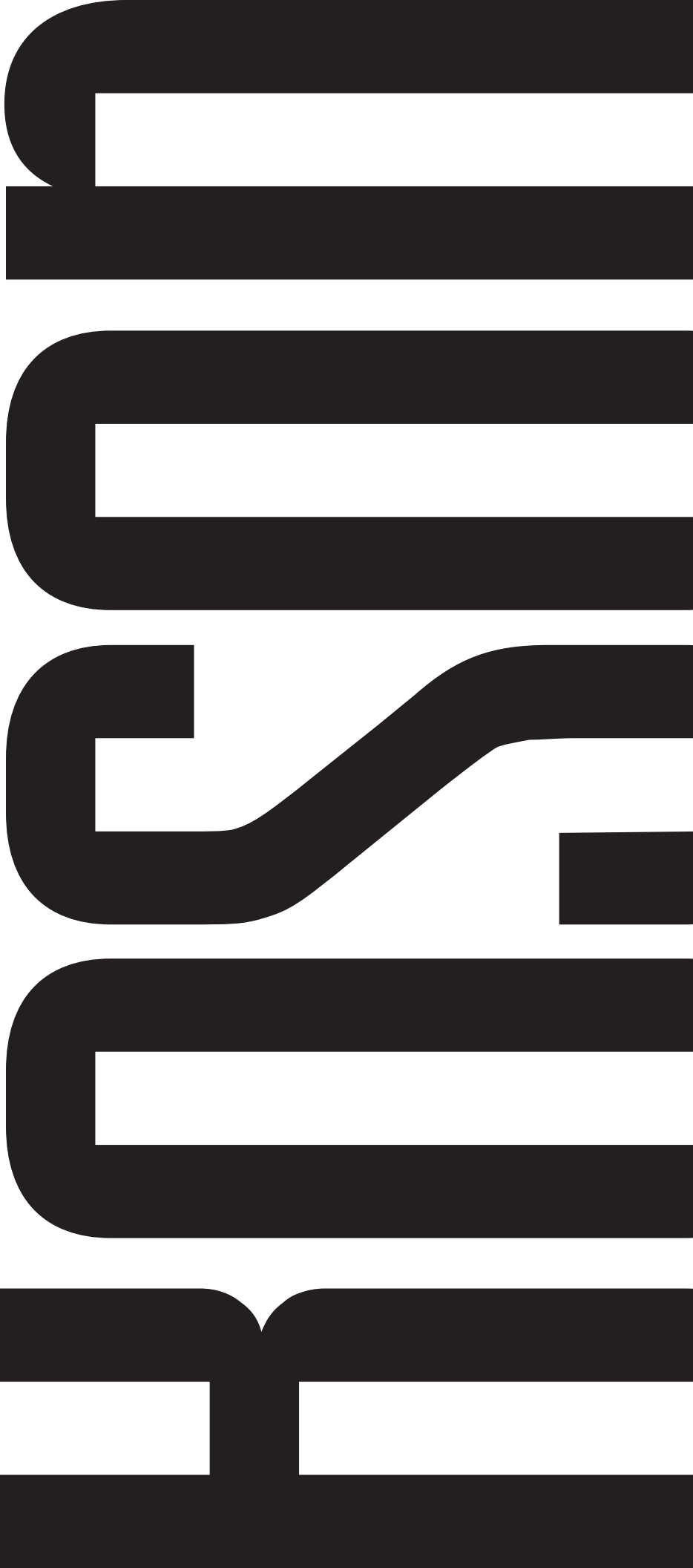


**NetSim**<sup>®</sup>13  
USER MANUAL



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## Boson NetSim Overview

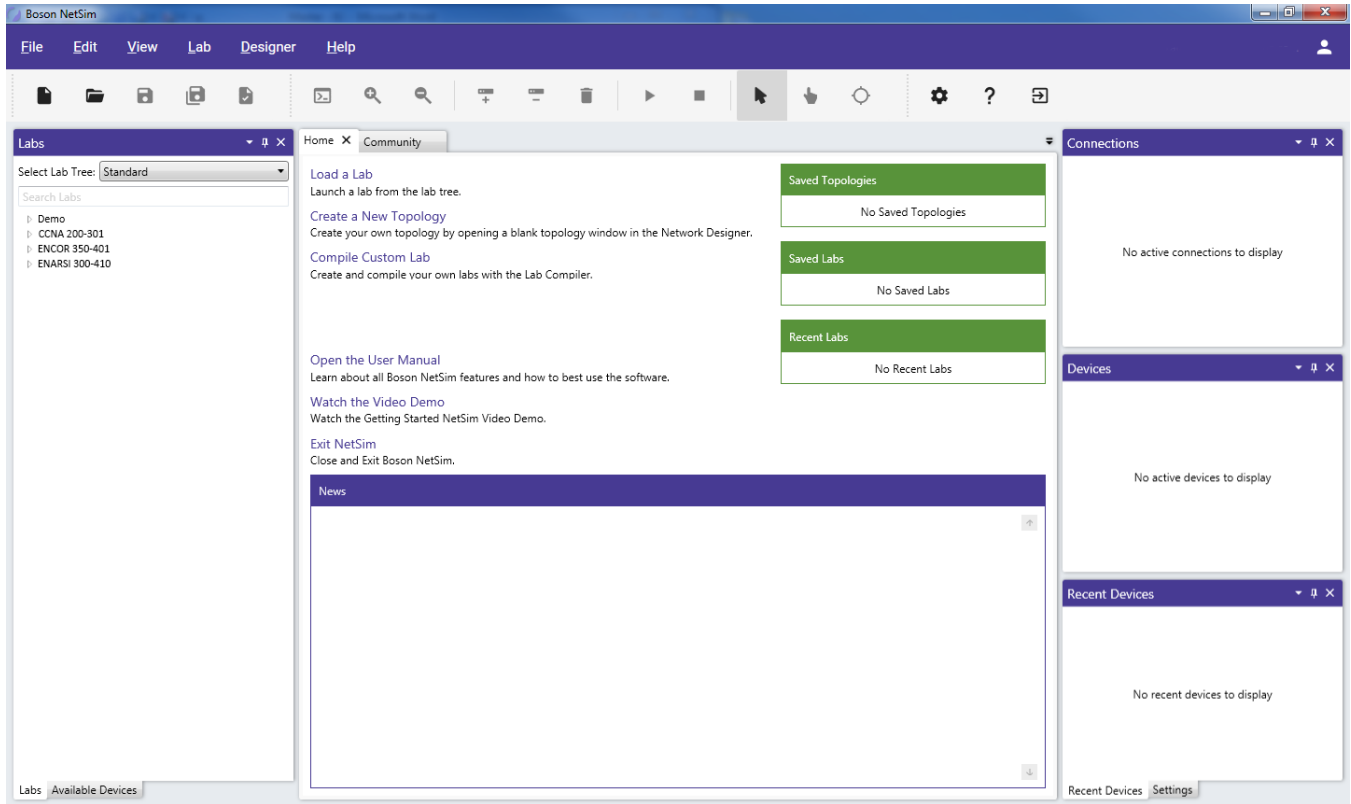
The Boson NetSim® Network Simulator®, which includes the Boson Router Simulator®, is unique compared to all others on the market because of the functionality it supports and its features. NetSim utilizes Boson's proprietary Network Simulator, Router Simulator®, and EROUTER® software technologies, along with the Boson Virtual Packet Technology® engine, to create individual packets. These packets are routed and switched through the simulated network, allowing NetSim to build an appropriate virtual routing table and simulate true networking. Other simulation products on the market do not support this level of functionality.

NetSim simulates a wide variety of Cisco® routers, including the 2500 series, 2600 series, 2800 series, and 3600 series routers, as well as the Cisco Catalyst 1900 series, 2900 series, and 3500 series switches. NetSim supports multiple routing protocols, including RIP, IGRP, EIGRP, BGP, and OSPF. It supports different LAN/WAN protocols, including PPP/CHAP, ISDN, and Frame Relay. The labs in NetSim require only the devices and functionality included with NetSim—they do not require access to any external router or switch hardware. NetSim supports many, but not all, of the IOS commands available on a physical router or switch. All of the commands referenced in the available labs are supported by NetSim.

Achieving Cisco CCNA® or CCNP®-level certification is the goal of many people who use this product. The Boson NetSim covers many of the new Cisco certifications, including CCNA (200-301), ENCOR (350-401), and ENARSI (300-410). The included labs guide you through the configuration of routers, switches, and workstations in a variety of scenarios.

Installed labs are made available (unlocked) depending on the activation key used to activate the product. All labs are downloaded and kept up to date after installation regardless of which NetSim 13 product is used; however, the only labs that are available are ones that have been unlocked with the product purchased. For example, if you start your studies with a CCNA activation key, you will have the command set and labs available that are necessary to study for that exam. When you are ready to study for either the ENCOR or the ENARSI exam, you will need to purchase a new activation key; NetSim will unlock more labs, and a larger command set will become available.

Each activation key unlocks a selection of labs. A small lock icon (🔒) is displayed next to unavailable labs. Some lab packs are delivered by NetSim to support other products that are sold separately. If you have questions about locked labs, please contact [support@boson.com](mailto:support@boson.com).



After you load and complete an unlocked lab, you can use the grading function in NetSim to grade the lab so that you can determine whether you completed it correctly. As you progress through the labs, you can master the skills needed to pass the simulation questions in the Cisco certification exams. NetSim has the ability to guide and grade, and using it for practice can be more helpful than using real routers and switches. NetSim allows you to gain experience without requiring you to purchase expensive equipment.

You can use the Boson NetSim to work through labs, but you can also use it for additional purposes. For example, you can create your own logical topology to practice designing and planning a network. This tool's functionality goes beyond that of most tools because you can actually create the device configurations that are going to be used, save those configurations, and practice using them on simulated devices.

Routing protocol implementation is one of the more challenging tasks you might encounter. Troubleshooting a production network can be a frustrating experience. Fortunately, you can create a virtual copy of your network by creating a new topology in NetSim and troubleshoot the problems without interfering with your production network. Because NetSim is designed as a study tool for Cisco certification, you should not rely only on NetSim to make decisions about a production network, but you might find it useful in your troubleshooting efforts.

In summary, Boson NetSim is a flexible and powerful product that can help you become certified and, in some cases, it can be used to create a simulation of the topology of your corporate network and help you practice troubleshooting without using devices on the production network.

## Using NetSim to Prepare for Your Certification

By using NetSim to help you achieve a Cisco certification, you can learn and master the skills necessary to help you successfully complete your certification track. The purpose of NetSim is to help you with the practical, hands-on portion of your education and to ensure that you not only understand the concepts of routing but can actually configure and implement routing on Cisco devices.

Mastering Cisco networking involves two fundamental tasks:

1. Learn the theory of routers and switches.
2. Gain the hands-on experience of implementing that theory by configuring the devices in a network and testing them in a lab.

Self-studying for a Cisco certification can be a daunting task. The amount of information a CCNA candidate is required to know and the skills that candidate is required to possess are quite extensive. To begin learning the theory of configuring a network, you can find a good reference book or listen to an instructor. (Boson Training, [www.boson.com/boson-training](http://www.boson.com/boson-training), offers a full slate of classes and Bootcamps.) But a reference book might not be enough. The book will not give you the practical, hands-on experience of routing and switching that you can learn from NetSim—experience that will help you build on the theoretical knowledge you learned from the reference book.

Real equipment gives you the ability to practice on physical routers and switches, but it also is a very costly way to practice and leaves a lot of room for error. The Boson NetSim, on the other hand, is an excellent tool to help you prepare for the CCNA-level ([www.boson.com/certification/CCNA](http://www.boson.com/certification/CCNA)) and CCNP-level ([www.boson.com/certification/CCNP](http://www.boson.com/certification/CCNP)) exams. NetSim simulates the behavior of a network and does not just return preprogrammed responses to expected command inputs. It allows you to create virtual packets and virtual frames that will be routed and switched through the simulated network. Aside from physically plugging in the cables and listening to the fan noise, your experience with the simulated network will be much the same as your experience with a fully functional lab rack without the expense of the hardware. NetSim will enable you to practice various configurations and master helpful skills.

Once you feel you have mastered both the theory ([www.boson.com/boson-training](http://www.boson.com/boson-training)) and the practical labs ([www.boson.com/netsim-cisco-network-simulator](http://www.boson.com/netsim-cisco-network-simulator)), you can test your knowledge by using the Boson ExSim-Max practice exam products available at the ExSim-Max home page ([www.boson.com/exsim-max-practice-exams](http://www.boson.com/exsim-max-practice-exams)). Boson ExSim-Max products include complex multiple-choice questions, drag-and-drop questions, and Boson NetSimX simulation questions.

The Boson NetSim Network Simulator is the most comprehensive product on the market for learning how to configure a Cisco router. The Boson NetSim will not only help you become certified, it will help you learn and understand how to configure routers, switches, and networks.

## Contact Information

EMAIL: [support@boson.com](mailto:support@boson.com)  
PHONE: 877-333-EXAM (3926)  
615-889-0121  
ADDRESS: 25 Century Blvd. Ste. 500  
Nashville, TN 37214

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## NetSim Technical Support

- To review NetSim support topics, go to the NetSim Products Support Topics page ([www.boson.com/support/netsim-support-topics](http://www.boson.com/support/netsim-support-topics)).
- To submit a support ticket, go to Boson's website ([www.boson.com](http://www.boson.com)) > log in to your account > click the **Support Tickets** tab > start a new ticket.

## License Solutions

- Single-User License Agreement (SULA) – You can review the SULA here ([www.boson.com/sula](http://www.boson.com/sula)).
- Volume Solutions – For volume discounts, contact us at [www.boson.com](http://www.boson.com), 877-333-EXAM (3629) or [support@boson.com](mailto:support@boson.com).

## Getting Started

### System Requirements

- Supported operating systems: Windows 10, Windows 8, Windows 7
- .NET Framework: Microsoft .NET Framework Version 4.5
- Processor: 1-GHz Pentium processor or equivalent (minimum); 3-GHz Pentium processor or equivalent (recommended)
- RAM: 512 MB (minimum); 2 GB (recommended)
- Hard Disk: At least 250 MB of available space
- Display: 1024 x 768 or higher resolution; 32-bit
- Active Internet connection

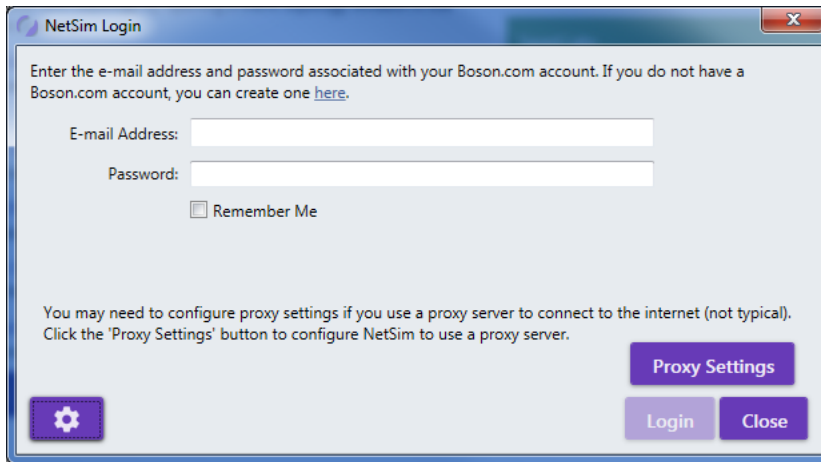
### Product Activation

You must have a Boson account to download the NetSim Demo. To create a free account, visit the Boson Online Account page ([www.boson.com/account/default.aspx](http://www.boson.com/account/default.aspx)) and enter a valid email address to begin creating an account.

You can open NetSim from the shortcut installed during the download or from the Start menu by clicking **Boson Software > Boson NetSim 13 > Boson NetSim**.



When you first open NetSim, you will be presented with the **NetSim Login** dialog box. When prompted, enter the email address and password associated with your Boson.com account. If you have not previously created a Boson.com account, you will need to create one first on Boson.com. If you do not activate a NetSim 13–related product, NetSim will launch in Demo mode. If you are using a proxy server to connect to the internet, you must configure the appropriate settings via the Settings icon (⚙️) and click the **Proxy Settings** button.



## Demo Version

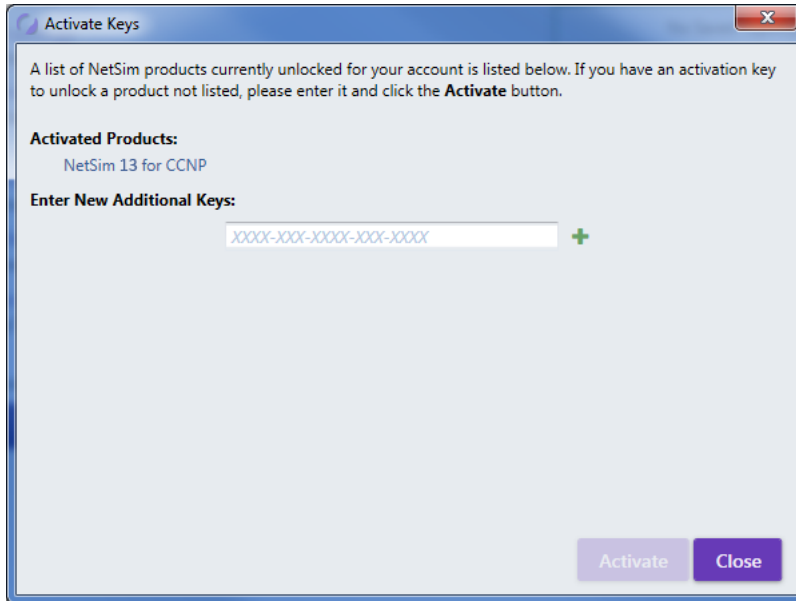
In Demo mode, NetSim launches with limited commands for evaluation purposes. Within the Demo version of NetSim, only a few labs and commands are available. If you would like to access additional labs and commands, you must activate a full version of the Boson NetSim.

If you have not purchased an activation key for NetSim, you will not be able to activate the full version of NetSim. However, you can choose to continue in Demo mode. When you are running the Demo version, only the Demo labs and a limited set of commands are functional. To purchase the full version of NetSim, visit the About NetSim page ([www.boson.com/netsim-cisco-network-simulator](http://www.boson.com/netsim-cisco-network-simulator)) of the Boson website.

## Full Version


If you have already purchased a full version of NetSim 13, enter the email address and password associated with your Boson.com account. NetSim will automatically activate with your purchased NetSim products. Installed labs are made available (unlocked) depending on the products associated with your account. A small lock icon (🔒) is displayed next to unavailable labs. To make locked labs available, you will need to purchase another product or enter an activation key not already associated with your account; then, more labs and a larger command set become available.

If you have activation keys not already associated with your Boson.com account that you would like to use in NetSim, click **Help > Activate Keys** to open the **Activate Keys** dialog box. Enter your additional keys as required. You can click the plus sign to add fields to the dialog box.



## Begin a Lab

To begin an unlocked Boson NetSim lab, perform the following steps:

1. In the **Labs** pane on the left, double-click the lab you want to open.
2. After you have loaded a lab, the **Lab Instructions** tab is active. Read through the lab instructions to familiarize yourself with the lab's objectives.
3. From the **Devices** pane on the right, select the device(s) that you need to configure in order to complete the lab, click the **Console** button, and follow the steps in the lab.
4. When you have completed the lab, click the Grade Lab icon (  ) on the toolbar to ensure that you have completed the lab successfully.
5. You can choose to save your configurations by selecting the appropriate **Save** option from the **File** menu. There is more information about saving device configurations in the [New Topology](#) section or the [Quick-Launch Toolbar](#) section of this manual.

## Menus

The menu options in NetSim 13 enable you to easily navigate through the labs, the [Lab Topology and Network Designer](#), the [Lab Compiler](#), the [Consoles section](#), and more. These menus include the [Menu Bar](#) and the [Quick-Launch Toolbar](#).

### Menu Bar

#### File Menu

The options in this menu tree enable you to open configuration files, open topology files, save configuration files, save topology files, import and export labs, and exit the program.

##### New Topology

This option opens a new topology tab.

## Open

This option enables you to select a file to open. The supported file extensions are \*.top, \*.lab, and \*.bsn.

## Save

This option enables you to save your current lab or topology and configurations. Files are saved with the \*.lab or \*.bsn extension.

## Save As

This option enables you to save your current lab or topology and configurations. Files are saved with the \*.lab or \*.bsn extension.

## Save All

This option enables you to save all unsaved lab, topology, and/or configurations that are currently open. Files are saved with the \*.lab or \*.bsn extension.

## Package Lab

This option enables users to save the current lab. This option adds user data so that instructors know who submitted the labs.

## Import

This option imports network configurations, a previously saved lab, a previously saved lab pack, or legacy NetSim files.

## Export

This option exports the network configurations currently running in the simulator, a lab or lab pack created with the [Lab Compiler](#), or the current topology on the NetMap.

## Recent Saved Topologies

If you recently saved a topology, it will appear in this list. You can click a file name to open the topology.

## Recent Saved Labs

If you recently saved a lab, it will appear in this list. You can click a file name to open the lab.

## Recent Loaded Labs

If you recently loaded a lab, it will appear in this list. You can click a file name to open the lab.

## Exit

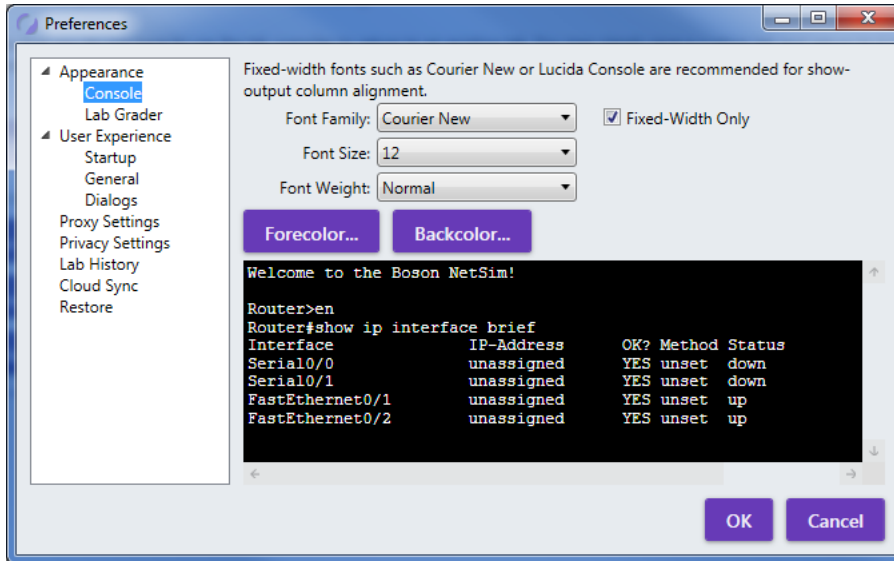
This option closes the program.

## Edit Menu

The options in this menu tree enable you to configure proxy settings and change your preferences.

### Preferences

This option opens the **Preferences** dialog box, from which you can configure the appearance of NetSim, the user experience (including the layout and dialogs), the proxy settings, privacy settings, lab history, and cloud sync settings. This also enables you to restore program defaults.



**Note:** Fixed-width fonts such as `Courier New` are highly recommended. With fixed-width fonts, output remains properly aligned and is easier to read and interpret.

## View Menu

The options in this menu tree enable you to alter the way you view the windows and panes within NetSim.

### Lab Compiler

Enable or clear this option to display or hide the features associated with the **Lab Compiler**.

### Auto Collapse Tree

Clear this option to expand all options in the lab menu. Select this option to collapse all options in the lab menu.

### Reset Window Layout

Use this option to reset how windows and panes are displayed back to the defaults when NetSim was originally installed.

### Windows

Opens a sub menu to display any window or pane that you might have previously closed.

## Lab Menu

This menu tree enables you to perform all the functions you need once a lab is loaded.

### Load Lab

After you select a lab from the navigation pane, click this option to load the lab instructions, topology, and configurations.

### Grade Lab

After you have completed a lab, click this option to verify that you have completed the lab successfully.

### End Lab

After you have completed a lab, click this option to end the lab.

## Lab Instructions

Click this option to open the lab instructions (if closed). You can then move the instructions to a second monitor or place them beside, above, or below the original NetSim window. This feature provides multimonitor support so that you can view the lab document on one monitor while entering commands on a second monitor.

## Lab Topology

Click this option to open the lab topology (if closed). You can then move the lab topology to a second monitor or place the lab topology, beside, above, or below the original NetSim window. This feature provides multimonitor support so that you can maximize the use of your computer real estate and easily view the topology on one monitor while entering commands on a second monitor.

## Open All Devices

Click this option to open a tab in the Consoles section for every device in the network of the currently loaded topology.

## Designer Menu

The options in this menu enable you to create a new topology and modify existing ones. You can add devices and connections to the topology, and you can also click and drag the devices to rearrange your simulated network.

### New Topology

This option enables you to begin designing a new topology.

### Share Topology

This option enables you to share your created topology with the rest of the NetSim Community.

### Clear Topology

This option enables you to clear the topology you are creating. You will be asked to confirm that you want to clear the topology.

### Add

This option enables you to add devices to your topology. Clicking **Add > Device** will open the **New Device** dialog box, from which you can choose the device you want to add.

## Compiler Menu

The options on this menu are available if the Lab Compiler is open (click **View > Lab Compiler** or select the **Lab Compiler** tab). The options in this menu tree enable you to create a new lab pack for personal or instructional use. More information can be found in the [Compiling a Lab](#) section of this manual.

### New

This option enables you to select a new custom lab pack, a new lab, or a new section.

### Edit

This option enables you to edit the title of previously created custom sections or lab packs and enables you to edit previously created custom labs.

### Delete

This option deletes the selected lab pack, section, or lab. You will be asked to confirm that you want to delete the selected component.

### Share Lab

This option allows you to share the currently selected lab with the NetSim Community.

## Share Lab Pack

This option allows you to share the currently selected lab pack with the NetSim Community.

## Wizard

This option launches the Lab Compiler Wizard, which enables you to easily compile a lab pack for personal or instructional use.

## Help Menu

The options in this menu tree enable you to find out more information about the Boson NetSim Network Simulator and how to find support if you need it.

### Users Manual

This option opens the Boson NetSim User Manual, the document you are reading now, which guides you through the features and functionalities of NetSim.

### Support

This option displays frequently asked questions (FAQs) on the Boson NetSim support page ([www.boson.com/support/netsim-support-topics](http://www.boson.com/support/netsim-support-topics)), allows you to save your current log files in the \*.zip format, and allows you to submit a ticket through your Boson.com account.

### Activate Keys

This option opens the **Activate Keys** dialog box. From here, you can activate other levels or lab packs within NetSim.

### Check for Updates

This option allows you to manually check for NetSim updates.

### About Boson NetSim

This option displays basic information about NetSim, including the version and company information.

### Release Notes

This option displays information about the changes included in the current and previous releases of NetSim. The release notes are shown after the program has been updated. You can choose not to have the release notes appear after the program has updated by clearing the **Display release notes after application updates** check box. You can change the option at any time.

## Quick-Launch Toolbar

Icons in the Quick-Launch toolbar are enabled or disabled depending on the pane in use.

### New Topology

Click the New Topology icon (  ) to open the Network Designer and begin creating a topology.


### Open File

Click the Open File icon (  ) to open a supported file. Supported file types are \*.lab and \*.bsn.


### Save

Click the Save icon (  ) to save your current lab progress (\*.lab) or configurations and topology (\*.bsn).


### Save All

Click the Save All icon (  ) to save all changes, including changes to devices in the Network Designer and changes to their configurations.


## Grade Lab

Click the Grade Lab icon (  ) to grade the currently loaded lab.


## Console to Device

Click the Console to Device icon (  ) to open a device from the NetMap in the **Consoles** section.

## Zoom In

Click the Zoom In icon (  ) to increase the size of devices on the NetMap or on the active topology.

## Zoom Out

Click the Zoom Out icon (  ) to decrease the size of devices on the NetMap or on the active topology.


## Add New Device

Click the Add New Device icon (  ) to add a new device to the active topology on the NetMap.


## Remove Device

Click the Remove Device icon (  ) to delete a selected device from the active topology on the NetMap.


## Clear Topology

Click the Clear Topology icon (  ) to delete all devices and connections from the active topology on the NetMap.


## Start Simulator

Click the Start Simulator icon (  ) to load the active topology into the simulator, open the **Consoles** section, and begin configuring devices. This option is disabled in Demo mode and in labs that are included in NetSim.

## Stop Simulator

Click the Stop Simulator icon (  ) to stop the simulator and to reopen the NetMap, where you can reconfigure the devices and connections. This option is disabled in Demo mode and in labs that are included in NetSim.


## Pointer

Click the Pointer icon (  ) to allow you to select and multiselect devices in your topology. You may also right-click devices to access additional menu items and click, hold, and move the mouse to multiselect devices.

## Hand


Click the Hand icon (  ) to pan and click-move the NetMap canvas to a different location. You may also right-click devices to access additional menu items.

## Connect

Click the Connect icon (  ) to create connections between two devices. Click on a device to expand the available connections, select the interface to begin a connection, click on the destination device, and then select the

interface to complete the new connection.

### Edit Application Preferences

Click the Edit Application Preferences icon (  ) to configure preferences such as appearance and user experience.


### Open User Manual

Click the Open User Manual icon (  ) to view the Boson NetSim 13 User Manual, which is the document you are currently reading.


### Exit Boson NetSim

Click the Exit Boson NetSim icon (  ) to exit Boson NetSim.


### Move Selection Up

Click the Move Selection Up icon (  ) to move the selected lab pack, lab section, or lab up a position in the Lab Tree while compiling a lab pack.

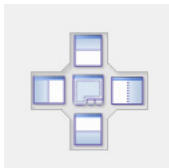
### Move Selection Down

Click the Move Selection Down icon (  ) to move the selected lab pack, lab section, or lab down a position in the Lab Tree while compiling a lab pack.

## Windows

Every window in NetSim may be closed or relocated to your preference. Each window tab features a close icon (  ) that closes the given window. If there are unsaved changes associated with that window, such as a new topology, you will be prompted to save those changes before closing. The **Lab Instructions** window and **Lab Topology** window associated with the currently loaded lab may not be closed.

You may also reposition or undock any window in NetSim by clicking, holding the mouse button down, and moving the cursor to where you want to drop the window. While you are still pressing the mouse button, the window will detach and appear like its own stand-alone window. Any place where you wish to drop the window will also feature a docking hint:



Releasing the cursor over the left icon in the hint will dock the window to the left of the hint, releasing the cursor over the right icon will dock the window to the right of the hint, releasing the cursor over the bottom icon will dock the window below the hint, releasing the cursor over the top icon will dock the window above the hint, and releasing the cursor over the center icon will dock the window as a tabbed item below the hint.

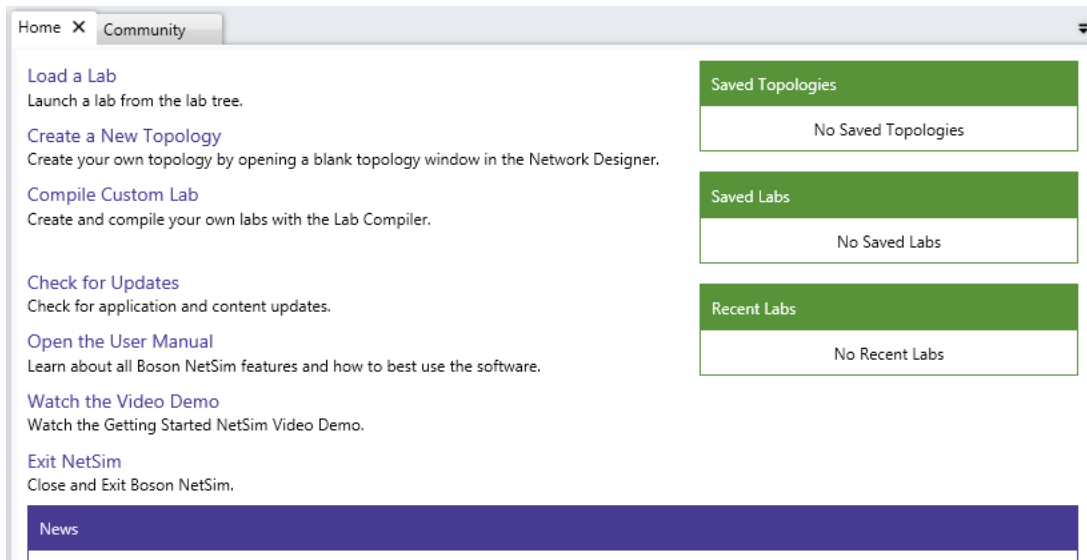
As you still hold the mouse button down and move the cursor around NetSim, you will find numerous places



to drop a given window. You may rearrange windows, pull them out, or close them entirely to customize the appearance to your preference.

## Home

You can open the **Home** window by clicking **View > Windows > Home** from the menu bar. There are many components of this panel and various features that you can access from this panel. After NetSim loads, you have many options on this tab including loading a lab, checking for updates, opening the User Manual (this document), reading any available news, viewing saved or recent topologies or labs, and exiting NetSim.



## Saved Files

From this section, you can quickly load a saved topology, saved lab, or recent lab.

## Welcome

From this, the largest section, you can load a lab, create a new topology, compile a custom lab, check for updates, and more.

## News

This section displays updates and special offers from the Boson website ([www.boson.com](http://www.boson.com)). You can scroll through this section to see the latest news and information, and you can click **more** to view the related offer on the website. If you are not connected to the Internet, you might not see any news in this section. To see the latest news from Boson, make sure that you are connected to the Internet.

## Community

You can open the **Community** window by clicking **View > Windows > Community Share** from the menu bar. This panel contains content created by other users in the NetSim community. You can use the Search box provided to find content by keyword; the **Sort By** drop-down list to sort content by average rating, newest, oldest, and total ratings; and the **Filter By** drop-down list to filter content by content type (Labs, Lab Packs, Topologies), your own submissions (My Submissions), and content already downloaded (Downloaded).

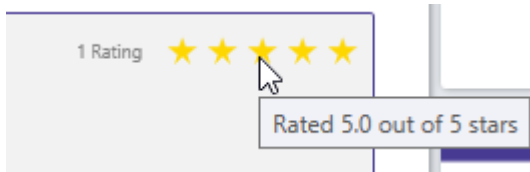
## Configure and Verify EIGRP for IPv

2 Ratings ★ ★ ★ ★ ★

Learn to configure the Enhanced Interior Gateway Routing Protocol (EIGRP) for Internet Protocol version 4 (IPv4) routing protocol. EIGRP for IPv4 is the version of EIGRP that operates on IPv4 networks. Configure the appropriate settings on Router1, Router2, and Router3 so that each LAN operates in the same autonomous system (AS).

Submitted 11/2/2018 1:05:23 PM by [ihanhackir](#)

Users may share with the NetSim community their own topologies, labs, and lab packs. All of the items created by other users are displayed on this screen. A single shared item is comprised of a title, description, and content that can be downloaded via the **Download** button. You may also rate items from one to five stars. Only items you have downloaded may be rated. The current rating and number of ratings is displayed for each item.



### Download

Clicking the **Download** button will allow you to save topologies to your local file system which you may then open and run in NetSim. Downloading a Lab or Lab Pack will insert the item into the **Custom** and **Compiler Lab Tree**.

### Upload Topologies

To upload a topology, first open or create your custom topology in the network designer. Then click **Designer > Share Topology**. Enter the title and description then click **Share** and your topology will be visible to all NetSim 13 users.

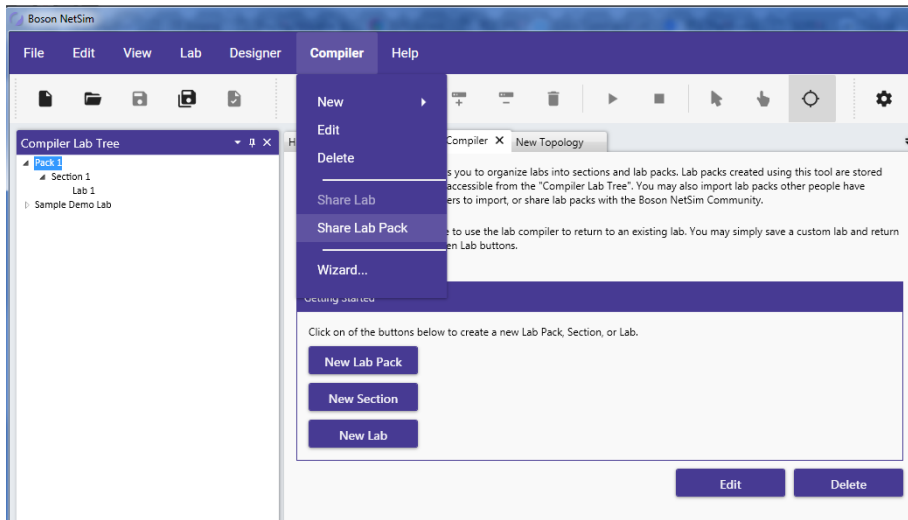
The **Author** field displays the name that will be visible to other users browsing content in the NetSim Community.

You may change this display name at any time by logging in to Boson.com, navigating to **My Account > Login Settings**, and updating the **UserName** field.

Finally, you must accept Boson's NetSim Community Share Policy (<http://www.boson.com/boson-community-share-policy>) to submit your content.

## Upload Labs and Lab Packs

To upload lab packs and lab topologies, open NetSim's Lab Compiler, select one of your custom labs or lab packs from the Compiler Lab Tree, and click **Compiler > Share Lab** or **Share Lab Pack**. Then follow the same prompts to upload your content.

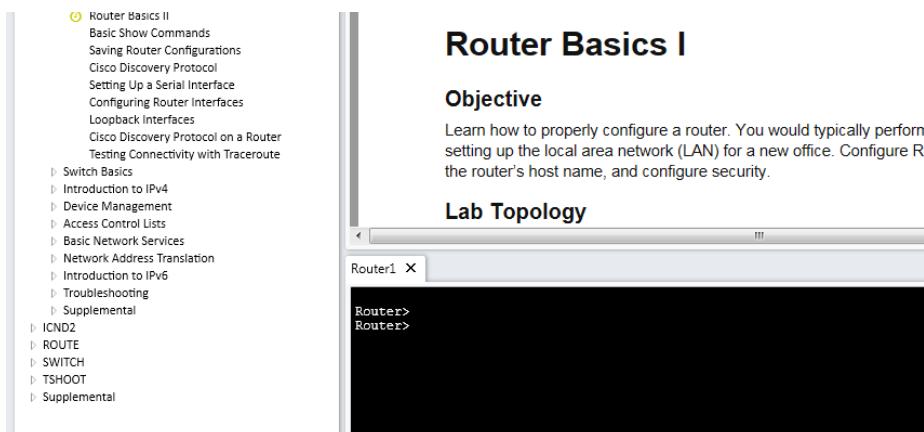


## Submission Approval

Once you have uploaded your topology, lab, or lab pack, your submission must be approved before it is available to other users via the NetSim Community. Someone at Boson will review your content and reach out to you via email if there are any issues.

## Lab Instructions

When you load a lab, the lab instructions window appears in the center tabbed document window section. You can scroll through the instructions as you work through the lab, and you can increase or decrease the size of the content with the zoom controls or by clicking and dragging the splitter control between the **Lab Instructions** section and the **Consoles** section.

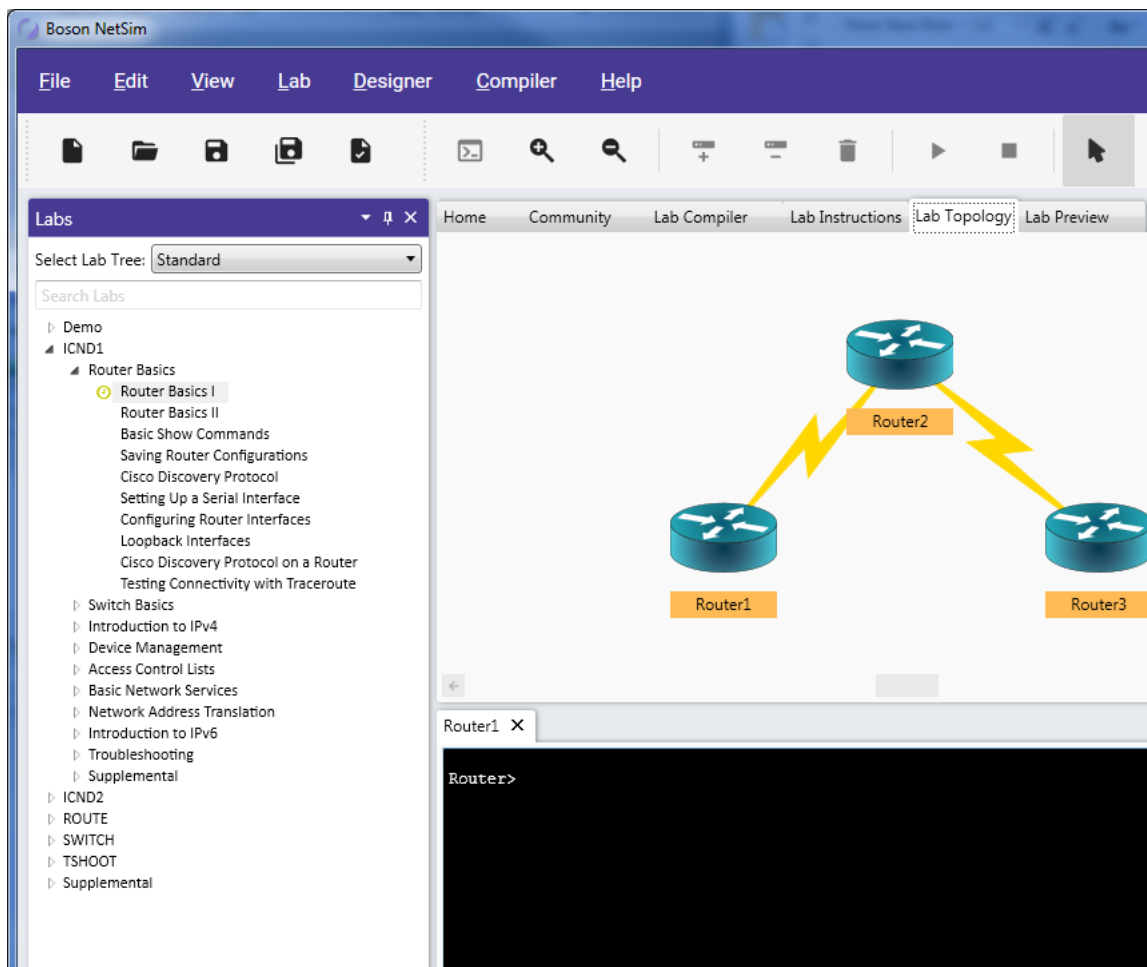



You can search the lab instructions document by clicking within the document area and pressing Ctrl+F key combination. You can click the down arrow on the far right of the search box to choose to match the whole word only or to match case. Use the left and right arrows next to the search box to find the terms you are searching for throughout the document.

**Note:** If you have selected to match case, for example, and then decide to match the whole word only and not case, you must click **Match case** again to remove it as a selected search parameter.

## Lab Topology

You can view the topology of the currently loaded lab in this window. To configure a device, right-click the device and click **Console** or double-click on the device icon; the device will open in the console area below the lab topology. If you cannot see all the devices in the topology, you can click, hold, and drag the document out into a separate window. You can also use the zoom controls on the Quick-Launch toolbar or click and drag the splitter control between the **Lab Topology** section and the **Consoles** section to expand it.

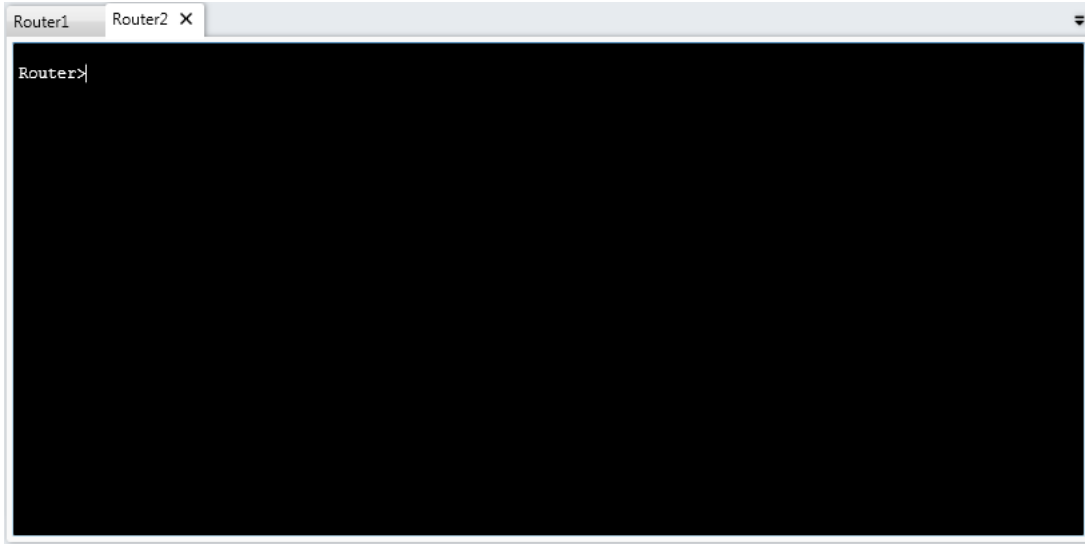


**Note:** If you have a scroll button on your mouse, you can use it to increase or decrease the size of the devices in the **Lab Topology** section. You can also click and drag with the Hand tool (  ) active within the section to reposition the topology.

The Lab Topology is the read-only view of the topology currently running in the simulator. If you wish to edit a custom topology, you can do so by creating a new topology.

## Consoles Section

After you have opened a lab, you can view the device consoles and begin performing the lab steps. You will see the console window for each device currently opened.




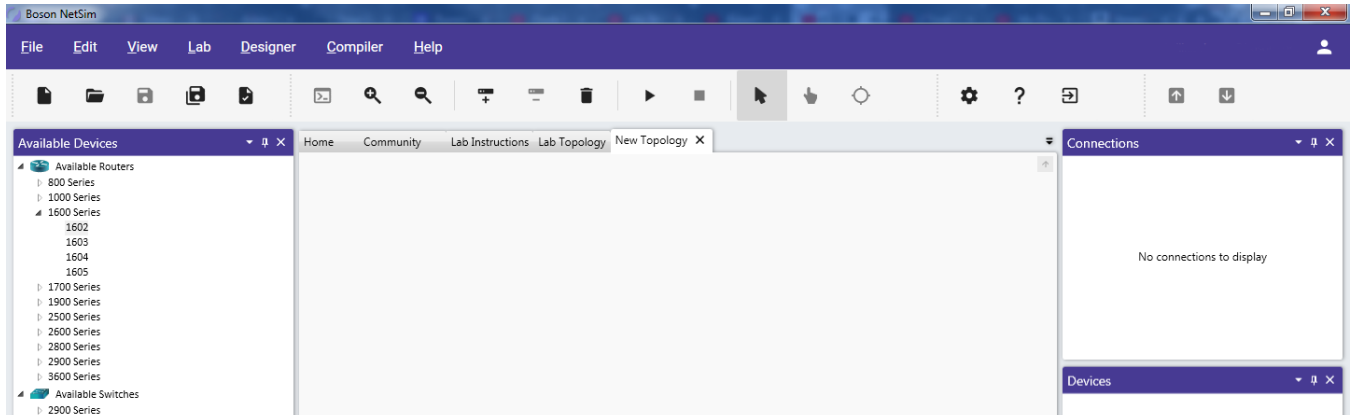
From the console window, you can modify the devices and perform the steps in the lab's instructions. The devices in the lab can be accessed from the **View > Windows > Consoles** menu or by double-clicking the device from the lab topology. Select a specific device to begin performing the lab steps on that device.

You can paste configuration commands to a device from another application. For example, if you have typed a series of commands in a program such as Notepad and would like to add them to a device's configuration, copy the commands you typed. Then, in NetSim, right-click in the device's Console pane and press Enter. The device will then quickly execute the commands.

In addition, you can copy console output or commands that you have entered in a device's configuration in NetSim by pressing the left mouse button and dragging the cursor to select the text you wish to copy. When you release the left mouse button, the text you selected will be copied to the clipboard.

## New Topology

You can create a new topology by clicking on the New Topology icon (  ) or by clicking **File > New Topology** from the menu bar. NetSim allows you to create a customized network topology with devices such as routers, switches, and PC workstations and with connections such as FastEthernet, Serial, and Frame Relay connections. Click and drag devices from the **Recent Devices** pane or the **Available Devices** pane to the new topology document. You can modify a topology by adding, editing, and deleting devices and connections; when you save and load a topology, the topology will appear read-only until stopped.



## Creating a New Topology

If you are creating a custom lab or want to gain extra experience with new topologies, you can use NetSim to create topologies with up to 200 devices. Note, however, that larger topologies might cause slow performance on computers that do not have sufficient processing power and memory. You can use this feature to create a topology file (\*.bsn) that can be used in a custom lab. To learn more, see the [Compiling a Lab](#) section of this manual or open and perform the NetSim Topology Demo lab for a walkthrough of the feature.

To create a new simulated network topology, perform the following steps.

1. Click **File > New Topology** from the menu bar.
2. Add devices, including [routers](#), [switches](#), [workstations](#), [IP phones](#), and [Frame Relay Switches](#), to the topology.
3. Add connections, including Serial, FastEthernet, and Frame Relay connections, between the devices you added to the topology.

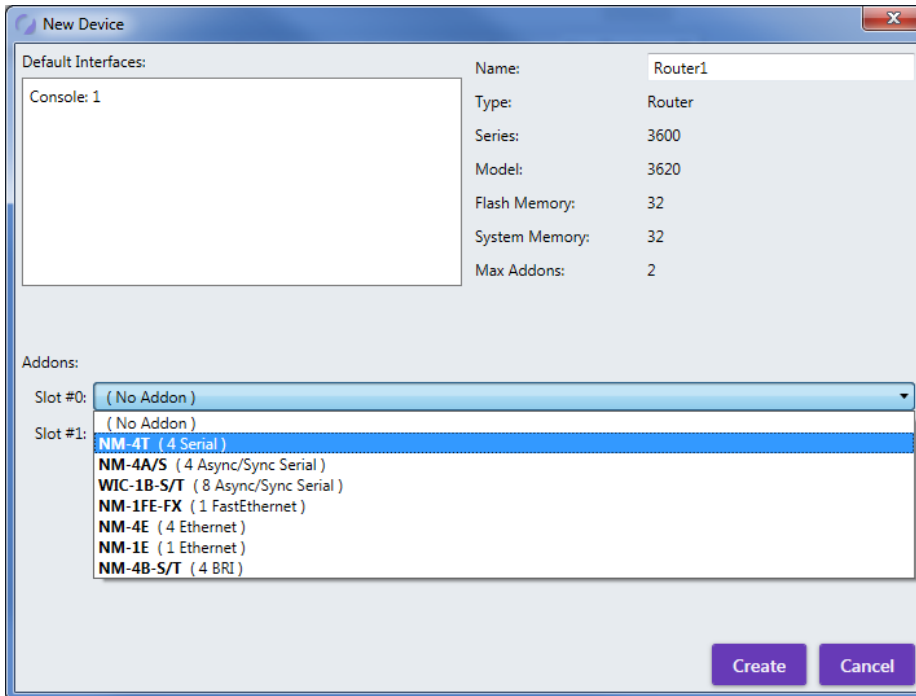
### Add Devices

#### Add a Router

1. Select a router from the **Available Devices** pane, and drag it onto the canvas where you would like the new device to appear.

**Note:** You can expand the menus for the available devices by clicking the arrow next to each category.

2. In the **New Device** dialog box, select the desired addon (if any) for each available addon slot.



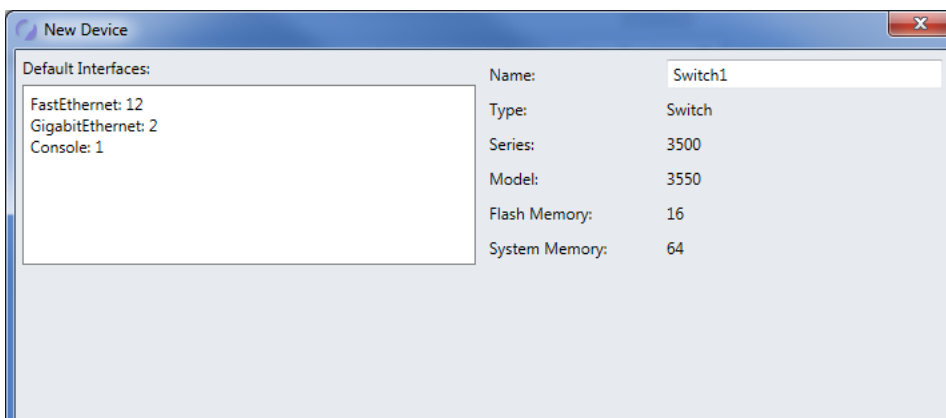
3. Choose a name for the router; you can use the default name or type a name in the text box. You can rename a device if desired by clicking the name in the topology and modifying it.
4. Click **Create**.
5. Add any additional desired devices to the network.

### Add a Switch

1. Select a switch from the **Available Devices** pane, and drag it onto the canvas where you would like the new device to appear.

**Note:** You can expand the menus for the available devices by clicking the arrow next to each category.

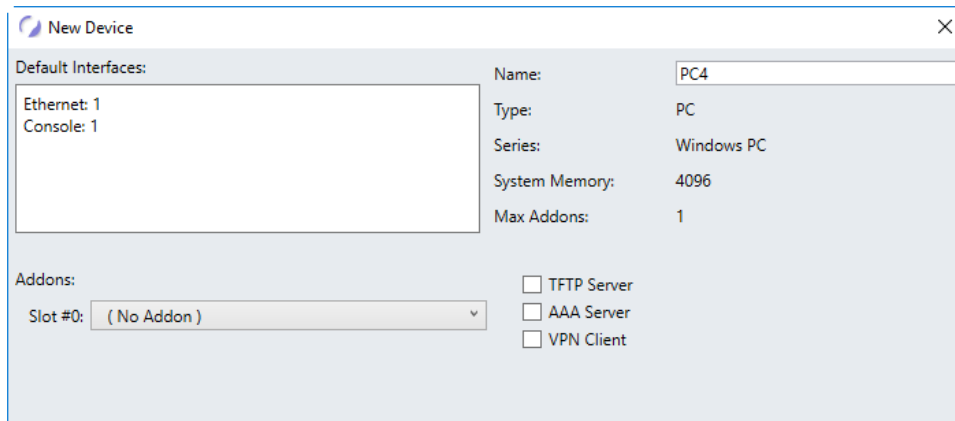
2. In the **New Device** dialog box, choose a name for the switch; you can use the default name or type a name in the text box. You can rename a device if desired by clicking the name in the topology and modifying it.



3. Click **Create**.
4. Add any additional desired devices to the network.

*Add a Workstation*

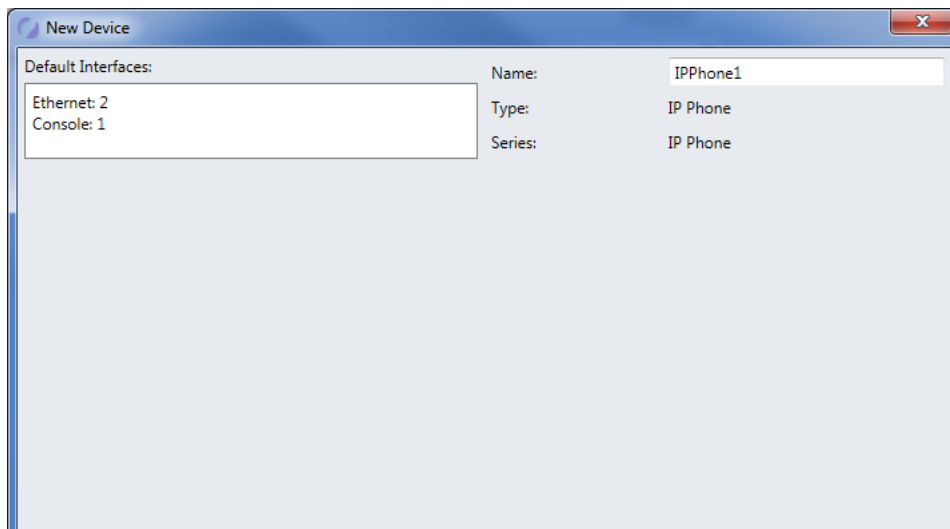
1. Select the WinPC from the **Available Devices** pane, and drag it onto the canvas where you would like the new device to appear.
2. If desired, you can choose from **TFTP Server**, **AAA Server**, and **VPN Client**.



3. Choose a name for the workstation; you can use the default name or type a name in the text box. You can rename a device if desired by clicking the name in the topology and modifying it.
4. Click **Create**.
5. Add any additional desired devices to the network.

*Add an IP Phone*


1. Select the IP Phone from the **Available Devices** pane, and drag it onto the canvas where you would like the new device to appear.
2. Choose a name for the phone; you can use the default name or type a name in the text box. You can rename a device if desired by clicking the name in the topology and modifying it.

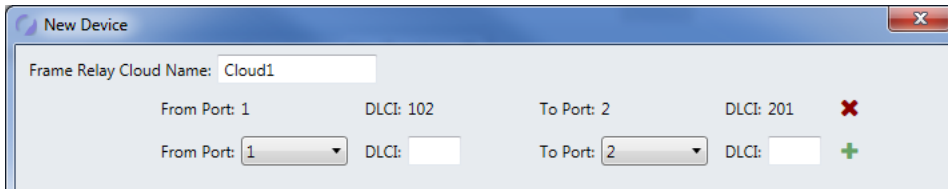




3. Click **Create**.
4. Add any additional desired devices to the network.

### Add a Frame Relay Switch

1. Select Frame Relay Switch from the **Available Devices** pane and drag it onto the canvas where you would like the new device to appear.
2. Choose a name for the Frame Relay Cloud configuration; you can use the default name or type a name in the text box.
3. By default, Frame Relay switches in NetSim have eight ports; however, you may configure as many Frame Relay mapping ports as necessary. Select a port in the **From Port** drop-down list box, enter a DLCI value corresponding to the selected port in the first **DLCI** field, select a second port from the **To Port** drop-down list box, enter a DLCI value corresponding to the second selected port in the second **DLCI** field, and click the green Apply icon (  ).

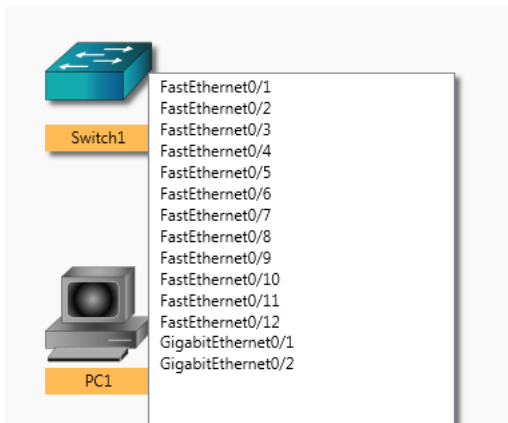


4. Repeat the previous step for every mapped value desired. It is not necessary to configure the inverse of any Frame Relay switch configuration mapping. The inverse Port:DLCI to Port:DLCI is automatically configured when you create the device.
5. Click **Create**.
6. Add any additional Frame Relay switches to the network.

### Connect Devices

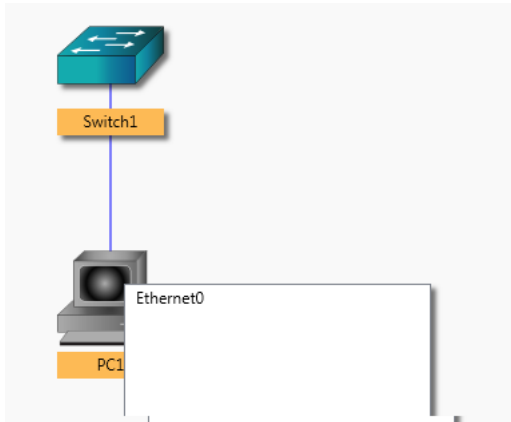
To complete the network, choose the Connect tool from the toolbar by clicking on the Connect icon (  ).

1. Click the first device you wish to connect.
2. In the drop-down list box that appears, select the first interface in the new connection.



3. Click on another device where you want to finish the new connection.

4. In the drop-down list box that appears, select the second interface in the new connection.



**Note:** For Serial connections, the first device selected is automatically the DCE end of the connection.

If you are creating a custom lab and compiling it for use by other NetSim users, see the [Compiling a Lab](#) section to continue creating the lab pack.

### Save

You can save your topology by clicking the Save icon (  ) on the toolbar.

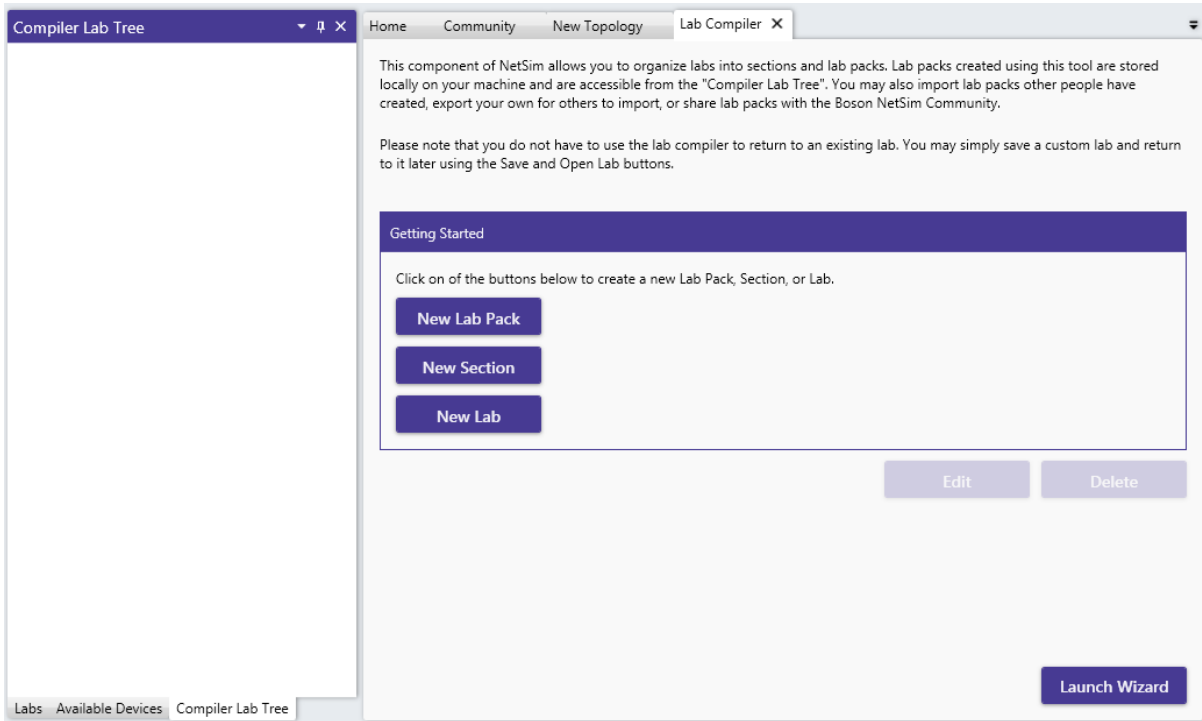
### Share Topology

You can share a topology you created with the NetSim community by selecting **Designer > Share Topology** from the menu bar.

### Lab Compiler

The Lab Compiler can be used to create, edit, and delete custom lab packs that contain personalized documentation, topologies, and configurations. For example, you can use the Lab Compiler to create a custom lab pack for a classroom setting and include a custom network topology, documentation, grading functionality, and beginning configurations for students to practice with. The Lab Compiler is included in every version of NetSim but is disabled by default. To enable the Lab Compiler, go to **View > Lab Compiler**.

Classroom instructors commonly create custom labs that can be used both in the classroom and as homework assignments that follow the syllabus used in the course. Students can use homework assignments to practice the commands and configurations they learned in class and to prepare for the topics covered in the next day's lecture. An instructor can add multiple labs to a single lab pack, covering a variety of concepts, and use custom labs to test the students' knowledge about specific networking concepts.



## Compiling a Lab

A completed lab must contain two files: an XPS file for the instructions and a BSN file for the completed configurations.

### XPS File



On most Windows systems, an XPS file can be created from a word processing program by using the Print feature. For example, in Microsoft Word, you can create and save a Word document and then select the Print option. You should be able to select **Microsoft XPS Document Writer** from the **Printer Name** drop-down box. You should save this in a folder with the title of your lab and in a place you will remember. You can then save all other associated files in the same location.

### BSN Topology File

A BSN file can be created within NetSim. The BSN file contains a topology and, optionally, personalized configurations. To create the topology to be contained within the BSN file, see the [Creating a New Topology](#) section. If you save the topology without modifying the configurations in the simulator, the default settings will be included on all devices.

### BSN Loading Configuration File



To create a loading.bsn file, you should configure the loading configurations of the devices by performing the following steps:

1. Ensure that the topology related to the lab is open on the NetMap.
2. Click the Start Simulator icon (  ) on the toolbar to run the topology in the simulator.
3. Enter the commands necessary to achieve the beginning configuration state you desire on each device.
4. Click the Save icon (  ) on the toolbar to save the file as loading.bsn.

**Note:** Boson recommends saving loading BSN files with the file name “loading” and saving completed BSN files with the file name “completed” so that you can easily distinguish loading BSN files from completed BSN files.

## BSN Completed Configuration File

The completed BSN file contains the completed configurations of all devices in your topology. To configure a completed BSN configuration file, perform the following steps:

1. Click the Open File icon (  ) to open the BSN topology file you previously created.
2. Click the Start Simulator icon (  ) on the toolbar to run the topology in the simulator.
3. Enter the commands necessary to achieve the final configuration state on each device. After a user completes your lab according to the lab instructions you provide, the user will be able to grade the commands he or she entered against the set of configurations you are currently creating.
4. Click **File > Save As** to save the completed.bsn file as a separate file from any other BSN files.

## Creating a Custom Lab Pack

A lab pack is made up of one or more labs organized into sections. At least one section is required. To create a custom lab pack, you need to create a new lab pack, create a new section, and then compile a new lab. You can either use the Lab Compiler Wizard or create a lab pack manually.

### Using the Lab Compiler Wizard to Create a Lab Pack

1. Click the **Launch Wizard** button at the bottom of the **Lab Compiler** pane.
2. Enter a title in the **Lab Pack Title** field, and click **Next**.
3. Enter a section title in the **Section Title** field, enter a lab title in the **Lab Title** field, and click **Next**.
4. Click the **Browse** buttons, and select the appropriate lab guide documentation (\*.xps) and completed network files (\*.bsn) you created and stored on your computer. Click **Next**.

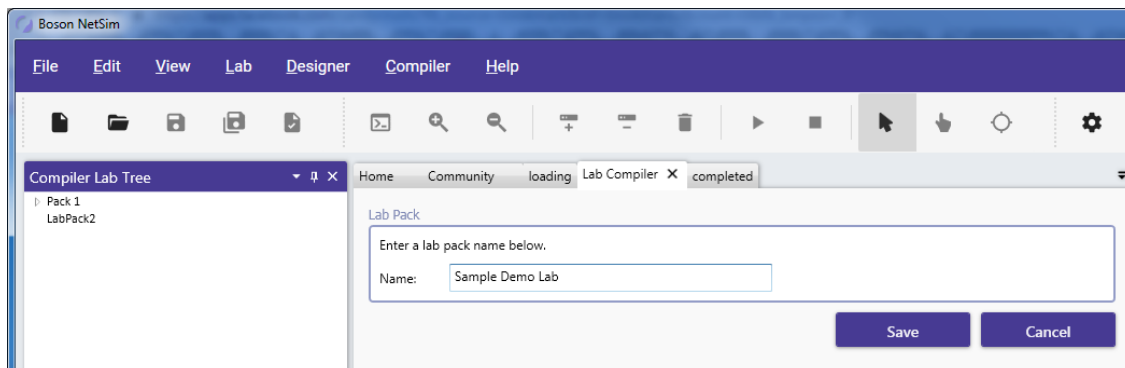
**Note:** To learn how to create completed network files (\*.bsn), see the [BSN Completed Configuration File](#) section in this manual.

5. If desired, select a loading file (\*.bsn) and click **Next**.
6. If desired, type a description and click **Next**.
7. Click **Finish** to return to the Lab Compiler main page.

After you create a lab pack by using the Lab Compiler Wizard, you should see the lab in the navigation pane. You can double-click a lab to open it, or you can click **New Section** or **New Lab** to continue creating the lab pack.

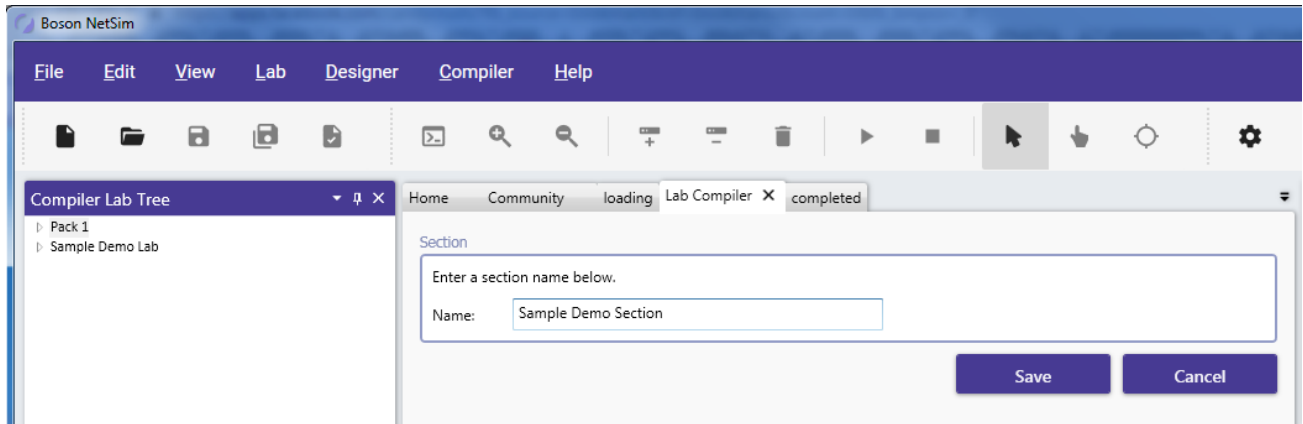
### Manually Creating a Lab Pack

1. Click **View > Lab Compiler**.
2. Click **New Lab Pack** in the **Getting Started** section.
3. Enter a name for the lab pack. This is a lab pack title that will be displayed in the tree.
4. Click **Save**.



### *Adding a Section to a Lab Pack*

1. In the custom lab tree on the left, select the title of the lab pack where you want to add a new section.
2. Click **New Section** in the **Getting Started** section.
3. Enter a name for the section. This is a section title that will be displayed in the tree.
4. Click **Save**.

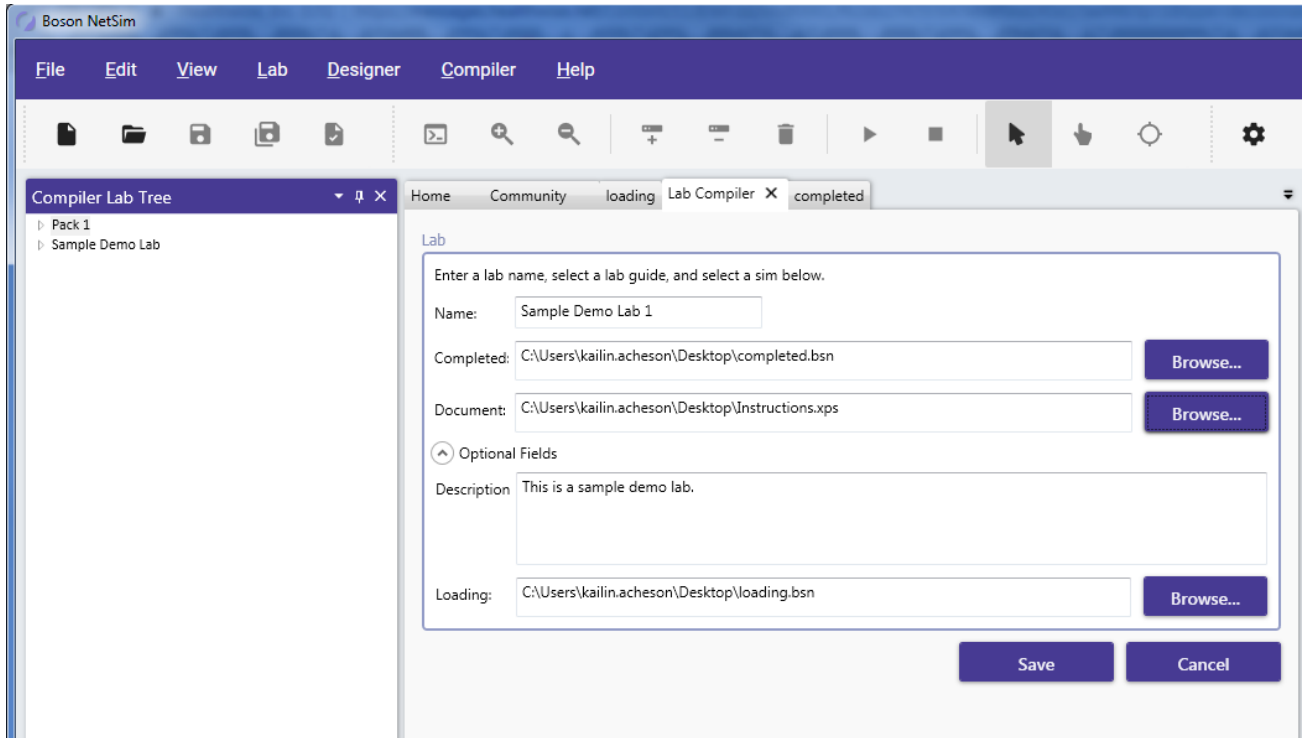


### *Adding a Lab to a Lab Pack Section*

1. In the custom lab tree on the left, select the title of the section where you want to add a new lab.
2. Click **New Lab** in the **Getting Started** section.
3. Enter a name for the lab. This is a lab title that will be displayed in the tree.
4. Add a completed Boson Network file (.bsn).
5. Add a document. The only document files accepted are XPS documents (.xps).

You may optionally add a description and a loading BSN file to the lab. If neither file is desired, proceed to step 9.

6. Click **Optional Fields** in the **Lab** section.
7. Enter a description for the lab. A description is displayed for every lab underneath the Lab Tree.
8. Add a loading Boson Network file (.bsn). The topology in the specified loading file must match the topology in the completed file from step 4. You will receive an error message if the topologies do not match.
9. Click **Save**.



10. To add additional labs to the lab pack section, repeat steps 1 through 9 until the lab pack section is complete.
11. You can edit, add, delete, import, and export lab packs, sections, and labs with the options on the **Compiler** menu and on the Quick-Launch toolbar.




### Sharing a Lab

You can share your user-created lab with the NetSim community by selecting the lab in the Compiler Lab Tree pane and selecting **Compiler > Share Lab** from the menu bar.

### Sharing a Lab Pack

You can share your user-created lab pack with the NetSim community by selecting the lab pack in the Compiler Lab Tree pane and selecting **Compiler > Share Lab Pack** from the menu bar.

### Panes

Similar to windows, each pane in NetSim may also be hidden, set to auto collapse, docked in a different location, or pulled out of the application and displayed as a stand-alone pane. Click and hold the pane title to preview where you can arrange each pane. Clicking the Window Position icon (  ) will expand options to float, dock, dock as a tabbed document, auto hide, and hide. Clicking the Auto Hide Pin icon (  ) will toggle auto hide on and off. Clicking the Close icon (  ) will hide the window.

### Labs

You can open the **Labs** pane by clicking **View > Windows > Labs** on the menu bar. This pane contains a list of labs you can load, a text box to enter text and search the available labs for keywords, and a drop-down list box to select different Lab trees.

## Select Lab Tree

There are several lab trees available to you. The default selection is **Standard**. **Standard** labs are labs written with the intent to give students thorough practice with commands found in Cisco's Official Student Lab Guide. **Courseware** labs accompany Boson's Courseware product and will be locked unless you have purchased activation keys for the specific labs. Courseware labs are available for purchase on the Courseware page of the Boson.com website ([www.boson.com/courseware-cisco-curriculum](http://www.boson.com/courseware-cisco-curriculum)). These labs, similar to the Standard labs, have been written with the intent to give students thorough practice with the commands and objectives that students are expected to know for the relate Cisco exams. The **Custom** lab tree displays labs that you create, download from the NetSim Community, or import from another source. To learn how to compile your own labs using NetSim, see the [Compiling a Lab](#) section of this manual.

## Search Labs

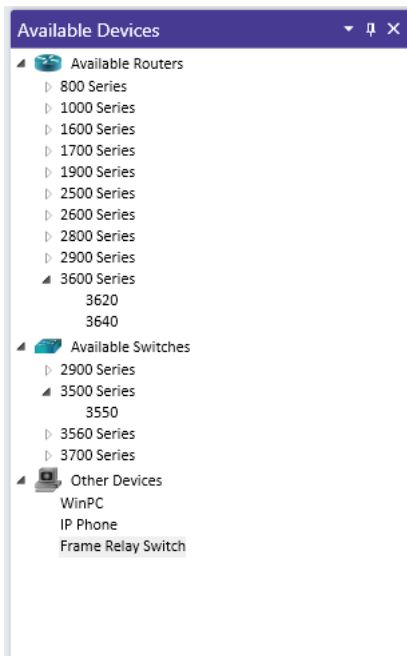
You can use the **Search Labs** section to search for a specific term within a lab description. You can search throughout all the available labs. Note that although a search might return results from multiple lab packs, only labs from the currently activated version of NetSim will be available.

## Available Labs

There are over 480 labs in NetSim 13, and these labs are arranged in specific categories. The lab packs are specific to the version of NetSim that you have activated. You can single-click on a lab to view the **Lab Preview** screen. To open and load a lab, double-click the lab or select the lab and click **Lab > Load Lab**. You can expand or collapse the menu items by clicking the arrow next to each category.

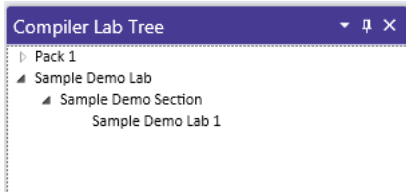
## Available Devices

The **Available Devices** pane displays all devices you can add to a new topology. Click and drag the desired device to the New Topology canvas, and the **New Device** dialog box will appear. The new device is added where your cursor was positioned when you released the mouse button.



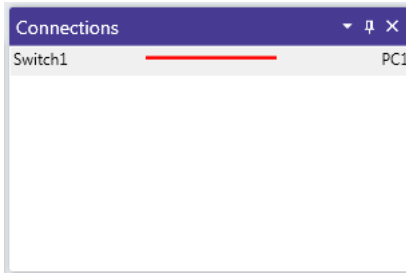
## Compiler Lab Tree

The **Compiler Lab Tree** pane displays any lab packs that you have created by using the [Lab Compiler](#).



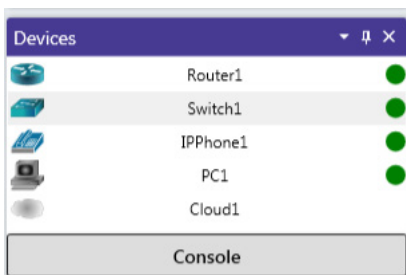
## Connections

The **Connections** pane displays all of the configured connections in the currently active topology or Lab Topology document. You can right-click on a connection within this pane to access a sub menu to remove the connection. You cannot remove a connection using this window if the active topology document is currently running in the simulator.



## Devices

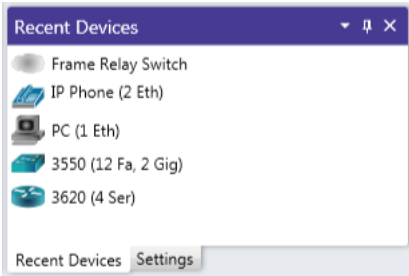
The **Devices** pane displays all of the devices in the currently active topology or Lab Topology document. You can right-click on a device in the **Devices** pane to access that device's sub menu. The sub menu permits you to delete a device if the currently topology document is not running or console to the device if the current topology document is running. You may also select a device and click the **Console** button to access a device's console while a topology is running.



## Recent Devices

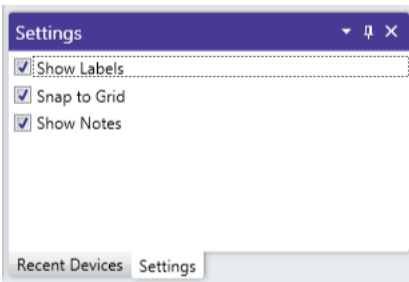
The **Recent Devices** pane displays all of the devices you have recently added to a new topology. The most recent device is displayed at the top of the list. When the **New Topology** pane is open, you can add a recent device to a new topology by clicking on the recent device, holding the mouse button down, moving the cursor to the canvas, and releasing the mouse button. A new device with the same settings as the recent device selected is added to the new topology where the cursor was located when you released the mouse button.





## Settings

The **Settings** pane makes available several topology document settings features. You can enable or disable labels, enable or disable snap to grid, and enable or disable notes.



## Troubleshooting

### Some of my labs have locks next to them, and I can't work through them

The activation key you purchased unlocks the labs and the commands that are included with that level of NetSim 13. If a lab is unavailable with the activation key you purchased, you will see a small lock icon (🔒) next to that lab. Additional labs are unlocked with the appropriate activation key. If you have questions about locked labs, please contact [support@boson.com](mailto:support@boson.com). Only the Demo labs are available without an activation key.

### The Compiler Lab Tree and Custom Lab Tree are empty

You will see labs on the **Compiler** lab tree or **Custom** lab tree only if you have imported labs you received from another NetSim user or from an instructor or if you have created your own labs. To find out how to import labs or how to create your own labs, see the [Compiling a Lab](#) section of this manual.

## Can I use key combinations as shortcuts?

The following table contains various shortcut key combinations you can use in NetSim:

Function	Key
<b>General Application Shortcuts</b>	
New lab	Ctrl+N
Open lab	Ctrl+O
Save lab	Ctrl+S
Grade lab	Ctrl+G
Help	Ctrl+F1
Close	Alt+F4
Show/Hide Menu Bar	Tilde key (~)
<b>NetMap and Designer Shortcuts</b>	
Increase zoom	Ctrl+Plus Sign (+)
Decrease zoom	Ctrl+Minus Sign (-)
<b>Console Shortcuts</b>	
Move to beginning of line	Ctrl+A
Move to end of the line	Ctrl+E
Move back one character	Ctrl+B
Move forward one character	Ctrl+F
Next command	Ctrl+N
Previous command	Ctrl+P
Break	Ctrl+C
Move back 1 device	Ctrl+Shift+Tab, or Ctrl+Comma
Move forward 1 device	Ctrl+Tab, or Ctrl+Period
Jump to Device 1	F1
Jump to Device 2	F2
Jump to Device 3	F3
Jump to Device 4	F4
Jump to Device 5	F5
Jump to Device 6	F6
Jump to Device 7	F7
Jump to Device 8	F8
Jump to Device 9	F9
Jump to Device 10	F10