

CS361

LABORATORY 9

NAME:

ARCHIT AGRAWAL

ROLL NO. :

202051213

SECTION:

2B

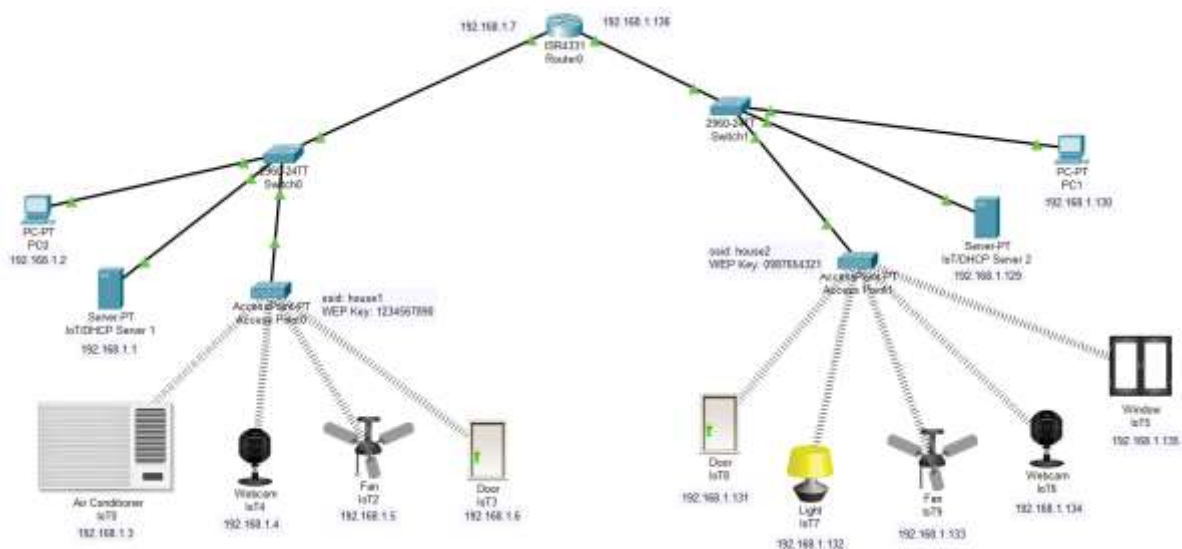
Problem:

Consider that you have two different houses with multiple IoT devices. The two houses are in different subnets and have different IoT servers.

Demonstrate the following:

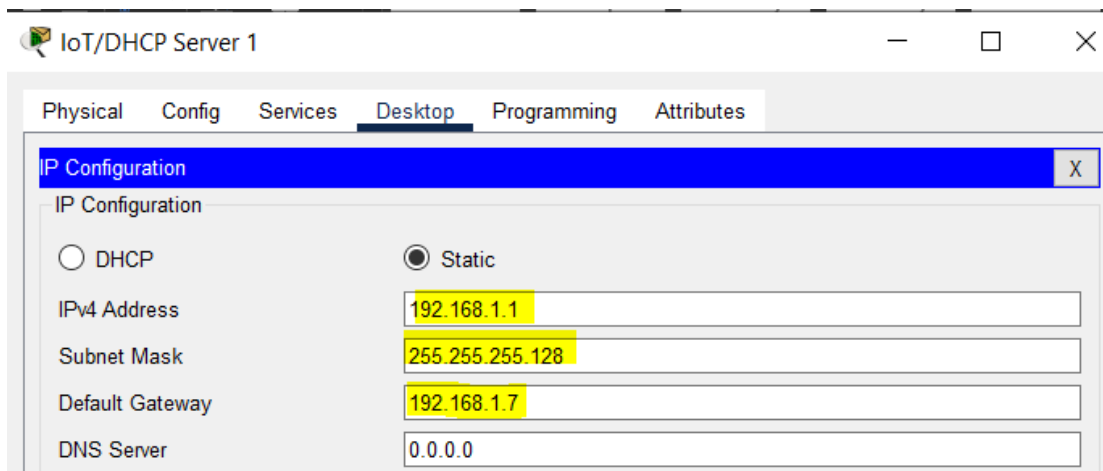
(1) IoT devices of one house can be controlled from the Laptop/PC of another house.

The network is shown below:



Used subnetting with subnet mask of /25. So, house on the left is in the range 192.168.1.0 – 192.168.1.127 while the house on the right is using the subnet range 192.168.1.128 – 192.168.1.255.

- Configuring IP address of servers of both the houses.



IoT/DHCP Server 2

Physical Config Services **Desktop** Programming Attributes

IP Configuration

IP Configuration

☐ DHCP ☒ Static

IPv4 Address: 192.168.1.129

Subnet Mask: 255.255.255.128

Default Gateway: 192.168.1.136

DNS Server: 0.0.0.0

- Configuring DHCP servers of both the houses.

IoT/DHCP Server 1

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: serverPool

Default Gateway: 192.168.1.7

DNS Server: 0.0.0.0

Start IP Address: 192.168.1.0

Subnet Mask: 255.255.255.128

Maximum Number of Users: 100

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	192.16...	0.0.0.0	192.16...	255.25...	100	0.0.0.0	0.0.0.0

IoT/DHCP Server 2

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: serverPool

Default Gateway: 192.168.1.136

DNS Server: 0.0.0.0

Start IP Address: 192 168 1 128

Subnet Mask: 255 255 255 128

Maximum Number of Users: 100

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	192.16...	0.0.0.0	192.16...	255.25...	100	0.0.0.0	0.0.0.0

- Configuring access points in both the houses.

Access Point0

Physical **Config** Attributes

GLOBAL

- Settings
- INTERFACE**
- Port 0
- Port 1**

Port 1

Port Status: ☒ On

SSID: house1

2.4 GHz Channel: 6

Coverage Range (meters): 140.00

Authentication:

☐ Disabled ☒ WEP ☐ WPA-PSK ☐ WPA2-PSK

WEP Key: 1234567890

PSK Pass Phrase:

User ID:

Password:

Encryption Type: 40/64-Bits (10 Hex digits)

Access Point1

Physical **Config** Attributes

GLOBAL

Settings

INTERFACE

Port 0

Port 1

Port 1

Port Status ☒ On

SSID house2

2.4 GHz Channel 6

Coverage Range (meters) 140.00

Authentication

☐ Disabled ☒ WEP ☐ WPA-PSK ☐ WPA2-PSK

WEP Key 0987654321

PSK Pass Phrase

User ID

Password

Encryption Type 40/64-Bits (10 Hex digits)

- Connecting each IoT device to the respective access points.

IoT0

Specifications Physical **Config** Attributes

GLOBAL

Settings

Algorithm Settings

Files

INTERFACE

Wireless0

Bluetooth

Wireless0

Port Status ☒ On

Bandwidth 24 Mbps

MAC Address 0090.2B7C.48AD

SSID house1

Authentication

☐ Disabled ☒ WEP ☐ WPA-PSK ☐ WPA2-PSK

WEP Key 1234567890

PSK Pass Phrase

User ID

Password

Method: MD5

User Name

Password

Encryption Type 40/64-Bits (10 Hex digits)

IoT9

Specifications Physical **Config** Attributes

GLOBAL

Settings

Algorithm Settings

Files

INTERFACE

Wireless0

Bluetooth

Wireless0

Port Status ☒ On

Bandwidth 54 Mbps

MAC Address 0001.96D2.139C

SSID house2

Authentication

☐ Disabled ☒ WEP ☐ WPA-PSK ☐ WPA2-PSK

WEP Key 0987654321

PSK Pass Phrase

User ID

Password

Method: MD5

User Name

Password

Encryption Type 40/64-Bits (10 Hex digits)

- Adding devices to respective IoT server.

IoT0

Specifications Physical **Config** Attributes

GLOBAL

Settings

Algorithm Settings

Files

INTERFACE

Wireless0

Bluetooth

☐ Static

Default Gateway 192.168.1.7

DNS Server 0.0.0.0

Gateway/DNS IPv6

☐ Automatic

☒ Static

Default Gateway

DNS Server

IoT Server

☐ None

☐ Home Gateway

☒ Remote Server

Server Address 192.168.1.1

User Name admin1

Password admin1

Refresh

IoT9

Specifications Physical **Config** Attributes

GLOBAL

Settings

Algorithm Settings

Files

INTERFACE

Wireless0

Bluetooth

☒ DHCP

☐ Static

Default Gateway 192.168.1.136

DNS Server 0.0.0.0

Gateway/DNS IPv6

☐ Automatic

☒ Static

Default Gateway

DNS Server

IoT Server

☐ None

☐ Home Gateway

☒ Remote Server

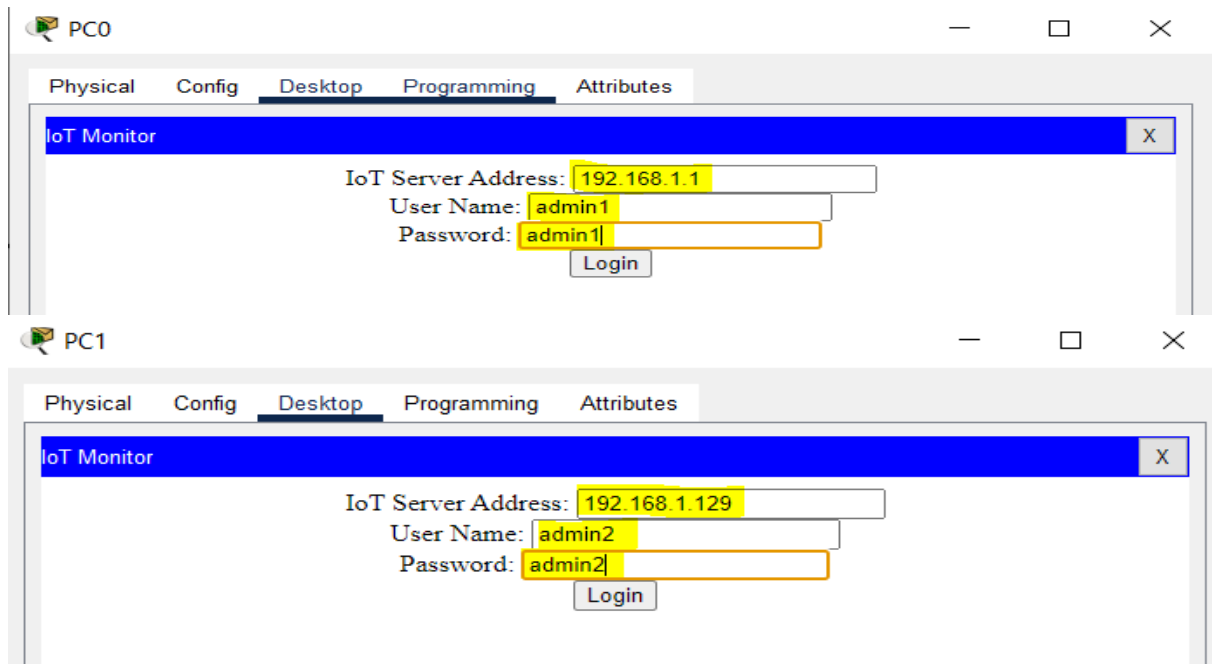
Server Address 192.168.1.129

User Name admin2

Password admin2

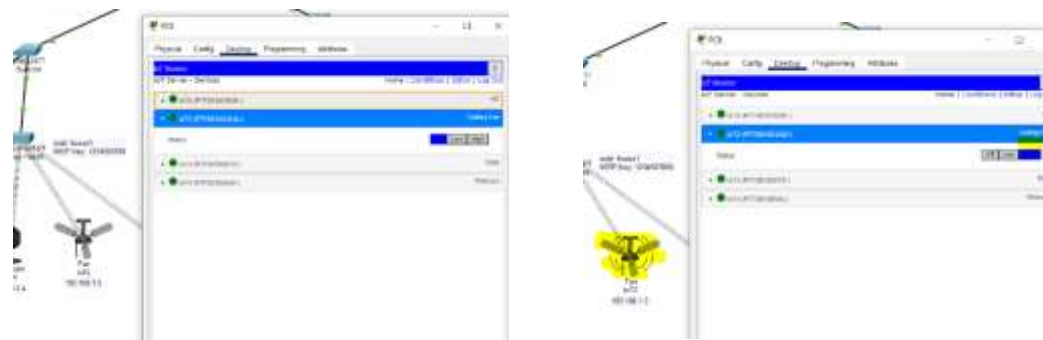
Refresh

- Logging in to IoT account on PC of each house.

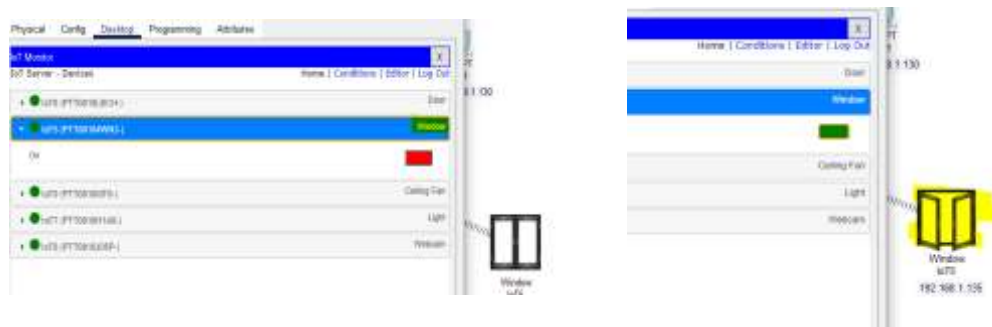


- Now, each device can be accessed using the PC in that house.

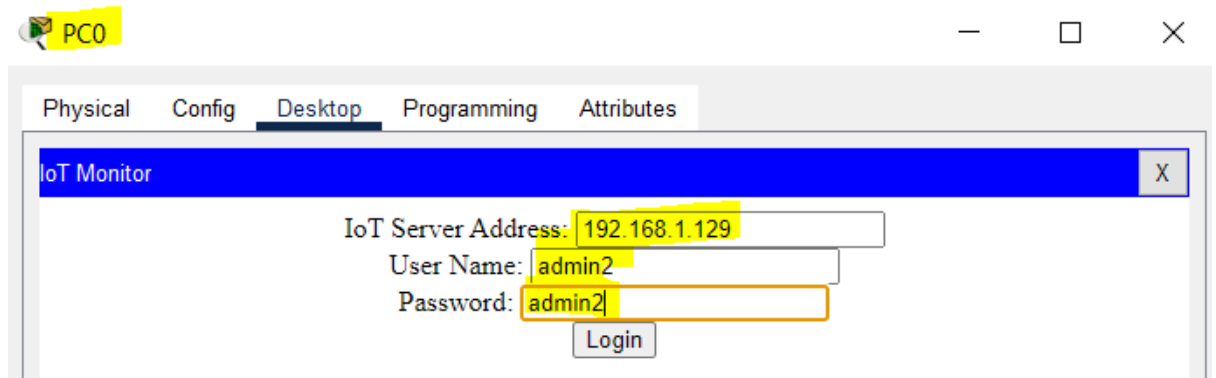
⇒ House 1



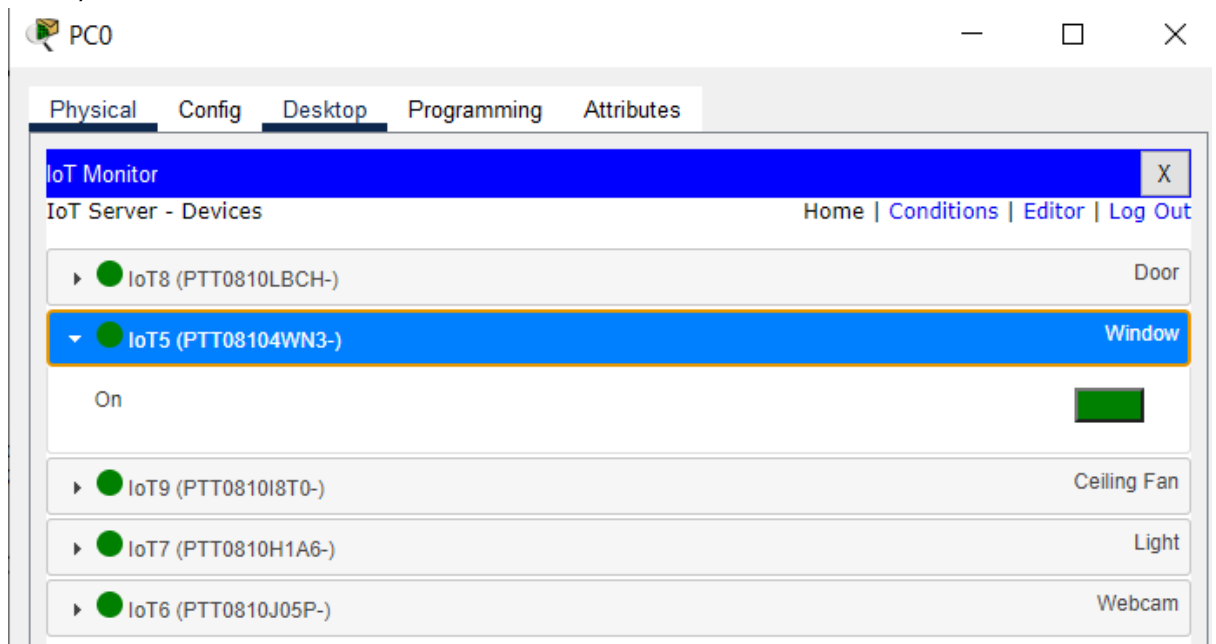
⇒ House 2



- To access IoT devices of house2 from PC of house1 (or vice-versa), just log in to the IoT account of house2 in house1 PC (or IoT account of house1 in house2 PC).



Now, all the IoT devices of house2 can be seen in the PC of house1.

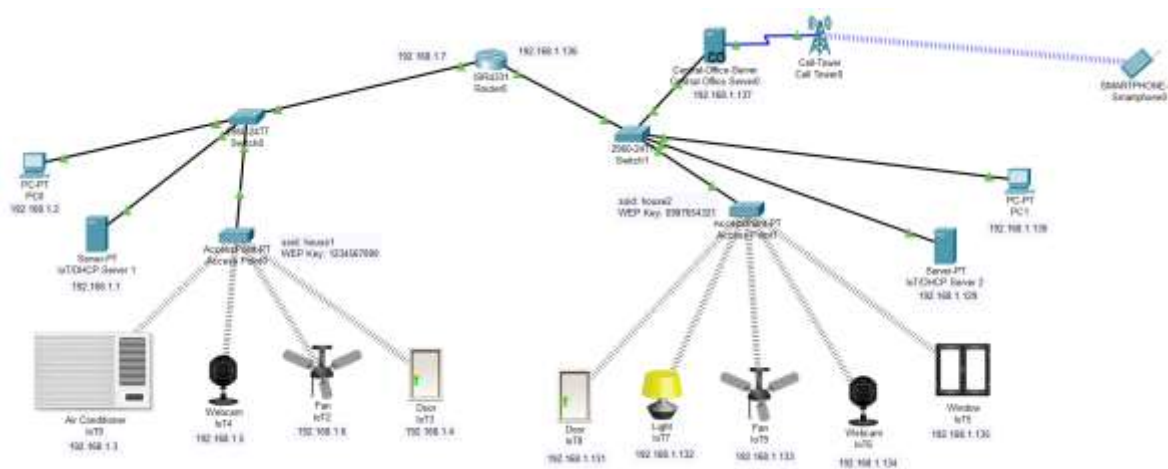


Devices of house2 can be controlled from PC of house1 now.



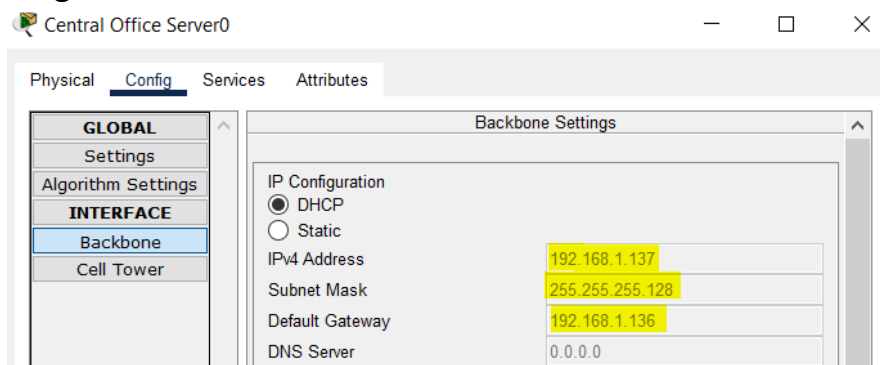
(2) Use a mobile phone to communicate with IoT devices.

The network is shown below:

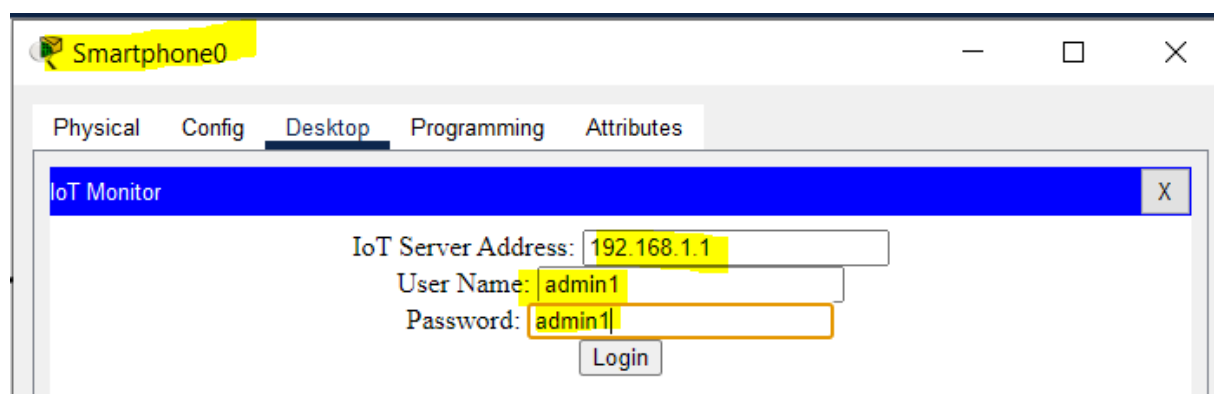


The network is similar as in part 1. There is one cell tower, CO server, and a smartphone is added.

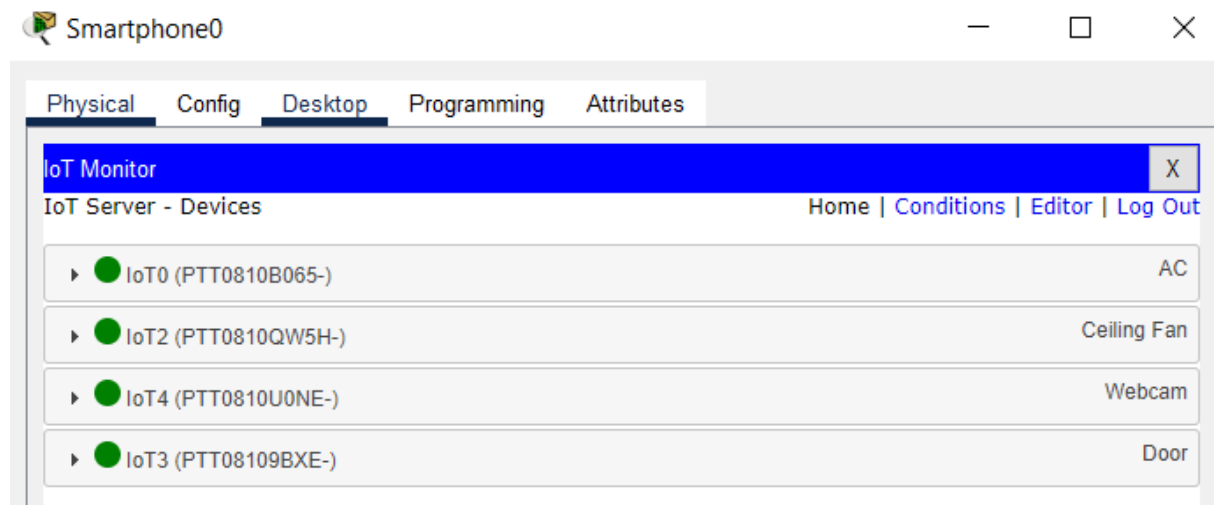
- Configuring CO server.



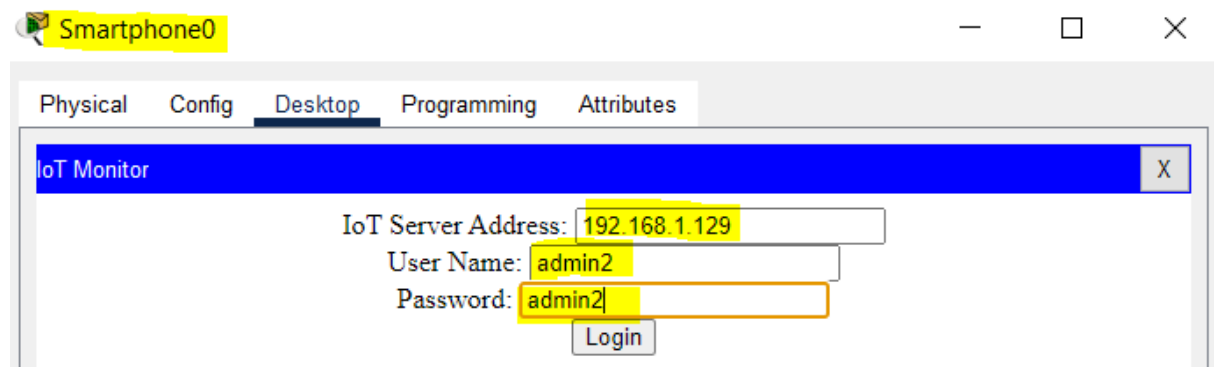
- Logging in to IoT account of house1 to access its IoT Devices.



Devices of house1 can be seen, can be operated using this smartphone.



Now, let us log in to IoT account of house2.



Devices of house2 can be seen, can be operated using this smartphone.

