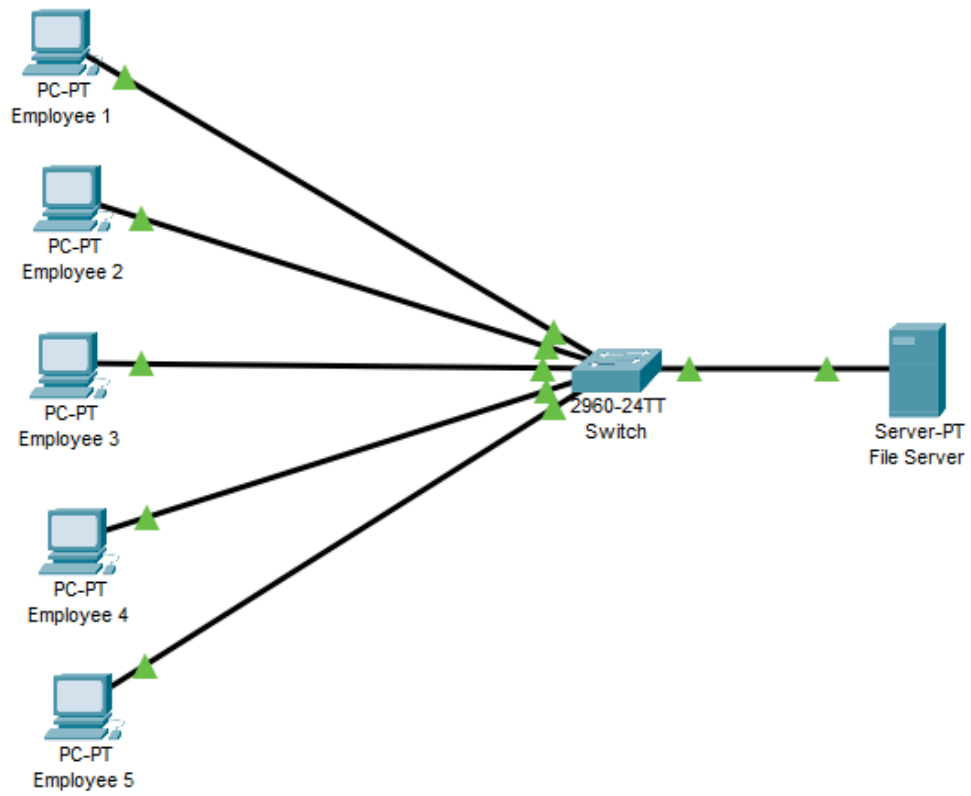


## Assignment 2

### Task 1.1 - Device Topology

Screenshot 1:



Task 1.2 - Device Configurations  
Screenshot 2:

The screenshot shows the File Server configuration interface. The 'Services' tab is active, and the 'FTP' service is selected in the sidebar. The main configuration area shows the FTP service is turned 'On'. Under 'User Setup', there are fields for 'Username' (Employee1) and 'Password' (e1password!). Below these are checkboxes for permissions: Write (checked), Read (checked), Delete (unchecked), Rename (unchecked), and List (checked). A table lists six users with their respective passwords and permissions. At the bottom, a 'File' list shows eight files with their names and sizes. A 'Top' button is located at the bottom left of the interface.

**SERVICES**

- HTTP
- DHCP
- DHCPv6
- TFTP
- DNS
- SYSLOG
- AAA
- NTP
- EMAIL
- FTP**
- IoT
- VM Management
- Radius EAP

**FTP**

Service  On  Off

User Setup

Username  Password

Write  Read  Delete  Rename  List

|   | Username  | Password    | Permission |        |
|---|-----------|-------------|------------|--------|
| 1 | cisco     | cisco       | RWDNL      | Add    |
| 2 | Employee1 | e1password! | RWL        |        |
| 3 | Employee2 | e2password! | RWL        | Save   |
| 4 | Employee3 | e3password! | RWL        |        |
| 5 | Employee4 | e4password! | RWL        |        |
| 6 | Employee5 | e5password! | RWL        | Remove |

File

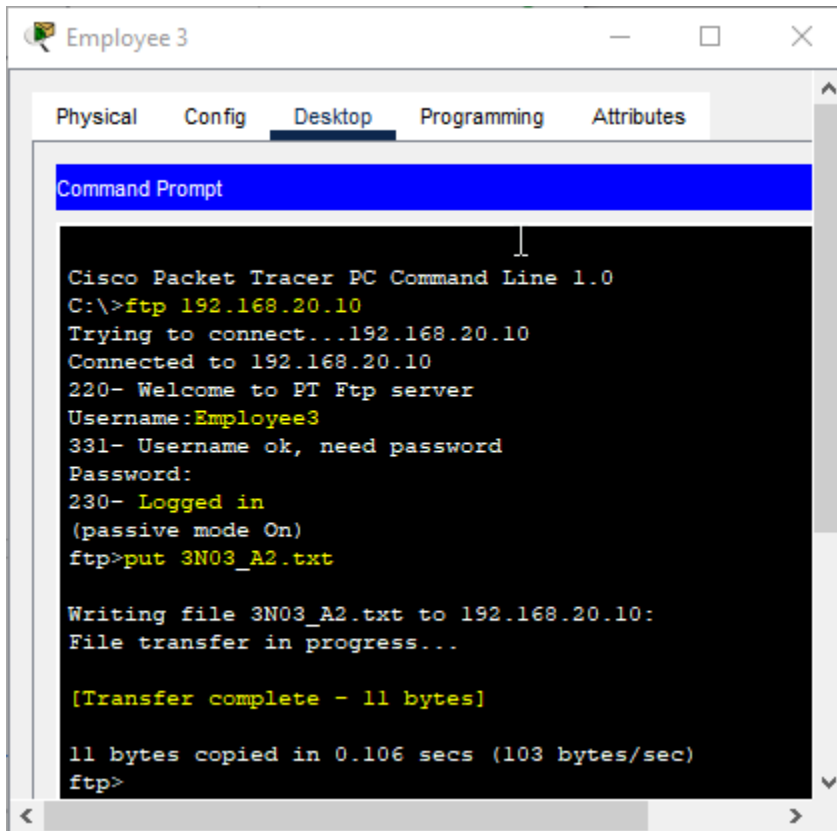
- 1 asa842-k8.bin
- 2 asa923-k8.bin
- 3 c1841-advipservicesk9-mz.124-15.T1.bin
- 4 c1841-ipbase-mz.123-14.T7.bin
- 5 c1841-ipbasek9-mz.124-12.bin
- 6 c1900-universalk9-mz.SPA.155-3.M4a.bin
- 7 c2600-advipservicesk9-mz.124-15.T1.bin
- 8 c2600-i-mz.122-28.bin

Remove

Top

### Task 1.3 - Create and Send File

Screenshot 3:



The screenshot shows a Cisco Packet Tracer PC Command Line interface for a device named 'Employee 3'. The interface has tabs for 'Physical', 'Config', 'Desktop', 'Programming', and 'Attributes', with 'Desktop' selected. A 'Command Prompt' window is open, displaying the following text:

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ftp 192.168.20.10
Trying to connect...192.168.20.10
Connected to 192.168.20.10
220- Welcome to PT Ftp server
Username:Employee3
331- Username ok, need password
Password:
230- Logged in
(passive mode On)
ftp>put 3N03_A2.txt

Writing file 3N03_A2.txt to 192.168.20.10:
File transfer in progress...

[Transfer complete - 11 bytes]

11 bytes copied in 0.106 secs (103 bytes/sec)
ftp>
```

File Server

Physical Config **Services** Desktop Programming Attributes

**SERVICES**

- HTTP
- DHCP
- DHCPv6
- TFTP
- DNS
- SYSLOG
- AAA
- NTP
- EMAIL
- FTP**
- IoT
- VM Management
- Radius EAP

FTP

Service  On  Off

User Setup

Username  Password

Write  Read  Delete  Rename  List

|   | Username  | Password    | Permission |        |
|---|-----------|-------------|------------|--------|
| 1 | Employee1 | e1password! | RWL        | Add    |
| 2 | Employee2 | e2password! | RWL        |        |
| 3 | Employee3 | e3password! | RWL        | Save   |
| 4 | Employee4 | e4password! | RWL        |        |
| 5 | Employee5 | e5password! | RWL        | Remove |
| 6 | cisco     | cisco       | RW/DNI     |        |

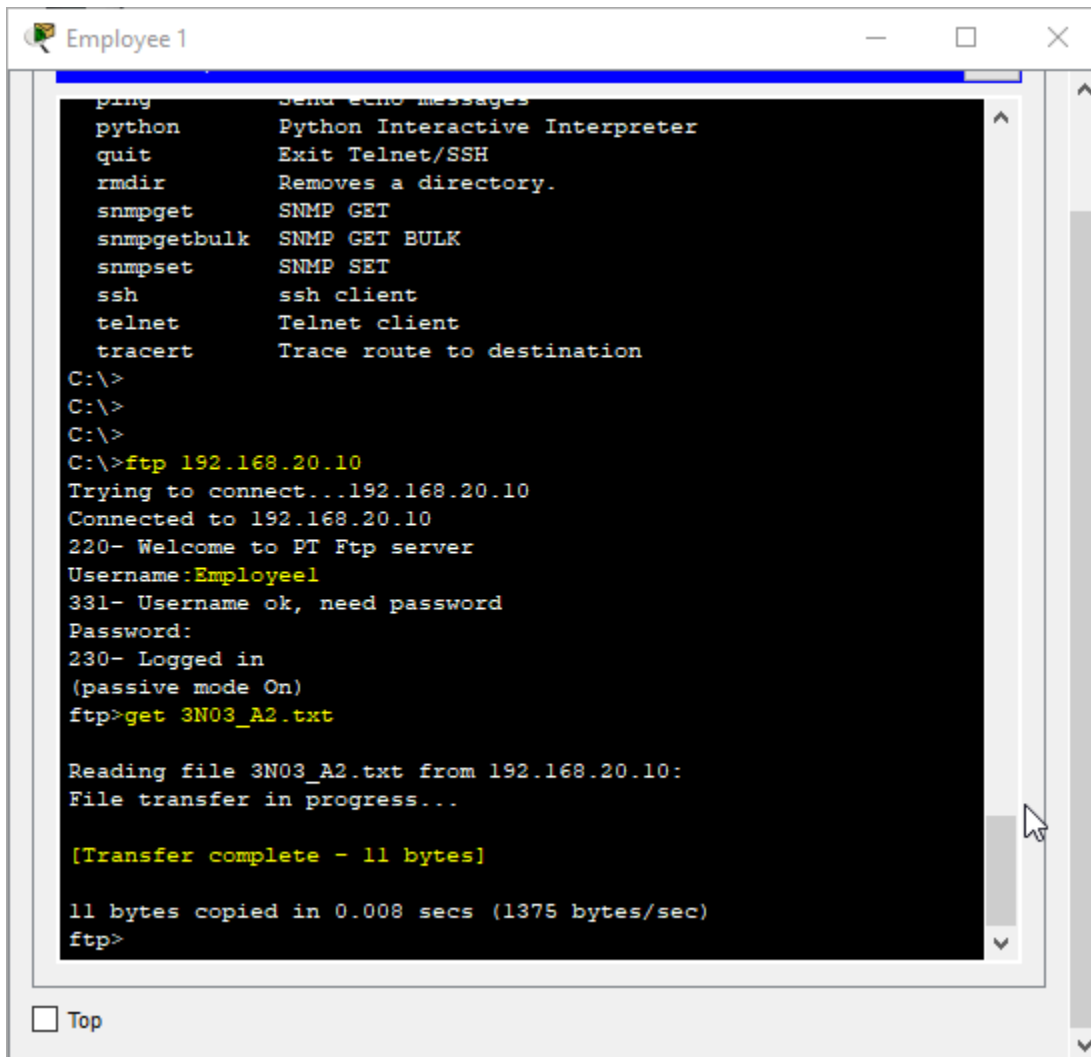
File

|   |  |  |
|---|--|--|
| 1 | 3N03_A2.txt                            |  |
| 2 | asa842-k8.bin                          |  |
| 3 | asa923-k8.bin                          |  |
| 4 | c1841-advipservicesk9-mz.124-15.T1.bin |  |
| 5 | c1841-ipbase-mz.123-14.T7.bin          |  |
| 6 | c1841-ipbasek9-mz.124-12.bin           |  |

Remove

## Task 1.4 - Get File by other host

Screenshot 4:



```
ping          Send echo messages
python       Python Interactive Interpreter
quit        Exit Telnet/SSH
rmdir       Removes a directory.
snmpget     SNMP GET
snmpgetbulk SNMP GET BULK
snmpset     SNMP SET
ssh         ssh client
telnet      Telnet client
tracert     Trace route to destination

C:\>
C:\>
C:\>
C:\>ftp 192.168.20.10
Trying to connect...192.168.20.10
Connected to 192.168.20.10
220- Welcome to PT Ftp server
Username:Employee1
331- Username ok, need password
Password:
230- Logged in
(passive mode On)
ftp>get 3N03_A2.txt

Reading file 3N03_A2.txt from 192.168.20.10:
File transfer in progress...

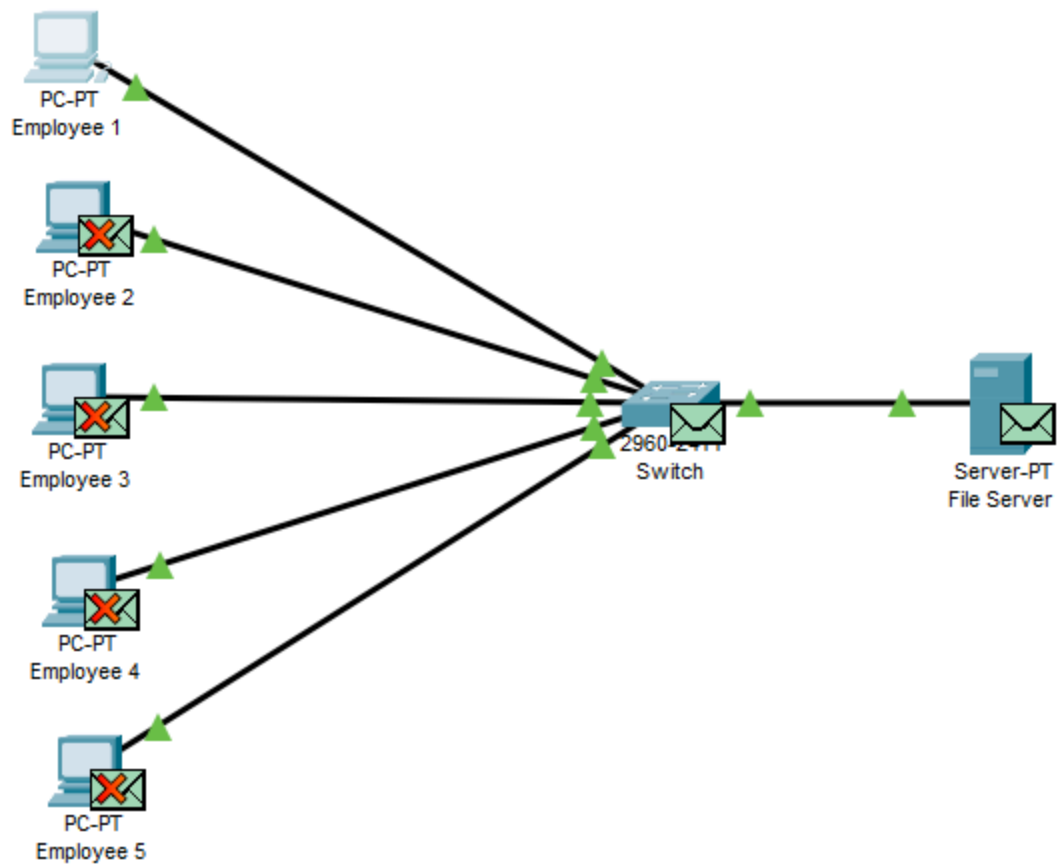
[Transfer complete - 11 bytes]

11 bytes copied in 0.008 secs (1375 bytes/sec)
ftp>
```

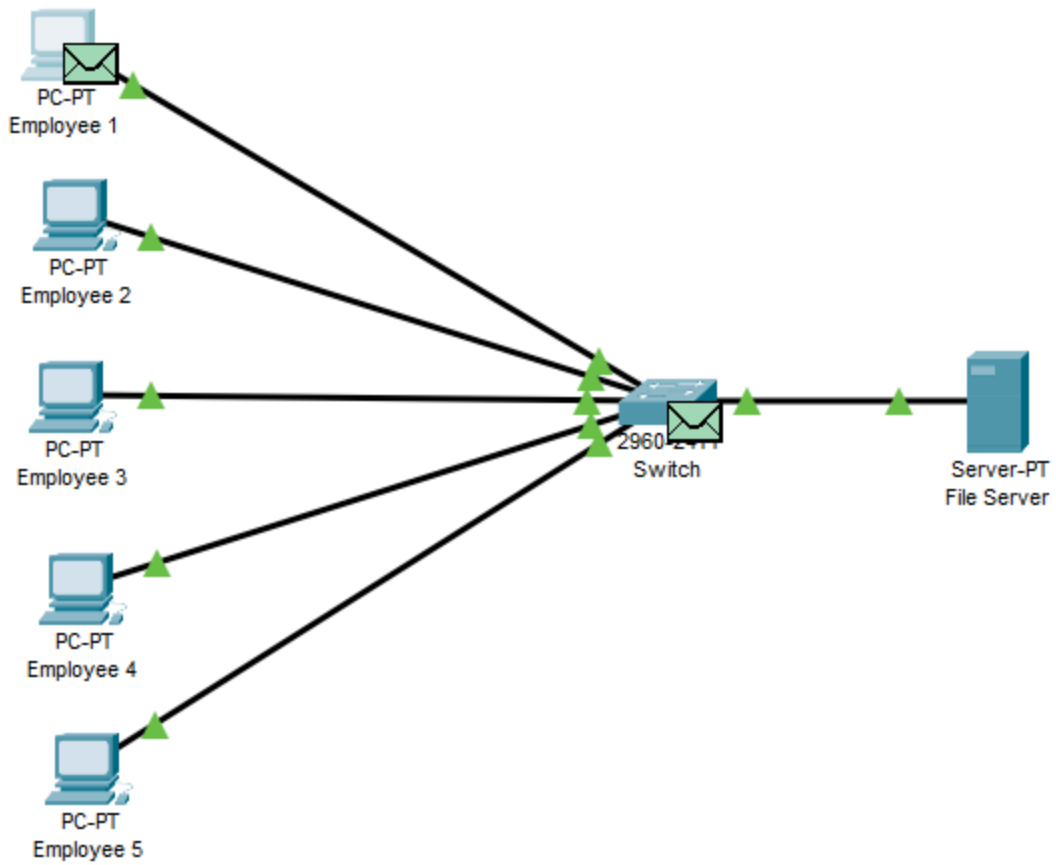
## Task 1.5 - 3-way Handshake

Screenshot 5: Packet outgoing from Employee 1's Device

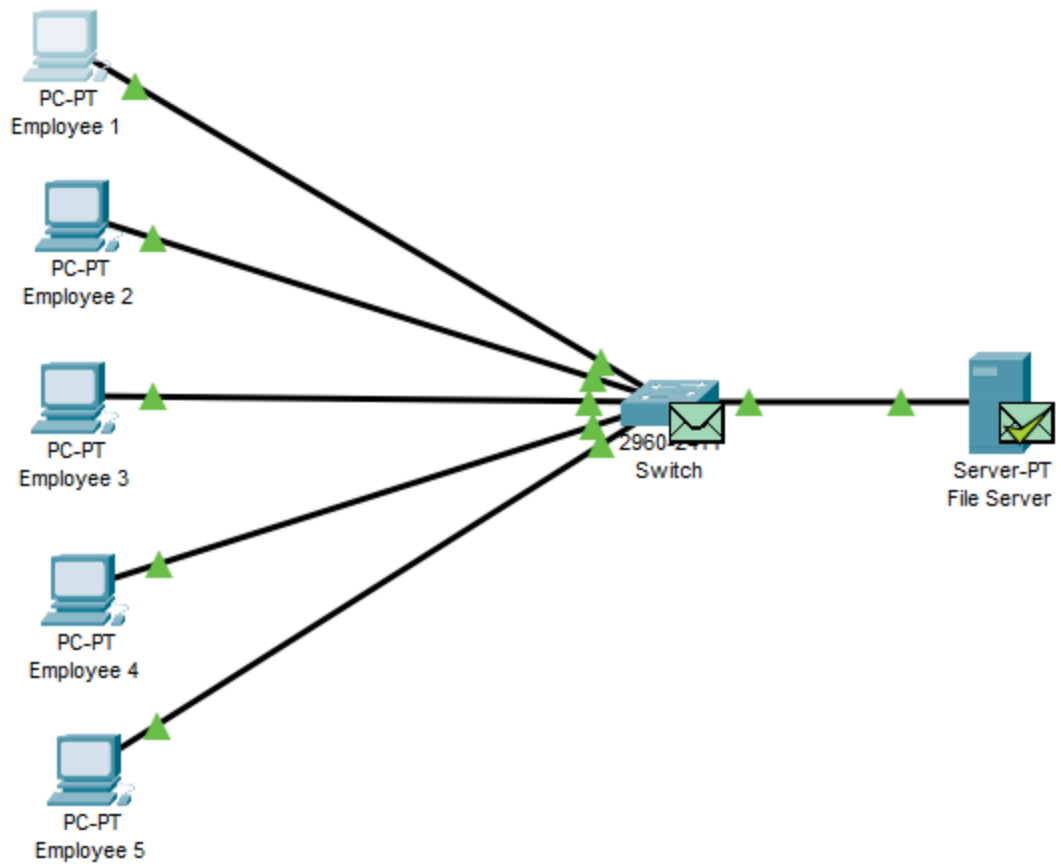
Employee 1 initiates connection with **SYN (synchronize)** request.



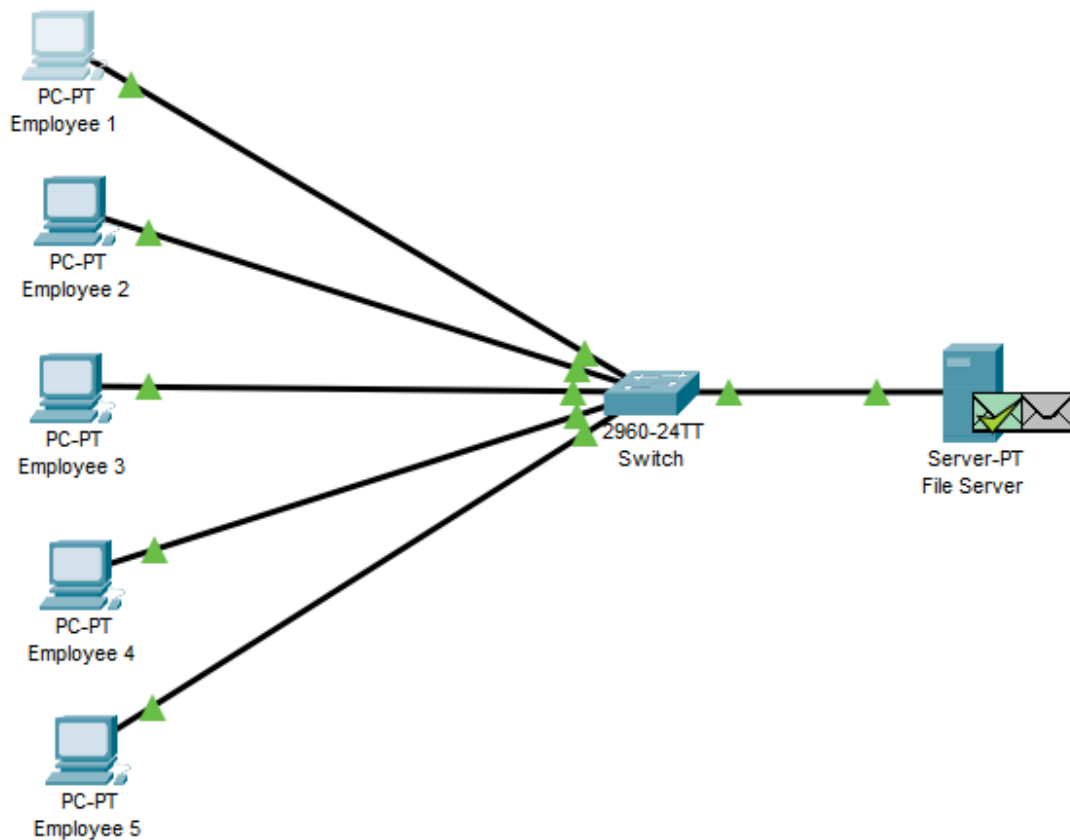
Screenshot 6: Outgoing **SYN-ACK** packet from the Server. Server responds with **SYN-ACK** (acknowledgment + sync).



Screenshot 7: Packet outgoing from the Employee 1's Device  
Employee 1 confirms with **ACK**, completing the handshake.



Screenshot 8: Packet incoming to the Server (Screenshot 8)  
Server receives **ACK**, confirming the session is established.



#### Task 1.6 - Reflect

- TCP doesn't use a **2-way handshake** because it can't confirm if the receiver is ready.
- A **3-way handshake** ensures both sender and receiver are synchronized before data transfer.
- The first SYN ensures the sender initiates, the SYN-ACK ensures the receiver is available, and the final ACK confirms both sides are ready.
- This prevents packet loss, retransmissions, and ensures **reliable communication**.

#### Question 2.1

The **ACK number acknowledges the next expected byte** from the sender.

**Formula for ACK Number:** Acknowledgment Number = Sequence Number + Segment Size

$$\text{ACK Number} = 2512 + 356 = 2868$$

#### Question 2.2

The sequence number of the next segment from the sender would be 2868. This is because the next sequence number is equal to the acknowledgment number of the current segment.

Question 2.3  
Need to verify.

Question 2.4

If the **checksum** was wrong at the receiver, the packet would be **discarded**. UDP uses checksums for error **detection**, not error correction. The receiver would not attempt to recover or request retransmission of the corrupted packet. Since UDP is a connectionless protocol that prioritizes speed over reliability, the sender remains unaware of the loss unless an application-level mechanism detects it.