IUS
INSTITUT
UNIVERSITAIRE
DES SCIENCES

Faculté des Sciences et Technologie

(FST)

Niveau : L3-FST

Cours : Réseaux 2

Soumis au chargé de cours : Ismaël SAINT AMOUR

Préparé par : Jameson DOMINIQUE

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Implémentation du Protocole de Routage OSPF dans un Réseau d'Entreprise, Configuration d'un Réseau Smart Home (IoT)

TD 5

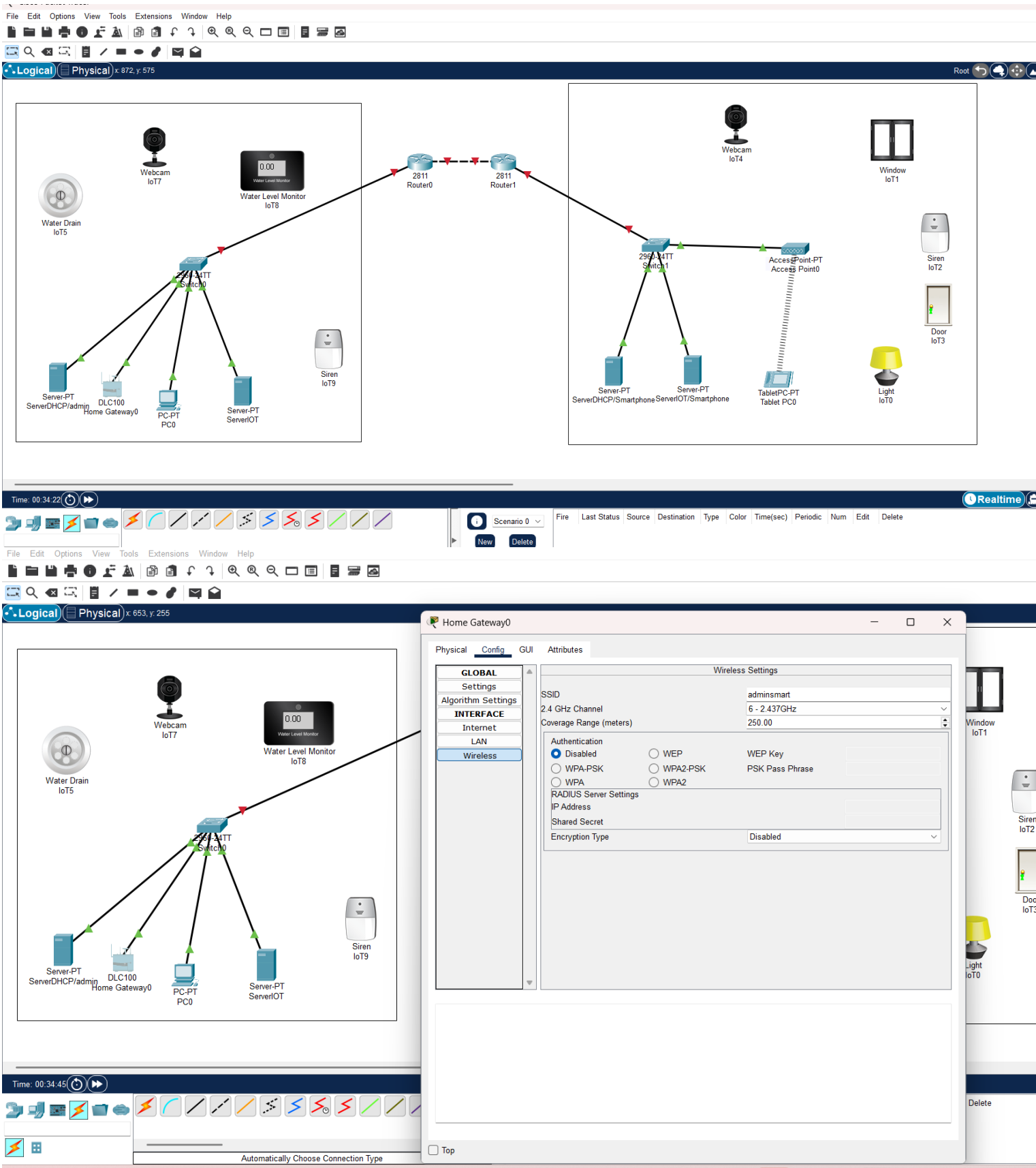
Objectif :

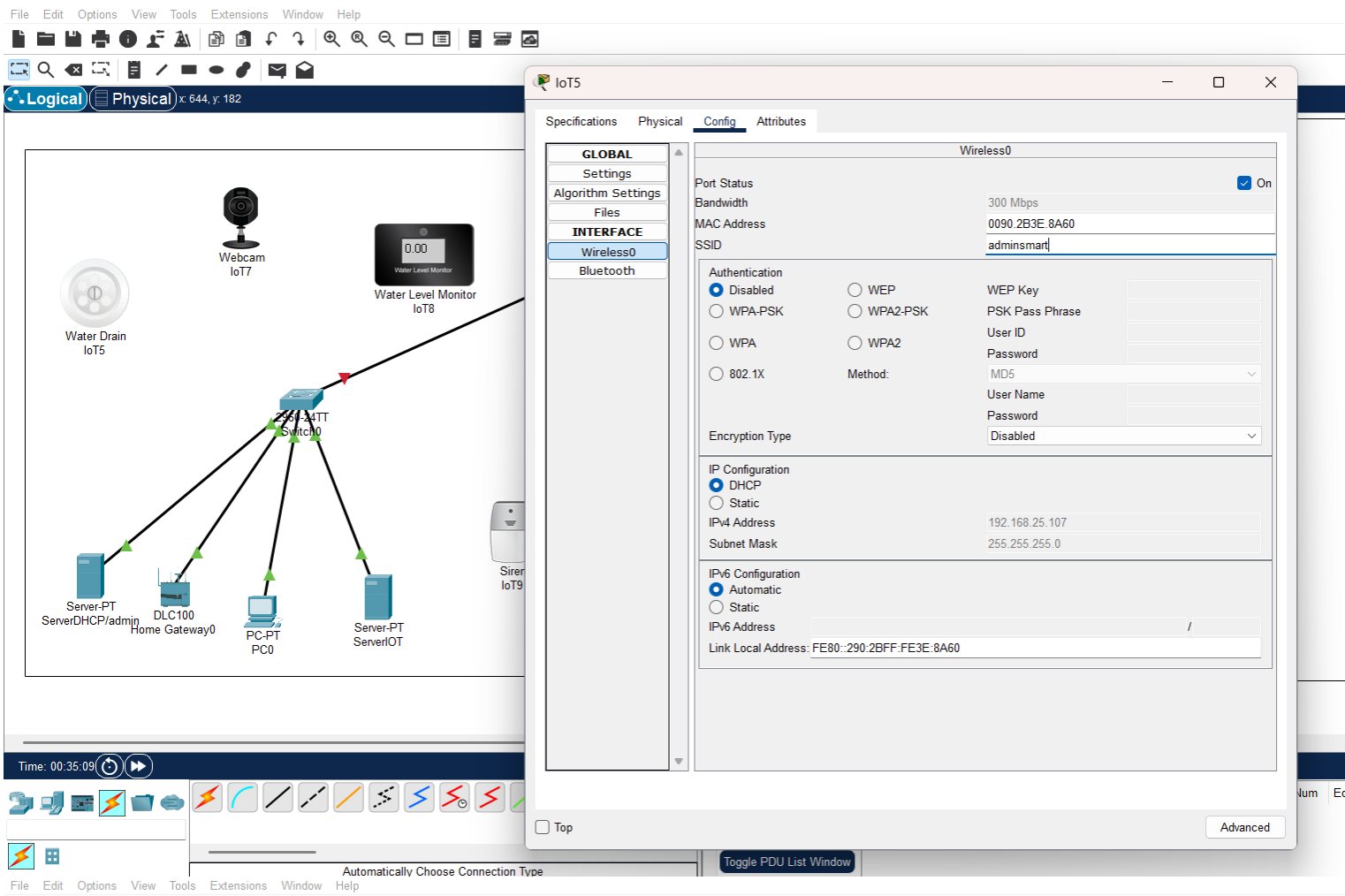
Dans ce TD, nous allons implémenter **OSPF** (Open Shortest Path First) dans un réseau d'entreprise. L'OSPF est un protocole de routage dynamique très utilisé dans les grandes entreprises et organisations en raison de sa capacité à s'adapter aux modifications du réseau rapidement, et de mettre en place un réseau **Smart Home** basé sur **IoT** dans **Cisco Packet Tracer**. Nous allons configurer des objets connectés (IoT) et les contrôler via un **serveur Home Gateway**.

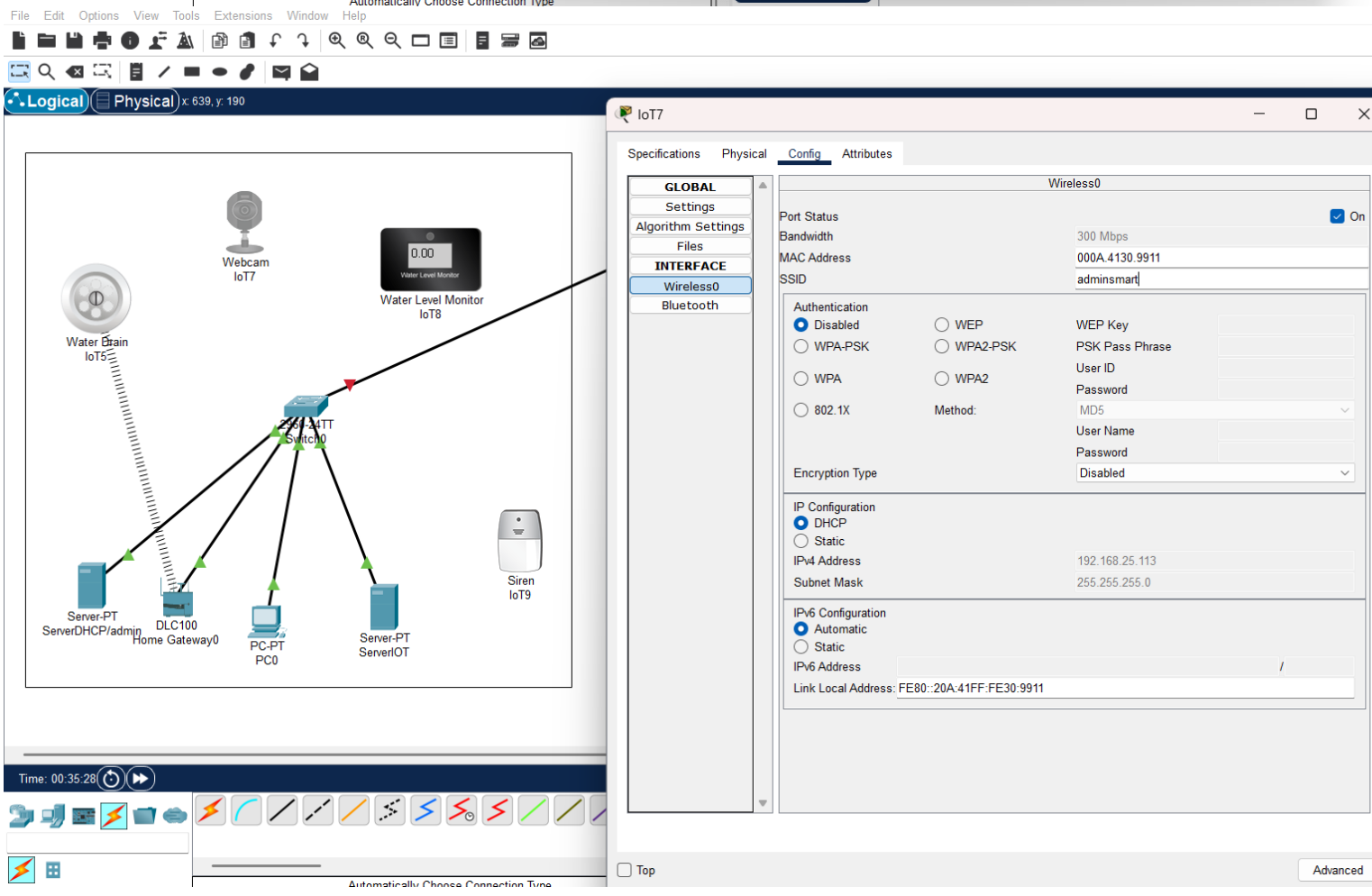
- **Comprendre OSPF** et son fonctionnement dans un réseau d'entreprise.
- **Configurer OSPF** sur des routeurs Cisco.
- Tester la **connectivité OSPF** dans un réseau d'entreprise simulé.
- Configurer un **réseau domestique intelligent (Smart Home)** avec Cisco Packet Tracer.
- Ajouter et configurer des **appareils IoT** (ampoules, capteurs, caméras, thermostats).
- Contrôler les objets IoT via un **Smartphone ou un PC**.
- Mettre en place une **sécurisation du réseau IoT** avec un pare-feu **Cisco ASA**.

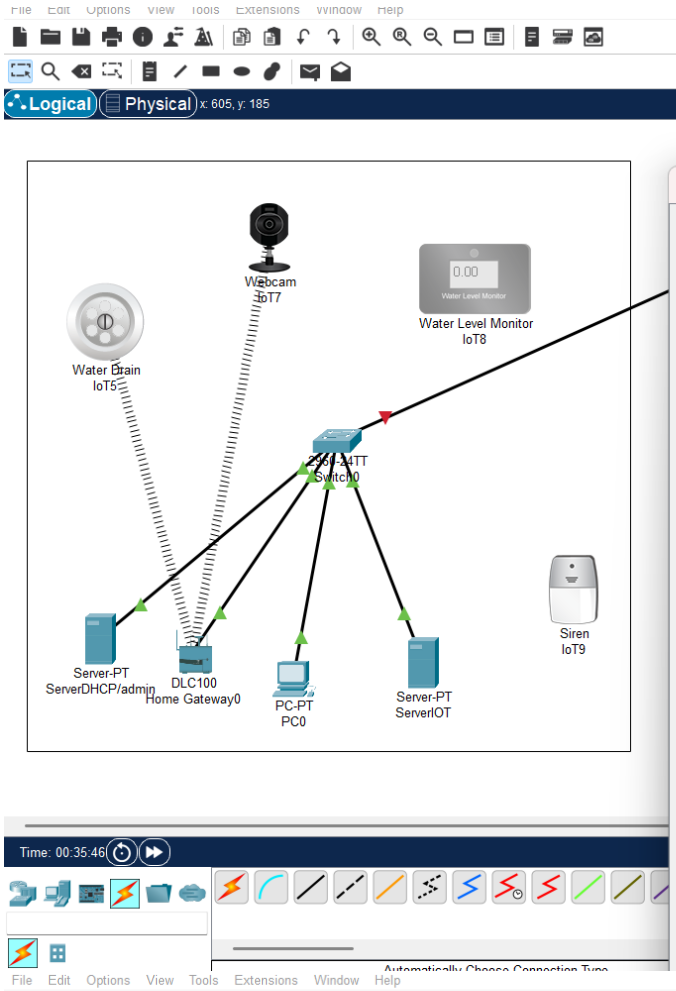
Travaux Dirigés

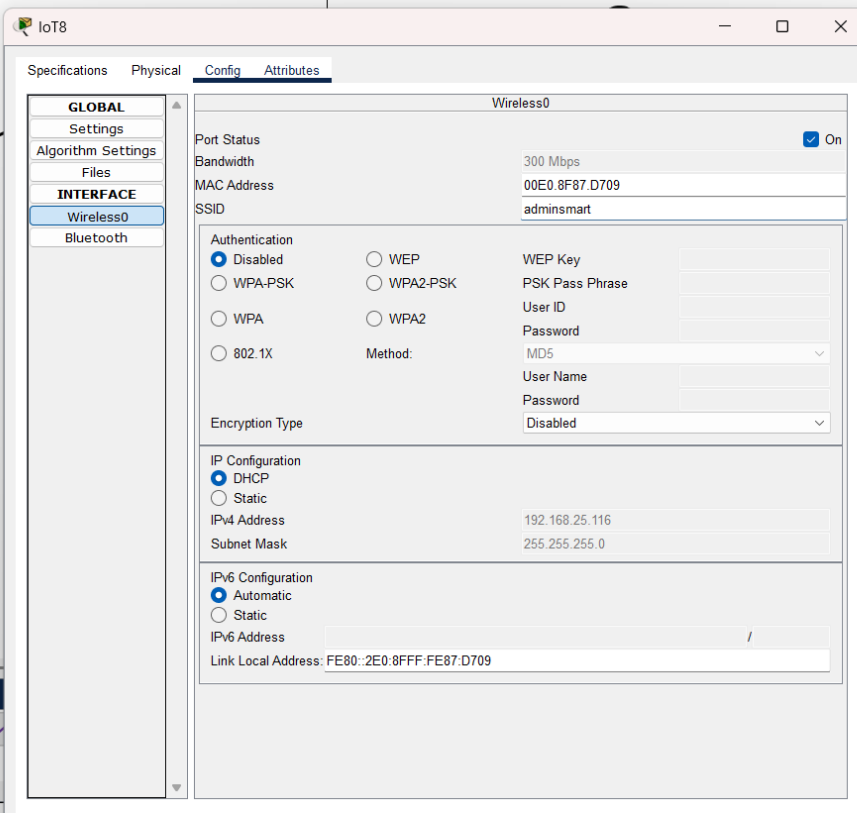
1. Reproduisez cette topologie en implémentant le Protocole de Routage OSPF dans un Réseau !

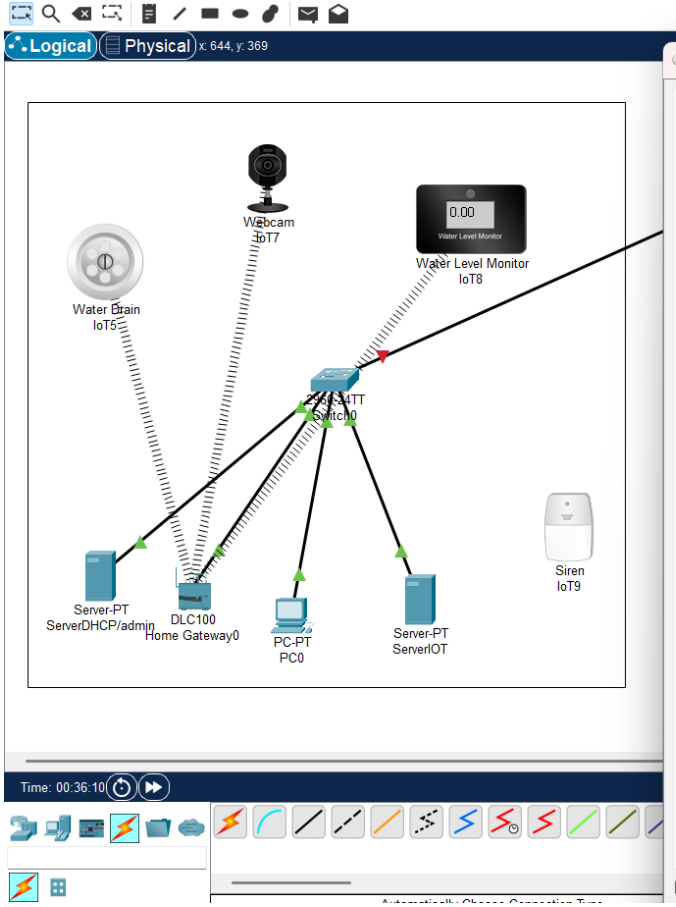


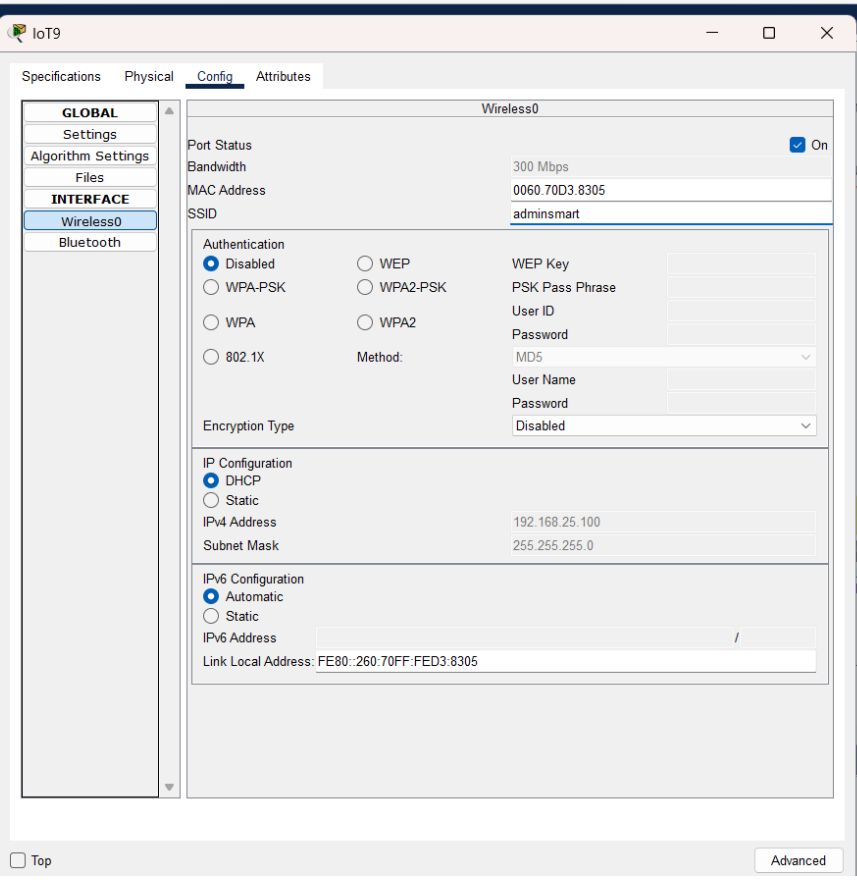

File Edit Options View Tools Extensions Window Help
Logical
Physical
x: 644, y: 182
Webcam
IoT7
Water Level Monitor
IoT8
Water Drain
IoT5
2960-24TT
Switch0
Server-PT
ServerDHCP/admin
DLC100
Home Gateway0
PC-PT
PC0
Server-PT
ServerIOT
Siren
IoT9
Time: 00:35:09
Automatically Choose Connection Type
Toggle PDU List Window
IoT5
Specifications
Physical
Config
Attributes
GLOBAL
Settings
Algorithm Settings
Files
INTERFACE
Wireless0
Bluetooth
Wireless0
Port Status
On
Bandwidth
300 Mbps
MAC Address
0090.2B3E.8A60
SSID
adminsmart
Authentication
Disabled
WEP
WEP Key
WPA-PSK
WPA2-PSK
PSK Pass Phrase
WPA
WPA2
User ID
802.1X
Method:
MD5
Password
User Name
Password
Encryption Type
Disabled
IP Configuration
DHCP
Static
IPv4 Address
192.168.25.107
Subnet Mask
255.255.255.0
IPv6 Configuration
Automatic
Static
IPv6 Address
Link Local Address:
FE80::290:2BFF:FE3E:8A60
Top
Advanced

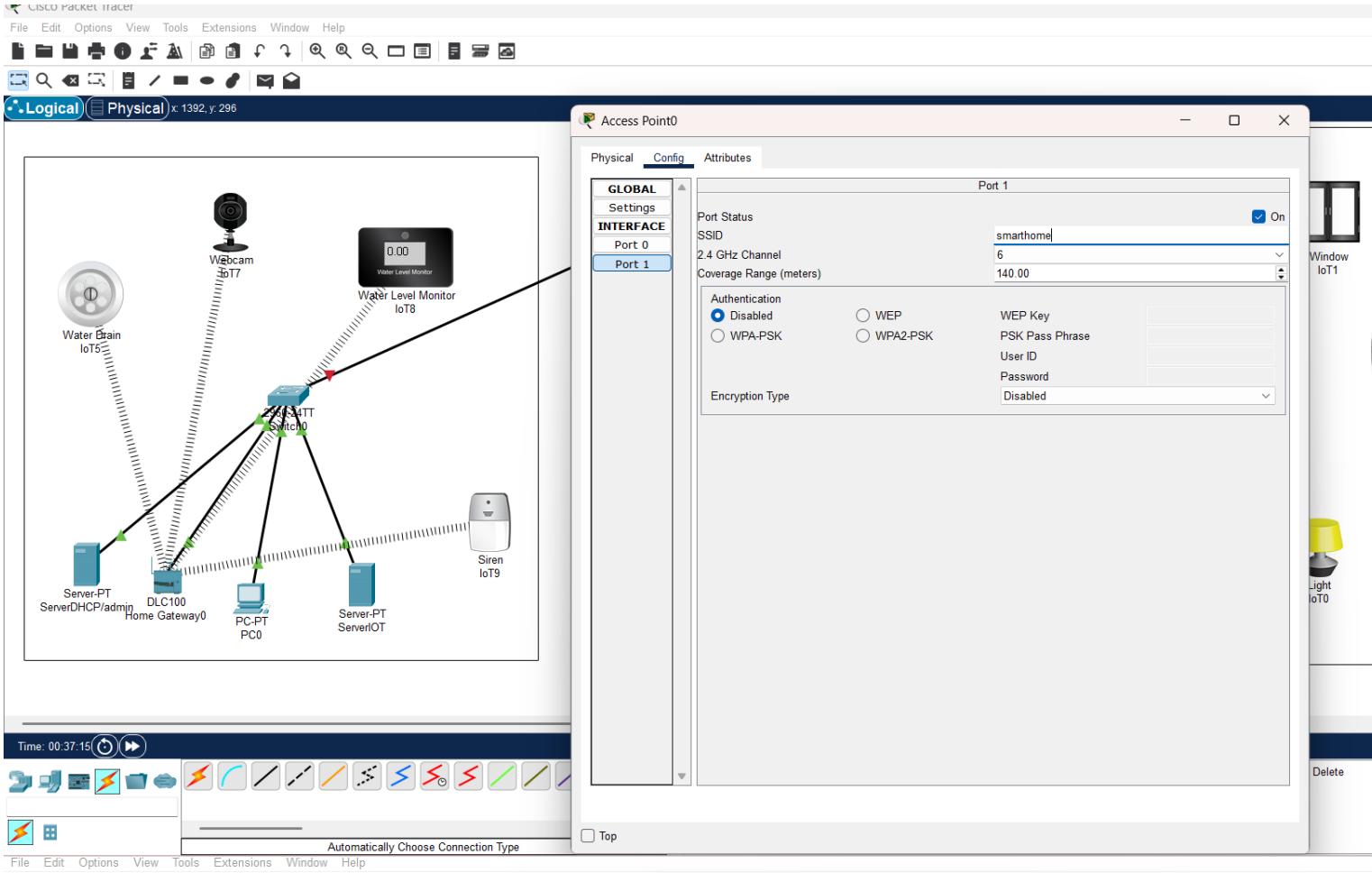

File Edit Options View Tools Extensions Window Help
Logical
Physical
x: 639, y: 190
Webcam
IoT7
Water Level Monitor
IoT8
Water Drain
IoT5
2960-24TT
Switch0
Server-PT
ServerDHCP/admin
DLC100
Home Gateway0
PC-PT
PC0
Server-PT
ServerIOT
Siren
IoT9
Time: 00:35:28
IoT7
Specifications
Physical
Config
Attributes
GLOBAL
Settings
Algorithm Settings
Files
INTERFACE
Wireless0
Bluetooth
Wireless0
Port Status
On
Bandwidth
300 Mbps
MAC Address
000A.4130.9911
SSID
adminsmart
Authentication
Disabled
WEP
WEP Key
WPA-PSK
WPA2-PSK
PSK Pass Phrase
WPA
WPA2
User ID
802.1X
Method:
MD5
Password
User Name
Password
Encryption Type
Disabled
IP Configuration
DHCP
Static
IPv4 Address
192.168.25.113
Subnet Mask
255.255.255.0
IPv6 Configuration
Automatic
Static
IPv6 Address
Link Local Address:
FE80::20A:41FF:FE30:9911
Top
Advanced

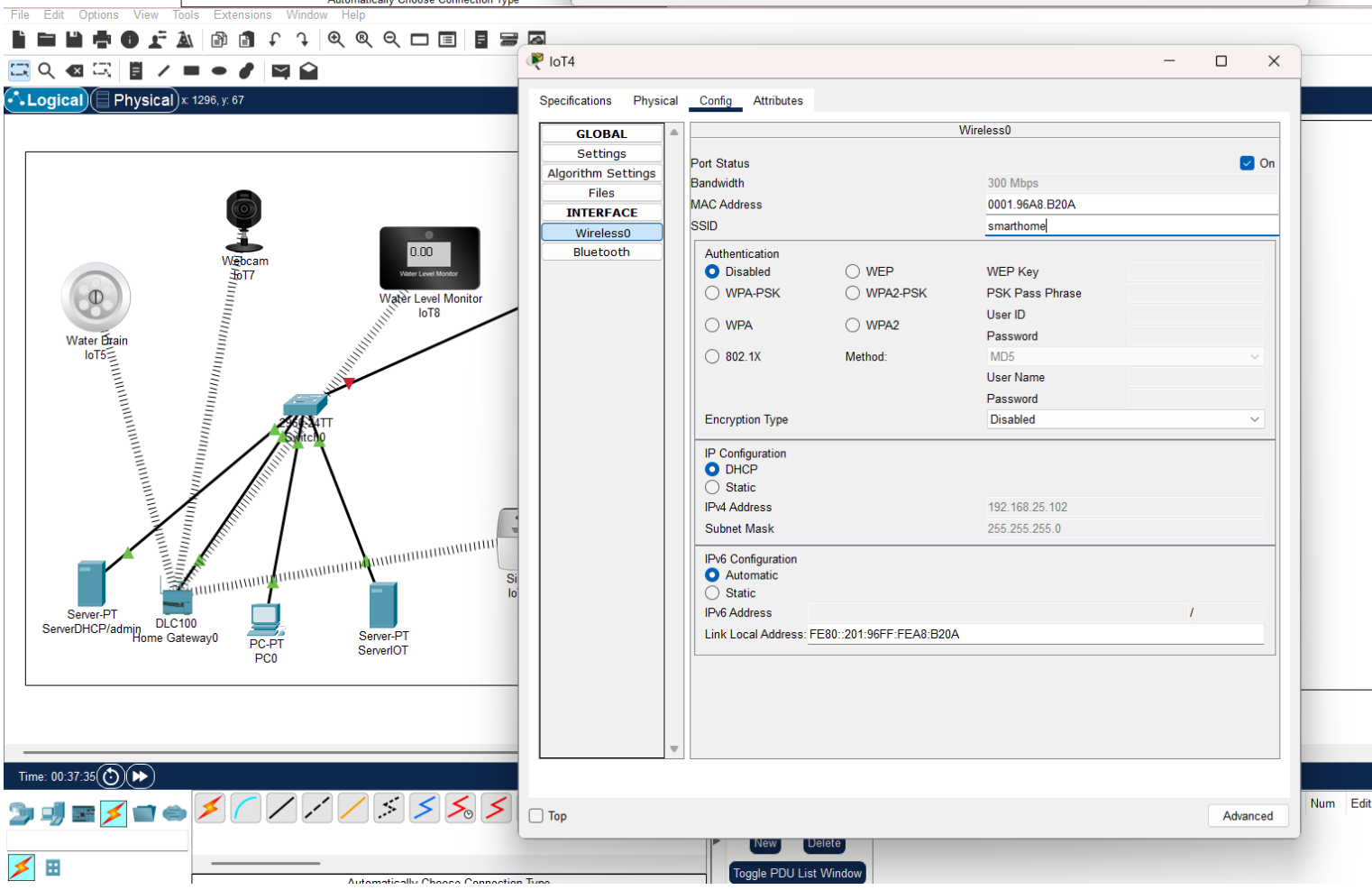

Logical
Physical
x: 605, y: 185
Webcam
IoT7
Water Level Monitor
IoT8
Water Brain
IoT5
Switch0
Siren
IoT9
Server-PT
ServerDHCP/admin
DLC100
Home Gateway0
PC-PT
PC0
Server-PT
ServerIOT
Time: 00:35:46

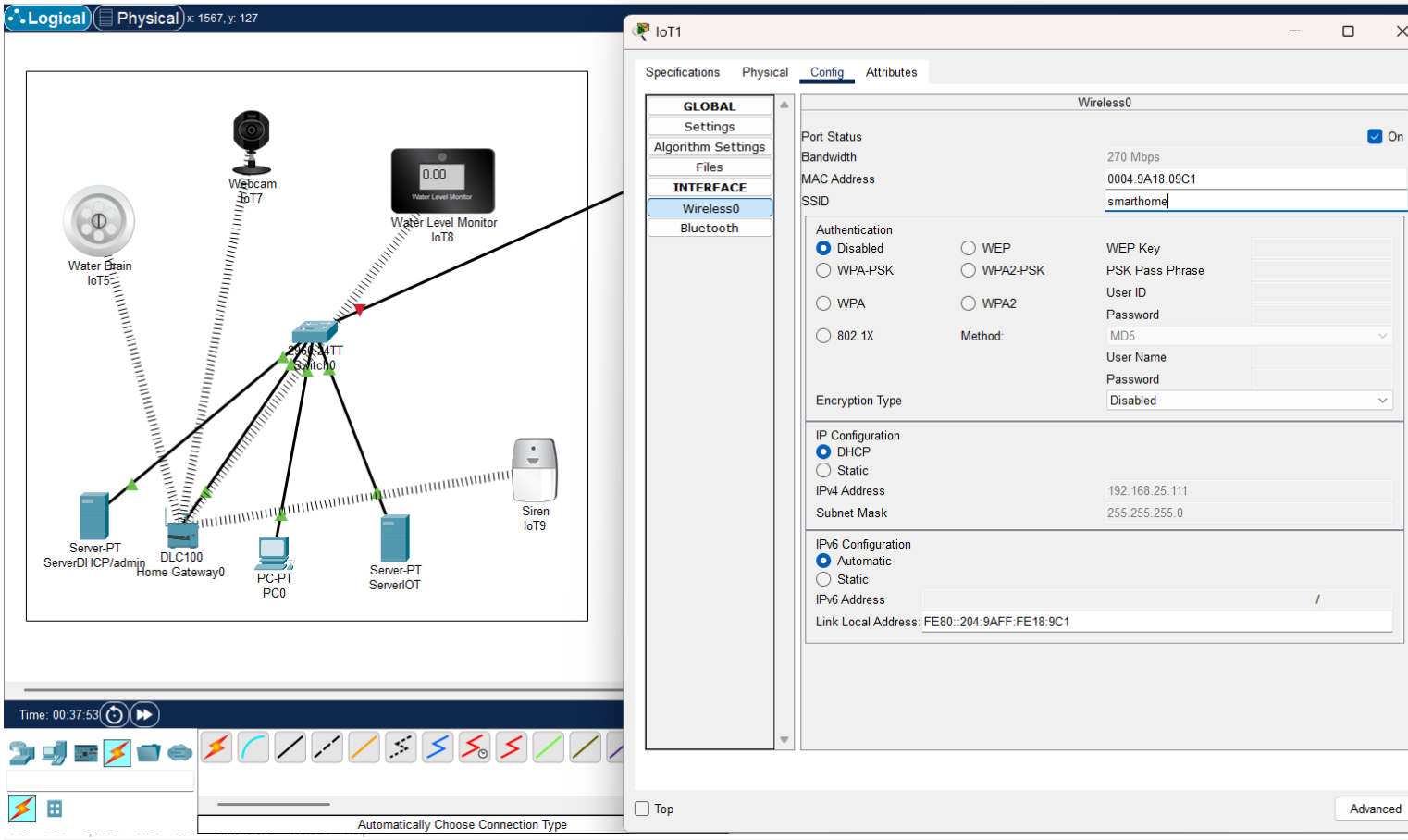

IoT8
Specifications
Physical
Config
Attributes
GLOBAL
Settings
Algorithm Settings
Files
INTERFACE
Wireless0
Bluetooth
Wireless0
Port Status
On
Bandwidth
300 Mbps
MAC Address
00E0.8F87.D709
SSID
adminsmart
Authentication
Disabled
WEP
WPA-PSK
WPA2-PSK
WPA
WPA2
802.1X
Method:
MD5
WEP Key
PSK Pass Phrase
User ID
Password
User Name
Password
Encryption Type
Disabled
IP Configuration
DHCP
Static
IPv4 Address
192.168.25.116
Subnet Mask
255.255.255.0
IPv6 Configuration
Automatic
Static
IPv6 Address
Link Local Address:
FE80::2E0:8FFF:FE87:D709

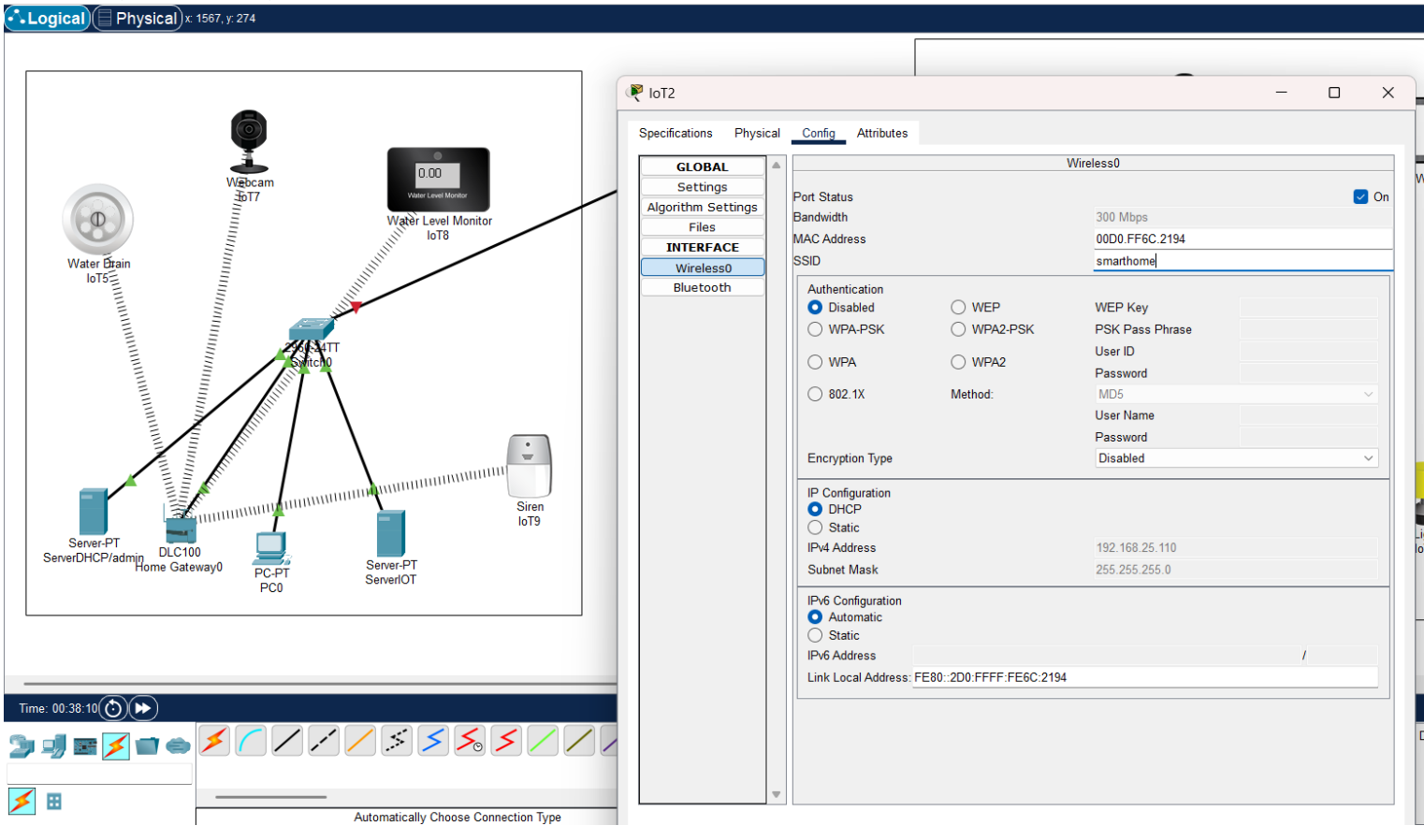

Logical
Physical
x: 644, y: 369
Webcam
IoT7
Water Level Monitor
IoT8
Water Brain
IoT5
Switch0
Siren
IoT9
Server-PT
ServerDHCP/admin
DLC100
Home Gateway0
PC-PT
PC0
Server-PT
ServerIOT
Time: 00:36:10

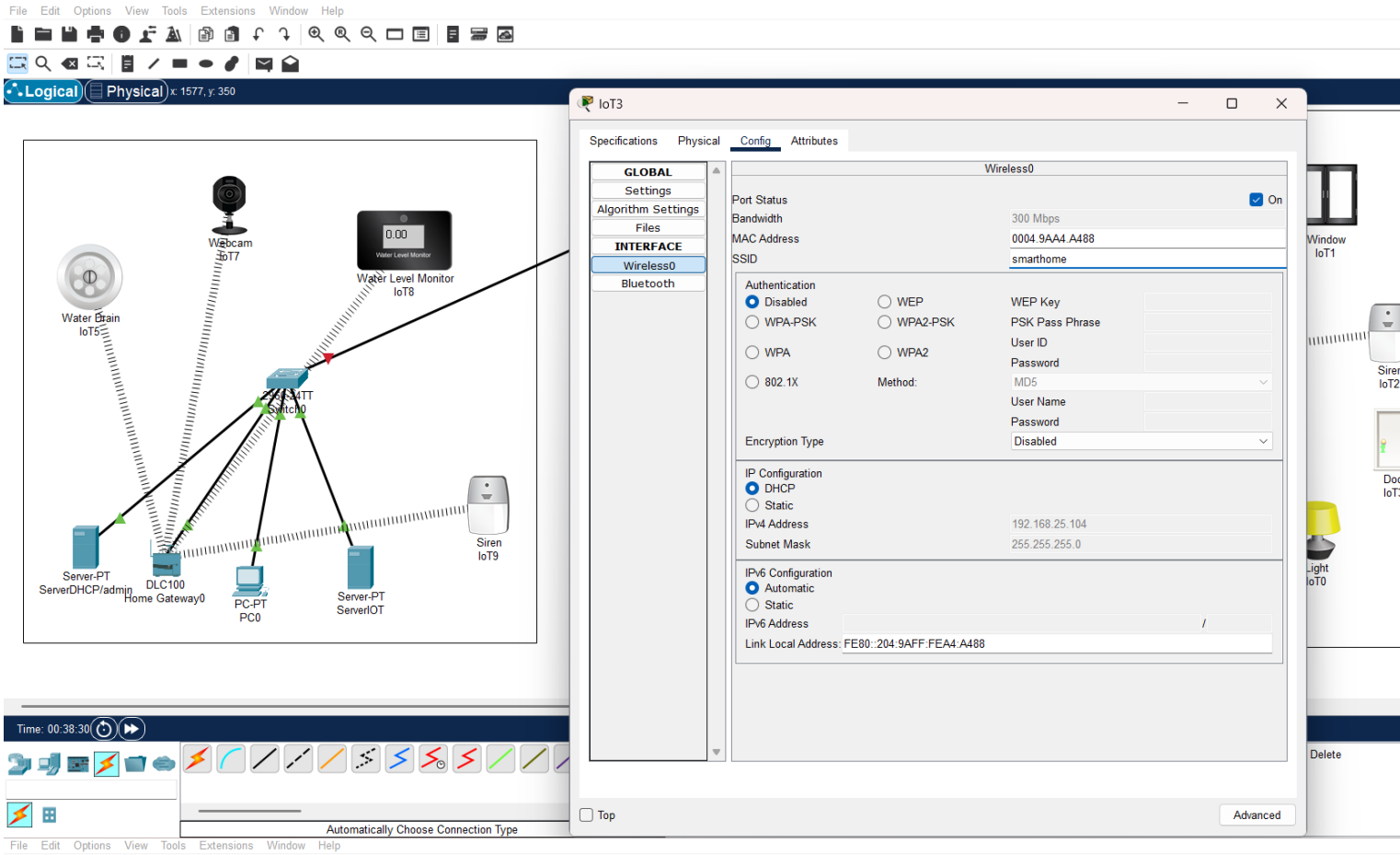

IoT9
Specifications
Physical
Config
Attributes
GLOBAL
Settings
Algorithm Settings
Files
INTERFACE
Wireless0
Bluetooth
Wireless0
Port Status
On
Bandwidth
300 Mbps
MAC Address
0060.70D3.8305
SSID
adminsmart
Authentication
Disabled
WEP
WPA-PSK
WPA2-PSK
WPA
WPA2
802.1X
Method:
MD5
WEP Key
PSK Pass Phrase
User ID
Password
User Name
Password
Encryption Type
Disabled
IP Configuration
DHCP
Static
IPv4 Address
192.168.25.100
Subnet Mask
255.255.255.0
IPv6 Configuration
Automatic
Static
IPv6 Address
Link Local Address:
FE80::260:70FF:FED3:8305
Top
Advanced

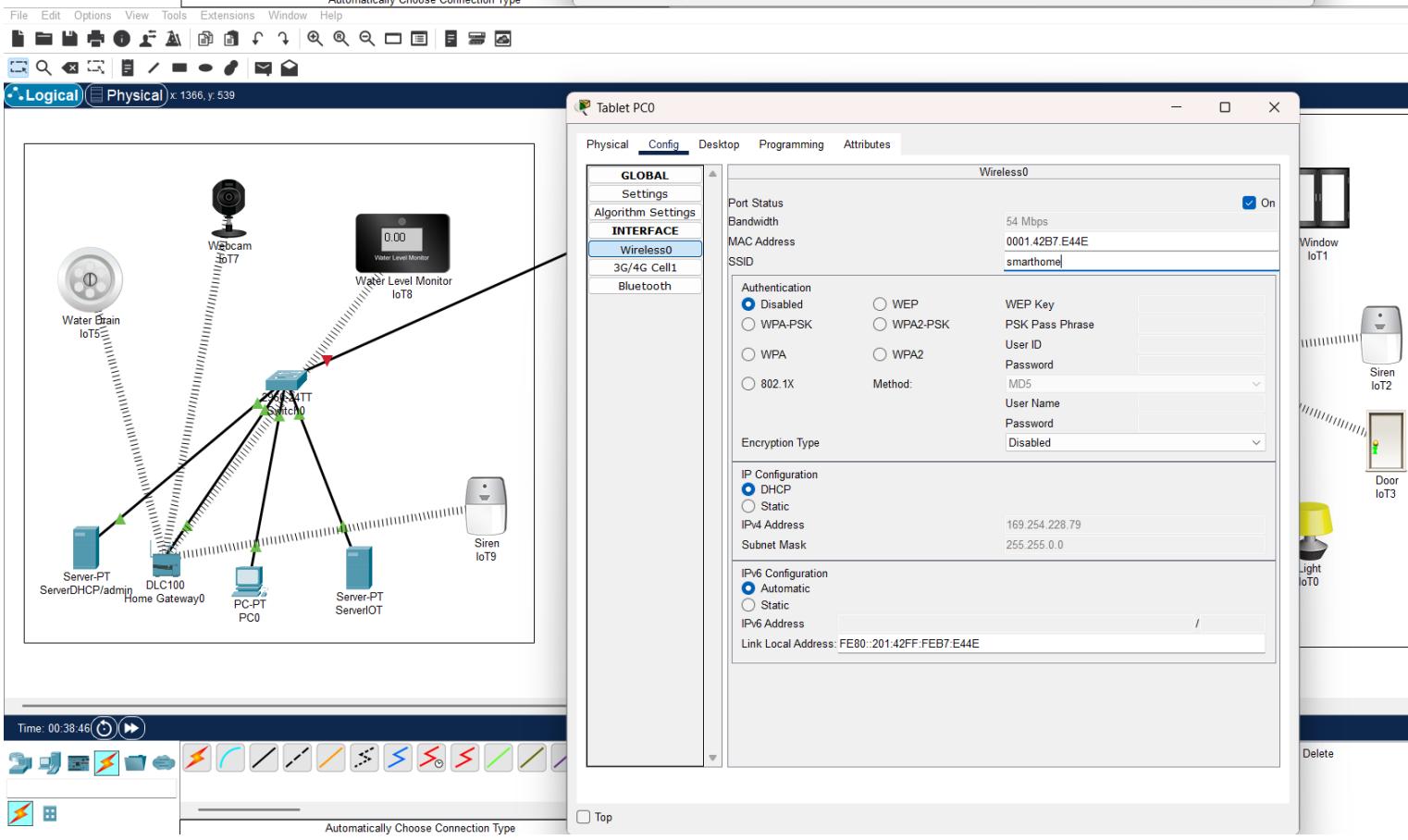

Logical
Physical
x: 1392, y: 296
Webcam
IoT7
Water Level Monitor
IoT8
Water Brain
IoT5
Switch0
Siren
IoT9
Server-PT
ServerDHCP/admin
DLC100
Home Gateway0
PC-PT
PC0
Server-PT
ServerIOT
Access Point0
Physical
Config
Attributes
GLOBAL
Settings
INTERFACE
Port 0
Port 1
Port 1
Port Status
On
SSID
smarthome
2.4 GHz Channel
6
Coverage Range (meters)
140.00
Authentication
Disabled
WEP
WPA-PSK
WPA2-PSK
WEP Key
PSK Pass Phrase
User ID
Password
Encryption Type
Disabled
Top
Time: 00:37:15
Automatically Choose Connection Type
Delete

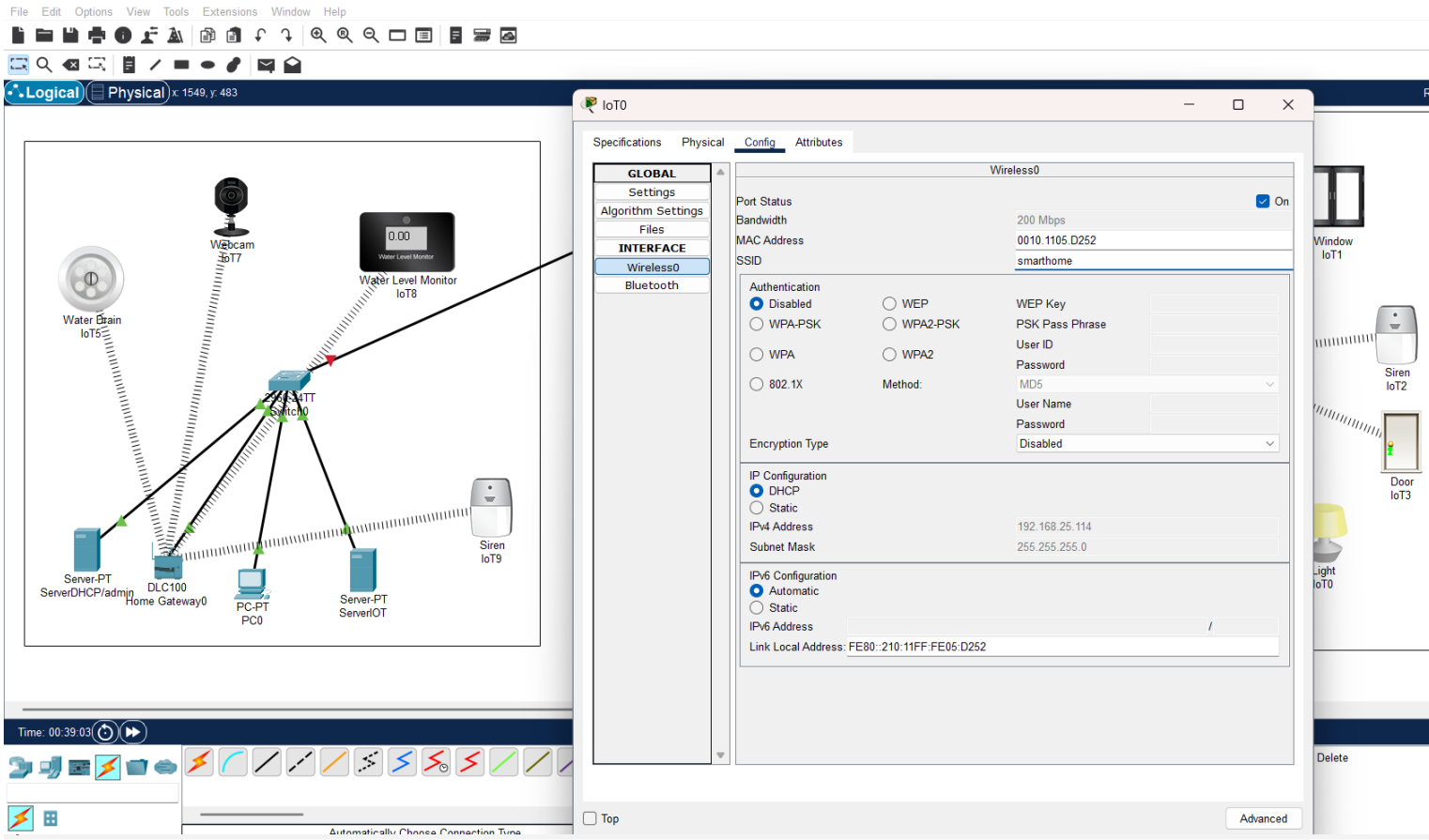

Logical
Physical
x: 1296, y: 67
Webcam
IoT7
Water Level Monitor
IoT8
Water Brain
IoT5
Switch0
Server-PT
ServerDHCP/admin
DLC100
Home Gateway0
PC-PT
PC0
Server-PT
ServerIOT
IoT4
Specifications
Physical
Config
Attributes
GLOBAL
Settings
Algorithm Settings
Files
INTERFACE
Wireless0
Bluetooth
Wireless0
Port Status
On
Bandwidth
300 Mbps
MAC Address
0001.96A8.B20A
SSID
smarthome
Authentication
Disabled
WEP
WPA-PSK
WPA2-PSK
WPA
WPA2
802.1X
Method:
MD5
WEP Key
PSK Pass Phrase
User ID
Password
User Name
Password
Encryption Type
Disabled
IP Configuration
DHCP
Static
IPv4 Address
192.168.25.102
Subnet Mask
255.255.255.0
IPv6 Configuration
Automatic
Static
IPv6 Address
Link Local Address:
FE80::201:96FF:FEA8:B20A
Top
Advanced
Time: 00:37:35
New
Delete
Toggle PDU List Window
Num
Edit

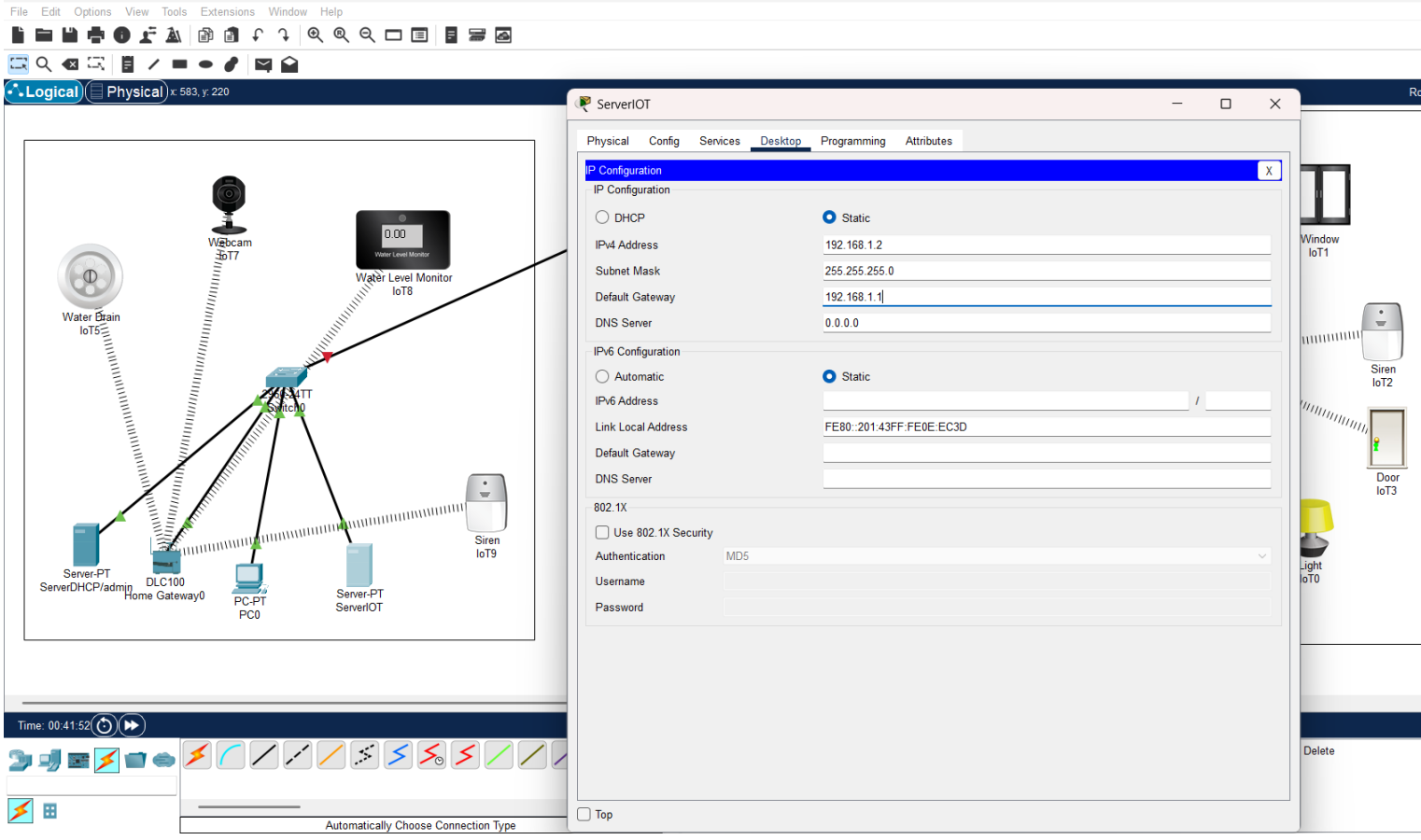

Logical
Physical
x: 1567, y: 127
Webcam IoT7
Water Level Monitor IoT8
Water Brain IoT5
2950-24TT Switch0
Siren IoT9
Server-PT ServerDHCP/admin
DLC100 Home Gateway0
PC-PT PC0
Server-PT ServerIOT
Time: 00:37:53
Automatically Choose Connection Type
IoT1
Specifications
Physical
Config
Attributes
GLOBAL
Settings
Algorithm Settings
Files
INTERFACE
Wireless0
Bluetooth
Wireless0
Port Status
On
Bandwidth
270 Mbps
MAC Address
0004.9A18.09C1
SSID
smarthome
Authentication
Disabled
WEP
WEP Key
WPA-PSK
WPA2-PSK
PSK Pass Phrase
WPA
WPA2
User ID
Password
802.1X
Method:
MD5
User Name
Password
Encryption Type
Disabled
IP Configuration
DHCP
Static
IPv4 Address
192.168.25.111
Subnet Mask
255.255.255.0
IPv6 Configuration
Automatic
Static
IPv6 Address
Link Local Address:
FE80::204:9AFF:FE18:9C1
Top
Advanced

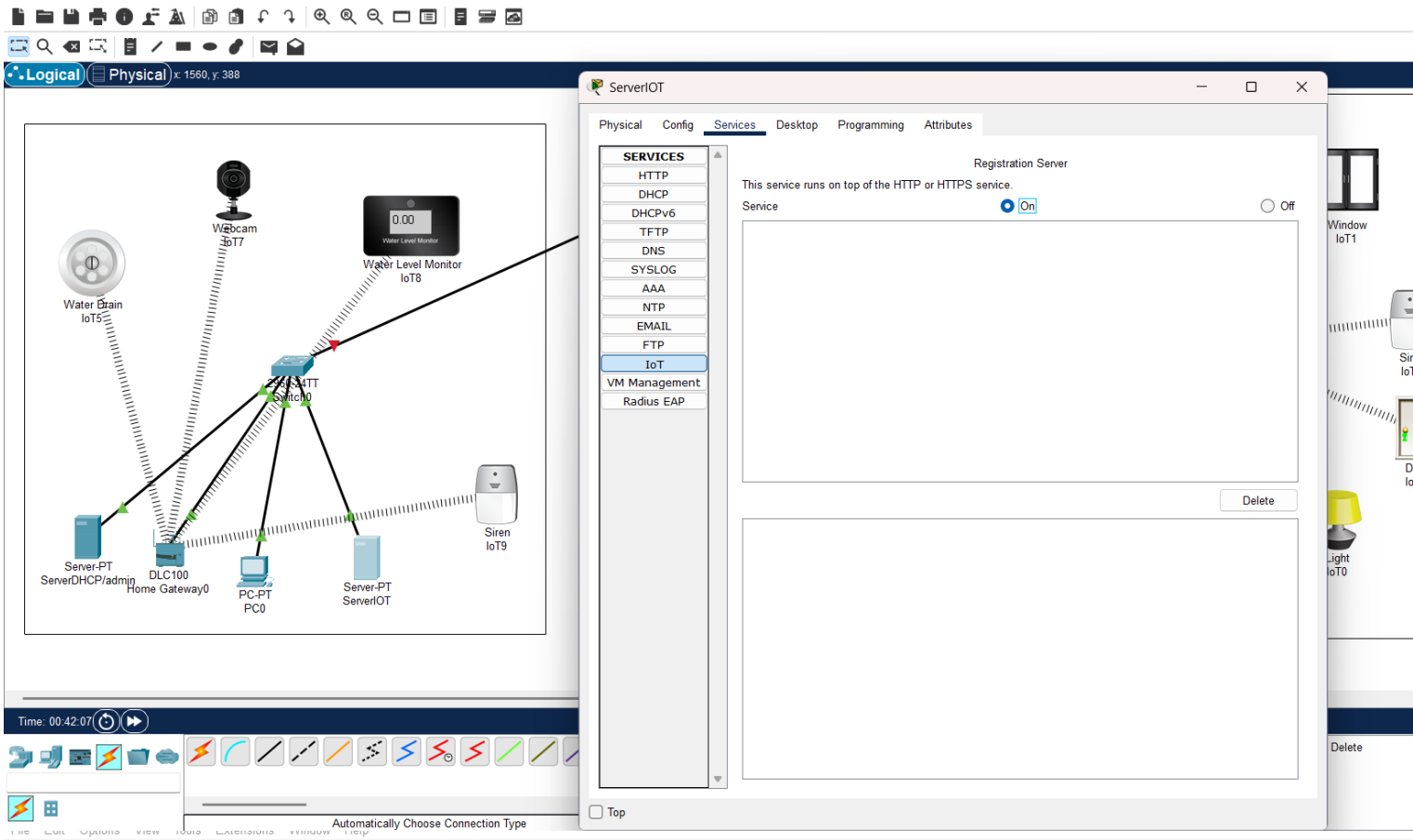

Logical
Physical
x: 1567, y: 274
Webcam IoT7
Water Level Monitor IoT8
Water Brain IoT5
2950-24TT Switch0
Siren IoT9
Server-PT ServerDHCP/admin
DLC100 Home Gateway0
PC-PT PC0
Server-PT ServerIOT
Time: 00:38:10
Automatically Choose Connection Type
IoT2
Specifications
Physical
Config
Attributes
GLOBAL
Settings
Algorithm Settings
Files
INTERFACE
Wireless0
Bluetooth
Wireless0
Port Status
On
Bandwidth
300 Mbps
MAC Address
00D0.FF6C.2194
SSID
smarthome
Authentication
Disabled
WEP
WEP Key
WPA-PSK
WPA2-PSK
PSK Pass Phrase
WPA
WPA2
User ID
Password
802.1X
Method:
MD5
User Name
Password
Encryption Type
Disabled
IP Configuration
DHCP
Static
IPv4 Address
192.168.25.110
Subnet Mask
255.255.255.0
IPv6 Configuration
Automatic
Static
IPv6 Address
Link Local Address:
FE80::2D0:FFFF:FE6C:2194

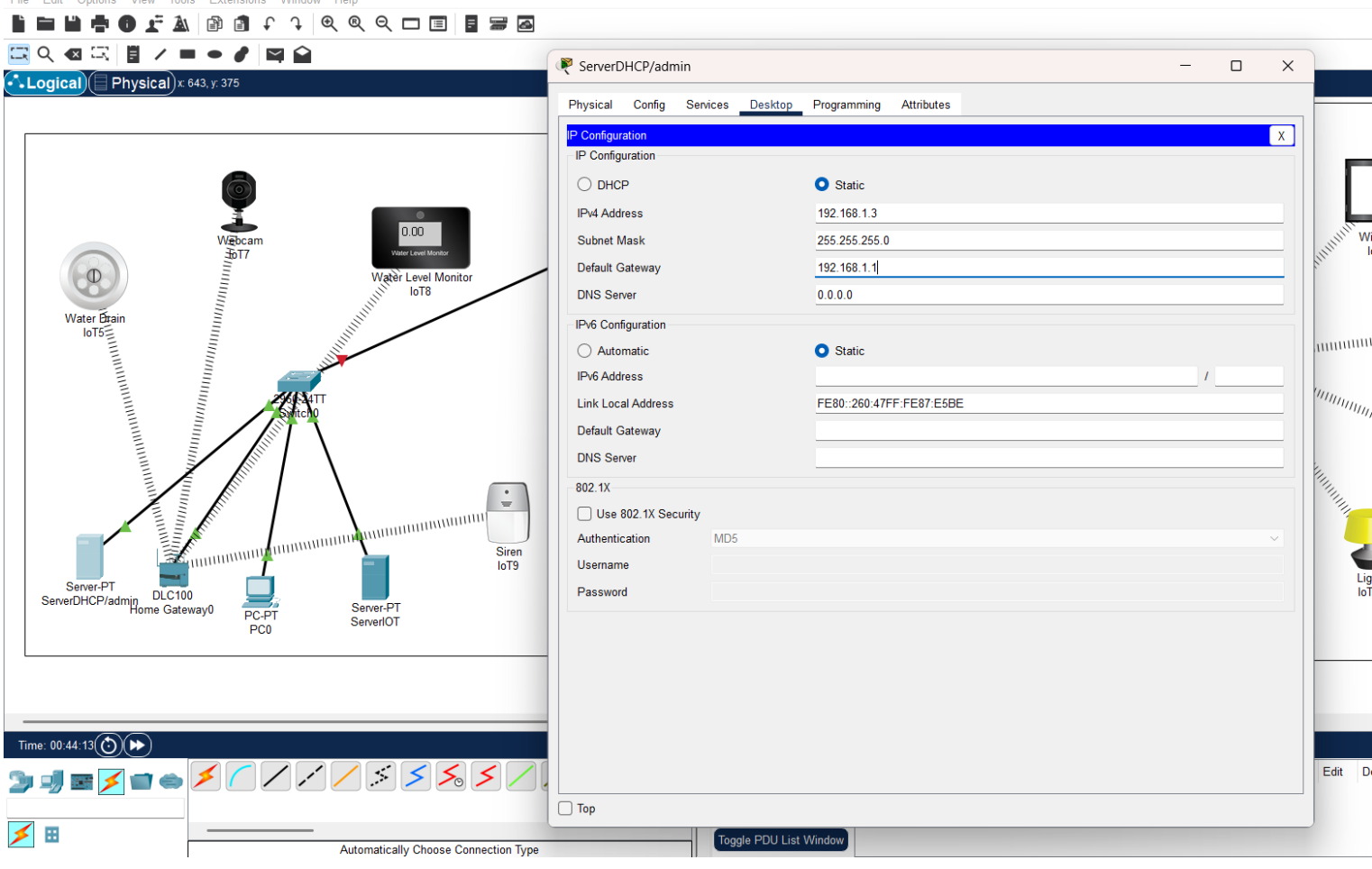

File Edit Options View Tools Extensions Window Help
Logical Physical x: 1577, y: 350
Webcam IoT7
Water Level Monitor IoT8
Water Brain IoT5
Switch0
Siren IoT9
Server-PT ServerDHCP/admin
DLC100 Home Gateway0
PC-PT PC0
Server-PT ServerIOT
IoT3
Specifications Physical Config Attributes
GLOBAL
Settings
Algorithm Settings
Files
INTERFACE
Wireless0
Bluetooth
Wireless0
Port Status On
Bandwidth 300 Mbps
MAC Address 0004.9AA4.A488
SSID smarthome
Authentication
Disabled WEP
WPA-PSK WPA2-PSK
WPA WPA2
802.1X
WEP Key
PSK Pass Phrase
User ID
Password
Method: MD5
User Name
Password
Encryption Type Disabled
IP Configuration
DHCP
Static
IPv4 Address 192.168.25.104
Subnet Mask 255.255.255.0
IPv6 Configuration
Automatic
Static
IPv6 Address /
Link Local Address: FE80::204:9AFF:FEA4:A488
Top
Advanced
Time: 00:38:30
Automatically Choose Connection Type
Delete
Window IoT1
Siren IoT2
Door IoT3
Light IoT0

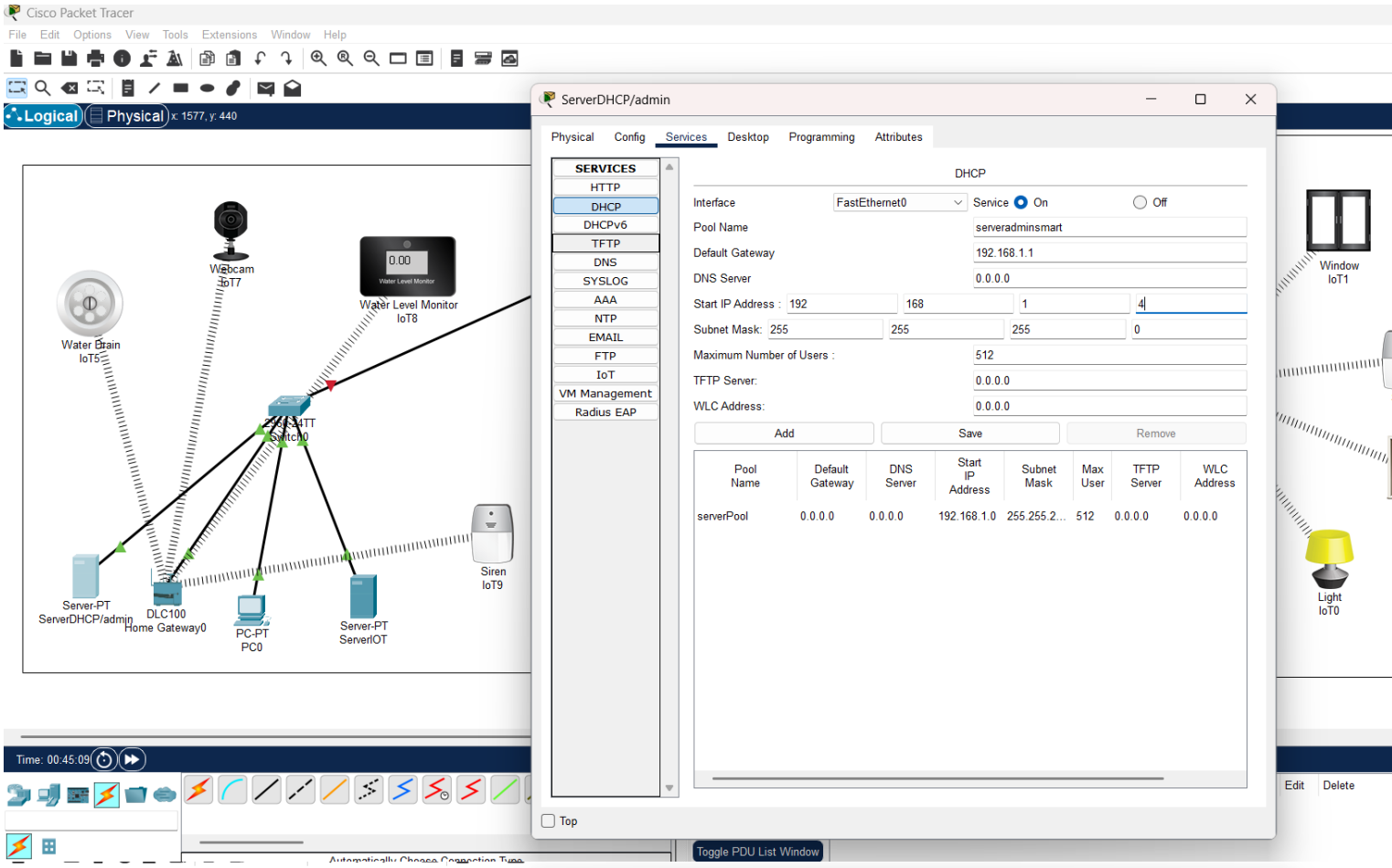

File Edit Options View Tools Extensions Window Help
Logical Physical x: 1366, y: 539
Webcam IoT7
Water Level Monitor IoT8
Water Brain IoT5
Switch0
Siren IoT9
Server-PT ServerDHCP/admin
DLC100 Home Gateway0
PC-PT PC0
Server-PT ServerIOT
Tablet PC0
Physical Config Desktop Programming Attributes
GLOBAL
Settings
Algorithm Settings
INTERFACE
Wireless0
3G/4G Cell1
Bluetooth
Wireless0
Port Status On
Bandwidth 54 Mbps
MAC Address 0001.42B7.E44E
SSID smarthome
Authentication
Disabled WEP
WPA-PSK WPA2-PSK
WPA WPA2
802.1X
WEP Key
PSK Pass Phrase
User ID
Password
Method: MD5
User Name
Password
Encryption Type Disabled
IP Configuration
DHCP
Static
IPv4 Address 169.254.228.79
Subnet Mask 255.255.0.0
IPv6 Configuration
Automatic
Static
IPv6 Address /
Link Local Address: FE80::201:42FF:FEB7:E44E
Top
Time: 00:38:46
Automatically Choose Connection Type
Delete
Window IoT1
Siren IoT2
Door IoT3
Light IoT0

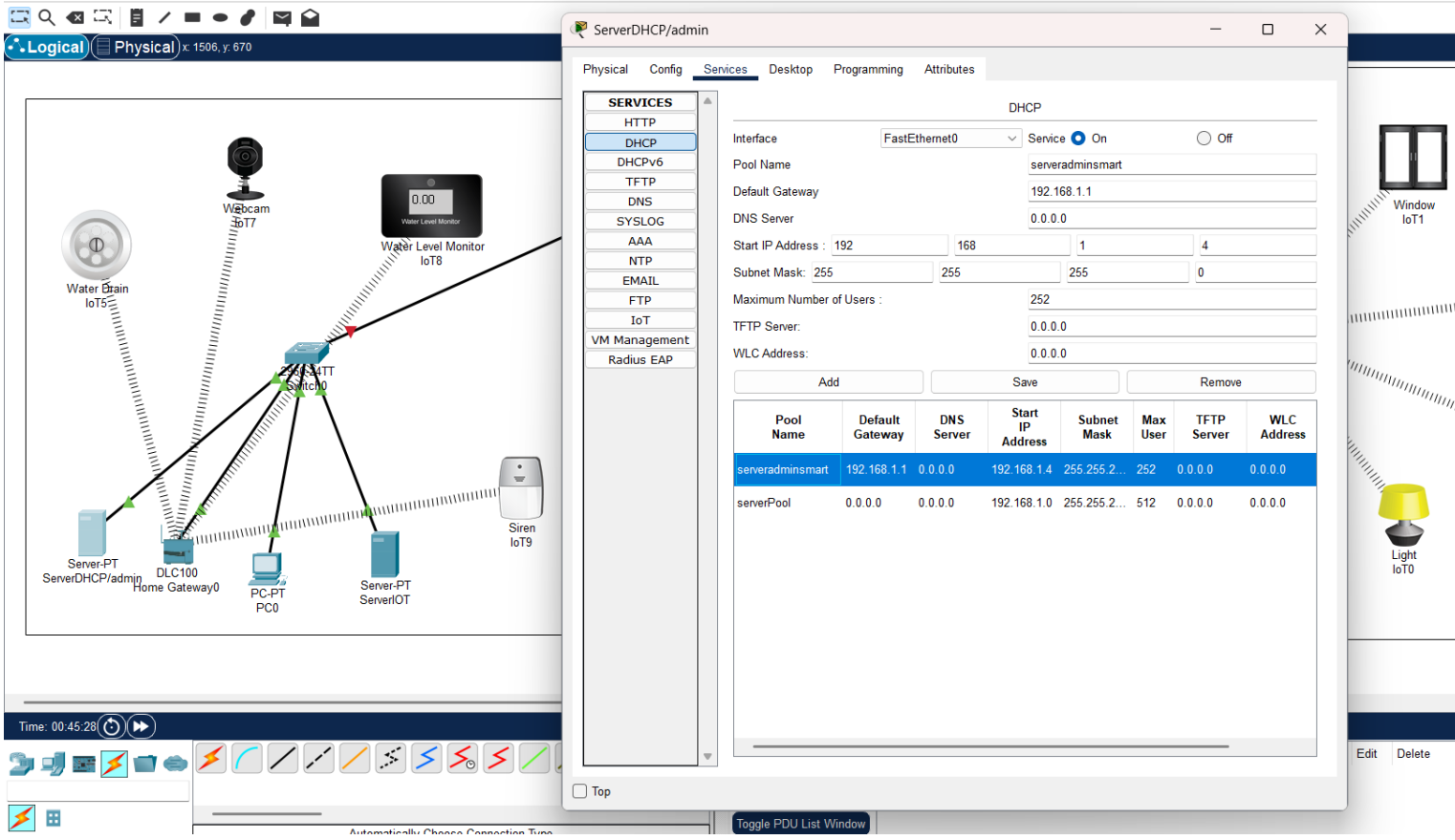

File Edit Options View Tools Extensions Window Help
Logical Physical x: 1549, y: 483
Webcam IoT7
Water Level Monitor IoT8
Water Drain IoT5
Switch0
Server-PT ServerDHCP/admin
DLC100 Home Gateway0
PC-PT PC0
Server-PT ServerIOT
Siren IoT9
Time: 00:39:03
IoT0
Specifications Physical Config Attributes
GLOBAL
Settings
Algorithm Settings
Files
INTERFACE
Wireless0
Bluetooth
Wireless0
Port Status
On
Bandwidth
200 Mbps
MAC Address
0010.1105.D252
SSID
smarthome
Authentication
Disabled
WEP
WPA-PSK
WPA2-PSK
WPA
WPA2
802.1X
Method:
MD5
WEP Key
PSK Pass Phrase
User ID
Password
User Name
Password
Encryption Type
Disabled
IP Configuration
DHCP
Static
IPv4 Address
192.168.25.114
Subnet Mask
255.255.255.0
IPv6 Configuration
Automatic
Static
IPv6 Address
Link Local Address
FE80::210:11FF:FE05:D252
Top
Advanced
Window IoT1
Siren IoT2
Door IoT3
Delete

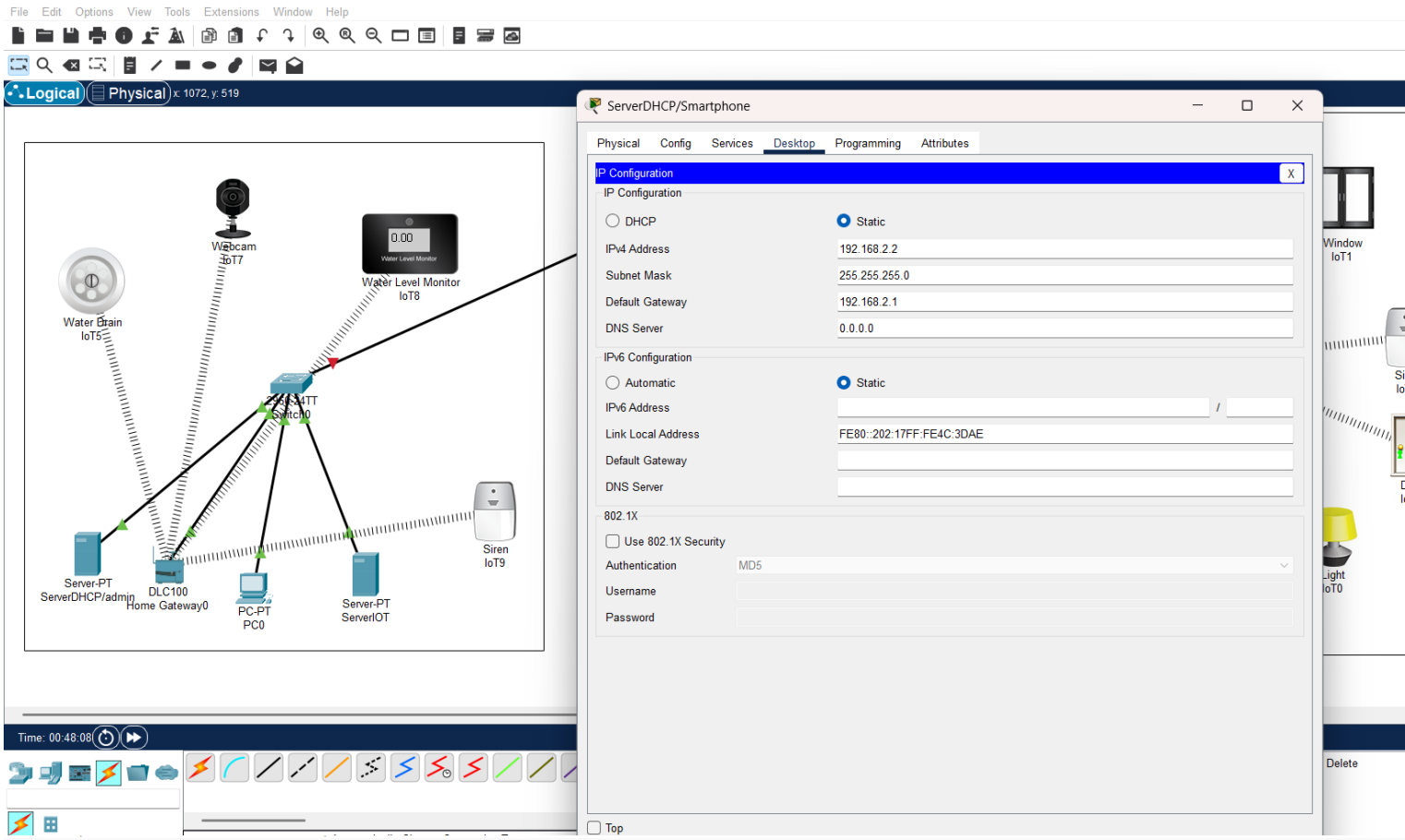

File Edit Options View Tools Extensions Window Help
Logical Physical x: 583, y: 220
Webcam IoT7
Water Level Monitor IoT8
Water Drain IoT5
Switch0
Server-PT ServerDHCP/admin
DLC100 Home Gateway0
PC-PT PC0
Server-PT ServerIOT
Siren IoT9
Time: 00:41:52
Automatically Choose Connection Type
ServerIOT
Physical Config Services Desktop Programming Attributes
IP Configuration
X
IP Configuration
DHCP
Static
IPv4 Address
192.168.1.2
Subnet Mask
255.255.255.0
Default Gateway
192.168.1.1
DNS Server
0.0.0.0
IPv6 Configuration
Automatic
Static
IPv6 Address
Link Local Address
FE80::201:43FF:FE0E:EC3D
Default Gateway
DNS Server
802.1X
Use 802.1X Security
Authentication
MD5
Username
Password
Top
Window IoT1
Siren IoT2
Door IoT3
Delete

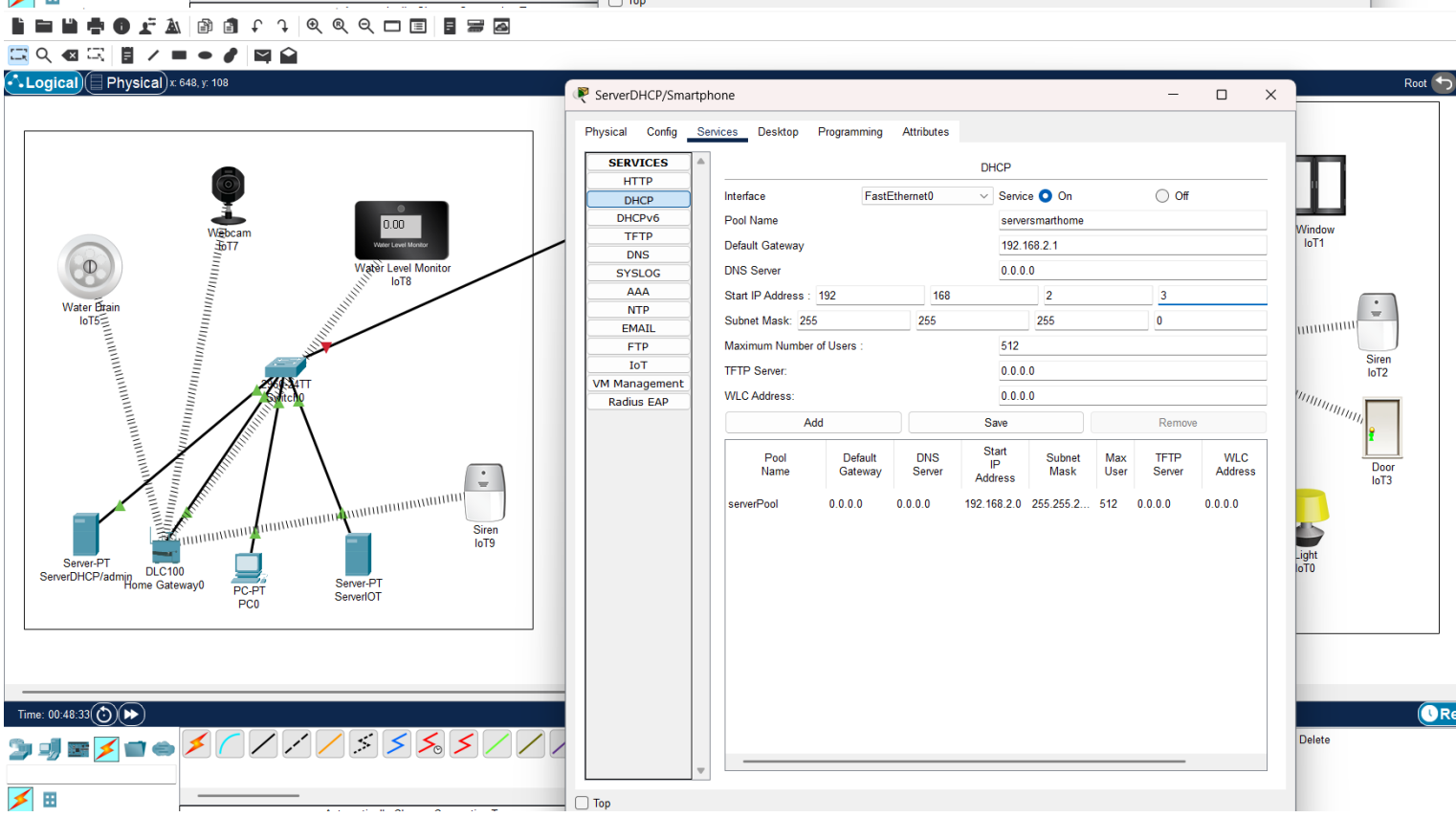

Logical
Physical
x: 1560, y: 388
Webcam
IoT7
0.00
Water Level Monitor
IoT8
Water Brain
IoT5
2960-24TT
Switch0
Siren
IoT9
Server-PT
ServerDHCP/admin
DLC100
Home Gateway0
PC-PT
PC0
Server-PT
ServerIOT
Time: 00:42:07
Automatically Choose Connection Type
ServerIOT
Physical
Config
Services
Desktop
Programming
Attributes
SERVICES
HTTP
DHCP
DHCPv6
TFTP
DNS
SYSLOG
AAA
NTP
EMAIL
FTP
IoT
VM Management
Radius EAP
Registration Server
This service runs on top of the HTTP or HTTPS service.
Service
On
Off
Delete
Top

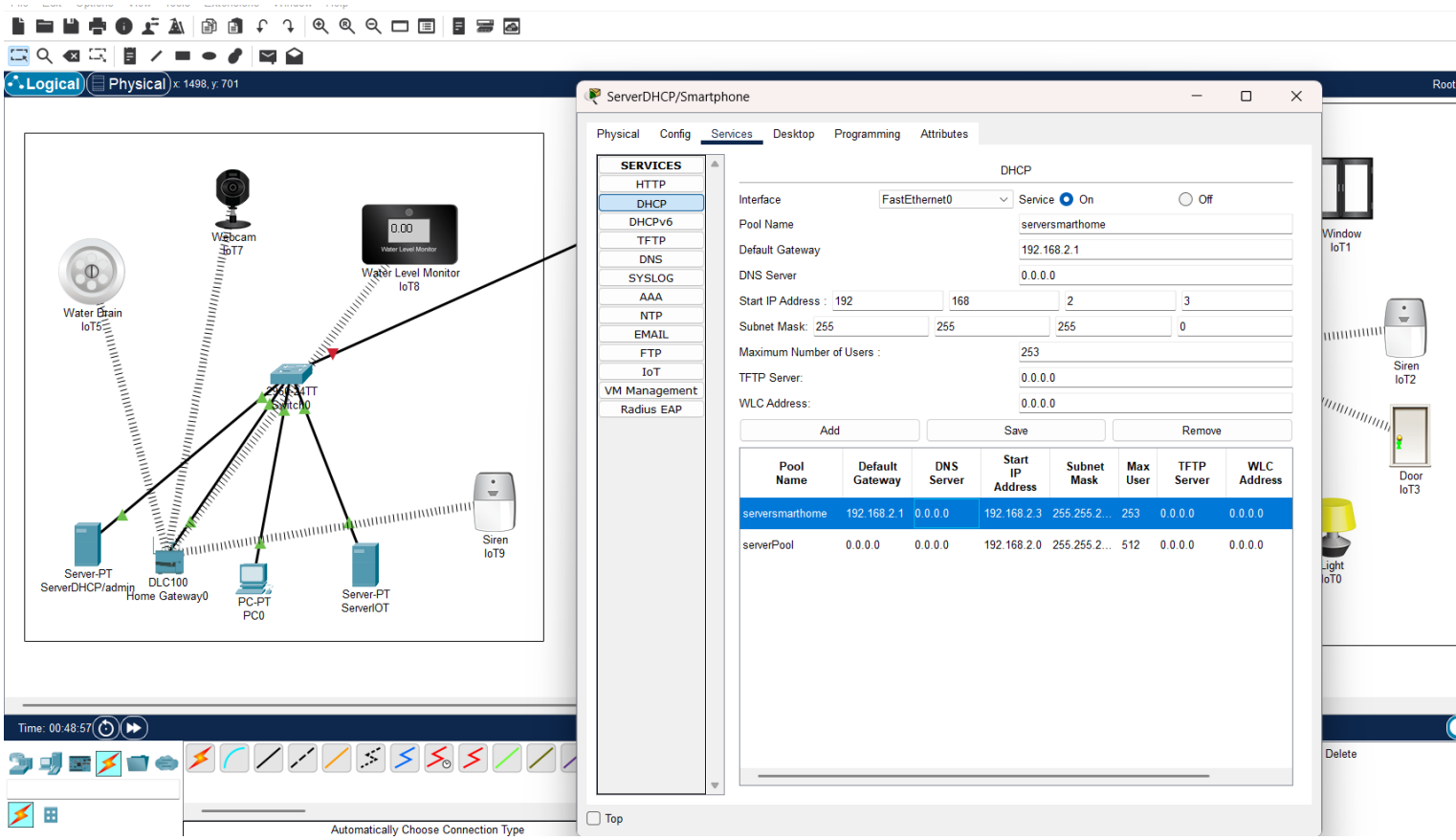

Logical
Physical
x: 643, y: 375
Webcam
IoT7
0.00
Water Level Monitor
IoT8
Water Brain
IoT5
2960-24TT
Switch0
Siren
IoT9
Server-PT
ServerDHCP/admin
DLC100
Home Gateway0
PC-PT
PC0
Server-PT
ServerIOT
Time: 00:44:13
Automatically Choose Connection Type
Toggle PDU List Window
ServerDHCP/admin
Physical
Config
Services
Desktop
Programming
Attributes
IP Configuration
X
IP Configuration
DHCP
Static
IPv4 Address
192.168.1.3
Subnet Mask
255.255.255.0
Default Gateway
192.168.1.1
DNS Server
0.0.0.0
IPv6 Configuration
Automatic
Static
IPv6 Address
Link Local Address
FE80::260:47FF:FE87:E5BE
Default Gateway
DNS Server
802.1X
Use 802.1X Security
Authentication
MD5
Username
Password
Top

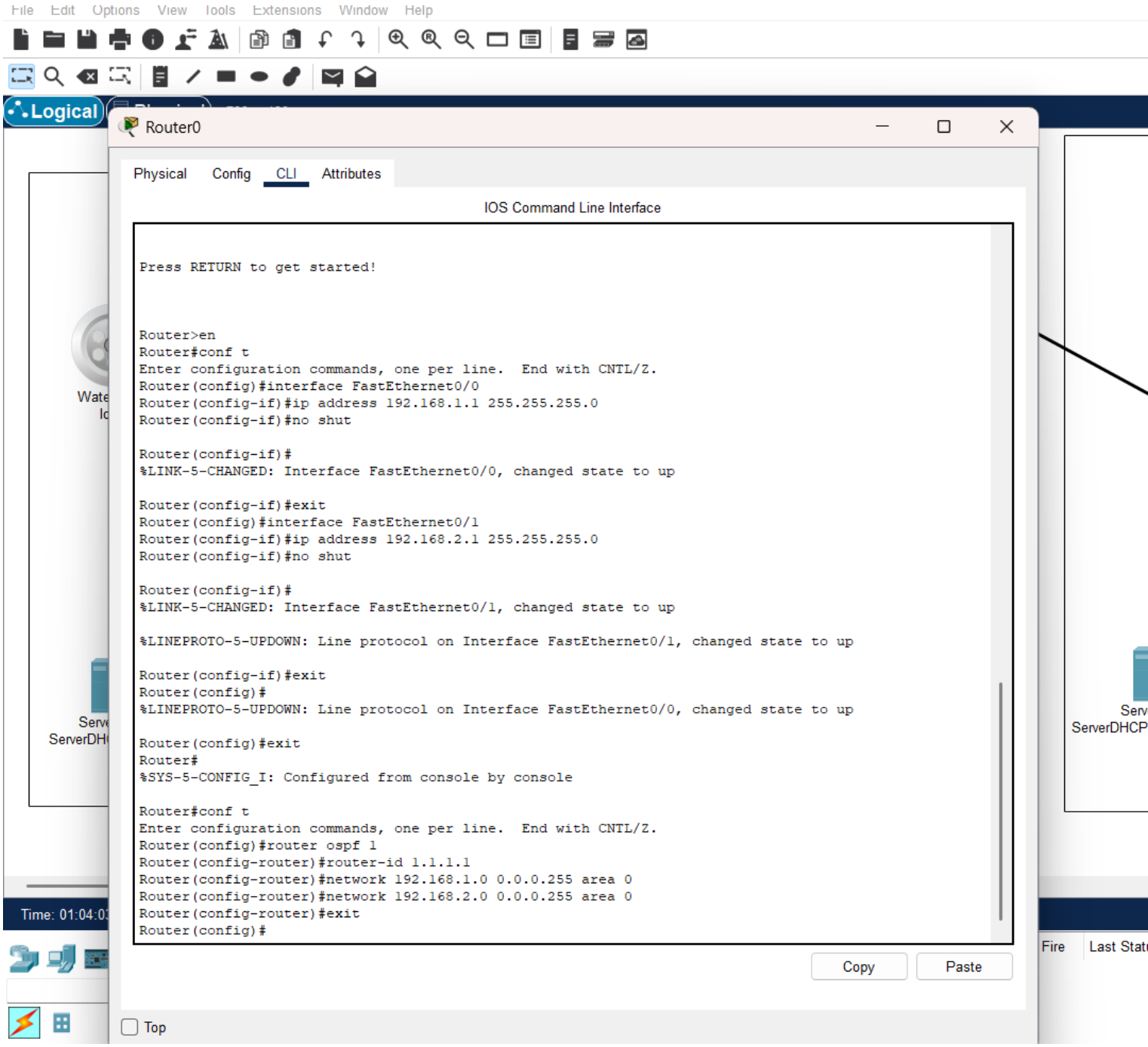

Cisco Packet Tracer
File Edit Options View Tools Extensions Window Help
Logical Physical x: 1577, y: 440
ServerDHCP/admin
Physical Config Services Desktop Programming Attributes
SERVICES
HTTP
DHCP
DHCPv6
TFTP
DNS
SYSLOG
AAA
NTP
EMAIL
FTP
IoT
VM Management
Radius EAP
DHCP
Interface FastEthernet0 Service On Off
Pool Name serveradminsmart
Default Gateway 192.168.1.1
DNS Server 0.0.0.0
Start IP Address : 192 168 1 4
Subnet Mask: 255 255 255 0
Maximum Number of Users : 512
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 | WLC Address
serverPool | 0.0.0.0 | 0.0.0.0 | 192.168.1.0 | 255.255.2... | 512 | 0.0.0.0 | 0.0.0.0
Top
Webcam IoT7
Water Level Monitor IoT8
Water Drain IoT5
Switch0
Server-PT ServerDHCP/admin
DLC100 Home Gateway0
PC-PT PC0
Server-PT ServerIOT
Siren IoT9
Window IoT1
Light IoT0
Time: 00:45:09
Toggle PDU List Window
Edit Delete

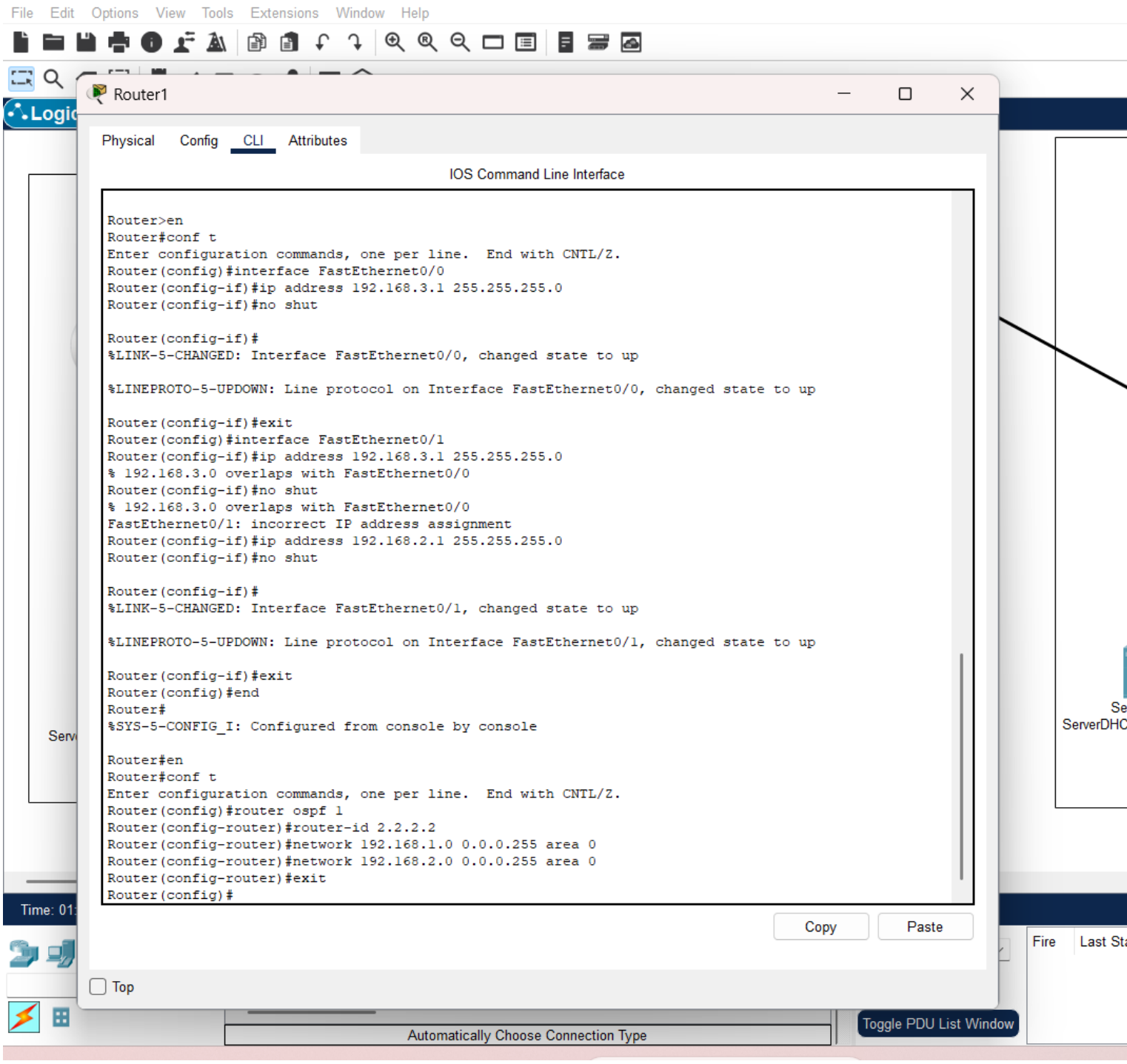

Logical Physical x: 1506, y: 670
ServerDHCP/admin
Physical Config Services Desktop Programming Attributes
SERVICES
HTTP
DHCP
DHCPv6
TFTP
DNS
SYSLOG
AAA
NTP
EMAIL
FTP
IoT
VM Management
Radius EAP
DHCP
Interface FastEthernet0 Service On Off
Pool Name serveradminsmart
Default Gateway 192.168.1.1
DNS Server 0.0.0.0
Start IP Address : 192 168 1 4
Subnet Mask: 255 255 255 0
Maximum Number of Users : 252
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 | WLC Address
serveradminsmart | 192.168.1.1 | 0.0.0.0 | 192.168.1.4 | 255.255.2... | 252 | 0.0.0.0 | 0.0.0.0
serverPool | 0.0.0.0 | 0.0.0.0 | 192.168.1.0 | 255.255.2... | 512 | 0.0.0.0 | 0.0.0.0
Top
Webcam IoT7
Water Level Monitor IoT8
Water Drain IoT5
Switch0
Server-PT ServerDHCP/admin
DLC100 Home Gateway0
PC-PT PC0
Server-PT ServerIOT
Siren IoT9
Window IoT1
Light IoT0
Time: 00:45:28
Toggle PDU List Window
Edit Delete

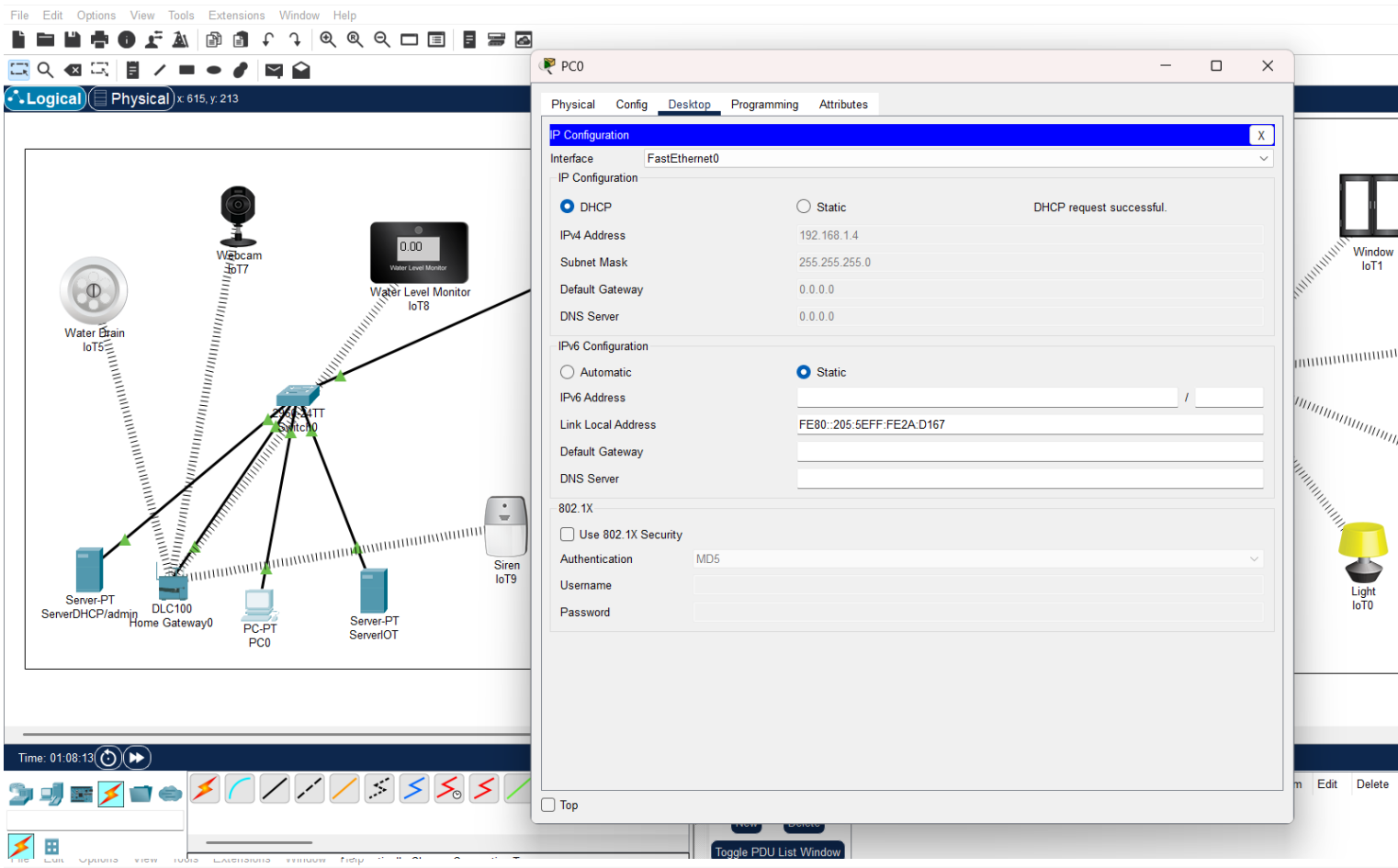

File Edit Options View Tools Extensions Window Help
Logical Physical x: 1072, y: 519
Webcam IoT7
Water Level Monitor IoT8
Water Brain IoT5
Switch0
Siren IoT9
Server-PT ServerDHCP/admin
DLC100 Home Gateway0
PC-PT PC0
Server-PT ServerIOT
Window IoT1
Light IoT0
Time: 00:48:08
Delete
ServerDHCP/Smartphone
Physical Config Services Desktop Programming Attributes
IP Configuration
IP Configuration
DHCP
Static
IPv4 Address 192.168.2.2
Subnet Mask 255.255.255.0
Default Gateway 192.168.2.1
DNS Server 0.0.0.0
IPv6 Configuration
Automatic
Static
IPv6 Address
Link Local Address FE80::202:17FF:FE4C:3DAE
Default Gateway
DNS Server
802.1X
Use 802.1X Security
Authentication MD5
Username
Password
Top

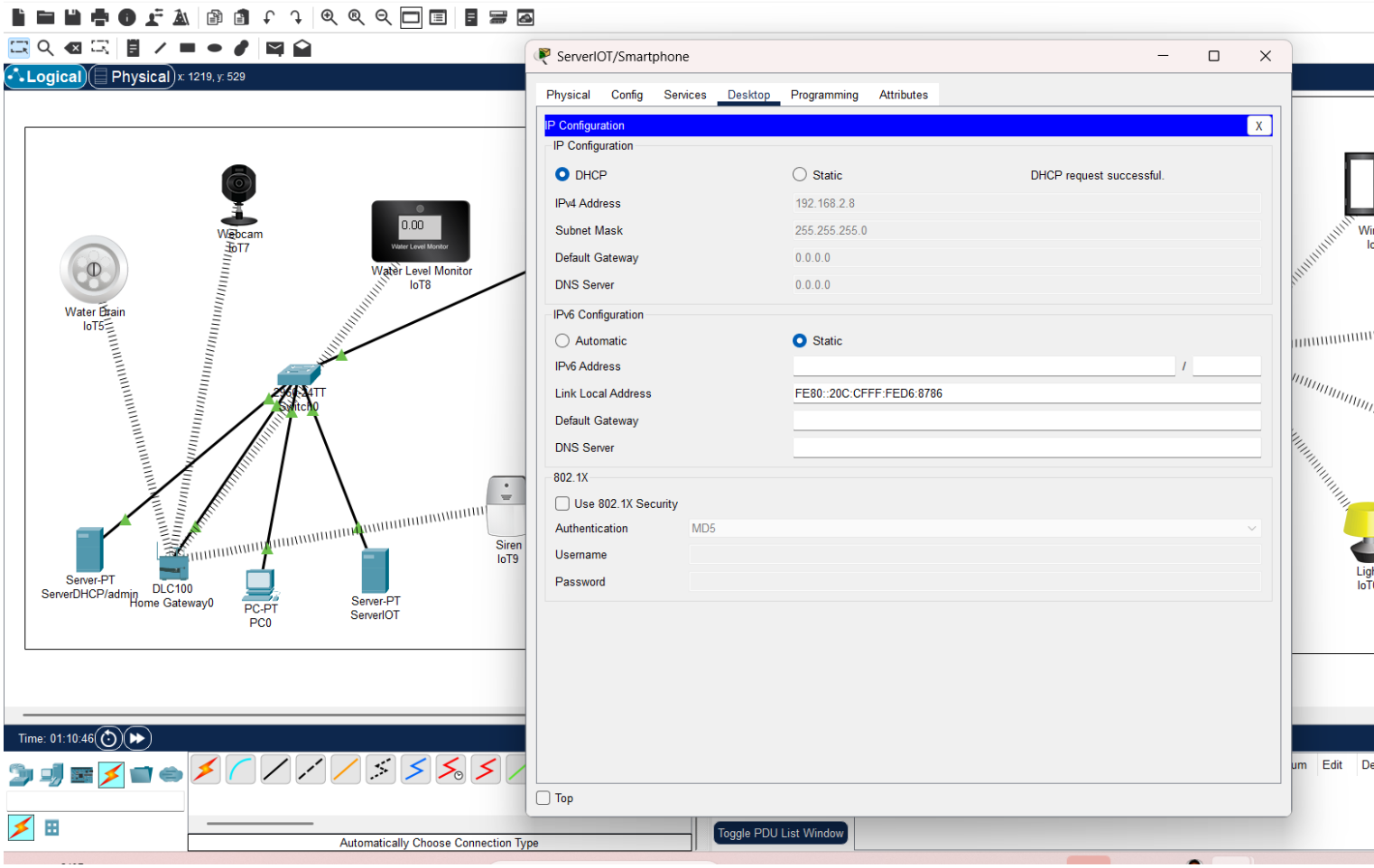

Logical Physical x: 648, y: 108
Root
Webcam IoT7
Water Level Monitor IoT8
Water Brain IoT5
Switch0
Siren IoT9
Server-PT ServerDHCP/admin
DLC100 Home Gateway0
PC-PT PC0
Server-PT ServerIOT
Window IoT1
Siren IoT2
Door IoT3
Light IoT0
Time: 00:48:33
Delete
ServerDHCP/Smartphone
Physical Config Services 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 servermarthome
Default Gateway 192.168.2.1
DNS Server 0.0.0.0
Start IP Address : 192 168 2 3
Subnet Mask: 255 255 255 0
Maximum Number of Users : 512
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 WLC Address
serverPool 0.0.0.0 0.0.0.0 192.168.2.0 255.255.2... 512 0.0.0.0 0.0.0.0
Top

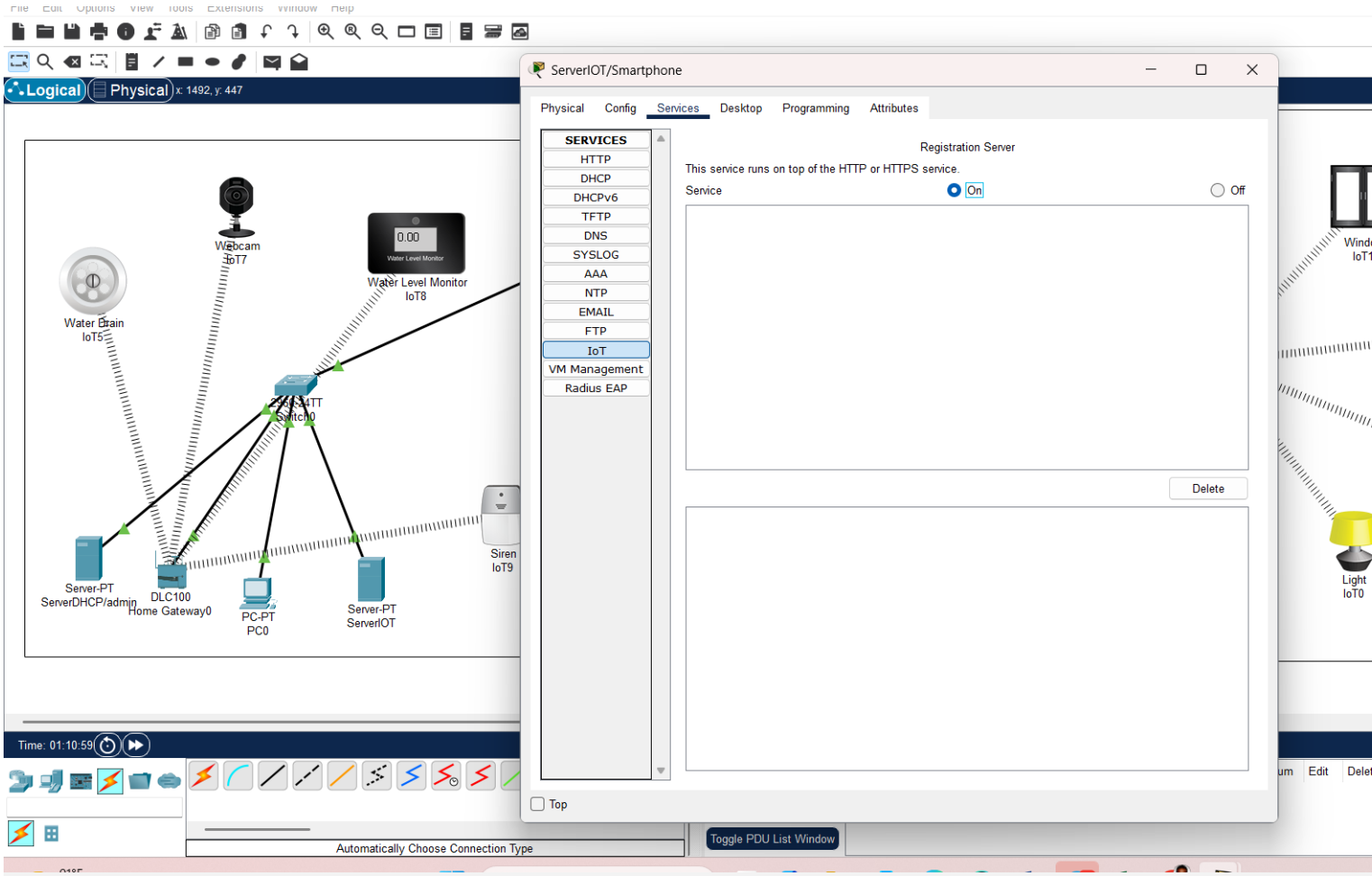

Logical
Physical
x: 1498, y: 701
Webcam
IoT7
Water Level Monitor
IoT8
Water Brain
IoT5
Switch0
Server-PT
ServerDHCP/admin
DLC100
Home Gateway0
PC-PT
PC0
Server-PT
ServerIOT
Siren
IoT9
Time: 00:48:57
Automatically Choose Connection Type
ServerDHCP/Smartphone
Physical
Config
Services
Desktop
Programming
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
serversmarthome
Default Gateway
192.168.2.1
DNS Server
0.0.0.0
Start IP Address :
192
168
2
3
Subnet Mask:
255
255
255
0
Maximum Number of Users :
253
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
WLC Address
serversmarthome
192.168.2.1
0.0.0.0
192.168.2.3
255.255.2...
253
0.0.0.0
0.0.0.0
serverPool
0.0.0.0
0.0.0.0
192.168.2.0
255.255.2...
512
0.0.0.0
0.0.0.0
Top
Window
IoT1
Siren
IoT2
Door
IoT3
Delete

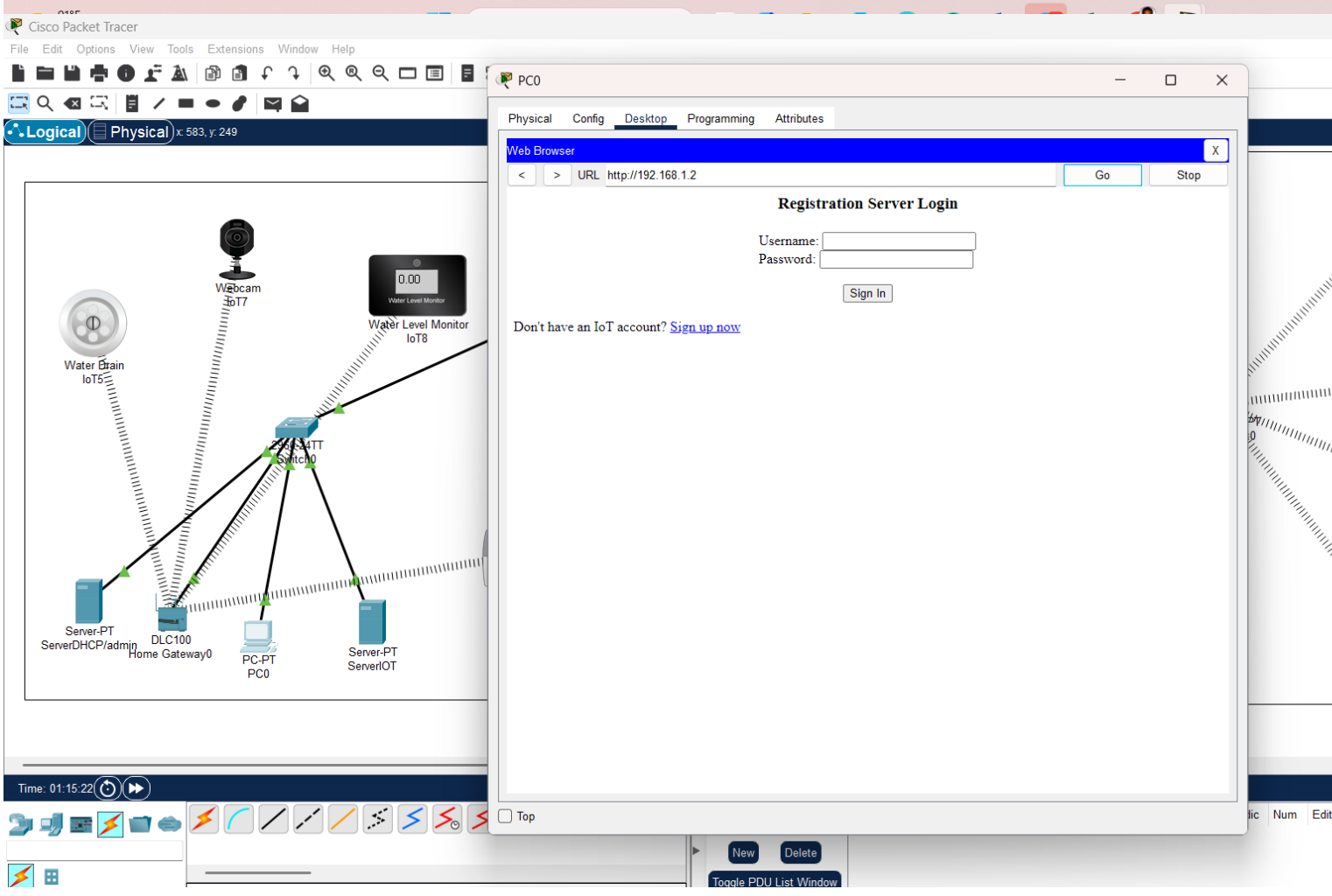

File Edit Options View Tools Extensions Window Help
Logical
Router0
Physical Config CLI Attributes
IOS Command Line Interface
Press RETURN to get started!
Router>en
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#ip address 192.168.1.1 255.255.255.0
Router(config-if)#no shut
Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up
Router(config-if)#exit
Router(config)#interface FastEthernet0/1
Router(config-if)#ip address 192.168.2.1 255.255.255.0
Router(config-if)#no shut
Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up
Router(config-if)#exit
Router(config)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#router ospf 1
Router(config-router)#router-id 1.1.1.1
Router(config-router)#network 192.168.1.0 0.0.0.255 area 0
Router(config-router)#network 192.168.2.0 0.0.0.255 area 0
Router(config-router)#exit
Router(config)#
Copy
Paste
Top
Time: 01:04:0
Fire
Last Stat

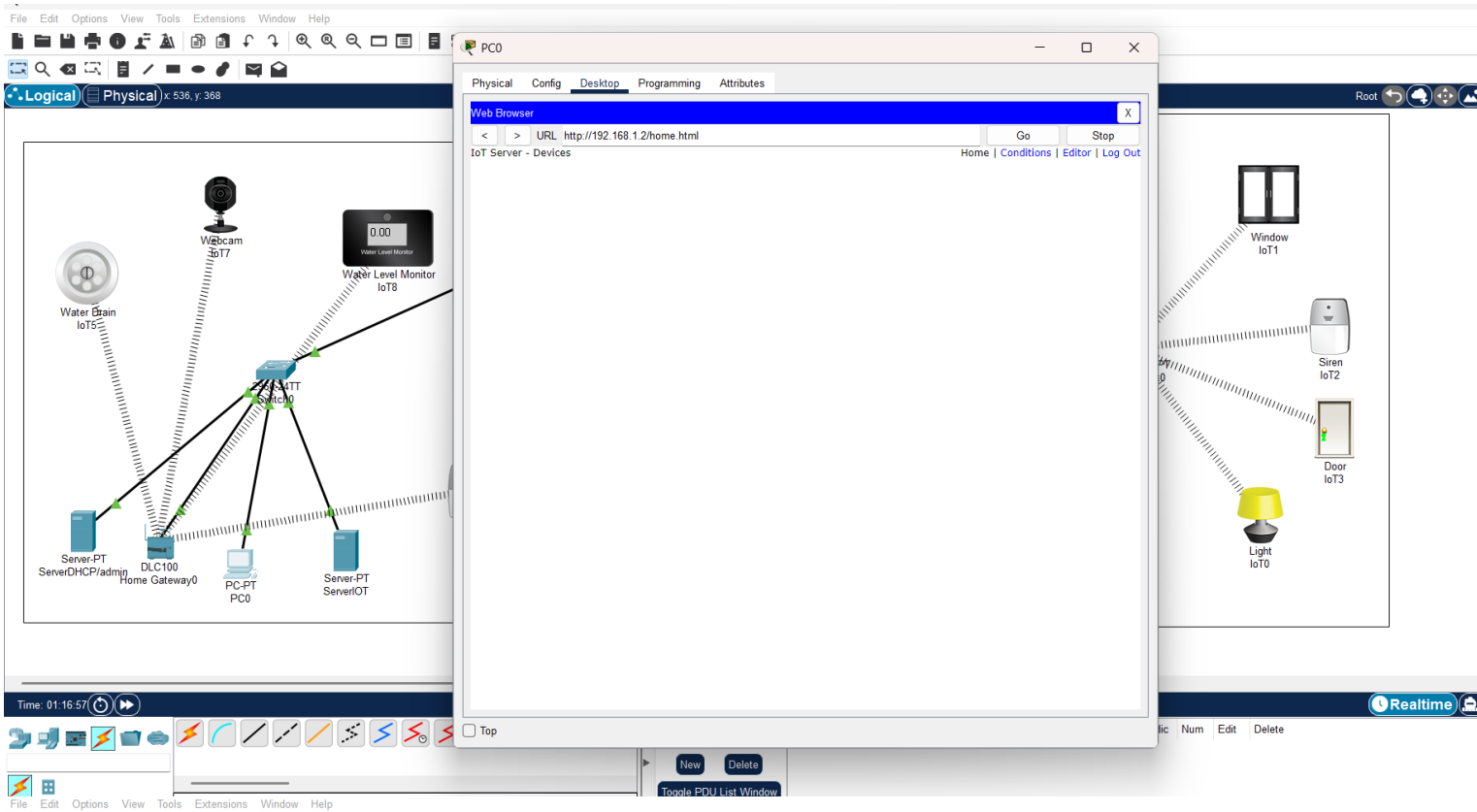

File Edit Options View Tools Extensions Window Help
Router1
Physical Config CLI Attributes
IOS Command Line Interface
Router>en
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#ip address 192.168.3.1 255.255.255.0
Router(config-if)#no shut
Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
Router(config-if)#exit
Router(config)#interface FastEthernet0/1
Router(config-if)#ip address 192.168.3.1 255.255.255.0
% 192.168.3.0 overlaps with FastEthernet0/0
Router(config-if)#no shut
% 192.168.3.0 overlaps with FastEthernet0/0
FastEthernet0/1: incorrect IP address assignment
Router(config-if)#ip address 192.168.2.1 255.255.255.0
Router(config-if)#no shut
Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up
Router(config-if)#exit
Router(config)#end
Router#
%SYS-5-CONFIG_I: Configured from console by console
Router#en
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#router ospf 1
Router(config-router)#router-id 2.2.2.2
Router(config-router)#network 192.168.1.0 0.0.0.255 area 0
Router(config-router)#network 192.168.2.0 0.0.0.255 area 0
Router(config-router)#exit
Router(config)#
Copy
Paste
Top
Automatically Choose Connection Type
Toggle PDU List Window

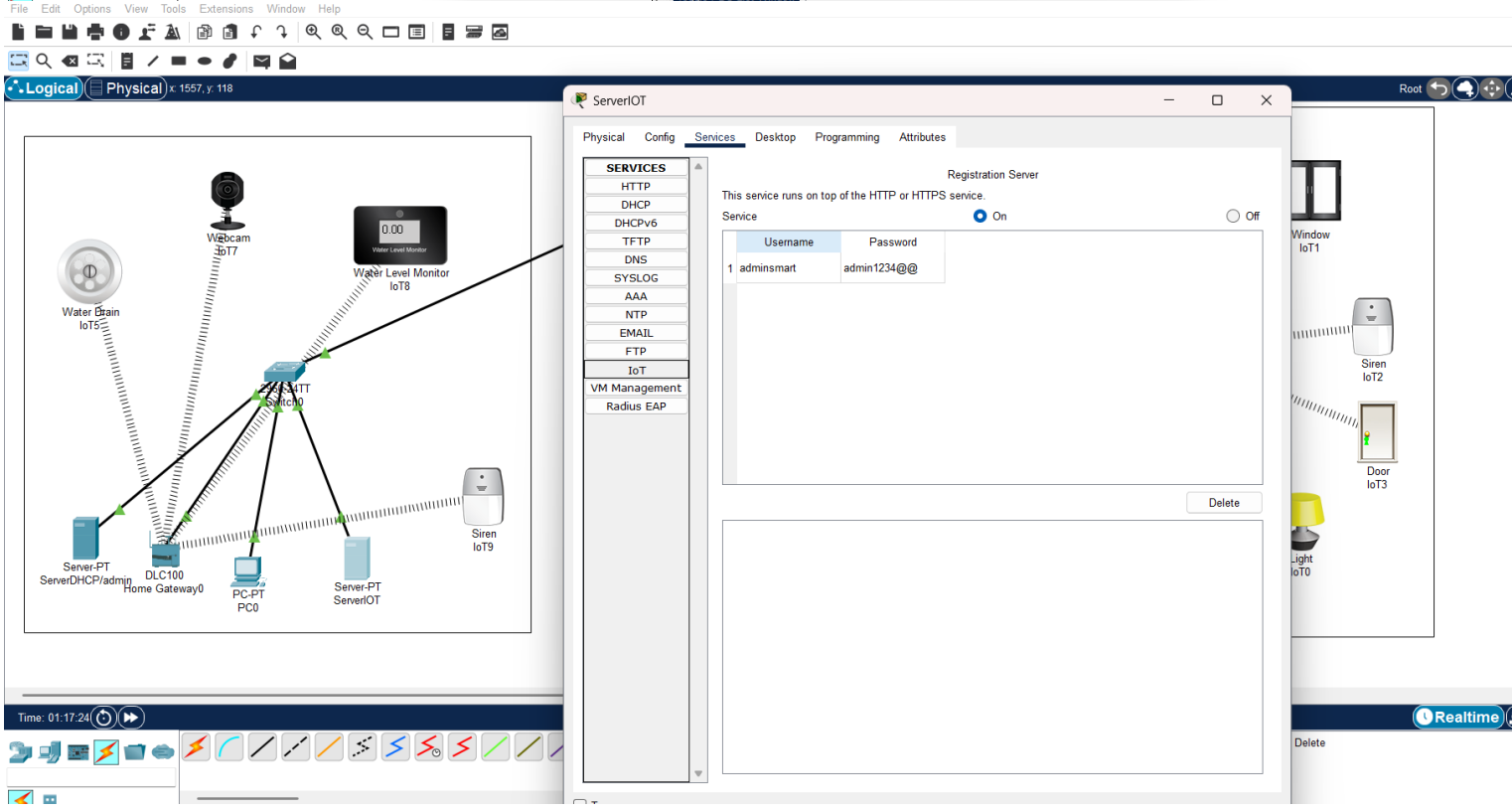

File Edit Options View Tools Extensions Window Help
Logical
Physical
x: 615, y: 213
Webcam IoT7
Water Level Monitor IoT8
Water Brain IoT5
Switch0
Siren IoT9
Server-PT ServerDHCP/admin
DLC100 Home Gateway0
PC-PT PC0
Server-PT ServerIOT
Window IoT1
Light IoT0
Time: 01:08:13
Toggle PDU List Window
PC0
Physical
Config
Desktop
Programming
Attributes
IP Configuration
Interface
FastEthernet0
DHCP
Static
DHCP request successful.
IPv4 Address
192.168.1.4
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::205:5EFF:FE2A:D167
802.1X
Use 802.1X Security
Authentication
MD5
Username
Password
Top

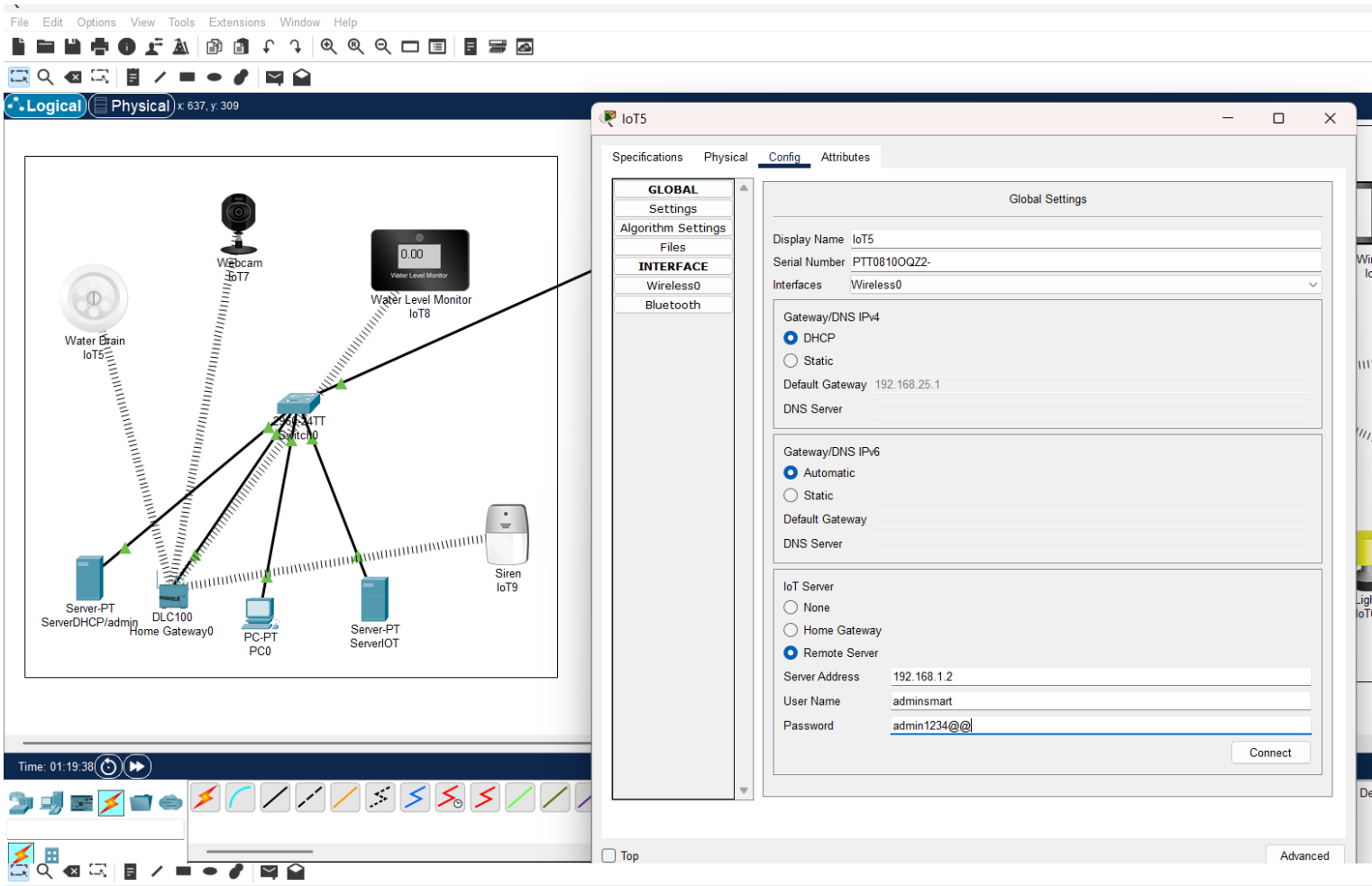

Logical
Physical
x: 1219, y: 529
Webcam IoT7
Water Level Monitor IoT8
Water Brain IoT5
Switch0
Siren IoT9
Server-PT ServerDHCP/admin
DLC100 Home Gateway0
PC-PT PC0
Server-PT ServerIOT
Time: 01:10:46
Automatically Choose Connection Type
Toggle PDU List Window
ServerIOT/Smartphone
Physical
Config
Services
Desktop
Programming
Attributes
IP Configuration
DHCP
Static
DHCP request successful.
IPv4 Address
192.168.2.8
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::20C:CFFF:FED6:8786
802.1X
Use 802.1X Security
Authentication
MD5
Username
Password
Top

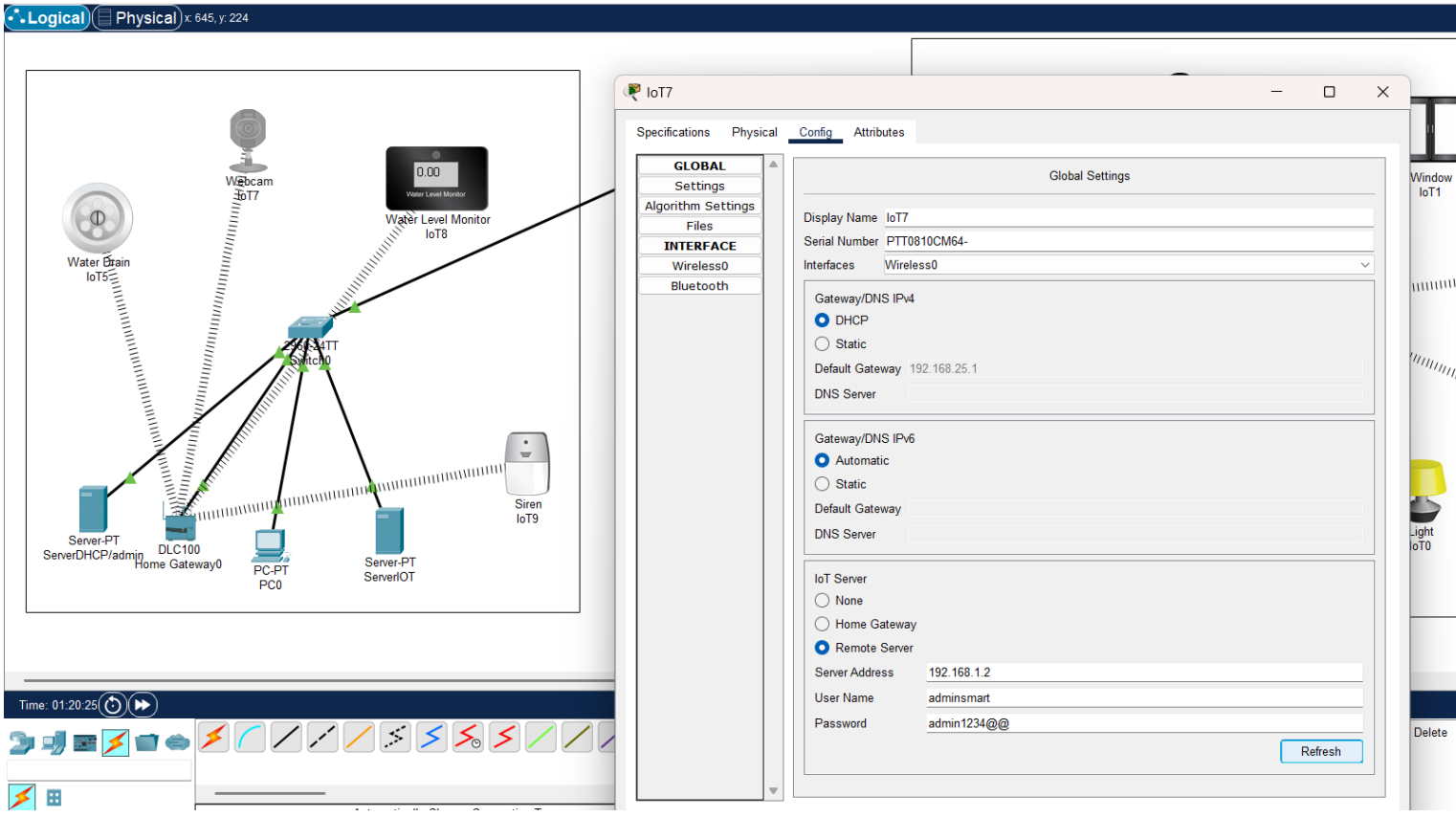

ServerIOT/Smartphone
Physical
Config
Services
Desktop
Programming
Attributes
SERVICES
HTTP
DHCP
DHCPv6
TFTP
DNS
SYSLOG
AAA
NTP
EMAIL
FTP
IoT
VM Management
Radius EAP
Registration Server
This service runs on top of the HTTP or HTTPS service.
Service
On
Off
Delete
Top
Logical
Physical
x: 1492, y: 447
Webcam
IoT7
Water Level Monitor
IoT8
Water Brain
IoT5
Siren
IoT9
Server-PT
ServerDHCP/admin
DLC100
Home Gateway0
PC-PT
PC0
Server-PT
ServerIOT
Time: 01:10:59
Automatically Choose Connection Type
Toggle PDU List Window

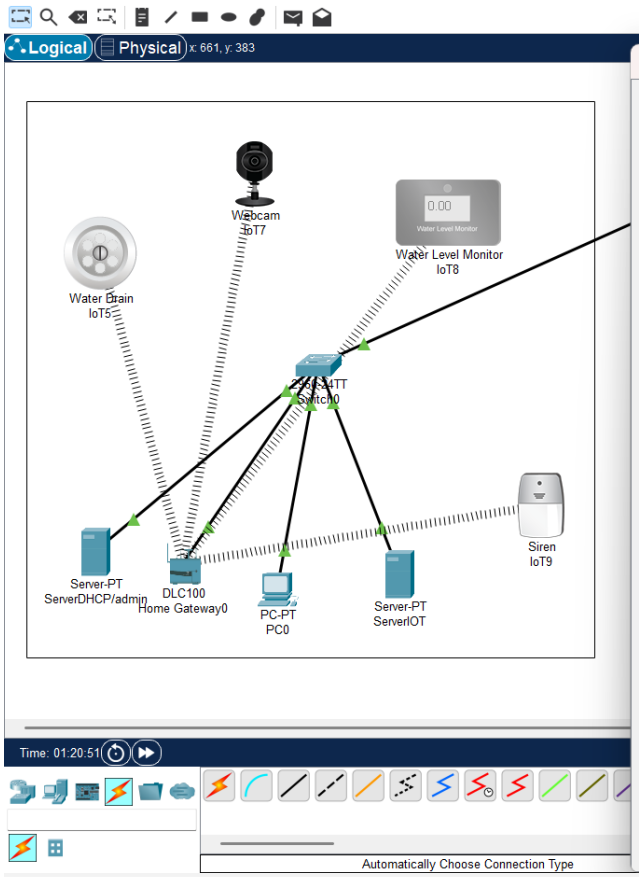

Cisco Packet Tracer
File
Edit
Options
View
Tools
Extensions
Window
Help
PC0
Physical
Config
Desktop
Programming
Attributes
Web Browser
URL
http://192.168.1.2
Go
Stop
Registration Server Login
Username:
Password:
Sign In
Don't have an IoT account? Sign up now
Top
Logical
Physical
x: 583, y: 249
Webcam
IoT7
Water Level Monitor
IoT8
Water Brain
IoT5
Server-PT
ServerDHCP/admin
DLC100
Home Gateway0
PC-PT
PC0
Server-PT
ServerIOT
Time: 01:15:22
New
Delete
Toggle PDU List Window

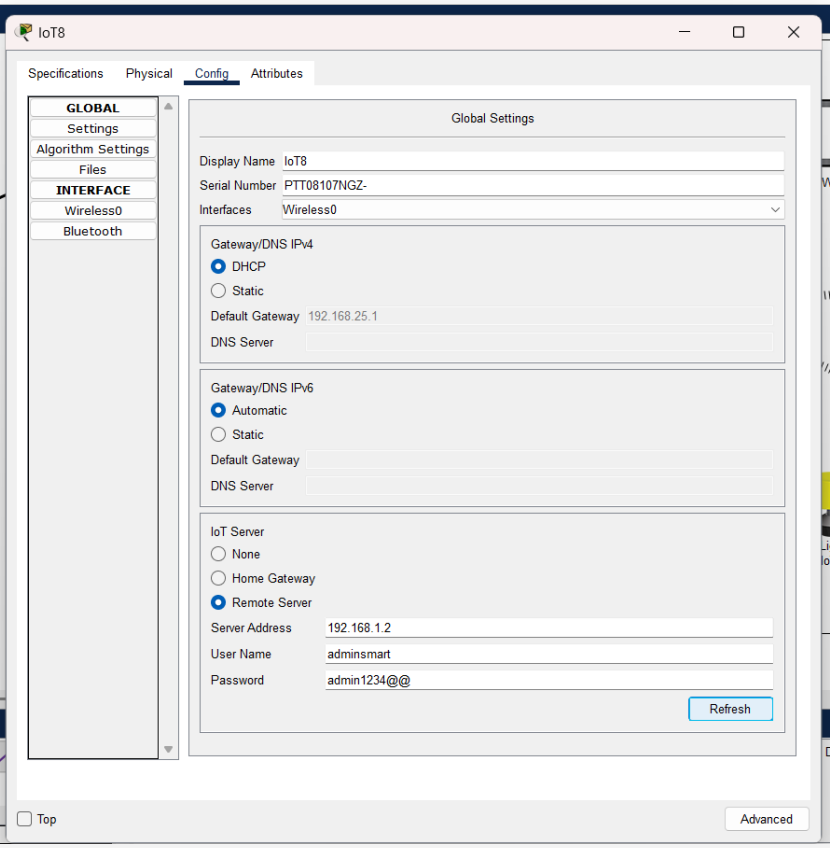

PC0
Physical
Config
Desktop
Programming
Attributes
Web Browser
URL http://192.168.1.2/home.html
Go
Stop
IoT Server - Devices
Home | Conditions | Editor | Log Out
Top
Webcam
IoT7
Water Level Monitor
IoT8
Water Brain
IoT5
Server-PT
ServerDHCP/admin
DLC100
Home Gateway0
PC-PT
PC0
Server-PT
ServerIOT
Window
IoT1
Siren
IoT2
Door
IoT3
Light
IoT0
Time: 01:16:57
Realtime
New
Delete
Toggle PDU List Window

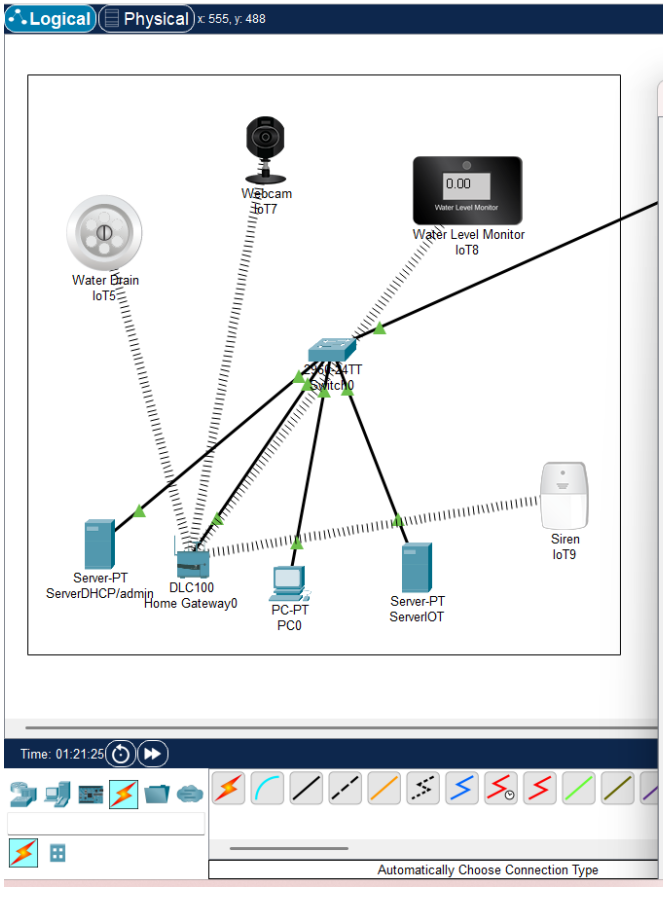

ServerIOT
Physical
Config
Services
Desktop
Programming
Attributes
SERVICES
HTTP
DHCP
DHCPv6
TFTP
DNS
SYSLOG
AAA
NTP
EMAIL
FTP
IoT
VM Management
Radius EAP
Registration Server
This service runs on top of the HTTP or HTTPS service.
Service
On
Off
Username
Password
1 adminsmart
admin1234@@
Delete
Webcam
IoT7
Water Level Monitor
IoT8
Water Brain
IoT5
Server-PT
ServerDHCP/admin
DLC100
Home Gateway0
PC-PT
PC0
Server-PT
ServerIOT
Siren
IoT9
Window
IoT1
Siren
IoT2
Door
IoT3
Time: 01:17:24
Realtime

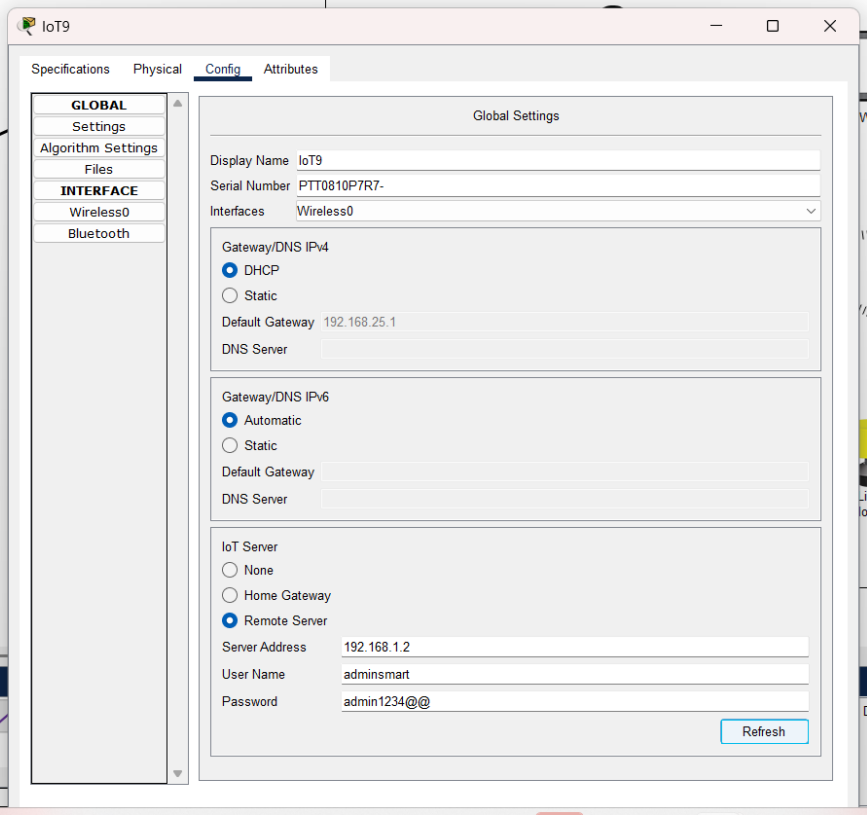

File Edit Options View Tools Extensions Window Help
Logical Physical x: 637, y: 309
Webcam IoT7
0.00
Water Level Monitor
Water Level Monitor IoT8
Water Drain IoT5
Switch0
Siren IoT9
Server-PT ServerDHCP/admin
DLC100 Home Gateway0
PC-PT PC0
Server-PT ServerIOT
Time: 01:19:38
IoT5
Specifications Physical Config Attributes
GLOBAL
Settings
Algorithm Settings
Files
INTERFACE
Wireless0
Bluetooth
Global Settings
Display Name IoT5
Serial Number PTT0810OQZ2-
Interfaces Wireless0
Gateway/DNS IPv4
DHCP
Static
Default Gateway 192.168.25.1
DNS Server
Gateway/DNS IPv6
Automatic
Static
Default Gateway
DNS Server
IoT Server
None
Home Gateway
Remote Server
Server Address 192.168.1.2
User Name adminsmart
Password admin1234@@
Connect
Top
Advanced

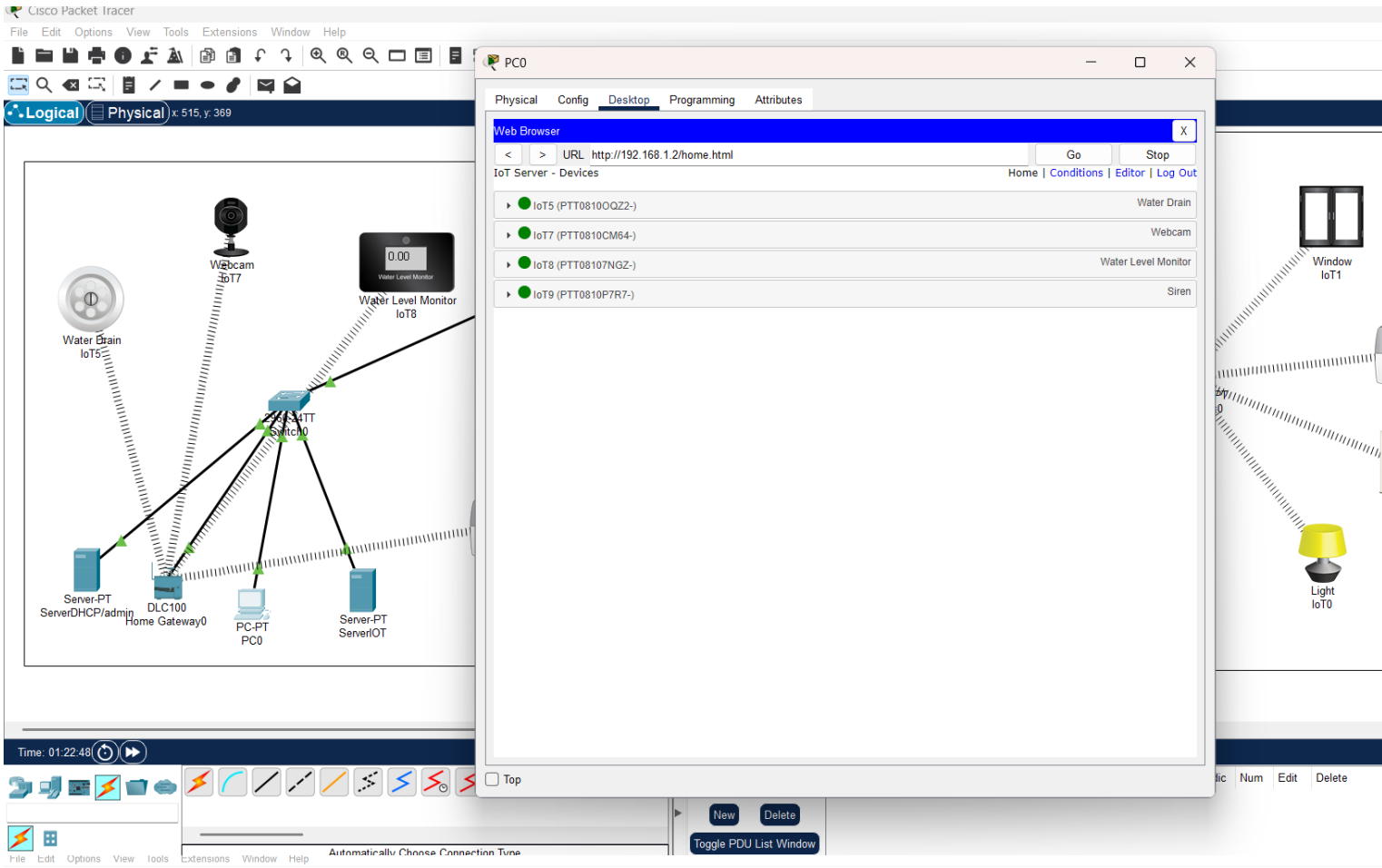

Logical Physical x: 645, y: 224
Webcam IoT7
0.00
Water Level Monitor
Water Level Monitor IoT8
Water Drain IoT5
Switch0
Siren IoT9
Server-PT ServerDHCP/admin
DLC100 Home Gateway0
PC-PT PC0
Server-PT ServerIOT
Time: 01:20:25
IoT7
Specifications Physical Config Attributes
GLOBAL
Settings
Algorithm Settings
Files
INTERFACE
Wireless0
Bluetooth
Global Settings
Display Name IoT7
Serial Number PTT0810CM64-
Interfaces Wireless0
Gateway/DNS IPv4
DHCP
Static
Default Gateway 192.168.25.1
DNS Server
Gateway/DNS IPv6
Automatic
Static
Default Gateway
DNS Server
IoT Server
None
Home Gateway
Remote Server
Server Address 192.168.1.2
User Name adminsmart
Password admin1234@@
Refresh

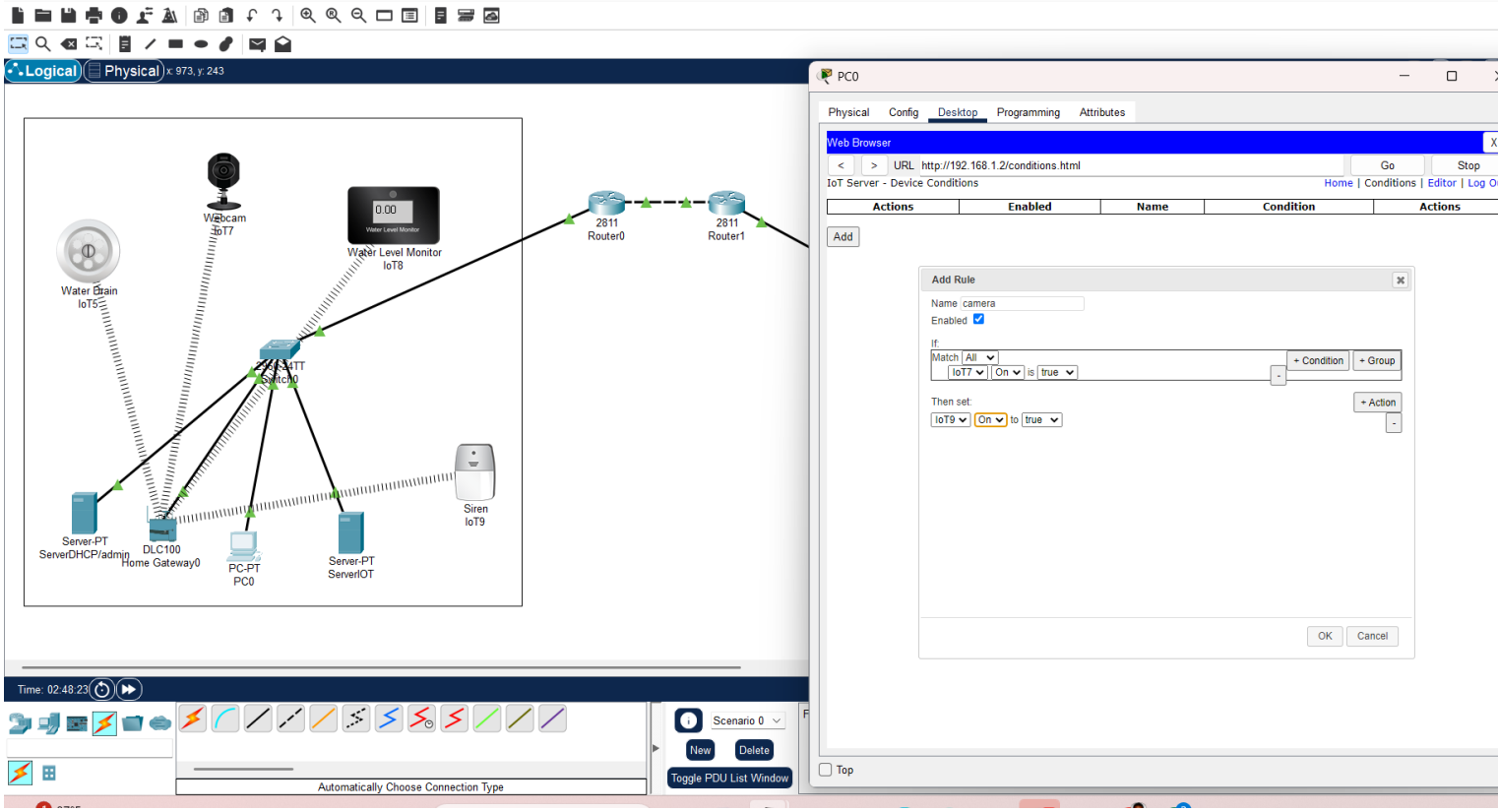

Logical
Physical
x: 661, y: 383
Webcam
IoT7
Water Level Monitor
IoT8
Water Brain
IoT5
Switch0
Siren
IoT9
Server-PT
ServerDHCP/admin
DLC100
Home Gateway0
PC-PT
PC0
Server-PT
ServerIOT
Time: 01:20:51
Automatically Choose Connection Type

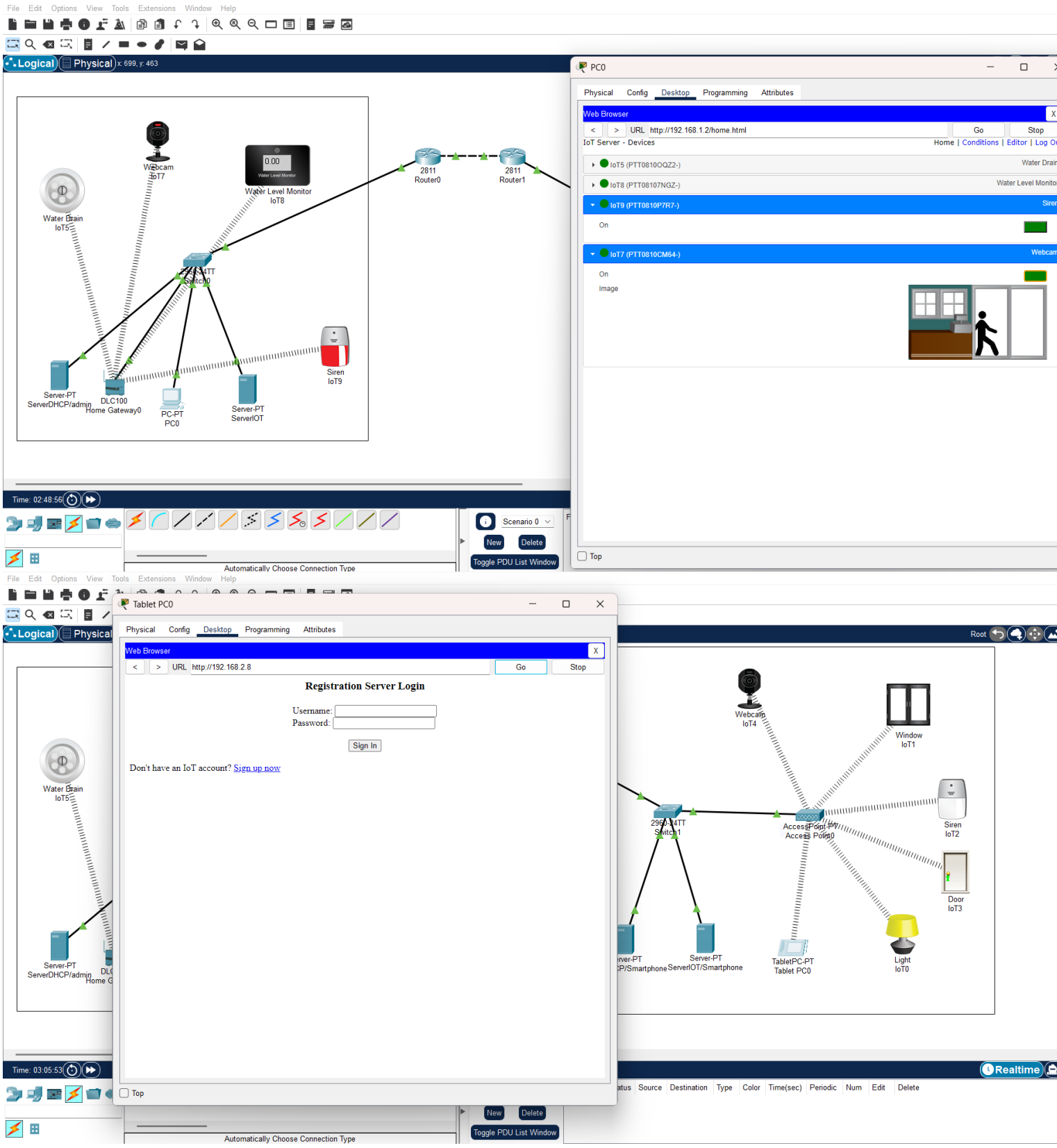

IoT8
Specifications
Physical
Config
Attributes
GLOBAL
Settings
Algorithm Settings
Files
INTERFACE
Wireless0
Bluetooth
Global Settings
Display Name IoT8
Serial Number PTT08107NGZ-
Interfaces Wireless0
Gateway/DNS IPv4
DHCP
Static
Default Gateway 192.168.25.1
DNS Server
Gateway/DNS IPv6
Automatic
Static
Default Gateway
DNS Server
IoT Server
None
Home Gateway
Remote Server
Server Address 192.168.1.2
User Name adminsmart
Password admin1234@@
Refresh
Top
Advanced

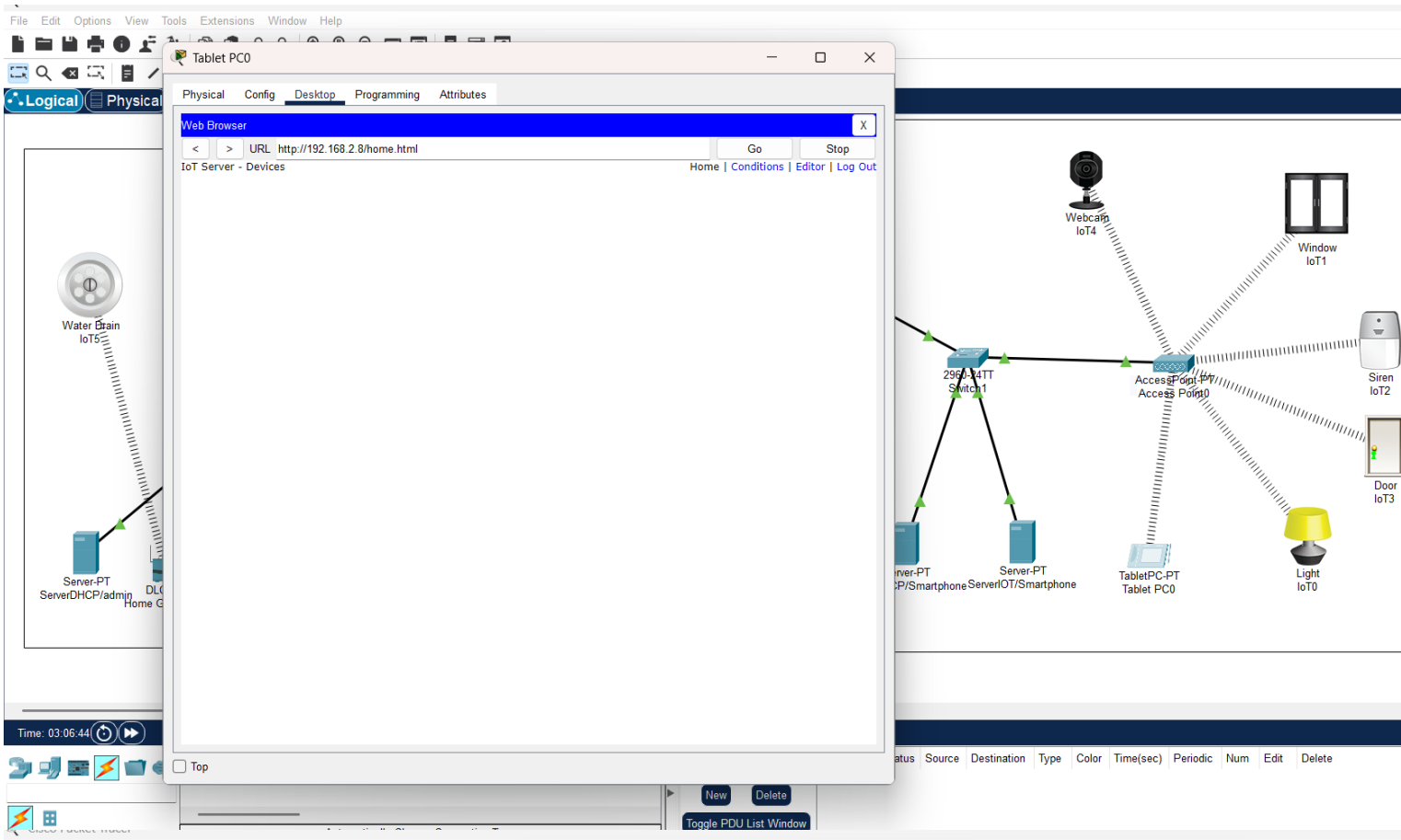

Logical
Physical
x: 555, y: 488
Webcam
IoT7
Water Level Monitor
IoT8
Water Brain
IoT5
Switch0
Siren
IoT9
Server-PT
ServerDHCP/admin
DLC100
Home Gateway0
PC-PT
PC0
Server-PT
ServerIOT
Time: 01:21:25
Automatically Choose Connection Type

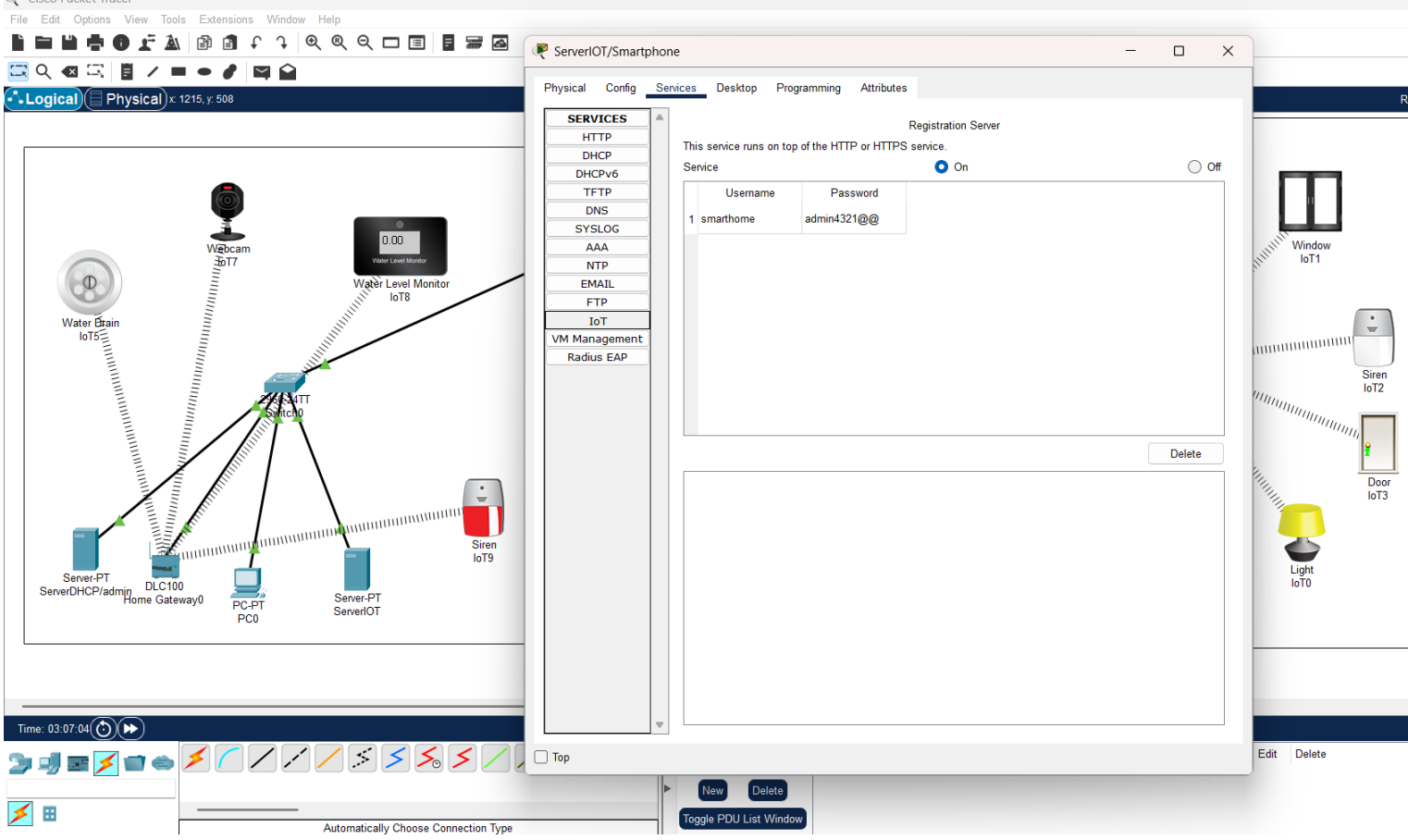

IoT9
Specifications
Physical
Config
Attributes
GLOBAL
Settings
Algorithm Settings
Files
INTERFACE
Wireless0
Bluetooth
Global Settings
Display Name IoT9
Serial Number PTT0810P7R7-
Interfaces Wireless0
Gateway/DNS IPv4
DHCP
Static
Default Gateway 192.168.25.1
DNS Server
Gateway/DNS IPv6
Automatic
Static
Default Gateway
DNS Server
IoT Server
None
Home Gateway
Remote Server
Server Address 192.168.1.2
User Name adminsmart
Password admin1234@@
Refresh

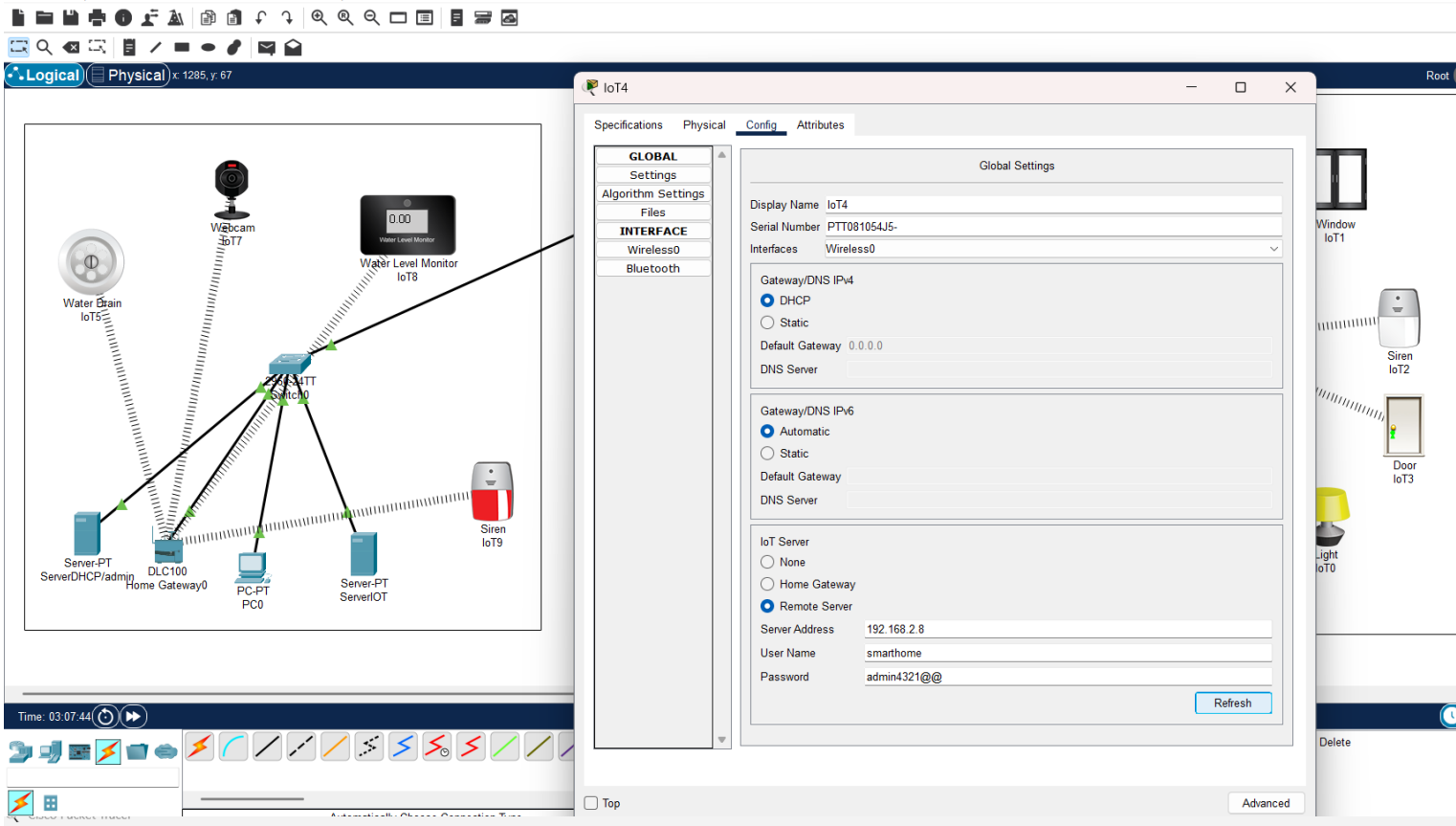

Cisco Packet Tracer
File Edit Options View Tools Extensions Window Help
Logical Physical x: 515, y: 369
PC0
Physical Config Desktop Programming Attributes
Web Browser
URL http://192.168.1.2/home.html
Go Stop
IoT Server - Devices
Home | Conditions | Editor | Log Out
IoT5 (PTT0810OQZ2-) Water Drain
IoT7 (PTT0810CM64-) Webcam
IoT8 (PTT08107NGZ-) Water Level Monitor
IoT9 (PTT0810P7R7-) Siren
Top
Webcam IoT7
Water Level Monitor IoT8
Water Drain IoT5
Window IoT1
Light IoT0
Server-PT ServerDHCP/admin
DLC100 Home Gateway0
PC-PT PC0
Server-PT ServerIOT
Time: 01:22:48
New Delete
Toggle PDU List Window
Automatically Choose Connection Type

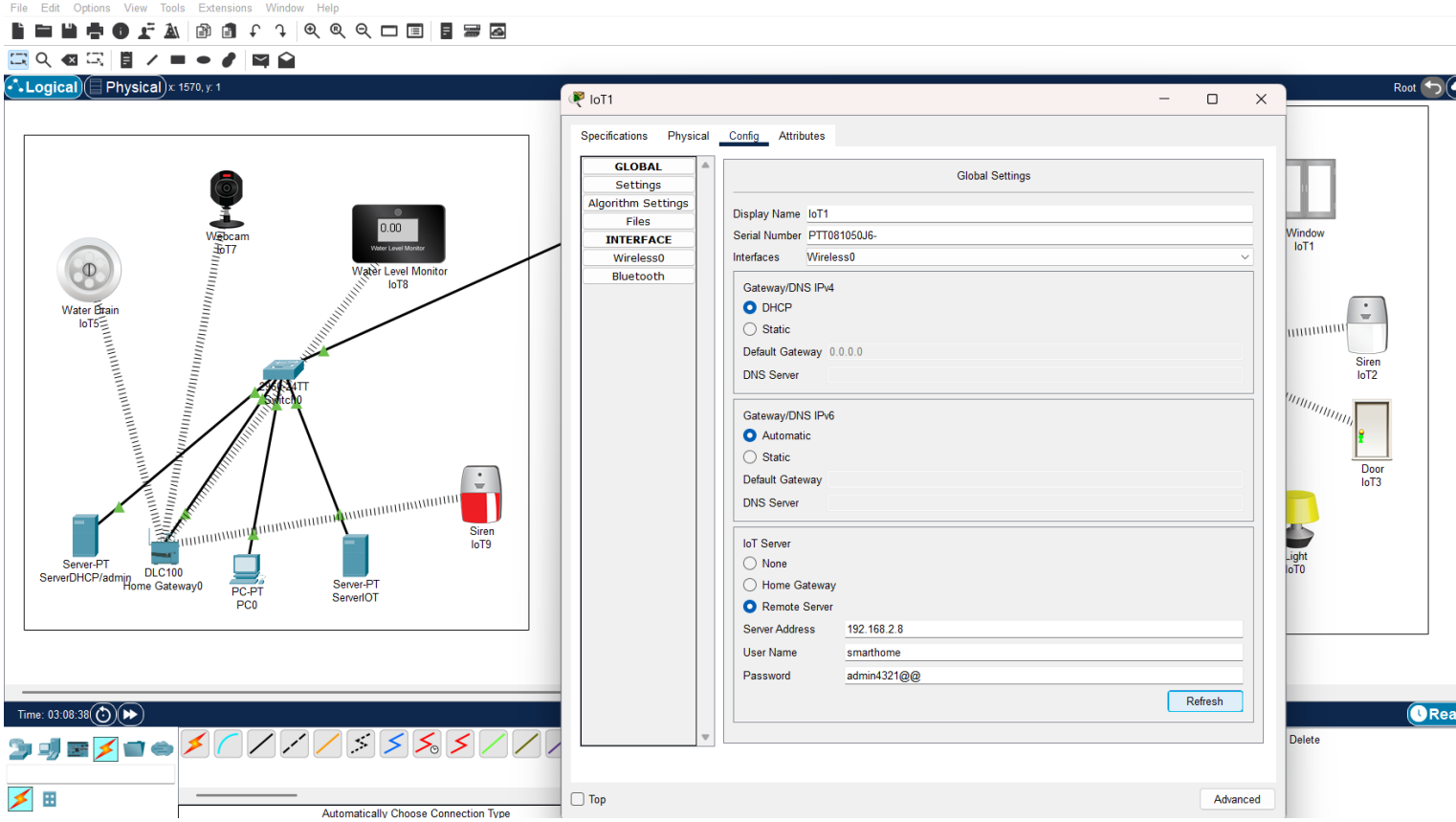

Logical Physical x: 973, y: 243
PC0
Physical Config Desktop Programming Attributes
Web Browser
URL http://192.168.1.2/conditions.html
Go Stop
IoT Server - Device Conditions
Home | Conditions | Editor | Log Out
Actions Enabled Name Condition Actions
Add
Add Rule
Name camera
Enabled
If:
Match All
IoT7 On is true
+ Condition + Group
Then set:
IoT9 On to true
+ Action
OK Cancel
Webcam IoT7
Water Level Monitor IoT8
Water Brain IoT5
2811 Router0
2811 Router1
Siren IoT9
Server-PT ServerDHCP/admin
DLC100 Home Gateway0
PC-PT PC0
Server-PT ServerIOT
Time: 02:48:23
Scenario 0
New Delete
Toggle PDU List Window
Automatically Choose Connection Type
Top

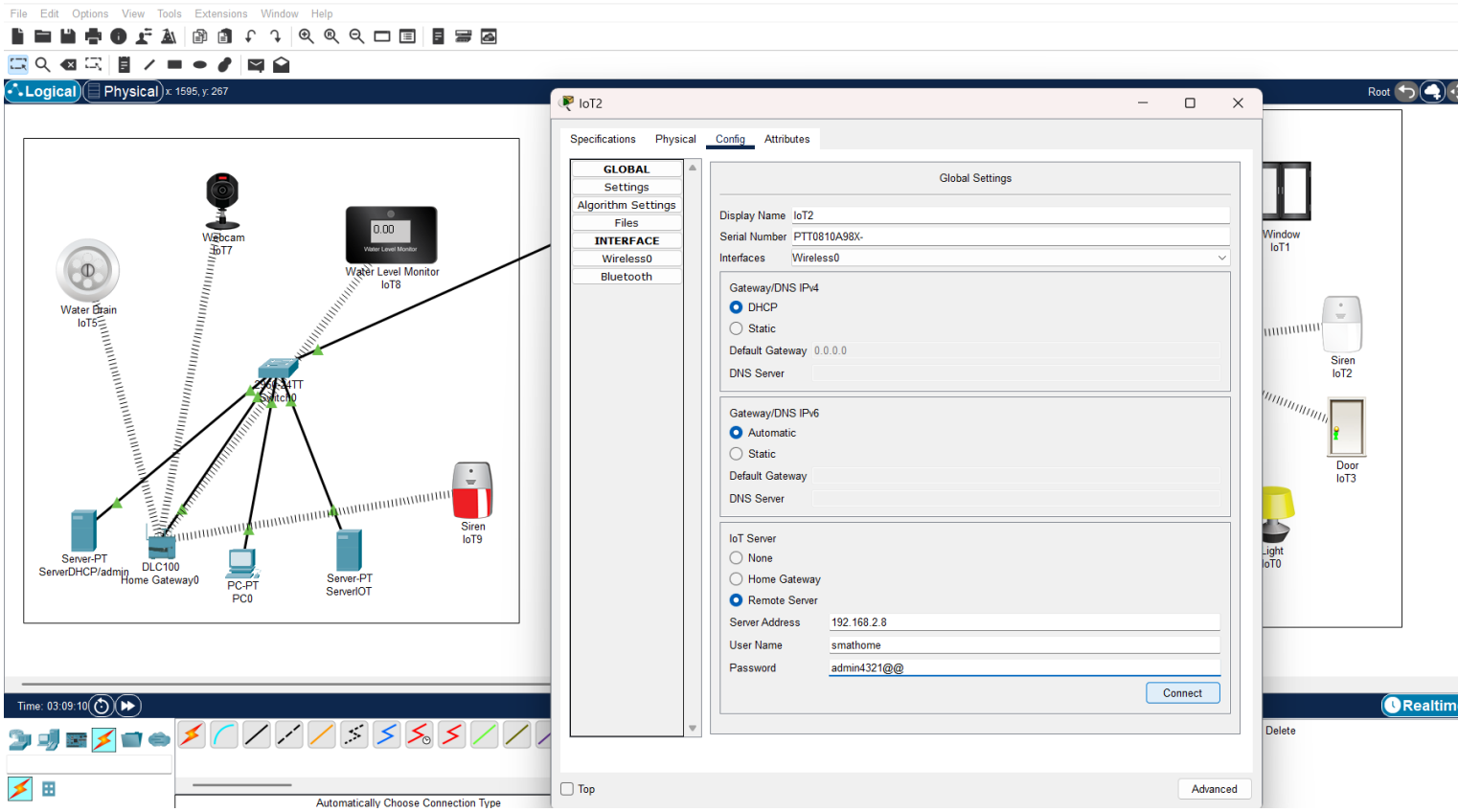

File Edit Options View Tools Extensions Window Help
Logical
Physical
x: 699, y: 463
Webcam IoT7
Water Level Monitor IoT8
0.00
Water Level Monitor
2811 Router0
2811 Router1
Water Drain IoT5
Switch0
Server-PT ServerDHCP/admin
DLC100 Home Gateway0
PC-PT PC0
Server-PT ServerIOT
Siren IoT9
Time: 02:48:56
Scenario 0
New
Delete
Toggle PDU List Window
Automatically Choose Connection Type
PC0
Physical
Config
Desktop
Programming
Attributes
Web Browser
URL http://192.168.1.2/home.html
Go
Stop
IoT Server - Devices
Home | Conditions | Editor | Log Out
IoT5 (PTT0810OQZ2-)
Water Drain
IoT8 (PTT08107NGZ-)
Water Level Monitor
IoT9 (PTT0810P7R7-)
Siren
On
IoT7 (PTT0810CM64-)
Webcam
On
Image
Top
Tablet PC0
Physical
Config
Desktop
Programming
Attributes
Web Browser
URL http://192.168.2.8
Go
Stop
Registration Server Login
Username:
Password:
Sign In
Don't have an IoT account? Sign up now
Top
Root
Webcam IoT4
Window IoT1
Switch1
Access Point0
Siren IoT2
Door IoT3
Server-PT ServerIOT/Smartphone
TabletPC-PT Tablet PC0
Light IoT0
Time: 03:05:53
Realtime
Source
Destination
Type
Color
Time(sec)
Periodic
Num
Edit
Delete

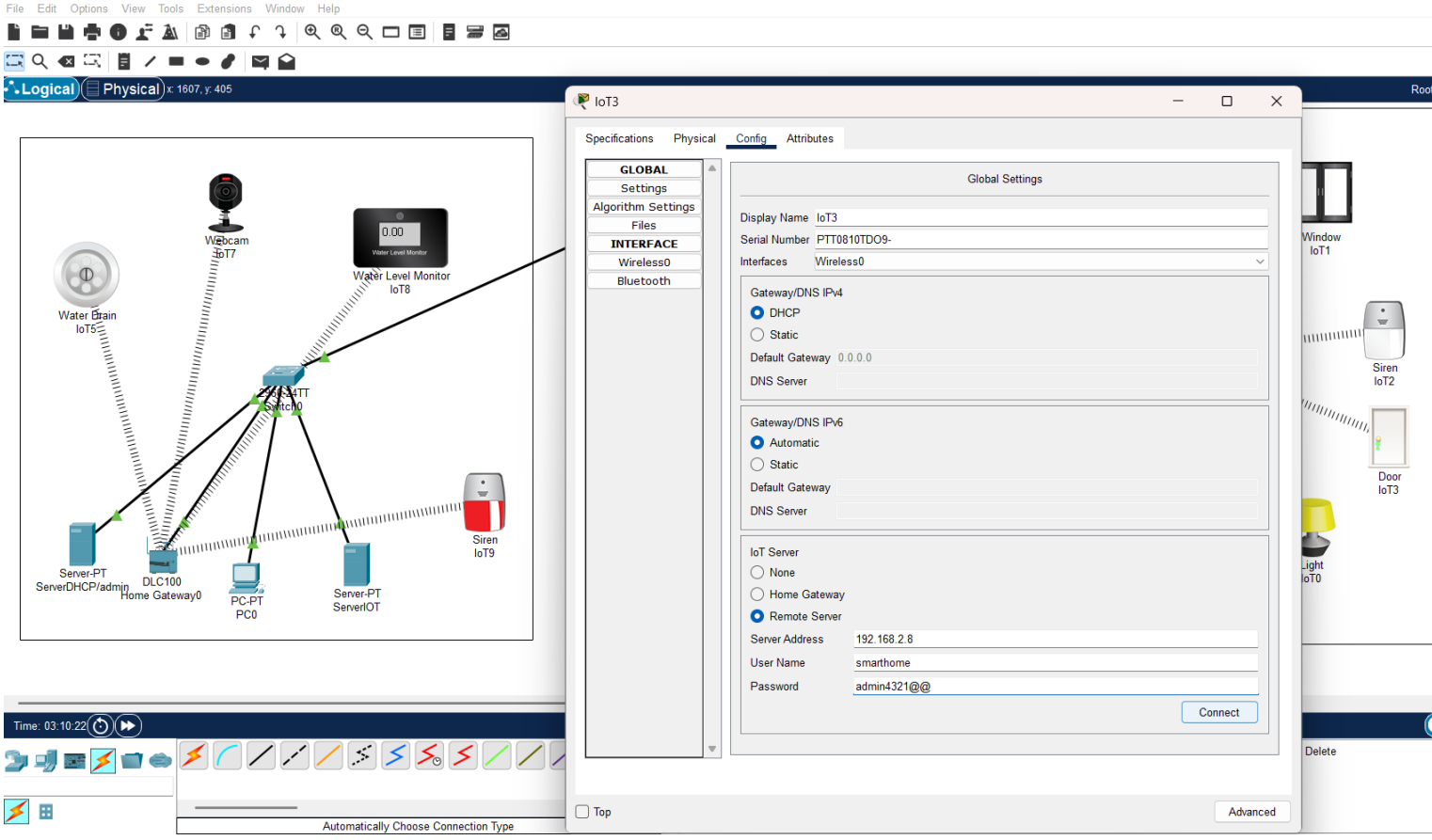

Tablet PC0
Physical
Config
Desktop
Programming
Attributes
Web Browser
URL http://192.168.2.8/home.html
Go
Stop
IoT Server - Devices
Home | Conditions | Editor | Log Out
Top
Webcam IoT4
Window IoT1
Water Drain IoT5
Siren IoT2
Door IoT3
Light IoT0
Server-PT ServerDHCP/admin
Server-PT ServerIOT/Smartphone
TabletPC-PT Tablet PC0
Time: 03:06:44
New
Delete
Toggle PDU List Window

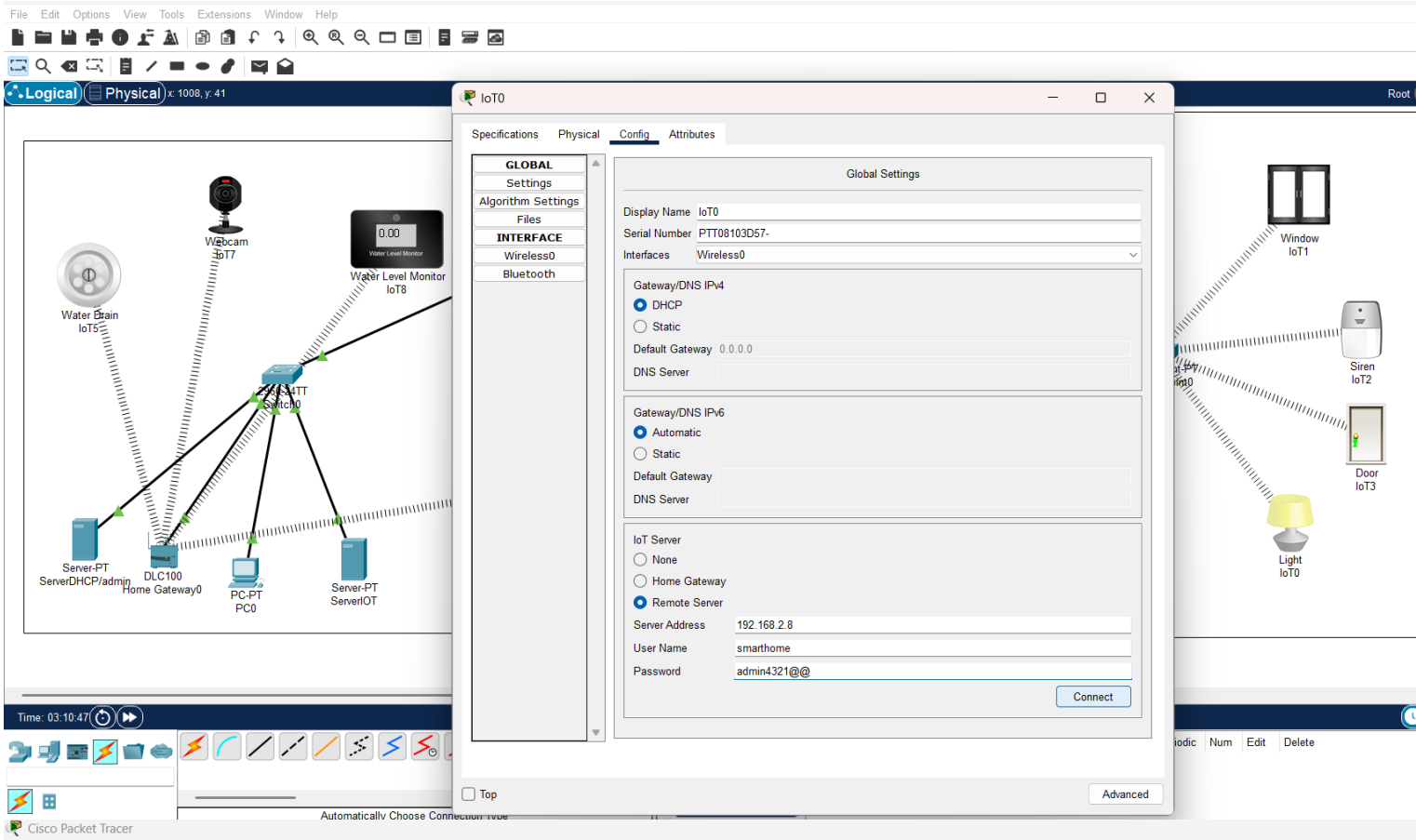

ServerIOT/Smartphone
Physical
Config
Services
Desktop
Programming
Attributes
SERVICES
HTTP
DHCP
DHCPv6
TFTP
DNS
SYSLOG
AAA
NTP
EMAIL
FTP
IoT
VM Management
Radius EAP
Registration Server
This service runs on top of the HTTP or HTTPS service.
Service
On
Off
Username
Password
1 smarthome admin4321@@
Delete
Top
Webcam IoT7
Water Level Monitor IoT8
Water Drain IoT5
Siren IoT9
Server-PT ServerDHCP/admin
DLC100 Home Gateway0
PC-PT PC0
Server-PT ServerIOT
Window IoT1
Siren IoT2
Door IoT3
Light IoT0
Time: 03:07:04
New
Delete
Toggle PDU List Window
Automatically Choose Connection Type

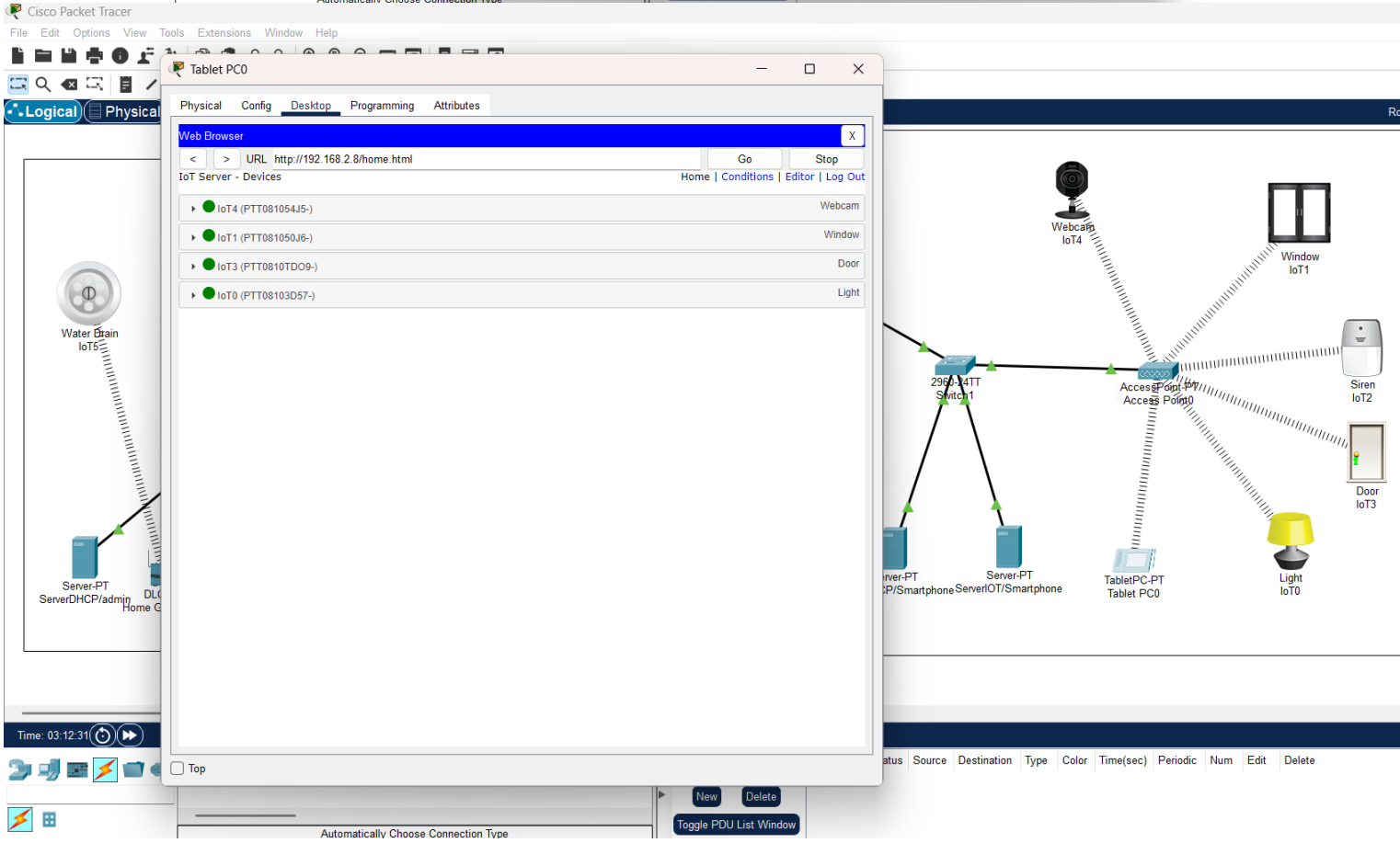

Logical
Physical
x: 1285, y: 67
Root
Webcam
IoT7
Water Level Monitor
IoT8
Water Brain
IoT5
Switch0
Siren
IoT9
Server-PT
ServerDHCP/admin
DLC100
Home Gateway0
PC-PT
PC0
Server-PT
ServerIOT
Window
IoT1
Siren
IoT2
Door
IoT3
Light
IoT0
Time: 03:07:44
Delete
IoT4
Specifications
Physical
Config
Attributes
GLOBAL
Settings
Algorithm Settings
Files
INTERFACE
Wireless0
Bluetooth
Global Settings
Display Name IoT4
Serial Number PTT081054J5-
Interfaces Wireless0
Gateway/DNS IPv4
DHCP
Static
Default Gateway 0.0.0.0
DNS Server
Gateway/DNS IPv6
Automatic
Static
Default Gateway
DNS Server
IoT Server
None
Home Gateway
Remote Server
Server Address 192.168.2.8
User Name smarthome
Password admin4321@@
Refresh
Top
Advanced

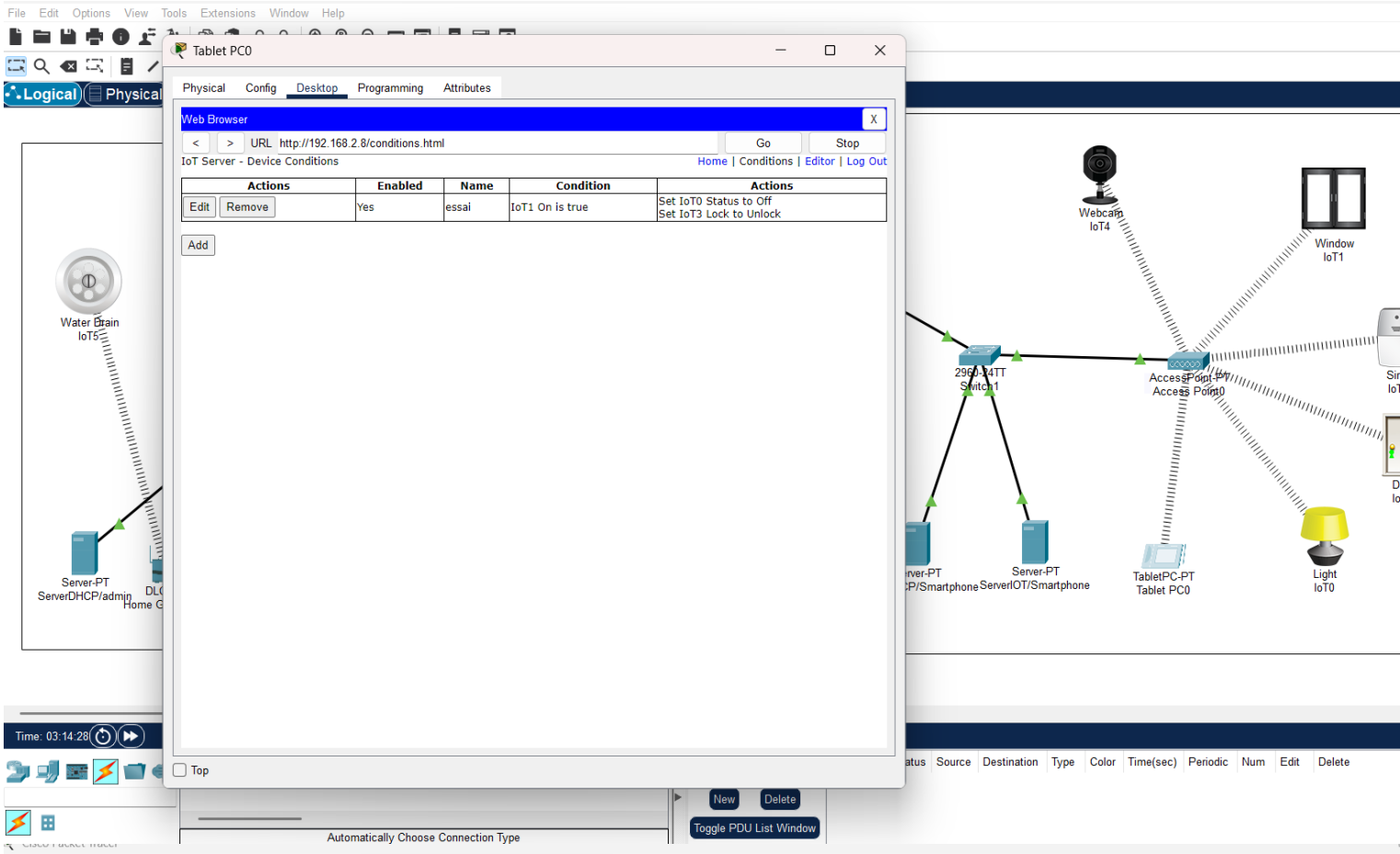

File Edit Options View Tools Extensions Window Help
Logical
Physical
x: 1570, y: 1
Root
Webcam
IoT7
Water Level Monitor
IoT8
Water Brain
IoT5
Switch0
Siren
IoT9
Server-PT
ServerDHCP/admin
DLC100
Home Gateway0
PC-PT
PC0
Server-PT
ServerIOT
Window
IoT1
Siren
IoT2
Door
IoT3
Light
IoT0
Time: 03:08:38
Delete
Automatically Choose Connection Type
IoT1
Specifications
Physical
Config
Attributes
GLOBAL
Settings
Algorithm Settings
Files
INTERFACE
Wireless0
Bluetooth
Global Settings
Display Name IoT1
Serial Number PTT081050J6-
Interfaces Wireless0
Gateway/DNS IPv4
DHCP
Static
Default Gateway 0.0.0.0
DNS Server
Gateway/DNS IPv6
Automatic
Static
Default Gateway
DNS Server
IoT Server
None
Home Gateway
Remote Server
Server Address 192.168.2.8
User Name smarthome
Password admin4321@@
Refresh
Top
Advanced

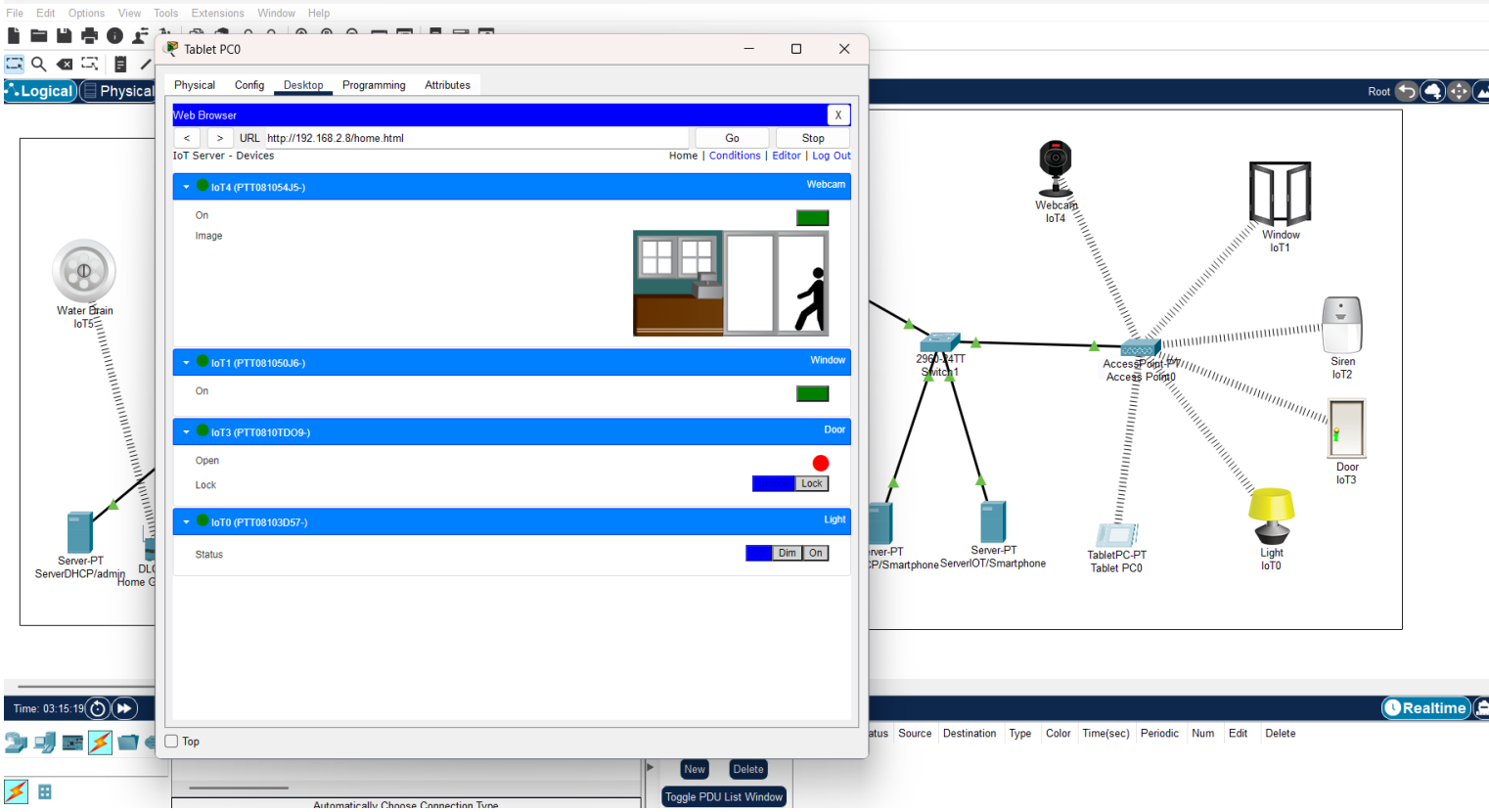

Logical
Physical
x: 1595, y: 267
Root
Webcam
IoT7
Water Level Monitor
IoT8
Water Drain
IoT5
2960-24TT
Switch0
Siren
IoT9
Server-PT
ServerDHCP/admin
DLC100
Home Gateway0
PC-PT
PC0
Server-PT
ServerIOT
Window
IoT1
Siren
IoT2
Door
IoT3
Light
IoT0
Time: 03:09:10
Realtim
Delete
Automatically Choose Connection Type
IoT2
Specifications
Physical
Config
Attributes
GLOBAL
Settings
Algorithm Settings
Files
INTERFACE
Wireless0
Bluetooth
Global Settings
Display Name IoT2
Serial Number PTT0810A98X-
Interfaces Wireless0
Gateway/DNS IPv4
DHCP
Static
Default Gateway 0.0.0.0
DNS Server
Gateway/DNS IPv6
Automatic
Static
Default Gateway
DNS Server
IoT Server
None
Home Gateway
Remote Server
Server Address 192.168.2.8
User Name smathome
Password admin4321@@
Connect
Top
Advanced


Logical
Physical
x: 1607, y: 405
Root
Webcam
IoT7
Water Level Monitor
IoT8
Water Drain
IoT5
2960-24TT
Switch0
Siren
IoT9
Server-PT
ServerDHCP/admin
DLC100
Home Gateway0
PC-PT
PC0
Server-PT
ServerIOT
Window
IoT1
Siren
IoT2
Door
IoT3
Light
IoT0
Time: 03:10:22
Delete
Automatically Choose Connection Type
IoT3
Specifications
Physical
Config
Attributes
GLOBAL
Settings
Algorithm Settings
Files
INTERFACE
Wireless0
Bluetooth
Global Settings
Display Name IoT3
Serial Number PTT0810TDO9-
Interfaces Wireless0
Gateway/DNS IPv4
DHCP
Static
Default Gateway 0.0.0.0
DNS Server
Gateway/DNS IPv6
Automatic
Static
Default Gateway
DNS Server
IoT Server
None
Home Gateway
Remote Server
Server Address 192.168.2.8
User Name smarthome
Password admin4321@@
Connect
Top
Advanced

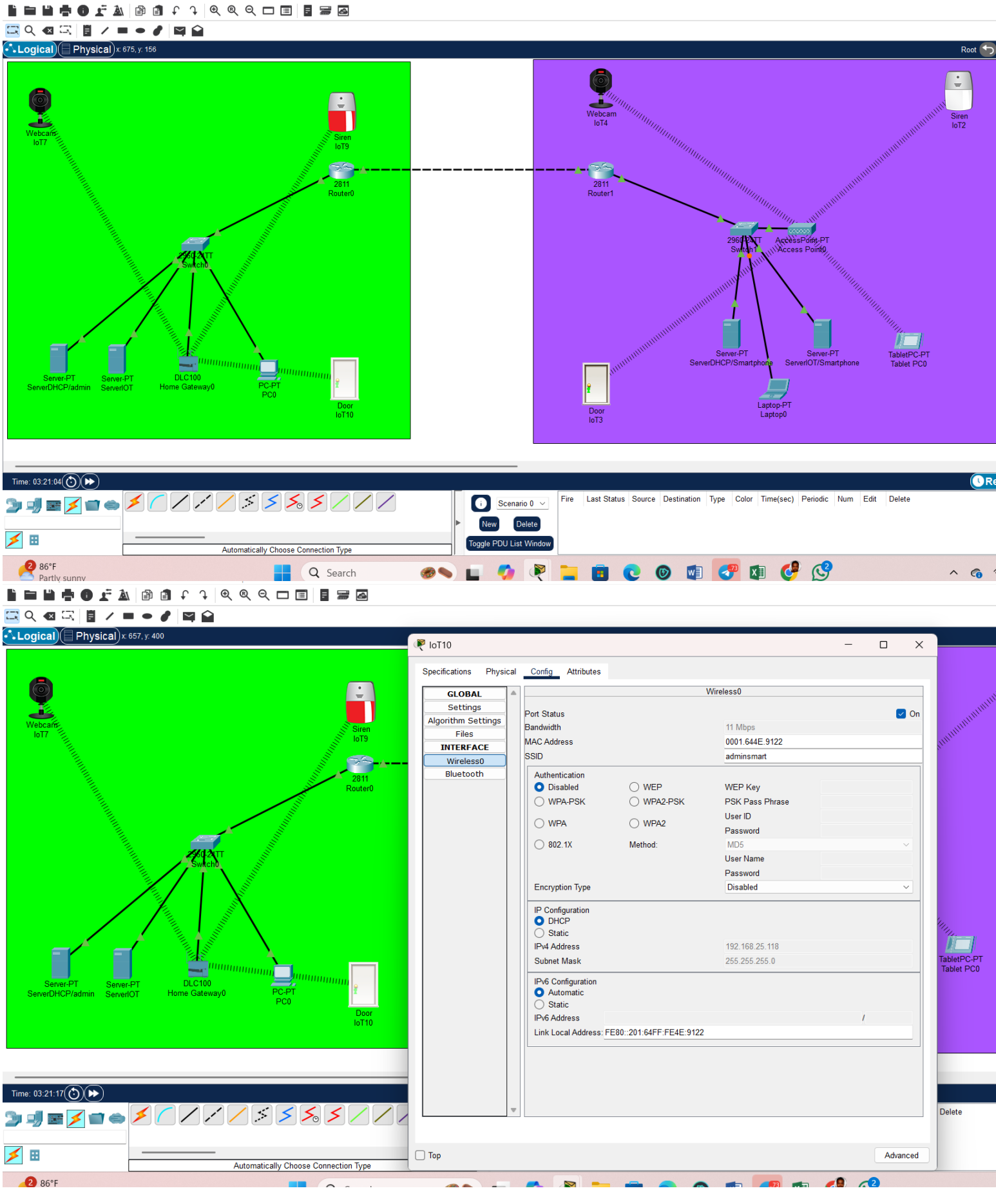

File Edit Options View Tools Extensions Window Help
Logical Physical x: 1008, y: 41
Root
IoT0
Specifications Physical Config Attributes
GLOBAL
Settings
Algorithm Settings
Files
INTERFACE
Wireless0
Bluetooth
Global Settings
Display Name IoT0
Serial Number PTT08103D57-
Interfaces Wireless0
Gateway/DNS IPv4
DHCP
Static
Default Gateway 0.0.0.0
DNS Server
Gateway/DNS IPv6
Automatic
Static
Default Gateway
DNS Server
IoT Server
None
Home Gateway
Remote Server
Server Address 192.168.2.8
User Name smarthome
Password admin4321@@
Connect
Top
Advanced
Webcam IoT7
Water Level Monitor IoT8
Water Drain IoT5
Server-PT ServerDHCP/admin
DLC100 Home Gateway0
PC-PT PC0
Server-PT ServerIOT
Window IoT1
Siren IoT2
Door IoT3
Light IoT0
Time: 03:10:47
Cisco Packet Tracer

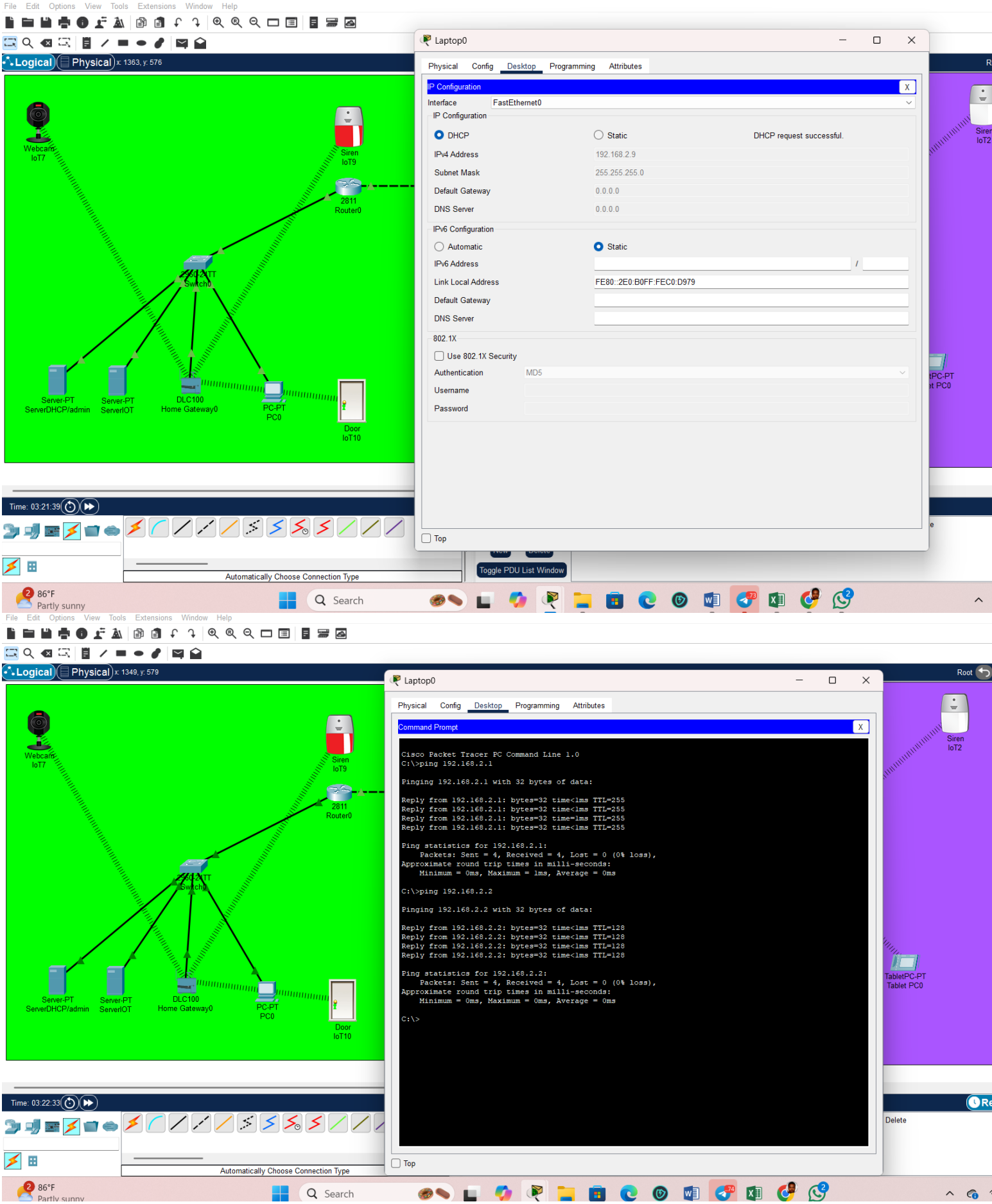

File Edit Options View Tools Extensions Window Help
Logical Physical
Tablet PC0
Physical Config Desktop Programming Attributes
Web Browser
URL http://192.168.2.8/home.html
Go Stop
IoT Server - Devices
Home | Conditions | Editor | Log Out
IoT4 (PTT081054J5-) Webcam
IoT1 (PTT081050J6-) Window
IoT3 (PTT0810TDO9-) Door
IoT0 (PTT08103D57-) Light
Top
Webcam IoT4
Window IoT1
Water Drain IoT5
Siren IoT2
Door IoT3
Light IoT0
Server-PT ServerDHCP/admin
Server-PT ServerIOT/Smartphone
TabletPC-PT Tablet PC0
New
Delete
Toggle PDU List Window
Time: 03:12:31
Source Destination Type Color Time(sec) Periodic Num Edit Delete

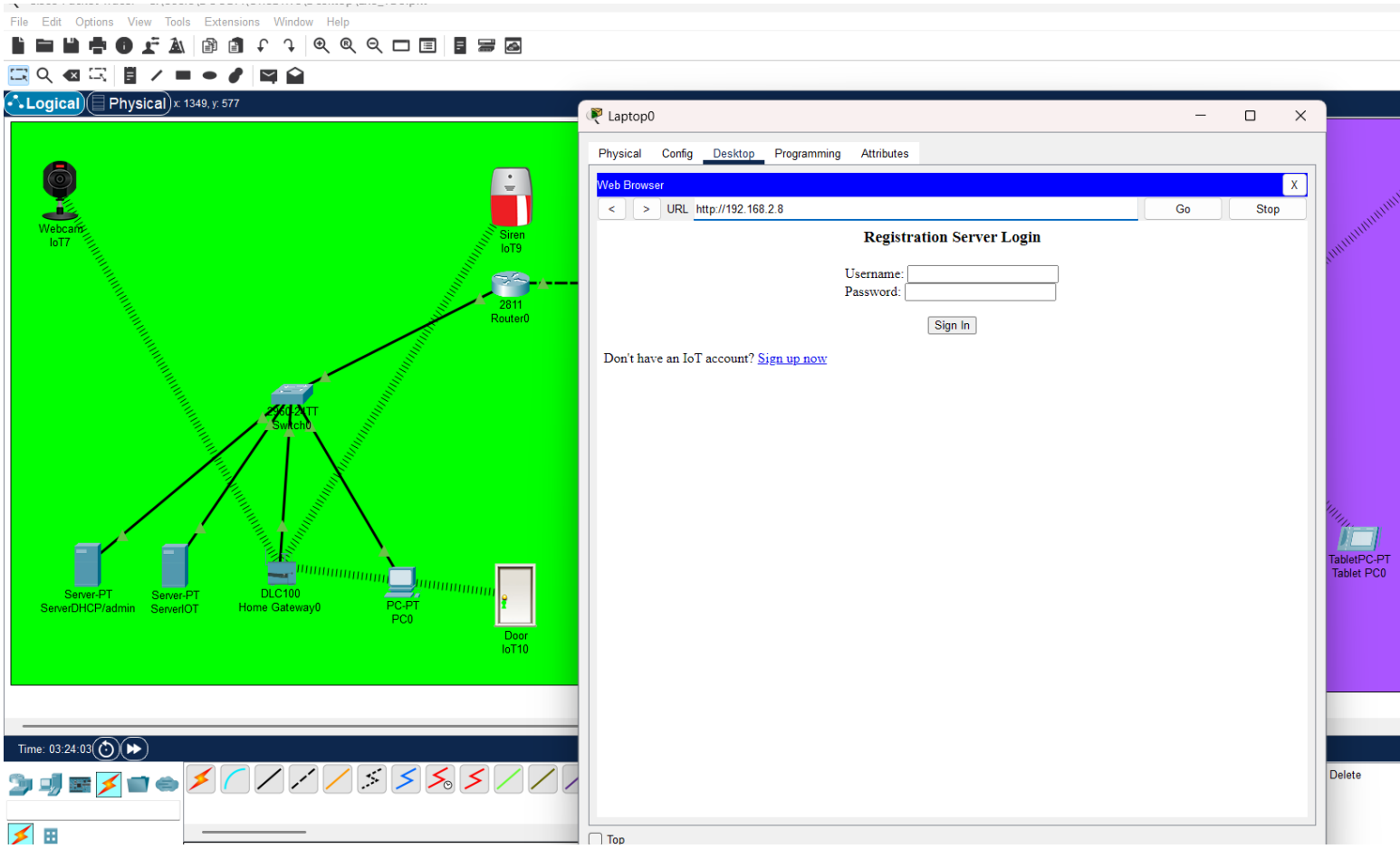

Tablet PC0
Physical
Config
Desktop
Programming
Attributes
Web Browser
URL http://192.168.2.8/conditions.html
Go
Stop
IoT Server - Device Conditions
Home | Conditions | Editor | Log Out
Actions
Enabled
Name
Condition
Actions
Edit
Remove
Yes
essai
IoT1 On is true
Set IoT0 Status to Off
Set IoT3 Lock to Unlock
Add
Top
Webcam
IoT4
Window
IoT1
Water Brain
IoT5
2960-24TT
Switch1
Access Point-PT
Access Point0
Server-PT
ServerDHCP/admin
Server-PT
ServerIOT/Smartphone
TabletPC-PT
Tablet PC0
Light
IoT0
Time: 03:14:28
New
Delete
Toggle PDU List Window
Automatically Choose Connection Type

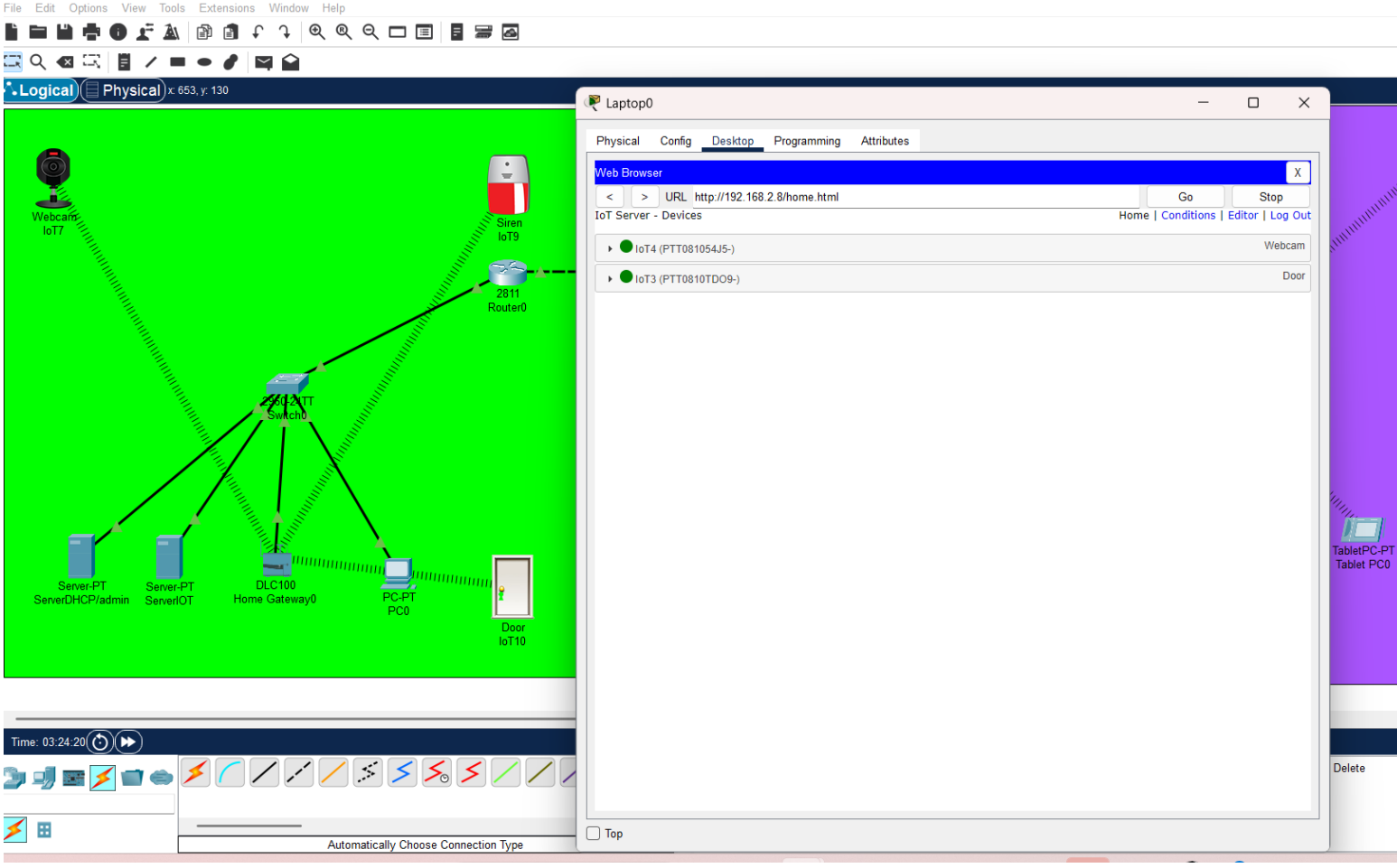

Tablet PC0
Physical
Config
Desktop
Programming
Attributes
Web Browser
URL http://192.168.2.8/home.html
Go
Stop
IoT Server - Devices
Home | Conditions | Editor | Log Out
IoT4 (PTT081054J5-)
Webcam
On
Image
IoT1 (PTT081050J6-)
Window
On
IoT3 (PTT0810TDO9-)
Door
Open
Lock
IoT0 (PTT08103D57-)
Light
Status
Dim
On
Top
Webcam
IoT4
Window
IoT1
Siren
IoT2
Door
IoT3
Water Brain
IoT5
2960-24TT
Switch1
Access Point-PT
Access Point0
Server-PT
ServerDHCP/admin
Server-PT
ServerIOT/Smartphone
TabletPC-PT
Tablet PC0
Light
IoT0
Time: 03:15:19
Realtime
New
Delete
Toggle PDU List Window

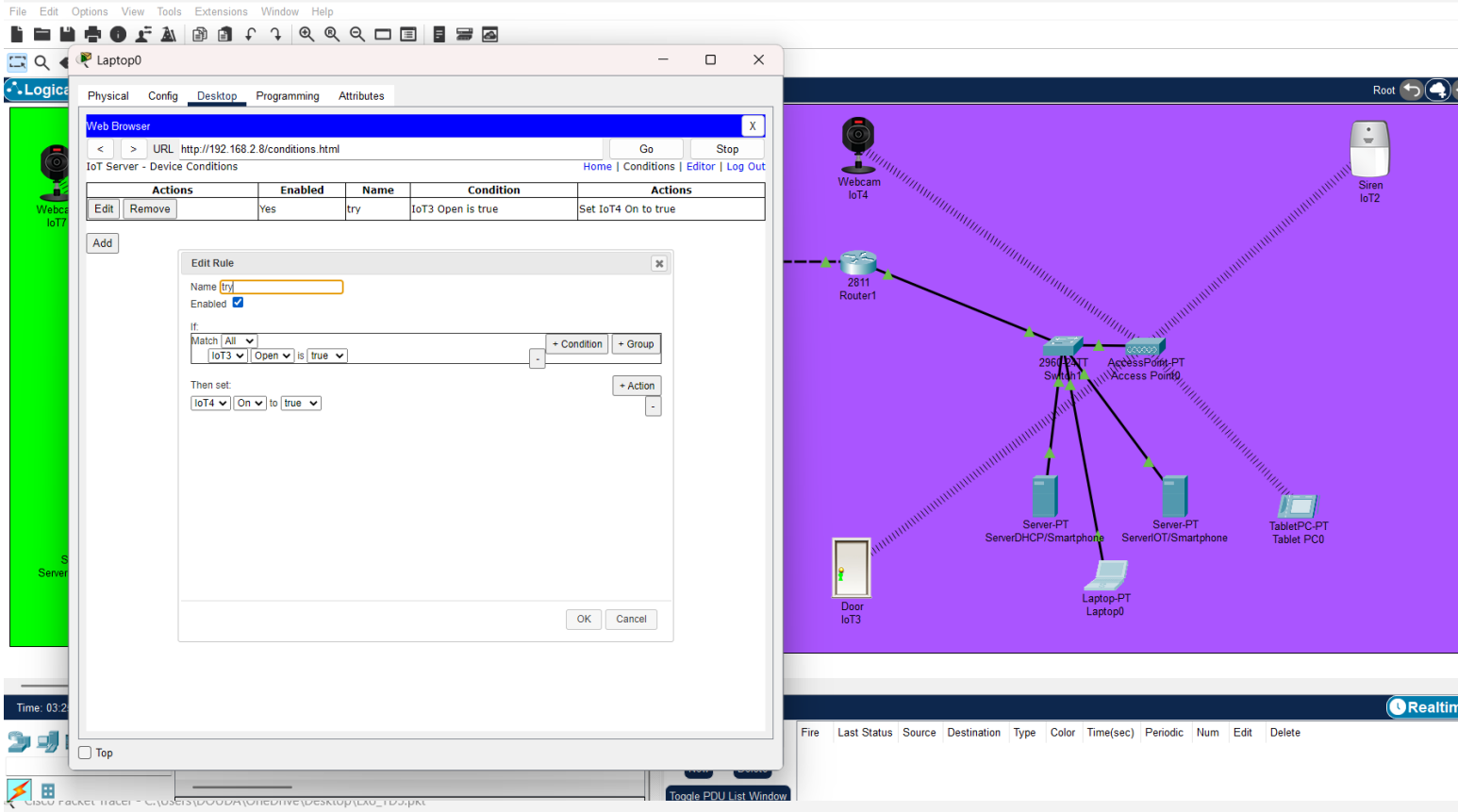
2. Vous devez **choisir une topologie réseau de votre choix**. Cette topologie doit impérativement inclure **au minimum deux routeurs**.

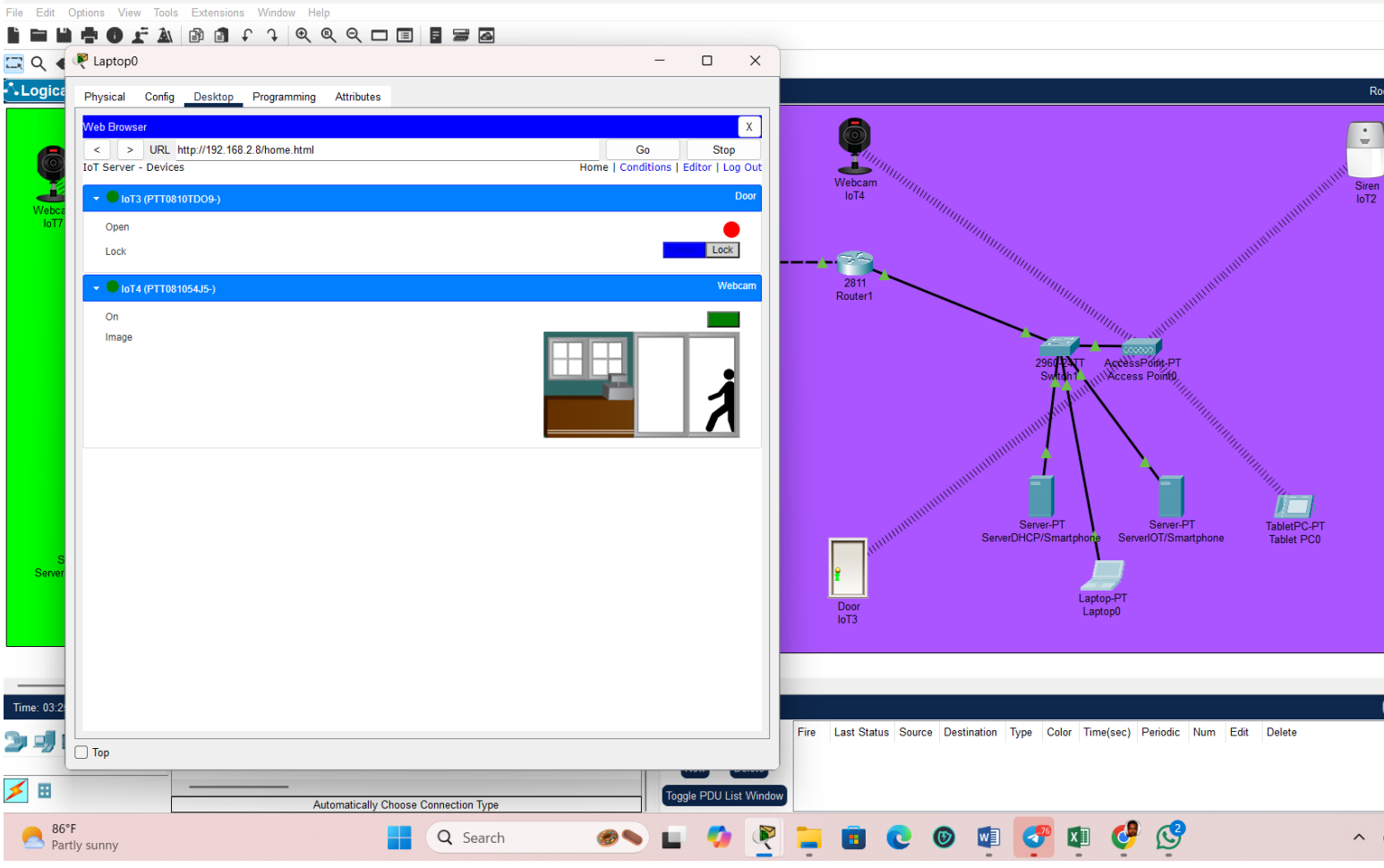


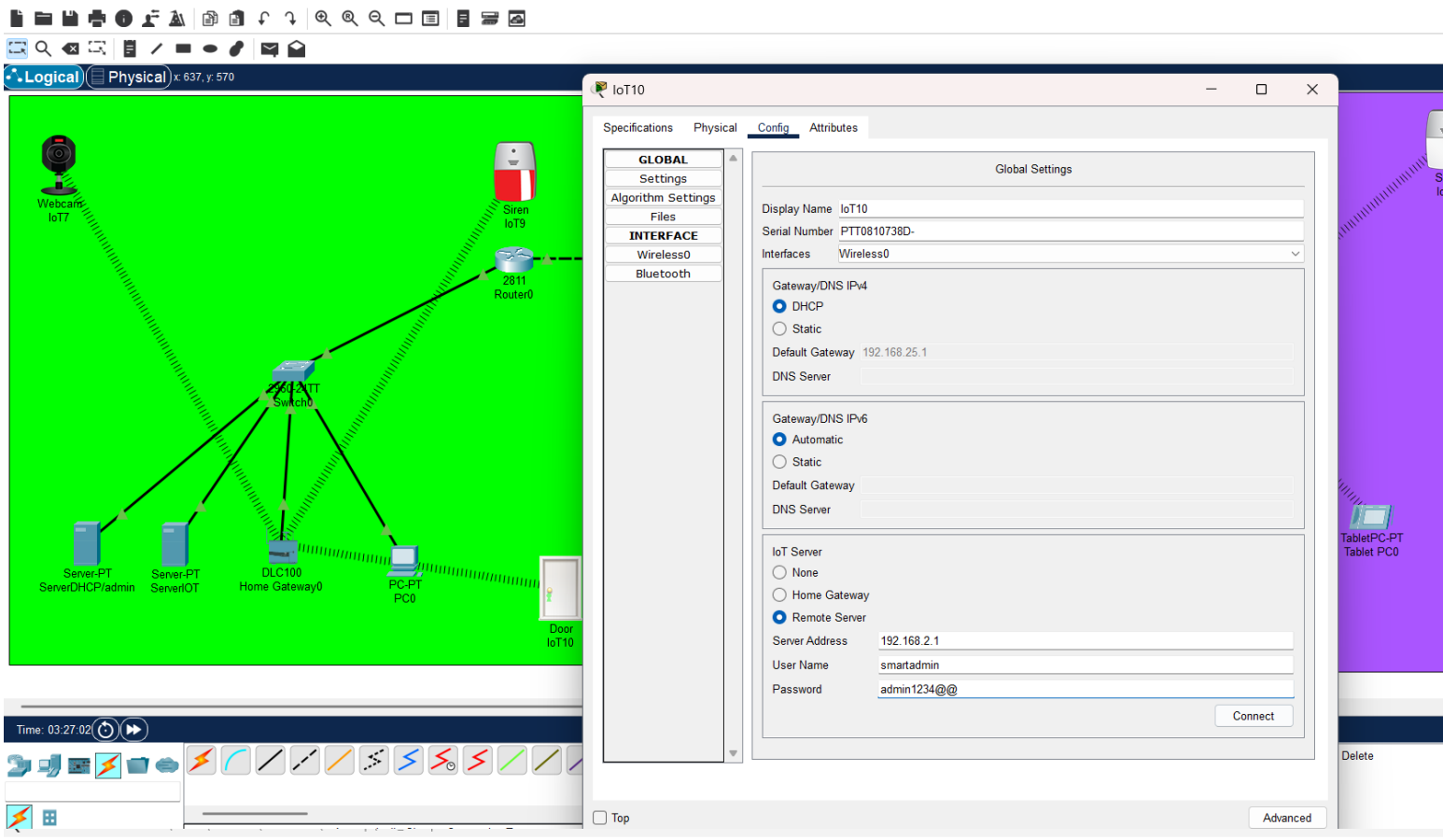

Laptop0
Physical
Config
Desktop
Programming
Attributes
IP Configuration
Interface
FastEthernet0
IP Configuration
DHCP
Static
DHCP request successful.
IPv4 Address
192.168.2.9
Subnet Mask
255.255.255.0
Default Gateway
0.0.0.0
DNS Server
0.0.0.0
IPv6 Configuration
Automatic
Static
IPv6 Address
Link Local Address
FE80::2E0:B0FF:FEC0:D979
Default Gateway
DNS Server
802.1X
Use 802.1X Security
Authentication
MD5
Username
Password
Top
Logical
Physical
Webcam IoT7
Siren IoT9
2811 Router0
2960-24TT Switch0
Server-PT ServerDHCP/admin
Server-PT ServerIOT
DLC100 Home Gateway0
PC-PT PC0
Door IoT10
Siren IoT2
Time: 03:21:39
Automatically Choose Connection Type
Toggle PDU List Window
86°F
Partly sunny
Search
Laptop0
Physical
Config
Desktop
Programming
Attributes
Command Prompt
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.2.1
Pinging 192.168.2.1 with 32 bytes of data:
Reply from 192.168.2.1: bytes=32 time<1ms TTL=255
Reply from 192.168.2.1: bytes=32 time<1ms TTL=255
Reply from 192.168.2.1: bytes=32 time=1ms TTL=255
Reply from 192.168.2.1: bytes=32 time<1ms TTL=255
Ping statistics for 192.168.2.1:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 1ms, Average = 0ms
C:\>ping 192.168.2.2
Pinging 192.168.2.2 with 32 bytes of data:
Reply from 192.168.2.2: bytes=32 time<1ms TTL=128
Reply from 192.168.2.2: bytes=32 time<1ms TTL=128
Reply from 192.168.2.2: bytes=32 time<1ms TTL=128
Reply from 192.168.2.2: bytes=32 time<1ms TTL=128
Ping statistics for 192.168.2.2:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 0ms, Average = 0ms
C:\>
Top
Root
TabletPC-PT Tablet PC0
Delete
Time: 03:22:33
Automatically Choose Connection Type

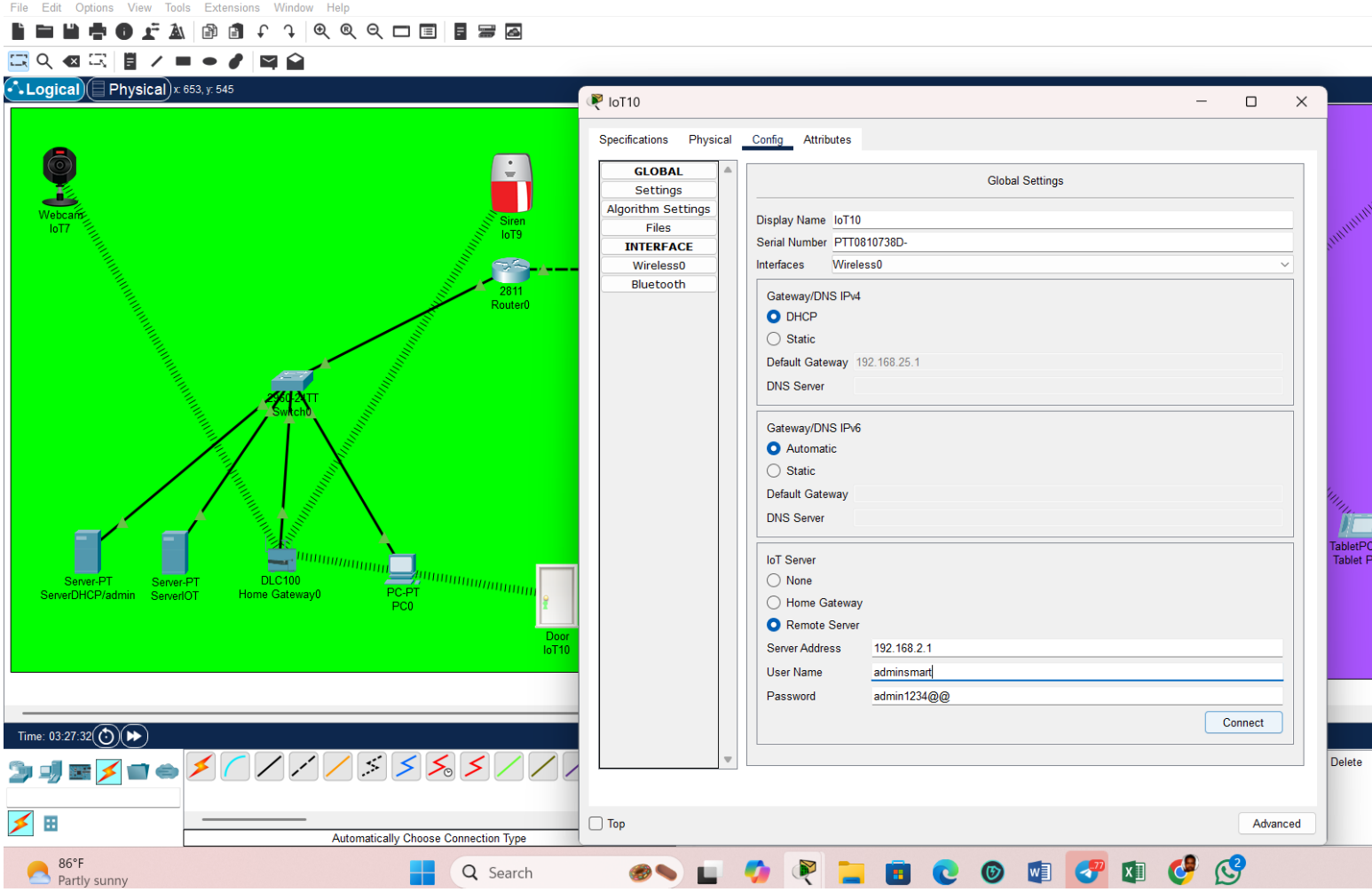

File Edit Options View Tools Extensions Window Help
Logical Physical x: 1349, y: 577
Webcam IoT7
Siren IoT9
2811 Router0
2960-24TT Switch0
Server-PT ServerDHCP/admin
Server-PT ServerIOT
DLC100 Home Gateway0
PC-PT PC0
Door IoT10
TabletPC-PT Tablet PC0
Laptop0
Physical Config Desktop Programming Attributes
Web Browser
URL http://192.168.2.8
Go Stop
Registration Server Login
Username:
Password:
Sign In
Don't have an IoT account? Sign up now
Time: 03:24:03
Delete
Top


File Edit Options View Tools Extensions Window Help
Logical Physical x: 653, y: 130
Webcam IoT7
Siren IoT9
2811 Router0
2960-24TT Switch0
Server-PT ServerDHCP/admin
Server-PT ServerIOT
DLC100 Home Gateway0
PC-PT PC0
Door IoT10
TabletPC-PT Tablet PC0
Laptop0
Physical Config Desktop Programming Attributes
Web Browser
URL http://192.168.2.8/home.html
Go Stop
IoT Server - Devices
Home | Conditions | Editor | Log Out
IoT4 (PTT081054J5-) Webcam
IoT3 (PTT0810TDO9-) Door
Time: 03:24:20
Delete
Top
Automatically Choose Connection Type


Laptop0
Physical
Config
Desktop
Programming
Attributes
Web Browser
URL http://192.168.2.8/conditions.html
Go
Stop
IoT Server - Device Conditions
Home | Conditions | Editor | Log Out
Actions
Enabled
Name
Condition
Actions
Edit
Remove
Yes
try
IoT3 Open is true
Set IoT4 On to true
Add
Edit Rule
Name try
Enabled
If:
Match All
IoT3 Open is true
+ Condition
+ Group
Then set:
IoT4 On to true
+ Action
OK
Cancel
Top
Webcam IoT4
Siren IoT2
2811 Router1
AccessPoint-PT Access Point0
Server-PT ServerDHCP/Smartphone
Server-PT ServerIOT/Smartphone
TabletPC-PT Tablet PC0
Door IoT3
Laptop-PT Laptop0
Fire
Last Status
Source
Destination
Type
Color
Time(sec)
Periodic
Num
Edit
Delete
Toggle PDU List Window


Laptop0
Physical
Config
Desktop
Programming
Attributes
Web Browser
URL http://192.168.2.8/home.html
Go
Stop
IoT Server - Devices
Home | Conditions | Editor | Log Out
IoT3 (PTT0810TDO9-)
Door
Open
Lock
IoT4 (PTT081054J5-)
Webcam
On
Image
Top
Webcam IoT4
Siren IoT2
2811 Router1
AccessPoint-PT Access Point0
Server-PT ServerDHCP/Smartphone
Server-PT ServerIOT/Smartphone
TabletPC-PT Tablet PC0
Door IoT3
Laptop-PT Laptop0
Fire
Last Status
Source
Destination
Type
Color
Time(sec)
Periodic
Num
Edit
Delete
Toggle PDU List Window
Automatically Choose Connection Type


Logical
Physical
x: 637, y: 570
Webcam
IoT7
Siren
IoT9
2811
Router0
2960-24TT
Switch0
Server-PT
ServerDHCP/admin
Server-PT
ServerIOT
DLC100
Home Gateway0
PC-PT
PC0
Door
IoT10
TabletPC-PT
Tablet PC0
Time: 03:27:02
IoT10
Specifications
Physical
Config
Attributes
GLOBAL
Settings
Algorithm Settings
Files
INTERFACE
Wireless0
Bluetooth
Global Settings
Display Name IoT10
Serial Number PTT0810738D-
Interfaces Wireless0
Gateway/DNS IPv4
DHCP
Static
Default Gateway 192.168.25.1
DNS Server
Gateway/DNS IPv6
Automatic
Static
Default Gateway
DNS Server
IoT Server
None
Home Gateway
Remote Server
Server Address 192.168.2.1
User Name smartadmin
Password admin1234@@
Connect
Top
Advanced
Delete


File Edit Options View Tools Extensions Window Help
Logical
Physical
x: 653, y: 545
Webcam
IoT7
Siren
IoT9
2811
Router0
2960-24TT
Switch0
Server-PT
ServerDHCP/admin
Server-PT
ServerIOT
DLC100
Home Gateway0
PC-PT
PC0
Door
IoT10
Time: 03:27:32
IoT10
Specifications
Physical
Config
Attributes
GLOBAL
Settings
Algorithm Settings
Files
INTERFACE
Wireless0
Bluetooth
Global Settings
Display Name IoT10
Serial Number PTT0810738D-
Interfaces Wireless0
Gateway/DNS IPv4
DHCP
Static
Default Gateway 192.168.25.1
DNS Server
Gateway/DNS IPv6
Automatic
Static
Default Gateway
DNS Server
IoT Server
None
Home Gateway
Remote Server
Server Address 192.168.2.1
User Name adminsmart
Password admin1234@@
Connect
Top
Advanced
Delete
Automatically Choose Connection Type
86°F
Partly sunny
Search

Conclusion

Ce TD m'a offert une expérience pratique essentielle en :

- Routage dynamique via la configuration d'OSPF sur routeurs Cisco,
- IoT et sécurité avec la simulation d'un réseau Smart Home et sa protection via pare-feu ASA.

J'ai acquis des compétences concrètes en gestion de topologies complexes et sécurisation d'objets connectés, tout en identifiant des défis comme l'optimisation des métriques OSPF.