Final Hands-on Project

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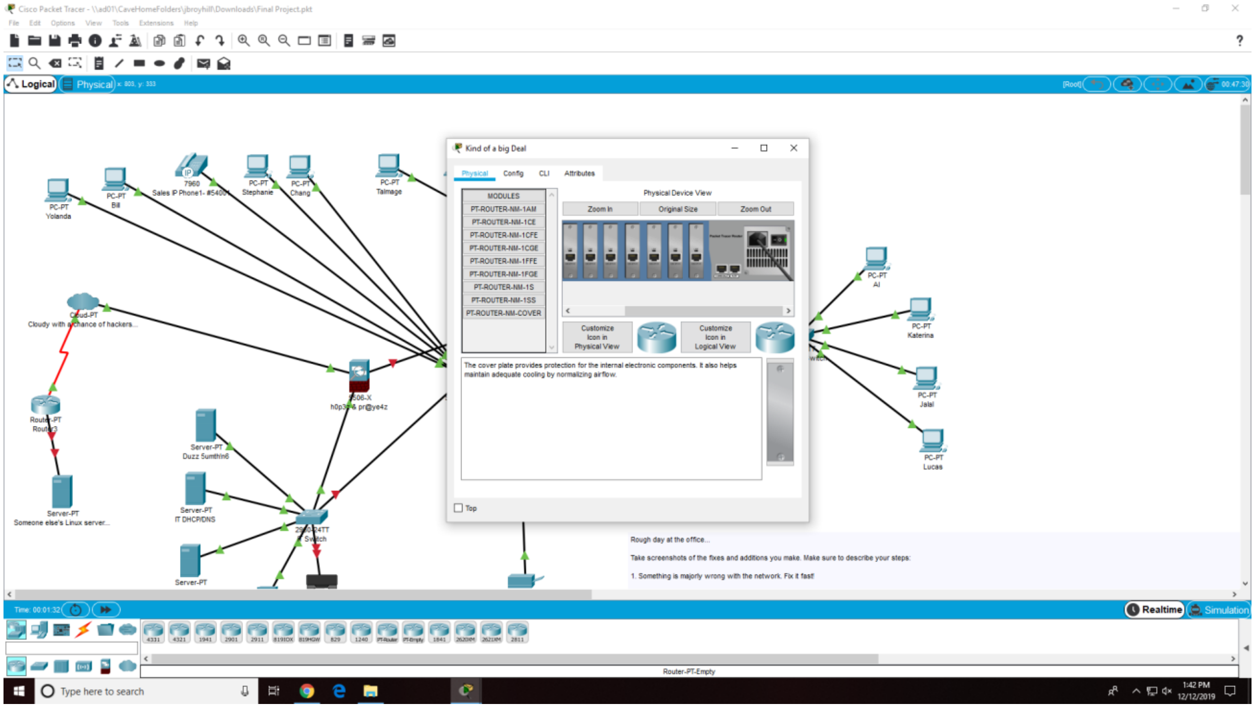
Author Note

This paper was prepared for NTW102 taught by Mason Galatas.

Abstract

The purpose of this paper is to identify the steps taken during the Final Hands-on Project to repair damages, maintain, and upgrade the status of the network given in the context of the lab, and how steps given were completed per given instruction.

Final Hands-on Project



The cover plate provides protection for the internal electronic components. It also helps maintain adequate cooling by normalizing airflow.

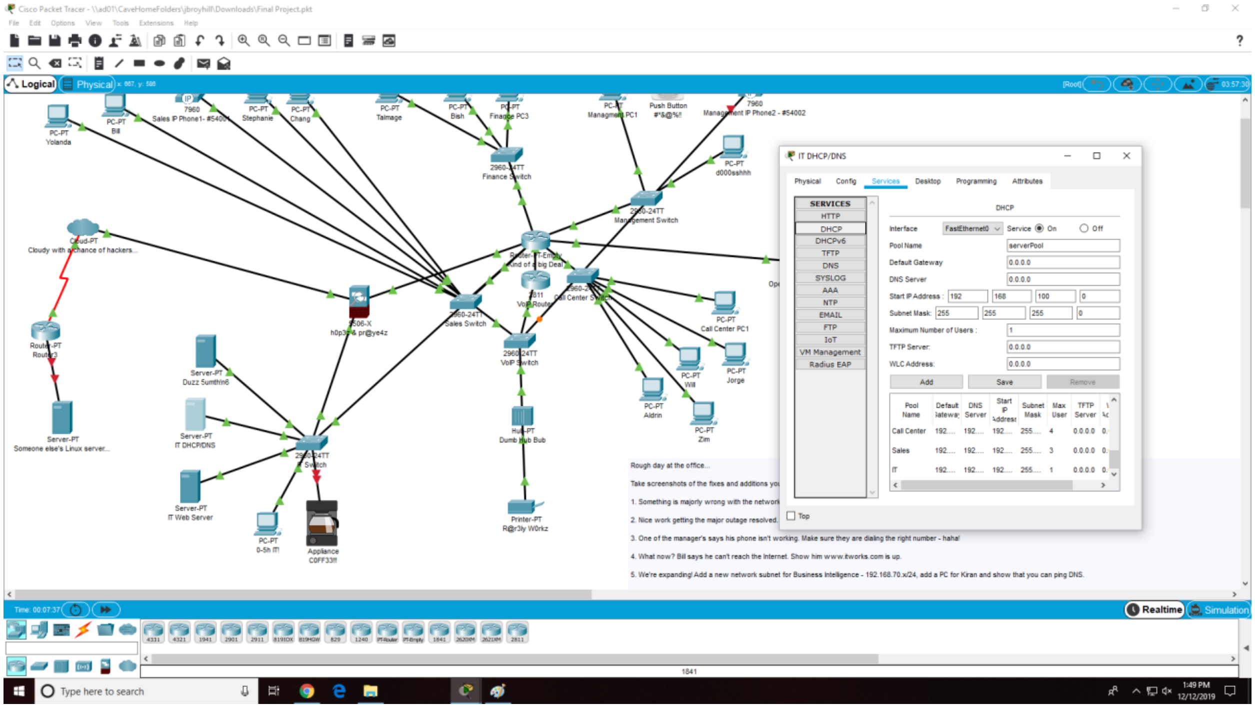
Rough day at the office...

Take screenshots of the fixes and additions you make. Make sure to describe your steps:

1. Something is majorly wrong with the network. Fix it fast!

Figure 1. First Screenshot. Screenshot from Cisco Packet Tracer.

The first step I took was to turn on the router. This fixed the “outage” the network was experiencing and immediately brought many devices online.



IT DHCP/DNS

Physical | Config | Services | Desktop | Programming | Attributes

SERVICES: HTTP, DHCP, DHCPv6, TFTP, DNS, SYSLOG, AAA, NTP, EMAIL, FTP, IoT, VM Management, Radius EAP

DHCP

Interface: FastEthernet0 Service ● On ○ Off

Pool Name: serverPool

Default Gateway: 0.0.0.0

DNS Server: 0.0.0.0

Start IP Address : 192 168 100 0

Subnet Mask: 255 255 255 0

Maximum Number of Users : 1

TFTP Server: 0.0.0.0

WLC Address: 0.0.0.0

Add | Save | Remove

Pool Name	Default Gateway	DNS Server	Start IP Address	Subnet Mask	Max User	TFTP Server
Call Center	192....	192....	192....	255....	4	0.0.0.0
Sales	192....	192....	192....	255....	3	0.0.0.0
IT	192....	192....	192....	255....	1	0.0.0.0

□ Top

Rough day at the office...

Take screenshots of the fixes and additions you

1. Something is majorly wrong with the network

2. Nice work getting the major outage resolved.

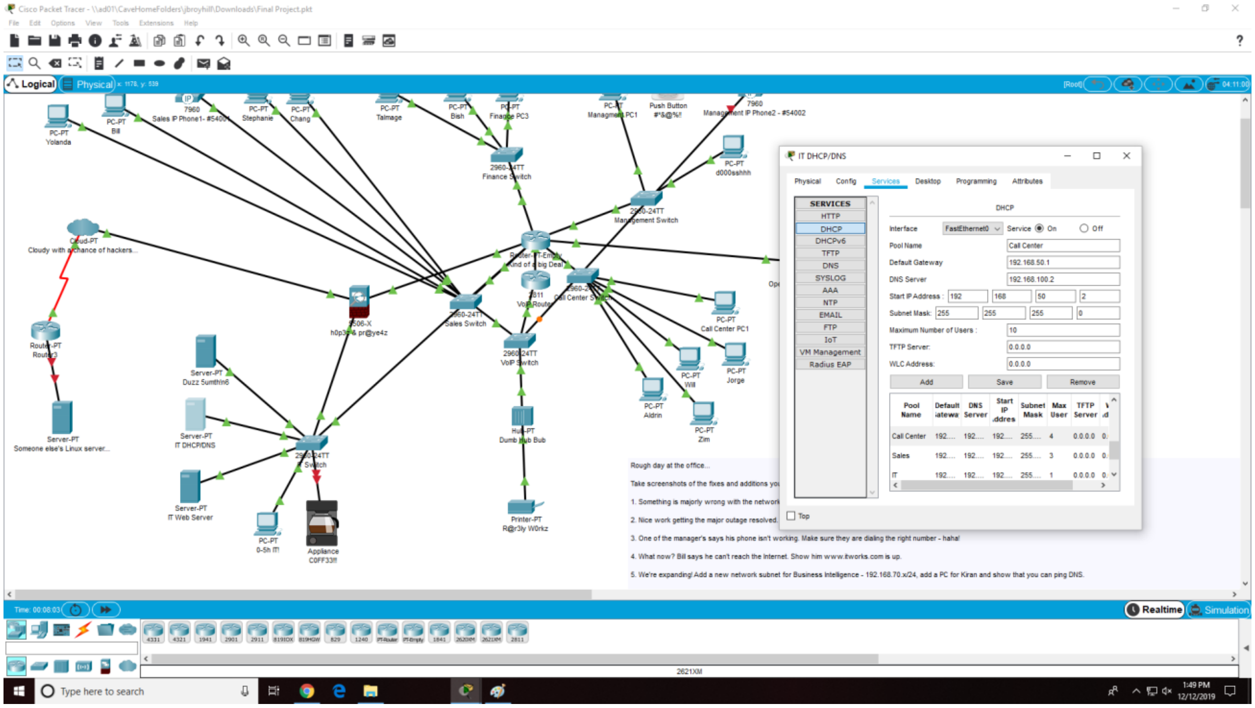
3. One of the manager's says his phone isn't working. Make sure they are dialing the right number - haha!

4. What now? Bill says he can't reach the Internet. Show him www.itworks.com is up.

5. We're expanding! Add a new network subnet for Business Intelligence - 192.168.70.x/24, add a PC for Kiran and show that you can ping DNS.

Figure 2. Second Screenshot. Screenshot from Cisco Packet Tracer.

Investigating the cause of the PC in the call center not receiving an address, I discovered it was not being given an address by the Call Center DHCP pool created for it and its peers.



IT DHCP/DNS

Physical | Config | Services | Desktop | Programming | Attributes

SERVICES: HTTP, DHCP, DHCPv6, TFTP, DNS, SYSLOG, AAA, NTP, EMAIL, FTP, IoT, VM Management, Radius EAP

DHCP

Interface: FastEthernet0   Service ● On ○ Off

Pool Name: Call Center

Default Gateway: 192.168.50.1

DNS Server: 192.168.100.2

Start IP Address : 192 168 50 2

Subnet Mask: 255 255 255 0

Maximum Number of Users : 10

TFTP Server: 0.0.0.0

WLC Address: 0.0.0.0

Add | Save | Remove

Pool Name	Default Gatewa	DNS Server	Start IP Addres	Subnet Mask	Max User	TFTP Server	W Ad
Call Center	192....	192....	192....	255....	4	0.0.0.0	0.
Sales	192....	192....	192....	255....	3	0.0.0.0	0.
IT	192....	192....	192....	255....	1	0.0.0.0	0.

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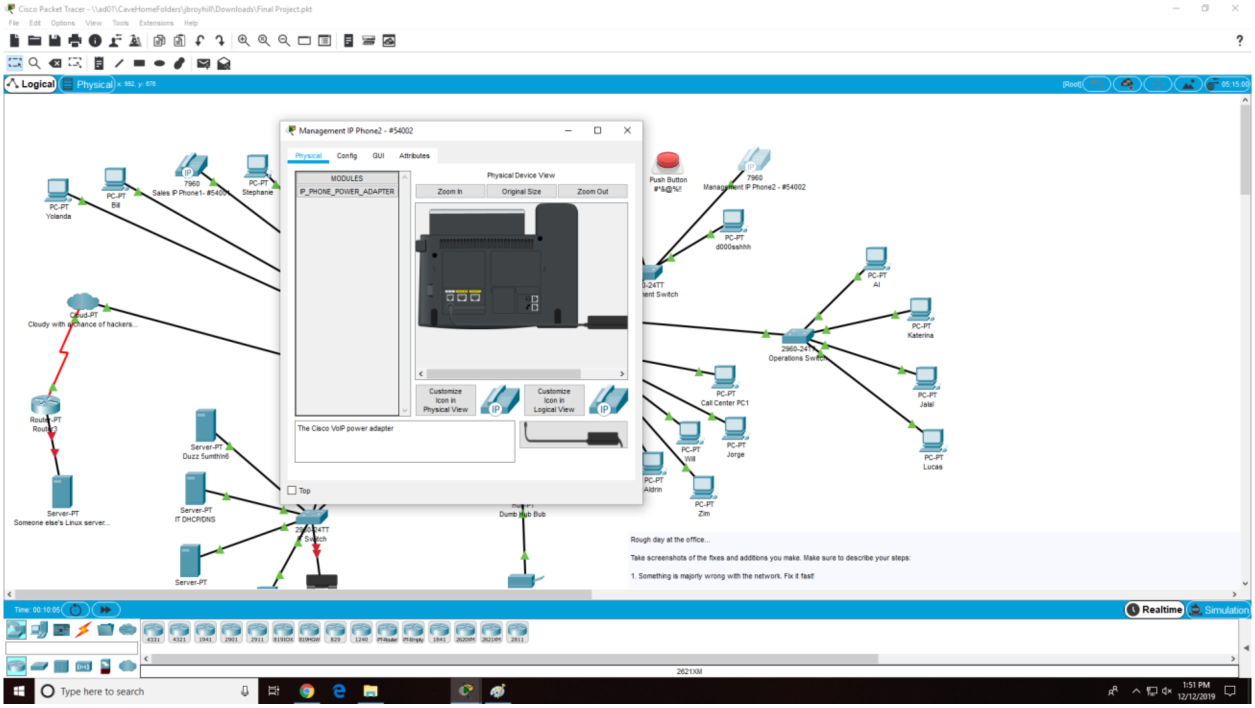
Figure 3. Third Screenshot. Screenshot from Cisco Packet Tracer.

Increasing the maximum amount of users in the pool permitted the computer to receive an address. It also future-proofed the pool for additional devices added to the subnet.



Management IP Phone2 - #54002

Physical | Config | GUI | Attributes

MODULES

IP_PHONE_POWER_ADAPTER

The Cisco VoIP power adapter

□ Top

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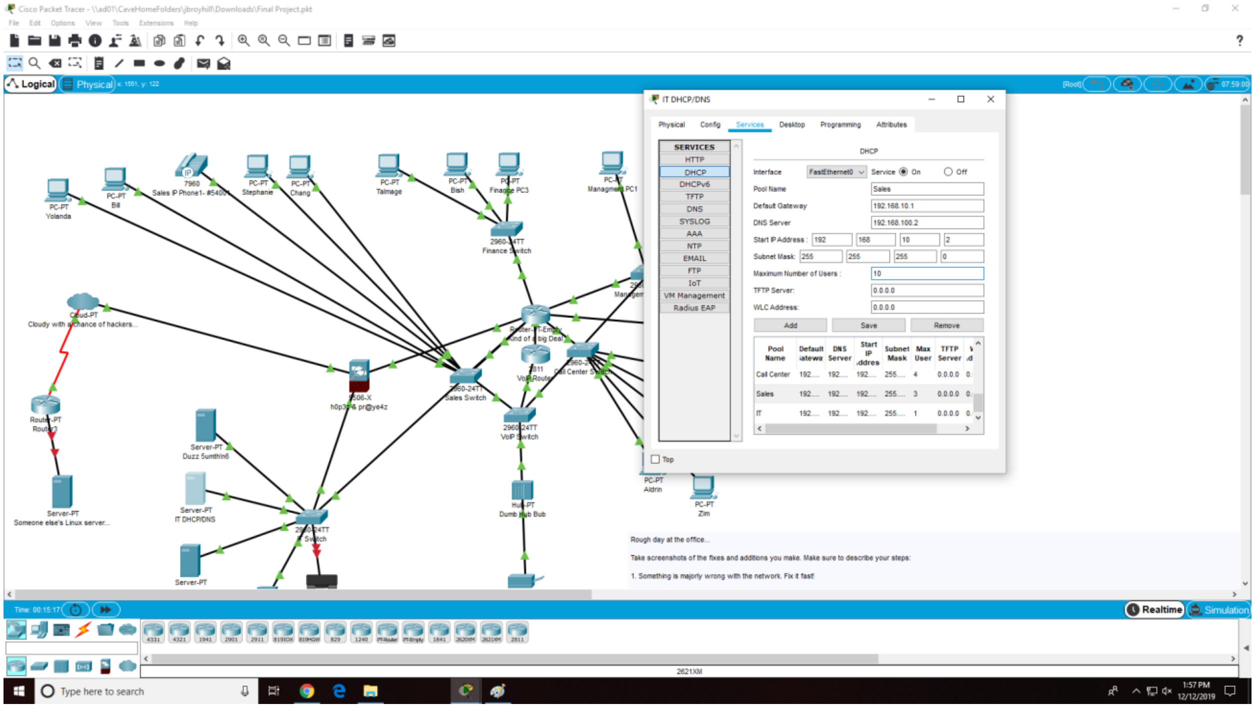
Figure 4. Fourth Screenshot. Screenshot from Cisco Packet Tracer.

The phone was not working. I plugged it in. It began working.



IT DHCP/DNS

Physical | Config | Services | Desktop | Programming | Attributes

SERVICES: HTTP, DHCP, DHCPv6, TFTP, DNS, SYSLOG, AAA, NTP, EMAIL, FTP, IoT, VM Management, Radius EAP

DHCP

Interface: FastEthernet0 Service ● On ○ Off

Pool Name: Sales

Default Gateway: 192.168.10.1

DNS Server: 192.168.100.2

Start IP Address : 192 168 10 2

Subnet Mask: 255 255 255 0

Maximum Number of Users : 10

TFTP Server: 0.0.0.0

WLC Address: 0.0.0.0

Add Save Remove

Pool Name	Default Gatewa	DNS Server	Start IP Addres	Subnet Mask	Max User	TFTP Server	W Ad
Call Center	192....	192....	192....	255....	4	0.0.0.0	0.
Sales	192....	192....	192....	255....	3	0.0.0.0	0.
IT	192....	192....	192....	255....	1	0.0.0.0	0.

☐ Top

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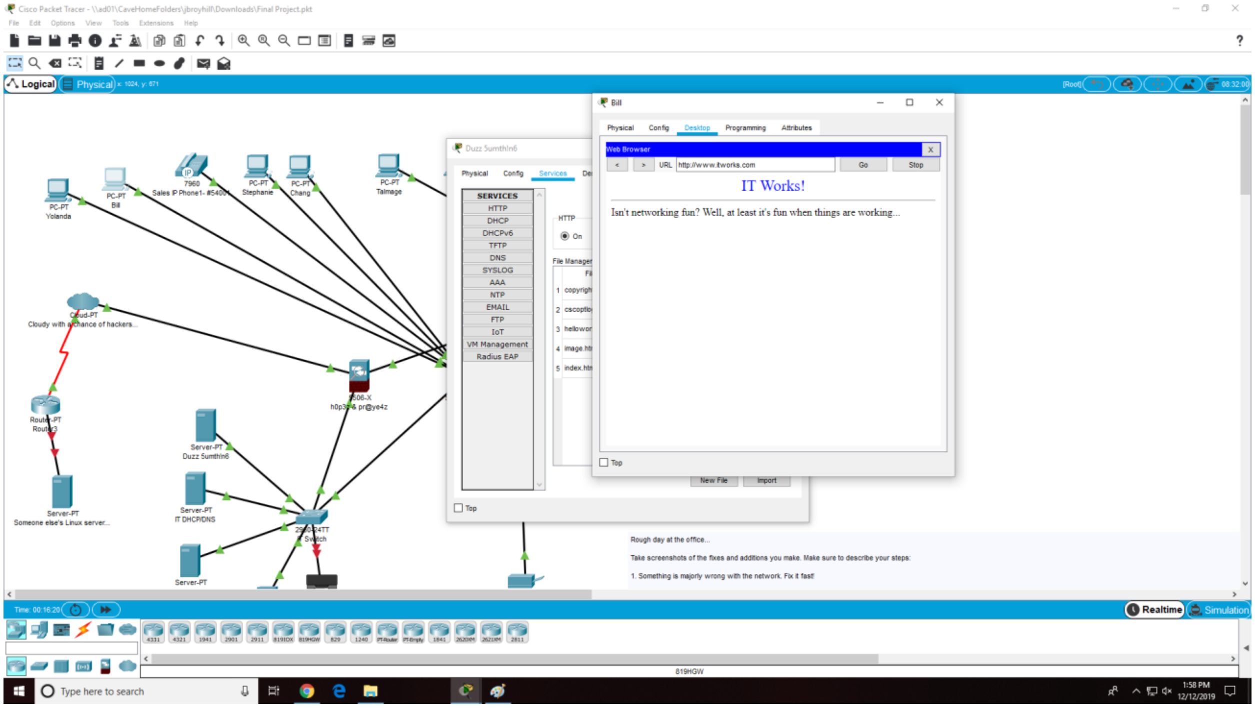
Figure 5. Fifth Screenshot. Screenshot from Cisco Packet Tracer.

The sales computer could not connect because it was not connected to the DHCP pool properly. By making it connect to DHCP and increasing the maximum amount of users, it was able to connect, and thus connect to itworks.com



URL http://www.itworks.com

IT Works!

Isn't networking fun? Well, at least it's fun when things are working...

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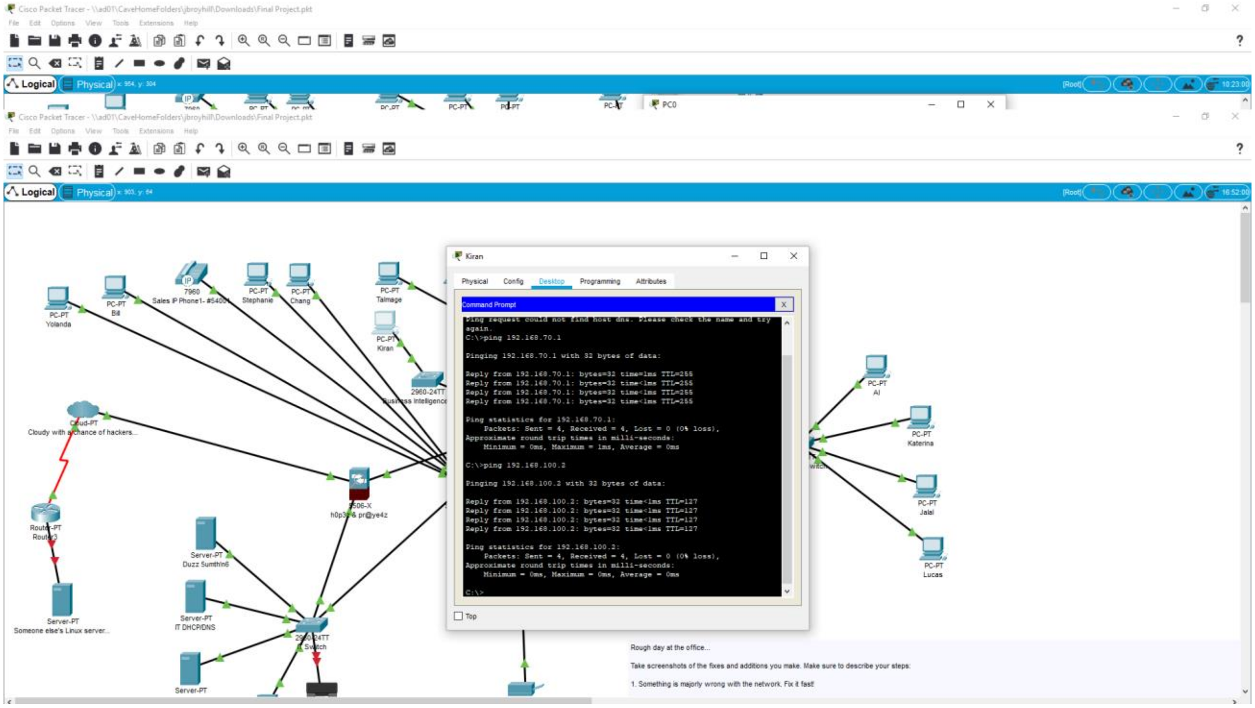
Figure 6. Sixth Screenshot. Screenshot from Cisco Packet Tracer.

It could now connect to the website. This demonstrates that it has connection to the rest of the network (and most importantly, the DHCP pool).



```
Ping request could not find host dns. Please check the name and try
again.
C:\>ping 192.168.70.1

Pinging 192.168.70.1 with 32 bytes of data:

Reply from 192.168.70.1: bytes=32 time=1ms TTL=255
Reply from 192.168.70.1: bytes=32 time<1ms TTL=255
Reply from 192.168.70.1: bytes=32 time<1ms TTL=255
Reply from 192.168.70.1: bytes=32 time<1ms TTL=255

Ping statistics for 192.168.70.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>ping 192.168.100.2

Pinging 192.168.100.2 with 32 bytes of data:

Reply from 192.168.100.2: bytes=32 time<1ms TTL=127
Reply from 192.168.100.2: bytes=32 time<1ms TTL=127
Reply from 192.168.100.2: bytes=32 time<1ms TTL=127
Reply from 192.168.100.2: bytes=32 time<1ms TTL=127

Ping statistics for 192.168.100.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
```

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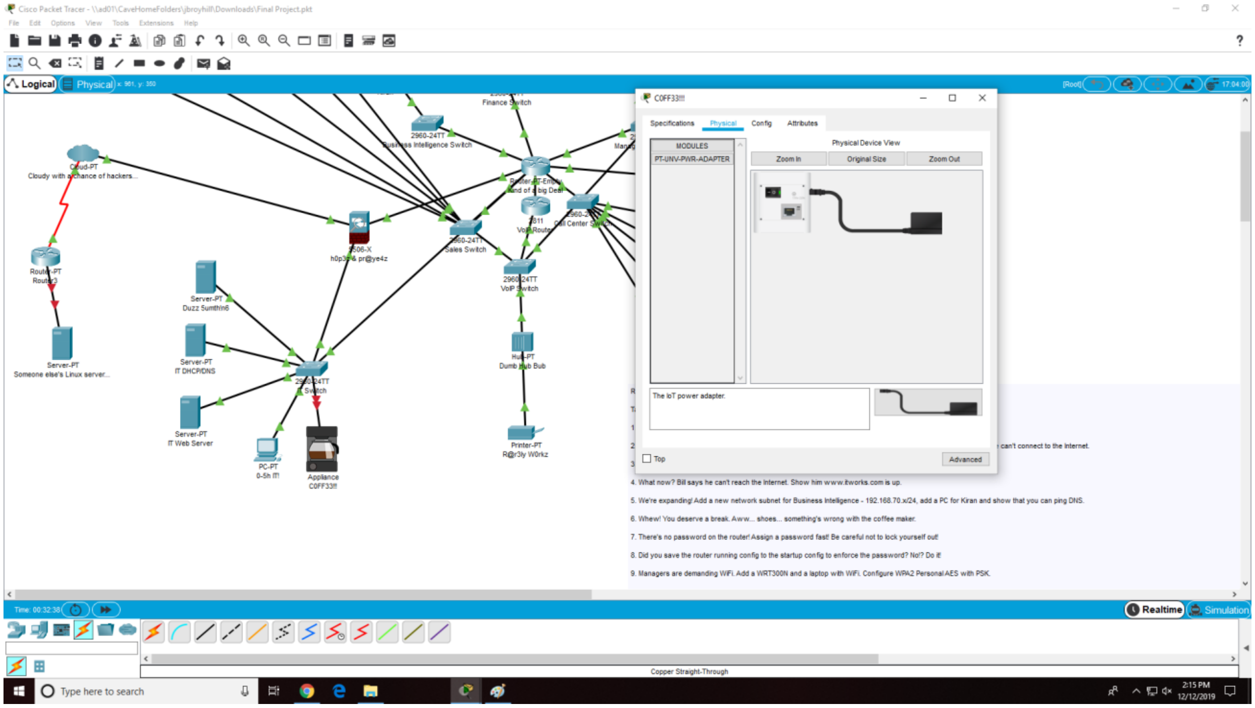
Figure 7. Seventh Screenshot. Screenshot from Cisco Packet Tracer.

A new switch and PC was added to the router (after adding a new port to the router) for the new “Business Intelligence” subnet. A new DHCP pool was then added to the DHCP server for the new subnet, and the PC was able to connect and ping the server.



The IoT power adapter.

2. ... can't connect to the Internet.

4. What now? Bill says he can't reach the Internet. Show him www.itworks.com is up.

5. We're expanding! Add a new network subnet for Business Intelligence - 192.168.70.x/24, add a PC for Kiran and show that you can ping DNS.

6. Whew! You deserve a break. Aww... shoes... something's wrong with the coffee maker.

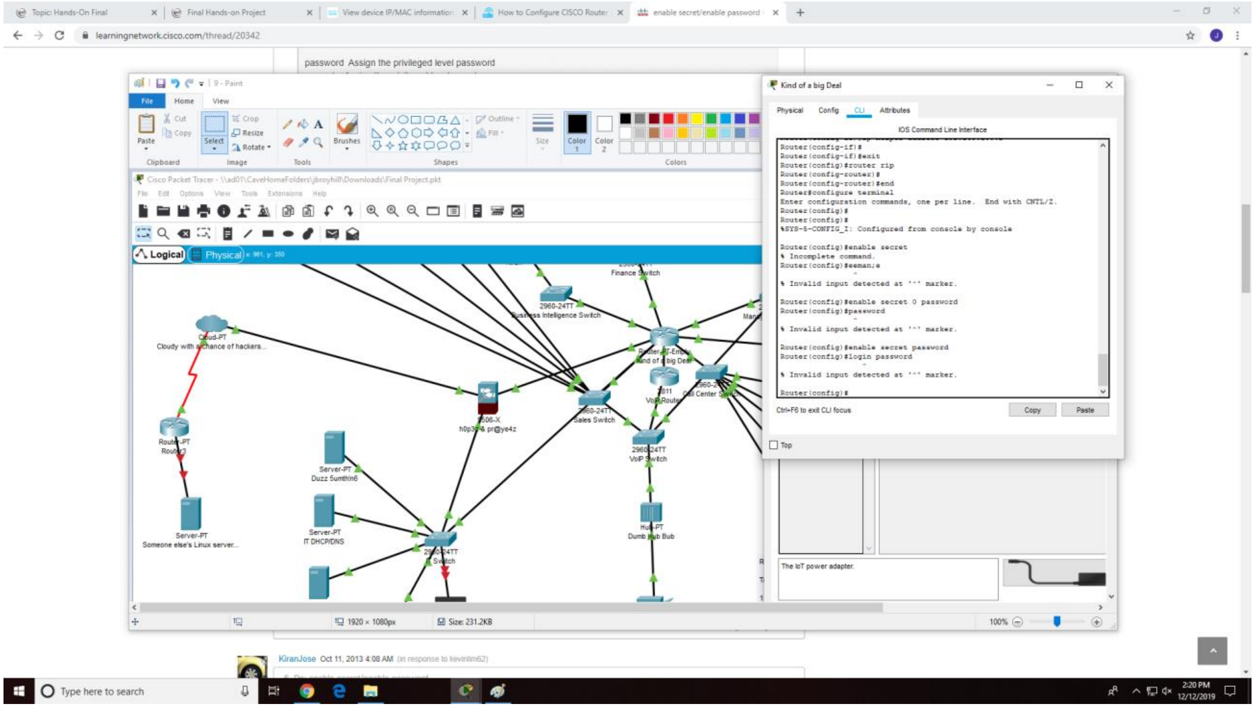
7. There's no password on the router! Assign a password fast! Be careful not to lock yourself out!

8. Did you save the router running config to the startup config to enforce the password? No!? Do it!

9. Managers are demanding WiFi. Add a WRT300N and a laptop with WiFi. Configure WPA2 Personal AES with PSK.

Figure 8. Eighth Screenshot. Screenshot from Cisco Packet Tracer.

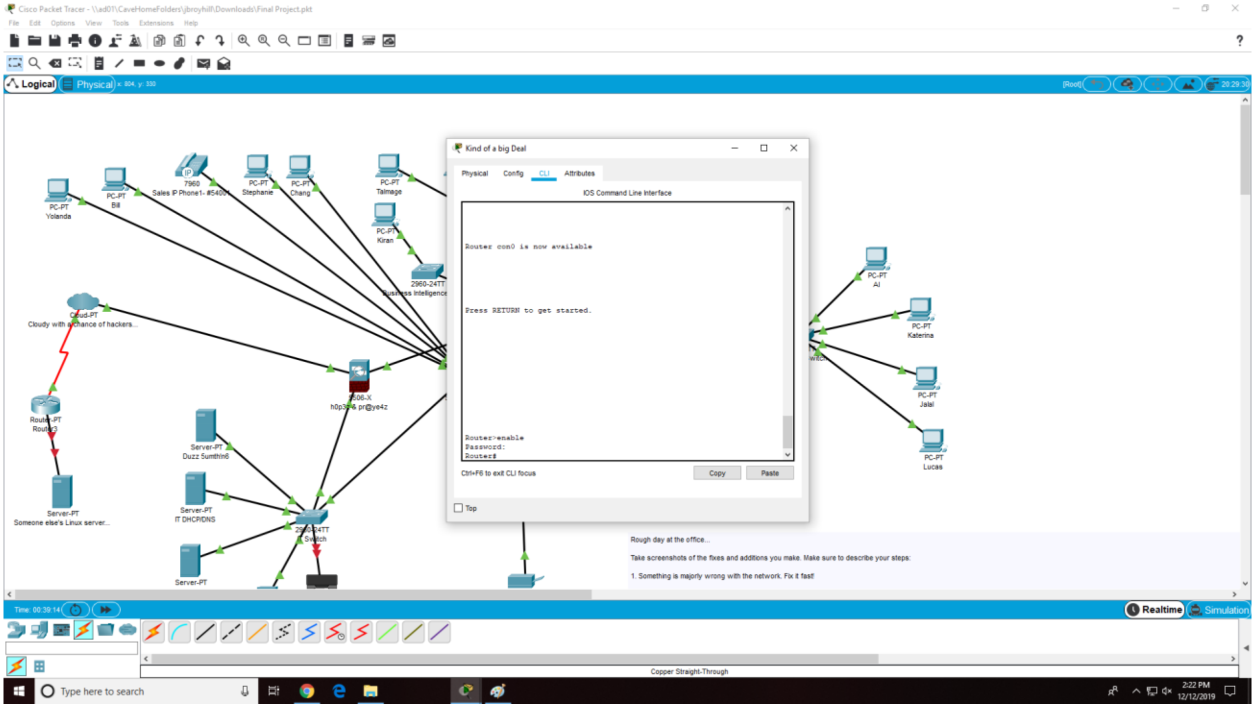
The coffee machine was not working. As if by divine intervention, after plugging in the machine, its functions returned. Such a miracle was very fortunate in this vital effort to repair an essential part of the network.


Kind of a big Deal
Physical
Config
CLI
Attributes
IOS Command Line Interface
Ctrl+F6 to exit CLI focus
Copy
Paste
Top
Cisco Packet Tracer - \\ad01\CaveHomeFolders\jbroyhill\Downloads\Final Project.pkt
Logical
Physical
Cloud-PT
Cloudy with a chance of hackers...
Router-PT
Server-PT
Someone else's Linux server...
Server-PT
Duzz Sumthin6
Server-PT
IT DHCP/DNS
2960-24TT
Switch
2960-24TT
Business Intelligence Switch
Finance Switch
2960-24TT
Sales Switch
2960-24TT
VoIP Switch
2811
VoIP Router
Call Center Switch
Hub-PT
Dumb Hub Bub
The IoT power adapter.
learningnetwork.cisco.com/thread/20342
password Assign the privileged level password
KiranJose Oct 11, 2013 4:08 AM (in response to kevinlim62)
Type here to search
2:20 PM
12/12/2019

```
Router(config-if)#
Router(config-if)#exit
Router(config)#router rip
Router(config-router)#
Router(config-router)#end
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#
Router(config)#
%SYS-5-CONFIG_I: Configured from console by console

Router(config)#enable secret
% Incomplete command.
Router(config)#eeman;e
                 ^
% Invalid input detected at '^' marker.

Router(config)#enable secret 0 password
Router(config)#password
                 ^
% Invalid input detected at '^' marker.

Router(config)#enable secret password
Router(config)#login password
                     ^
% Invalid input detected at '^' marker.

Router(config)#
```

Figure 9. Ninth Screenshot. Screenshot from Cisco Packet Tracer.

I added a new “secret” password to the router with zero levels of encryption. This was done to ensure no one the network administrator(s) don’t/doesn’t want aren’t getting into the router.



Kind of a big Deal

Physical Config CLI Attributes

IOS Command Line Interface

```
Router con0 is now available



Press RETURN to get started.






Router>enable
Password:
Router#
```

Ctrl+F6 to exit CLI focus

Copy Paste

□ Top

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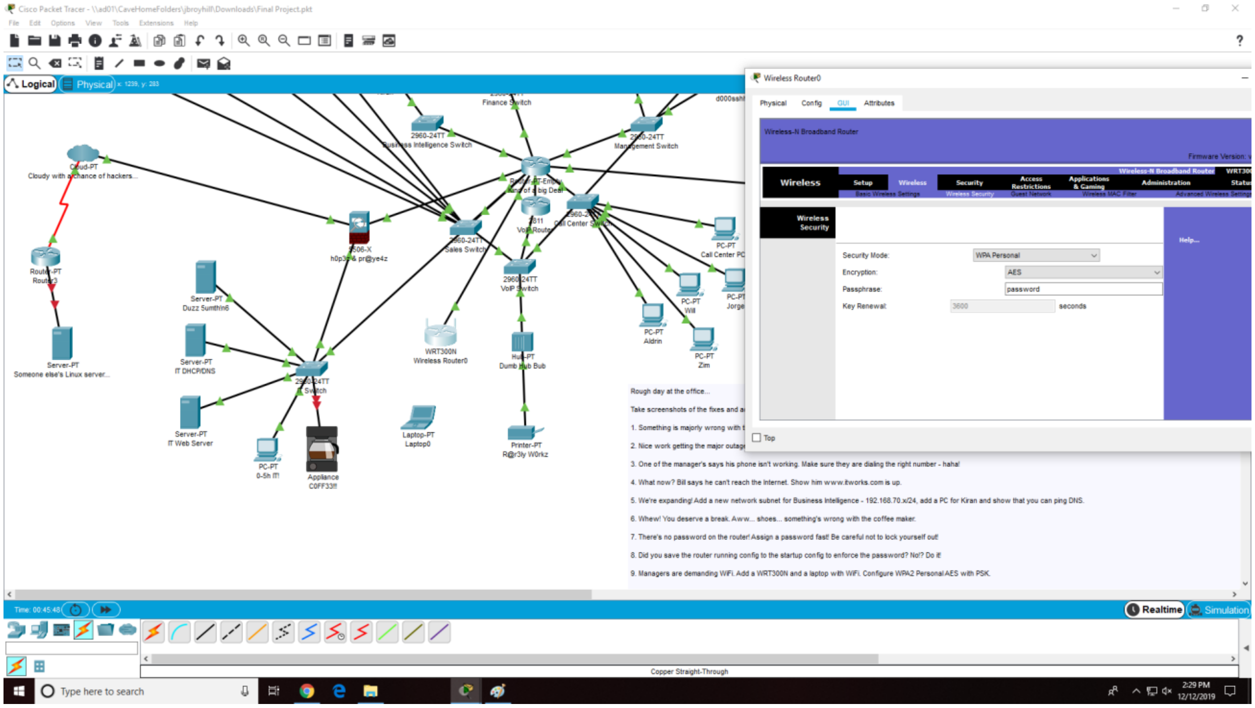
Figure 10. Tenth Screenshot. Screenshot from Cisco Packet Tracer.

When restarting the machine, it required a password before being able to access any of its configuration options. This once again ensures that the safety of the router (and by extension, the network) is secured.



Wireless Router0

Physical Config GUI Attributes

Wireless-N Broadband Router

Wireless | Setup | Wireless | Security | Access Restrictions | Applications & Gaming | Administration | Status

Basic Wireless Settings | Wireless Security | Guest Network | Wireless MAC Filter | Advanced Wireless Settings

Wireless Security

Security Mode: WPA Personal

Encryption: AES

Passphrase: password

Key Renewal: 3600 seconds

Help...

□ Top

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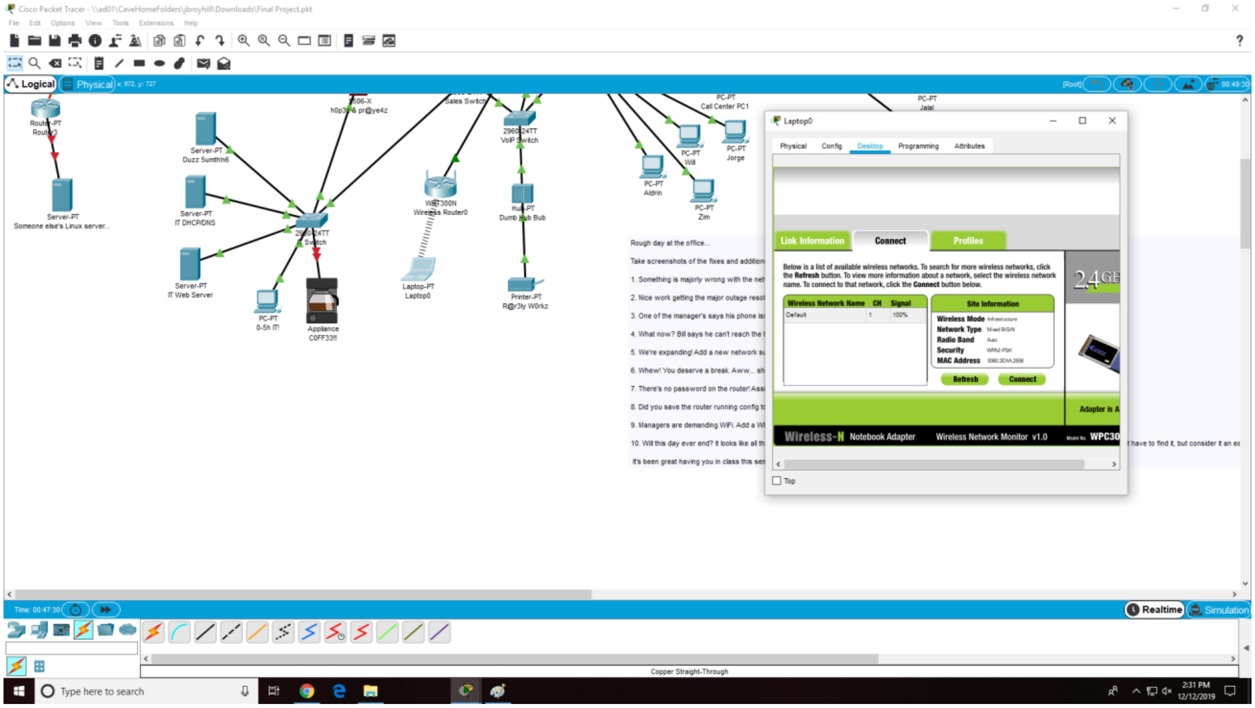
9. Managers are demanding WiFi. Add a WRT300N and a laptop with WiFi. Configure WPA2 Personal AES with PSK.

Figure 11. Eleventh Screenshot. Screenshot from Cisco Packet Tracer.

A new wireless router was added to the network and connected to the primary router via a newly added port to the latter. The router was configured for WPA2 with PSK to ensure the security of the wireless connection (and whoever/whatever would connect to it).



Cisco Packet Tracer - \\ad01\CaveHomeFolders\jbroyhill\Downloads\Final Project.pkt

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1. Something is majorly wrong with the net

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3. One of the manager's says his phone is

4. What now? Bill says he can't reach the

5. We're expanding! Add a new network su

6. Whew! You deserve a break. Aww... sh

7. There's no password on the router! Assi

8. Did you save the router running config t

9. Managers are demanding WiFi. Add a W

10. Will this day ever end? It looks like all th … t have to find it, but consider it an ex

It's been great having you in class this sem

Laptop0

Below is a list of available wireless networks. To search for more wireless networks, click the **Refresh** button. To view more information about a network, select the wireless network name. To connect to that network, click the **Connect** button below.

Wireless Network Name	CH	Signal
Default	1	100%

Site Information
Wireless Mode Infrastructure
Network Type Mixed B/G/N
Radio Band Auto
Security WPA2-PSK
MAC Address 0060.3EAA.2508

Figure 11. Eleventh Screenshot. Screenshot from Cisco Packet Tracer.

Putting the password of the new wireless router into the laptop allowed it to be connected, proving the ability of the router to block out users who don’t own the passkey. This step allowed for only people who were given the passkey (likely only employees) could access it, bolstering security.

References

No references were used in this paper.