: 2px; display: inline-block; background-color: #008000; color: white;">Enter Lab </div>	ILT: Ethical Hacking Spring 2018 Class: Lab 01: Reconnaissance with Nmap and Amap	Ethical_Hacking_Pod_1 

For details on entering and performing a lab reservation, please see the [Enter a Lab Session](#) section.

10.2 Schedule Lab for Myself

NETLAB+ includes a scheduling option to allow instructors to schedule lab reservations for their own private use. You may schedule a private lab reservation associated with any class that you are a lead instructor.

1. Select **Schedule Lab for Myself** as the scheduling option. A list of all classes for which you have been designated lead instructor will be displayed.



- Select a class by clicking anywhere on the row. In the example below, the ***Ethical Hacking Spring 2018*** class is selected.

Classes You Lead				
Name	Leads	Enrolled	Start Dal	End Date
EMC ISM Fall 2017	Test Instructor	3	None	None
Ethical Hacking Spring 2018	Test Instructor	7	None	None



If you are a lead instructor of one class only, the Classes You Lead page will not be displayed. Instead, the list of lab exercises (as shown below) will be displayed immediately.

- After selecting the name of the class, a list of lab exercises associated with the class will be displayed. Select a lab by clicking on the lab name.



You may search for a lab by entering a value in the search box in the upper-right corner.

NDG Ethical Hacking		Search
Lab Name	Action	
Lab 01: Reconnaissance with Nmap and Amap	▼	
Lab 02: Social Engineering Attacks with Social Engineering Toolkit	▼	
Lab 03: Metasploit Framework Fundamentals	▼	
Lab 04: Web Pentesting with Nikto and OWASP Zap	▼	
Lab 05: Password Cracking with John the Ripper and Hashcat	▼	
Lab 06: Creating and Installing SSL Certificates	▼	

For this example, we will not preview the lab material. For an example of previewing the lab, please see the [Schedule Instructor-led Training](#) section.

The Pod Scheduler will be displayed, allowing you to schedule a lab reservation for the selected lab.

📅 Pod Scheduler

◀ ⏪ June 2018 ▶

Sun	Mon	Tue	Wed	Thu	Fri	Sat
27	28	29	30	31	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30


Selected Day

June

29



2018

Current Time



10:54

Eastern Time (US & Canada)

	Ethical_Hacking_Pod_1 	Ethical_Hacking_Pod_2 
10:00	Reservation 102	
11:00		Reservation 101
12:00		
13:00		
14:00		



Pod Scheduler Features:

- Calendar:** Use the calendar in the upper-left corner to select the date for the reservation by clicking on the date of your choice. You may scroll from month to month by selecting the ◀ and ▶ buttons. Select the ⏪ button to reset the selected day to today's date.

- **Selected Day:** The day selected on the calendar is shown here. It is initially set to today's date but can be modified by making a new selection on the calendar.
 - **Current Time:** Displays the current time according to your time zone settings. The time may be displayed using 12-hour or 24-hour time, depending on your settings.
 - **Schedule Table:** The columns of the table show the pods available to you for scheduling the selected lab. The number of pods available will depend upon the number and type of pods that have been installed on your NETLAB+ system. Consult your NETLAB+ administrator if you have questions about the pods available to you. The rows of the table show reservation times. The solid red line indicates the current time.
3. To select a lab reservation time, scroll the table as needed to display available time-slots. The time-slots below the red line (current time) may be selected if available. Select a lab reservation time on a pod by clicking the appropriate box.




If you want to start your lab reservation now, select the time-slot immediately below the red line.

	Ethical_Hacking_Pod_1  Ethical Hacking	Ethical_Hacking_Pod_2  Ethical Hacking
10:00	Reservation 102	
11:00		Reservation 101
12:00		
13:00		

In the example above, notice there are time-slots already reserved and not available for selection.

4. Details of the lab reservation are displayed. In this example, a reservation for an instructor private reservation has been selected on Pod 1. Review the details, including changing the End Time if needed (see picture below) and then click **Submit**.

 **Add Reservation**

Pod Ethical_Hacking_Pod_1


Reservation Type Instructor Private Reservation

Reserve For Test Instructor

Lab Exercise Lab 03: Metasploit Framework Fundamentals

Time Zone Eastern Time (US & Canada)

Start Time 2018-06-29 11:30

End Time 2018-06-29 12:30 

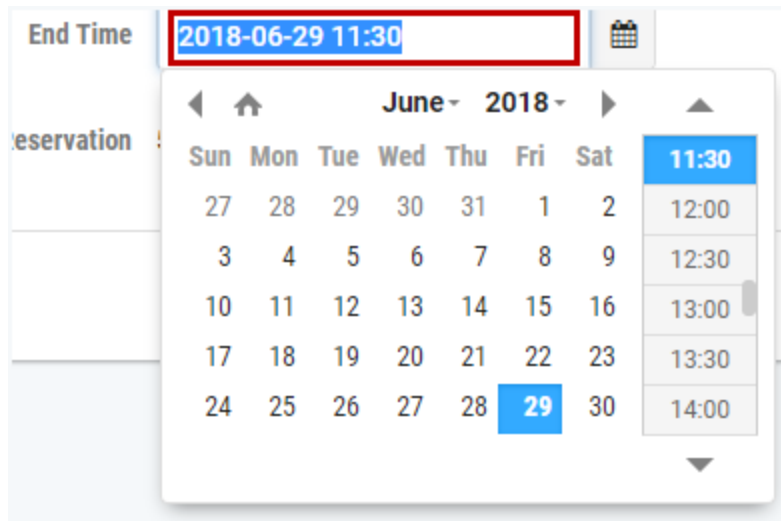
Length of Reservation 50 mins.



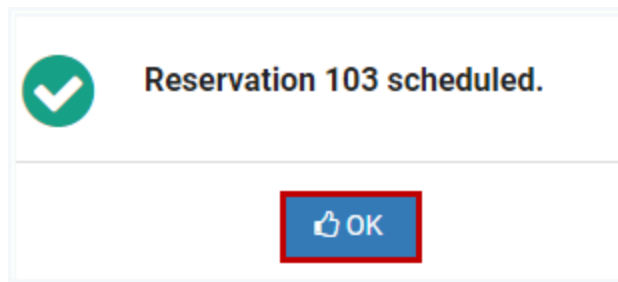
Keep in mind that the last 10 minutes of a lab reservation is used for system cleanup and reset. As shown in the example above, the Length of Reservation for a 1-hour timeslot is 50 minutes.








The End Time may be modified by clicking the End Time field and selecting a new time on the pop-up calendar (subject to pod availability). Time limits are not enforced for instructor's private reservations.








6. A confirmation message will display. Select **OK** to return to the MyNETLAB page.



The lab reservation for the instructor's personal use is now displayed on the MyNETLAB page.

 Lab Reservations Search			
ID	Date/Time	Description	Pod
103	 2018-06-29 11:30  2018-06-29 12:30  50 mins.	Individual Instructor Pod Reservation (private) Class: Lab 03: Metasploit Framework Fundamentals	Ethical_Hacking_Pod_1 

At the scheduled time, the **Enter Lab** button will display, allowing the instructor to enter and participate in the lab session.

Lab Reservations		Search	
ID	Date/Time	Description	Pod
103	 2018-06-29 11:30  2018-06-29 12:30  50 mins. <div style="background-color: #28a745; color: white; padding: 5px; display: inline-block; border-radius: 3px;">Enter Lab </div>	Individual Instructor Pod Reservation (private) Class: Lab 03: Metasploit Framework Fundamental	Ethical_Hacking_Pod_1 

For details on entering and performing a lab reservation, please see the [Enter a Lab Session](#) section.

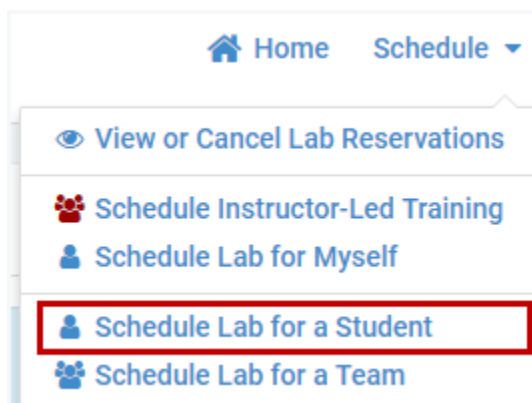
10.3 Schedule Lab for a Student

You may make lab reservations for use by individual students of any class that you are a lead instructor.



As the lead instructor of the class, you have the option of participating in the lab reservation along with the student you assign. This can be a helpful way of providing individual assistance to a student.

1. Select **Schedule Lab for a Student** as the scheduling option.









- A list of all classes for which you have been designated lead instructor will be displayed. Select a class by clicking anywhere on the row. In the example below, the **Ethical Hacking Spring 2018** class is selected.

Classes You Lead Search				
Name	Leads	Enrolled	Start Date	End Date
EMC ISM Fall 2017	Test Instructor	2	None	None
Ethical Hacking Spring 2018	Test Instructor	6	None	None



If you are a lead instructor of one class only, the Classes You Lead page will not be displayed. Instead, the class roster (as shown below) will be displayed immediately.

- The class roster will be displayed. Select a student by clicking on a Username.

Ethical Hacking Spring 2018 Roster Search	
Username	Sorted Name
 bbradley66	Bradley, Betty Jo
 adevane63	Devane, Anna
 janedoe	Doe, Jane
 cfaison61	Faison, Cesar Xavier
 teststudent	Ndg, Teststudent
 imatester	Tester, Ima

Team	Last Login
A	Never
A	Never
B	2017-12-07
B	Never
C	2018-03-15
C	Never

4. After selecting the student who will be using this lab reservation, a list of lab exercises associated with the class will be displayed. Select a lab exercise by clicking the lab name.



You may search for a lab by entering a value in the search box in the upper-right corner.

NDG Ethical Hacking	
	<input type="text" value="Search"/>
Lab Name	Action
Lab 01: Reconnaissance with Nmap and Amap	<input type="button" value="▼"/>
Lab 02: Social Engineering Attacks with Social Engineering Toolkit	<input type="button" value="▼"/>
Lab 03: Metasploit Framework Fundamentals	<input type="button" value="▼"/>
Lab 04: Web Pentesting with Nikto and OWASP Zap	<input type="button" value="▼"/>
Lab 05: Password Cracking with John the Ripper and Hashcat	<input type="button" value="▼"/>
Lab 06: Creating and Installing SSL Certificates	<input type="button" value="▼"/>

The Pod Scheduler will be displayed, allowing you to schedule a lab reservation for the selected lab.

Pod Scheduler

◀ ⬆ June 2018 ▶

Sun	Mon	Tue	Wed	Thu	Fri	Sat
27	28	29	30	31	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

Selected Day

June

26

2018

Current Time



15:28

Eastern Time (US & Canada)

Ethical_Hacking_Pod_1		
15:00		
16:00		
17:00		
18:00		

Pod Scheduler Features:

- Calendar:** Use the calendar in the upper-left corner to select the date for the reservation by clicking on the date of your choice. You may scroll from month to month by selecting the ◀ and ▶ buttons. Select the ⬆ button to reset the selected day to today's date.
- Selected Day:** The day selected on the calendar is shown here. It is initially set to today's date but can be modified by making a new selection on the calendar.
- Current Time:** Displays the current time according to your time zone settings. The time may be displayed using 12-hour or 24-hour time, depending on your settings.
- Schedule Table:** The columns of the table show the pods available to you for scheduling the selected lab. The number of pods available will depend upon the number and type of pods that have been installed on your NETLAB+ system. Consult your instructor or NETLAB+ administrator if you have questions about the pods available to you. The rows of the table show reservation times. The solid red line indicates the current time.


5. Scroll the table as needed to display available time-slots. The time-slots below the red line (current time) may be selected if available. Select a lab reservation time on a pod by clicking the appropriate box.



If you want to start your lab reservation now, select the time-slot immediately below the red line.

Ethical_Hacking_Pod_1	
	
15:00	<div style="border: 1px solid red; padding: 2px;"> Click Here for a reservation starting now. </div>
16:00	
17:00	

5. Details of the lab reservation are displayed. Verify the details and then click **Submit**. Review the details, including changing the End Time if needed, and then click **Submit**.

 **Add Reservation**

Pod Ethical_Hacking_Pod_1


Reservation Type Individual Self Study

Class Name Ethical Hacking Spring 2018

Lab Exercise Lab 03: Metasploit Framework Fundamentals

Time Zone Eastern Time (US & Canada)

Start Time

End Time 

Length of Reservation 38 mins.

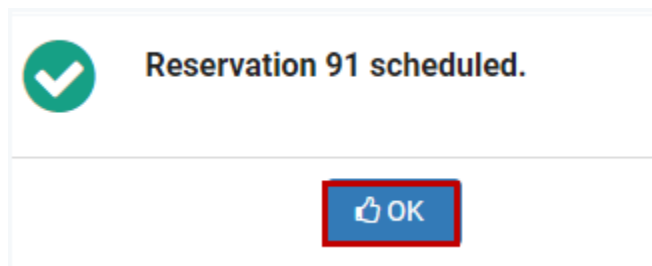


Keep in mind that the last 10 minutes of a lab reservation is used for system cleanup and reset. As shown in the example above, the Length of Reservation for a 1-hour timeslot is 50 minutes.



The End Time may be modified by clicking the End Time field and selecting a new time on the pop-up calendar (subject to pod availability). Time limits are not enforced for reservations made by the instructor for students.

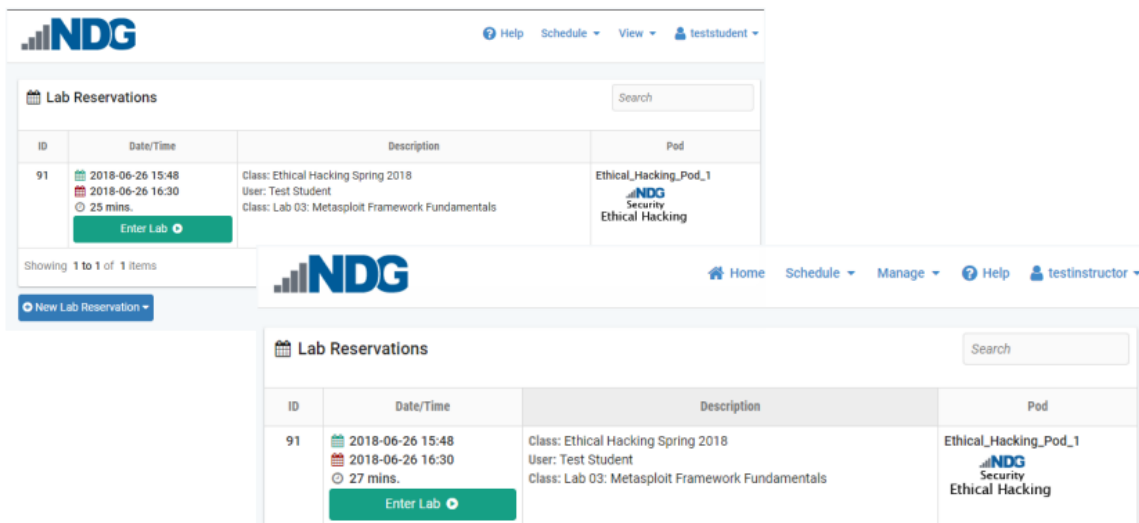
5. A confirmation message will display. Select **OK** to return to the MyNETLAB page.



The lab reservation will be listed on the student's MyNETLAB page. Once the lab reservation is active, the reservation for the individual lab session will be displayed on the MyNETLAB page for both the instructor and the designated student.



Instructors may view both active and inactive student reservations for a specific class by selecting the option to view reservations from the class settings page, see [Add Classes](#).



The screenshot shows two views of the MyNETLAB interface. The top view is from a student's perspective, and the bottom view is from an instructor's perspective. Both views show a table of lab reservations.

ID	Date/Time	Description	Pod
91	2018-06-26 15:48 2018-06-26 16:30 25 mins.	Class: Ethical Hacking Spring 2018 User: Test Student Class: Lab 03: Metasploit Framework Fundamentals	Ethical_Hacking_Pod_1 NDG Security Ethical Hacking

The student view includes a search bar, a "New Lab Reservation" button, and a "Showing 1 to 1 of 1 items" indicator. The instructor view includes a search bar, a "Home" button, and a "Manage" dropdown menu.

For details on entering and performing a lab reservation, please see the [Enter a Lab Session](#) section.

10.4 Schedule Lab for a Team

You may make lab reservations for use by student teams of any class that you are a lead instructor.

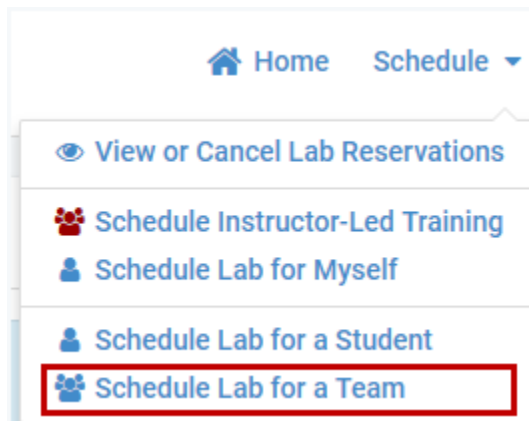


To allow students to work together and share team lab reservations, you must assign the learners in the class roster to teams, see [Group the Class Roster Into Teams](#).




As the lead instructor of the class, you have the option of participating in the lab reservation along with the team you assign. This can be a helpful way of assisting a group of students.

1. Select **Schedule Lab for a Student** as the scheduling option.










2. A list of all classes for which you have been designated lead instructor will be displayed. Select a class by clicking anywhere on the row. In the example below, the **Ethical Hacking Spring 2018** class is selected.

 Classes You Lead Search				
Name	Leads	Enrolled	Start Date	End Date
EMC ISM Fall 2017	Test Instructor	2	None	None
Ethical Hacking Spring 2018	Test Instructor	6	None	None



If you are a lead instructor of one class only, the Classes You Lead page will not be displayed. Instead, the class roster (as shown below) will be displayed immediately.

- The Teams page will be displayed, showing the team assignments that have been made by the instructor to learners on the class roster. Notice the list is sorted by team. Select a team by clicking on the list (you will see that all members of the team will be highlighted, as you select it). For this example, we have selected team **A**.


 Ethical Hacking Spring 2018 Teams			
Team	Username	Sorted Name	Last Login
A	 bbradley66	Bradley, Betty Jo	Never
A	 adevane63	Devane, Anna	Never
B	 janedoe	Doe, Jane	2017-12-07
B	 cfaison61	Faison, Cesar Xavi	Never
C	 teststudent	Ndg, Teststudent	2018-06-26
C	 imatester	Tester, Ima	Never

Show 25 entries Showing 1 to 6 of 6 items

- After selecting the team who will be using the lab reservation, a list of lab exercises associated with the class will be displayed. Select a lab exercise by clicking the lab name.




You may search for a lab by entering a value in the search box in the upper-right corner.

 NDG Ethical Hacking		<input type="text" value="Search"/>
Lab Name	Action	
Lab 01: Reconnaissance with Nmap and Amap	▼	
Lab 02: Social Engineering Attacks with Social Engineering Toolkit	▼	
Lab 03: Metasploit Framework Fundamentals	▼	
Lab 04: Web Pentesting with Nikto and OWASP Zap	▼	
Lab 05: Password Cracking with John the Ripper and Hashcat	▼	
Lab 06: Creating and Installing SSL Certificates	▼	

The Pod Scheduler will be displayed, allowing you to schedule a lab reservation for the selected lab.

Pod Scheduler

◀  June - 2018 ▶

Sun	Mon	Tue	Wed	Thu	Fri	Sat
27	28	29	30	31	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30


Selected Day

June

27


2018

Current Time



16:51

Eastern Time (US & Canada)


	Ethical_Hacking_Pod_1 	
15:00		
16:00		
17:00		
18:00		

Pod Scheduler Features:

- **Calendar:** Use the calendar in the upper-left corner to select the date for the reservation by clicking on the date of your choice. You may scroll from month to month by selecting the ◀ and ▶ buttons. Select the ⬆ button to reset the selected day to today's date.
 - **Selected Day:** The day selected on the calendar is shown here. It is initially set to today's date but can be modified by making a new selection on the calendar.
 - **Current Time:** Displays the current time according to your time zone settings. The time may be displayed using 12-hour or 24-hour time, depending on your settings.
 - **Schedule Table:** The columns of the table show the pods available to you for scheduling the selected lab. The number of pods available will depend upon the number and type of pods that have been installed on your NETLAB+ system. Consult your instructor or NETLAB+ administrator if you have questions about the pods available to you. The rows of the table show reservation times. The solid red line indicates the current time.
5. Scroll the table as needed to display available time-slots. The time-slots below the red line (current time) may be selected if available. Select a lab reservation time on a pod by clicking the appropriate box.



If you want to start your lab reservation now, select the time-slot immediately below the red line.

Ethical_Hacking_Pod_1	
 Security Ethical Hacking	
15:00	Click Here for a reservation starting now.
16:00	
17:00	

6. Details of the lab reservation are displayed. Verify the details, change the End Time if needed, and then click **Submit**.

Add Reservation

Pod Ethical_Hacking_Pod_1


Reservation Type Team Self Study

Class Name Ethical Hacking Spring 2018

Lab Exercise Lab 03: Metasploit Framework Fundamentals

Time Zone Eastern Time (US & Canada)

Start Time

End Time 

Length of Reservation 50 mins.

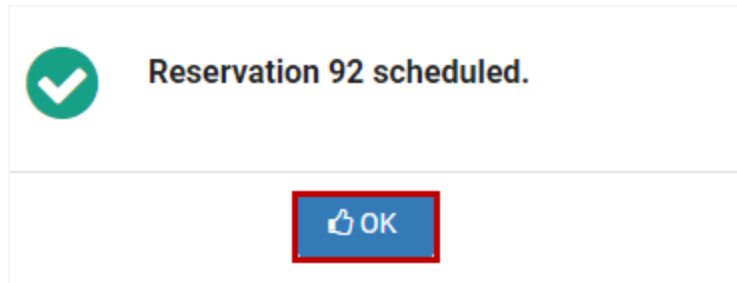


Keep in mind that the last 10 minutes of a lab reservation is used for system cleanup and reset. As shown in the example above, the Length of Reservation for a 1-hour timeslot is 50 minutes.

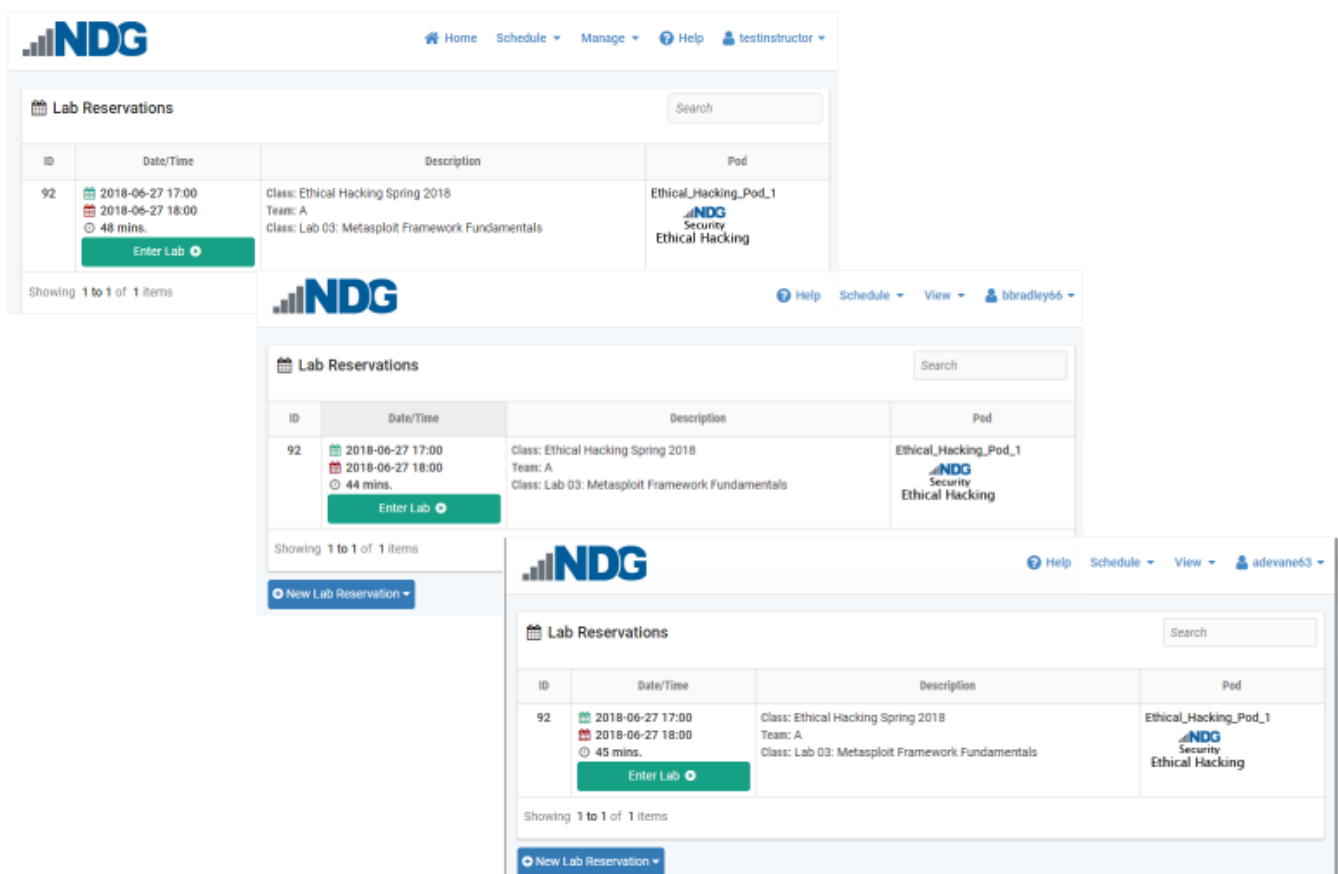


The End Time may be modified by clicking the End Time field and selecting a new time on the pop-up calendar (subject to pod availability). Time limits are not enforced for reservations made by the instructor for teams.


- A confirmation message will display. Select **OK** to return to the MyNETLAB page.



The lab reservation for the team lab session will be displayed on the MyNETLAB page for the instructor and the learners that were assigned to team **A**.



The image shows three overlapping screenshots of the MyNETLAB interface, specifically the "Lab Reservations" section. Each screenshot displays a table with reservation details for ID 92. The table columns are ID, Date/Time, Description, and Pod.

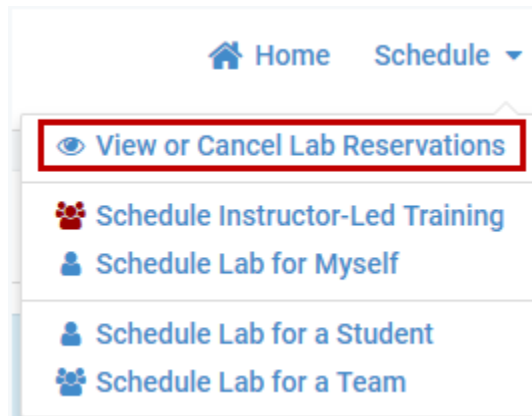
ID	Date/Time	Description	Pod
92	2018-06-27 17:00 2018-06-27 18:00 48 mins.	Class: Ethical Hacking Spring 2018 Team: A Class: Lab 03: Metasploit Framework Fundamentals	Ethical_Hacking_Pod_1 

Each screenshot also shows a green "Enter Lab" button and a "Showing 1 to 1 of 1 items" message. The user profile in the top right corner of each screenshot is different: "testinstructor", "bbradley66", and "adevane63".

For details on entering and performing a lab reservation, please see the [Enter a Lab Session](#) section.

10.5 View or Cancel Reservations

1. Select the **View or Cancel Lab Reservations** schedule option to see a list of the lab reservations currently scheduled.



A list of the current reservations is displayed. The options to view or cancel a lab reservation are accessible by selecting the Action dropdown.



Student reservations will be displayed on this page only while the reservation is active. Instructors may view both active and inactive student reservations for a specific class by selecting the option to view reservations from the class settings page, see [Add Classes](#).



Selecting the schedule option to View or Cancel Reservations allows access to the Action dropdown and the checkbox, **Show Active Only**, which may be selected to list only currently active lab reservations.





Instructors with *community administrator* privileges may view, attend, and manage reservations for the entire community by selecting the **Show Community** checkbox as shown in the picture below. This checkbox is available only to instructors who have been granted community administrator privileges by the NETLAB+ administrator.

MyNETLAB > Community Reservations

Lab Reservations - default

Show Active Only
 Show Community

ID	Date/Time		Pod	Action
79	2019-05-28 14:30 1.0 hours Enter Lab	ILT: Cyber Exercise	MAP-ASA-01  MULTI-PURPOSE ACADEMY POD WITH ASA	<input type="button" value="v"/>
80	2019-05-28 15:30 1.0 hours	ILT: Cyber Exercise	MAP-ASA-01  MULTI-PURPOSE ACADEMY POD WITH ASA	<input type="button" value="v"/>

Show 25 entries Showing 1 to 2

[Dismiss](#)

2. Select **View** to display the details of a lab reservation.

Reservation 80

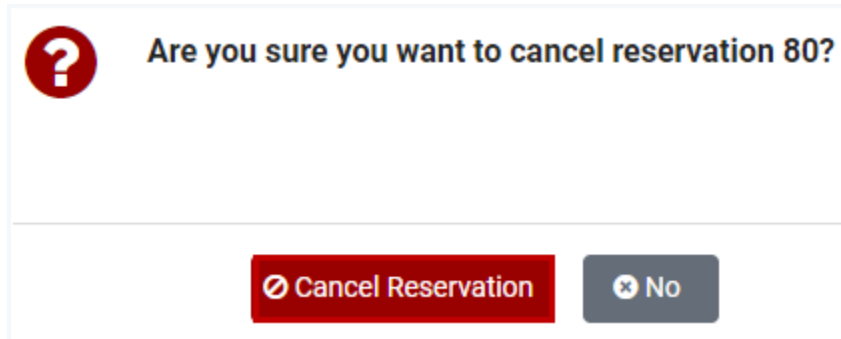
Reservation Type	Instructor-Led Training Class
Class Name	Cybersecurity Spring 2019
Exercise Name	5.1.1.6 Lab - Configuring Basic Switch Settings
Equipment Pod	MAP-ASA-01
Reserved For	Entire Class
Time Zone	Eastern Time (US & Canada)
Start Time	2019-05-28 @ 15:30
End Time	2019-05-28 @ 16:30
Initial Configuration	load default for exercise (if any)

[Dismiss](#) [Cancel Reservation](#)

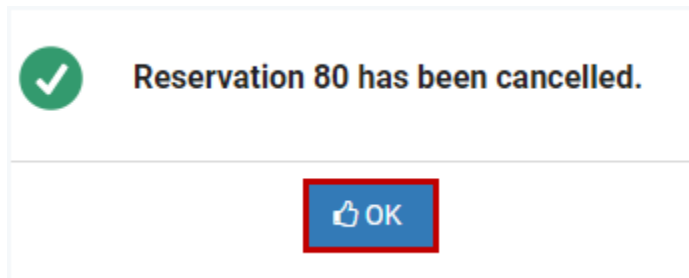
- You may select **Dismiss** to return to the list of labs or select **Cancel Reservation**. You will be prompted to confirm the cancellation.



The message below would also be displayed if you chose the Cancel option on the Action dropdown on the reservation list.



- A message will display, confirming that the reservation has been cancelled. Select **OK** to return the MyNETLAB page.












11 Enter a Lab Session

At the scheduled time of a lab reservation, the **Enter Lab** button will display. Select the button to enter the lab and display the lab access interface.



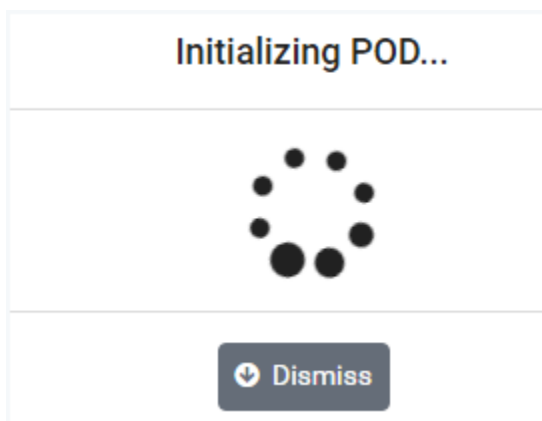
It may be necessary to refresh your browser screen to display the Enter Lab button at the scheduled time.

Lab Reservations		Search	
ID	Date/Time	Description	Pod
40	 2016-09-27 13:00  2016-09-27 14:00  42 mins. <div style="border: 2px solid red; padding: 2px; display: inline-block;">Enter Lab </div>	ILT: EMC ISM Class: Lab 01: Introduction to Storage	EMC_ISMv2_POD1 
41	 2016-09-27 15:00  2016-09-27 16:00  50 mins.	Individual Instructor Pod Reservation (private) Class: Lab 06: Backup and Recovery	EMC_ISMv2_POD2 

You may see the **Initializing POD** indicator displayed on the page at the beginning of your session. This indicates that NETLAB+ is in the process of initializing the lab devices in the pod to prepare them for use. Allow the initialization to proceed.

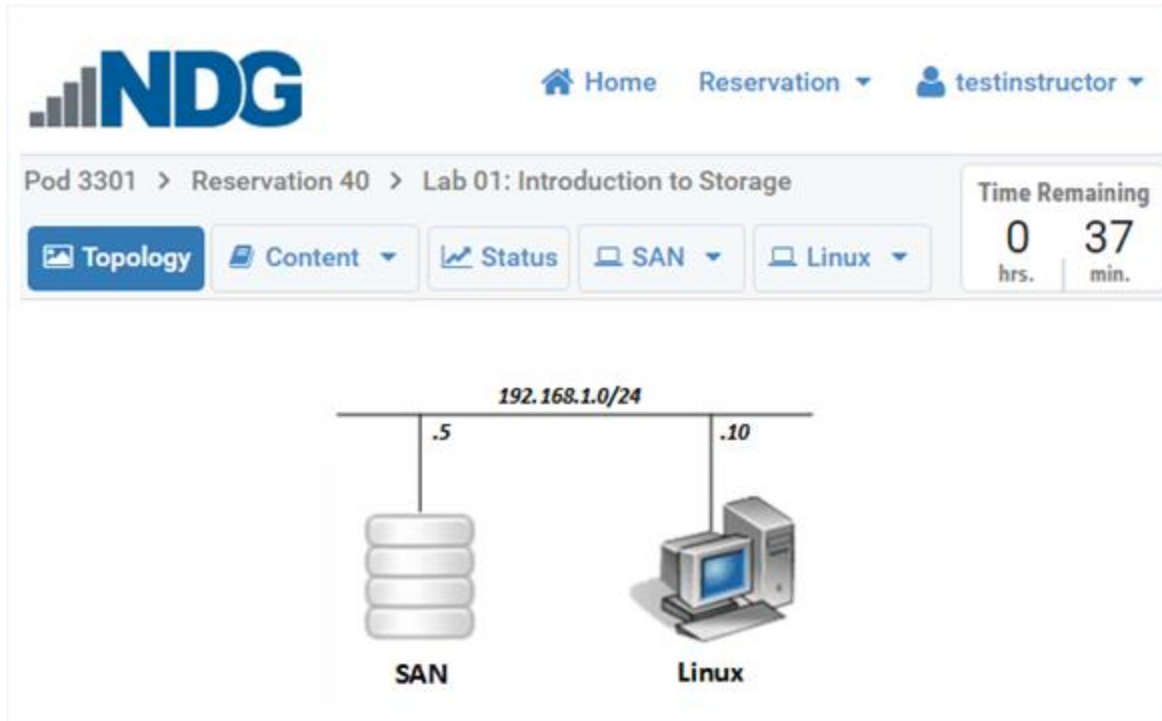


Click **Dismiss** only if you prefer to interrupt the process and return to the MyNETLAB page.

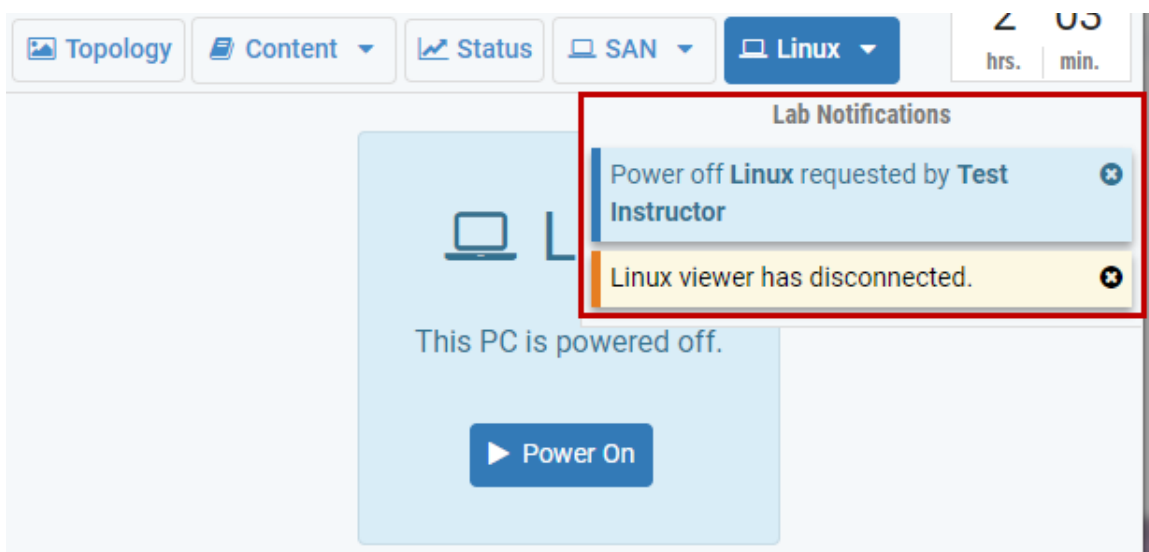


11.1 Explore the Tabbed Sections of the Lab Access Interface

The lab access interface is divided into several tabbed sections. The **Topology**, **Content**, and **Status** tabs provide access to NETLAB+'s functions. Additional tabs provide access to the devices in the pod (devices included in pods vary).



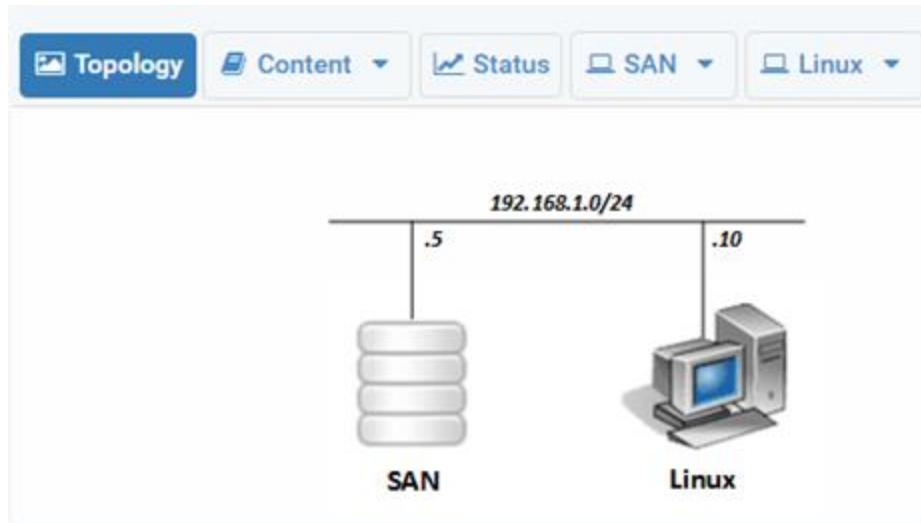
As you perform different actions throughout your lab session in any of the tabbed sections, you will see **Lab Notifications** displayed in the right corner, below the Time Remaining Indicator. Most messages are set to display only briefly.



11.1.1 Topology Tab

The **Topology** tab displays the lab topology, including the IP addressing scheme and physical or logical connections.

In this example, the topology diagram shows two devices: a SAN and a Linux machine.



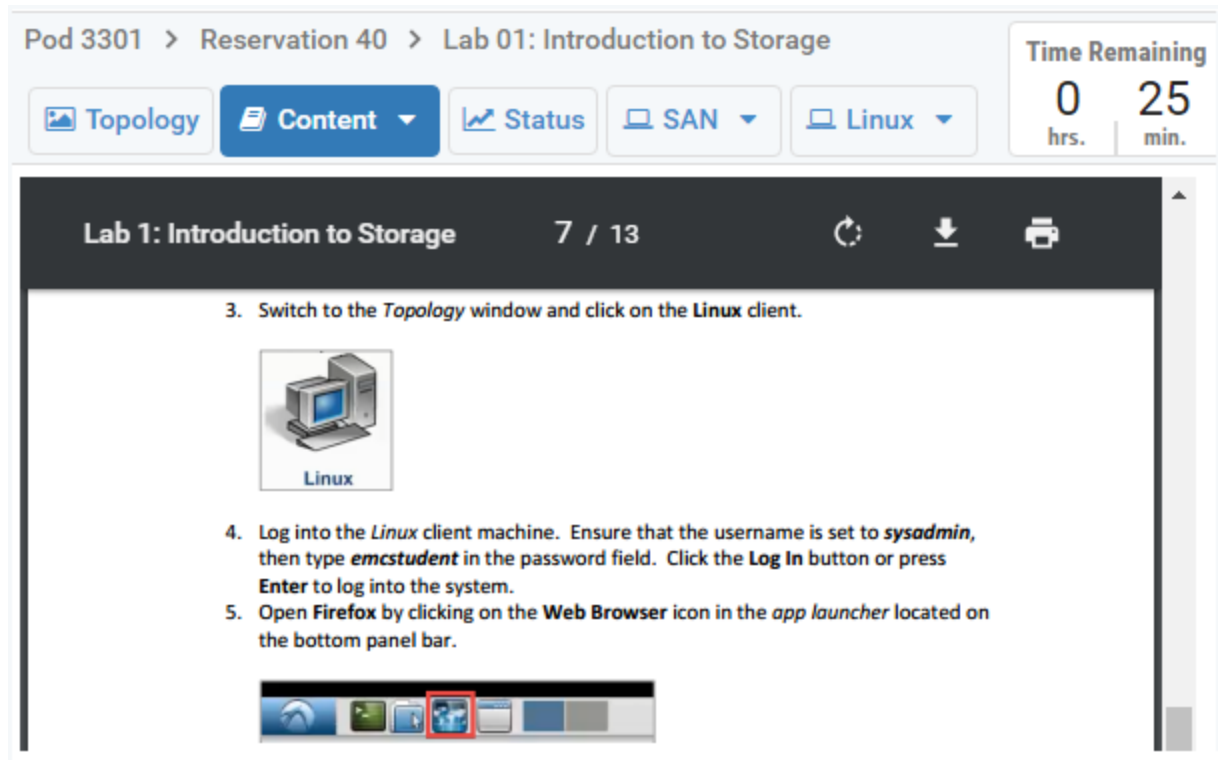
Clicking on the icon of a device on the topology diagram will change the active tab to the tab for the selected device (accessing a device is discussed below).

11.1.2 Content Tab

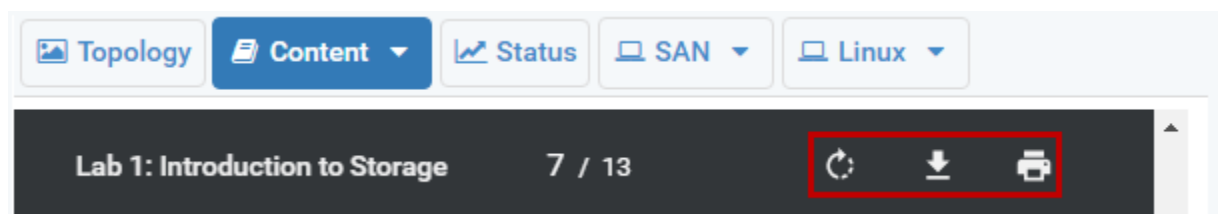
The **Content** tab displays the lab content, the instructional material associated with the lab.



If the content is not displayed on the Content tab, please refer to the section below for configuration guidance.




You may see options to rotate the display of the content, download, and print. The options available will vary depending on your choice of browser and your browser settings.





To adjust your view of the content, you may see buttons to toggle the content display between Fit to Width/Fit to Display and Zoom in/Zoom out. (These options will vary, depending on your browser selection and browser settings.)

3. Switch to the *Topology* window and click on the **Linux** client.



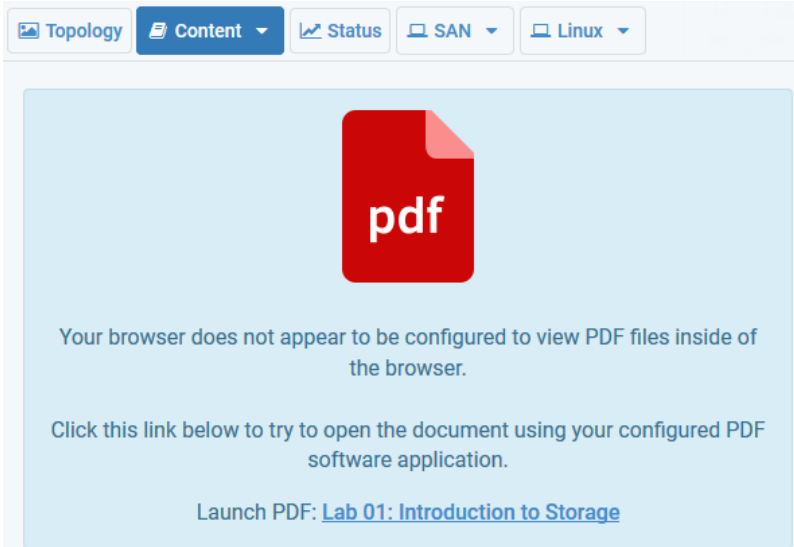
4. Log into the *Linux* client machine. Ensure that the username is set to *sysadmin*, then type in the password field. Click the **Log In** button or press **Enter** to log into the system.

5. Open **Firefox** by clicking on the **Web Browser** icon in the *app launcher* located on the bottom panel bar.

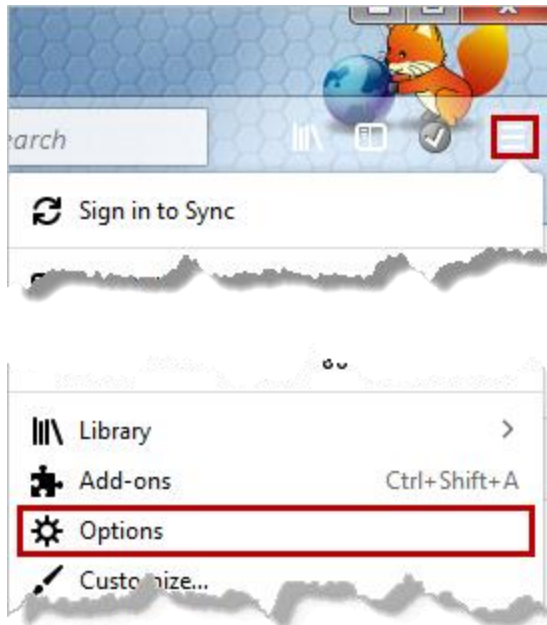
11.1.2.1 Configure the Browser to Display Content

If your browser is not configured to view PDF files inside the browser, the content will not be displayed. Instead, you will see a message similar to the screen shown below.



You may launch the PDF in a separate window by clicking the link. But, if you would like to configure your browser to display the PDF, you may do so by following the steps below. For this example, we will configure the Firefox browser. The steps required to configure your browser will vary, depending on your selection of browser and browser settings.

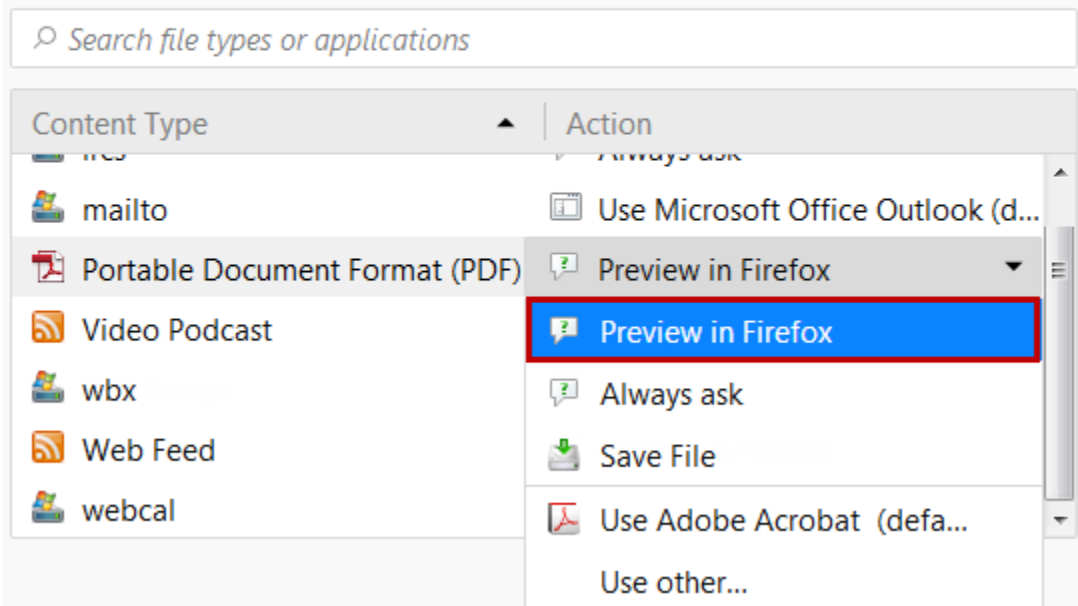
1. Open the Firefox menu and select **Options**, which will open in a new browser tab.



2. Scroll down the Options page and locate the Applications section. Select the Content Type of **Portable Document Format (PDF)** and set the Action to **Preview in Firefox**.

Applications

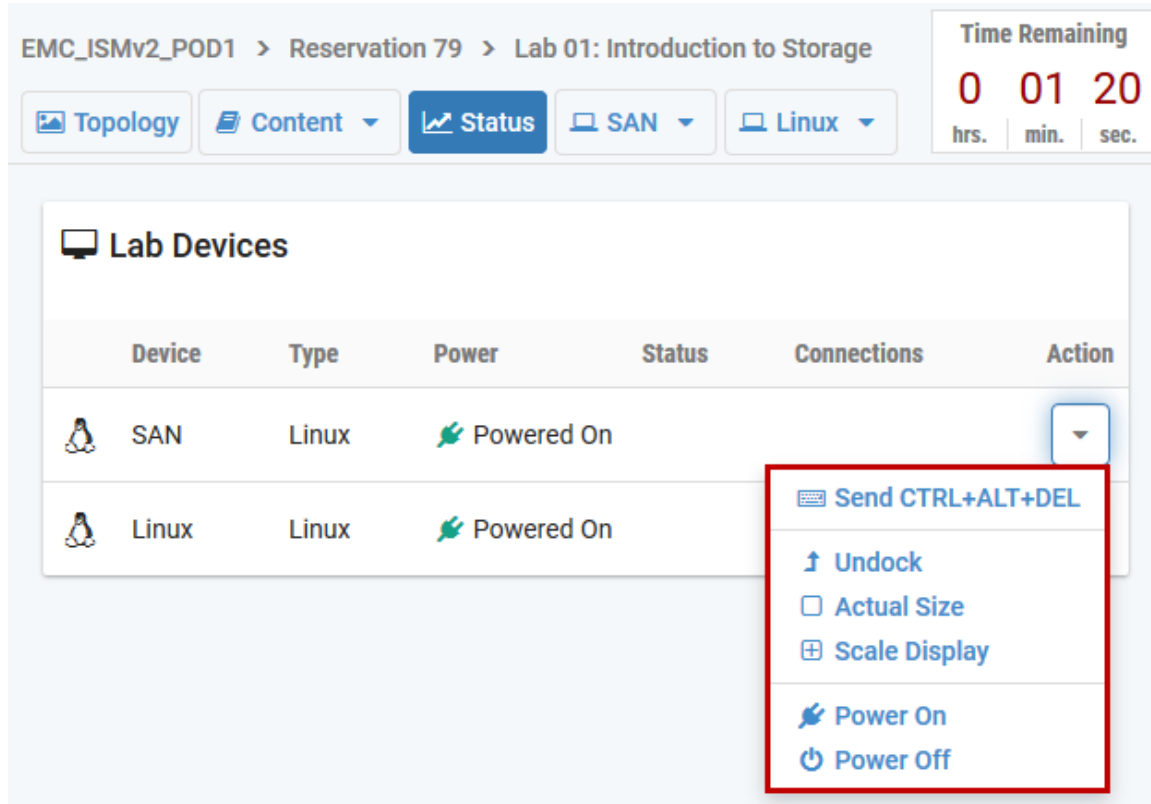
Choose how Firefox handles the files you download from the web or the applications you use while browsing.



3. Select the browser tab to return to your NETLAB+ lab session. It may be necessary to reload the browser page and re-select the Content tab. The content should now be displayed.

11.1.3 Status Tab

The status of all devices in the pod is displayed on the **Status** tab.









EMC_ISMv2_POD1 > Reservation 79 > Lab 01: Introduction to Storage

Time Remaining: 0 hrs. 01 min. 20 sec.

Topology Content Status SAN Linux

Lab Devices

Device	Type	Power	Status	Connections	Action
 SAN	Linux	 Powered On			▼
 Linux	Linux	 Powered On			

- Send CTRL+ALT+DEL
- ↑ Undock
- Actual Size
- ⊕ Scale Display
-  Power On
-  Power Off

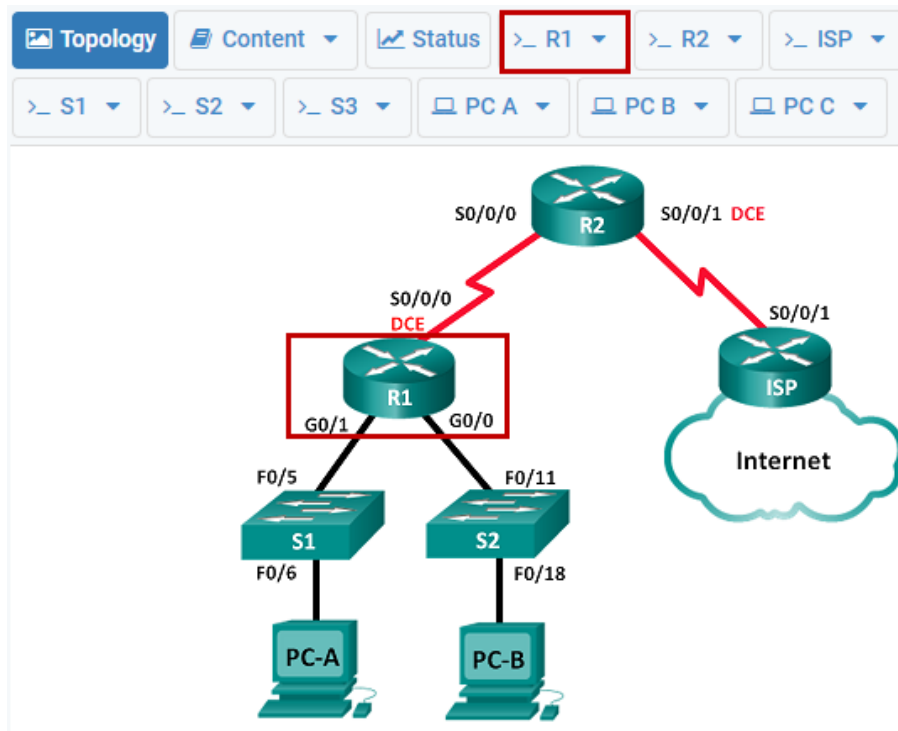
NETLAB+ provides several options for managing devices (options available vary by device), which may be accessed by clicking on the Action dropdown:

- **Send CTRL+ALT+DEL:** Simulate the action of pressing CTRL+ALT+DEL on the device.
- **Undock:** Access to the device is made available in a separate, floating window, allowing you to position and arrange windows to suit your needs. (for details, see the [Undock and Dock Device Windows](#) section).
- **Actual Size, Scale Display:** Options to adjust the size of the output displayed in the window, relative to the size of the viewer window.
- **Power on, Power Off:** Options to toggle the power of the device.

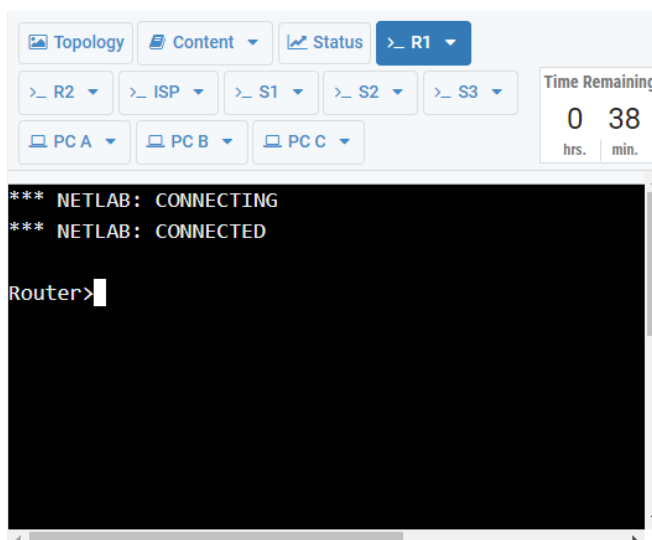
11.2 Access a Device

In this section, we will illustrate the process of accessing one of the devices in the pod, starting from the **Topology** tab. For this example, we will use a Multi-purpose Academy Pod (MAP).

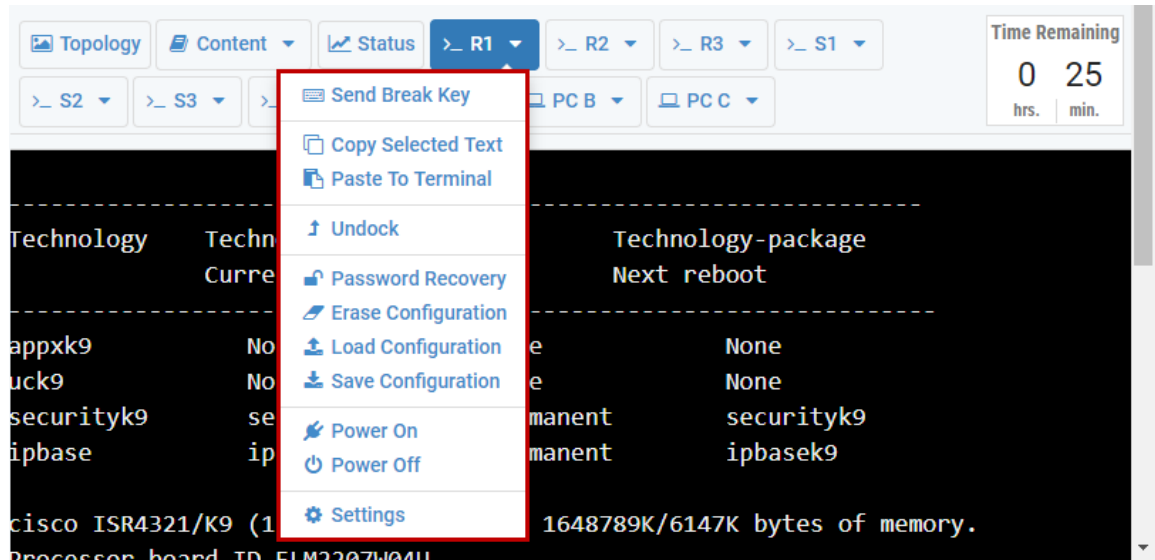
1. Access the R1 router by clicking the icon on the topology diagram or by clicking on the **R1** device tab.



2. The active tab will change to the **R1** tab, and the R1 router will be displayed in the viewer. You may interact with the device as if you were accessing it directly, including entering credentials (typically provided in content) and entering commands.



- As we saw in the Status Tab, NETLAB+ provides several options for managing devices, which may also be accessed by clicking on the currently selected device name tab (R1, in this example).



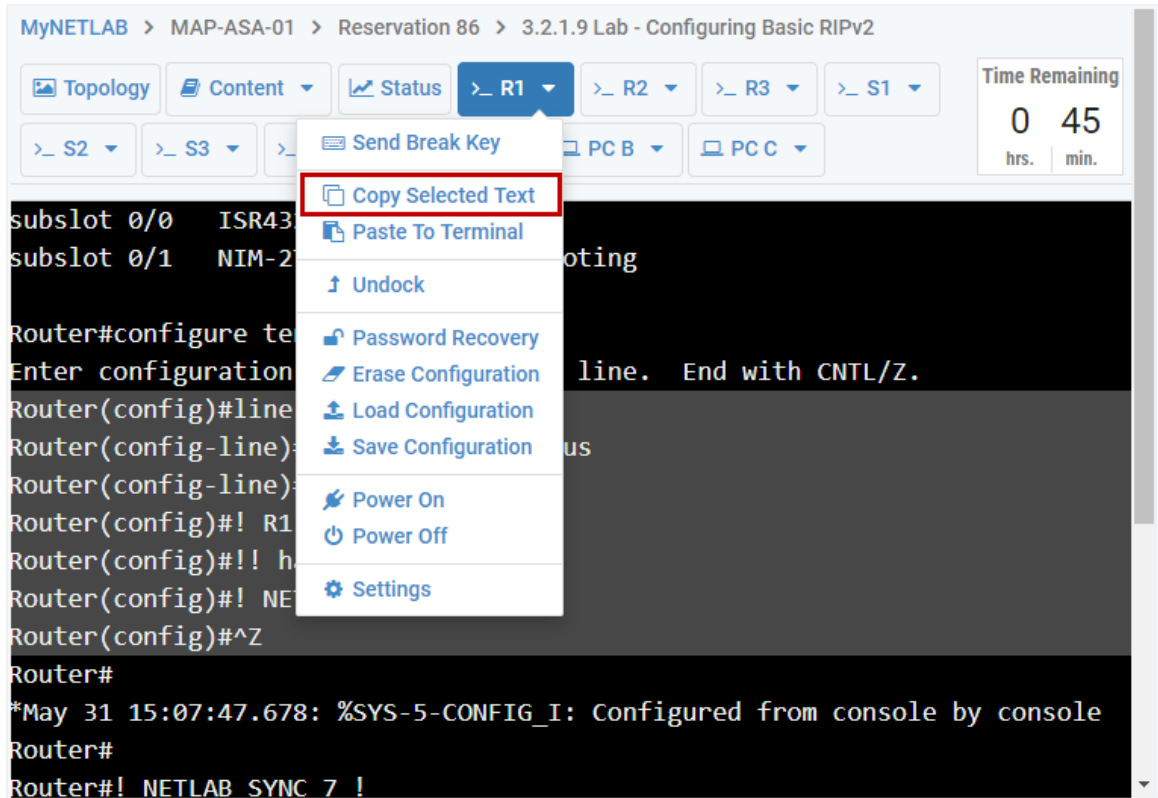
Options available on specific devices may vary; typical choices for routers (as in this example) include:

- **Send Break Key:** Simulate the action of the Break Key sequence on the device.
- **Copy Selected Text:** Copy selected text to the clipboard (see the [Copy Selected Text](#) subsection below).
- **Paste to Terminal:** Paste configuration text to a device's terminal (see [Paste to Terminal](#)).
- **Undock:** Access to the device is made available in a separate, floating window, allowing you to position and arrange windows to suit your needs (see the [Undock and Dock Device Windows](#) subsection below).
- **Password Recovery:** Unlock the console and enable passwords on a device. See the [Password Recovery](#) subsection below.
- **Erase, Load, and Save Configurations:** If you are accessing console-based devices such as Cisco routers, switches, and firewalls, you will see additional options to erase, load, and save configurations. Please see the [Manage Configuration Files](#) section for details on using and managing configuration files.
- **Power on, Power Off:** Options to toggle the power of the device.
- **Settings:** Custom terminal styles allow you to select the background color, text color, and font size for your device. Styles are saved and used in all future labs using the same pod type. Please see the [Terminal Settings](#) section below for details.

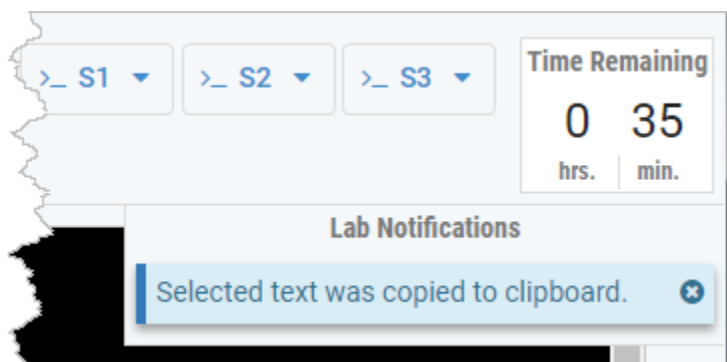
11.2.1 Copy Selected Text

To copy text from the terminal to the clipboard, perform the following steps.

1. Select the text by holding down the left mouse button and dragging the mouse pointer to highlight the text.
2. Click the **Copy Selected Text** option on the device tab.



3. Notice a lab notification message will briefly display, confirming the selected text was copied to the clipboard. You may paste the text to the application of your choice. To paste into a typical Windows application, use **CTRL+V** or **Right-click > Paste**. Your options for pasting may vary, depending on your system selections and settings.



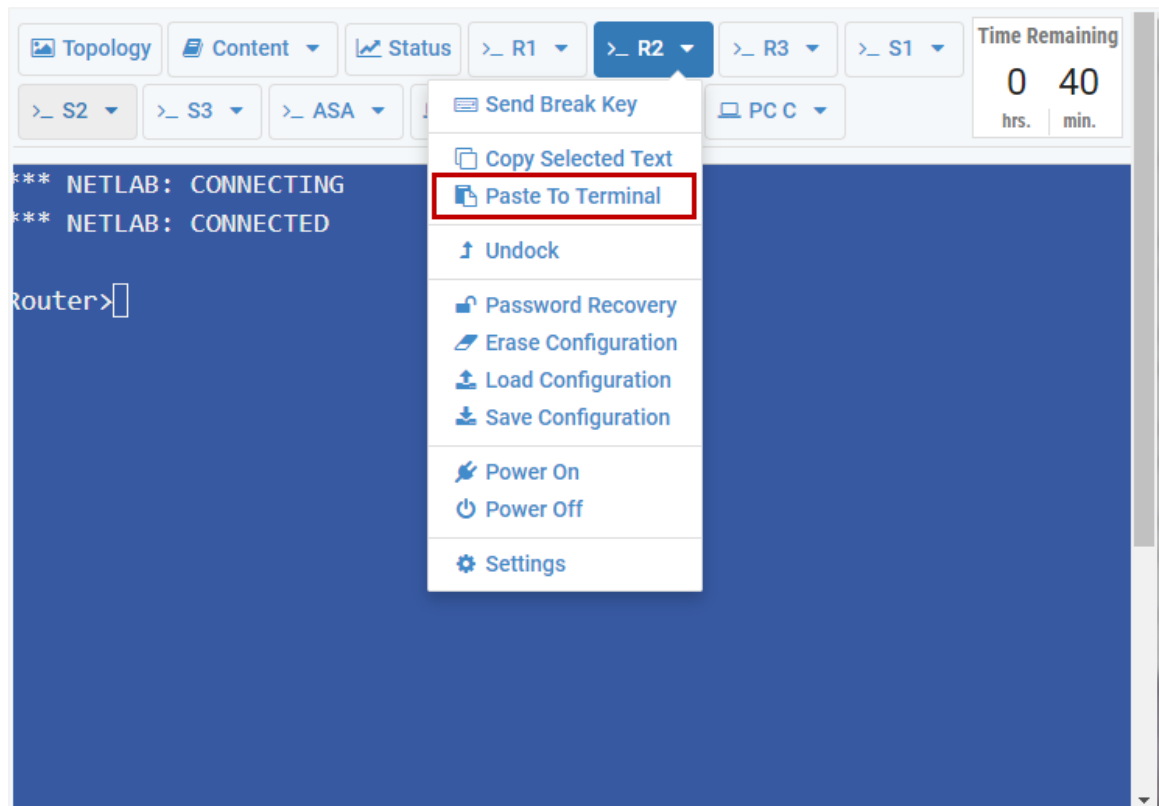
11.2.2 Paste to Terminal

The Paste to Terminal option is used in order to paste configuration text to a device's terminal.

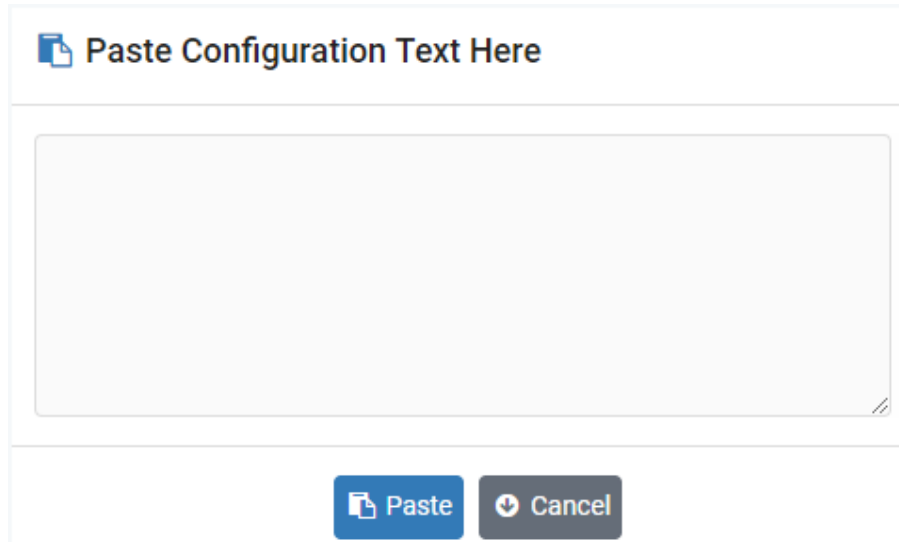


Using the Paste to Terminal option is recommended to avoid issues of over-running the text buffer that could occur if you were to paste directly from the clipboard.

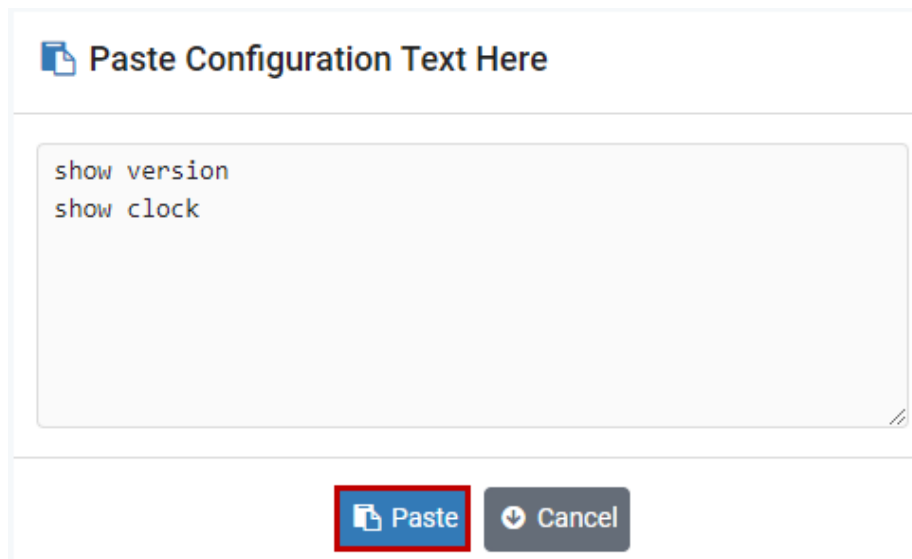
1. Click the **Paste To Terminal** option on the device tab.



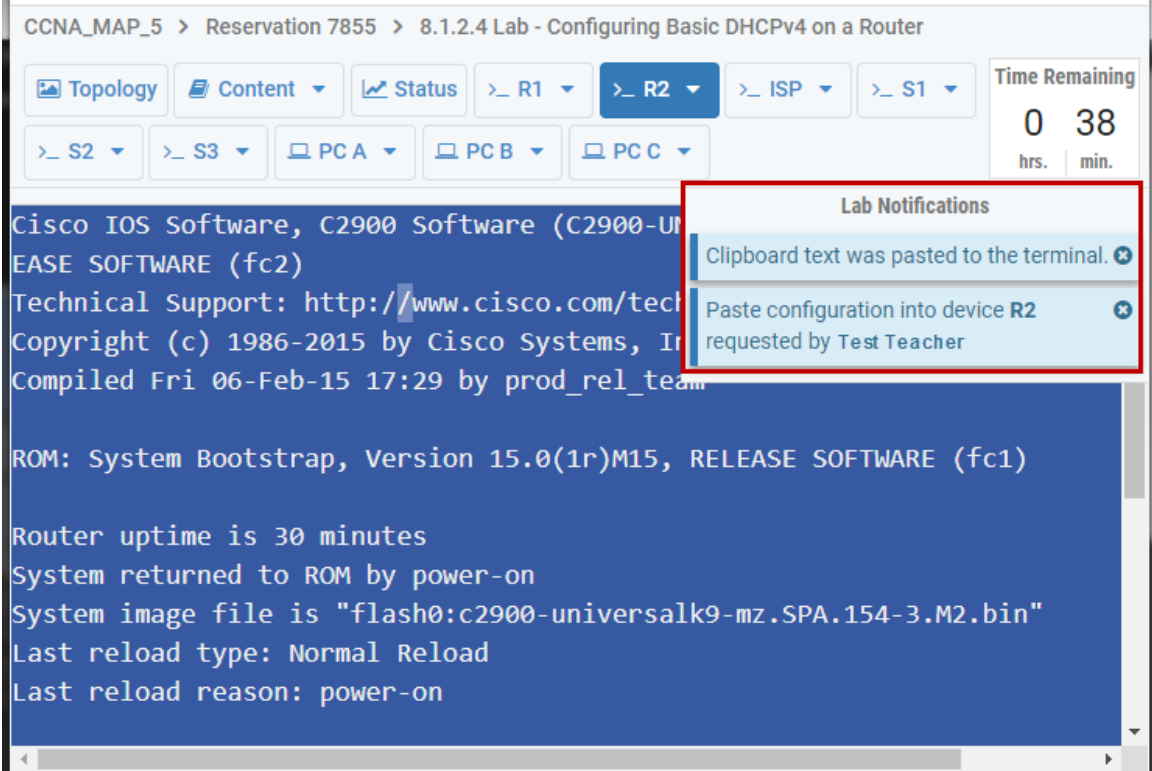
- The Paste Configuration Text window will appear. You may paste configuration text copied from the application of your choice. To paste from the clipboard, Windows users can typically use **CTRL+V** or **Right-click > Paste**. Your options for pasting may vary, depending on your system selections and settings. While the text window is not designed to be a fully functioning text editor, the basic utility to type and edit configuration text in the window is provided.



- Click **Paste** to paste the text you placed in the window to the device's terminal.



4. Lab notifications will be displayed, indicating that the configuration text was pasted to the device by the user. The terminal will show the resulting output.



The screenshot displays a virtual lab environment. At the top, the breadcrumb navigation shows "CCNA_MAP_5 > Reservation 7855 > 8.1.2.4 Lab - Configuring Basic DHCPv4 on a Router". Below this is a toolbar with buttons for "Topology", "Content", "Status", and device selection dropdowns for "R1", "R2", "ISP", "S1", "S2", "S3", "PC A", "PC B", and "PC C". A "Time Remaining" indicator shows 0 hours and 38 minutes. The main terminal window has a blue background and displays the following text:

```
Cisco IOS Software, C2900 Software (C2900-UNIVERSALK9-M)  
EASE SOFTWARE (fc2)  
Technical Support: http://www.cisco.com/techsupport  
Copyright (c) 1986-2015 by Cisco Systems, Inc.  
Compiled Fri 06-Feb-15 17:29 by prod_rel_team
```

ROM: System Bootstrap, Version 15.0(1r)M15, RELEASE SOFTWARE (fc1)

Router uptime is 30 minutes
System returned to ROM by power-on
System image file is "flash0:c2900-universalk9-mz.SPA.154-3.M2.bin"
Last reload type: Normal Reload
Last reload reason: power-on

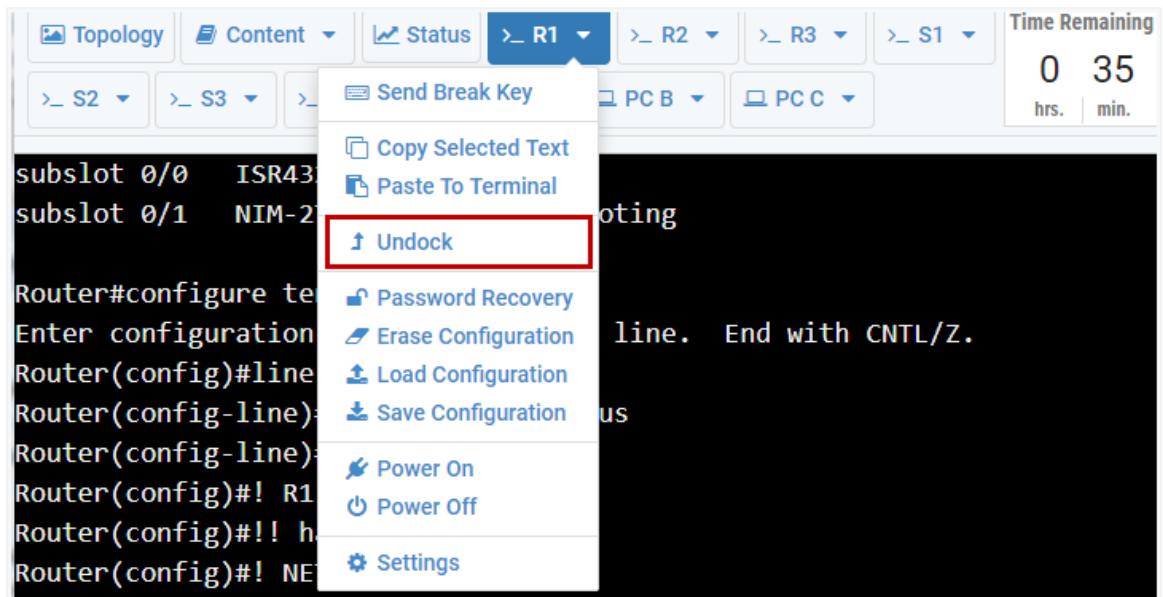
A "Lab Notifications" pop-up window is overlaid on the terminal, containing two messages:

- Clipboard text was pasted to the terminal.
- Paste configuration into device R2 requested by Test Teacher

11.2.3 Undock and Dock Device Windows

You may find it helpful when organizing your workspace to have the terminal windows for several devices arranged so that you may conveniently view and easily access all of them. You may **Undock** any lab device to have the terminal displayed in its own window.

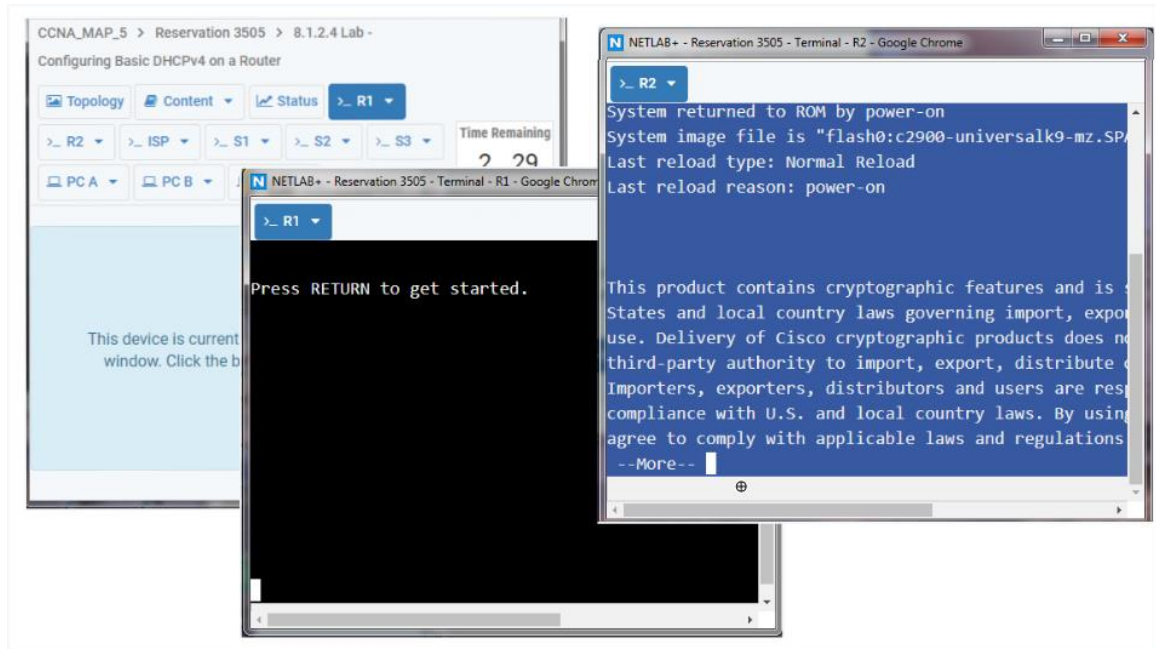
1. From the lab device tab (R1, in this example), select the option to **Undock** the device display.



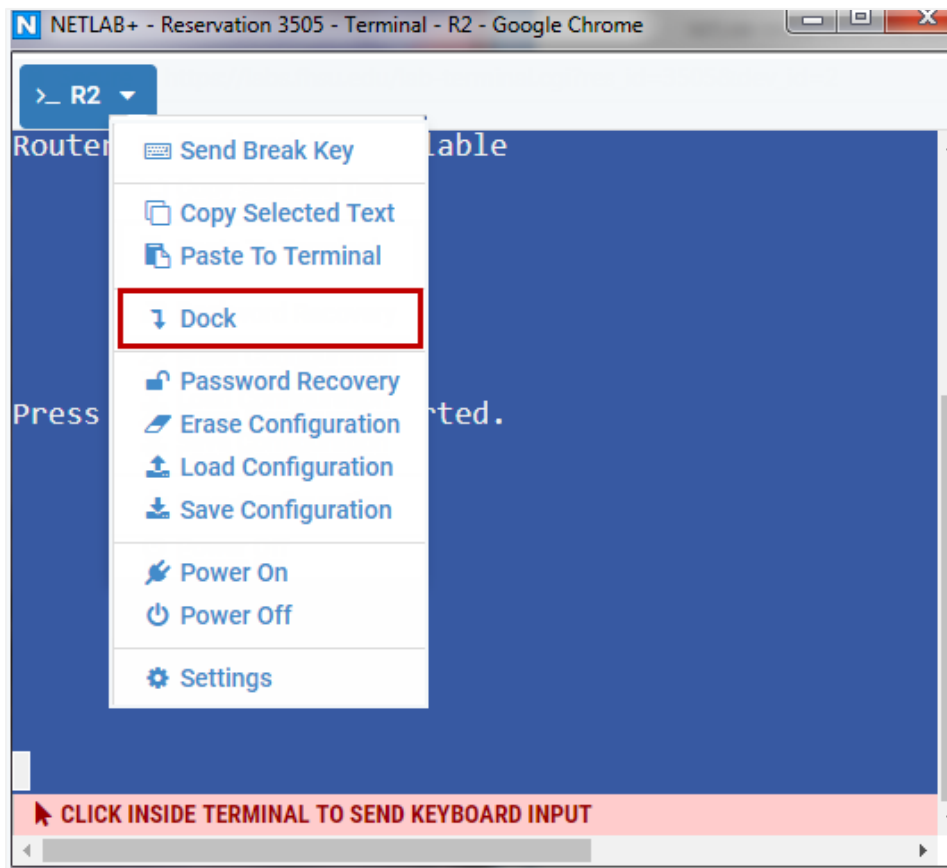
2. The R1 device tab indicates the device is currently undocked and displayed in its own window. You may move and resize the R1 window to suit your needs.



3. Select the option to undock the R2 device. Notice the background color of R2 is different from R1, allowing you to distinguish between the windows easily.



4. To dock the terminal display back to the device tab, select the **Dock** option on the device window.



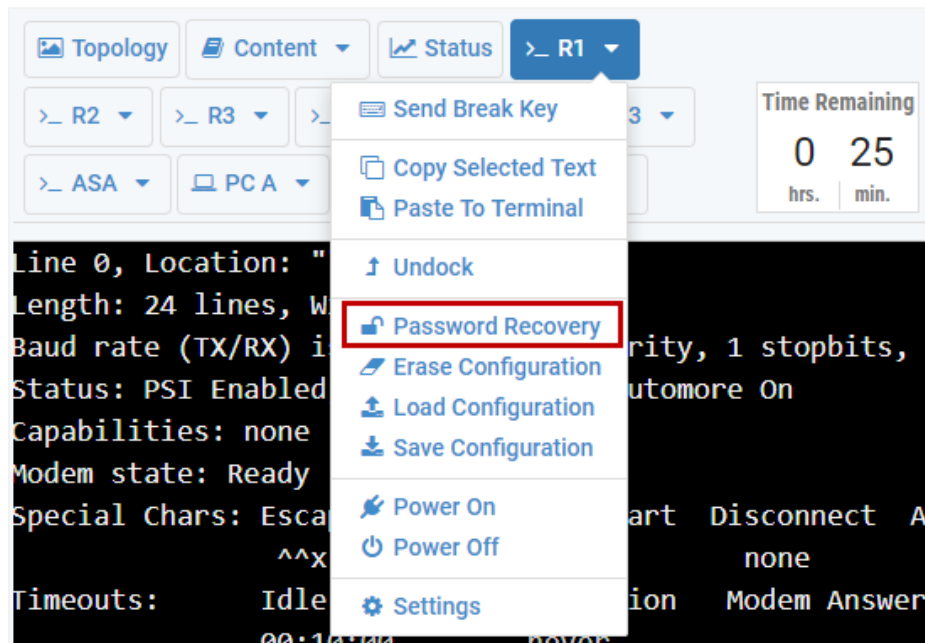
11.2.4 Password Recovery

The password recovery option will attempt to remove the console and enable passwords from the device.

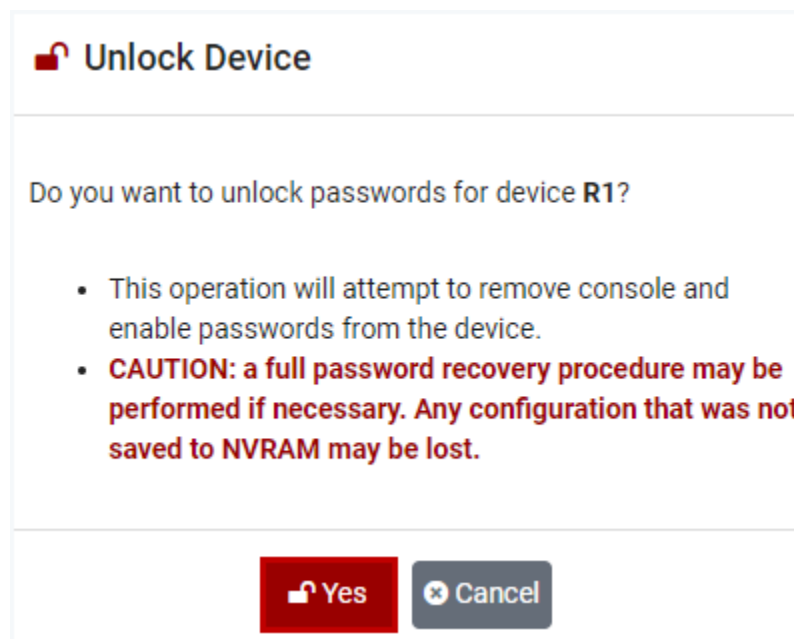


During Instructor-led training sessions, the option to perform password recovery may be executed by the instructor, but not by students.

1. Select the **Password Recovery** option on the device tab.



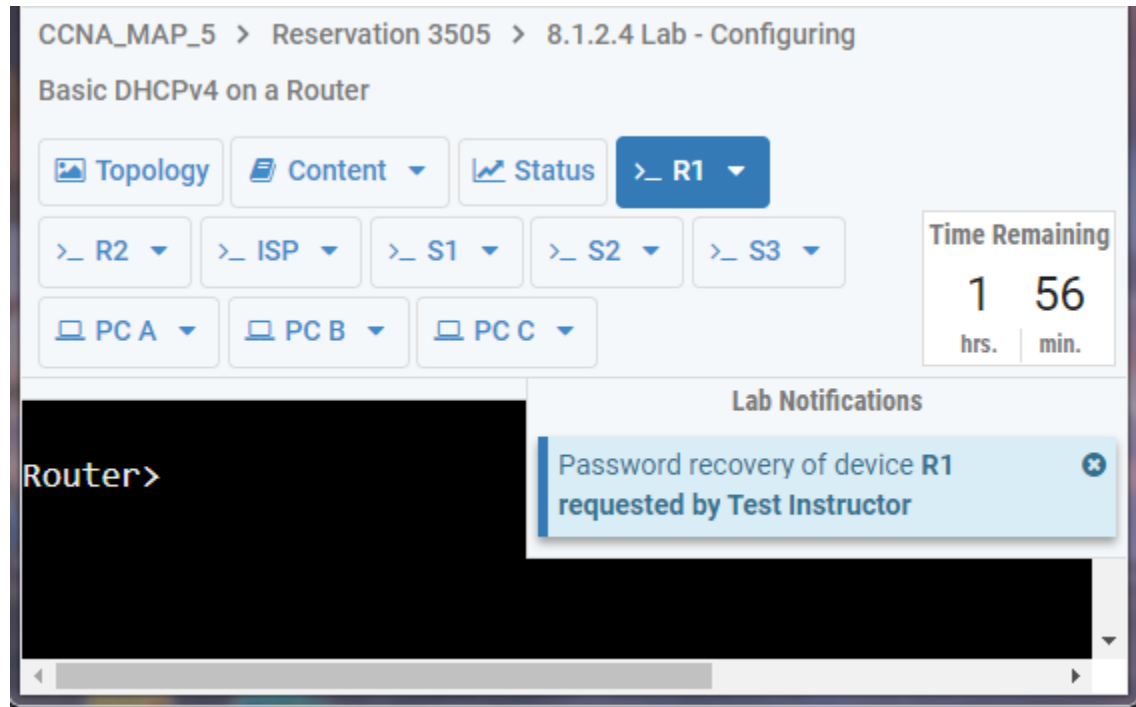
2. Select **Yes** to confirm that you want to unlock the passwords for the device.



3. A lab notification message will be displayed, indicating that password recovery has been requested.



Lab notification messages are displayed to all users sharing the reservation (such as, for instructor-led training).



The screenshot displays a network lab interface with the following elements:

- Navigation path: CCNA_MAP_5 > Reservation 3505 > 8.1.2.4 Lab - Configuring
- Lab title: Basic DHCPv4 on a Router
- Control buttons: Topology, Content, Status, >_ R1, >_ R2, >_ ISP, >_ S1, >_ S2, >_ S3, PC A, PC B, PC C
- Time Remaining: 1 hrs. 56 min.
- Terminal output: Router>
- Lab Notifications: Password recovery of device R1 requested by Test Instructor

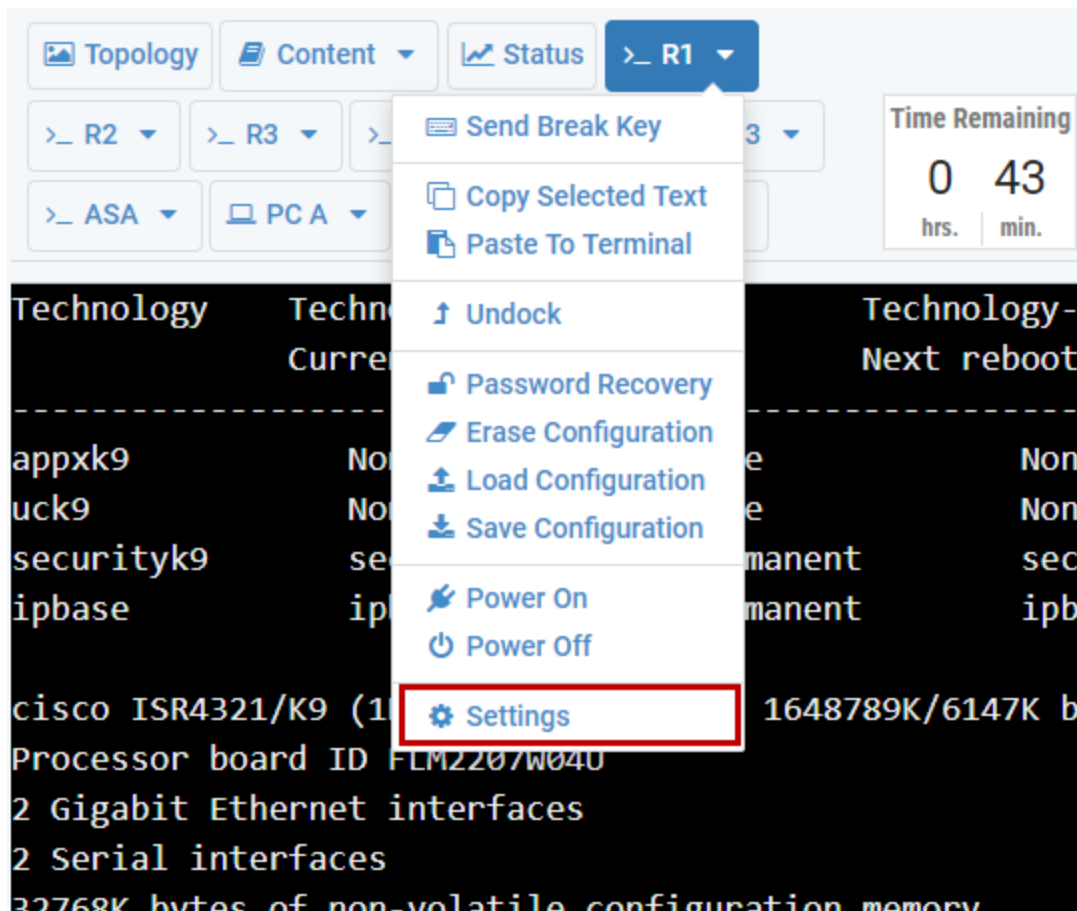
11.2.5 Terminal Settings

Customize the appearance of your device's terminal by selecting settings for background color, text color, and font size.

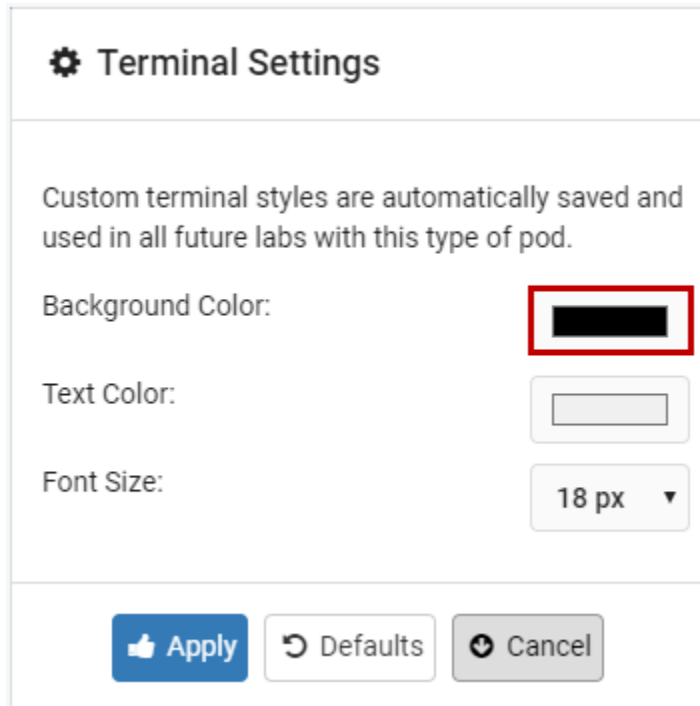


Changing the background and font colors to your own custom selections can help you easily differentiate between multiple device windows. You may set your font size to what works best for you to read and use efficiently.

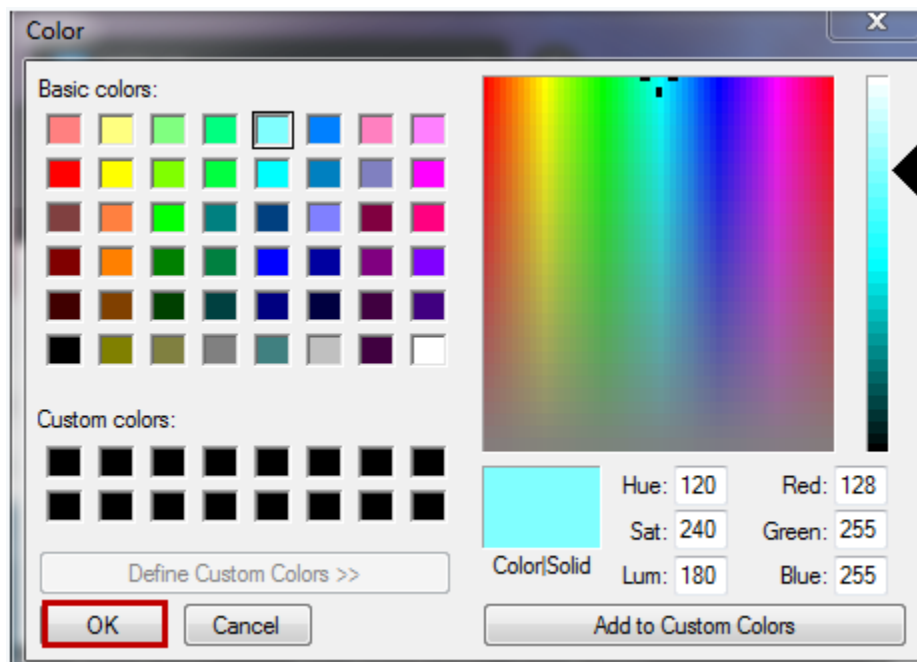
1. Select the **Settings** option on the device tab.



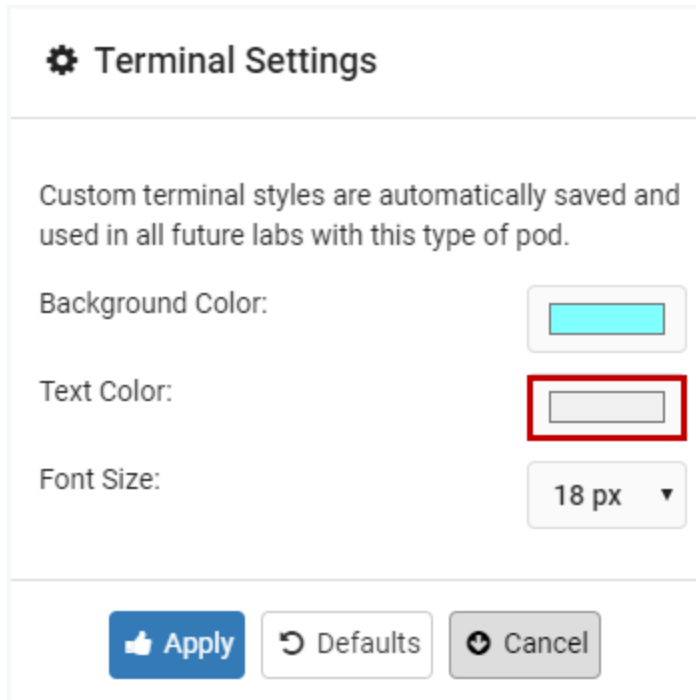
- The Terminal Settings popup window will be displayed. To change the background color of the terminal, click the rectangle displaying the current background color.



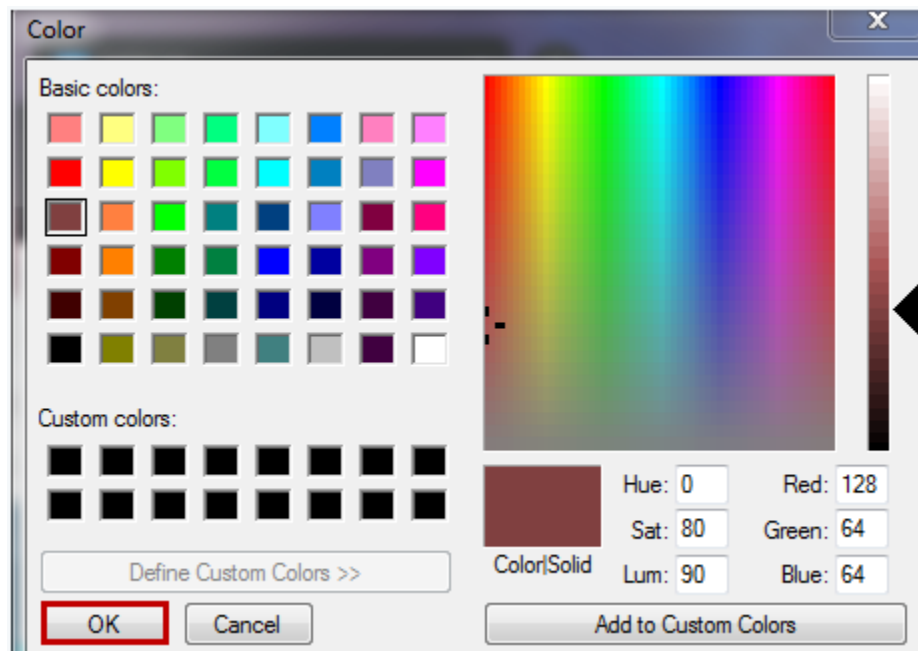
- A color selection window will appear. You may select a basic or custom color for the background of your CLI viewer. In this example, we will select one of the basic colors. After selecting a color, click **OK**.



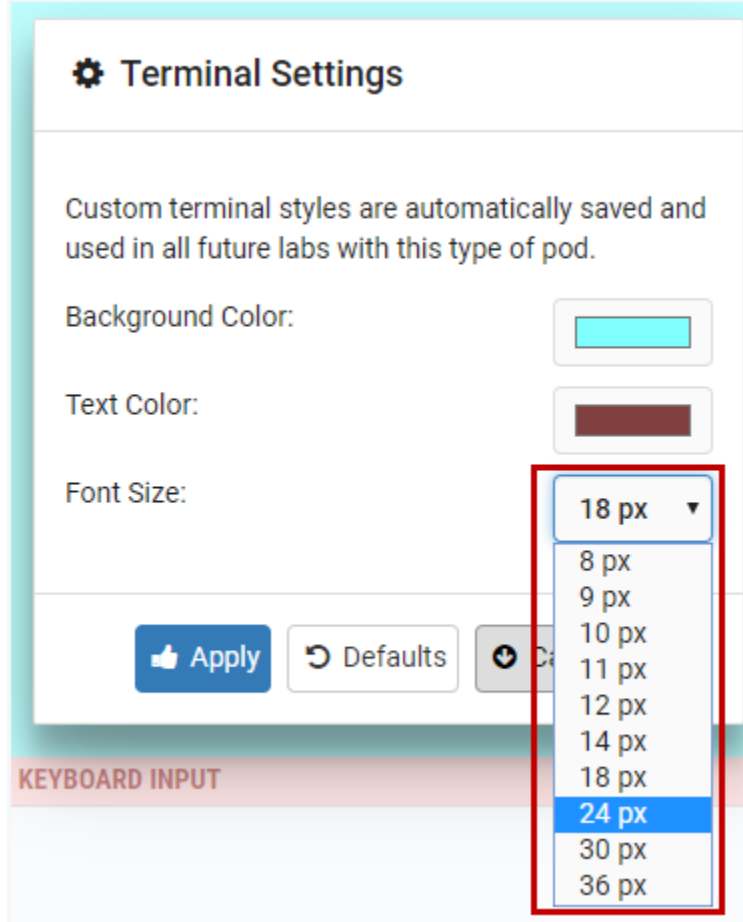
4. To change the text color, click the rectangle displaying the current text color.



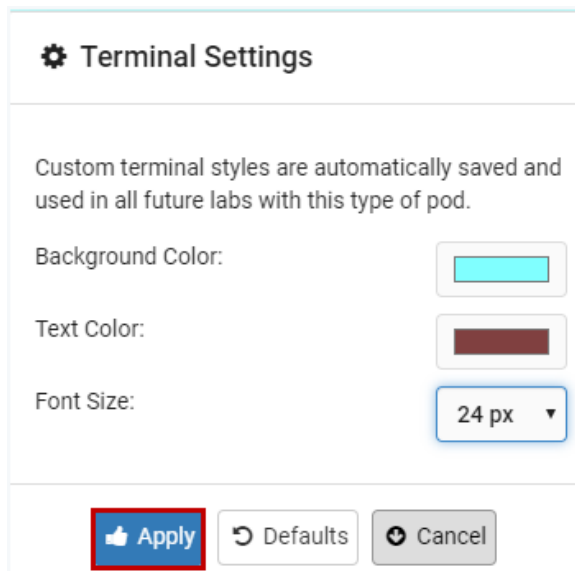
5. A color selection window will appear; you may select a basic or custom text color and then click **OK**.



- To change the font size, click the dropdown showing the current font size and select the font size of your choice.



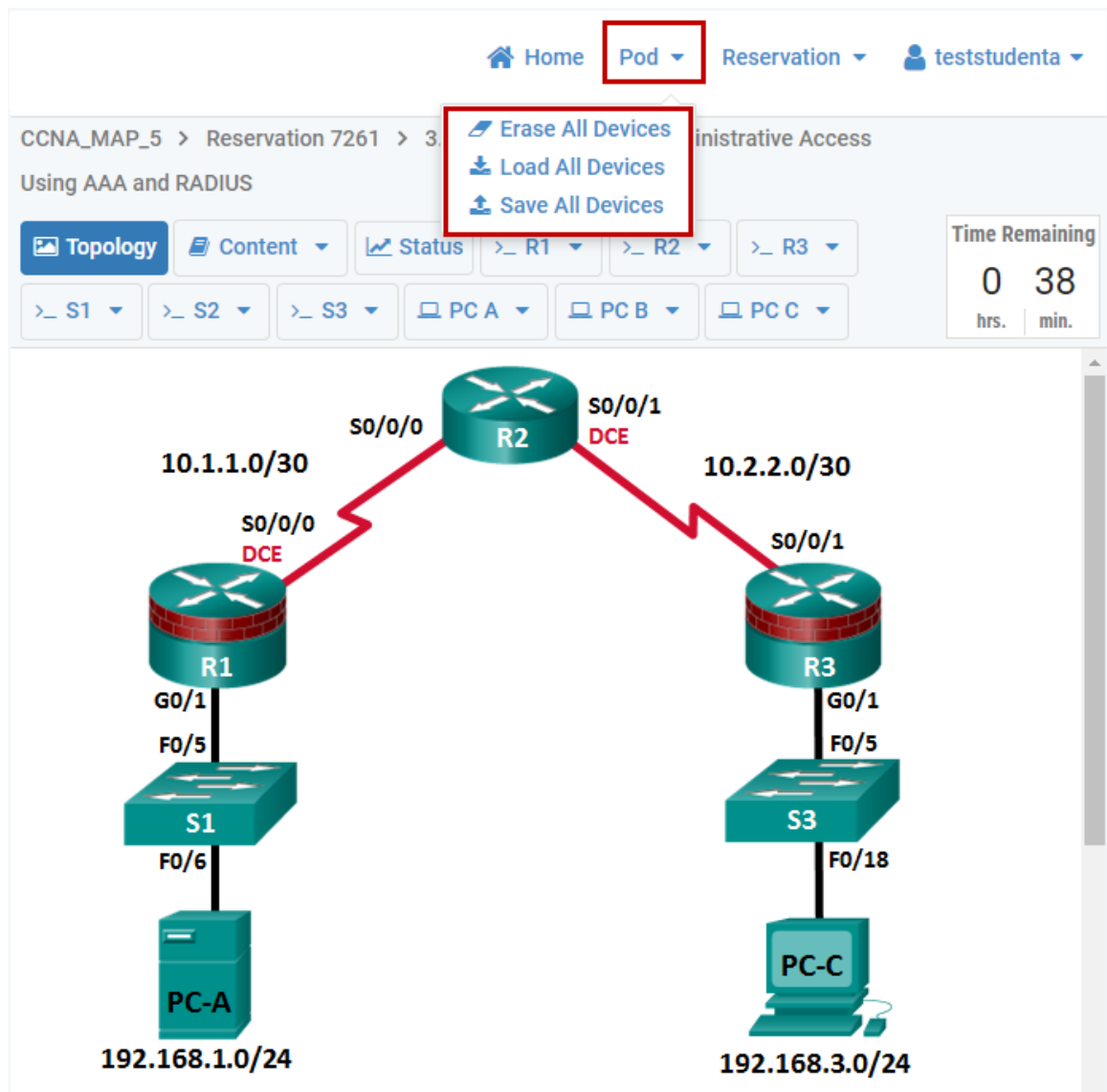
- To apply your selections and exit the Terminals Settings window, click **Apply**. Your settings will be saved and used for future reservations using the same type of pod. You may return to the default settings by selecting Defaults on the terminal settings window.



11.3 Pod-wide Device Automation

Lab reservations using pods with lab devices (console-based devices such as Cisco routers, switches, and firewall devices) include the Pod menu option on the lab interface. The pod options allow all the configurations of all lab devices in the pod to be erased, loaded, or saved at once.

1. Select the **Pod** menu option on the lab interface.
2. Select an option to either **Erase**, **Load**, or **Save** the configurations of all of the lab devices in the pod. Please see the [Manage Configuration Files](#) section for details on using and managing configuration files.



11.4 Screenshots of Remote PCs

In this section, we will demonstrate the Screenshot feature, which allows users to take screenshots of remote PCs in the topology during a lab session. These screenshots are included in the lab history and may later be viewed in the [Lab Usage](#) interface by attendees and their instructors.



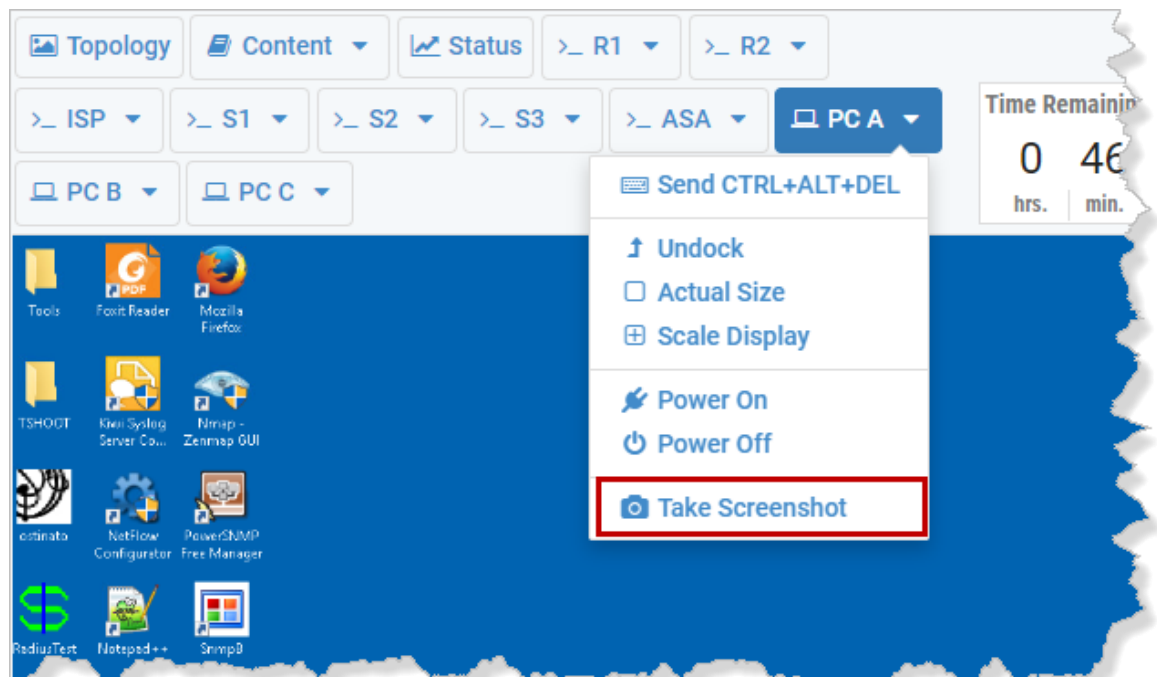
The Screenshot feature is available only if it has been enabled at the community level by the NETLAB+ administrator. For each class in a community where the screenshot feature has been enabled, the maximum number of screenshots that students may take in a single lab is set in the class settings (see [Manage Classes](#)). A value of 0 effectively disables the screenshot feature for a class.



To assist you in assessing your students' work, you may direct your students to take screenshots of their progress during a lab reservation. The screenshots will be available to view through the Usage function, available from the Manage menu option. See the [Lab Usage](#) section for details.


To take a screenshot, perform the following steps:

1. Click on the tab for the remote pc (*PC A*, in this example) and select the **Take Screenshot** option.



- The screenshot pop-up page will appear, showing the screenshot that you have captured. Adding a brief description in the optional Notes field is recommended. Click **Submit**.

Screenshot: PC A

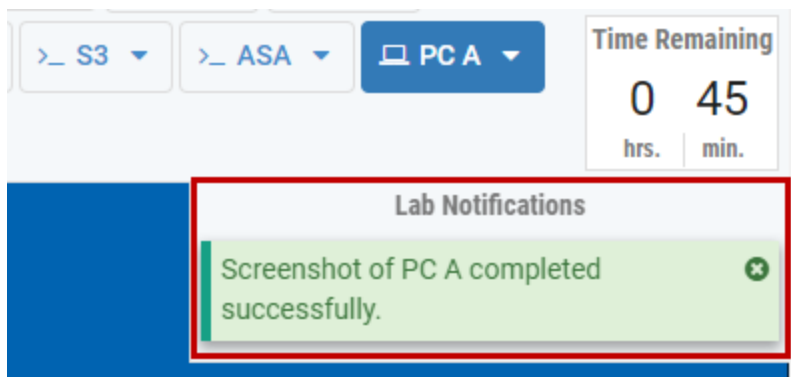


Notes:

1st Screenshot

Submit
Cancel

- A lab notification will briefly appear, showing that the screenshot was completed successfully. You may continue to take screenshots of the remote PCs throughout your lab session. The screenshots will be included as part of the lab history, available to view through the Usage reporting from the Manage menu option. See the [Lab Usage](#) section for details.



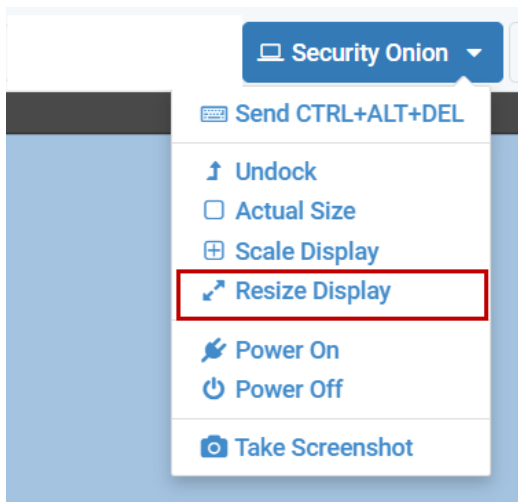
11.5 Display Sizing Options for Remote PCs



Options for adjusting the display for remote PCs include **Actual Size** and **Scale Display** to adjust the size of the output displayed in the window, relative to the size of the viewer window. The options available to you may also include the **Resize Display** option. Availability of this option depends on several factors, including configuration settings selected by your NETLAB+ Administrator.



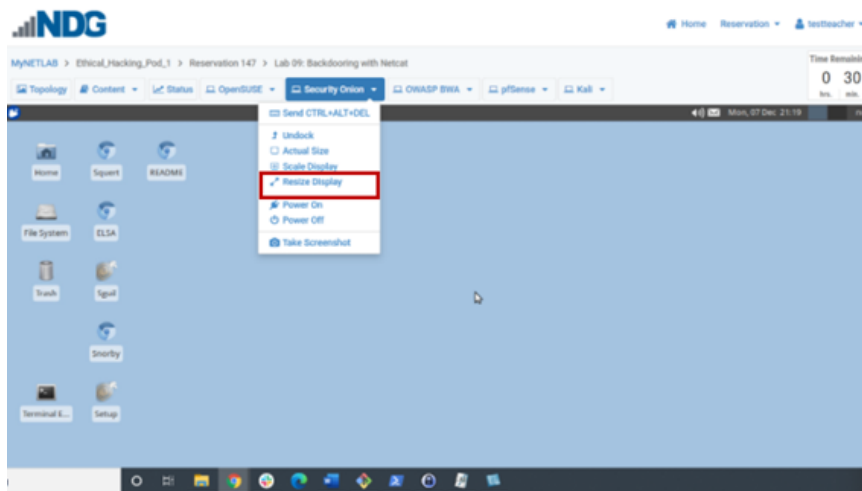
If available on your system, Resize Display functions only for individual lab reservations (student or instructor); it is not available during ILT or team reservations.



Resize Display is particularly helpful to use after entering full-screen mode (select F11 if using Windows) since it will enable you to make use of the entire screen's "real estate" as the working area.



Be aware that in some cases (depending on the selected OS and other VM settings), the Resize Display option will not function until the user has first performed their initial login to the VM, as per the instructions provided in the lab content.



11.6 Extend a Reservation

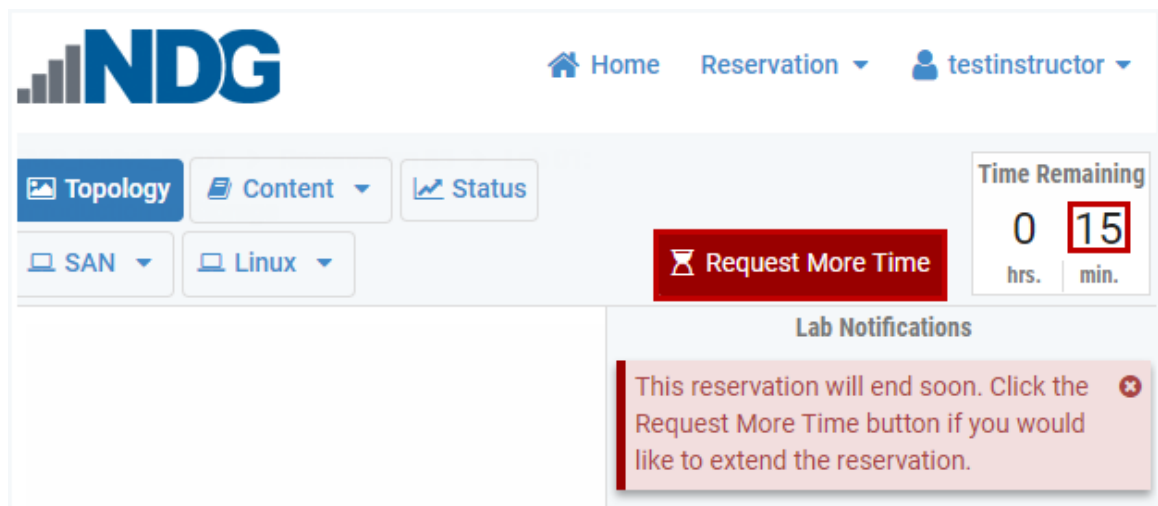
The option to extend a reservation allows the user to request 30 additional minutes of lab time. The request to extend a reservation may be made by the user when the Time Remaining in the lab interface shows 15 minutes or less.



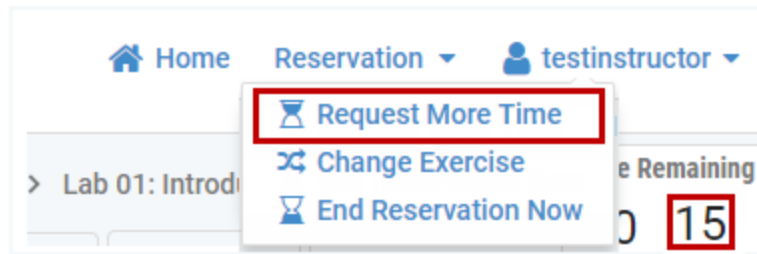
In some cases, a lab reservation extension will not be available due to restrictions. Please refer to the restrictions listed below that affect the availability of lab reservation extensions.

To request a reservation extension, perform the following steps:

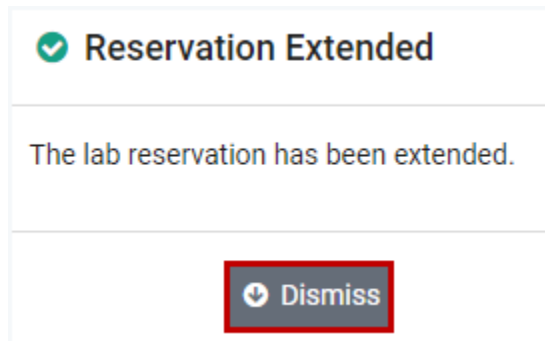
1. If a reservation extension is available, the option to **Request More Time** will appear when the Time Remaining in the lab interface shows 15 minutes or less.



Alternatively, the option to request more time is available by selecting **Reservation > Request More Time**.



2. A confirmation message will indicate the lab reservation has been extended. Click **Dismiss**.



Restrictions for All Users

- An extension cannot be made before T-00:15 on the displayed Time Remaining. This is about 26 minutes from the blocked end time and 16 minutes of the usable time remaining.
- The next 30-minute time slot must not be already scheduled by another reservation.
- The extension cannot exceed the maximum pods in use limit and/or proactive resource awareness settings that have been set by the NETLAB+ administrator.

Restrictions for Students and Teams

- The number of extensions that a student or team can request is limited by community and class settings.
- For backward setting compatibility, communities and classes do not allow extensions to be made by students or teams by default.
 - The administrator must specifically allow extensions for students and teams per community.
 - The instructor must specifically allow extensions for students and teams per class.
- A learner may not extend an ILT reservation. Only a lead instructor can extend an ILT reservation.

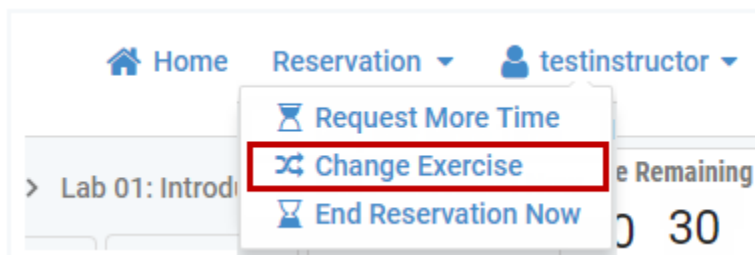
11.7 Switch to a Different Lab Exercise

If you have completed all the activity associated with the current lab exercise, you may choose to continue your session using a different lab exercise.

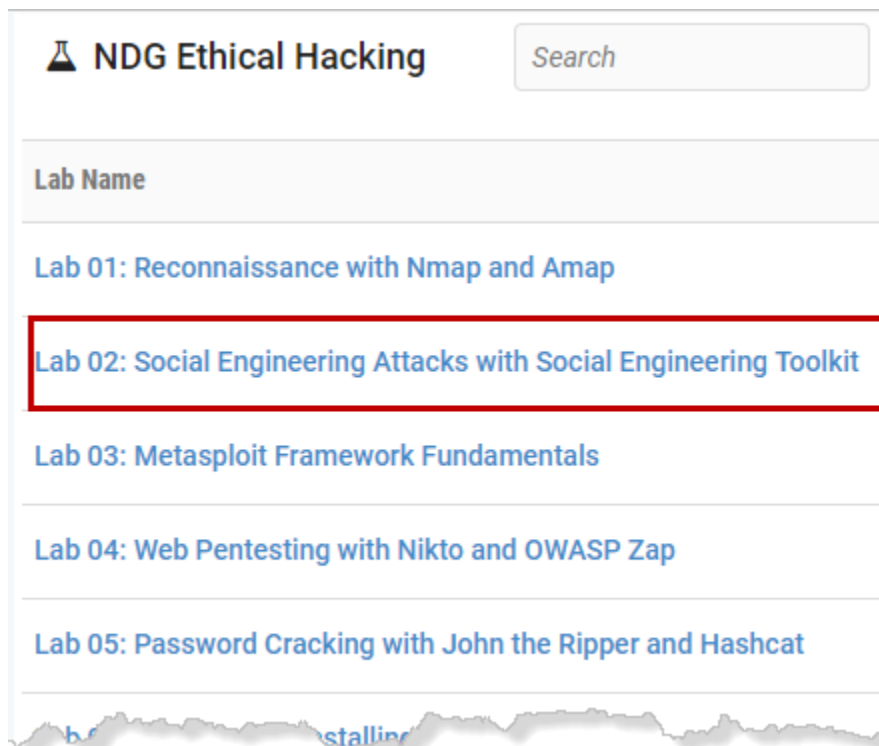


In some cases, the option to change the lab exercise will not be available. The instructor must specifically allow lab exercises to be changed by selecting the option to enable **Multiple Labs in Same Reservation**. See the [Manage Classes](#) section for details.

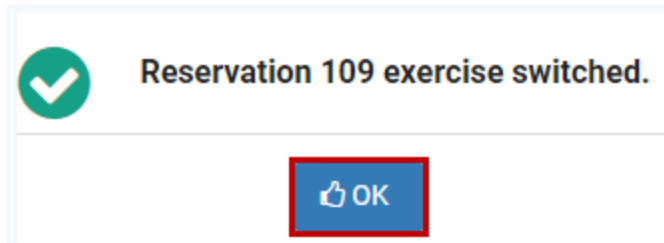
1. Click Reservation on the top menu bar and select the option to **Change Exercise**.



2. A list of lab exercises associated with the class will be displayed. Select a lab exercise by clicking the lab name.



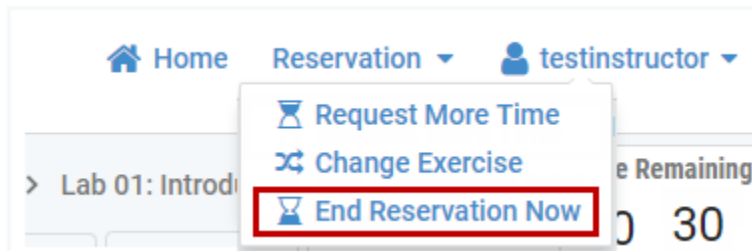
3. A message will confirm that the lab exercise has been switched. Click **OK**.



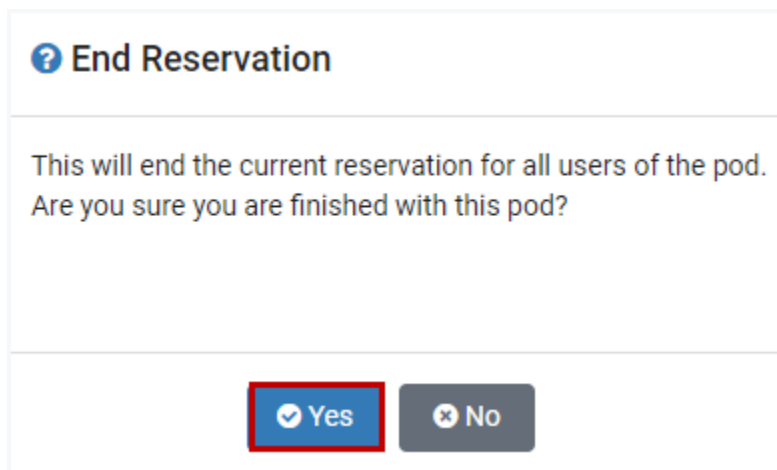
11.8 End a Reservation

When a lab reservation time expires, all connections will be dropped. A reservation may also be ended prior to the scheduled time.

1. Select Reservation at the top of the page and click **End Reservation Now**.



2. Respond **Yes** to the prompt if you are finished with the pod. (Or, select **No** to return to the pod.)



3. A message will display, indicating the reservation has ended. A similar message is displayed if the reservation ends at the scheduled end time. Notice the lab notification messages in the background, indicating device configurations are being saved. The lab session will end immediately. Select **OK**, and your display will return to the MyNETLAB page.



The scheduler will be updated to include any unused time increments of thirty minutes or more to be available for reservation.