Lab # 03

Switch Port Security and Configuration of DHCP, DNS, HTTP and FTP

Task 1:

You can control your switch port. For example, you can control who can access a specific interface of a switch or how many devices could be connected to a specific switch interface.

Configuration

We will use the following topology to configure switch port security. Create the following topology in Cisco Packet Tracer

1. First of all open the Command Prompt of PC1 and execute the **ipconfig /all** command and note down its MAC address

```
C:\> ipconfig /all

FastEthernet0 Connection:(default port)

   Connection-specific DNS Suffix..:
   Physical Address.................: 0002.17BB.117B
   Link-local IPv6 Address.........: FE80::202:17FF:FEBB:117B
   IPv6 Address....................: ::
   IPv4 Address....................: 0.0.0.0
   Subnet Mask.....................: 0.0.0.0
   Default Gateway.................: ::
                                     0.0.0.0
   DHCP Servers....................: 0.0.0.0
   DHCPv6 IAID.....................:
   DHCPv6 Client DUID..............: 00-01-00-01-D5-B4-7D-87-00-02-17-BB-11-7B
   DNS Servers.....................: ::
                                     0.0.0.0
```

2. Next, switch to the interface on which you want to implement port security. For example interface Fa0/ 1.

```
Switch( config)# interface fa0/ 1
```

3. Next, execute the following commands to enable the access mode and port security feature.

```
Switch1( config-if)# switchport mode access
Switch1( config-if)# switchport port-security
```

4. Next, execute the following commands to bind the MAC address that you want to allow to access this interface and to set the maximum number of MAC addresses to this interface.

```
Switch1( config-if)# switchport port-security mac-address 0002.17BB.1……
Switch1( config-if)# switchport port-security maximum 1
```

5. Next, execute the following commands to set the violation policy and exit from the interface configuration mode.

```
Switch1( config-if)# switchport port-security violation shutdown
Switch1( config-if)# exit
Switch1( config)# exit
```

6. Next, execute the following command to show the MAC addresses associated with the interfaces, as shown in the following figure.

```
Switch# show port-security address
```

```
Switch#show port-security address
               Secure Mac Address Table
------------------------------------------------------------------------------
Vlan    Mac Address       Type                          Ports   Remaining Age
                                                                    (mins)
----    -----------       ----                          -----   -------------
   1    0002.17BB.117B    SecureConfigured              Fa0/1         -
------------------------------------------------------------------------------
Total Addresses in System (excluding one mac per port)     : 0
Max Addresses limit in System (excluding one mac per port) : 1024
```

9. Next, execute the following command to show the port security settings of the interface Fa0/ 1, as shown in the following figure.

```
Switch#show port-security interface fa0/1
Port Security              : Enabled
Port Status                : Secure-up
Violation Mode             : Shutdown
Aging Time                 : 0 mins
Aging Type                 : Absolute
SecureStatic Address Aging : Disabled
Maximum MAC Addresses      : 1
Total MAC Addresses        : 1
Configured MAC Addresses   : 1
Sticky MAC Addresses       : 0
Last Source Address:Vlan   : 0000.0000.0000:0
Security Violation Count   : 0
```

Task 2

Different Servers Configuration

(DNS – DHCP – HTTP - Email – FTP)

What is DNS server?

DNS is an acronym for **Domain Name Server**, it is a system used to translate word- based addresses of systems (such as WWW.EXAMPLE.COM) to the numerical IP (Internet Protocol) address such as 10.0.0.1) of the computer or system and vice-versa.

What is DHCP server?

DHCP is an acronym for Dynamic Host Configuration Protocol, which is a server that automatically assigns IP addresses to any new host that joins the network.

What is HTTP/Web server?

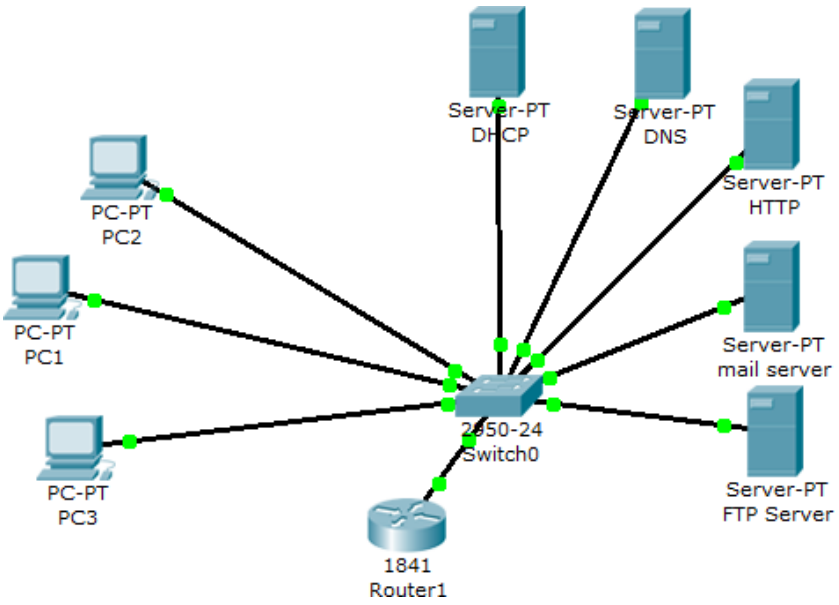
A server running at a website, which sends out web pages in response to HTTP, requests from remote browsers (From client computers).

What is an Email server?

A server in the network stores incoming mail for distribution to local users and sends out outgoing messages. This uses a client-server application model to send andreceive messages using Simple Mail Transfer Protocol (SMTP).

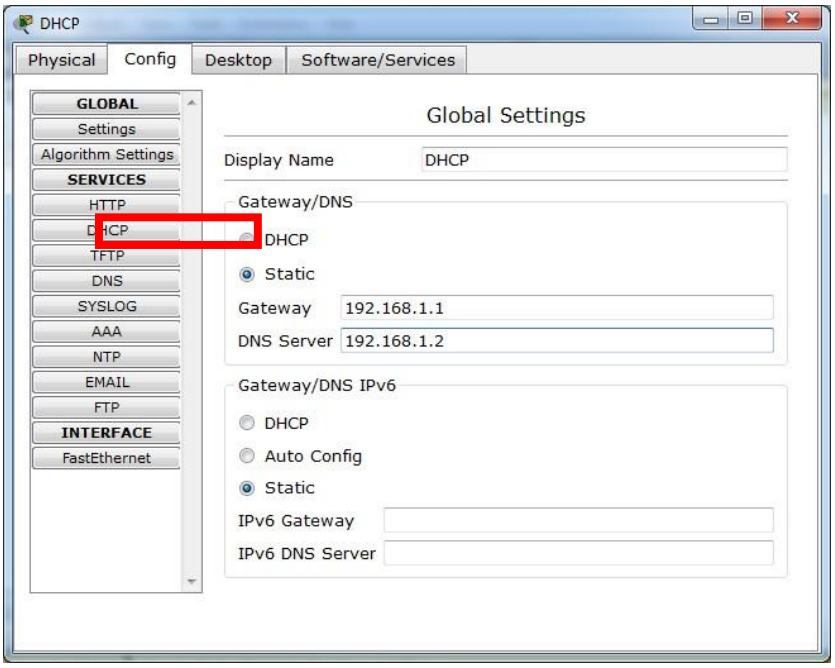
What is FTP server?

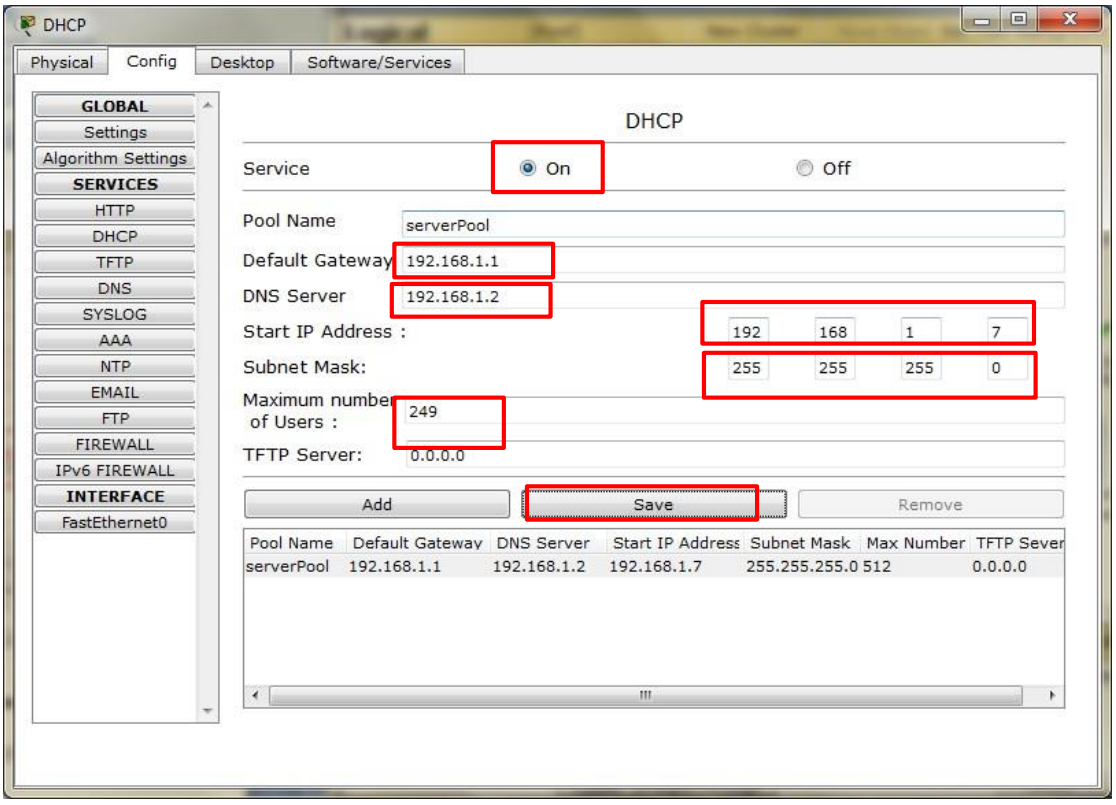
A server in the network who is responsible for exchanging files in the network usingFile Transfer Protocol (FTP).



Device	Interface	IP Address	Subnet Mask	Default Gateway	DNS
Router1	**Fa0/0**	192.168.1.1	/24	-	
DNS	**Fa0/0**	192.168.1.2	/24	192.168.1.1	-
DHCP	**Fa0/0**	192.168.1.3	/24	192.168.1.1	192.168.1.2
HTTP	**Fa0/0**	192.168.1.4	/24	192.168.1.1	192.168.1.2
Mail	**Fa0/0**	192.168.1.5	/24	192.168.1.1	192.168.1.2
FTP	**Fa0/0**	192.168.1.6	/24	192.168.1.1	192.168.1.2

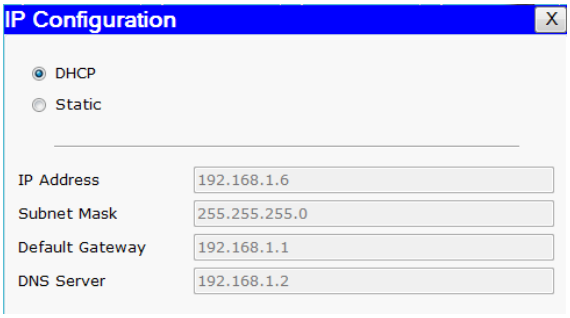
1. Draw the above network diagram.
2. Configure the servers (DHCP-DNS-HTTP-Mail-FTP) with the addresses in the above table.


DHCP
Physical
Config
Desktop
Software/Services
GLOBAL
Settings
Algorithm Settings
SERVICES
HTTP
DHCP
TFTP
DNS
SYSLOG
AAA
NTP
EMAIL
FTP
INTERFACE
FastEthernet
Global Settings
Display Name
DHCP
Gateway/DNS
DHCP
Static
Gateway
192.168.1.1
DNS Server
192.168.1.2
Gateway/DNS IPv6
DHCP
Auto Config
Static
IPv6 Gateway
IPv6 DNS Server


DHCP
Physical
Config
Desktop
Software/Services
GLOBAL
Settings
Algorithm Settings
SERVICES
HTTP
DHCP
TFTP
DNS
SYSLOG
AAA
NTP
EMAIL
FTP
FIREWALL
IPv6 FIREWALL
INTERFACE
FastEthernet0
DHCP
Service
On
Off
Pool Name
serverPool
Default Gateway
192.168.1.1
DNS Server
192.168.1.2
Start IP Address :
192
168
1
7
Subnet Mask:
255
255
255
0
Maximum number of Users :
249
TFTP Server:
0.0.0.0
Add
Save
Remove
Pool Name
Default Gateway
DNS Server
Start IP Address
Subnet Mask
Max Number
TFTP Sever
serverPool
192.168.1.1
192.168.1.2
192.168.1.7
255.255.255.0
512
0.0.0.0

1. PCs Configuration

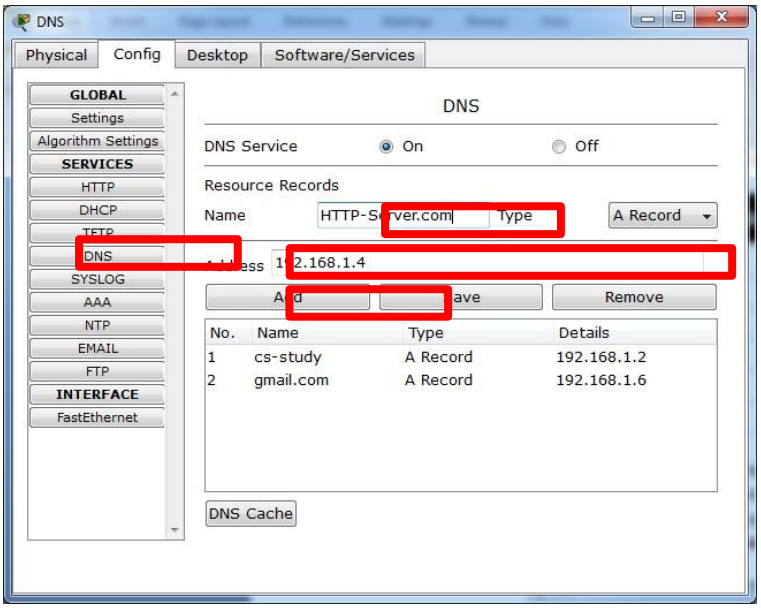
Configure all the PCs automatically by requesting a DHCP address:



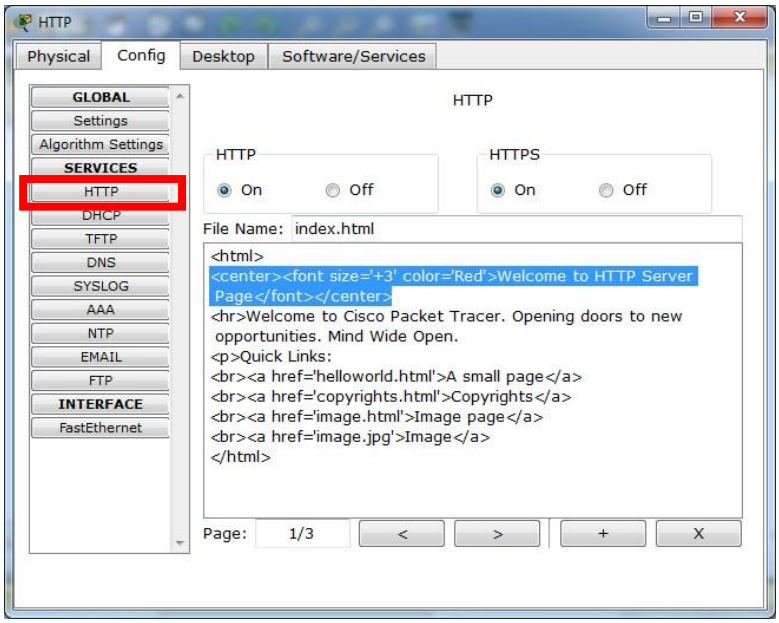
2. DNS Configuration:

Add the HTTP – Mail – FTP servers to the DNS table as follows:

Name	IP Address
HTTP-Serevr.com	192.168.1.4
Gmail.com	192.168.1.5
File-Serevr.com	192.168.1.6



Configuring HTTP Server:



1. **Testing DNS & HTTP Server:**

Open PC1's web browser and request the following URLs:URL:

192.168.1.4

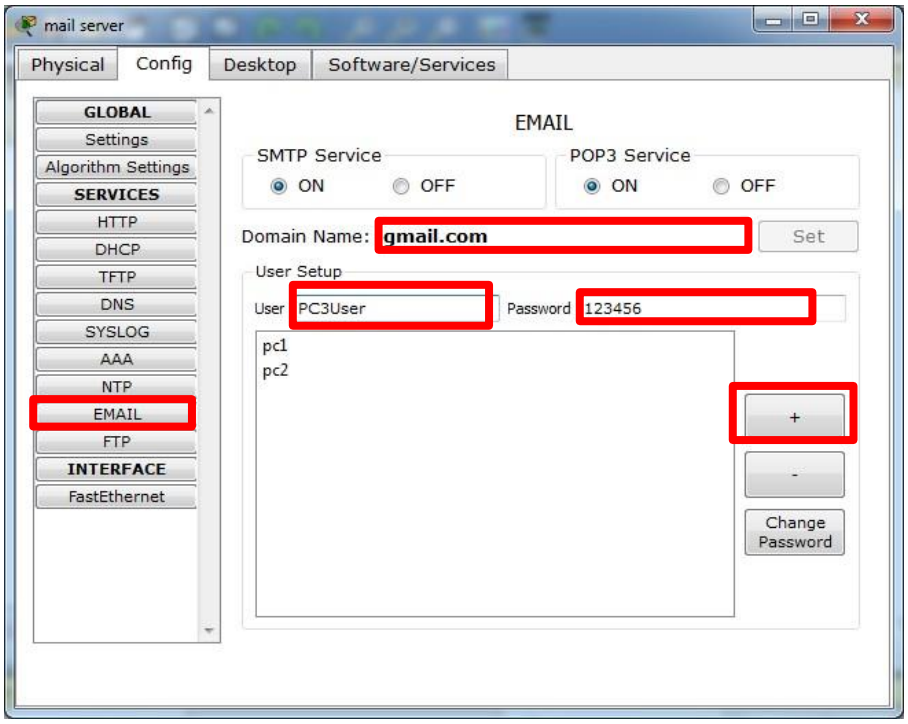
URL: HTTP-Serevr.com

URL: 192.168.1.5

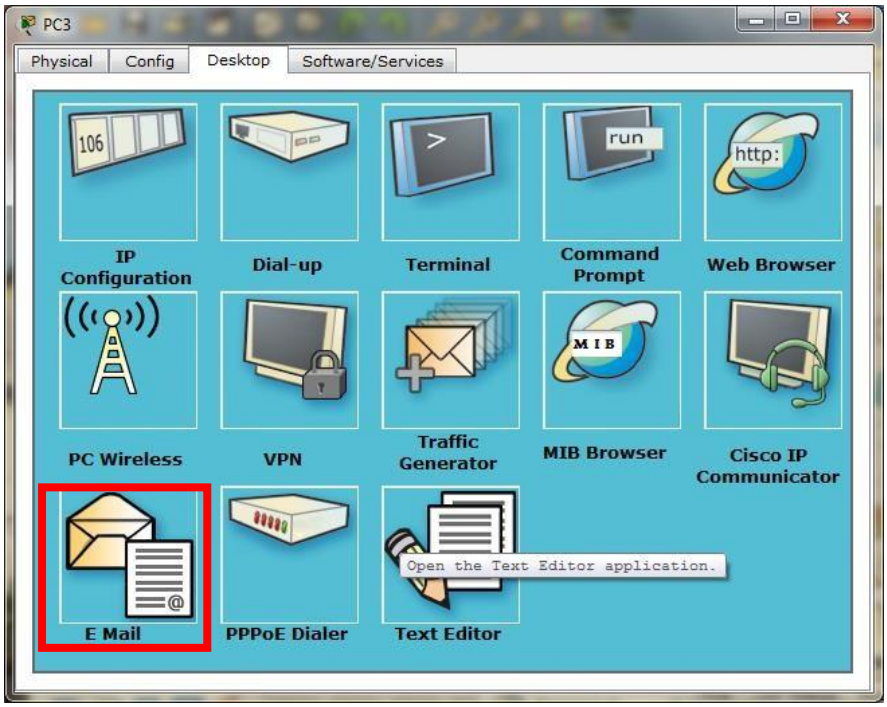
URL: Gmail.com

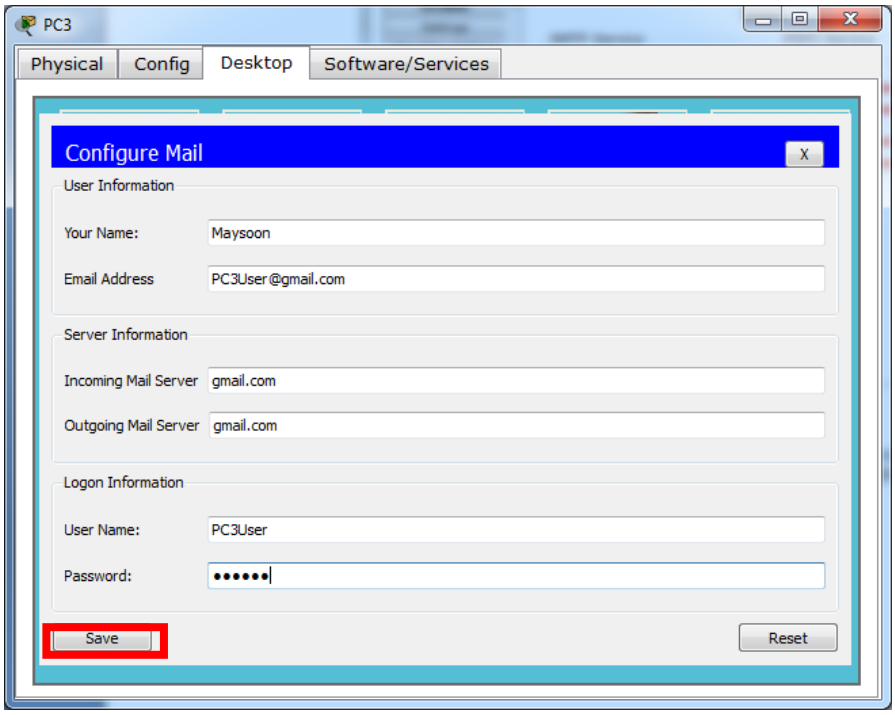
2. Configuring The Mail-Server

a. First create users in the Email Server Config Page:

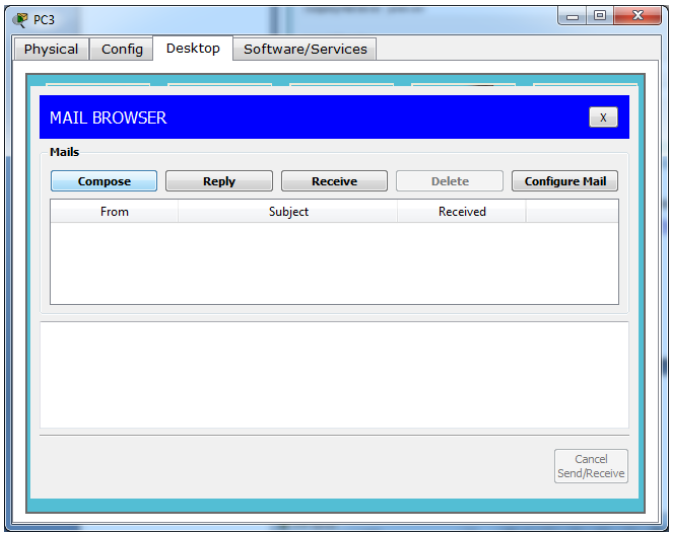


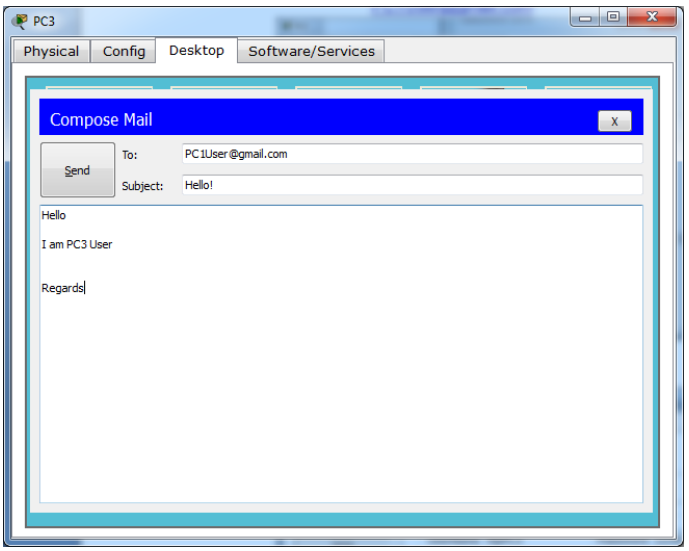
b. Then configure the user in the PCs!





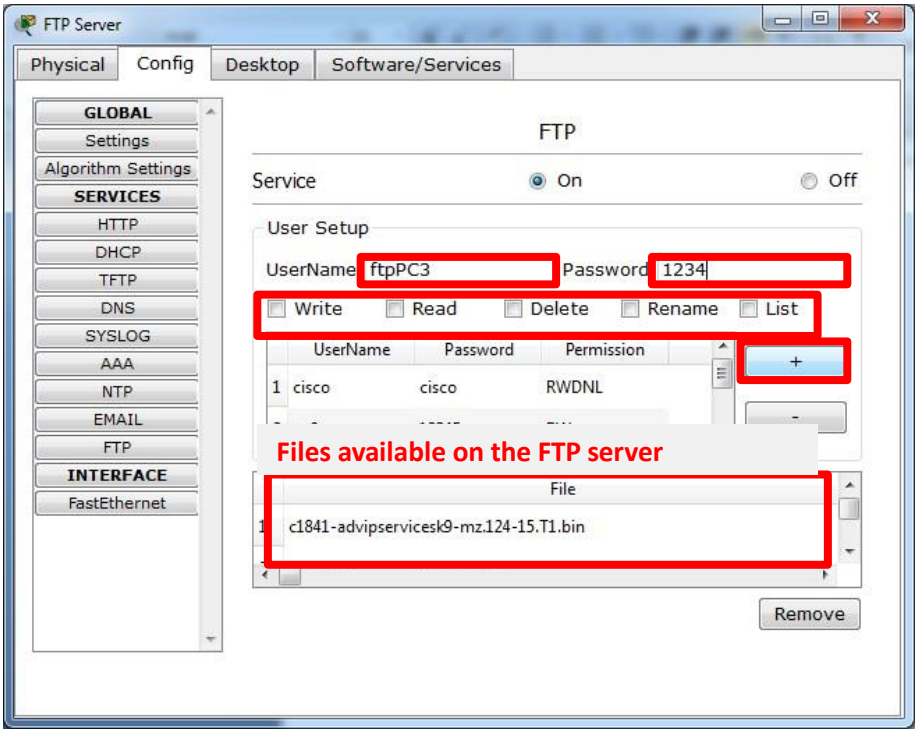
After Configuring all the mails create (Compose) a new email and send it from PC3 to PC1:From: PC3User@gmail.com – To: PC1User@gmail.com





FTP Server Configuration:

Add FTP User and assign it proper permissions.



3. Using FTP Server

   a. Go to PC1's Text Editor and create file and save it in the nameof (readme)

   b. Then Open PC1's command prompt and write the followingcommands:

PC1> ftp 192.168.1.6

```
PC1> ftp 192.168.1.6
Username: cisco
Password: cisco
ftp> dir
ftp> put readme.txt
ftp> dir
```

FTP Commands:

dir: a command that shows all the available files in the ftp serverput: a command that upload a file to the ftp server

get: a command that download a file from the ftp server.Quit: a command to exit from the ftp service.