

# Cisco Router Experimentation

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## Test 1 - Initial Setup

For the first step, I wanted to learn how to connect to the router. To start this, I need to find out what software to use. All of the Cisco documents say that they use HyperTerminal, but I have also heard that Putty works well. HyperTerminal comes pre-installed on all Windows machines.

After locating the software I could hook up the router. At first I tried to do this using an ethernet cable attached to the routers console Ethernet port. I did this by using the following tutorials I found online:

[http://www.petri.co.il/csc\\_how\\_to\\_use\\_hyperterminal\\_with\\_cisco\\_routers\\_and\\_switches.htm](http://www.petri.co.il/csc_how_to_use_hyperterminal_with_cisco_routers_and_switches.htm)

and

[http://www-tss.cisco.com/eservice/compass/common/tasks/task\\_console\\_port\\_connect.htm](http://www-tss.cisco.com/eservice/compass/common/tasks/task_console_port_connect.htm)

After several failed attempts, I realized that I did not have the right cable to make the connection. The routers require the use of a rollover Ethernet cable in order to connect to the console. A rollover cable is where all of the wires in the cable are reversed in order. This means the 1st was now the 8th, 2nd now the 7th, and so on. In order to continue and get this router to work, I need to find or build a rollover ethernet cable.

## Test 2 - Make Rollover Cable, Sync with HyperTerminal

After getting the materials and tools needed to make a rollover cable, I was able to continue working with the router. The first thing I needed to accomplish was to create a rollover cable so I could actually connect to the device. A rollover cable is when the leads in an Ethernet cable are the opposite on the different ends, meaning pin 1 becomes 8, 2 becomes 7, 3 becomes 6 and so on. To do this, I snipped one end of a standard Ethernet cable off and left the other end in tact. Next, I cut the coating on the snipped end down so that the eight wires were exposed. Then the trick was to get all of the wires aligned in the new order and attempt to slide them into a new Ethernet plug so I could crimp them down. Eventually I managed to do this. Then, using the VDV MultiMedia tester, I ensured it was wired in the correct manner.

Now that I thought I had the necessary cable to connect to the router, I can continue on with the experiments I was originally planning on. The first test I wanted to do was to attempt to connect

the router with HyperTerminal on my machine. This is the software that will allow me to do all of the necessary configuration and complete the rest of the labs.

The next trouble encountered occurred when trying to get my machine with HyperTerminal to recognize and connect to the router. For some reason I am not able to see or connect to the router at all. I am not sure what is causing this. It could be a problem with the rollover cable, the router, the software, or my machine. I will continue experimenting with this in order to get it to work.

### **Test 3 - Troubleshoot why connection is not occurring**

For quite awhile I was trying everything I could possibly think of to connect to a router. I tried various cables, routers, and programs in order to get the command prompt to show up. We attempted to use Linux with a program called Minicom. We also tried to connect using an ethernet to serial adapter. This went on for a couple of weeks until Professor Matthews and I decided that we had to order a Serial to USB adapter and an Ethernet rollover to serial adapter in order to get this connection to occur.

When this Cisco console cable connection kit arrived, I was able to install an included driver for the adapter. Once this completed, I set everything up and made the connection. Finally, I was given the command prompt for the routers.

### **Test 4 - Command Line Functions and Configuration**

To start working with the Cisco routers, I first looked in the CCNA Lab Companion book. Starting on page 109, there are some labs that only required you to be hooked up to one router. These labs were a good starting point to learn how to navigate through the layers and get a basic idea of how everything works.

After searching through these and experimenting on the routers, I moved on to some more in depth processes, mainly focusing on configuration. The following two sources I found to be very helpful for configuration. They do a good job of explaining how the commands are structured and how to use them.

<http://www.joshgentry.com/cisco/cisco.htm>

<http://www.tele.pitt.edu/~telelab/labs/General%20Lab%20Documentation/pdf/Generallab%20Documentation~Cisco%20Router%20Configuration%20Tutorial~08.20.05.pdf>

Using these tutorials, I was able to configure the ports on the routers in the ITL. The follow demonstrates what I accomplished:

### **Router C - Furthest from ITL Lab - Below Catalyst 5000**

Hostname: Cisco\_Router\_C14865

Ethernet 1/1:

IP Address = 113.113.111.1

Subnet Mask = 255.255.255.0

Ethernet 1/2:

IP Address = 113.113.112.2 - - - .....02 was not accepted, overlaps with 1/1

Subnet Mask = 255.255.255.0

Serial 4/1:

IP Address = 113.112.111.1

Subnet Mask = 255.255.255.0

Fddi 0/0:

IP Address = 113.111.111.1

Subnet Mask = 255.255.255.0

To finish up the work I have been doing this semester, I would like to hook up at least three routers and get them all talking to each other.

### **Sources:**

Overview of Cisco Cabeling Connections and Techniques

<http://www.conserver.com/consoles/Cisco/ciscocons.html>

Cisco Documentation for Console Cabeling

<http://www.cisco.com/en/US/products/hw/routers/ps332/>

[products\\_tech\\_note09186a0080094ce6.shtml](http://www.cisco.com/en/US/products/hw/routers/ps332/products_tech_note09186a0080094ce6.shtml)

Cisco Documentation for 1600 Router Console Connection

<http://www.cisco.com/en/US/products/hw/routers/ps214/>

[products\\_tech\\_note09186a00801f5d85.shtml?referring\\_site=smartnavRD](http://www.cisco.com/en/US/products/hw/routers/ps214/products_tech_note09186a00801f5d85.shtml?referring_site=smartnavRD)

Wiki Page on Crossover Cables

[http://en.wikipedia.org/wiki/Ethernet\\_crossover\\_cable](http://en.wikipedia.org/wiki/Ethernet_crossover_cable)

Wiki Page on Rollover Cables

[http://en.wikipedia.org/wiki/Rollover\\_cable](http://en.wikipedia.org/wiki/Rollover_cable)

Youtube Video on Cisco Console Cables

<http://www.youtube.com/watch?v=VIKB4tn6yXc>

Router Configuration Tutorial 1::

<http://www.joshgentry.com/cisco/cisco.htm>

Router Configuration Tutorial 2:

<http://www.tele.pitt.edu/~telelab/labs/General%20Lab%20Documentation/pdf/GeneralLab%20Documentation~Cisco%20Router%20Configuration%20Tutorial~08.20.05.pdf>