PROJECT NUMBER2 - SOCKET PROGRAMMING SIMULATION

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SOCKET PROGRAMMING SIMULATION?

To Implement a basic client-server application using Cisco Packet Tracer’s programming feature to demonstrate socket communication between two devices.

HTTP PROTOCOL:

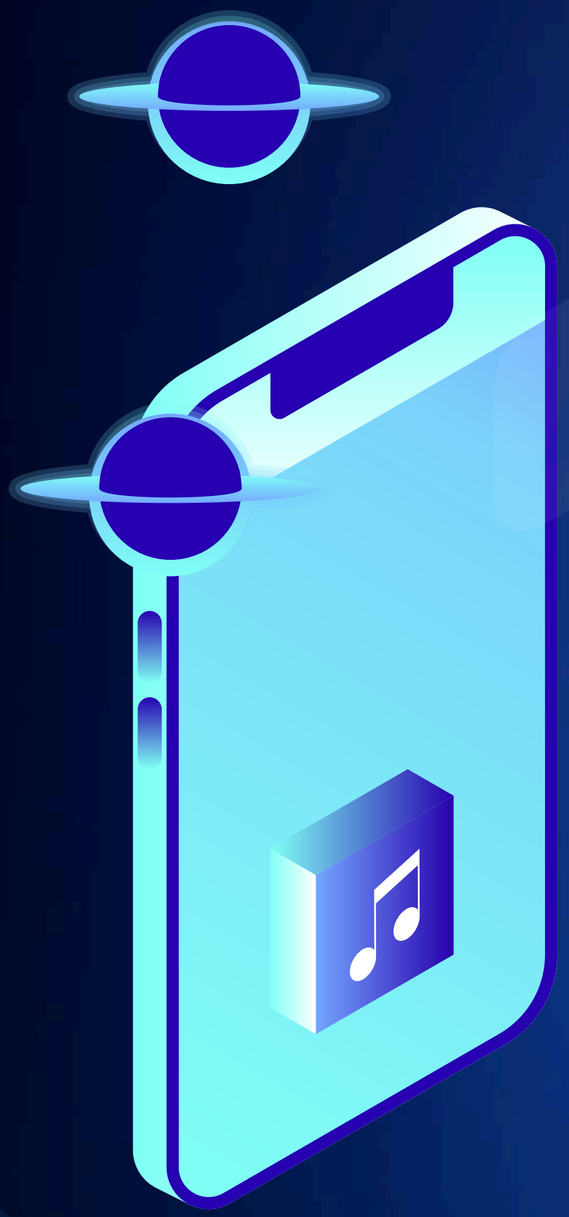
In Cisco Packet Tracer, you can simulate HTTP protocol using the Programming feature on devices like PCs and Servers. While Packet Tracer does not provide a full-fledged web server with advanced functionality, it allows you to implement a basic client-server model using HTTP.

this simple HTTP communication in Cisco Packet Tracer demonstrates how to simulate client-server communication over the HTTP protocol using socket programming. You can extend this by handling multiple requests or simulating more complex web interactions (though limited within the scope of Packet Tracer).

04

REAL LIFE EXAMPLE:

In a real-world scenario, socket programming is used in numerous applications such as online banking, email communication, file transfers, real-time communication, and more. Through this simulation, you can understand how client devices interact with servers over networks using sockets, a fundamental technology in both enterprise and consumer applications.



06

REAL LIFE EXAMPLE OF USING HTTP:

EXAMPLE: ACCESSING A PUBLIC INFORMATIONAL WEBSITE, LIKE A LOCAL GOVERNMENT SITE OR AN EDUCATIONAL PAGE.

SCENARIO: SUPPOSE YOU VISIT HTTP://EXAMPLE.COM TO READ BLOG ARTICLES OR LOOK UP GENERAL

INFORMATION.WHY HTTP IS USED HERE:
NO SENSITIVE DATA (LIKE PASSWORDS OR CREDIT CARD NUMBERS) IS BEING TRANSMITTED.
SPEED AND SIMPLICITY ARE PRIORITIZED FOR DELIVERING STATIC CONTENT.

KEY POINT: HTTP IS SUFFICIENT WHEN SECURITY ISN'T A CONCERN, BUT THE CONNECTION ISN'T SECURE (E.G., DATA SENT CAN BE INTERCEPTED BY HACKERS)

04

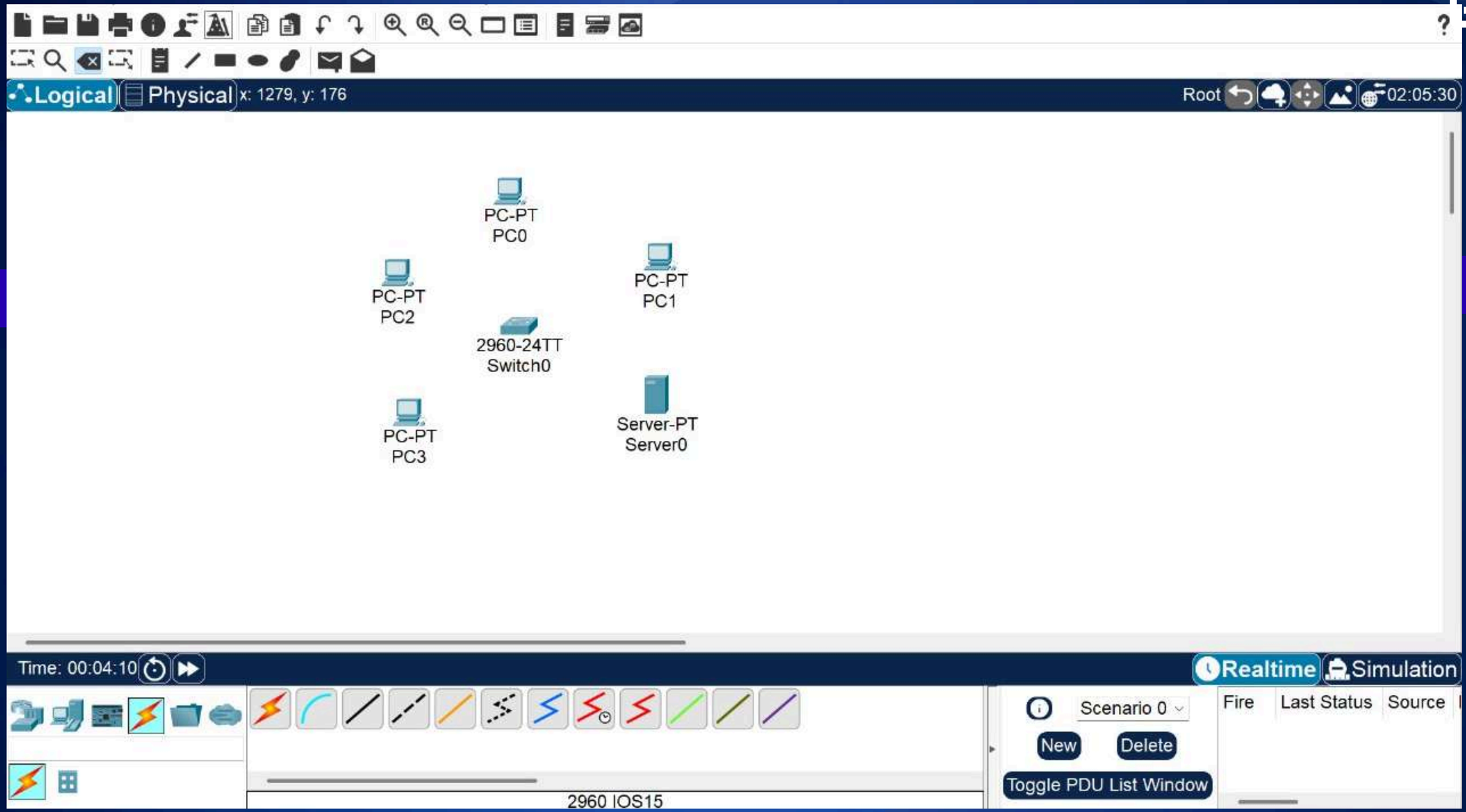
SOCKET SIMULATION USING HTTPS PROTOCOL:

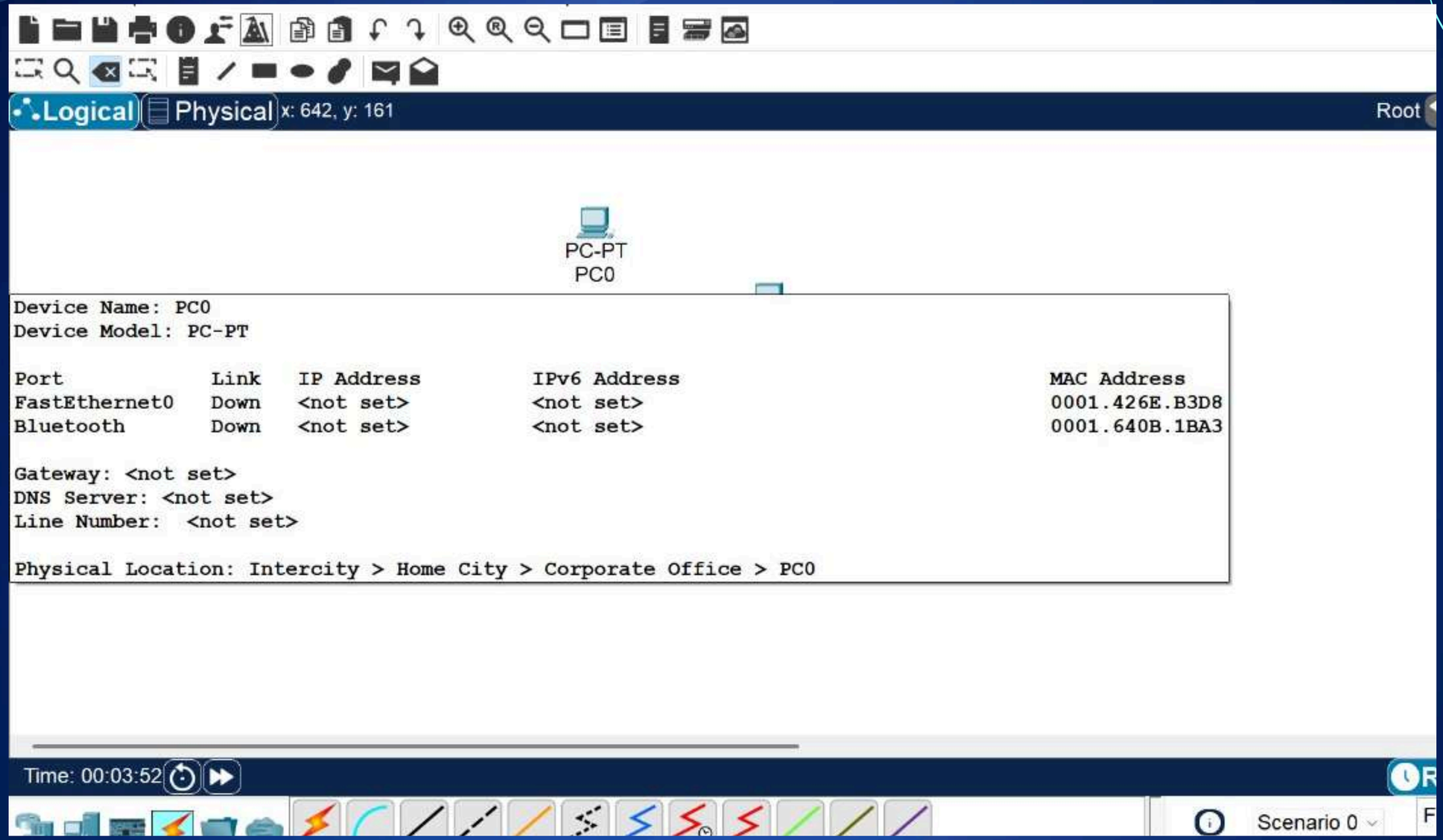
we created a simple client-server application using socket programming to simulate HTTP communication in Cisco Packet Tracer. We'll implement a server that listens for incoming requests and a client that sends HTTP requests to the server.

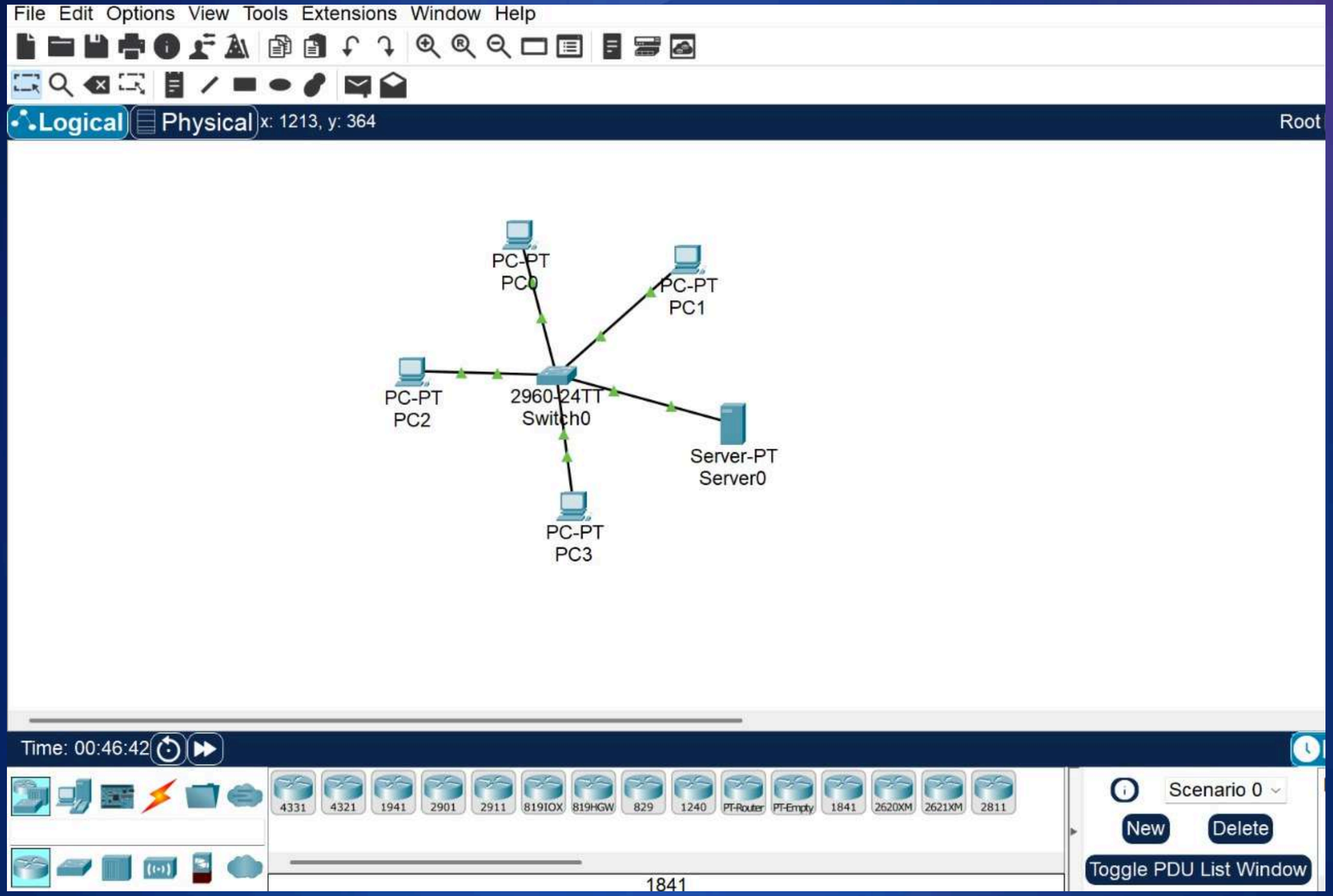
STEP 1: SETUP DEVICES
OPEN CISCO PACKET TRACER AND CREATE A NEW PROJECT.
ADD DEVICES.
CONFIGURE NETWORK.
STEP 2: IMPLEMENT SERVER CODE (LISTENING FOR HTTP REQUESTS)
STEP 3: IMPLEMENT CLIENT CODE (SENDING HTTP REQUESTS)
STEP 4: RUN THE SERVER AND CLIENT

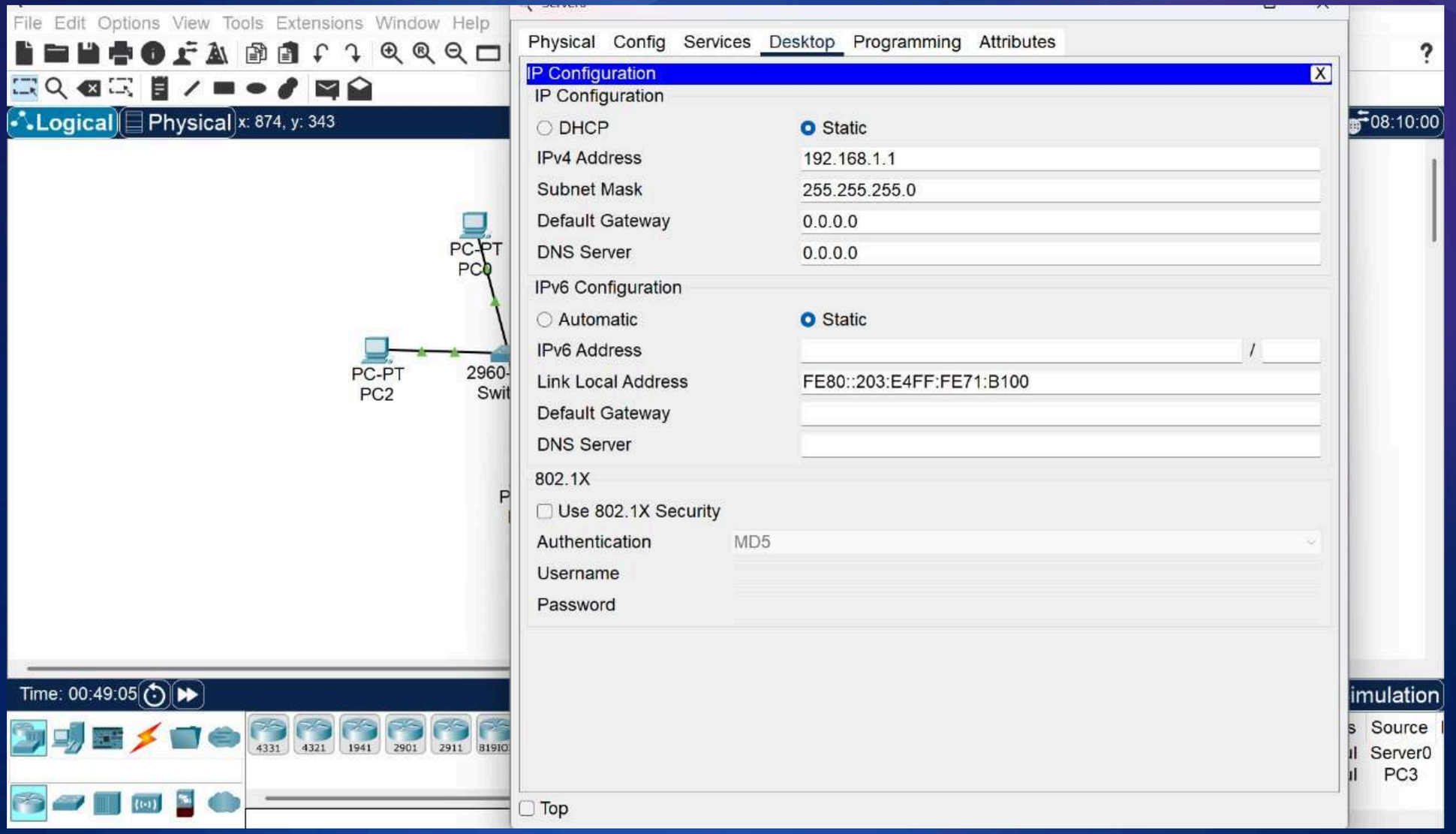
1. START THE SERVER
2. START THE CLIENT

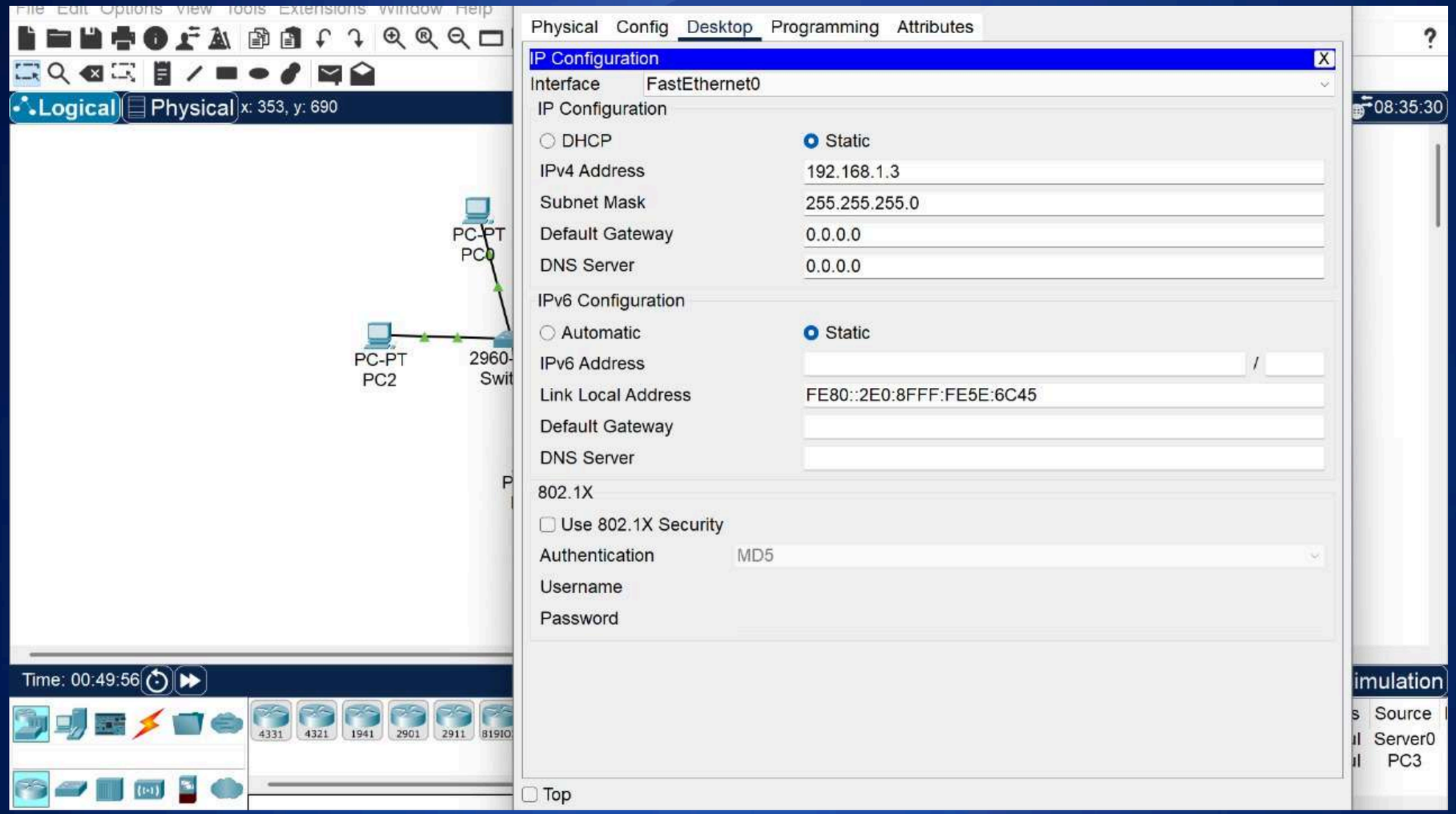
STEP 5: OBSERVE THE RESULTS
CONCLUSION:
THIS SIMPLE EXAMPLE DEMONSTRATES HOW TO SIMULATE SOCKET-BASED HTTP COMMUNICATION IN CISCO PACKET TRACER USING ITS PROGRAMMING FEATURE. WHILE PACKET TRACER DOESN'T DIRECTLY SUPPORT HTTPS OR COMPLEX ENCRYPTION SCHEMES, IT ALLOWS FOR BASIC SOCKET COMMUNICATION USING THE HTTP PROTOCOL.

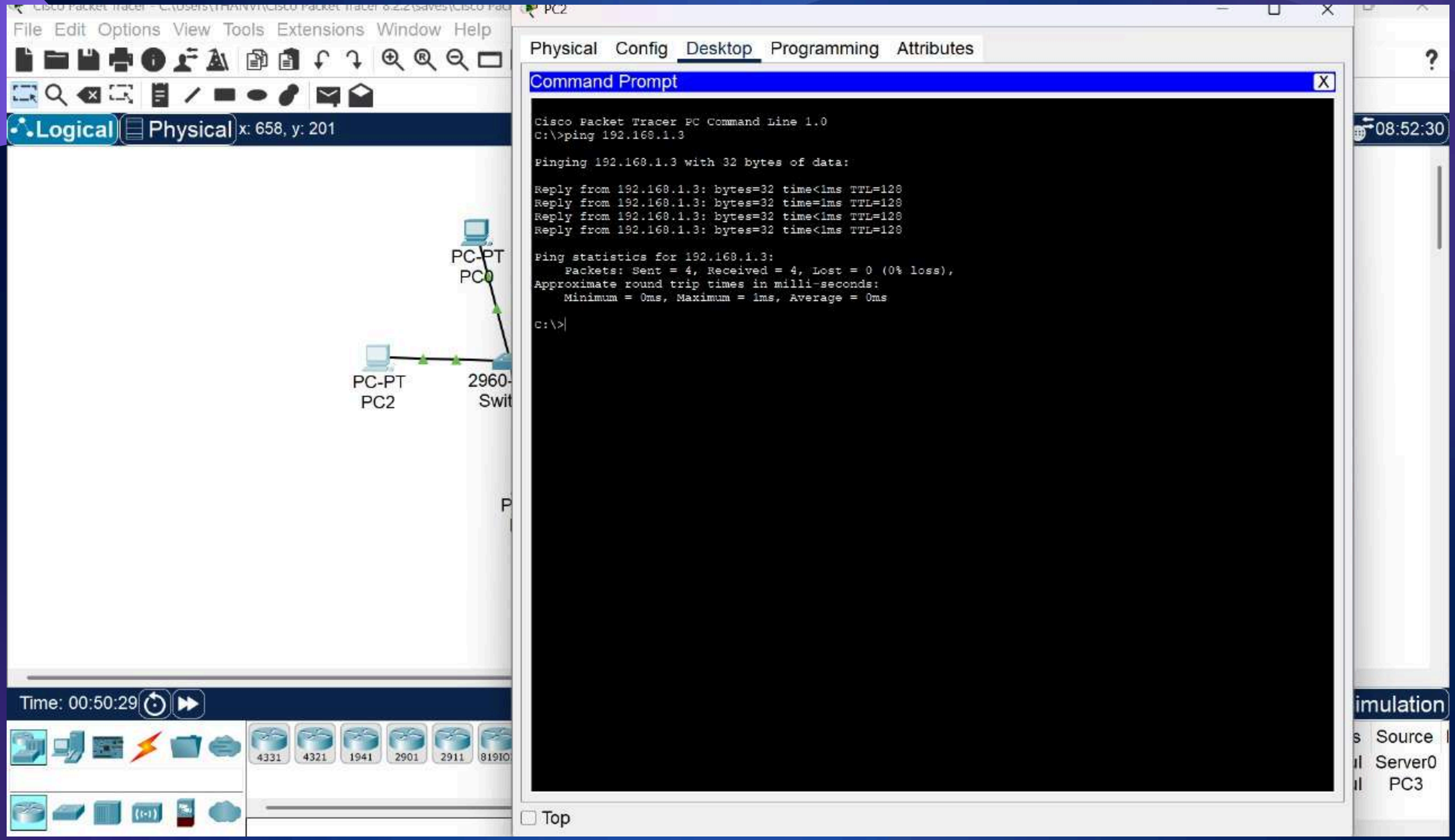

Logical
Physical
x: 1279, y: 176
Root
02:05:30
PC-PT
PC0
PC-PT
PC1
PC-PT
PC2
2960-24TT
Switch0
PC-PT
PC3
Server-PT
Server0
Time: 00:04:10
Realtime
Simulation
Scenario 0
New
Delete
Toggle PDU List Window
Fire
Last Status
Source
2960 IOS15

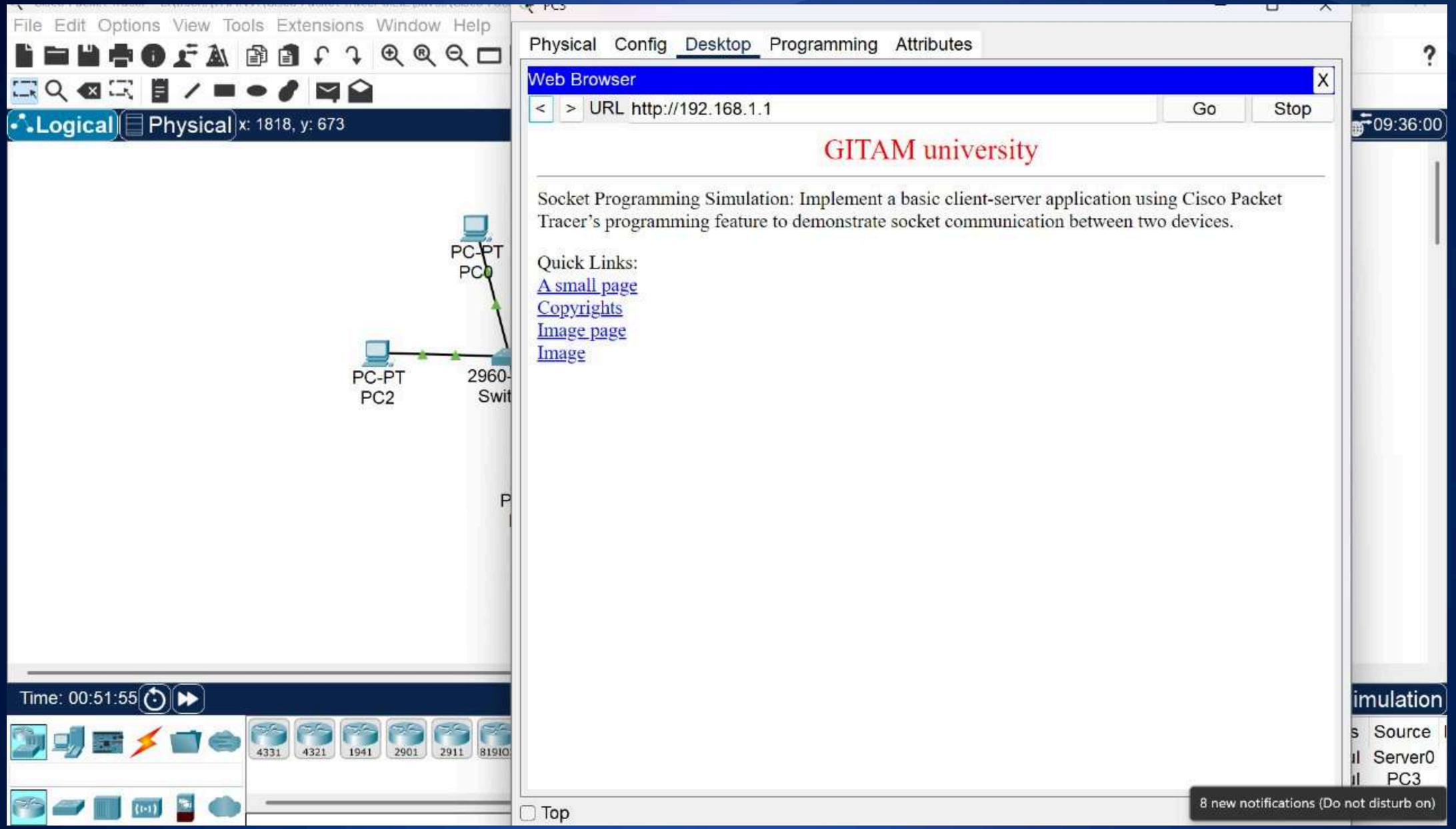

Logical
Physical
x: 642, y: 161
Root
PC-PT
PC0
Device Name: PC0
Device Model: PC-PT
Port Link IP Address IPv6 Address MAC Address
FastEthernet0 Down <not set> <not set> 0001.426E.B3D8
Bluetooth Down <not set> <not set> 0001.640B.1BA3
Gateway: <not set>
DNS Server: <not set>
Line Number: <not set>
Physical Location: Intercity > Home City > Corporate Office > PC0
Time: 00:03:52
Scenario 0


File Edit Options View Tools Extensions Window Help
Logical
Physical
x: 1213, y: 364
Root
PC-PT
PC0
PC-PT
PC1
PC-PT
PC2
2960-24TT
Switch0
Server-PT
Server0
PC-PT
PC3
Time: 00:46:42
4331
4321
1941
2901
2911
819IOX
819HGW
829
1240
PT-Router
PT-Empty
1841
2620XM
2621XM
2811
1841
Scenario 0
New
Delete
Toggle PDU List Window


File Edit Options View Tools Extensions Window Help
Logical
Physical
x: 874, y: 343
PC-PT
PC0
PC-PT
PC2
2960-
Swit
Time: 00:49:05
4331
4321
1941
2901
2911
Physical
Config
Services
Desktop
Programming
Attributes
IP Configuration
X
IP Configuration
DHCP
Static
IPv4 Address
192.168.1.1
Subnet Mask
255.255.255.0
Default Gateway
0.0.0.0
DNS Server
0.0.0.0
IPv6 Configuration
Automatic
Static
IPv6 Address
Link Local Address
FE80::203:E4FF:FE71:B100
Default Gateway
DNS Server
802.1X
Use 802.1X Security
Authentication
MD5
Username
Password
Top
08:10:00
imulation
Source
Server0
PC3


Logical
Physical
x: 353, y: 690
PC-PT
PC0
PC-PT
PC2
2960-
Swit
Time: 00:49:56
4331
4321
1941
2901
2911
819IO
Physical
Config
Desktop
Programming
Attributes
IP Configuration
X
Interface
FastEthernet0
IP Configuration
DHCP
Static
IPv4 Address
192.168.1.3
Subnet Mask
255.255.255.0
Default Gateway
0.0.0.0
DNS Server
0.0.0.0
IPv6 Configuration
Automatic
Static
IPv6 Address
Link Local Address
FE80::2E0:8FFF:FE5E:6C45
Default Gateway
DNS Server
802.1X
Use 802.1X Security
Authentication
MD5
Username
Password
Top
08:35:30
imulation
Source
Server0
PC3


File Edit Options View Tools Extensions Window Help
Logical
Physical
x: 658, y: 201
PC-PT
PC0
PC-PT
PC2
2960-
Swit
Time: 00:50:29
4331
4321
1941
2901
2911
PC2
Physical
Config
Desktop
Programming
Attributes
Command Prompt
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.1.3
Pinging 192.168.1.3 with 32 bytes of data:
Reply from 192.168.1.3: bytes=32 time<1ms TTL=128
Reply from 192.168.1.3: bytes=32 time=1ms TTL=128
Reply from 192.168.1.3: bytes=32 time<1ms TTL=128
Reply from 192.168.1.3: bytes=32 time<1ms TTL=128
Ping statistics for 192.168.1.3:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 1ms, Average = 0ms
C:\>
Top
08:52:30
imulation
Source
Server0
PC3


File Edit Options View Tools Extensions Window Help
Logical
Physical
x: 1818, y: 673
PC-PT
PC0
PC-PT
PC2
2960-
Swit
Time: 00:51:55
4331
4321
1941
2901
2911
Physical
Config
Desktop
Programming
Attributes
Web Browser
X
<
>
URL http://192.168.1.1
Go
Stop
GITAM university
Socket Programming Simulation: Implement a basic client-server application using Cisco Packet Tracer's programming feature to demonstrate socket communication between two devices.
Quick Links:
A small page
Copyrights
Image page
Image
Top
09:36:00
imulation
Source
Server0
PC3
8 new notifications (Do not disturb on)

THANK YOU