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# CISCO CCNA

LAB GUIDE

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## Introduction

Thanks very much for taking the time to download this free eBook. It contains complete configuration lab exercises and solutions to help you pass the Cisco CCNA Routing and Switching 200-125 exam. You can also use it as a configuration reference for Cisco routers and switches. I hope you can make use of it to expand your networking knowledge and further your career.

## How the Lab Works

I wanted to make this a completely free resource and as simple to use as possible so the free software GNS3 and Packet Tracer is used for the labs.

I've used two different software programs because GNS3 is best for the routing labs, and Packet Tracer is best for the switching labs.

I've provided a lab startup file for each exercise which loads in either GNS3 or Packet Tracer so you can get up and running with the labs immediately. A download link is provided at the start of each exercise.

(You can alternatively use your own physical lab if you have one by cabling it as shown in the lab topology diagram for each exercise.)

Please watch my short free course showing how to install and use Packet Tracer and GNS3 first if you haven't used the software before:

[GNS3 and Packet Tracer Installation course](#)

Please note that I don't provide support for GNS or Packet Tracer, they have their own dedicated teams which are available through their support forums:

[GNS3 Support](#) | [Cisco Support](#)

If you find any errors in the book, please let me know so I can correct them. You can email me at [neil@flackbox.com](mailto:neil@flackbox.com)

## Get the Complete Course

The lab exercises here can be used on their own or as a complement to my [Cisco CCNA 200-125 Complete course](#). It has the highest review ratings of any CCNA course online and includes over 30 hours of video tutorials, flashcards and hands-on lab exercises. You can shortcut your path to getting CCNA certified by getting the course for only \$10 USD (that's a massive 97% discount) with this link:

<https://www.udemy.com/ccna-complete/?couponCode=DISCOUNTCEB>

For practice tests I recommend [AlphaPrep](#). They partner with Cisco and the CCNA test provider Pearson to bring you the most accurate preparation tests, and their advanced test engine lets you know when you're ready for the exam. [Click here for a 10 day trial.](#)

## About the Author



I'm Neil Anderson, you can visit my blog at <https://www.flackbox.com> to learn about Cloud and Data Center technologies.

The main focus of my current role is delivery of technical training and development of course content for large enterprise and service provider customers such as Cisco, NetApp, Verizon and IBM.

I dropped out of school with no qualifications or future plans at the age of 15. When I got a little bit older and wiser I realised I should make a career for myself so I learned about IT technologies through books and online resources. It's my

passion now to help others do the same.

Connect with me on social media:



## 04 The IOS Operating System - Lab Exercise

This lab explores basic navigation of the Cisco IOS operating system CLI (Command Line Interface). Only a single device is required.

This lab is a guided walkthrough of the IOS command line interface. Exercises for later sections will be split into two parts - first the tasks for you to complete on your own (without step by step instructions), and then an answer key showing you the solution.

### **Load the Startup Configuration**

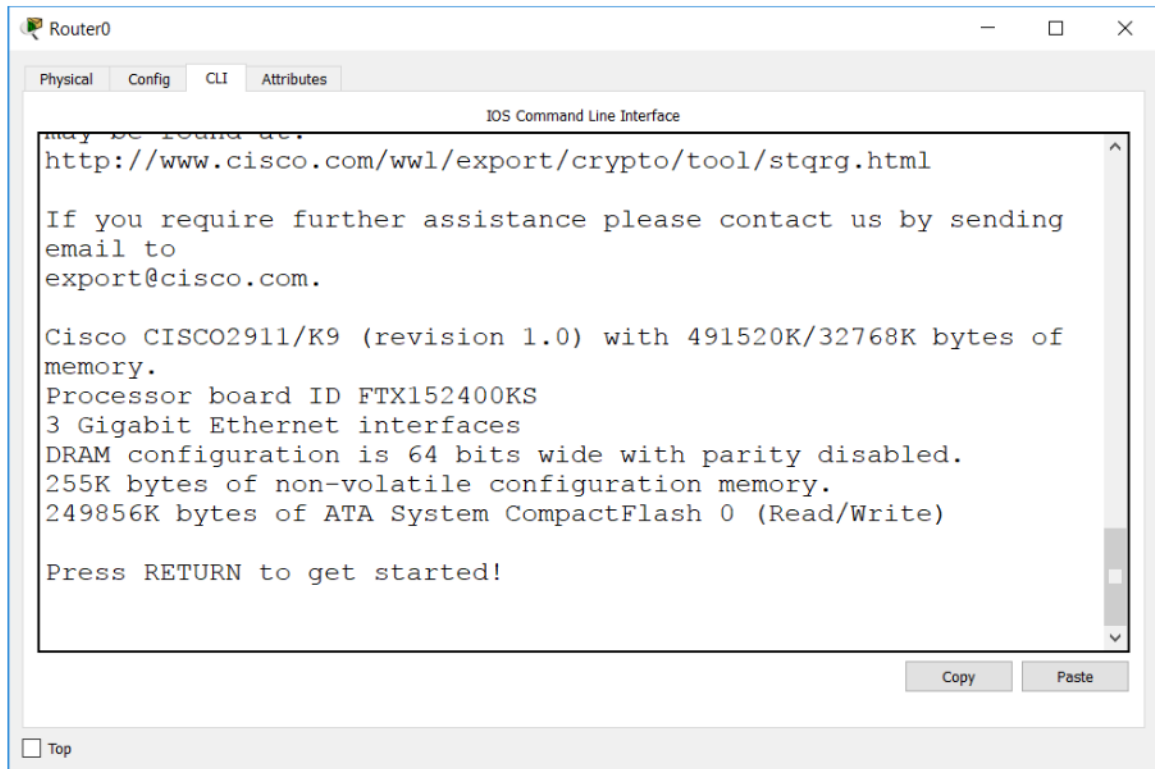
[Download the '04 The IOS Operating System.pkt' file here.](#) Open in Packet Tracer to load the lab.

Please watch my short free course showing how to install and use Packet Tracer and GNS3 first if you haven't used the software before:

[GNS3 and Packet Tracer Installation course](#)

## Connect To Your Device

Click on Router0 and then the CLI tab to access the console.



Press Return to get started, then enter Privileged Exec mode.

```
Router>enable
Router#
```

Reboot the device.

```
Router#reload
Proceed with reload? [confirm]
```

Observe the device going through the bootup process in the command line output. This is possible because we are using a console connection (we could not see this if we connected to an IP address on the device.)

If prompted to enter the initial configuration dialog after the device has booted up, enter 'no'.

```
Would you like to enter the initial configuration dialog? [yes/no]:
no
```

## Explore User Exec Mode and CLI command help

Notice that you are in User Exec mode as indicated by the 'Router>' prompt. ('Router' will be replaced with the device hostname after you configure one.)

```
Router>
```

Enter a question mark to explore the commands that are available in User Exec mode.

```
Router>?  
Exec commands:  
<1-99> Session number to resume  
connect Open a terminal connection  
disable Turn off privileged commands  
disconnect Disconnect an existing network connection  
enable Turn on privileged commands  
exit Exit from the EXEC  
logout Exit from the EXEC  
ping Send echo messages  
resume Resume an active network connection  
show Show running system information  
ssh Open a secure shell client connection  
telnet Open a telnet connection  
terminal Set terminal line parameters  
traceroute Trace route to destination
```

Only a very limited set of informational commands are available in User Exec mode and we won't typically be working here.

Enter the 'show run' command.

```
RouterX>show run  
^  
% Invalid input detected at '^' marker.
```

'show run' is a valid command but should be run at Privileged Exec mode, not User Exec, so the command fails.

This is the most common issue to trip up beginners at the IOS command line. If you see the 'invalid input' error then check you are at the correct level for the command you are trying to run.



## Exploring Privileged Exec (Enable) Mode and Context Sensitive Help

Enter Privileged Exec mode. This mode is often commonly known as Enable mode. Notice that the prompt changes to 'Router#'

```
Router>enable  
Router#
```

Drop back to User Exec mode.

```
Router#disable  
Router>
```

Go back to Privileged Exec mode by using shortened command abbreviation.

```
Router>en  
Router#
```

Command abbreviation only works when you enter letters which could only match one unique command. Attempt to return to User Exec mode by entering the command 'di'

```
Router#di  
% Ambiguous command: "di"
```

Check to see all the possible commands which begin with the letters 'di'

```
Router#di?  
dir  disable  disconnect
```

We can see that the shortest combination we could use for Disable would be 'disa'

We can access detailed informational and debug output in Privileged Exec mode.

Check to see all commands that begin with 'sh'

```
Router#sh?
```

```
Show
```

'show' is the only command that begins with 'sh' so we can use that as the abbreviation.

Enter 'sh ?' to see all available show commands. Notice that we have now included a space before the question mark. This enters context sensitive help for the 'show' command.

```
Router#sh ?
aaa Show AAA values
access-lists List access lists
arp Arp table
cdp CDP information
class-map Show QoS Class Map
clock Display the system clock
controllers Interface controllers status
crypto Encryption module
debugging State of each debugging option
dhcp Dynamic Host Configuration Protocol status
dot11 IEEE 802.11 show information
file Show filesystem information
flash: display information about flash: file system
flow Flow information
frame-relay Frame-Relay information
history Display the session command history
hosts IP domain-name, lookup style, nameservers, and host
table
interfaces Interface status and configuration
ip IP information
ipv6 IPv6 information
license Show license information
line TTY line information
--More--
```

Press the Enter key when you see '—More—' to cycle through the additional output one line at a time.

```
- Output truncated -
history Display the session command history
hosts IP domain-name, lookup style, nameservers, and host
table
interfaces Interface status and configuration
```