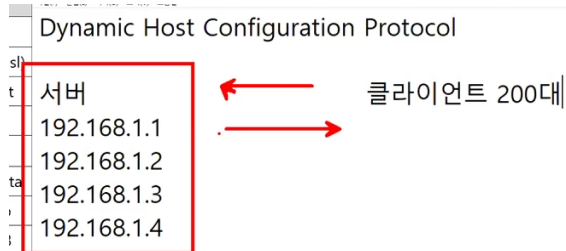


# 제3장 TCP & UDP 서비스

## DHCP(Dynamic Host Configuration Protocol)

- IP 자동할당 프로토콜
- IP를 서버에서 자동으로 할당해주게 만들어주는 프로토콜



## http

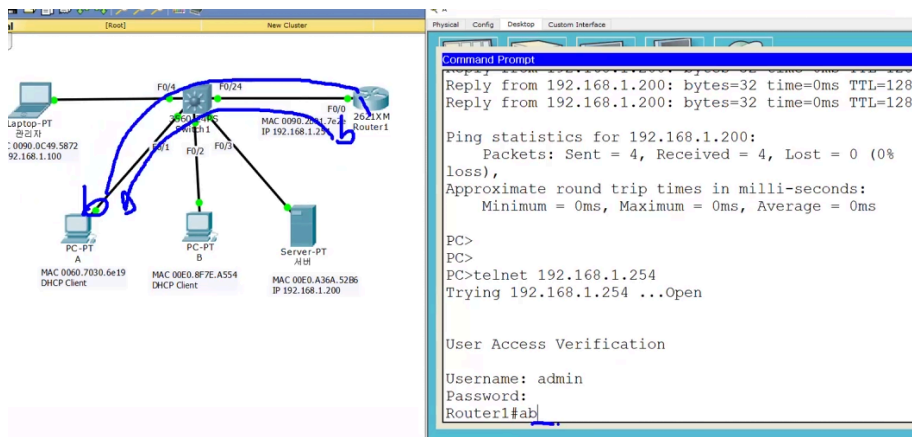
- 대량의 문자를 보내주는, 들고오는 프로토콜, 보안에 취약하다 (보든 데이터를 평문으로 보낸다)
- 미리 준비되어있는 데이터를 가져온다.

## https(ssl)

- http와 동일하나 데이터 요청, 응답을 암호화시켜서 전송이 된다.
- 미리 준비되어있는 데이터를 가져온다.

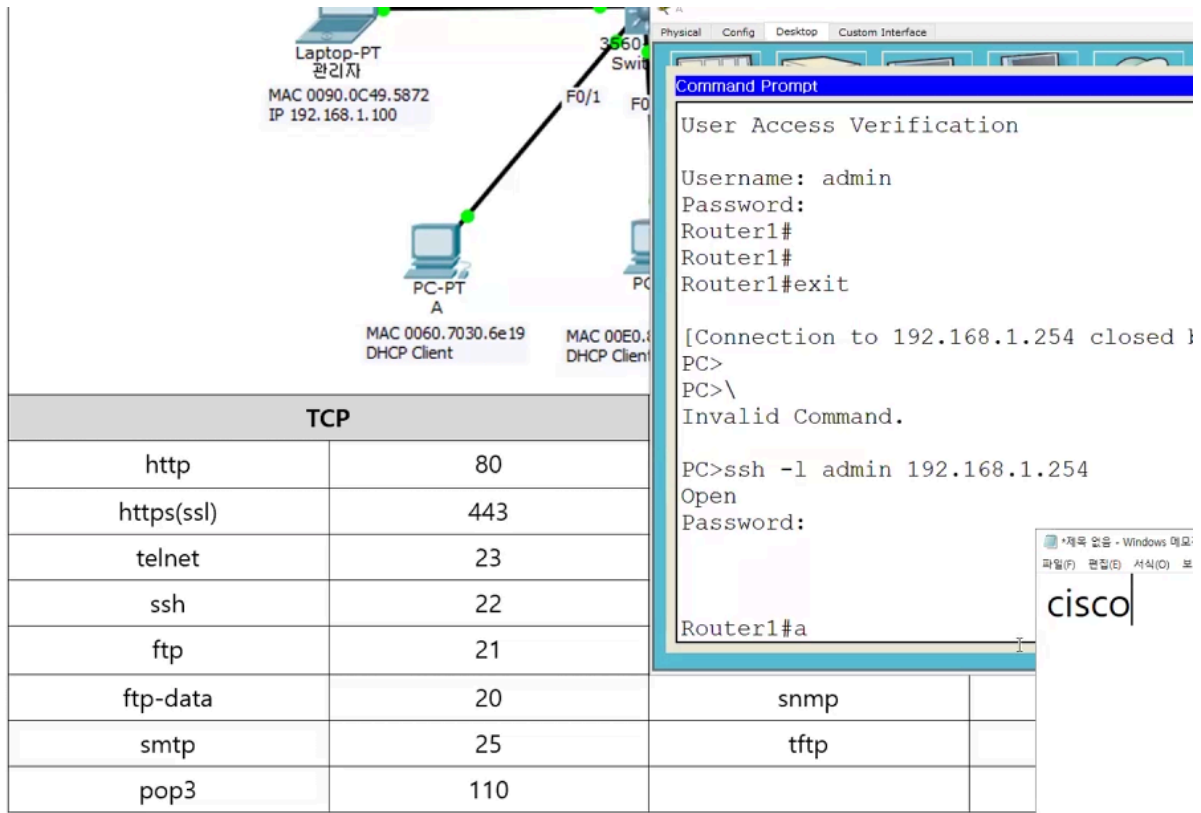
## telnet (port: 23)

- 원격으로 네트워크를 통해서 접속할수 있는 서비스 (PC에서 라우터)
- 미리 준비되어있는게 아니라 실시간으로 입력가능
- Password는 라우터에서 응답을 안해줘서 안보인다.
- 문제점:
  - 데이터를 요청, 응답할때 평문으로 보낸다 (보안취약)
- 사용권장 안함 (보안취약)
- telnet [접속 IP]
  - id: admin, pw: cisco
- exit 하면 나가기



## ssh (port: 22)

- telnet과 같은 서비스이다
- 실시간 문자들이 전송될때 암호화를 시켜서 전송한다.
- 사용 권장
- ssh -l admin [접속 IP]
  - id: admin, pw: cisco



The image shows a network diagram and a Command Prompt window. The network diagram includes a Laptop-PT (MAC 0090.0C49.5872, IP 192.168.1.100) connected to a PC-PT A (MAC 0060.7030.6e19, DHCP Client) via a switch. The switch is connected to a PC-PT B (MAC 00E0.40C0.0000, DHCP Client). The Command Prompt window shows the following commands and output:

```

User Access Verification

Username: admin
Password:
Router1#
Router1#
Router1#exit

[Connection to 192.168.1.254 closed ]
PC>
PC>\
Invalid Command.

PC>ssh -l admin 192.168.1.254
Open
Password:
Router1#a
  
```

TCP	
http	80
https(ssl)	443
telnet	23
ssh	22
ftp	21
ftp-data	20
smtp	25
pop3	110

snmp	
tftp	

## ftp(file transfer protocol) 21

- 파일을 연결할때 쓴다 (PC >> Server)

```
PC>ftp 192.168.1.200
Trying to connect...192.168.1.200
Connected to 192.168.1.200
220- Welcome to FT Ftp server
Username:admin
331- Username ok, need password
Password:
230- Logged in
(passive mode On)
ftp>
```

## ftp-data(file transfer protocol) 22

- 파일을 전송할때 쓴다

다운로드:

```
ftp>
ftp>dir

Listing /ftp directory from 192.168.1.200:
0   : asa842-k8.bin                               5571584
1   : c1841-advipservicesk9-mz.124-15.T1.bin      33591768
2   : c1841-ipbase-mz.123-14.T7.bin                13832032
3   : c1841-ipbasek9-mz.124-12.bin                 16599160
4   : c2600-advipservicesk9-mz.124-15.T1.bin      33591768
5   : c2600-i-mz.122-28.bin                        5571584
6   : c2600-ipbasek9-mz.124-8.bin                  13169700
7   : c2800nm-advipservicesk9-mz.124-15.T1.bin     50938004
8   : c2800nm-advipservicesk9-mz.151-4.M4.bin      33591768
9   : c2800nm-ipbase-mz.123-14.T7.bin              5571584
10  : c2800nm-ipbasek9-mz.124-8.bin                15522644
11  : c2950-i6q412-mz.121-22.EA4.bin              3058048
12  : c2950-i6q412-mz.121-22.EA8.bin              3117390
13  : c2960-lanbase-mz.122-25.FX.bin               4414921
14  : c2960-lanbase-mz.122-25.SEE1.bin             4670455
15  : c2960-lanbasek9-mz.150-2.SE4.bin             4670455
16  : c3560-advipservicesk9-mz.122-37.SEE1.bin     8662192
17  : pt1000-i-mz.122-28.bin                      5571584
18  : pt3000-i6q412-mz.121-22.EA4.bin              3117390
ftp>
ftp>get pt3000-i6q412-mz.121-22.EA4.bin

Reading file pt3000-i6q412-mz.121-22.EA4.bin from 192.168.1.200:
File transfer in progress...
```

파일전송 완료:

```
[Transfer complete - 3117390 bytes]

3117390 bytes copied in 19.463 secs (160170 bytes/sec)
ftp>
```

나갈때는 quit을 쓴다.

업로드:

1) 로그인

```
PC>ftp 192.168.1.200
Trying to connect...192.168.1.200
Connected to 192.168.1.200
220- Welcome to PT Ftp server
Username:admin
331- Username ok, need password
Password:
230- Logged in
(passive mode On)
ftp>
```

2) put 매서드 사용

```
ftp>put sampleFile.txt

Writing file sampleFile.txt to 192.168.1.200:
File transfer in progress...

[Transfer complete - 26 bytes]

26 bytes copied in 0.048 secs (541 bytes/sec)
ftp>
```

3) 업로드 확인

```
26 bytes copied in 0.048 secs (541 bytes/sec)
ftp>dir

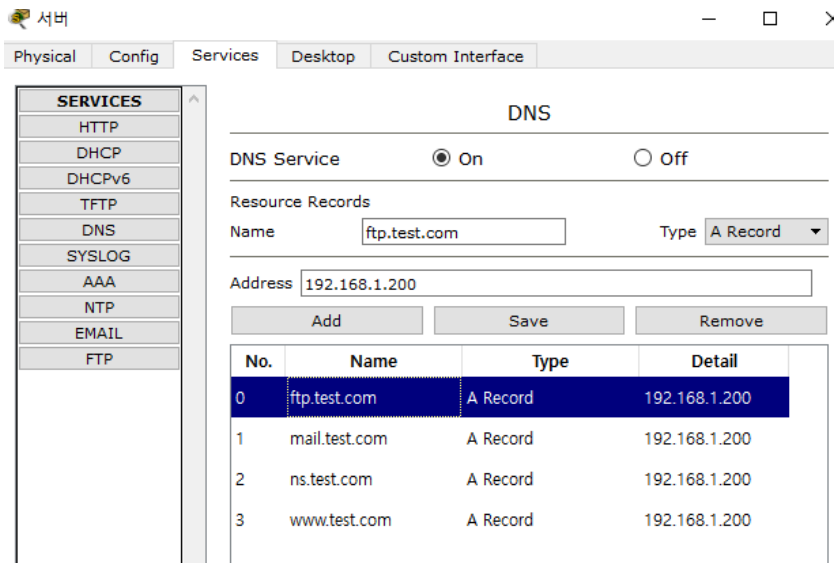
Listing /ftp directory from 192.168.1.200:
0   : asa842-k8.bin                               5571584
1   : cl841-advipservicesk9-mz.l24-15.T1.bin      33591768
2   : cl841-ipbase-mz.l23-14.T7.bin               13832032
3   : cl841-ipbasek9-mz.l24-12.bin                16599160
4   : c2600-advipservicesk9-mz.l24-15.T1.bin      33591768
5   : c2600-i-mz.l22-28.bin                       5571584
6   : c2600-ipbasek9-mz.l24-8.bin                 13169700
7   : c2800nm-advipservicesk9-mz.l24-15.T1.bin    50938004
8   : c2800nm-advipservicesk9-mz.l51-4.M4.bin     33591768
9   : c2800nm-ipbase-mz.l23-14.T7.bin             5571584
10  : c2800nm-ipbasek9-mz.l24-8.bin               15522644
11  : c2950-i6q412-mz.l21-22.EA4.bin             3058048
12  : c2950-i6q412-mz.l21-22.EA8.bin             3117390
13  : c2960-lanbase-mz.l22-25.FX.bin              4414921
14  : c2960-lanbase-mz.l22-25.SEE1.bin            4670455
15  : c2960-lanbasek9-mz.l50-2.SE4.bin            4670455
16  : c3560-advipservicesk9-mz.l22-37.SEE1.bin    8662192
17  : pt1000-i-mz.l22-28.bin                     5571584
18  : pt3000-i6q412-mz.l21-22.EA4.bin             3117390
19  : sampleFile.txt                             26
ftp>
```

sampleFile 업로드 완료

## DNS 서버 (53)

- domain에 대한 IP를 요청 응답해주는 서비스
- 장점: 유지/보수가 쉬움, IP만 계속 바뀌고 domain은 바뀌지 않음.
- ex) [www.naver.com](http://www.naver.com)
  - DNS server (storage)
  - [www.naver.com](http://www.naver.com) - 200.1.1.1 (네이버를 검색했을때 네이버의 IP로 변환해준다)

DNS 서버 설정:



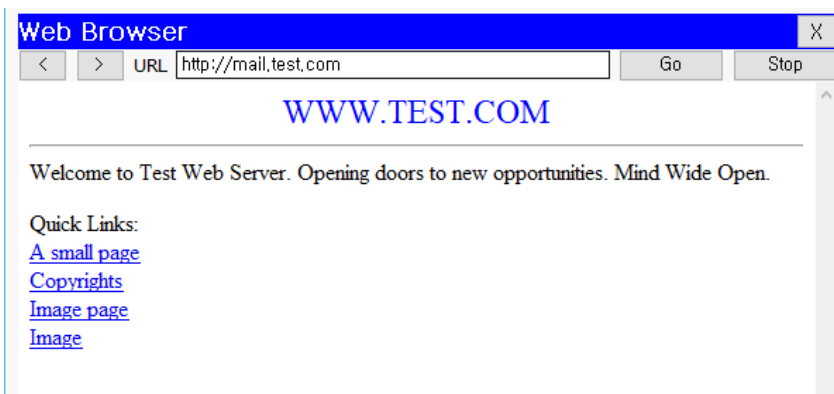
PC A접속후 확인

```
PC>nslookup mail.test.com

Server: [192.168.1.200]
Address: 192.168.1.200

Non-authoritative answer:
Name:   mail.test.com
Address: 192.168.1.200
```

web 확인:



## SMTP(simple mail transfer protocol) 25

1. 메일 전송 프로토콜
2. Gmail사용자 >> Gmail서버 >> 네이버메일서버 >> 네이버메일사용자
3. 평문 (보안에 취약함)

Incoming Mail Server 192.168.1.200

## POP3(post office protocol) 110

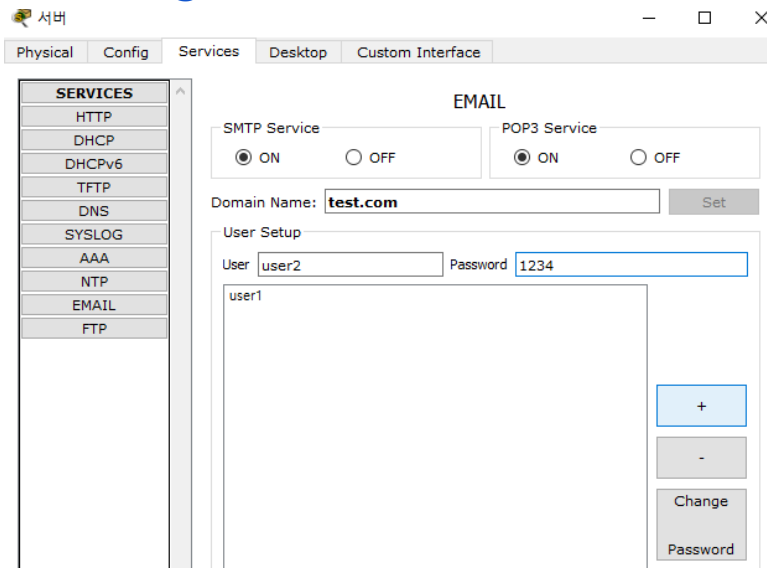
1. 메일을 메일 서버로부터 받을때 쓰는 프로토콜
2. 평문 (보안에 취약함)

Outgoing Mail Server 192.168.1.200

이메일 서버 세팅 (계정 만들기):

2개의 계정:

1. [user1@test.com](mailto:user1@test.com)
2. [user2@test.com](mailto:user2@test.com)



메일 세팅:

**Configure Mail** [X]

User Information

Your Name:

Email Address:

Server Information

Incoming Mail Server:

Outgoing Mail Server:

Logon Information

User Name:

Password: