



Student notes for

David Bombal's

Packet Tracer
Labs Course



THANK YOU!

These student notes have been kindly shared by @DJninjaNZ

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These are not official student notes and are not officially supported, but are shared with the hope that they will help you with your CCNA studies.

If you want to share your notes with others on the course, please submit them to sales@ConfigureTerminal.com and we will review them for addition to the course.

Remember: You will probably learn more by making notes like these and sharing them for the benefit of others.

All the best!

David Bombal

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Brief

This lab is for fixing a power outage and some broke devices

Lab requirements

Configure the network as follows:

Operating system restoring

1. Restore the operating system of the router from the TFTP server File to use: c2900-universalk9-mz.SPA.151-4.M4.bin
2. Verification
 - a. Ensure the router boots correctly
 - b. Make sure the router can ping the TFTP server 10.1.1.100 and switch 10.1.1.2

Operation system recovery

For whatever reason you have no operating systems found on your devices and you need to get them up and running. There are many ways to restore IOS to a system, USB, FTP, SFTP (secure file transfer protocol) for more info check online. While in ROMMON mode you can still use IP addresses and TFTP settings.

Flash memory is rewritable permanent storage that will retain when a router loses power.

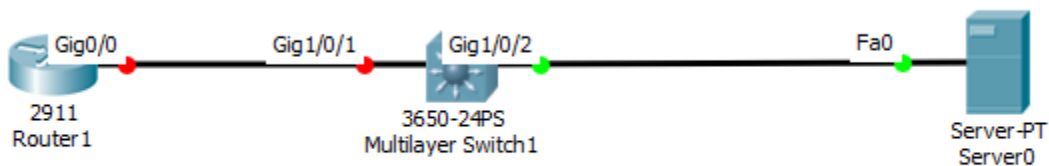
Router Boot Process

1. POST – Power On Self-Test to verify hardware is working properly
2. Bootstrap – copies the bootstrap program from ROM into RAM and runs
3. Bootstrap – decides which IOS image to load into RAM and loads the IOS
4. IOS finds the startup-config loads it into the RAM as the running-config

IOS Brief

Cisco IOS comes in one file making it easy to install for devices, but it has its downsides. The IOS bug fixing and patches will come with a complete new file which can have overheads for many devices in a network. Cisco has separated IOS feature sets so it makes it cheaper for paying for what you need. Also in certain packages you can activate feature sets with licence codes or trial periods of grace which work on an honour system. Where you can evaluate some feature sets, there are the following normal **feature sets: IP Base, Security, Data, Voice.**

Lab Topology



Here we have two routers and a switch that we need to reset the passwords for we do this in different ways for different devices. We will need to download the IOS from the TFTP server.

Configurations and Verification

IOS Restoration

Switch1

```
int g1/0/1 // we need spanning tree portfast so the router can connect to the FTP server as quickly as possible
so it does not time out
no shut
```

Router1

```
Using tftpdnld for disaster recovery of an image
Set // to view variables sets
IP_ADDRESS=10.1.1.1 //because TFTP default gateway is 10.1.1.1
IP_SUBNET_MASK=255.255.255.0 //same as TFTP subnet mask
DEFAULT_GATEWAY=10.1.1.100 //same subnet not required for IP connectivity
TFTP_SERVER=10.1.1.100
TFTP_FILE=c2900-universalk9-mz.SPA.151-4.M4.bin
Set //to verify
rommon7>tftpdnld
```

rommon 8 >dir flash:

```
File size Checksum File name
33591768 bytes (0x20091d8) 0x93d8 c2900-universalk9-mz.SPA.151-4.M4.bin
```

rommon 8 >reset

Verification commands and outputs

R1#ping 10.1.1.100

Type escape sequence to abort.

Sending 5, 100-byte ICMP Echos to 10.1.1.100, timeout is 2 seconds:

..!!!

Success rate is 80 percent (4/5), round-trip min/avg/max = 0/0/1 ms

R1#show file systems

File Systems:

Size(b) Free(b) Type Flags Prefixes

* 255744000 222152232 disk rw flash0: flash:#

262136 255005 nvramrwnvram:

R1#show running-config

!

interface GigabitEthernet0/0

ip address 10.1.1.1 255.255.255.0

duplex auto

speed auto

!

Extra Examples and Resources

ISR 4000

<https://www.cisco.com/c/en/us/td/docs/routers/access/4400/troubleshooting/guide/isr4400trbl/isr4400trbl02.html>

Cisco IOS types

https://www.cisco.com/c/dam/en_us/training-events/le21/le34/downloads/689/academy/2005/BRK-101.pdf

<https://www.cisco.com/c/en/us/products/ios-nx-os-software/index.html>