

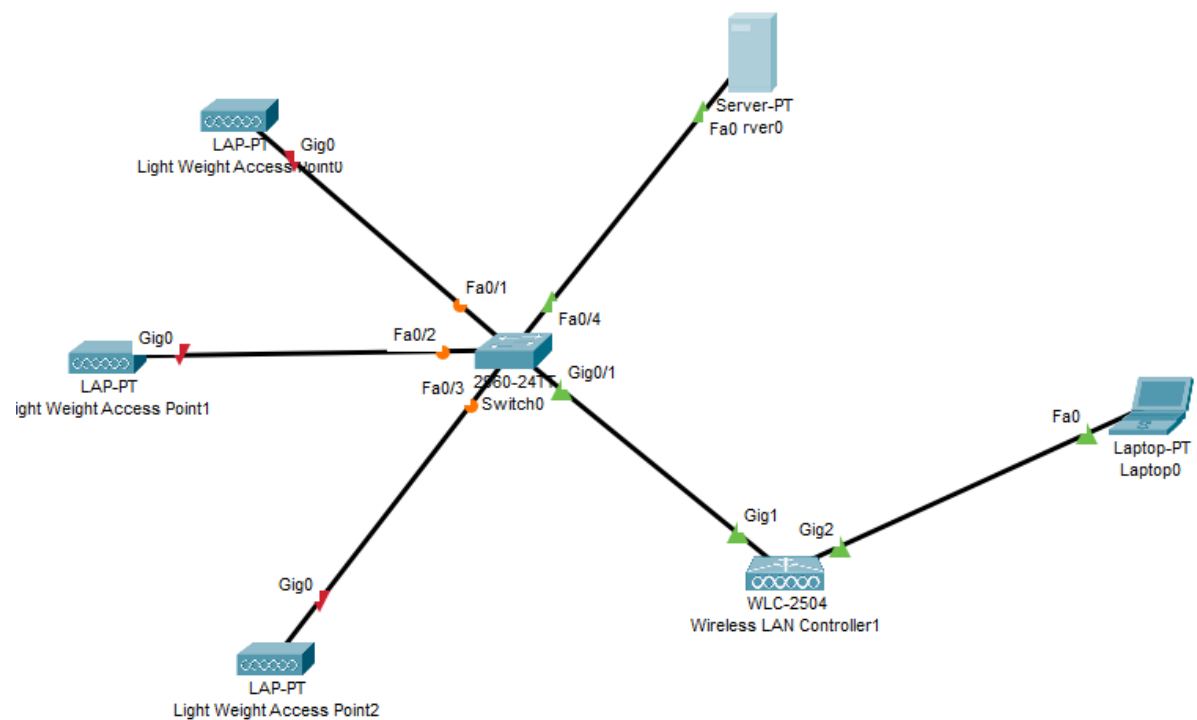
## Practical 3

### Aim: Placing ACLs

#### Components:

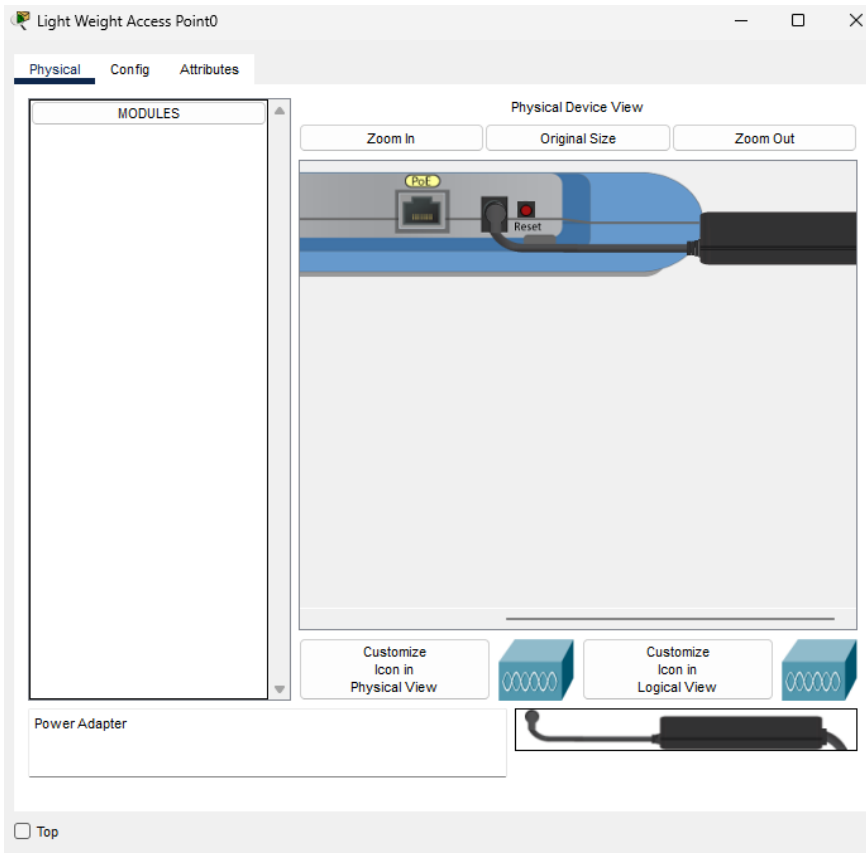
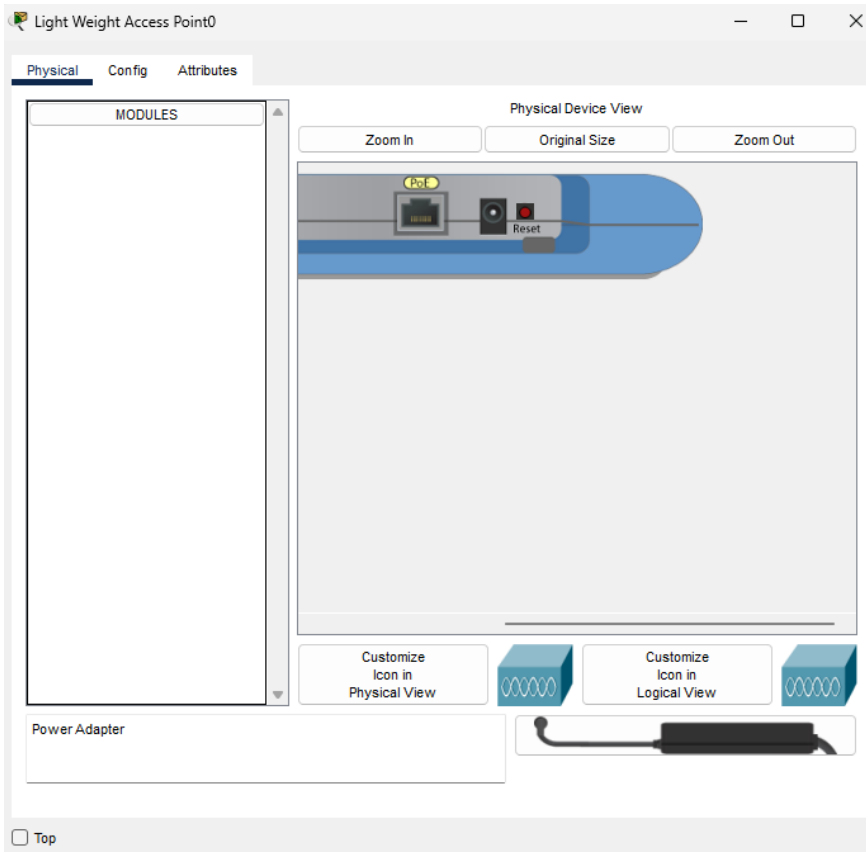
- WLC 2504
- 2960 Switch
- 3 LAP-PT
- Server-PT
- Laptop-PT
- Copper Straight-Through wires
- Smart Phone

#### Configure the system

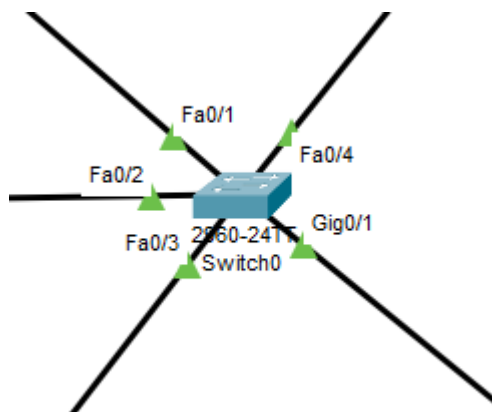


#### Add the power adapter too all LAP-PT

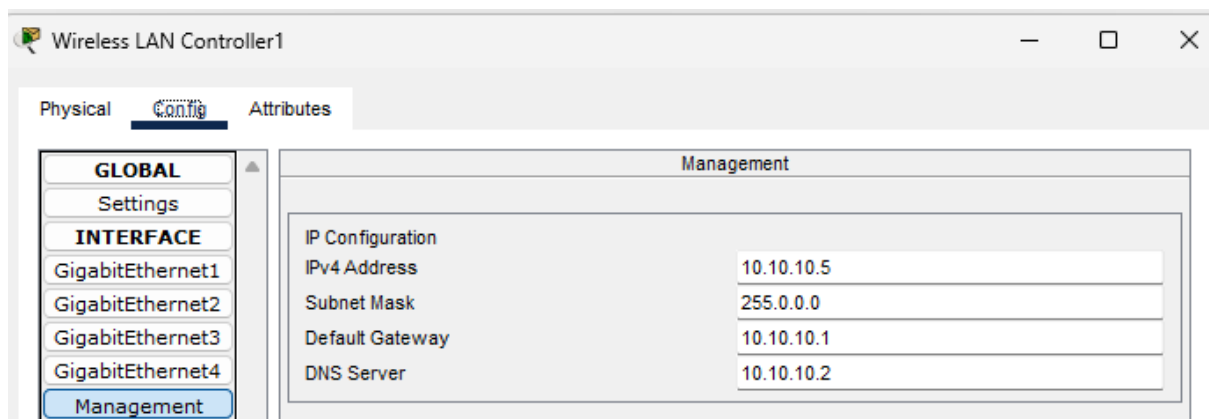
Drag and drop the the power adapter in the port (Do it for all three LAP)



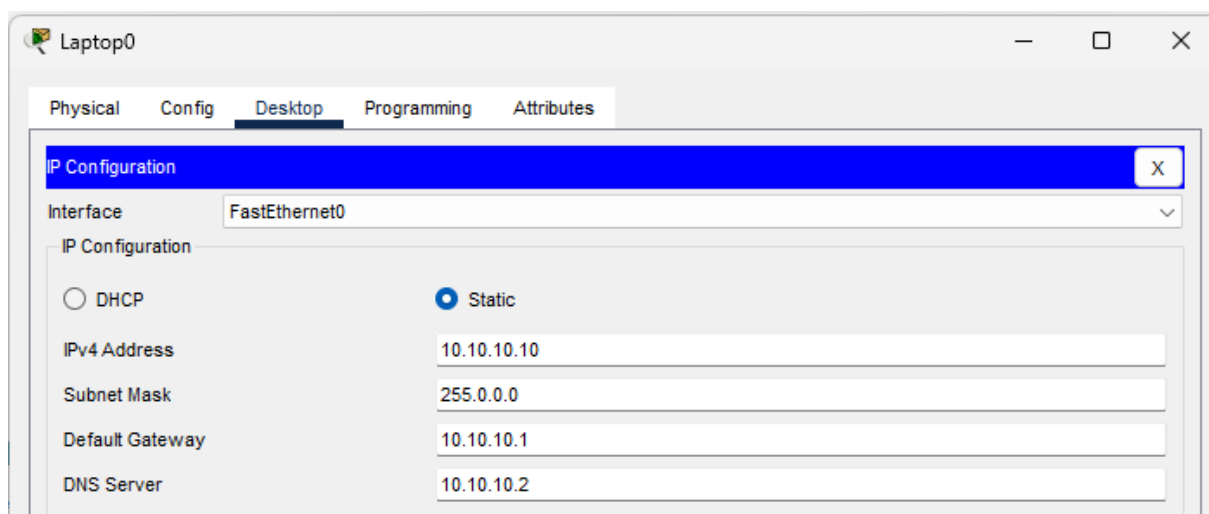
Wait for sometime till all the **LAP** connections are green



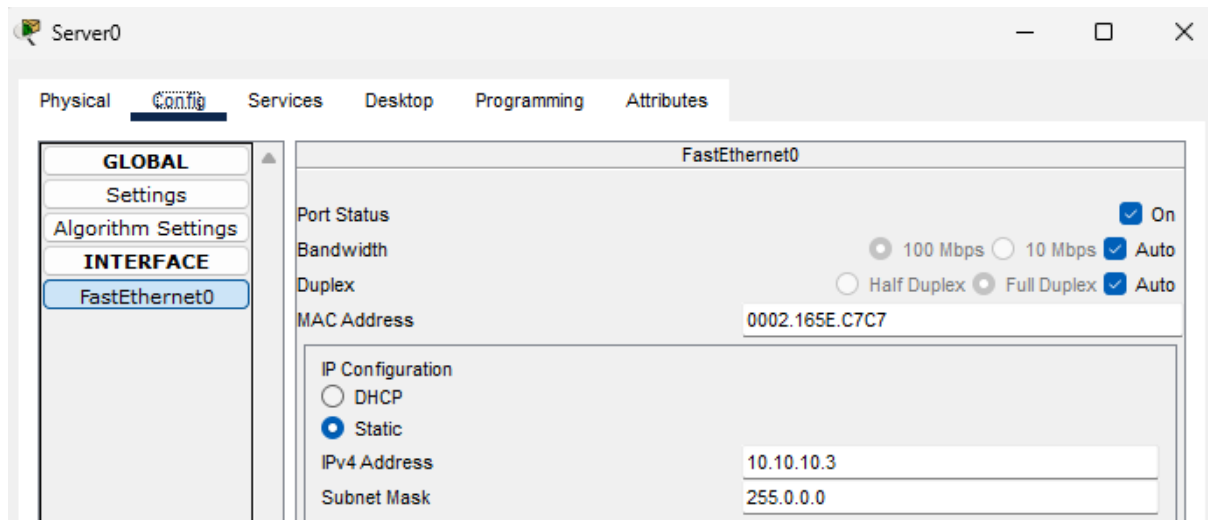
### Setting IP address of Wireless LAN Controller



### Setting IP address of Laptop

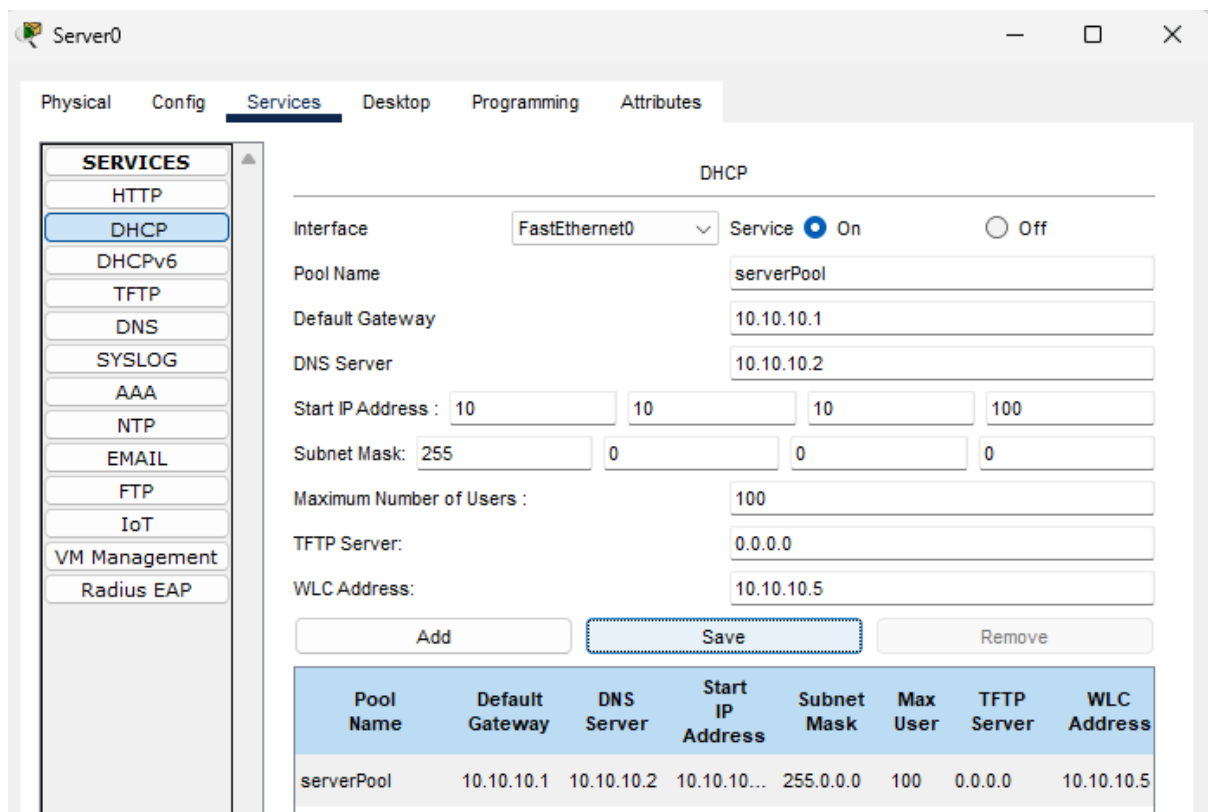


## Setting IP Address of Server



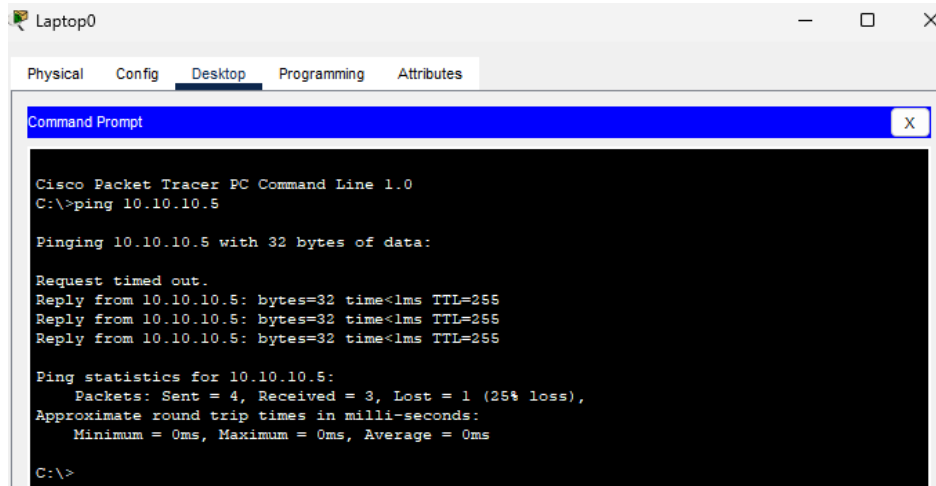
## Setting DHCP Server

Open server under **Services** -> **DHCP** do the following changes and click **Save**



## Checking connection with Wireless Router

Open Laptop and navigate to command prompt and ping 10.10.10.5



```
Laptop0
Physical Config Desktop Programming Attributes
Command Prompt
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 10.10.10.5

Pinging 10.10.10.5 with 32 bytes of data:

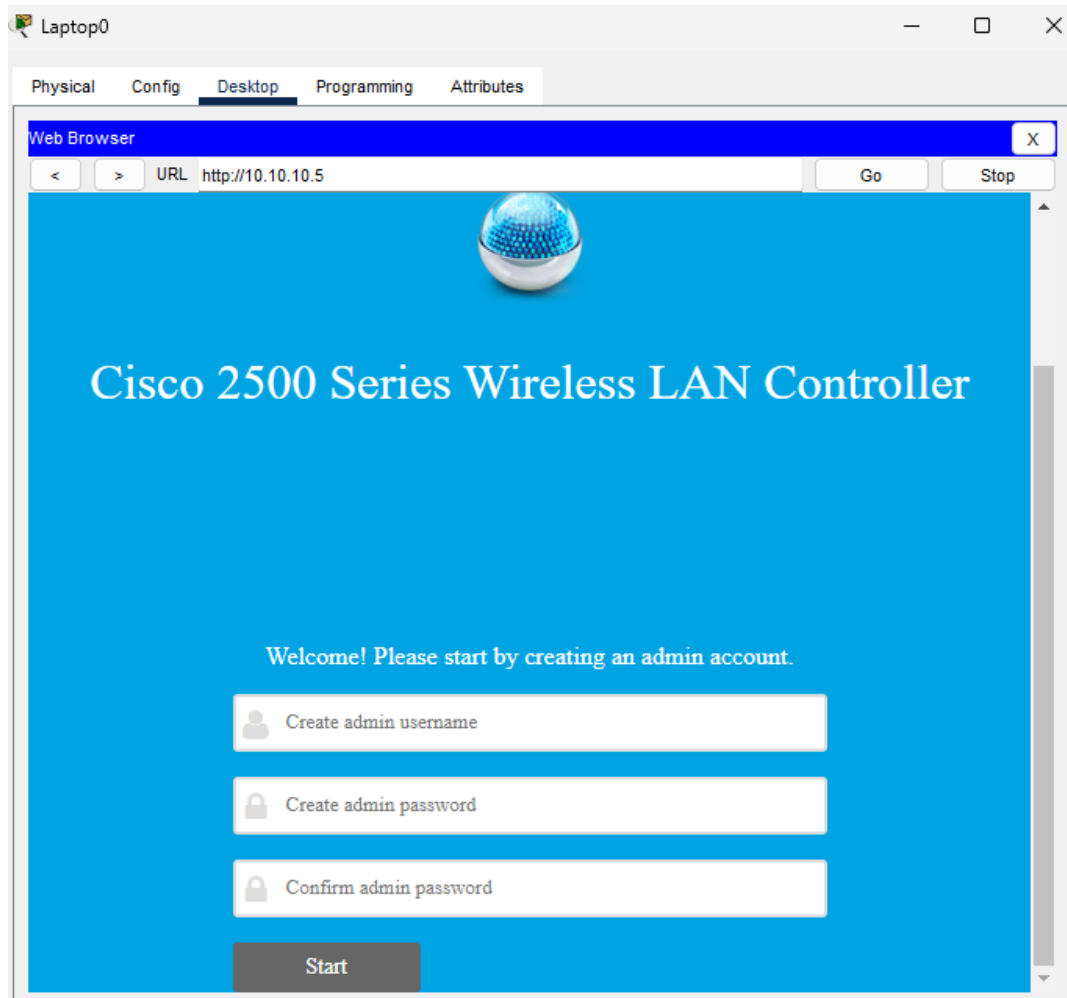
Request timed out.
Reply from 10.10.10.5: bytes=32 time<1ms TTL=255
Reply from 10.10.10.5: bytes=32 time<1ms TTL=255
Reply from 10.10.10.5: bytes=32 time<1ms TTL=255

Ping statistics for 10.10.10.5:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

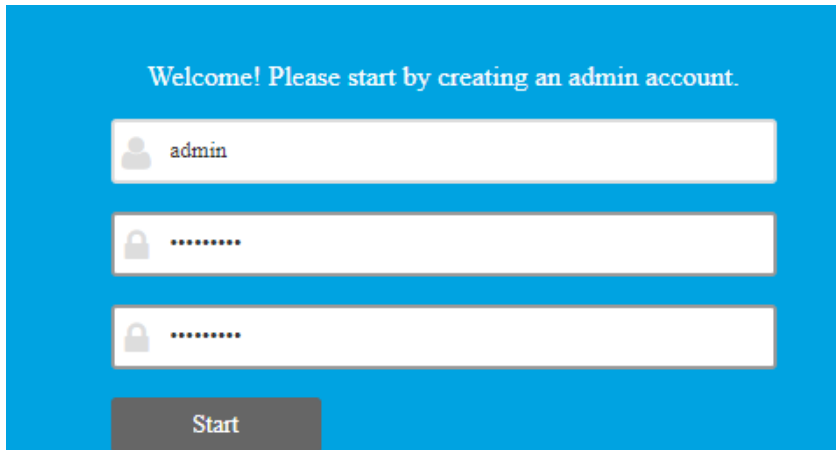
C:\>
```

Connection is successful

Open the web browser inside the laptop and navigate to 10.10.10.5



## Create the admin user



Welcome! Please start by creating an admin account.

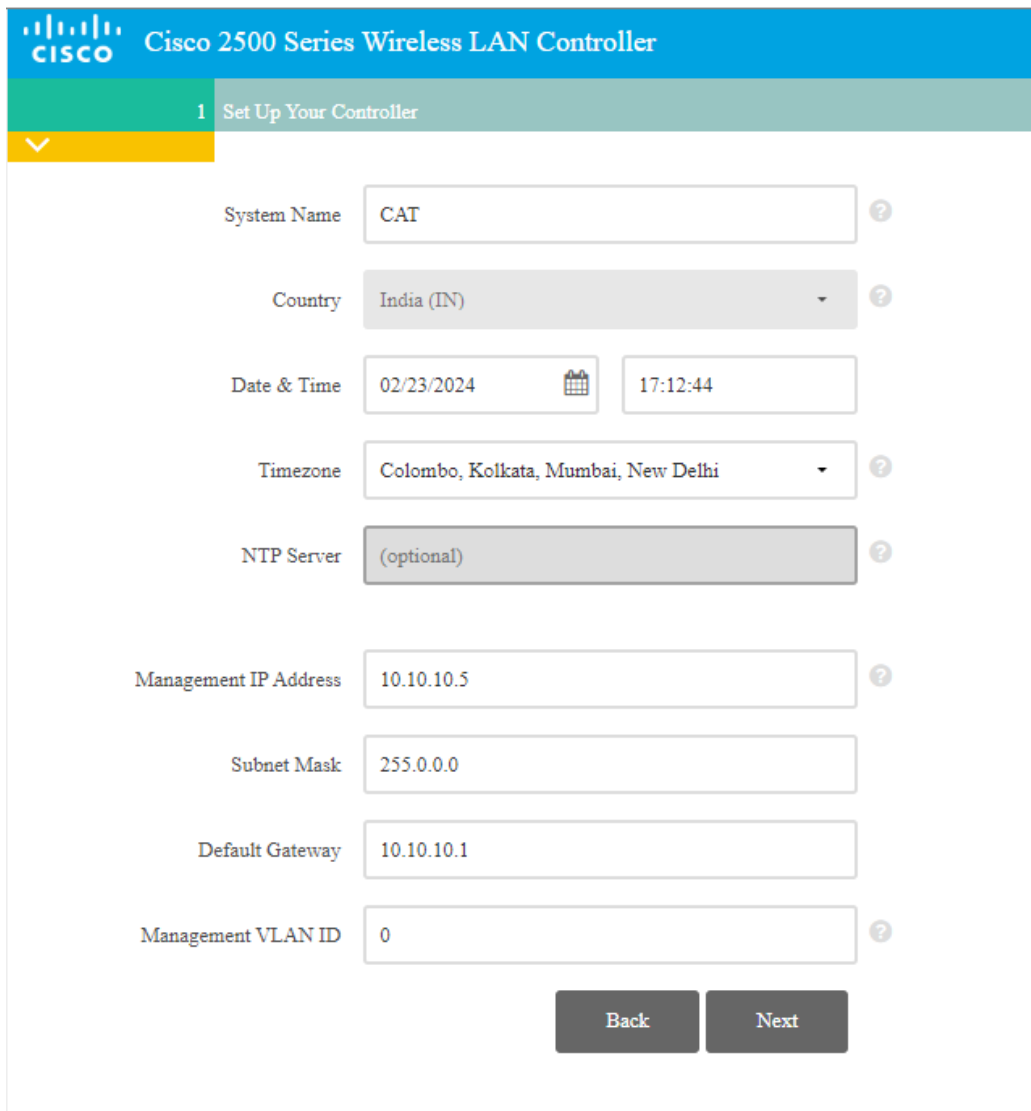
admin

.....

.....

Start

After login there will be a form fill it as follows



CISCO Cisco 2500 Series Wireless LAN Controller

1 Set Up Your Controller

System Name CAT

Country India (IN)

Date & Time 02/23/2024 17:12:44

Timezone Colombo, Kolkata, Mumbai, New Delhi

NTP Server (optional)

Management IP Address 10.10.10.5

Subnet Mask 255.0.0.0

Default Gateway 10.10.10.1

Management VLAN ID 0

Back Next



Employee Network

Network Name

Security

Passphrase

Confirm Passphrase

VLAN

DHCP Server Address



RF Parameter Optimization

Virtual IP Address

Local Mobility Group

Back

Next



Cisco 2500 Series Wireless LAN Controller

Please confirm settings and apply

1 Controller Settings

Username admin  
System Name CAT  
Country India (IN)  
Date & Time 02/23/2024 17:14:35  
Timezone Colombo, Kolkata, Mumbai, New Delhi  
NTP Server -

Management IP Address 10.10.10.5  
Management IP Subnet 255.0.0.0  
Management IP Gateway 10.10.10.1  
Management VLAN ID 0

2 Wireless Network Settings

Employee Network

Network Name Cat  
Security WPA2 Personal  
Passphrase: \*\*\*\*\*  
Employee VLAN Management VLAN  
DHCP Server Address -

Guest Network

3 Advanced Settings

RF Parameter Optimization

Virtual IP Address 192.0.2.1  
Local Mobility Group Default

Back

Apply

Wait for 2-3 mins and cancel the tab

## Login to server

Once the system is rebooted open the web browser again on the laptop and go to the address <https://10.10.10.5>



# Wireless LAN Controller

Welcome! Please click the login button to enter your user name and password

Login

**Authentication Required**

User Name:

Password:

The screenshot shows the Cisco Wireless LAN Controller web interface. The top navigation bar includes: MONITOR, WLANs, CONTROLLER, WIRELESS, SECURITY, MANAGEMENT, COMMANDS, HELP, FEEDBACK. The main content area is titled "Summary" and features a "Cisco 2500 Series Wireless Controller" graphic. Below the graphic are several summary sections:

- Controller Summary:** Management IP Address: 10.10.10.5 - 1/128, Software Version: 8.3.111.0, Field Recovery Image Version: 7.6.101.1, System Name: CAT, Up Time: 9 minutes, 39 seconds, System Time: Fri Feb 23 17:28:06 2024, Redundancy Mode: N/A, Internal Temperature: -21 C, 802.11a Network State: Enabled, 802.11b/g Network State: Enabled, Local Mobility Group: N/A, CPU(s) Usage: 0%, Individual CPU Usage: 0%/1%/0%/0%, Memory Usage: 46%, Fan Status: 3800 rpm.
- Rogue Summary:** Active Rogue APs: 0, Active Rogue Clients: 0, Adhoc Rogues: 0, Rogues on Wired Network: 0.
- Access Point Summary:** A table showing the status of various APs.
- Client Summary:** Current Clients: 0, Excluded Clients: 0, Disabled Clients: 0.

	Total	Up	Down	
802.11a/n/ac Radios	0	0	0	<a href="#">Details</a>
802.11b/g/n Radios	0	0	0	<a href="#">Details</a>
Dual-Band Radios	0	0	0	<a href="#">Details</a>
All APs	0	0	0	<a href="#">Details</a>

## All the LAP's are present

If you are not able to see any LAP's you can click reset button inside LAP and wait

The screenshot shows the "All APs" page in the Cisco Wireless LAN Controller web interface. The top navigation bar includes: MONITOR, WLANs, CONTROLLER, WIRELESS, SECURITY, MANAGEMENT, COMMANDS, HELP, FEEDBACK. The main content area shows a table of APs with the following columns: AP Name, IP Address (IPv4/IPv6), AP Model, AP MAC, AP Up Time, Admin Status, Operational Status, PoE Status, and Sp. The table contains three entries:

AP Name	IP Address (IPv4/IPv6)	AP Model	AP MAC	AP Up Time	Admin Status	Operational Status	PoE Status	Sp
<a href="#">LAP1_West@Access Point</a>	10.10.10.102	PT-41R-CAP10001-A-09	0040:3E90:7500	0 d 0 h 2 m 47 s	Enabled	REG	-	10
<a href="#">LAP2_West@Access Point</a>	10.10.10.101	PT-41R-CAP10001-A-09	0040:4350:4200	0 d 0 h 1 m 15 s	Enabled	REG	-	10
<a href="#">LAP3_West@Access Point</a>	10.10.10.102	PT-41R-CAP10001-A-09	0090:3B6C0320	0 d 0 h 1 m 11 s	Enabled	REG	-	10



The screenshot shows the Cisco WLANs configuration page. The top navigation bar includes MONITOR, WLANs, CONTROLLER, WIRELESS, SECURITY, MANAGEMENT, COMMANDS, HELP, and FEEDBACK. On the left, there is a sidebar with 'WLANs' and 'Advanced' (AP Groups) options. The main content area shows 'WLANs' with a 'Current Filter' section containing links for '[Change Filter]' and '[Clear Filter]', and buttons for 'Create New' and 'Go'. Below this is a table with the following data:

WLAN ID	Type	Profile Name	WLAN SSID	Admin Status	Security Policies
1	WLAN	Cat	Cat	Enabled	[WPA2][Auth(PSK)]

One WLAN we created

### Create one more WLAN

The screenshot shows the Cisco WLANs configuration page. The top navigation bar includes 'Save Configuration', 'Ping', 'Logout', and 'Refresh'. The main content area shows 'WLANs' with 'Entries 1 - 2 of 2'. Below this is a 'Current Filter' section containing links for '[Change Filter]' and '[Clear Filter]', and buttons for 'Create New' and 'Go'.

The screenshot shows the Cisco WLANs configuration page in the 'WLANs > New' form. The top navigation bar includes 'Save Configuration', 'Ping', 'Logout', and 'Refresh'. The main content area shows the 'WLANs > New' form with the following fields:

- Type: WLAN
- Profile Name: Snake
- SSID: Snake
- ID: 2

Buttons for '< BACK' and 'Apply' are visible.

Tick Enable and Apply

The screenshot shows the Cisco WLANs configuration page in the 'WLANs > Edit 'Snake'' form. The top navigation bar includes '< BACK' and 'Apply' buttons. The main content area shows the 'WLANs > Edit 'Snake'' form with the following tabs: 'General', 'Security', 'QoS', and 'Policy-Mapping'. The 'Advanced' tab is selected, showing the following fields:

- Profile Name: Snake
- Type: WLAN
- SSID: Snake
- Status:  Enabled

## Making Access Point Groups

Click on **Add Group**

The screenshot shows the Cisco WLC configuration interface. At the top, there is a navigation bar with the Cisco logo and menu items: MONITOR, WLANs, CONTROLLER, WIRELESS, SECURITY, MANAGEMENT, and COMMAND. The 'WLANs' menu is currently selected. Below the navigation bar, there is a sidebar on the left with 'WLANs' and 'Advanced' sections. The 'Advanced' section is expanded to show 'AP Groups'. The main content area is titled 'AP Groups' and shows 'Entries 1 - 1 of 1'. There is an 'Add Group' button in the top right corner. Below this, there is a table with two columns: 'AP Group Name' and 'AP Group Description'. The table contains one entry: 'default-group'.

### AP Groups

Entries 1 - 1 of 1

**Add Group**

#### Add New AP Group

AP Group Name

Description

**Add** **Cancel**

Click on the created AP Group

Under WLAN click **Add New** and add a **WLAN**

The screenshot shows the Cisco WLC configuration page for editing an AP Group. The breadcrumb is 'Ap Groups > Edit 'Cat''. There is a '< Back' button in the top right corner. Below the breadcrumb, there are several tabs: General, WLANs, RF Profile, APs, 802.11u, Location, and Ports/Module. The 'WLANs' tab is currently selected. In the top right corner of the main content area, there is an 'Add New' button. Below this, there is a section titled 'Add New' with the following fields: 'WLAN SSID' (dropdown menu with 'Cat(1)' selected), 'Interface /Interface Group(G)' (dropdown menu with a blue '1' next to it), and 'SNMP NAC State' (checkbox labeled 'Enabled'). There are 'Add' and 'Cancel' buttons below these fields. At the bottom, there is a table with four columns: 'WLAN ID', 'WLAN SSID (2)(6)', 'Interface/Interface Group(G)', and 'SNMP NAC State'.

Click on APs and add 1 & 2 AP

Ap Groups > Edit 'Cat'

< Back

General | **WLANs** | RF Profile | **APs** | 802.11u | Location | Ports/Module

APs currently in the Group

<input type="checkbox"/> AP Name	Ethernet MAC
----------------------------------	--------------

Add APs to the Group

<input type="checkbox"/> AP Name	Group Name
<input checked="" type="checkbox"/> Light Weight Access Point0	default-group
<input checked="" type="checkbox"/> Light Weight Access Point1	default-group
<input type="checkbox"/> Light Weight Access Point2	default-group

Click Apply

General | **WLANs** | RF Profile | **APs** | 802.11u | Location | Ports/Module

AP Group Name: Cat

AP Group Description:

NAS-ID:

Enable Client Traffic QinQ:

Enable DHCPv4 QinQ:

QinQ Service Vlan Id:

CAPWAP Preferred Mode:  Not-Configured

Add Another Group

### Add New AP Group

AP Group Name:

Description:

## Add WLAN

Ap Groups > Edit 'Snake'

< Back

General | **WLANs** | RF Profile | APs | 802.11u | Location | Ports/Module

**Add New**

**Add New**

WLAN SSID:

Interface /Interface Group(G):

SNMP NAC State:  Enabled

**Add** **Cancel**

WLAN ID	WLAN SSID (2)(6)	Interface/Interface Group(G)	SNMP NAC State
---------	------------------	------------------------------	----------------

## Add APs

Select the 3rd one

Ap Groups > Edit 'Snake'

< Back

General | **WLANs** | RF Profile | **APs** | 802.11u | Location | Ports/Module

APs currently in the Group: **Remove APs**

AP Name	Ethernet MAC
---------	--------------

Add APs to the Group: **Add APs**

AP Name	Group Name
<input type="checkbox"/> Light Weight Access Point0	Cat
<input type="checkbox"/> Light Weight Access Point1	Cat
<input checked="" type="checkbox"/> Light Weight Access Point2	default-group

Click Apply

Ap Groups > Edit 'Snake'

General | **WLANs** | RF Profile | **APs** | 802.11u | Location | Ports/Module

**Apply**

AP Group Name: Snake

AP Group Description:

NAS-ID:

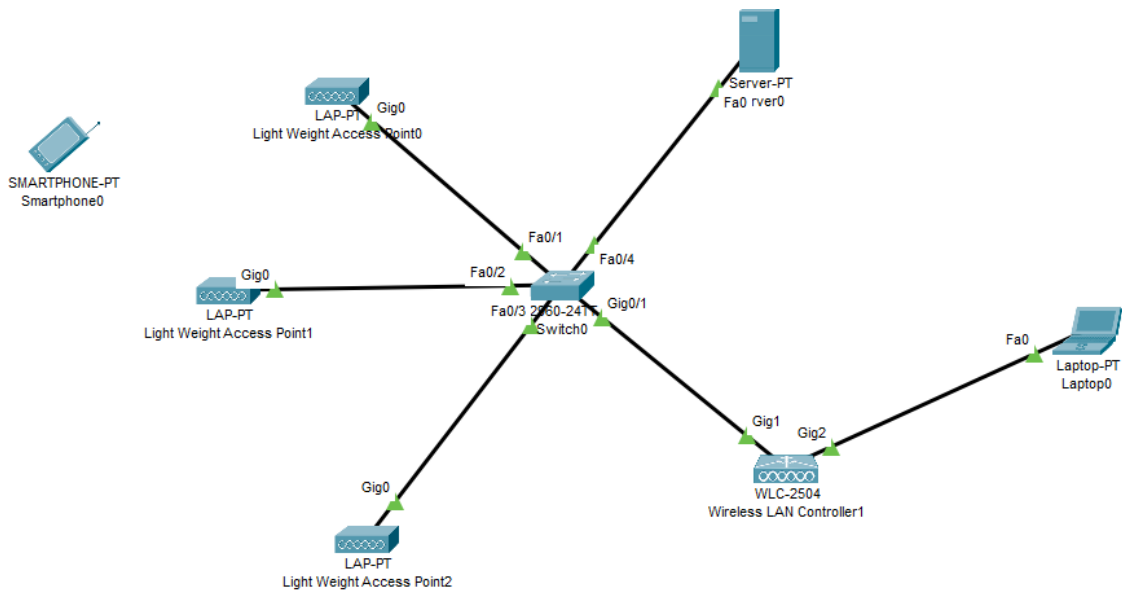
Enable Client Traffic QinQ:

Enable DHCPv4 QinQ:

QinQ Service Vlan Id:

CAPWAP Preferred Mode:  Not-Configured

## Add a smartphone



## Configure the smartphone

You can see it has connected and have an IP address

Physical **Config** Desktop Programming Attributes

**GLOBAL**

- Settings
- Algorithm Settings

**INTERFACE**

- Wireless0**
- 3G/4G Cell1
- Bluetooth

**Wireless0**

Port Status  On

Bandwidth 300 Mbps

MAC Address 0003.E42D.A27A

SSID Cat

Authentication

Disabled  WEP  WPA2-PSK  WPA  WPA2  802.1X

WEP Key

PSK Pass Phrase 12345678

User ID

Password

Method: MD5

User Name

Password

Encryption Type AES

IP Configuration

DHCP  Static

IPv4 Address 10.10.10.105

Subnet Mask 255.0.0.0

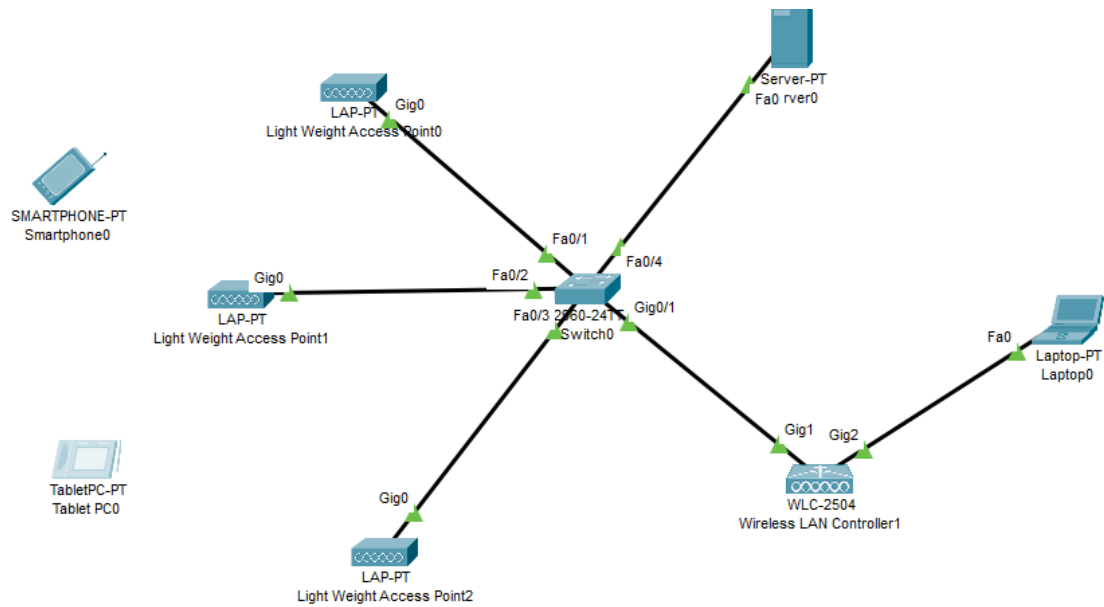
IPv6 Configuration

Automatic  Static

IPv6 Address

Link Local Address: FE80::203:E4FF:FE2D:A27A

## Add a Tablet



## Configure the Tablet

Physical **Config** Desktop Programming Attributes

**GLOBAL**

Settings

Algorithm Settings

**INTERFACE**

Wireless0

3G/4G Cell1

Bluetooth

Wireless0

Port Status  On

Bandwidth

MAC Address

SSID

Authentication

Disabled     WEP    WEP Key

WPA-PSK     WPA2-PSK    PSK Pass Phrase

WPA     WPA2    User ID

802.1X    Method:     Password

User Name

Password

Encryption Type

IP Configuration

DHCP     Static

IPv4 Address

Subnet Mask

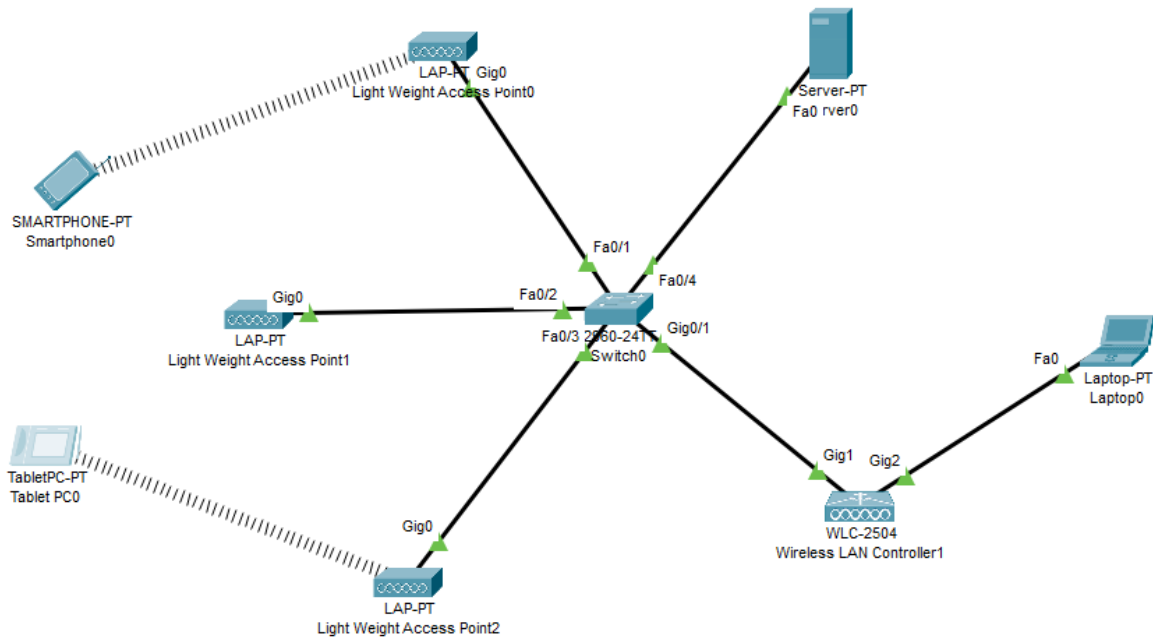
IPv6 Configuration

Automatic     Static

IPv6 Address

Link Local Address:

After sometime Smartphone and Tablet will be connected



Checking the connection between tablet and smartphone

Realtime Simulation

Scenario 0

New Delete

Toggle PDU List Window

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit	Delete
●	Successful	Smart...	Tablet PC0	ICMP		0.000	N	0	(edit)	(delete)