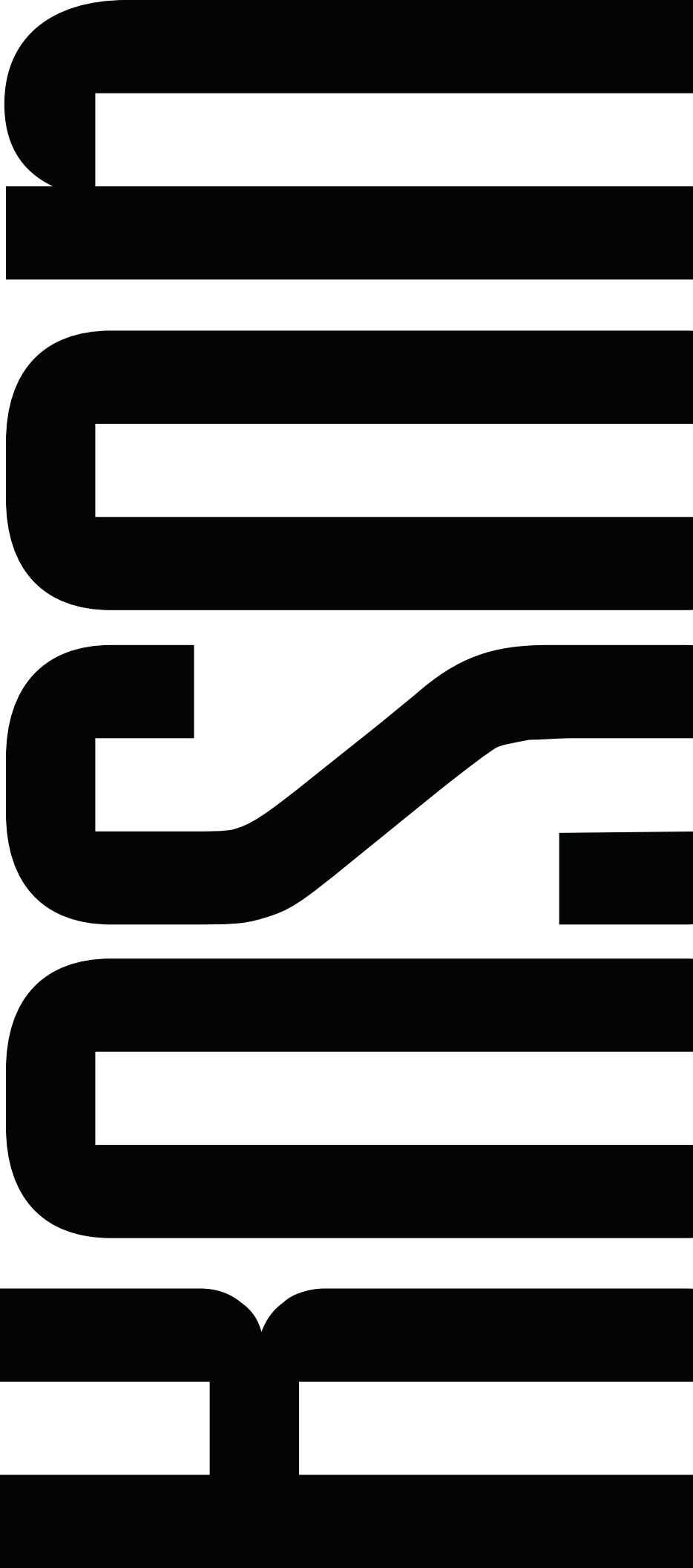


**NetSim<sup>®</sup> 8**  
USER MANUAL



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## **Boson NetSim Overview**

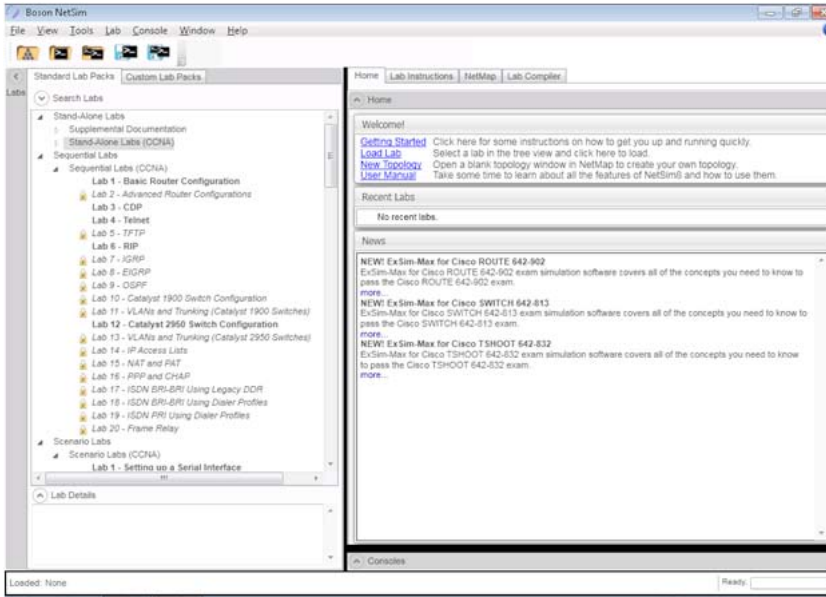
The Boson NetSim<sup>®</sup> Network Simulator<sup>®</sup>, which includes the Boson Router Simulator<sup>®</sup>, is unique compared to all others on the market because of the functionality it supports and its features. NetSim utilizes Boson's proprietary Network Simulator, Router Simulator<sup>®</sup>, and EROUTER<sup>®</sup> software technologies, along with the Boson Virtual Packet Technology<sup>®</sup> 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 is a Windows<sup>®</sup>-based product that simulates a wide variety of Cisco<sup>®</sup> 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 the commands referenced in the available labs are supported by NetSim.

Achieving Cisco CCENT, CCNA<sup>®</sup>, or CCNP<sup>®</sup> certification is the goal of many people who use this product. The Boson NetSim covers not only the new SWITCH (642-813), TSHOOT (642-832), and ROUTE (642-902) certifications but also the ICND1 (640-822), ICND2 (640-816), and CCNA (640-802) certifications, among others. 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 the activation key used.

Activation keys unlock labs and increase the number of available commands. Beginning with the Demo version of NetSim 8, the command set is limited to those necessary to perform the steps in the lab. For example, if you start your studies with a CCENT 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 CCNA or CCNP exam, you will need to purchase a new activation key, deactivate NetSim, and then reactivate with the new CCNA or CCNP activation key; then, more labs and a larger command set become available.

The labs available in the Sequential lab pack when a CCENT activation key has been used to activate NetSim 8 are shown below. A CCENT activation key also unlocks a selection of labs from the Stand-Alone and Scenario lab packs. A small lock icon is displayed next to unavailable labs. Higher-level activation keys allow you to work through all labs unlocked by lower level activation keys. All labs are unlocked when a CCNP-level activation key is used.



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 will 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 actually be more helpful than using real routers and switches. NetSim allows you to gain experience without requiring you to purchase expensive equipment.

The Boson NetSim can be used for additional purposes than only working through labs. The included full version of the NetMap tool allows you to practice designing and planning a network. This tool's functionality goes beyond that of most tools because you can actually create the router 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 may encounter. Troubleshooting a production network can be a frustrating experience. Fortunately, you can create a virtual copy of your network topology by using the Boson NetMap and troubleshoot the problems without interfering with your production network. Although you can use NetSim as an aid in troubleshooting, you should not rely only on NetSim to make decisions about a production network, because NetSim is not designed to test real networks. Instead, it is a tool that you can use to study for Cisco certification.

In summary, Boson NetSim is a flexible and powerful product that can help you become certified and, in some cases, 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 incorporating NetSim as part of your process of achieving 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/training-support-topics](http://www.boson.com/training-support-topics), 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 actual 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 ([www.boson.com/certification/CCNA](http://www.boson.com/certification/CCNA)) and CCNP ([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/training-support-topics](http://www.boson.com/training-support-topics)) and the practical labs ([www.boson.com/support/netsim-cisco-network-simulator](http://www.boson.com/support/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, Boson NetSimX simulation questions, and trouble tickets.

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 actually help you learn and understand how to configure routers, switches, and networks.



## Contact Information

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PHONE: 877-333-EXAM (3926)  
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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 Web site ([www.boson.com](http://www.boson.com)) > log in to your account > click **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)).
- License Server – For our unique license-server solutions and volume discounts, contact us at [www.boson.com](http://www.boson.com), 877.333.EXAM or [support@boson.com](mailto:support@boson.com).

## Getting Started

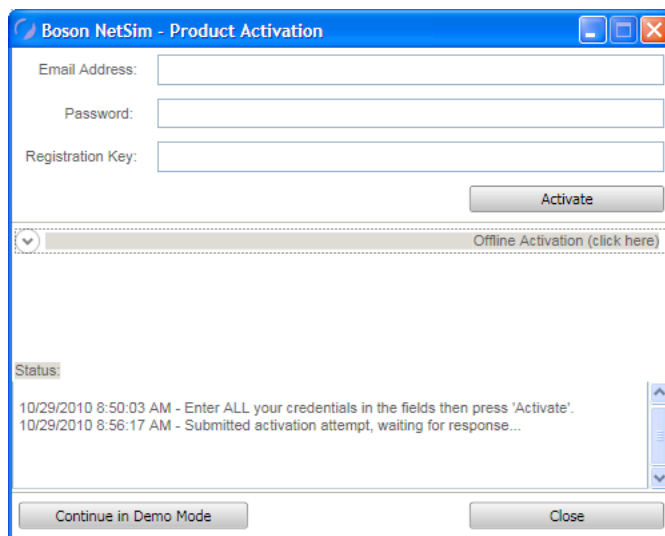
### System Requirements

- Supported Operating Systems: Windows 7, Windows Vista, Windows XP
- .NET Framework: Microsoft .NET Framework Version 3.5
- Processor: 1-GHz Pentium processor or equivalent (Minimum); 3-GHz Pentium processor or equivalent (Recommended)
- RAM: 512 MB (Minimum); 2 GB (Recommended)
- Hard Disk: Up to 100 MB of available space
- Display: 1024 x 768, 256 colors (Minimum); 1024 x 768 high color, 32-bit (Recommended)
- 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 (<https://www.boson.com/Account/Default.aspx>) and enter a valid e-mail address to begin creating an account.

When you first open NetSim, you will be presented with a **Product Activation** dialog box. Enter your e-mail address, password, and registration key; this information should be in the purchase receipt you received via e-mail, or you can find the receipt online on your Boson Online Account page (<https://www.boson.com/Account/Default.aspx>). You must have an active Internet connection in order to activate the full version of NetSim.



After a successful activation, the lab packs will be updated and NetSim will be ready for you to use. Installed labs are made available (unlocked) depending on the activation key used to activate the product. A small lock icon is displayed next to unavailable labs. To make additional labs available, you will need to purchase a new activation key, deactivate NetSim, and then reactivate with the new activation key; then, more labs and a larger command set become available.

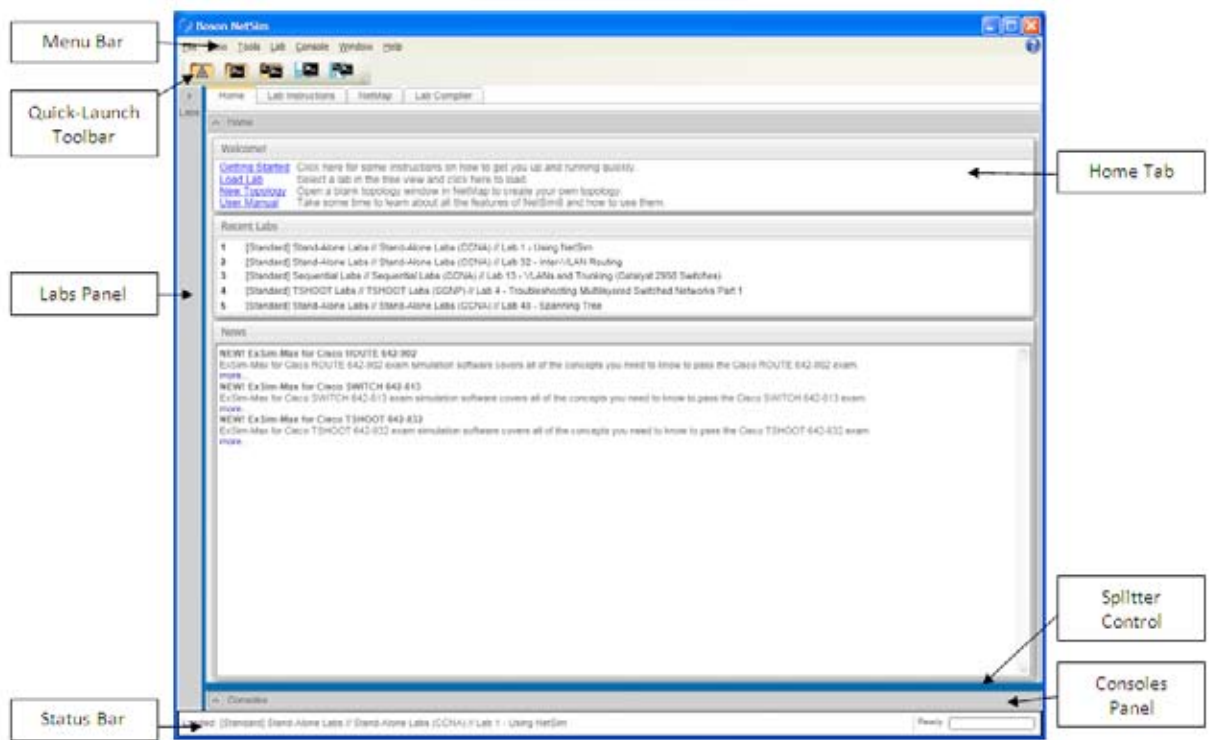
If you have not purchased an activation key for NetSim, you will not be able to activate the full version of NetSim. However, you can choose to continue in Demo mode. When you are running the Demo mode,

only the demo lab 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 our Web site.

You can open NetSim from the shortcut installed during the download or from the Start menu by clicking **Boson Software > Boson NetSim 8.0 > Boson NetSim**. If you are a student using NetSim 8 at a learning institution, you should launch NetSim 8 from the Start menu by clicking **Boson Software > Boson NetSim 8.0 > Boson NetSim LS Client**. This will enable you to configure NetSim 8 to authenticate with the Boson NetSim License Server.

## Home Panel

The Home panel is displayed when you open NetSim. There are many components of this panel and **various** functions and features that you can access from this screen. After NetSim loads, you can access additional functions by selecting a different tab or an option from the Menu Bar, by expanding the **Labs** panel and opening a lab, or by returning to a previously loaded lab quickly by selecting it from the **Recent Labs** section of the Home tab.



You can expand or minimize each panel by clicking the arrow on the panel label or by moving the splitter control between the panels. A splitter control is a divider between panels that you can use to resize a panel to fit your preferences.

## Begin a Lab

1. You can begin a preloaded Boson NetSim lab by performing one of the following tasks:
  - Expand the **Labs** panel; then, on the **Standard Lab Packs** tab of the **Labs** panel, double-click the lab you want to open.

- Click to highlight a lab, then click Lab > **Load**.
  - Select a lab from the list of **Recent Labs** on the **Home** tab, and click **Yes** to open the lab.
2. After you have loaded a lab, click the **Lab Instructions** tab on the **Home** panel and read through the lab instructions.
  3. From the **Devices** drop-down menu on the **Consoles** panel, select the device(s) that you need to configure in order to complete the lab and follow the steps in the lab. You can also select the device you want to configure by clicking the **NetMap** tab, right-clicking the device, and selecting **Configure in Simulator**.
  4. When you have completed the lab, click **Lab > Grade Lab** to ensure that you have completed it successfully.
  5. You can choose to save your single device configuration or multiple device configurations by selecting the appropriate option in the **Console** menu. There is more information about saving device configurations in the *Console Menu* or the *Quick-Launch Toolbar* section of this manual.

## Menus

The menu options in NetSim 8 enable you to easily navigate through the labs, the NetMap, the Lab Compiler, the Consoles Panel, 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 a topology file, open a single device configuration file, and open multiple device configuration files, as well as exit the program.

##### *Open*

This option enables you to select a configuration file to open. The supported file extensions are \*.nwc, which loads multiple device configurations; \*.rtr, which loads a single device configuration in the active console; and \*.top, which opens a NetMap file.

##### *Recent Files*

If you previously opened files, including \*.top and \*.nwc files, they will appear in this list. You can click a file to open it.

##### *Exit*

This option closes the program.

### View Menu

The options in this menu tree enable you to alter the way you view the **Home** screen.

##### *Hide Toolbar*

Select this option to hide the Quick-Launch Toolbar. To restore the Quick-Launch Toolbar, clear this option.

##### *StatusBar Hide*

Select this option to hide the status bar, which displays the open file and the status of NetSim, on the bottom of the screen. To restore the status bar, clear this option.

##### *Size to Fit on Lab Load*

When selected, this option will resize the **Consoles** panel and the **NetMap** tab to the default size when a lab is loaded if either had been minimized.

## Tools Menu

The options in this menu tree enable you to update NetSim, choose the CLI mode and proxy settings, activate NetSim, and deactivate NetSim.

### Update NetSim

When you click this option, NetSim will check Boson's update server and determine whether application updates are available. If updates are available for any of the NetSim application components, you will have the option to download and install them. As with any software product, you should routinely check for product updates, feature enhancements, and bug fixes that may not have been available at the time you received the product.

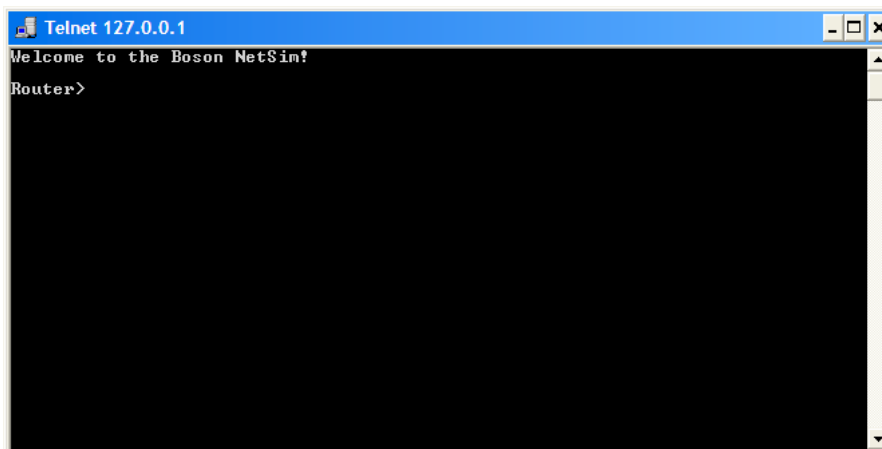
**Note:** NetSim must close before it can check for updates. If you are in the middle of working on a lab and want to update NetSim, you should save your configurations before updating NetSim.

### Console Mode

Console Mode is NetSim's CLI default mode. You can issue commands on the active device in console section of the Consoles panel. Additionally, from the **Consoles** panel, you can access all the available devices for the currently loaded lab. The alternative to Console Mode is Telnet Mode.

### Telnet Mode

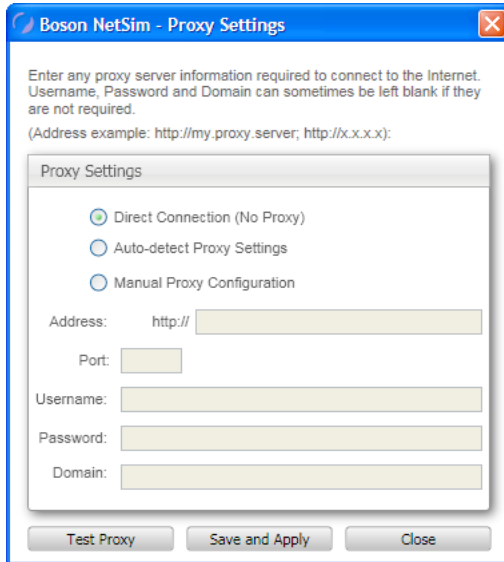
Telnet Mode gives you the option to launch routers, switches, and workstations by using real industry-standard Telnet. A separate Telnet window will be displayed for each device you access. These windows allow you to view the CLI for multiple devices at the same time, which enables you to see changes on neighboring devices caused by configurations performed on the active device, such as when interfaces come up or go down as interface configurations commands are issued. You can keep all Telnet windows open while you are completing the lab and click among the windows to configure the different devices. To open a Telnet window, select the device from the drop-down box on the **Consoles** panel and click **Configure**, or right-click a device on the **NetMap** tab and click **Configure in Simulator**.



When you are finished configuring each device, simply close the Telnet window. To exit Telnet Mode and return to Console Mode, click **Tools > Console Mode**.

### Proxy Settings

If your computer is behind a proxy server, enter your proxy settings into the **Proxy Settings** dialog box in order to access the Internet for product registration and to download product features. You must have an active Internet connection in order to activate and update NetSim.



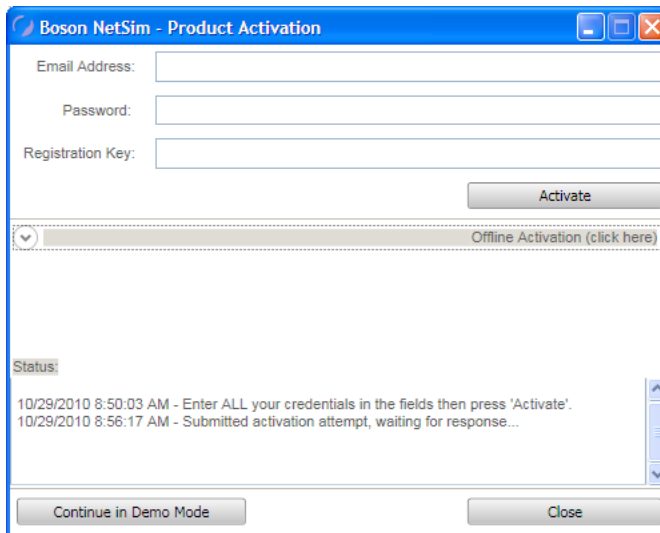
### Deactivate Product

**CAUTION:** This function is used to remove the license from your computer. You should never use this special option unless you are instructed to do so by Boson technical support.

This option permanently removes the Unique Serial Number (registration key) from your computer.

### Activate Product

The first time you start NetSim or when you select the **Activate Product** option from the **Tools** menu, you will be presented with a **Product Activation** dialog box. Enter your e-mail address, password, and registration key; this information should be in the purchase receipt that you received via e-mail, or you can find the receipt online on your Boson Online Account page (<https://www.boson.com/Account/Default.aspx>). You will be notified when the application is successfully activated. You must have an active Internet connection in order to activate the full version of NetSim.



If the activation was unsuccessful, you will be presented with the **Product Activation** dialog box again. If you have forgotten or lost your product registration key, you can retrieve it from the **Purchase History** tab of your Boson Online Account page (<https://www.boson.com/Account/Default.aspx>); if you do not have a product registration key, you can purchase one from the Boson Web site ([www.boson.com](http://www.boson.com)). If you have difficulty logging in to your Boson online account, please contact us at [support@boson.com](mailto:support@boson.com).

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 mode, only the demo lab 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 our Web site. If you are having difficulty with NetSim 8 activation, please contact us at [support@boson.com](mailto:support@boson.com).

After a successful activation, the lab packs will be updated and NetSim will be ready for you to use. Installed labs are made available (unlocked) depending on the activation key used to activate the product. A small lock icon is displayed next to unavailable labs. To make additional labs available, you will need to purchase a new activation key, deactivate NetSim, and then reactivate with the new activation key; then, more labs and a larger command set become available.

## Lab Menu

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

### **Grade Lab**

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

### **Load**

When you click a lab on the **Labs** panel, click this option to load the lab instructions and devices.

### **Edit**

After you have opened the **Custom Lab Packs** tab of the **Labs** panel, you can click this option to edit the lab. You can edit the name and files associated with the lab. For more information, see the *Compiling a Lab* section of this manual.

### **Import Lab**

After you have selected a lab from the **Custom Lab Packs** tab, you can click this option to import a lab from a lab archive. The supported file extension is \*.labx. Select or type the file name, and click **Open**.

### **Export Lab**

After you have selected an individual lab from the **Custom Lab Packs** tab, you can click this option to export a lab. The file extension is \*.labx. Select a location, select or type the file name, and click **Save**.

### **Import Lab Pack**

After you have opened the **Custom Lab Packs** tab, you can click this option to import a lab from a lab pack archive. The supported file extension is \*.lpx. Select or type the file name, and click **Open**.

### **Export Lab Pack**

After you have selected a lab pack from the **Custom Lab Packs** tab, you can click this option to export a lab pack. The file extension is \*.lpx. Select a location, select or type the file name, and click **Save**.

## Console Menu

This menu tree enables you to modify, load, and save configuration files.

**Note:** This menu tree is active only after you have loaded a lab.

### **Copy**

Select text in the **Consoles** panel, then click **Copy** or press the ENTER key to copy the text.

### **Paste**

Click this option or right-click in the **Console** window to paste text into the open devices configuration.

### **Load Multi-Device Config**

This option loads a saved “snapshot” of every single device configuration that was previously saved using the **Save Multi-Device Config** option. The supported file extension is \*.nwc.

### **Save Multi-Device Config**

This option takes a “snapshot” of every single device that is currently loaded in NetSim and allows you to save all of your device configurations at once. This is comparable to making a TFTP configuration backup of all devices (routers, switches, and workstations) on your entire network with one click.

**Note:** This will save one \*.rtr file for each device currently loaded in NetSim. This will also save a single network configuration (\*.nwc) file, which will be used to link together the \*.rtr files.

### **Zip Multi-Device Config**

This option creates a zip file that contains the current running configurations of all loaded devices. This feature is useful when sending files to an instructor or when requesting assistance from Boson customer support.

### **Package Multi-Device Configs**

This option creates an encrypted file that contains the current running configurations of all loaded devices. This feature is useful when sending files to an instructor but should not be used when requesting assistance from Boson customer support.

### **Load Single Device Config**

This option erases your current device configuration and then loads a device configuration from a saved file (\*.rtr). This option does not allow you to load a new topology (\*.top) file into the NetMap. To do that, click the **NetMap** tab and select the **Open Topology** option from the **NetMap** menu.

### **Save Single Device Config**

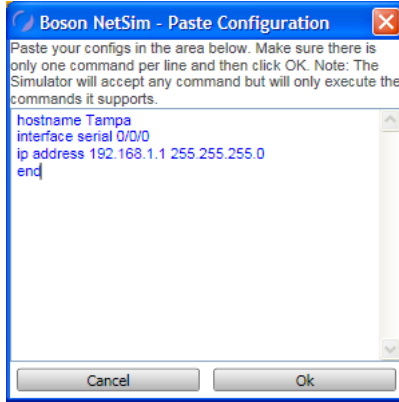
This option saves a single device configuration to load into NetSim at a later time.

**Note:** All device configuration files are saved with the \*.rtr extension.



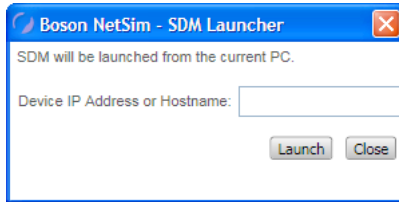
### **Paste Real Router Config(s)**

This option allows you to paste the running configuration from a real router into a device in NetSim. Selecting this menu option will open a dialog box into which you can paste or type the desired configuration. The configuration will be loaded into the active device in the NetSim interface.



### **Launch SDM**

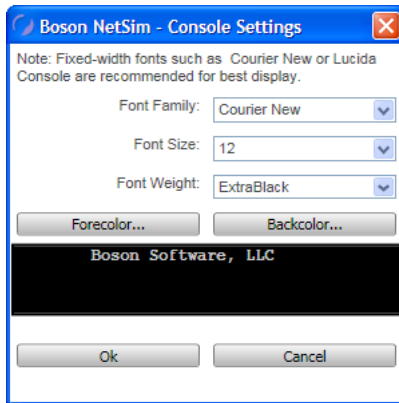
This option opens NetSim Router and Security Device Manager. Type the device IP address or host name in the resulting dialog box, and click **Launch**.



**Note:** This option is available only with certain labs and can only be loaded from a workstation.

### **Properties**

This option enables you to customize the appearance of the console window. Click the appropriate drop-down menu box to select the font family, size, and weight and to change the foreground and background colors. Click **Ok** to apply the settings or **Cancel** to cancel the changes.



## Lab Text Menu

This enables you to annotate various parts of the instructions.

**Note:** This menu tree is available only after you have loaded a lab. You must click the **Lab Instructions** tab to see the options available within the menu.

### ***Highlight***

Select text in the lab instructions, and click this option to highlight that text. This option is also available in the right-click options when text is selected.

### ***Add Ink Note***

Select text in the lab instructions, and click this option to add a note to that text. You can then use a tablet and stylus to write a note, or you can click and write as if your mouse were a pen. To close the note, click the minimize icon in the top right corner. To review the note, move the mouse over the text and click the small box that appears below the text. This option is also available in the right-click options when text is selected.

### ***Add Text Note***

Select text in the lab instructions, and click this option to add a note to that text. Type your note. To close the note, click the minimize icon in the top right corner. To review the note, move the mouse over the text and click the small box that appears below the text. This option is also available in the right-click options when text is selected.

### ***Remove Selected Highlight***

Select the highlighted text in the lab instructions, and click this option to remove the highlight from the selected text. This option is also available in the right-click options when text is selected.

### ***Remove Selected Notes***

Select text in the lab instructions, and click this option to remove any notes from the selected text. This option is also available in the right-click options when text is selected.

### ***Remove Selected Highlights and Notes***

Select text in the lab instructions, and click this option to remove any highlights and notes from the selected text. This option is also available in the right-click options when text is selected.

### ***Launch External Viewer***

Click this option to open the lab instructions in a new window. You can then move the instructions to a second monitor or place it beside, above, or below the original NetSim window. This feature provides multi-monitor support so that you can view the lab document on one monitor while entering commands on a second monitor.

## NetMap Menu

This enables you to modify the topology.

**Note:** This menu tree is available only when the **NetMap** tab is open.

### ***Open Topology***

This option enables you to open a saved topology. In the resulting dialog box, select a \*.top file to open, and click **Open**. You can then edit the topology in the NetMap. The topology will not be applied to devices until you select it on the **NetMap** tab and click **Apply Selected Topology**.

### ***Apply Selected Topology***

This option will apply the topology that has been selected on the **NetMap** tab to the devices and enable you to configure the devices in the simulator on the **Consoles** panel. The topology can be one that you created yourself or one from a previously opened lab. To learn more about configuring devices, see the *Configure in Simulator* section of this menu.

**Note:** Loading a new topology will close your current console session. This will load the topology with default device configurations only; it will not load any custom or saved device configuration files, nor will it load a specific lab's instructions.

### ***New Topology***

This option opens an additional **New Topology** tab in the **NetMap** panel. You can then design your own topology. See the *Create a New Topology* section of this manual for more information.

### ***Save Topology***

This option enables you to save the current topology in the **NetMap**. The file will be saved as a \*.top file.

### ***Open and Apply Topology***

This option enables you to open and apply a previously saved topology. When this option is selected, you can immediately begin configuring the devices in the simulator on the **Consoles** panel.

## **Lab Compiler Menu**

From this menu tree, you can perform the functions needed to compile and edit custom labs and lab packs. For more information about the feature, see the *Compiling a Lab* section of this manual.

**Note:** This menu tree is available only when the **Lab Compiler** tab is open.

### ***New Lab Pack***

Click this option to begin creating a new lab pack. Type a name in the **Name** field under **Lab Pack**, and click **Save**.

### ***Edit Lab Pack***

Select a lab pack on the **Custom Lab Packs** tab, and click this option to edit the lab pack. Click **Save** after you have completed your changes.

### ***Delete Lab Pack***

Select a lab pack on the **Custom Lab Packs** tab, and click this option to delete the lab pack.

### ***New Section***

Select a lab pack on the **Custom Lab Packs** tab, and click this option to add a new section to the custom lab pack. Type a name in the **Name** field under **Section**, and click **Save**.

### ***Edit Section***

Select a section on the **Custom Lab Packs** tab, and click this option to edit the section. Click **Save** after you have completed your changes.

### ***Delete Section***

Select a section on the **Custom Lab Packs** tab, and click this option to delete the section.

### ***New Lab***

Select a section on the **Custom Lab Packs** tab, and click this option to add a new lab to that section. Type a name in the **Name** field under **Lab**, type a description, add all the required files (\*.top and \*.xps) and optional files (\*.nwc), and click **Save**.

### ***Edit Lab***

Select a lab on the **Custom Lab Packs** tab, and click this option to edit the lab name, the description, and the files within that lab. Click **Save** to continue.

### ***Delete Lab***

Select a lab on the **Custom Lab Packs** tab, and click this option to delete the lab.

## **Window Menu**

### ***Size To Fit***

If you have modified the size of the **Labs** panel, the **Home** panel, and the **Consoles** panels within NetSim by minimizing the panel or by moving the splitter control, you can select this option and NetSim will resize the panels to their default settings.

## **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.

### ***About***

Click this option to display basic information about NetSim, including the version and company information.

### ***User Manual***

Click this option to be directed to the Boson NetSim User Manual, the document you are reading now, which guides you through the features and functionalities of NetSim.

### ***Support***

Click this option to be directed to the Boson NetSim support page ([www.boson.com/support/netsim-support-topics](http://www.boson.com/support/netsim-support-topics)), where you can see frequently asked questions and find the best way to contact Boson if your questions have not been answered elsewhere. You must have an active Internet connection in order to view this information.

### ***Submit Feedback***

Click this option to be directed to the Boson Web site ([www.boson.com](http://www.boson.com)). You must have an active Internet connection in order to be able to submit feedback.

## **Quick-Launch Toolbar**

### **Load and Apply Topology**




Click this icon to load a topology to the NetMap and apply it to devices. Applying this topology will replace your current console session with the devices from the new topology. The supported file extension is \*.top.

### **Load Single Device Configuration (\*.rtr)**




Click this icon to load a single device configuration. The supported file extension is \*.rtr. If you have not previously loaded a lab or a topology, this option will be unavailable.


## Load Multiple Configurations (\*.nwc)

 Click this icon to load multiple device configurations. The supported file extension is \*.nwc. If you have not previously loaded a lab or a topology, this option will be unavailable.

## Save Single Device Configuration (\*.rtr)

 Click this icon to save a single device configuration file. The file will be saved as an \*.rtr file. If you have not previously loaded a lab or a topology, this option will be unavailable.

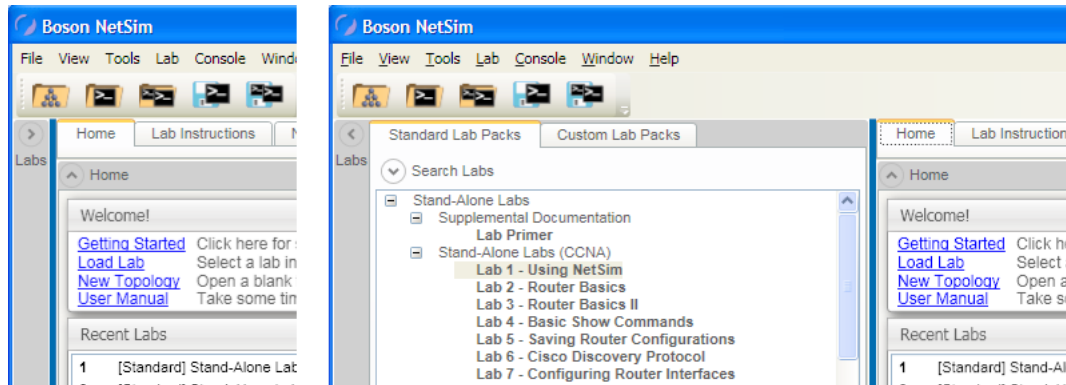
## Save Multiple Device Configuration (\*.nwc)

 Click this icon to save multiple device configuration files. The file will be saved as an \*.nwc file. If you have not previously loaded a lab or a topology, this option will be unavailable.

## Panels

### Labs Panel

On the **Labs** panel, there are two tabs: **Standard Lab Packs** and **Custom Lab Packs**. The scroll bars on the right and on the bottom of this panel allow for ease of viewing. As an alternative to scrolling across to see the entire lab name, you can click and drag the splitter control between the **Labs** panel on the left and the **Home** and **Consoles** panels on the right to expand the **Labs** panel. Click the arrow next to Labs to minimize or restore the panel, or click **Window > Size To Fit**.

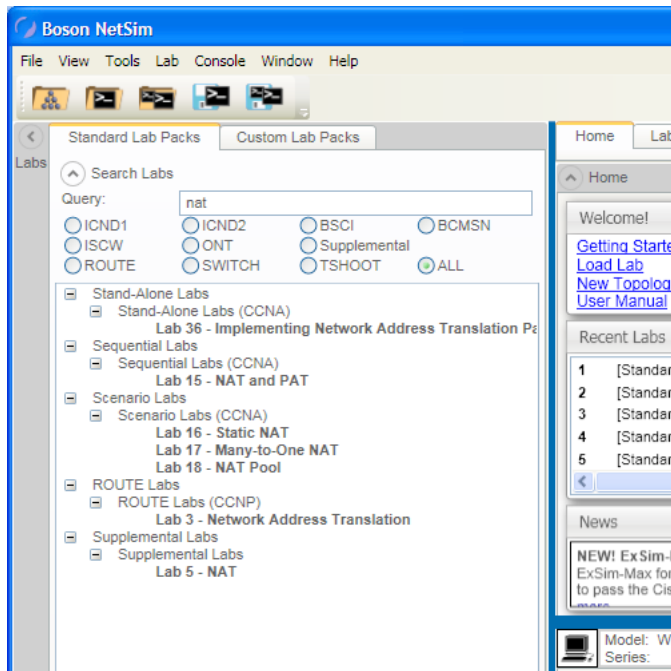


## Standard Lab Packs Tab

There are three sections on this tab: **Search Labs**, **Available Labs**, and **Lab Details**.

### 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, or you can search through the curriculum. For example, if you want to test your Network Address Translation (NAT) skills, you could type **nat** in the search box and press ENTER. If **ALL** is selected, you will see labs addressing NAT from the Stand-Alone, Sequential, Scenario, ROUTE, and Supplemental lab packs. If **ROUTE** were selected, you would see only the ROUTE Lab 3 - Network Address Translation lab.



**Note:** If no lab appears in your search result, select **ALL** to see all available options. To view all labs, delete the search term.

Click the arrow next to **Search Labs** to minimize or restore the section.

### Available Labs

There are over 150 labs in NetSim 8, and these labs are categorized in specific categories. The lab packs are Stand-Alone Labs, Sequential Labs, Scenario Labs, ROUTE Labs, SWITCH Labs, TSHOOT Labs, Supplemental Labs, and Demo Labs. Each lab pack is expanded by default, but you can click the negative sign (–) next to the category to minimize it. To open a lab in the NetMap and the Consoles panel and to view the lab instructions, double-click the lab.

### Lab Details

The information in this section contains the curriculum that the lab is associated with and a brief description of the lab. Click an individual lab to view summary information about the lab. Click the arrow next to **Lab Details** to minimize or restore the section.

## Custom Lab Packs Tab

There are two sections on this tab: **Available Labs** and **Lab Details**. Custom labs are those that you create or that are provided by an instructor. To learn how to compile your own labs using NetSim, see the *Compiling a Lab* section of this manual.

### **Available Labs**

If any labs are available on the **Custom Lab Packs** tab of the **Labs** panel, double-click the lab you want to load; custom labs are those you create yourself by using the Lab Compiler or those that have been provided by an instructor.

You can also right-click a top-level lab pack to see a menu with four options: **Edit Lab Pack**, **Add New Section**, **Delete Lab Pack**, and **Export Lab Pack**. The middle-level labs have a right-click menu with four options: **Edit Section**, **Add New Lab**, **Delete Section**, and **Import Lab**. The individual labs have a right-click menu with three options: **Edit Lab**, **Delete Lab**, and **Export**.

To find out more information about creating custom labs and the menu options, see the *Compiling a Lab* section of this manual.

Each category is expanded by default, but you can click the negative sign (–) next to the category to minimize it.

### **Lab Details**

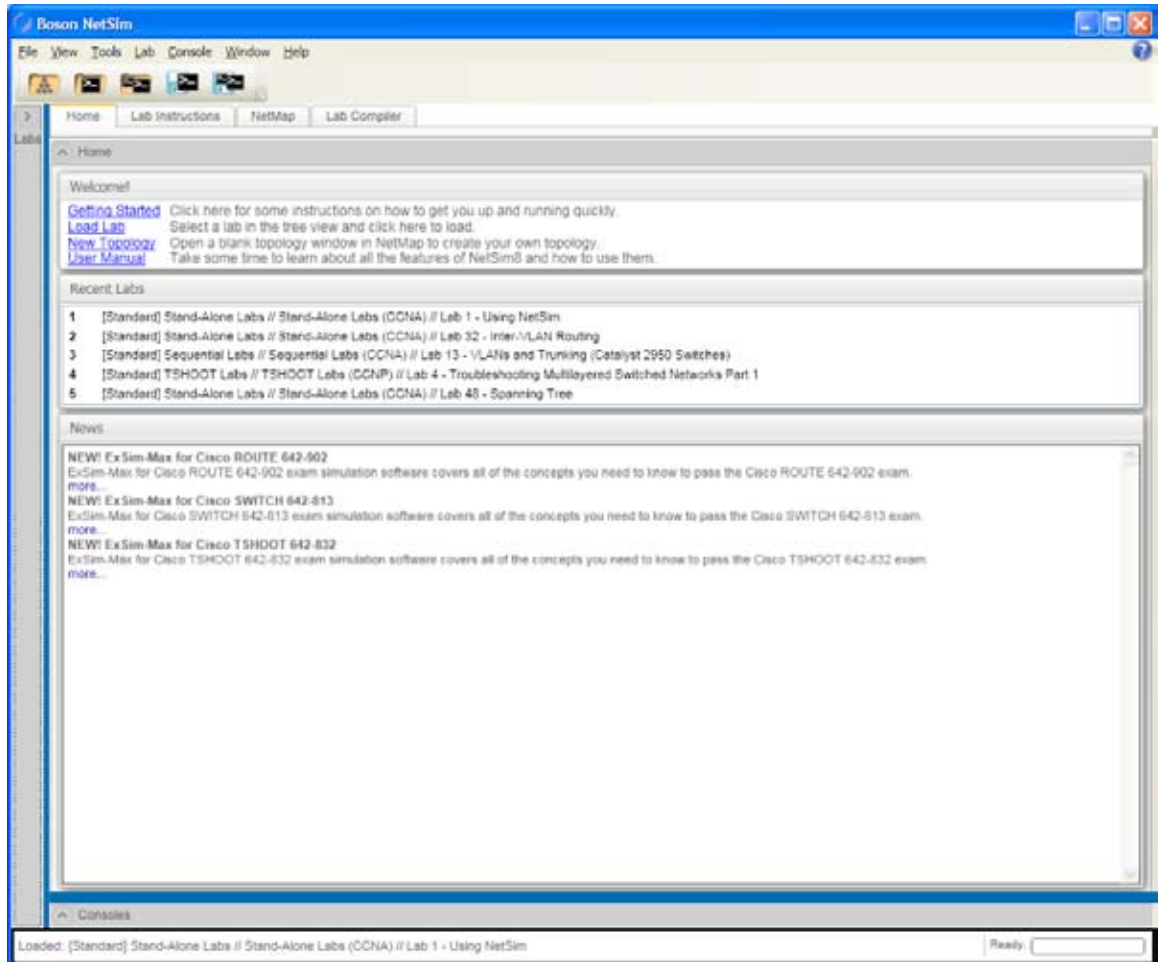
The information in this section contains a brief description of the lab, if one has been assigned. Click an individual lab to view summary information about the lab. Click the arrow next to **Lab Details** to minimize or restore the section.

## Home Panel

On the **Home** panel, there are four tabs: **Home**, **Lab Instructions**, **NetMap**, and **Lab Compiler**. From this panel, you can navigate through all the relevant NetSim and lab-specific information.

## Home Tab

There are three sections on this tab: **Welcome**, **Recent Labs**, and **News**. Click the arrow next to **Home** to minimize or restore the panel.





## Welcome

In this section, you can learn how to get started with NetSim 8, and you can quickly load a lab, open a new topology, and view the User Manual.

## Recent Labs

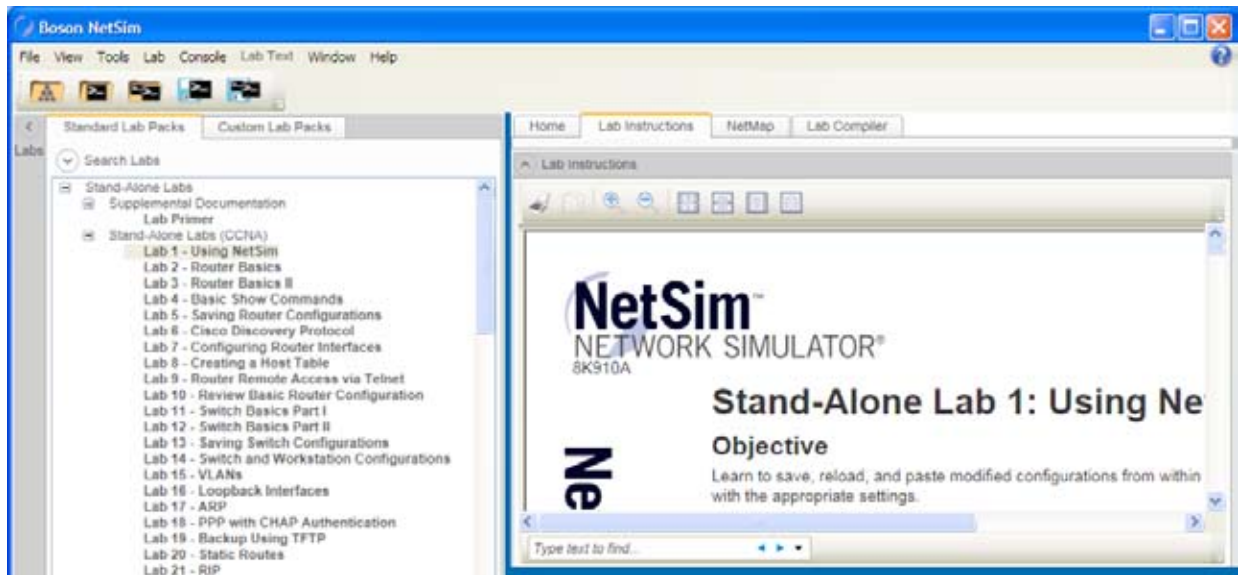
This displays the five most recent labs you opened. To load a lab from the **Recent Labs** section, click the lab and click **Yes** in the resulting dialog box. If you cannot see this section, click and drag the splitter control between the **Home** panel and the **Consoles** panel to expand it or click the arrow next to **Consoles** to minimize the panel.

## News

This displays updates and special offers from the Boson Web site ([www.boson.com](http://www.boson.com)). Scroll through this section to see the latest news and information, and click **more** to view the related offer on the Web site. If you are not connected to the Internet, you might not see any news in this section. To be sure you can see the latest news from Boson, make sure that you are connected to the Internet. If you have an active Internet connection but cannot see this section, click and drag the splitter control between the **Home** panel and the **Consoles** panel to expand it or click the arrow next to **Consoles** to minimize the panel.

## Lab Instructions Tab

After you have loaded a lab, you can view the instructions for the currently loaded lab, choose to print the lab, highlight a section of the instructions to copy, and change the view by clicking any of the icons at the top of this tab. Click the arrow next to **Lab Instructions** to minimize or restore the section.



You can also type text into the search box to find specific terms in the lab. You can click the down arrow (v) 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.

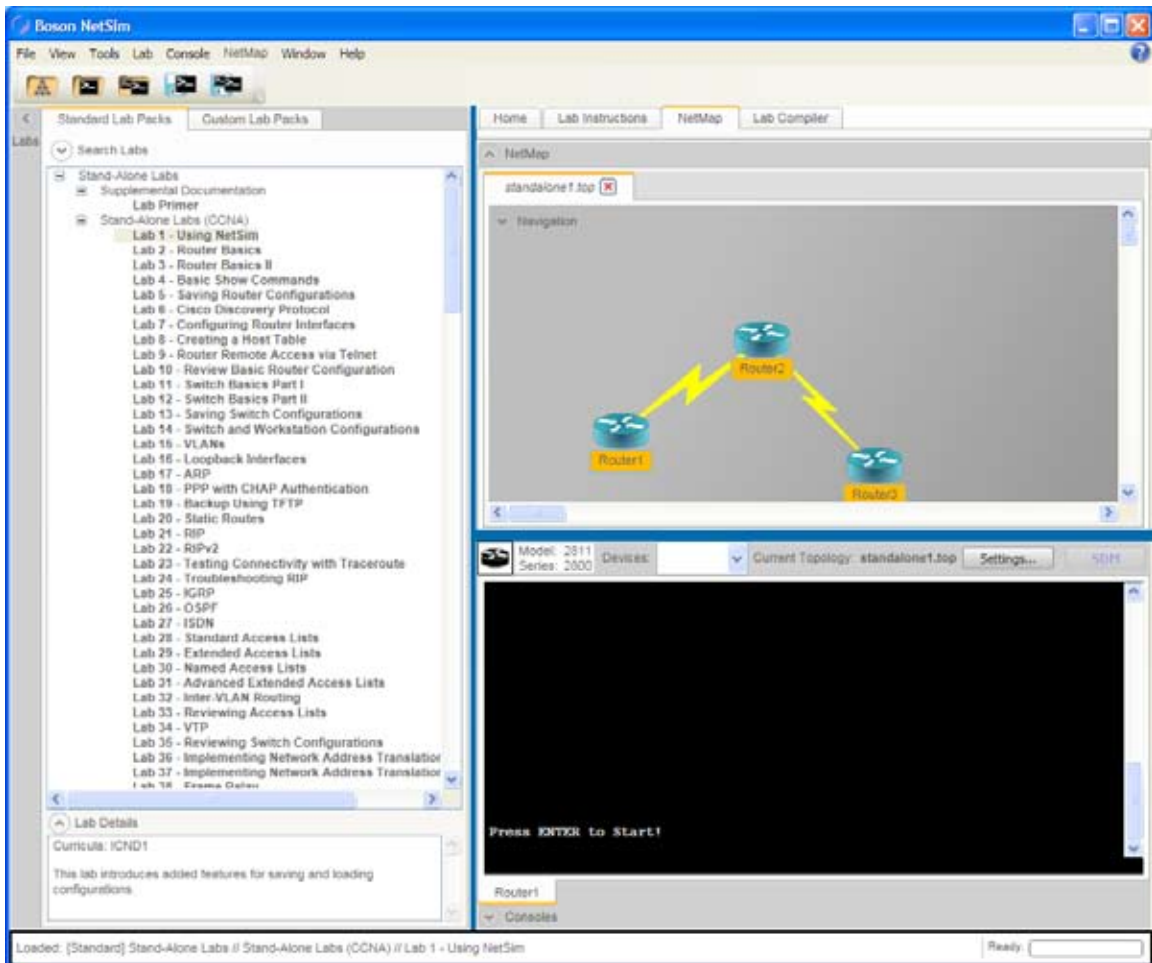
**Note:** If you have selected to match case, for example, and then decide to match the whole word only and not case, you must click **Match case** again to remove it as a selected search parameter.

## NetMap Tab

You can view the currently loaded lab's topology and any other open topologies on this tab. You can also select a device to configure in the **Consoles** panel by right-clicking the device and clicking **Configure in Simulator**. Click the arrow next to **NetMap** to minimize or restore the section. If you cannot see all the information on this panel, click and drag the splitter control between the **NetMap** panel and the **Consoles** panel to expand it or click the arrow next to **Consoles** to minimize the panel.

You can expand the **Navigation** section by clicking the arrow next to **Navigation**. The **Navigation** section enables you to have the best view of each device. You can also add new devices from this section.

**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 NetMap window. If multiple topology tabs are open, click the tab that is named in accordance with the lab you currently have open. If you have forgotten which lab you are working on, you can see the lab name in the status bar. In this example, the lab open is Stand-Alone Lab 1 – Using NetSim and the appropriate tab is **standalone1.top**.



## Create 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 100 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 (\*.top) that can be used in a custom lab. To learn more, see the *Compiling a Lab* section of this manual.

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

1. Click the **NetMap** tab on the **Home** panel, and do one of the following:

- Select a **New Topology** tab.
- Click **NetMap > New Topology** from the menu bar.
- On any open **Topology** tab, expand the **Navigation** section and click **New Topology**.

**Note:** You can rename a **New Topology** tab by double-clicking the current name on the tab and modifying it.

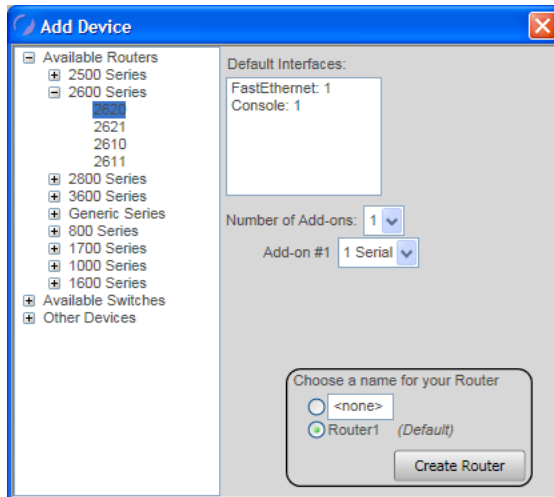
2. Expand the **Navigation** section, and click the **Add Device** button.

3. Follow the steps below to add routers, switches, workstations, and IP phones.

### Add Devices

#### Add a Router

1. On the NetMap tab, expand the **Navigation** section and click the **Add Device** button.
2. Choose a router from the resulting **Add Device** dialog box. The menus for the available devices are minimized by default, but you can expand them by clicking the plus sign (+) next to each category.



3. Select the number of add-ons and the type of connection for each add-on.

**Note:** Some routers might not allow you to select the number of add-ons and the type of connection.

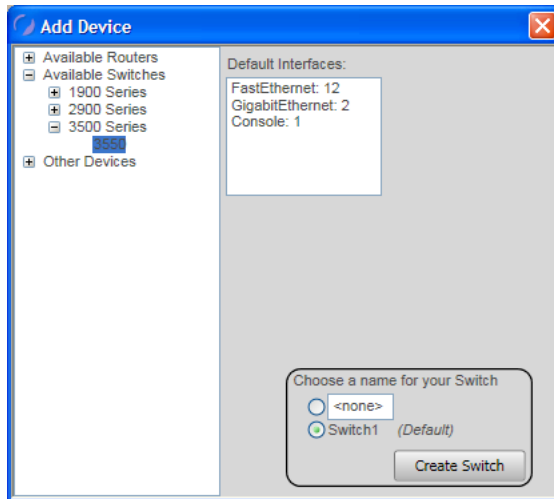
4. Choose a name for the router; you can use the default name or type a name in the text box. You can rename a device at any time by clicking the name in the NetMap and modifying it.

5. Click **Create Router**.

6. Add any additional desired devices to the network.

**Add a Switch**

1. On the **NetMap** tab, expand the **Navigation** section and click the **Add Device** button.
2. Choose a switch from the resulting **Add Device** dialog box. The available devices menus are minimized by default, but you can expand them by clicking the plus sign (+) next to each category.

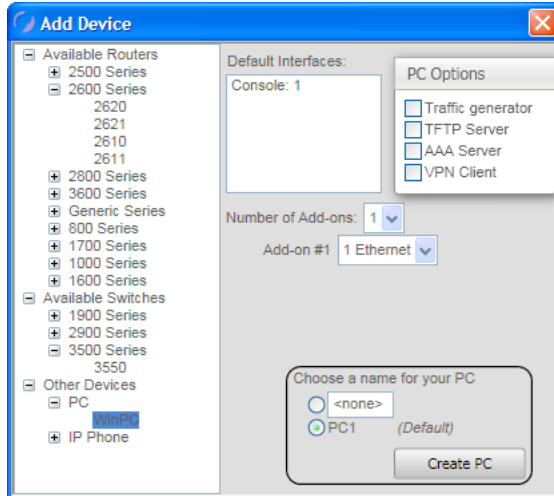


3. Choose a name for the switch; you can use the default name or type a name in the text box. You can rename a device at any time by clicking the name in the NetMap and modifying it.
4. Click **Create Switch**.
5. Add any additional desired devices to the network.

**Add a Workstation**

1. On the **NetMap** tab, expand the **Navigation** section and click the **Add Device** button.
2. Choose a workstation from the **Other Devices** category in the resulting **Add Device** dialog box. The available devices menus are minimized by default, but you can expand them by clicking the plus sign (+) next to each category.

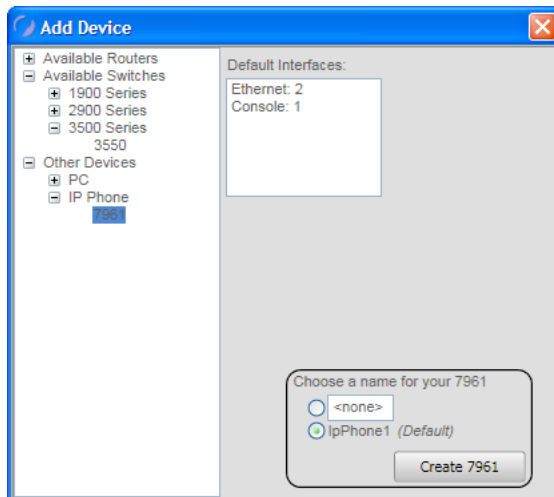
3. If you have added the WinPC device, select a PC option if desired (you can choose from **Traffic generator**, **TFTP Server**, **AAA Server**, and **VPN Client**).



4. 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 at any time by clicking the name in the NetMap and modifying it.
5. Click **Create PC**.

#### **Add an IP Phone**

1. On the **NetMap** tab, expand the **Navigation** section and click the **Add Device** button.
2. Choose an IP phone from the **Other Devices** category in the resulting **Add Device** dialog box. The available devices menus are minimized by default, but you can expand them by clicking the plus sign (+) next to each category.



3. 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 at any time by clicking the name in the NetMap and modifying it.
4. Click **Create 7961**.

### Add Connections

To complete the network, right-click each device on the NetMap. You will see a menu with four options: **Configure in Simulator**, **New Connection**, **Existing Connections**, and **Delete**.

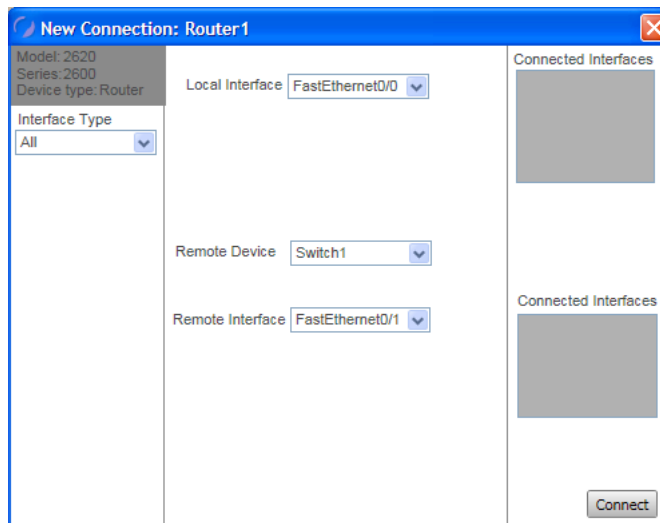
#### Configure in Simulator

When the topology is loaded into the simulator, clicking this option opens on the **Consoles** panel a console session to the selected device. To learn how to load and apply a topology, see the *Load and Apply Topology* section of this manual. Configurations you make using this option will not be saved with the topology file. To learn how to your configuration changes, see the *Save Multi-Device Config* section or the *Save Single Device Config* section of this manual.

#### New Connection

Configure a new connection for a device by performing the following steps:

1. After you right-click a device or the NetMap and click **New Connection**, select an interface type from the **Interface Type** drop-down box.

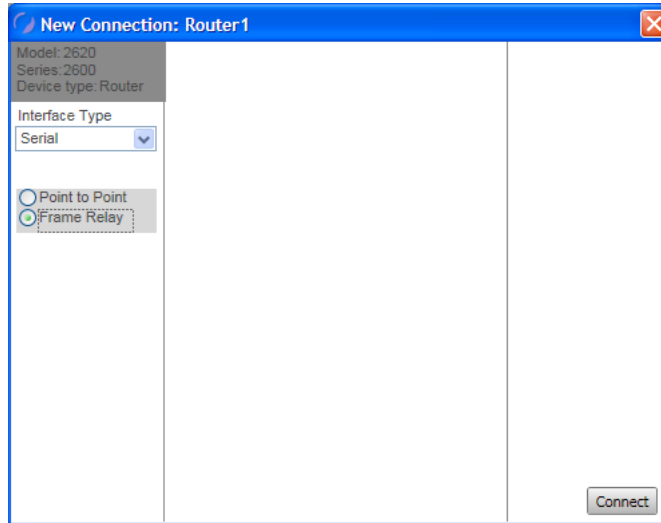


- a. If you select **All** (the default option), **Console**, or **FastEthernet**, select the local interface, remote device, and remote interface from the drop-down list boxes.
  - b. If you select **Ethernet**, **GigabitEthernet**, or **BRI**, select the local interface (if available).
  - c. If you select **Serial**, you must also select **Point to Point** or **Frame Relay**.
    - i. If you select **Point to Point**, you will not be able to select a remote interface.
    - ii. If you select **Frame Relay** to create a Frame Relay connection, see the *Frame Relay Connections* section of this manual for information on how to complete this connection.
2. After configuring the desired connection, click **Connect**. The new connection will appear on the NetMap.

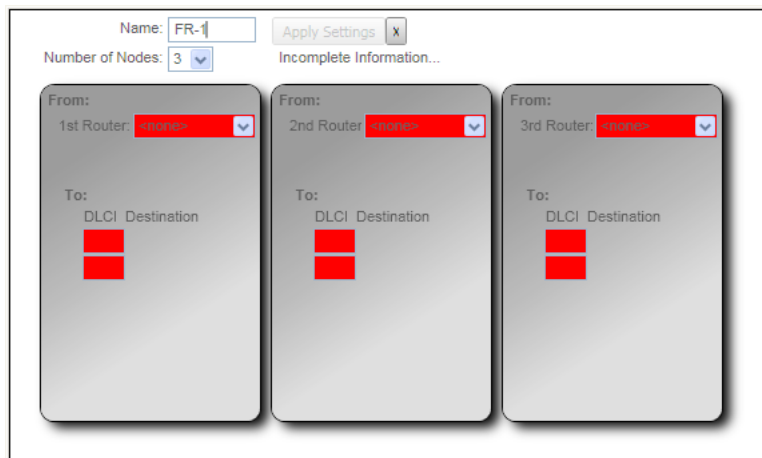
## Frame Relay Connections

To create a Frame Relay connection, perform the following steps:

1. Add routers to the topology; the routers that will be included in the Frame Relay connection must have Serial interfaces.
2. Right-click one of the routers to be included in the connection, and select **New Connection**.
3. Select **Serial** as the interface type, and select **Frame Relay**.



4. Click **Connect**.
5. In the **Frame Relay** dialog box, type a name for the Frame Relay node in the **Name** field.



6. Select an option from the **Number of Nodes**; the number represents the number of routers that will participate in the Frame Relay connection).

- For each node, select the associated router and interface next to **From: 1st Router** and **From: interface**. Note that the **To: DLCI Destination** becomes populated with device names.

**Note:** You must select a different router for each node.

Name: FR-1 Apply Settings X

Number of Nodes: 3 Incomplete Information...

Node	From: 1st Router	From: Interface	To: DLCI Destination
1	Router1	Serial0/0	[Red Box] [Red Box]
2	Router2	Serial0/0	[Red Box] Router1
3	Router3	Serial0/0	[Red Box] Router1

- For each node, assign a DLCI value in each **To: DLCI Destination** field for the remote routers. For example, for the link from Router1 to Router2, you could use 102.

Name: FR-1 Apply Settings X

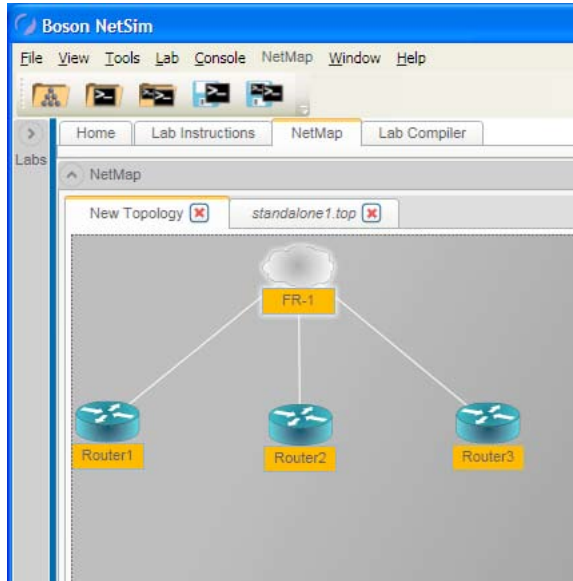
Number of Nodes: 3

Node	From: 1st Router	From: Interface	To: DLCI Destination
1	Router1	Serial0/0	102 Router2 103 Router3
2	Router2	Serial0/0	201 Router1 203 Router3
3	Router3	Serial0/0	301 Router1 302 Router2

**Note:** The DLCI value must be a number value.



- Click **Apply Settings**. The exhibit below shows a completed Frame Relay connection:

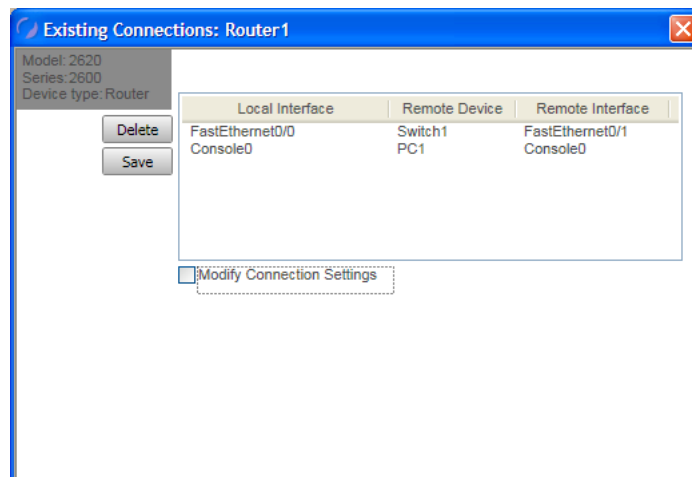


### Existing Connections

In the **Existing Connections** dialog box, you can see the type of device and the currently connected interfaces.

**CAUTION:** There is no undo and no confirmation dialog box; be sure that you really want to delete a connection before clicking **Delete**.

To delete a connection, click to highlight the connection. Click **Save** to save the connection.



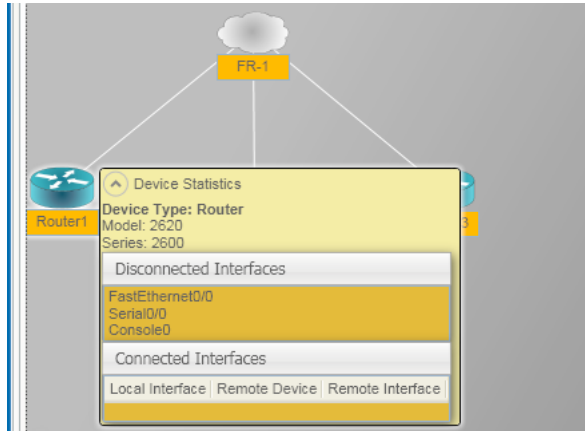
### Delete

**CAUTION:** There is no undo and no confirmation dialog box; be sure that you really want to delete the selected device and associated connections before clicking **Delete**.

This deletes the device and associated connection(s) from the topology.

### Device Statistics

You can use your mouse to hover over a device on the NetMap and then click **Device Statistics** to view statistics that are specific for that device. In the exhibit below, you can see the statistics for Router1:



### Lap Compiler Tab

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.

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. To create a functional custom lab pack, you must create the appropriate lab files and then compile the lab.

#### Creating the Lab Files

To create a lab for a lab pack, you must first create a topology file and save it from the **NetMap** tab. The topology file and lab documentation file are required; however, the initial (loading) device configuration files and the completed (grading) device configuration files for the lab are optional. The configuration files can all be configured in NetSim.

#### Topology File

The topology file (\*.top) contains the network design that will be simulated in the lab; this file must be created in NetSim. To learn how to create a topology file, see the *Create a New Topology* section of this manual.

#### Lab Documentation File

When creating the lab documentation (the supported file extension is \*.xps), you should save the file to a folder named for the lab on your computer. You can then save the rest of the lab files in the same place.

### Device Configuration Files

If you want to include loading and/or grading configuration files, you should perform the following steps:

1. Load the topology into NetSim (**NetMap** tab > **NetMap** > **Open Topology**).
2. Access the console of each device (right-click the device > **Configure in Simulator**).
3. Create the initial (loading) and/or completed (grading) configurations.
4. Save these configurations as configuration files by clicking **Console** > **Save Multi-Device Config**.

When saving the configuration files, it is a good practice to use “loading” as the file name for loading configurations and “grading” as the file name for the completed configurations.

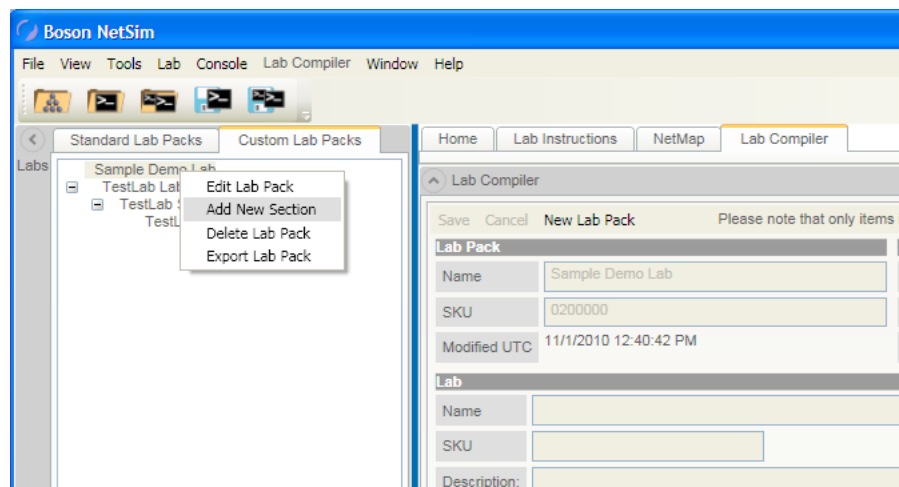
When multiple device configurations are saved, a primary configuration file (\*.nwc) for the topology is created. Additionally, one device configuration file (\*.rtr) for each device in the topology is created. Only one \*.nwc file will be created; however, the number of \*.rtr files will be equal to the number of devices in the topology.

Loading configurations are used to set the starting parameters desired by the instructor. Grading configurations can be used to enable students who work through the steps in the lab to easily determine whether they have completed the lab successfully.

### Compiling a Lab

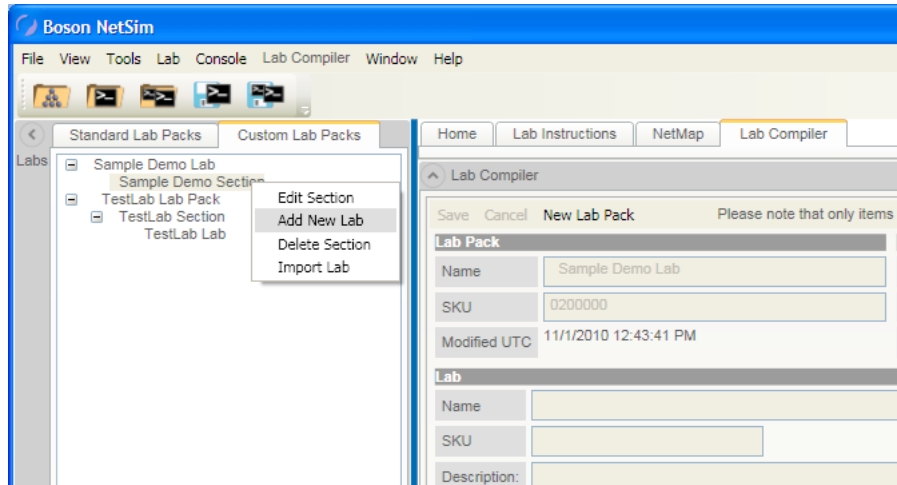
To create a new lab pack, open the **Custom Lab Packs** tab and perform the following steps:

1. On the **Lab Compiler** tab, click **New Lab Pack**.
2. Type a name in the **Name** field under **Lab Pack**, and click **Save**.
3. On the **Custom Lab Packs** tab, right-click the new lab pack you just created and click **Add New Section**.

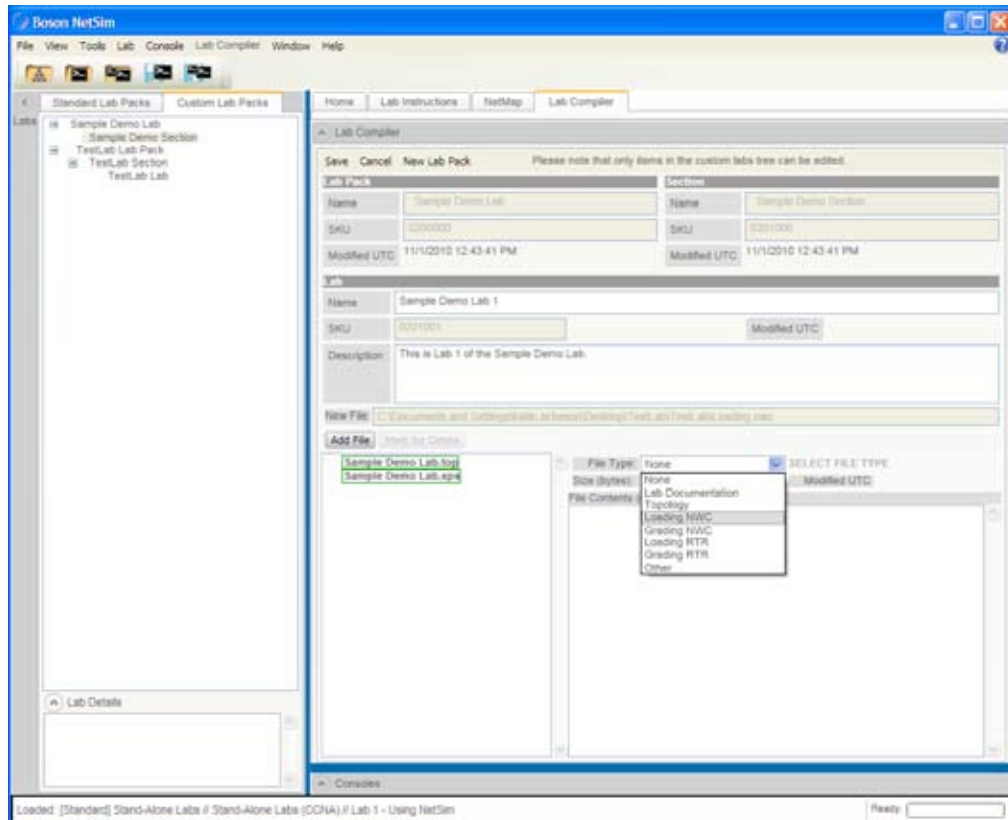


4. Type a name in the **Name** field under **Section**, and click **Save**.

- Right-click the new section you just created, and click **Add New Lab**.



- Type a name in the **Name** field under **Lab**, and add a description if desired.
- Click the **Add File** button to add files to the lab; supported file extensions are \*.top (topology; required file), \*.xps (instructions; required file), and \*.nwc (device configuration; optional files). First add the \*.top file, then add the \*.xps file. The \*.nwc files are optional and can be added next if desired; after adding \*.nwc files, select the file type from the **File Type** drop-down list box.



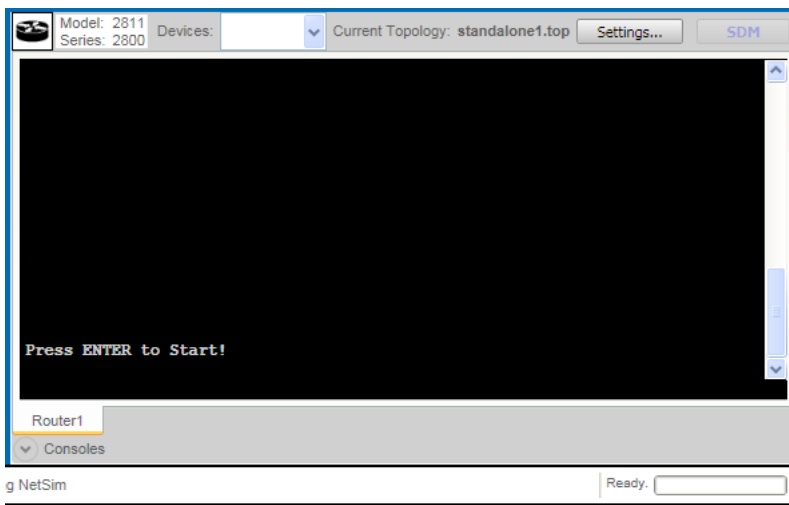
**Note:** A topology file and instruction file are required. Only one document file, one loading configuration file, and one grading configuration file can be added to a single lab.

- Continue adding files until your lab is complete.
- Click **Save** to save the lab.

10. To add additional labs to the lab pack section, repeat steps 5 through 9 until the lab pack section is complete.
11. You can edit, add, delete, import, and export lab packs, sections, and labs by right-clicking a lab pack or section.

## Consoles Panel

After you have opened a lab from the **Labs** panel, you can view the device consoles on this panel and begin performing the lab steps. You will see the console window, the device tabs, and two available buttons: **Settings** and **SDM**.



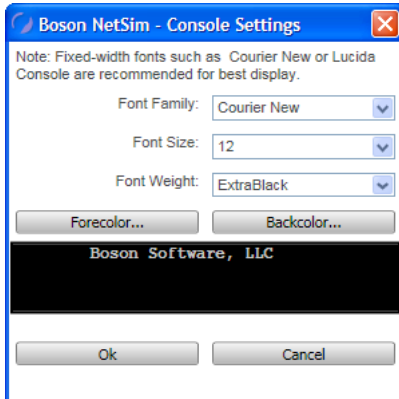
**Note:** If you previously minimized or maximized the **Home** panel, the **Consoles** panel might not be visible. To ensure that you can see the available device consoles, click the arrow next to **Consoles** or click and drag the splitter control between the **Home** panel and the **Consoles** panel.

## Console Window

From the console window, you can modify the devices and perform the steps in the instructions. The devices in the lab can be accessed from the drop-down list box at the top of the panel or from the lower tab menu. Select a specific device to begin performing the lab steps on that device.

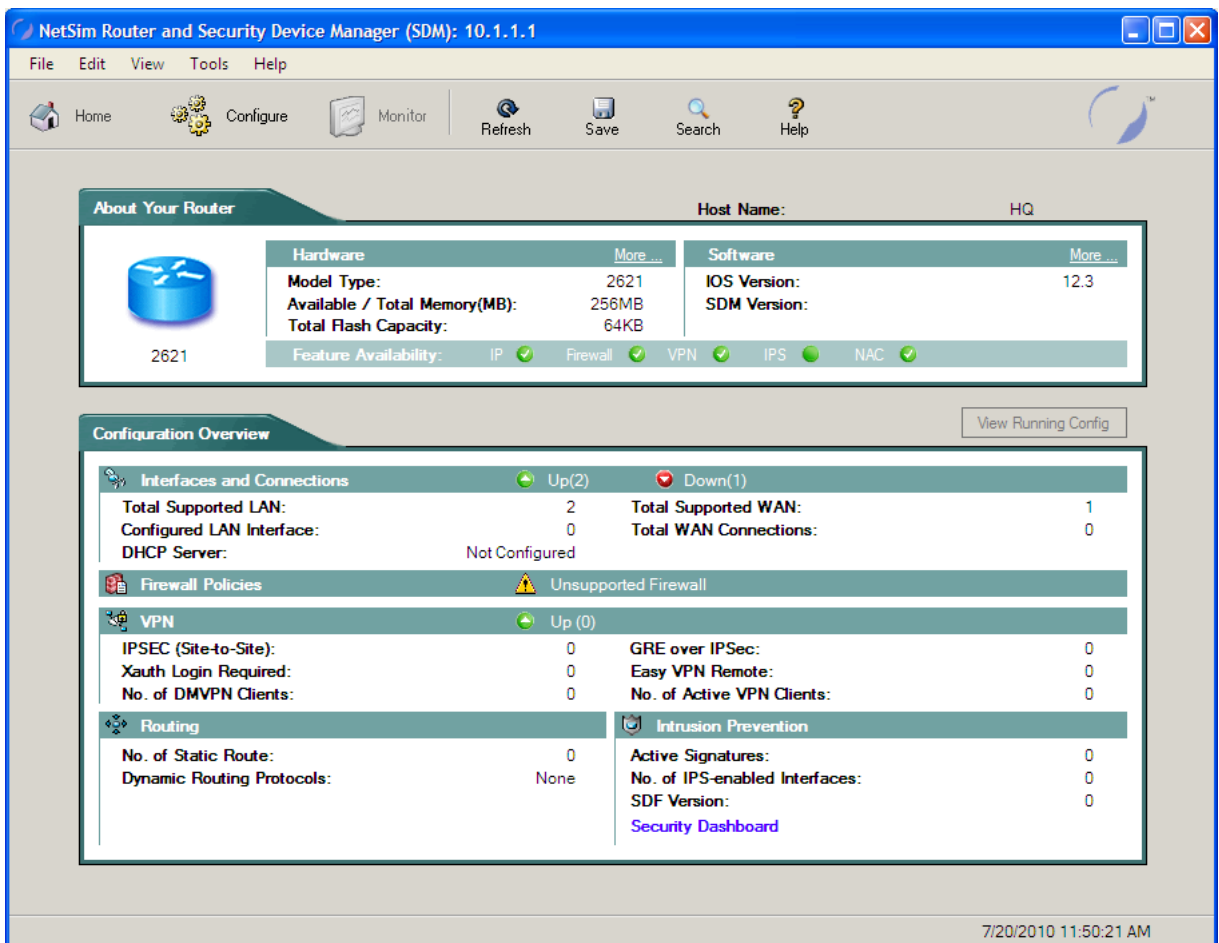
## Settings Button

The **Settings** button at the top of the console window enables you to customize the appearance of the console window. Click the appropriate drop-down list box to select the font family, size, and weight and to change the foreground and background colors. Click **Ok** to apply the settings or **Cancel** to cancel the changes.



## SDM Button

The **SDM** button at the bottom of the console window enables you to access NetSim Router and Security Device Manager (SDM). SDM is available from only a workstation console and only with certain labs.



## 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 8. If a lab is unavailable with the activation key you purchased, you will see a small lock icon next to that lab. You can purchase higher-level activation keys, which will allow you to work through additional labs plus all labs unlocked by lower-level activation keys. All labs are unlocked when a CCNP-level activation key is used. Only the Demo lab is available without an activation key.

### Commands seem to disappear when I press the number pad ENTER key in Telnet mode

To ensure that the number pad ENTER key works correctly every time you press it, you should open a command dialog box from the **Run** box in the Start menu, type **telnet**, press the CTRL key and the right bracket **]** key, type **unset crlf**, press ENTER, then press ENTER again. To see more information about this, see the related support topic on the NetSim Support page ([www.boson.com/support/netsim-support-topics](http://www.boson.com/support/netsim-support-topics)).

### I can't see everything on the panel I'm looking at

In NetSim, you can expand and minimize various panels by clicking the arrow next to the panel name. If, for example, you cannot see the controls on the **NetMap** tab on the **Home** panel, click the arrow next to **Consoles** to minimize the **Consoles** panel and expand the NetMap tab or click **Window > Size To Fit**. You can also expand or minimize various panels by moving the splitter control between the panels. A splitter control is a divider between panels that you can use to resize a panel to fit your preferences.

### Telnet is not working on my Windows 7 or Windows Vista computer

Telnet is disabled by default on Windows 7 and Windows Vista. To enable Telnet for these operating systems, you should perform the following steps.

1. Click **Control Panel** on the Start menu.
2. On the Control Panel, click **Programs**.
3. On the Programs panel, click **Turn Windows features on or off**.
4. On the **Windows Features** dialog box, select **Telnet Client** and then click **OK**.
5. If you receive a Windows Security Alert, ensure that **Private networks, such as my home or work network** is selected and click **Allow Access**.

To see more information about this, see the related support topic on the NetSim Support page ([www.boson.com/support/netsim-support-topics](http://www.boson.com/support/netsim-support-topics)).

### **The Custom Lab Packs tab is empty**

You will see labs on the **Custom Lab Packs** tab of the **Labs** panel only if you have uploaded labs from an instructor or created your own labs. To find out how to extract labs created by your instructor or how to create your own labs, see the Compiling a Lab section of this manual.

### **Clicking the Labs panel does nothing**

If you try to click anywhere on the **Labs** panel and nothing happens, check the status bar. If you see that the Boson NetSim Network Simulator is busy, the controls will be disabled until NetSim finishes loading. If this problem persists, close NetSim and reopen it. You should then be able to navigate the **Labs** panel. However, if it seems to be taking an exceptionally long time to load a lab, you should restart NetSim and try loading the lab again. If the problem persists, please create a support ticket documenting the problem.