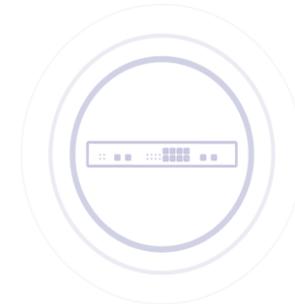


Samsung WLAN

Day 1



1. Course Outline & Classroom Setup

- 1.1 WLAN Information Sheet
- 1.2 Classroom Setup

2. WLAN Product Overview

- 2.1 Deployment Scenarios
- 2.2 Access Point Controller's
- 2.3 AP (Access Point) Specifications
- 2.4 WEM (Wireless Enterprise Manager)

3. Installation

- 3.1 Hardware Mounting

4. Basic Installation Section

- 4.1 Site Information
- 4.2 Connecting to the APC
- 4.3 Basic Installation Wizard
- 4.4 Network Setup / VLANs
- 4.5 Software Management
- 4.6 License Setup
- 4.7 General Configuration
- 4.8 Configure Radios
- 4.9 Configure WLANs
- 4.10 Set Up Access Points
- 4.11 AP Groups

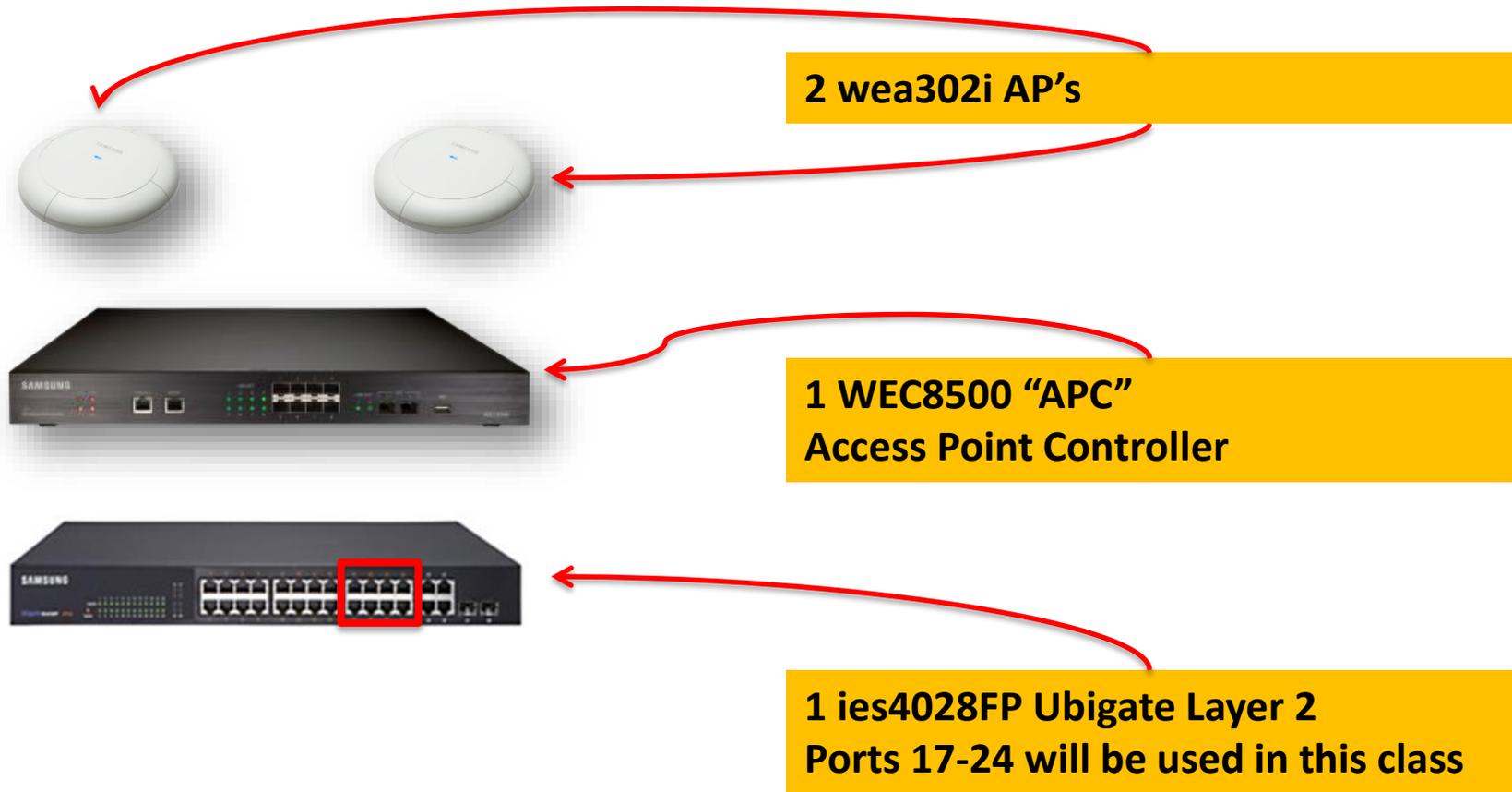
5. Maintenance

- 5.1 Backup the APC
- 5.2 Downloading the Backup
- 5.3 Upgrade the APC
- 5.4 Upgrade the AP
- 5.5 Default the APC
- 5.6 Disaster Recovery for APC
- 5.7 APC Redundancy

- 1. Course Outline & Classroom Setup
 - 1.1 WLAN Information Sheet
 - 1.2 Classroom Setup

- You should have been given a WLAN information sheet.
- You will use this form all week for APC Configuration, AP Setup etc.
- As the course develops, the information in this form will begin to make more sense
- Lets look at it now

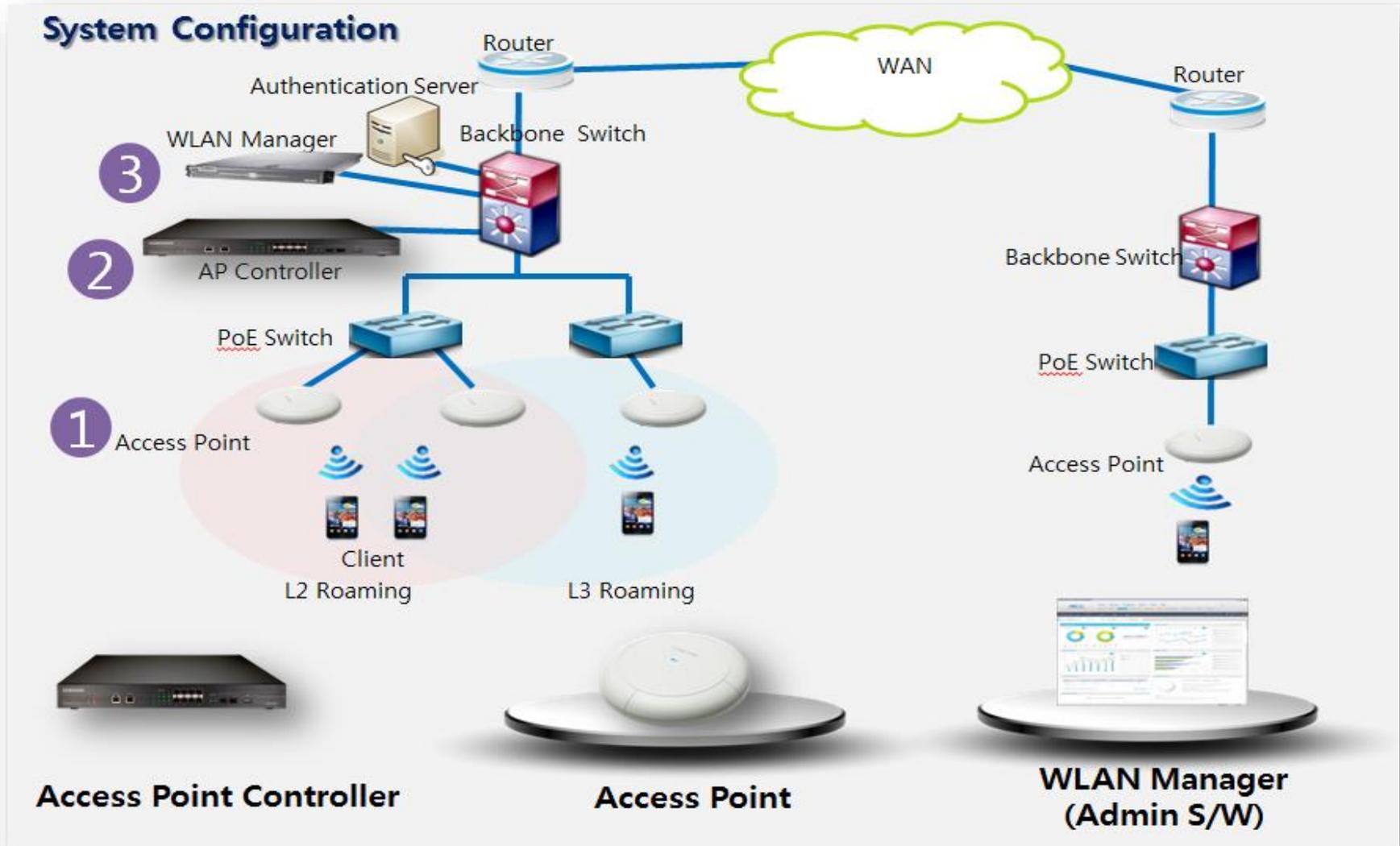
1.2 Classroom Setup



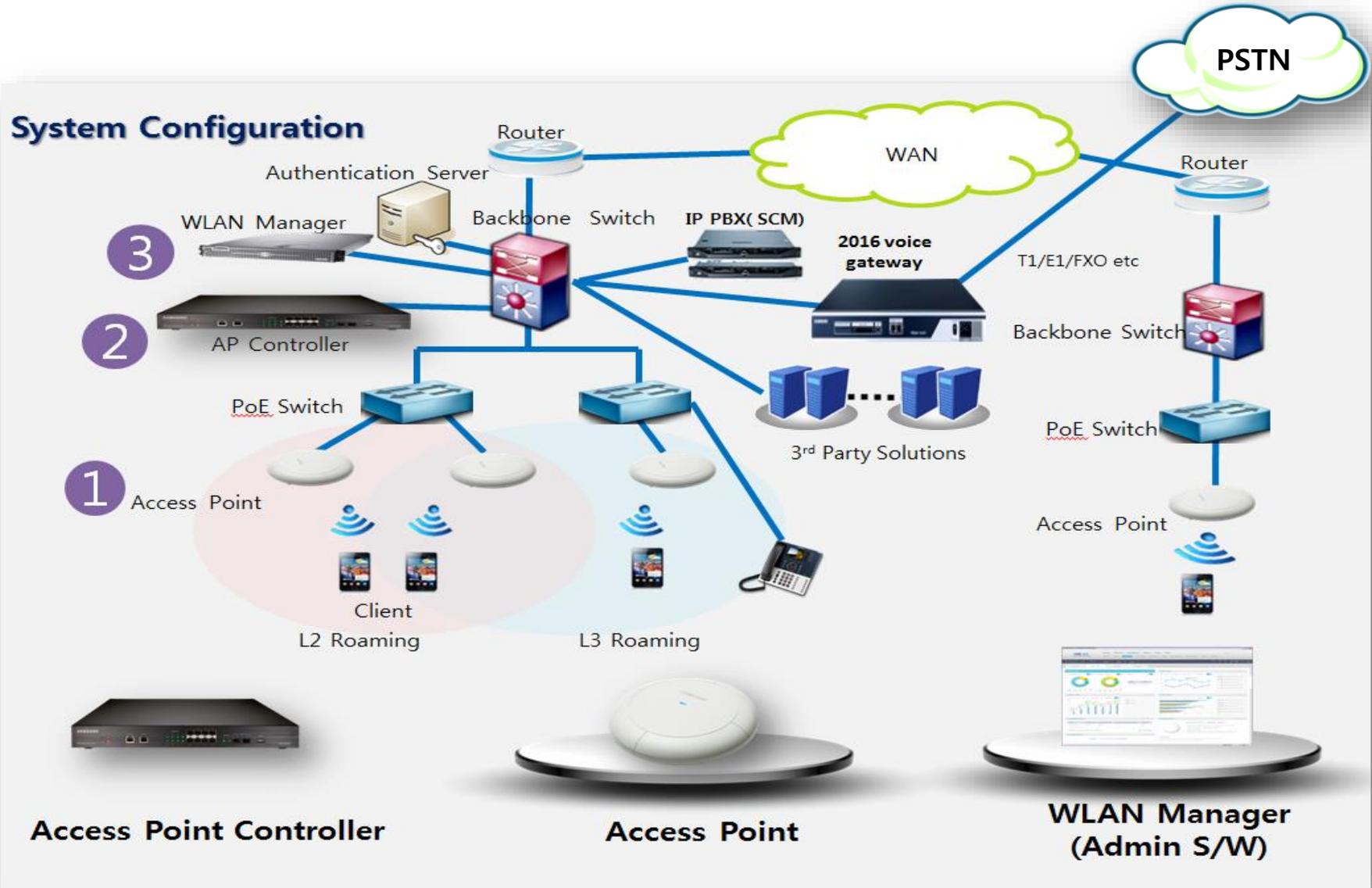
2. WLAN Product Overview

- 2.1 Deployment Scenarios
- 2.2 Access Point Controller's
- 2.3 AP (Access Point)
- 2.4 WEM (Wireless Enterprise Manager)

2.1 Deployment Scenario #1



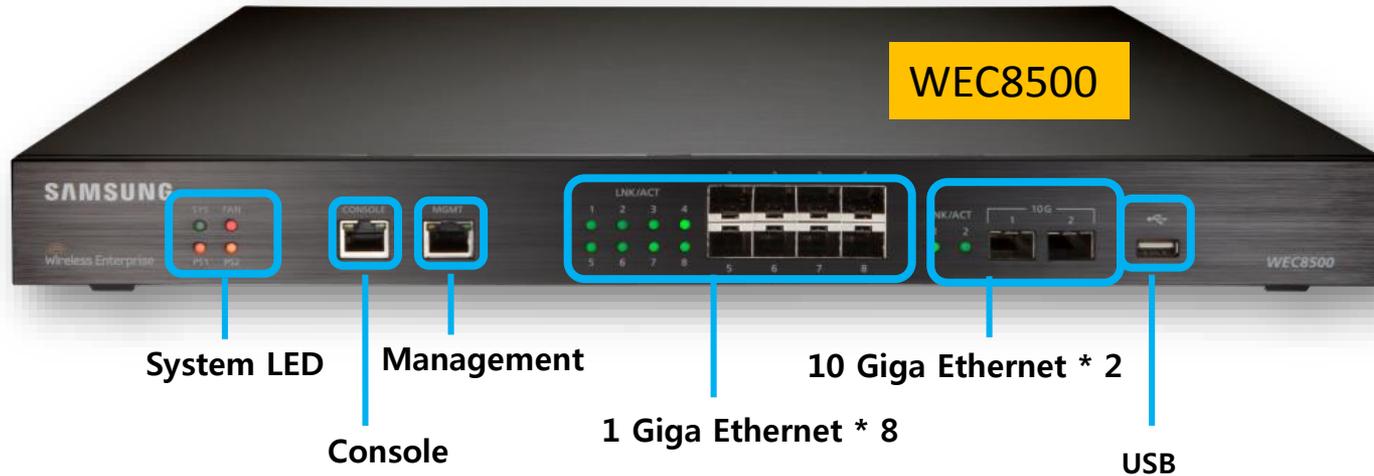
2.1 Deployment Scenario #2



Introduction to the Samsung Wireless Enterprise Solution

- Samsung Wireless Enterprise (WE) solution provides a variety of telecommunication services required by clients in the wireless environment.
- It allows collaboration of applications such as telephone, message, communicator, etc. that have been used in the conventional wired environment to be used on a wireless terminal such as smart phone, tablet PC, or laptop.
- Samsung APC and WE WLAN AP are the core equipment's to provide various services including user authentication, wireless management, voice and data services in the 802.11-based Wi-Fi environment.
- WE WLAN AP provides the telecommunication environment based on Wi-Fi and APC offers user authentication, quality of service (QoS), handover and security by overall integrating WE WLAN APs.

2.2 Access Point Controller



Interface	Description
Status LED	It indicates the status of APC by the color of the LED
Console Port	It is used to check for the operating state of WEC8500 or command by CLI
Ethernet Port	It supports 100 Megabit Ethernet (Management)
1 Giga Ethernet * 8	It supports 1 Gigabit Ethernet (SFP) – other side must match 1 gig setup
10 Giga Ethernet * 2	It supports 10 Gigabit Ethernet (SFP+)
USB	It supports USB interface

System LED

Indicates the various statuses of system. Each LED displays the following information.

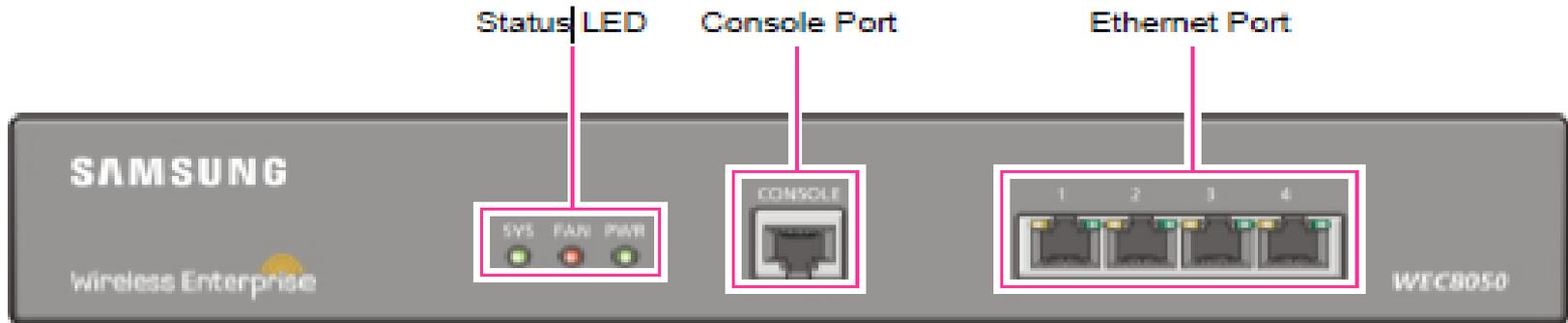


Figure 4. System LED Configuration

LED	Status	Description
SYS	Green	System is operating normally
	Orange	During system booting
	Red	Preparing for system booting
FAN (fan module)	Green	Installed fan module is operating normally
	Orange	During system booting
	Red	Fan module fault has occurred
PS1 (power module 1)	Green	Normal operation of installed power module 1
	Red	Power is turned off or a fault occurred while the power module 1 is installed.
	Off	Power module 1 is not installed.
PS2 (power module 2)	Green	Normal operation of installed power module 2
	Red	Power is turned off or a fault occurred while the power module 2 is installed.
	Off	Power module 2 is not installed.

2.2 Access Point Controller

WEC8050



Interface	Description
Status LED	It indicates the status of APC by the color of the LED
Console Port	It is used to check for the operating state of WEC8050 or command by CLI
Ethernet Port	It supports 4 10/100/1000 Base-T ports.

Status LED

This LED indicates the various statuses of system. Each LED displays the following information.



Figure 9. Status LED configuration

LED	Status	Description
SYS	Green	The system is operating normally
	Orange	The system is now booting
	Red	Preparing the system for booting
FAN	Green	The installed FAN module is operating normally
	Orange	The system is now booting
	Red	Fan fault
PWR	Green	The power is supplied normally
	Off	The power is turned off or not supplied

2.2 APC (Access Point Controller)

Specifications

Index		WEC8050	WEC8500
Scalability	Maximum # of APs	75	1000 (Centralized), 3000 (Distributed)
	# of Client	1500	20,000
H/W, Interface	Network I/F	4 X 10/100/1000 mbps, 1 Console	2 10GE(SFP+), 8 GE(SFP), 1 Console
	USB	No	1
	System Redundancy	Yes	Yes
	Redundant Power	No	Yes, Optional
	Form Factor	1 RU	1 RU
Network	Routing	Yes	Yes
	VLANs	128	1024
	VLANs per SSID	50	50
	DHCP	Server, Relay	Server, Relay
	QoS	Shaping, Policing, 802.1p, Voice Quality Monitoring	Shaping, Policing, 802.1p, Voice Quality Monitoring
	System Redundancy	Stateless type (Active-Active, Active-Standby)	Stateless type (Active-Active, Active-Standby)
Security	Firewall	Yes, License required	Yes, License required
	Authentication	802.1x	802.1x
	MAC Filtering, ACL	Yes	Yes
	Encryption	DTLS	DTLS
	AAA	Radius Server and Internal Radius Server	Radius Server and Internal Radius Server
RF Manager	RRM	Power, Channel, Coverage Hole	Power, Channel, Coverage Hole
	RF Spectrum Analysis	Yes	Yes
Handover	L2	Inter/Intra Controller	Inter/Intra Controller
	L3	Inter/Intra Controller	Inter/Intra Controller
Management	CLI	Yes	Yes
	GUI	Yes	Yes
	SNMP	Yes	Yes
	Syslog	Yes	Yes

Specifications

Item	Specifications	
	8050	8500
Maximum processing capacity under system configuration	Use of 1000 BASE-T 4 Ports: 1.5 Gbps	- When using the 10 GBASE-SR/LR 2 port: 20 Gbps - When using the 1000 BASE-SX/LX 8 port: 8 Gbps
Maximum number of AP Groups	75	3000
Maximum number of APs per AP Group	75	1000
Maximum number of WLANs	255	255
Maximum number of stations (clients) per AP	127	127
Maximum number of SSID	240	240
Maximum Number of SSID (WLAN) per AP	16	16
Maximum Number of MAC Addresses	12K	12K
Maximum Number of IPv4 Unicast Routers	10K	10K
Maximum Number of System BSSIDs	2,400	16K
Firewall Throughput	1.5 Gbps	20 Gbps

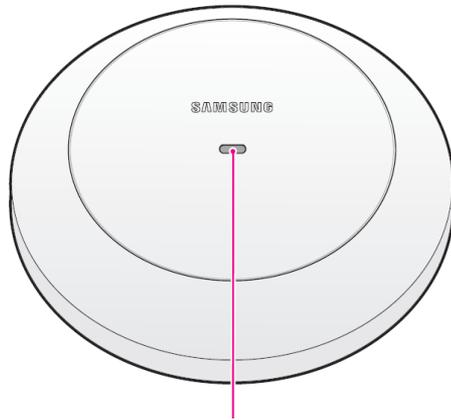
2.3 AP (Access Point)

	Model	Attributes
1	WEA302i	Internal use only
2	WEA303i	Internal use only
3	WEA303e	For outdoor use with specified enclosures, can attach an external antenna
4	WEA403i	Internal use only
5	WEA412i	Internal use only
6	WEA453e	Outdoor Access Point

i -> Internal
e -> External

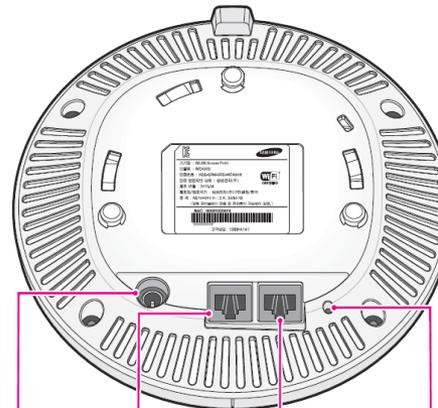
2.3 AP (Access Point)

Front View



Status LED

Back View



DC input

Ethernet Port

Console Port

Reset Switch

Internal AP
WEA302i / WEA303i



Note: You cannot use a console cable longer than 10 meters for AP connection

External AP
WEA303e



Interface	Description
Status LED	It indicates the status of WEA302i by the color of the LED
Ethernet Port	It supports 1000 BASE-T Gigabit Ethernet and PoE IEEE 802.3af
Console Port	It is used to check for the operating state of WEA302i or command by CLI
DC input	It is used when power supplied from AC adaptor
Reset switch	Reboot WEA302i

2.3 AP (Access Point)



WEA403i AC
3 x 3 MIMO
3 spatial streams

WEA412i AC
2 x 2 MIMO
2 spatial streams

Note: For detailed information on AP hardware and Radiation patterns, please refer to the WLAN System Description document. (Chapter 6)

2.3 AP (Access Point)

The new WEA 453e Outdoor Access Point



2.3 AP (Access Point)

Outdoor AP with
Dipole Antennas



Outdoor AP with
a Patch Antenna



Please note that the External Antennas do not come with the Outdoor Access Point.

2.3 AP (Access Point) Specifications

		WEA302i	WEA303i	WEA303e
Wireless	Standard	802.11a/b/g/n	802.11a/b/g/n	802.11a/b/g/n
	# of radio	Dual Concurrent Radio	Dual Concurrent Radio	Dual Concurrent Radio
	Frequency	2.4 GHz, 5 GHz	2.4 GHz, 5 GHz	2.4 GHz, 5 GHz
	Antennas	Internal Type	Internal Type	Internal/External Type
	MIMO	2 X 2 MIMO, 2 Spatial Streams	3 X 3 MIMO, 3 Spatial Streams	3 X 3 MIMO, 3 Spatial Streams
	PHY Rate	300 Mbps	450 Mbps	450 Mbps
H/W	Network I/F	1 GE (RJ45), 1 Console (RJ45)	1 GE (RJ45), 1 Console (RJ45)	1 GE (RJ45), 1 Console (RJ45)
	PoE	802.3af/802.3at	802.3af/802.3at	802.3af/802.3at
	Environment Class	Indoor	Indoor	Indoor/Outdoor
Dimension	Diameter / Height	174 mm / 34.1 mm	174 mm / 34.1 mm	174 mm / 34.1 mm
	Weight	560 g	640 g	640 g
Security	Standard	802.11i, WPA/WPA2	802.11i, WPA/WPA2	802.11i, WPA/WPA2
	Multi SSID	Maximum 16	Maximum 16	Maximum 16
	# of Multi VLAN over SSID	Maximum 1,024	Maximum 1,024	Maximum 1,024
	Encryption	DTLS	DTLS	DTLS
QoS	Standard	802.11e	802.11e	802.11e
	WMM	Yes	Yes	Yes
Management	Operation	Controller Based	Controller Based	Controller Based
Certification	Wi-Fi Certified	WPA/WPA2, WMM, WMM-PS	WPA/WPA2, WMM, WMM-PS	WPA/WPA2, WMM, WMM-PS
	KC	Yes	Yes	Yes

2.3 AP (Access Point) Specifications

		WEA412i	WEA403i
Wireless	Standard	802.11a/b/g/n/ac	802.11a/b/g/n/ac
	# of radio	Dual Concurrent Radio	Dual Concurrent Radio
	Frequency	2.4 GHz, 5 GHz	2.4 GHz, 5 GHz
	Antennas	Internal Type	Internal Type
	MIMO	2 X 2 MIMO, 2 Spatial Streams	3 X 3 MIMO, 3 Spatial Streams
	PHY Rate	867 Mbps	1.3 Gbps
H/W	Network I/F	2 GE (RJ45), 1 Console (RJ45)	2 GE (RJ45), 1 Console (RJ45)
	PoE	802.3af/802.3at	802.3af/802.3at
	Environment Class	Indoor	Indoor
Dimension	Diameter / Height	205 mm / 45 mm	206 mm / 45 mm
	Weight	820 g	920 g
Security	Standard	802.11i, WPA/WPA2	802.11i, WPA/WPA2
	Multi SSID	Maximum 16	Maximum 16
	# of Multi VLAN over SSID	Maximum 1,024	Maximum 1,024
	Encryption	DTLS	DTLS
QoS	Standard	802.11e	802.11e
	WMM	Yes	Yes
Management	Operation	Controller Based	Controller Based
Certification	Wi-Fi Certified	WPA/WPA2, WMM, WMM-PS	WPA/WPA2, WMM, WMM-PS
	KC	Yes	Yes

2.3 AP (Access Point) Specifications

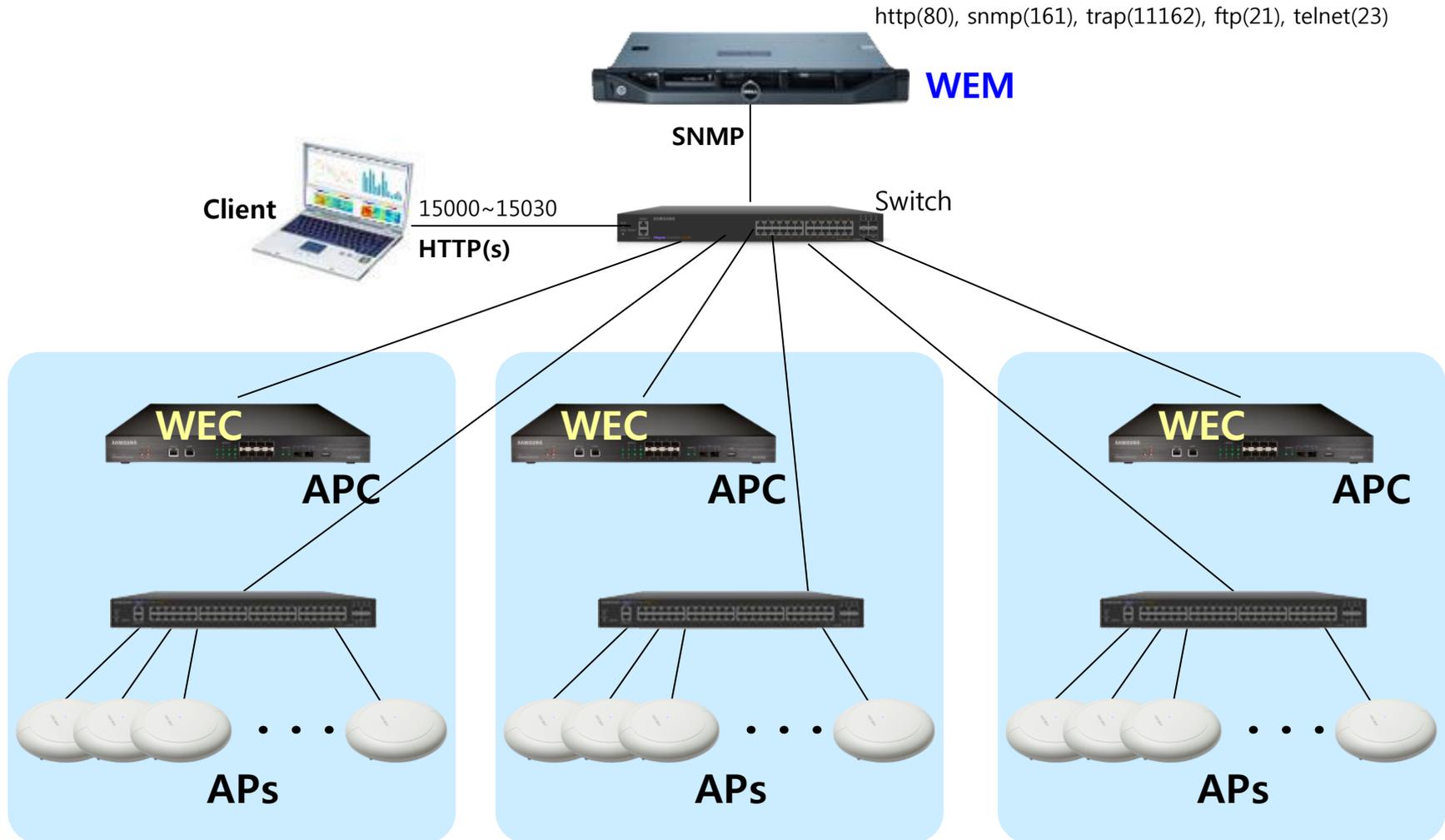
Category	Items	WEA453e
Wireless	WIPS	Support WIPS sensor mode
	Standard	802.11a/b/g/n/ac
	# of Radio	Dual Concurrent Radio
	Frequency	2.4GHz, 5GHz
	Antennas	External Type
	MIMO	3x3 MIMO, 3 Spatial Streams
	Spectrum Analysis	Yes (Time Sharing)
	PHY Rate	1.3Gbps
H/W	Network I/F	2 GbE (RJ45), 1 Console (RJ45)
	PoE	802.3at
	Environment Class	IP66, IP67
Dimension	Diameter / Height	267 x 184 x 58mm
	Weight	2.6Kg
Security	Standard	802.11i, WPA/WPA2
	Multi SSID	Maximum 16
	# of Multi VLAN over SSID	Maximum 1.024
	Encryption	DTLS
	Rogue AP Detection	Yes
QoS	Standard	802.11e
	WMM	Yes
Management	Operation	Controlled Mode, Stand-alone Mode
Certification	WiFi Certified	WPA/WPA2, WMM, WMM-PS
	KC	Yes

2.4 Wireless Enterprise Manager

WEM is a server system which manages APCs, APs, Switches and stations.

Category	Descriptions
Monitor	<ul style="list-style-type: none">. Real time alarm, traffic, resource usage and history. General status and detail information of APCs, APs, and Stations. AP and station location, Coverage from RF Map. Dashboard
Configuration	<ul style="list-style-type: none">. Configuration of APC and AP including Template
Operation	<ul style="list-style-type: none">. Managing Login accounts with several privileges. Alarm setting, License management center
Tools	<ul style="list-style-type: none">. Signal strength and channel utilization by spectrum analyzer. Interference Detector. Traffic analyzing by Packet capture through wireless and wired
General	<ul style="list-style-type: none">. Monitoring for WEM status (resources, process, database, etc)
Troubleshooting	Ease to analyze root cause of troubles step by step
Reporting	Reporting Resource, station, AP, Rogue AP, Interferer, Traffic usage each Interface
Alarms	Quick responses from trouble by real time alarm

2.4 Wireless Enterprise Manager



Specifications for a Server

Level	Descriptions
Minimum Server Spec.	OS : Linux(Red Hat Enterprise ES 5.5 or higher) DATABASE : MySQL 5.5 Low-End Server ✓5,000 Stations ✓Intel® Xeon® E3-1220 3.10GHz, 16GB RAM, 200GB HDD Mid-Range Server ✓30,000 Stations ✓Intel® Xeon® E5530 2.4GHz, 32GB RAM, 400GB HDD High-End Server ✓60,000 Stations ✓Intel® Xeon® X5670 2.93GHz, 32GB RAM, 600GB HDD
Client PC Spec.	CPU : 3.0 GHz (Pentium Core2 duo processor) RAM : 2GBytes or higher Browser : Internet Explorer 8.0, FireFox 3.5, Chrome JRE : 1.6.0_20 Flash Player
Managed Devices	Samsung WEC8500 Series Wireless Enterprise Controllers Samsung WEA303, WEA302 Access Points Samsung iES4200 Series Switches

- Samsung will be holding a separate course for “WEM” training.
- Please contact customer service to schedule a date to attend the class.

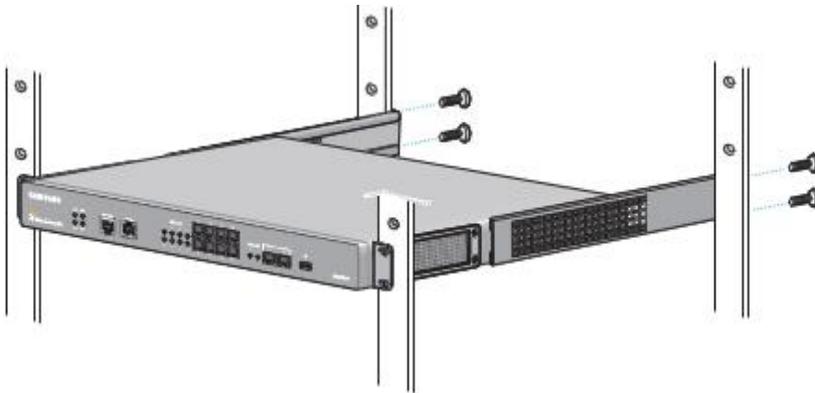
3. Installation

- 3.1 Hardware Mounting
 - 3.1.1 APC
 - 3.1.2 AP

- **APC installation scenarios**

- **Installation - 4 Types**

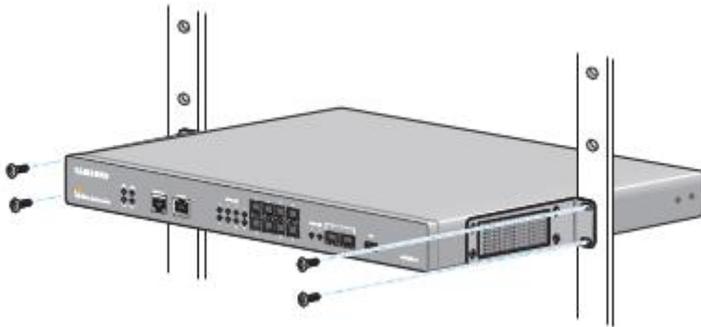
1. 4-Post Rack



2. 2-Post Rack (Flush-Mount)



3. 2-Post Rack (Mid-Mount)

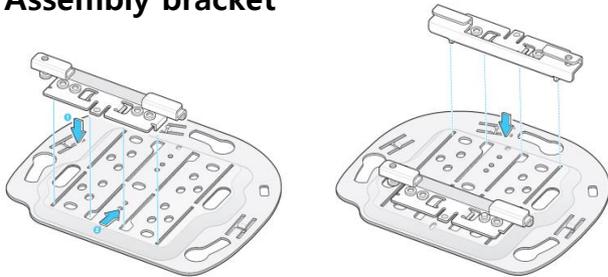


4. On a Desktop



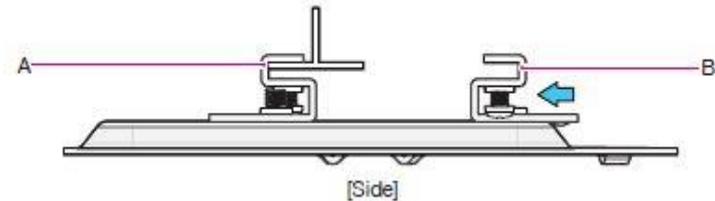
• AP installation on suspended ceiling grids

1. Assembly bracket



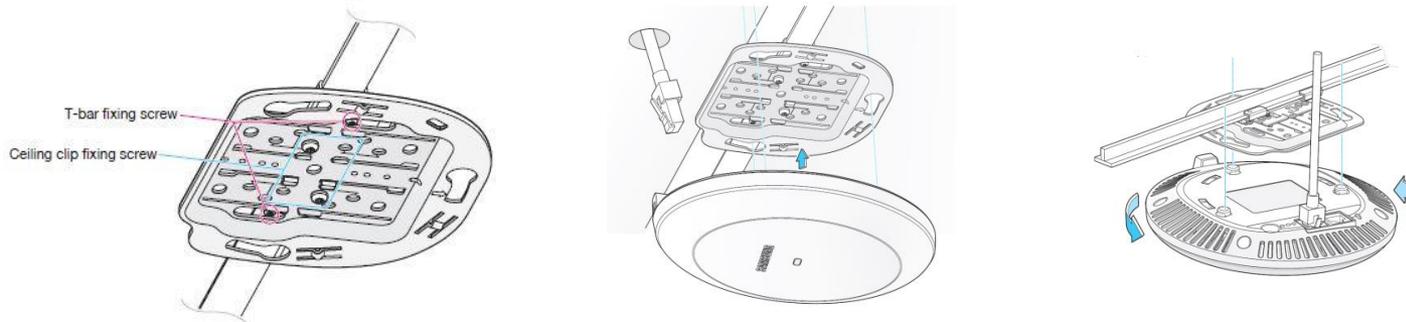
Place a ceiling bracket by making its convex part upward and align a ceiling clip to the groove of the ceiling bracket and insert the clip to the position that is shown in the figure.

2. Mount Bracket T-bar



After inserting the ceiling clip that is fixed with a screw (A in the figure) to the T-bar, push and move the ceiling clip (B in the figure) on the other side according to the T-bar size.

3. Installation on a ceiling

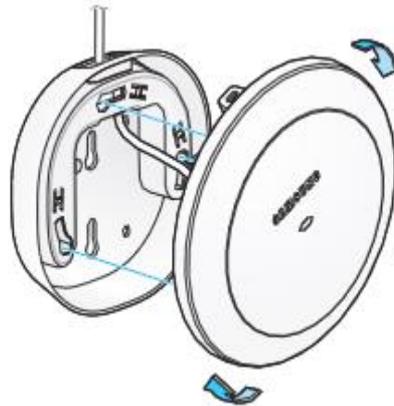
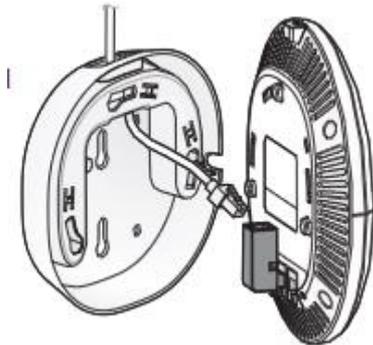
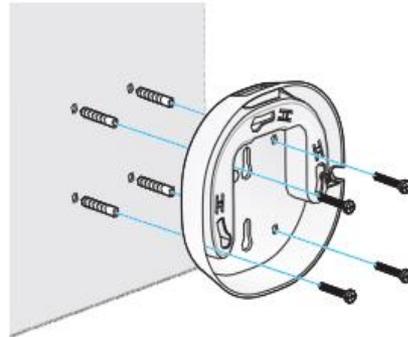
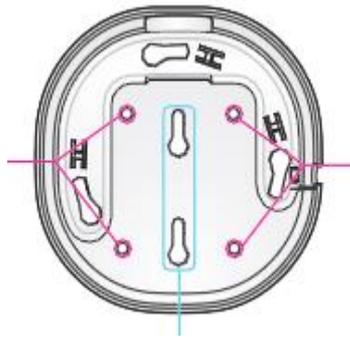


After tightening screw for the ceiling clip, draw out a LAN cable and connect it to the Ethernet port and fix the product by turning it clockwise.

3.1.2 Installation – AP (2)

- **AP wall mount installation**

Insert 4 plastic anchors into hole using a hammer



4. Basic Installation Section

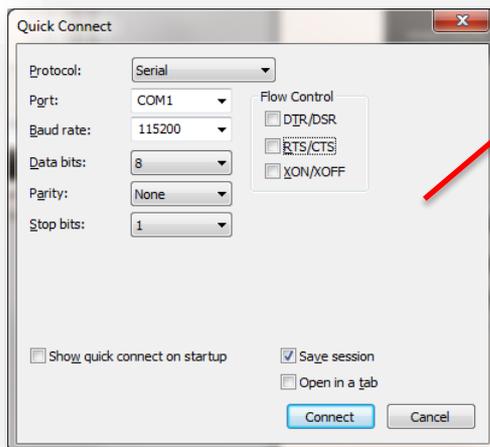
- 4.1 [Site Information](#)
- 4.2 [Connecting to the APC](#)
- 4.3 [Basic Installation Wizard](#)
- 4.4 [Network Setup / VLANs](#)
- 4.5 [Software Management](#)
- 4.6 [License Setup](#)
- 4.7 [General Configuration](#)
- 4.8 [Configure Radios](#)
- 4.9 [Configure WLANs](#)
- 4.10 [Set Up Access Points](#)
- 4.11 [AP Groups](#)

- Before configuration of the AP Controller and APs, specific information should be collected from the customer.
 - Obtain the '**WLAN Pre-Installation Checklist**' from GSBN.
 - Provide this to file to your customer so they can fill in the required information.
-
- For classroom setup, you have been given a custom made sheet just for training purposes only.
 - Please use the "Student_Site_Info" form given by the instructor

4.2 Connecting to APC

- 4.2.1 WEC8050 Connection
- 4.2.2 WEC8500 Connection

4.2.1 WEC8050 Connection



Console Connection settings

Note: You must always change the default password first via CLI using console port before getting into the GUI.

Also, the WEC8050 does not have a default management port. We will setup interface ge4 as our management port

4.2.1 WEC8050 Connection

Connecting to APC using CLI is as follows:
Direct connection to the system console port

When the booting of APC is completed, log into the system as follows:

1. For the first connection, log in using ID: 'samsung' and Password: 'samsung'.

```
USERNAME : samsung  
PASSWORD : samsung
```

THIS IS YOUR FIRST LOGIN AFTER USER ACCOUNT HAS BEEN CREATED.

YOU MUST CHANGE YOUR PASSWORD

```
ENTER LOGIN PASSWORD : samsung  
ENTER NEW PASSWORD : *****  
CONFIRM NEW PASSWORD : *****  
PASSWORD SUCCESSFULLY CHANGED  
WEC8050 #
```

2. After the first login, you must change the password.

Default Credentials:

ID: samsung

Password: samsung

Password Restrictions:

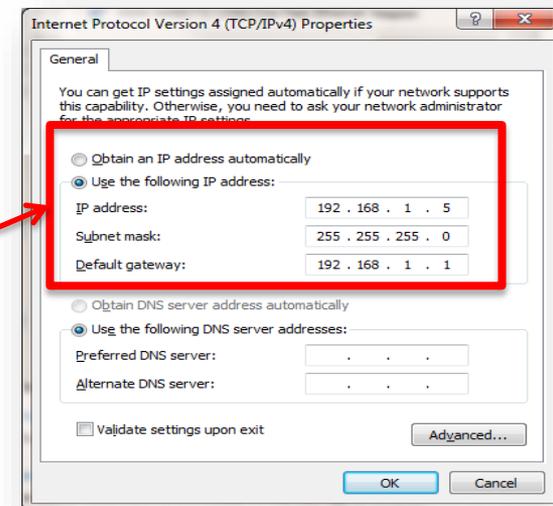
- Password must be any combination of alphabetic, numeric and special character.
- Password length: 8 ~ 25

4.2.1 WEC8050 Connection

Management Port Setup!

```
WEC8050# configure terminal
WEC8050/configure# interface ge4
WEC8050/configure/interface ge4# no switchport
WEC8050/configure/interface ge4# ip address 192.168.1.2/24
WEC8050/configure/interface ge4# end
WEC8050# save local
```

You will need to set a static IP on your PC to connect



4.2.1 WEC8050 Connection



Connect your LAN cable from PC to the ge4 port and browse to the IP address you set in the previous step.

Login Screen

Enter your updated login credentials.

Note best viewing environment in red box.

4.2.1 WEC8050 Connection

Main Menus across the top

Monitor | Configuration | Administration | Help

Summary

This chassis refreshes every 5 seconds.

Inventory

SYSTEM NAME	WEC8050
LOCATION	0
MODEL NAME	WEC8050
MAC ADDRESS	f4:d9:fb:42:15:0e
HARDWARE VERSION	0.3
FIRMWARE VERSION	0.4
SOFTWARE VERSION	1.5.9
SERIAL NUMBER	S63DA02468
SYSTEM UP TIME	14 min, 58 sec
SYSTEM TIME	Sat Jan 01 00:15:29 2000

Package Information

VERSION	1.5.9.R
BUILD TIME	Mon Feb 17 13:07:34 2014
STATUS	Active

Top WLANs [View All](#)

PROFILE NAME	CURRENT STATIONS
--------------	------------------

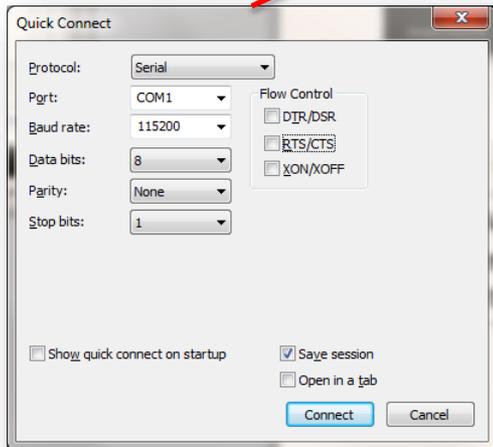
Sub Menus on the left

4.2.2 WEC8500 Connection

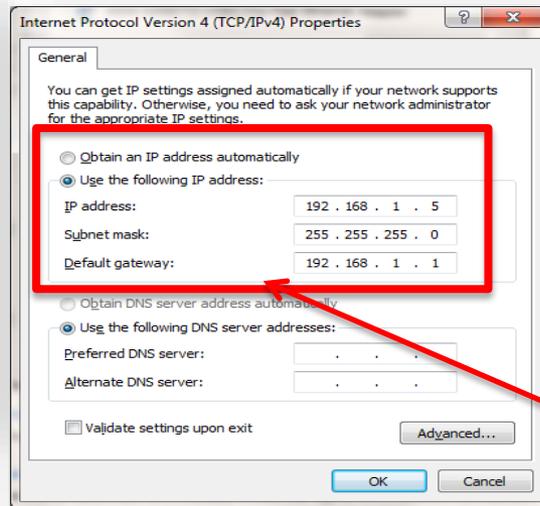
If you want to use 192.168.1.0 network for management, then you must first change the management port IP to a different network via console access



192.168.1.2



Console Connection settings



- The MGMT port is going to give you access to the GUI.
- After you have configure your interfaces, you will no longer need to access through the MGMT port

You will need to set a static IP on your PC to connect

4.2.2 WEC8500 Connection

Connecting to APC using CLI is as follows:
Direct connection to the system console port

Note: You must always change the default password first via CLI using console port before getting into the GUI.

When the booting of APC is completed, log into the system as follows:

1. For the first connection, log in using ID: 'samsung' and Password: 'samsung'.

```
USERNAME : samsung
PASSWORD : samsung
```

```
THIS IS YOUR FIRST LOGIN AFTER USER ACCOUNT HAS BEEN CREATED.
```

YOU MUST CHANGE YOUR PASSWORD

```
ENTER LOGIN PASSWORD : samsung
ENTER NEW PASSWORD : *****
CONFIRM NEW PASSWORD : *****
PASSWORD SUCCESSFULLY CHANGED
WEC8500 #
```

2. After the first login, you must change the password.

Default Credentials:

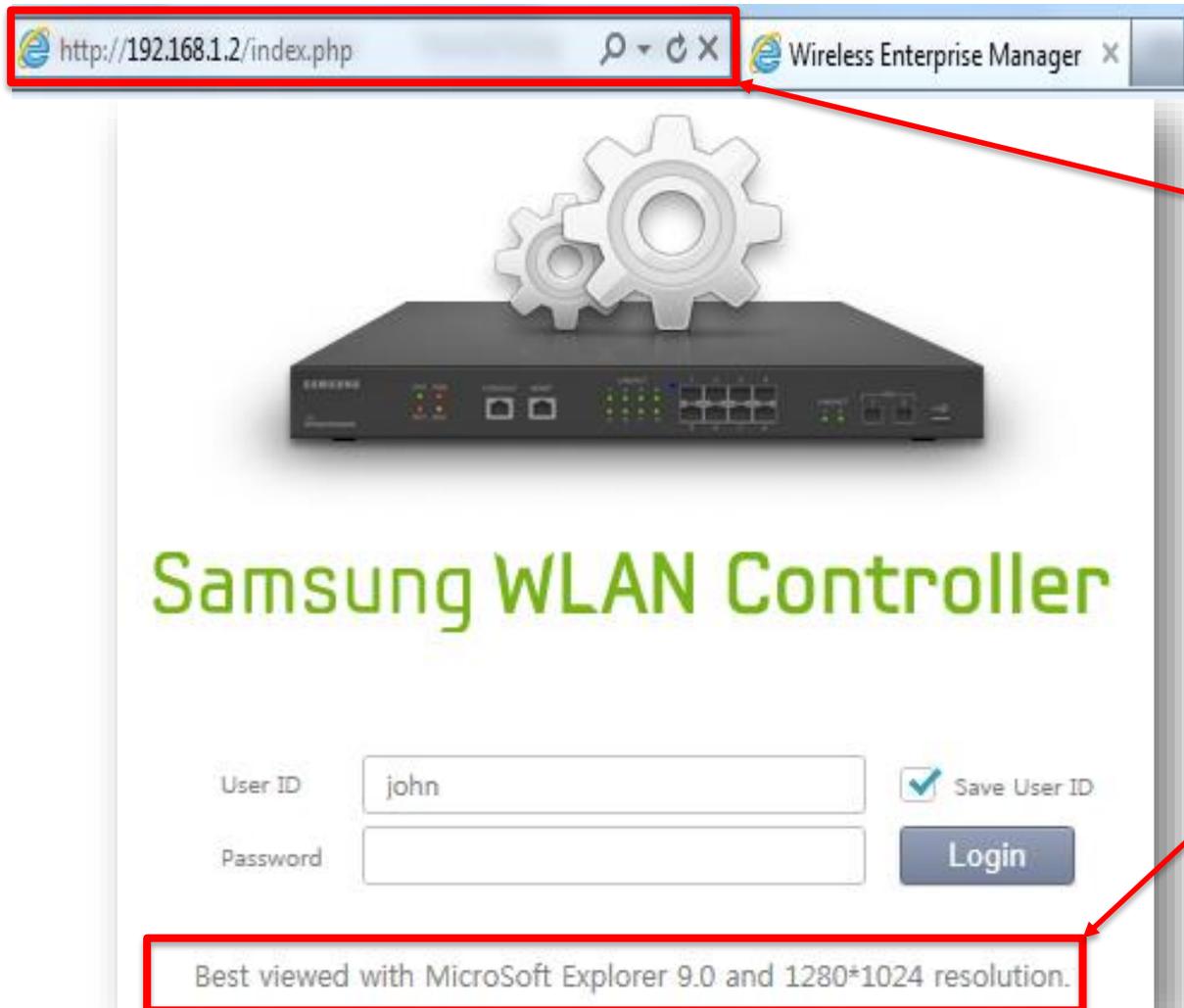
ID: samsung

Password: samsung

Password Restrictions:

- Password must be any combination of alphabetic, numeric and special character.
- Password length: 8 ~ 25

4.2.2 WEC8500 Connection



The screenshot shows a web browser window with the address bar containing `http://192.168.1.2/index.php`. The page title is "Wireless Enterprise Manager". The main content area features a Samsung WLAN Controller device with three gears above it. Below the device, the text "Samsung WLAN Controller" is displayed in green. The login form includes a "User ID" field with the value "john", a "Password" field, a "Save User ID" checkbox (checked), and a "Login" button. At the bottom of the page, a red-bordered box contains the text: "Best viewed with MicroSoft Explorer 9.0 and 1280*1024 resolution."

Connect your LAN cable from PC to the Management port and browse to the IP address of 192.168.1.2.

Login Screen

Enter your updated login credentials.

Note best viewing environment in red box.

4.2.2 WEC8500 Connection

Main Menu across the top

Monitor | Configuration | Administration | Help

Summary

This chassis refreshes every 5 seconds.

This page refreshes every 30 seconds.

Inventory

SYSTEM NAME	npi_WEC8500
LOCATION	0
MODEL NAME	WEC8500
MAC ADDRESS	f4:d9:fb:40:2c:0e
HARDWARE VERSION	0.5
FIRMWARE VERSION	0.7
SOFTWARE VERSION	1.5.9
SERIAL NUMBER	2VMQ295006
SYSTEM UP TIME	5 day, 17 hour, 48 min, 40 sec
SYSTEM TIME	Wed Mar 05 09:19:42 2014

Package Information

VERSION	1.5.9.R
BUILD TIME	Mon Feb 17 13:22:22 2014
STATUS	Active

Top WLANs [View All](#)

PROFILE NAME	CURRENT STATIONS
npi_network	1 Edit

Sub Menus on the left

Lab 1 -

Connect to the Management Port of the APC

1. Connect a console cable from your PC to the Console Port on the controller to console in.
2. Login using default login credentials:
 - username: samsung
 - password: samsung
3. Change the default password.
4. Connect a LAN cable from your PC to the Management Port
5. Configure your PC with an IP address of 192.168.1.5/24
6. Ping 192.168.1.2
7. Browse to 192.168.1.2 and login using your new credentials

4.3 Basic Installation Wizard

1 > 2 > 3 > 4 > 5 > 6 > 7 > 8 > 9 > 10

Welcome

Welcome to the APC Setup Wizard.

This wizard will guide you through the steps setting up the WLAN service.

In each steps, you can move to the next step or previous step by clicking the Next / Prev button at the bottom of the page.

When you click the Exit button, exit the Wizard and then navigate to normal WEC.

The numbers at the top of the page display the setup steps. Hovering the mouse over the number displays the title of the step. Also you can click it and move to the next / previous step if it is just before or the next one of the current step.

You must click the Apply button to apply settings in each pages.

Now please click the Next button to proceed.

[CAUTION] All radios of APC system will be deactivated and AP auto registration will be disabled when you proceed. These settings will be restored when you reach the final step of this wizard.

Once you login, you will reach the Basic Installation Wizard screen. We will now go through the 10 steps of the wizard to have a basic setup.

Exit

Next

4.3 Basic Installation Wizard

General Setup > 2 > 3 > 4 > 5 > 6 > 7 > 8 > 9 > 10

General Setup ?

System Info

NAME	<input type="text" value="InstructorAPC"/>
LOCATION	<input type="text" value="0"/>
CONTACT	<input type="text" value="0"/>

Country Code

DEFAULT COUNTRY CODE	<input type="text" value="North America(US)"/>
DEFAULT ENVIRONMENT	<input type="text" value="Both"/>

System Time

MANUAL TIME SET	<input type="text" value="2015-01-09"/>	<input type="text" value="14"/>	<input type="text" value="50"/>	<input type="button" value="PC Time"/>
-----------------	---	---------------------------------	---------------------------------	--

Setup your Controller Name and Location, Country Code to North America and System time. Once set, hit Apply.

Apply

Exit Next

You can use PC Time if your PC is on the same Time Zone as your Customer. Once you click on it, the Manual Time fields get auto-populated with your PC time.

4.3 Basic Installation Wizard

1 > Interfaces > 3 > 4 > 5 > 6 > 7 > 8 > 9 > 10

Interfaces > Add ?

VLAN ID	72
VLAN DESCRIPTION	AP-MGMT
ADMIN STATUS	<input checked="" type="radio"/> Up <input type="radio"/> Down

Next, we need to add Interfaces. We will first create our AP Management Interface. We want the AP's to use this VLAN to register to the APC

Back Apply

Physical

PORTS	MODE
ge1	Trunk
ge2	Not Used
ge3	Not Used
ge4	Not Used
ge5	Not Used
ge6	Not Used

You will want to set the port used as a 'Trunk' port. This port will uplink to your Layer 2 device.

PLEASE NOTE:
Your layer2 device port should be setup as a trunk port with the correct VLANs tagged

Classroom Port 28

4.3 Basic Installation Wizard

Address

IP ADDRESS	192	.	168	.	72	.	10
NETMASK	255	.	255	.	255	.	0

This IP address will be used to access the APC.
For the Management VLAN, this will also be the CAPWAP IP address

DHCP

GLOBAL USE	<input checked="" type="checkbox"/>
PRIMARY DHCP SERVER	0 . 0 . 0 . 0
SECONDARY DHCP SERVER	0 . 0 . 0 . 0

DHCP Setup: For now, please check this box. We will later setup DHCP for the AP-Management network. Next, hit Apply.

4.3 Basic Installation Wizard

The CAPWAP IP Address is going to be the address of your AP Management VLAN. APs will use this address to register to the APC

Interfaces ?

AP Management Add Delete

(m) : AP management interface Total Entry : 2

<input type="checkbox"/>	VLAN INTERFACE NAME	VLAN ID	VLAN DESCRIPTION	IP ADDRESS	ADMIN STATUS	OPER STATUS
<input type="checkbox"/>	vlan1.1	1	default	0.0.0.0	up	up
<input checked="" type="checkbox"/>	<u>vlan1.72</u>	72	AP-MGMT	192.168.72.10	up	up

We can see our Interface that we created listed here. Since we want to make this interface our Management interface, we need to check its box and click on AP Management. By doing this, the interface IP address of 192.168.72.10 becomes my CAPWAP IP address.

4.3 Basic Installation Wizard

Interfaces ?

Next, hit add to create our remaining two interfaces.

AP Management Add Delete

(m) : AP management interface

Total Entry : 2

<input type="checkbox"/>	VLAN INTERFACE NAME	VLAN ID	VLAN DESCRIPTION	IP ADDRESS	ADMIN STATUS	OPER STATUS
<input type="checkbox"/>	vlan1.1	1	default	0.0.0.0	up	up
<input checked="" type="checkbox"/>	<u>vlan1.72</u>	72	AP-MGMT	192.168.72.10	up	up

PLEASE NOTE:

For Company and Guest interface, use External DHCP service by unchecking Global use and pointing to a External DHCP Server IP address.

1

4.3 Basic Installation Wizard

Interfaces ?

AP Management

Add

Delete

(m) : AP management interface

Total Entry : 4

<input type="checkbox"/>	VLAN INTERFACE NAME	VLAN ID	VLAN DESCRIPTION	IP ADDRESS	ADMIN STATUS	OPER STATUS
<input type="checkbox"/>	vlan1.1	1	default	0.0.0.0	up	up
<input type="checkbox"/>	vlan1.70	70	Company70	192.168.70.10	up	up
<input type="checkbox"/>	vlan1.71	71	Guest71	192.168.71.10	up	up
<input type="checkbox"/>	vlan1.72 (m)	72	AP-MGMT	192.168.72.10	up	up

We can see all our 3 interfaces listed. We can also see that our AP-Management interface (vlan1.72) is marked with “(m)” sign indicating that it is a Management Interface.

4.3 Basic Installation Wizard

1 > 2 > **Interface Groups** > 4 > 5 > 6

Every Interface needs to belong to a Interface Group.

Interface Groups > Add ?

Hit Apply!

Back Apply

GROUP NAME	AP-MGMTgrp
GROUP DESCRIPTION	AP-MGMTgrp
INTERFACE COUNT	1

Selected

vlan1.72

All

vlan1.1 **vlan1.70** vlan1.71

>>
<<

- Here you will name your Group
- Then select what VLAN or VLANS should belong to the group
- Use the << to move the VLANS to the selected side.
- Hit Apply.

4.3 Basic Installation Wizard

- 1 > 2 > **Interface Groups** > 4 > 5 > 6 > 7 > 8 > 9 > 10

Interface Groups ?

Next, create remaining two Interface Groups and add the corresponding interfaces to their respective Interface Groups.

Total Entry : 3

<input type="checkbox"/>	GROUP NAME	GROUP DESCRIPTION	IF COUNT
<input type="checkbox"/>	AP-MGMTgrp	AP-MGMTgrp	1
<input type="checkbox"/>	CompanyGRP	CompanyGRP	1
<input type="checkbox"/>	GuestGRP	GuestGRP	1

Once created, your Interface Group list should look similar to this.

4.3 Basic Installation Wizard

We need to create a static route to our default gateway for all AP-Management and untagged traffic

1 > 2 > 3 > **Default Gateway** > 5 > 6 > 7 > 8 > 9 > 10

Default Gateway ?

Apply

SYSTEM DEFAULT GATEWAY

192 . 168 . 72 . 1

Note: This must be added and routable in order to use remote AP's

4.3 Basic Installation Wizard

Note: Profile name and SSID cannot be changed once applied.

1 > 2 > 3 > 4 > **WLANs** > 6 > 7 > 8 > 9 > 10

WLANs > Add ?

Back Apply

Next, we will create our WLANs using the Site Information sheet.

General

PROFILE NAME	18
SSID	Company70
INTERFACE GROUP	CompanyGRP
RADIO AREA	2.4GHz/5GHz
CAPWAP TUNNEL MODE	802.3 Tunnel

Security

L2 SECURITY TYPE	None
------------------	------

4.3 Basic Installation Wizard

We will add security to our WLAN by selecting the security type as WPA+WPA2. Set Auth Key Mgmt as PSK and enter your PSK key that will be used to access this WLAN. Hit Apply.

Security

L2 SECURITY TYPE	WPA + WPA2
WPA POLICY	<input type="checkbox"/> WPA
ENCRYPTION TYPE	CCMP
WPA2 POLICY	<input checked="" type="checkbox"/> WPA2
ENCRYPTION TYPE	CCMP
AUTH KEY MGMT	<input checked="" type="radio"/> PSK <input type="radio"/> 802.1x
PSK FORMAT	ASCII
PSK KEY	<input type="checkbox"/> <input type="password" value="●●●●●●●●"/>
PMK LIFETIME (SEC)	43200
EAPOL REAUTHENTICATION PERIOD	0

4.3 Basic Installation Wizard

General Setup > 2 > 3 > 4 > WLANs > 6 > 7 > 8 > 9 > 10

WLANs ?

Hit Add to create the second WLAN.

Enable Disable Add Delete

Total Entry : 2

<input type="checkbox"/>	ID	PROFILE NAME	SSID	INTERFACE GROUP	RADIO AREA	ADMIN STATUS	SECURITY POLICIES
<input type="checkbox"/>	<u>1</u>	18	Company70	CompanyGRP	2.4GHz/5GHz	Enable	WPA + WPA2
<input type="checkbox"/>	<u>2</u>	19	Guest71	GuestGRP	2.4GHz	Enable	WPA + WPA2

1

You should be having two WLANs as follows in your WLANs list.

4.3 Basic Installation Wizard

1 > 2 > 3 > 4 > 5 > DHCP Proxy > 7 > 8 > 9 > 10

DHCP Proxy ?

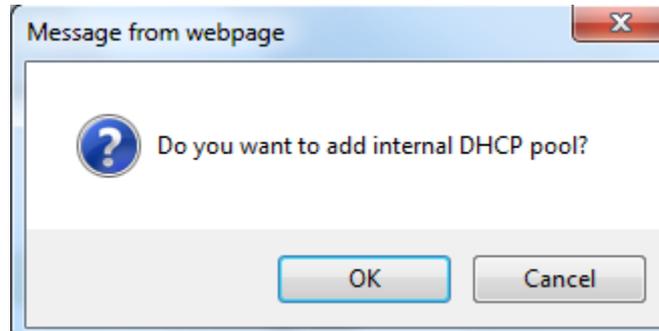
Choose Proxy or Relay

Apply

DHCP PROXY MODE	<input type="radio"/> Proxy <input checked="" type="radio"/> Relay
TIMEOUT	5
PRIMARY SERVER	1 . 1 . 1 . 1
SECONDARY SERVER	0 . 0 . 0 . 0

Global Parameter should be set to 1.1.1.1 if you are planning on using the internal DHCP server built into the APC. Hit Apply.

4.3 Basic Installation Wizard



You will now be asked to add the internal DHCP pool. Hit OK.
We will now be creating the Internal DHCP pool for our AP-Management network.

4.3 Basic Installation Wizard

1 > 2 > 3 > 4 > 5 > 6 > DHCP Internal Server > 8 > 9 > 10

DHCP Internal Server > Add ?

Fill in your DHCP Pool information for your Internal DHCP server and hit Apply.

Back Apply

POOL NAME	APMGMT
NETWORK	192 . 168 . 72 . 0
MASK	255 . 255 . 255 . 0
LEASE TIME (SEC)	86400
DOMAIN NAME	apmgmt.com
DEFAULT GATEWAY	192 . 168 . 72 . 1
1ST DNS SERVER	8 . 8 . 8 . 8
2ND DNS SERVER	0 . 0 . 0 . 0

Only when you hit Apply here, you get to configure advanced settings for your Internal DHCP server such as Option 138 IP address and DHCP Pool range.

4.3 Basic Installation Wizard

If you using the Internal DHCP for your APC and APs, then you will need to add the IP address of your APC into Option 138. Remember the APs will use this Option 138 IP address to register to the APC.

APC List (Option 138)

IP Address . . .

<input type="checkbox"/>	NO.	IP ADDRESS	EDIT
--------------------------	-----	------------	------

Input your CAPWAP IP address and hit Add.

Range Pool

Start IP Address . . . End IP Address . . .

<input type="checkbox"/>	NO.	START IP ADDRESS	END IP ADDRESS	EDIT
--------------------------	-----	------------------	----------------	------

Define the range of IP addresses for your DHCP pool and hit add.

Lastly, hit Apply

4.3 Basic Installation Wizard

1 > 2 > 3 > 4 > 5 > 6 > DHCP Internal Server > 8 > 9 > 10

DHCP Internal Server ?

DHCP SERVER SERVICE

Enable Disable

Enable the DHCP service and hit Apply.

Apply

Add

Delete

<input type="checkbox"/>	POOL NAME	NETWORK	MASK	LEASE TIME (SEC)
<input type="checkbox"/>	<u>APMGMT</u>	192.168.72.0	255.255.255.0	86400

4.3 Basic Installation Wizard

1 > 2 > 3 > 4 > 5 > 6 > 7 > DNS > 9 > 10

DNS ?

DNS Client

SERVICE	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
1ST DNS SERVER	8 . 8 . 8 . 8
2ND DNS SERVER	0 . 0 . 0 . 0
3RD DNS SERVER	0 . 0 . 0 . 0

- 1. Enable the DNS Client service.
- 2. Enter the DNS server IP address.
- 3. Hit Apply.

Apply

4.3 Basic Installation Wizard

1 > 2 > 3 > 4 > 5 > 6 > 7 > 8 > **NTP** > 10

NTP ?

Over here, we are telling our APC where to get the time from.

NTP Client

POLLING Enable Disable

- 1. Input your NTP server Domain Name and hit Add.
- 2. Enable the NTP Client service.
- 3. Hit Apply.

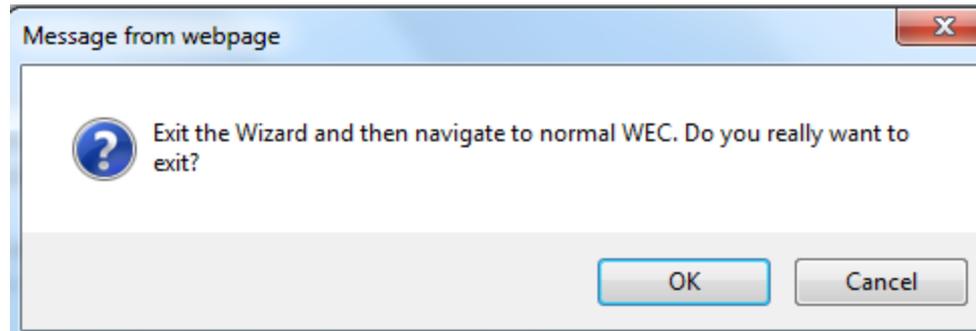
Domain Name

INDEX	SERVER IP ADDRESS	SERVER DOMIAN NAME	TYPE
No data			

Total Entry : 0

4.3 Basic Installation Wizard

The Basic Installation Wizard is now complete.
Simply hit OK to go to the GUI home screen.



Note:

We will now review through all the steps we covered in the Basic Installation Wizard by navigating to the appropriate section in the GUI. In this way, we would know where to go in the GUI to make any future changes in our configuration. We will also look at some more additional setup.

4.4 Network Setup & VLANs

- 4.4.1 Setup Interfaces/VLANs
- 4.4.2 Setup Interface Groups
- 4.4.3 CAPWAP IP Address
- 4.4.4 Static Route
- 4.4.5 ARP Table
- 4.4.6 System Name

4.4.1 Setup Interfaces

Configuration > Controller > General

The screenshot shows the Samsung Wireless Enterprise configuration interface. The top navigation bar includes 'Monitor', 'Configuration', 'Administration', and 'Help'. The left sidebar shows a tree view under 'Controller' with 'General' selected. The 'Interfaces' menu item is highlighted with a red box. The main content area is titled 'Controller > General' and contains an 'Apply' button (also highlighted with a red box). Below this is the 'AP Management' section, which includes a table with the following rows:

IP ADDRESS	0.0.0.0
INTERFACE	Select Interface
AUTO REGISTRATION	<input checked="" type="radio"/> Enable <input type="radio"/> Disable

The 'AUTO REGISTRATION' row is highlighted with a red box.

Before adding Interfaces, make sure AP Registration is enabled. If not, select enable and hit Apply.

4.4.1 Setup Interfaces

Configuration > Controller > Interfaces

Click Add to setup the AP_Management VLAN
The AP's will use this VLAN to register to the APC

We will add the other VLANs later.

INTERFACE NAME	VLAN ID	IP ADDRESS	ADMIN STATUS	OPER STATUS
lo	-	127.0.0.1	up	up
mgmt0	-	192.168.1.2	up	down
<u>Management</u>	10	192.168.10.10	up	up
<u>api lab100</u>	100	192.168.100.11	up	up

Controller > Interfaces > Add

Back Apply

VLAN DESCRIPTION	<input type="text" value="AP-MGMT"/>
VLAN ID	<input type="text" value="5"/>

1

4.4.1 Setup Interfaces

Controller > Interfaces > Edit

Back Apply

INTERFACE NAME: Management
VLAN ID: 10
ADMIN STATUS: Up Down

Physical

PORTS	MODE	HYBRID EGRESS_TAGGED
ge1	Trunk	Service Disable
ge2	Not Used	Service Disable
	Not Used	Service Disable

192 . 168 . 10 . 10
NETMASK 255 . 255 . 255 . 0

DHCP

GLOBAL USE
PRIMARY DHCP SERVER 0 . 0 . 0 . 0
SECONDARY DHCP SERVER 0 . 0 . 0 . 0
OPTION 82 STATE Disable
OPTION 82 TYPE AP-MAC

PLEASE NOTE:
Your layer2 device port should be setup as a trunk port with the correct VLANs tagged

Classroom Port 28

Be sure to enable the VLAN

You will want to set the port used as a 'Trunk' port
This port will uplink to your Layer 2 device

2

3

4.4.1 Setup Interfaces

Address

IP ADDRESS	192 . 168 . 10 . 10
NETMASK	255 . 255 . 255 . 0

This IP address will be used to access the APC
For the Management VLAN, this will also be the CAPWAP IP address

4

DHCP

GLOBAL USE	<input checked="" type="checkbox"/>
PRIMARY DHCP SERVER	0 . 0 . 0 . 0
SECONDARY DHCP SERVER	0 . 0 . 0 . 0
OPTION 82 STATE	Disable ▾
OPTION 82 TYPE	AP-MAC ▾

5

DHCP Setup: For now, please check this box. We will later setup DHCP for the APC or your remote DHCP server

4.4.1 Setup Interfaces

Controller > Interfaces > Edit

Back Apply

INTERFACE NAME: Management
VLAN ID: 10
ADMIN STATUS: Up Down

Physical

PORTS	MODE	HYBRID EGRESS_TAGGED
ge1	Trunk	Service Disable
ge2	Not Used	Service Disable
ge3	Not Used	Service Disable
ge4	Not Used	Service Disable
ge5	Not Used	Service Disable
ge6	Not Used	Service Disable
ge7	Not Used	Service Disable
ge8	Not Used	Service Disable
xe1	Not Used	Service Disable
xe2	Not Used	Service Disable

Address

IP ADDRESS: 192 . 168 . 10 . 10
NETMASK: 255 . 255 . 255 . 0

DHCP

GLOBAL USE:
PRIMARY DHCP SERVER: 0 . 0 . 0 . 0
SECONDARY DHCP SERVER: 0 . 0 . 0 . 0
OPTION 82 STATE: Disable
OPTION 82 TYPE: AP-MAC

Make sure to Hit Apply after you have setup your interface!

6

4.4.2 Setup Interface Groups

Configuration > Controller > Interface Groups

Controller ▾ Controller > Interface Groups

General

Ports

Interfaces

Interface Groups

Network ▶

Multicast ▶

Country

APC Lists

Redundancy

Every Interface needs to belong to a Interface Group
Click Add to get started

1

Add Delete

Total Entry : 2

	GROUP NAME	GROUP DESCRIPTION	IF COUNT
	<u>AP_MGMT</u>	AP_MGMT	1
	<u>npi_lab</u>	npi_lab	1

1

4.4.2 Setup Interface Groups

Controller > Interface Groups > Edit

2

GROUP NAME: guest11

GROUP DESCRIPTION: Guest_GP

INTERFACE COUNT: 0

4

Hit Apply!

3

Selected

All

vlan1.111

>>

<<

- Here you will name your Group
- Then select what VLAN or VLANS should belong to the group
- Use the << to move the VLANS to the selected side

4.4.3 CAPWAP IP Address

Configuration > Controller > General

The CAPWAP IP Address is going to be the address of your AP Management VLAN
APs will use this address to register to the APC

3 Hit Apply

Hit Select Interface **1**

VLAN INTERFACE NAME	VLAN ID	VLAN DESCRIPTION	IP ADDRESS	ADMIN STATUS	OPER STATUS
vlan1.1	1	default	0.0.0.0	up	up
vlan1.70	70	Company70	192.168.70.10	up	up
vlan1.71	71	Guest71	192.168.71.10	up	up
vlan1.72	72	AP-MGMT	192.168.72.10	up	up

2 Select your Interface

4.4.4 Static Route

Configuration > Controller > Network > Static Route

We need to create a static route for all AP-Management and untagged traffic

Controller > Network > Static Route

Static Route

DEST	MASK	NEXT HOP	DISTANCE	GW INTERFACE INDEX	GW INTERFACE TYPE	STATUS
No data						

Foot Notes :
1. Maximum 1024 configurations can be added.

4.4.4 Static Route

Samsung Wireless Enterprise Monitor | Configuration | Administration | Help

Controller > Network > Static Route > Add

General
Ports
Interfaces
Interface Groups
Network
MSTP
Static MAC
ARP
Static Route

DEST	0	0	0	0
MASK	0	0	0	0
NEXT HOP	192	168	10	1
DISTANCE	1			

Back Apply

4

3

Entering in the correct information here

4.4.6 System Name

Administration > SNMP > System Info

Enter the Name of your APC

SNMP > System Info

NAME	WEC8500
LOCATION	0
CONTACT	0
OBJECT ID	1.3.6.1.4.1.236.4.1.22.1.1
UP TIME	32 day, 22 hour, 40 min, 46 sec
DESCRIPTION	Samsung AP Controller

Apply

Foot Notes :

1. The system location can be modified with real information.

Lab 2 -

Create two new Interface/VLANs (Company and Guest) that will be used in your WLAN service

1. Go to Configuration → Controller → Interfaces → Add
2. Create a VLAN with the following parameters
3. Interface Name CompanyX where x is your student number
4. For the CompanyX we will use VLAN ID XX “[See Student Info](#)”
5. Enable your VLAN and add it to interface "ge1" in “Trunk” mode
6. Configure the VLAN IP address to 192.168.x.10/24
7. Under the DHCP section uncheck Global Use and add the parameters per DHCP on the “[See Student Info](#)”
8. Primary DHCP Server = 192.168.x.1
9. Apply
10. Repeat steps 1 – 8 for the Interface/VLAN “Guestxx” on the “[See Student Info](#)”

Lab 3 -

Create two new Interface Groups that will be used with your Company and Guest VLANs

1. Go to Configuration → Controller → Interface Groups → Add
2. Define your interface group CompanyX where x is your student number
3. Add your newly created VLAN to the create interface group and apply
4. Repeat steps 1 – 2 for the Guest Interface/VLAN

SAVE CONFIGURATION

The screenshot shows a web interface with a user menu at the top right containing 'User [eddie]', 'Logout', 'Save Configuration', 'Ping', and 'Refresh'. A red circle with the number '1' is around the 'Save Configuration' link, with an arrow pointing to it. Below this, a confirmation dialog box is displayed with the text: 'The page at 192.168.100.11 says: Do you really want to save the configuration change onto storage?'. The dialog has 'OK' and 'Cancel' buttons. A red circle with the number '2' is around the 'OK' button, with an arrow pointing to it. To the right, a tablet displays a configuration page with a 'Save Configuration' button highlighted by a red circle with the number '3' and an arrow pointing to it. The tablet screen shows system information and tables for 'Top WLANs' and 'Access Points'.

VERSION	1.4.5.R
BUILD TIME	Sat Sep 14 18:24:48 2013
STATUS	Active

Top WLANs [View All](#)

PROFILE NAME	CURRENT STATIONS	
npi_lab	6	Edit

In Progress ...

Access Points

	TOTAL	UP	DOWN	
ALL APS	2	1	1	Detail
802.11A/N RADIOS	2	1	1	Detail

4.5 Software Management

- 4.5.1 Verify Installed Version
- 4.5.2 Activate FTP/SFTP
- 4.5.3 Upload Software

Current Released Software

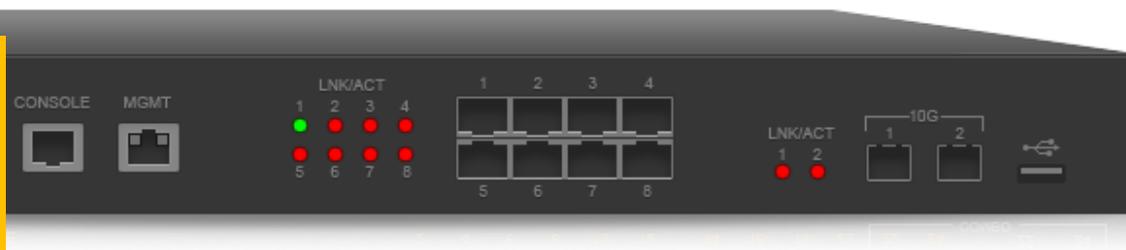
WEC8500	WEC8050	WEA302i	WEA303i	WEA303e	WEA403i	WEA412i	WEA453e
2.4.19R							

4.5.1 Verify Installed Version

Monitor | Configuration | Administration | Help

Summary

This chassis refreshes every 5 seconds.



Click on Monitor to go to the Monitor Screen that will show the current software version in use. In your case, you should see 2.4.19R

Inventory

SYSTEM NAME	WEC8500
LOCATION	0
MODEL NAME	WEC8500
MAC ADDRESS	f4:d9:fb:40:2c:38
HARDWARE VERSION	0.5
FIRMWARE VERSION	0.7
SOFTWARE VERSION	2.4.12
SERIAL NUMBER	2VMQ295001
SYSTEM UP TIME	2 day, 20 hour, 32 min, 46 sec
SYSTEM TIME	Mon Jan 12 11:18:19 2015

Package Information

VERSION	2.4.12.R
BUILD TIME	Tue Dec 30 22:56:16 2014
STATUS	Active

Top WLANs

[View All](#)

PROFILE NAME	CURRENT STATIONS	
18	1	Edit

4.5.2 Activate FTP/SFTP

Administration > FTP-SFTP

Enable both FTP and SFTP for software upgrades

Samsung Wireless Enterprise Monitor | Configuration | Administration | Help

User [samsung] | Logout | Save Configuration

SNMP > FTP-SFTP

HTTP-HTTPS

Telnet-SSH

Local Management Users > FTP

Logs > SFTP

DB Backup/Restore

Reboot >

Factory Reset

File Management >

Package Upgrade >

FTP-SFTP

FTP Enable Disable

PORT 21

USER samsung

PASSWORD

CONFIRM PASSWORD

IDLE TIMEOUT (MINUTE) 15

SFTP Enable Disable

PORT 22

USER samsung

PASSWORD

CONFIRM PASSWORD

Apply

Foot Notes :

1. Even if you change account-name or password, services that are already established will be maintained. Changed configuration will only take effect on the next connection.

You can also view/set different ports in Configuration>Controller>General

Apply

Public Port for Servers

FTP PUBLIC PORT	21
SFTP PUBLIC PORT	22
HTTP PUBLIC PORT	80
HTTPS PUBLIC PORT	443

4.5.2 Activate Telnet

Telnet service is disabled by default. Go to Administration>Telnet-SSH and enable it.

Telnet-SSH

Apply

Telnet-SSH

SESSION TIMEOUT(MIN)	<input type="text" value="0"/>
MAXIMUM NUMBER OF SESSIONS	<input type="text" value="20"/>
TELNET SERVICE	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
TELNET PORT	<input type="text" value="23"/>
SSH SERVICE	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
SSH PORT ²	<input type="text" value="22"/>

4.5.3 Uploading APC Software

Administration > File Management > APC-Local PC

Note: 'wec' is the APC software

The screenshot displays the File Management interface for the APC-Local PC. On the left, a sidebar lists various system functions, with 'File Management' expanded to show 'APC-Local PC'. The main area shows a file tree under 'disk' with folders like 'debug', 'etc', 'license', 'log', 'lost-found', 'package', and 'stats'. The 'package' folder is highlighted with a red box and an arrow pointing to a table of files. The table lists three files: 'wec8500_1.2.25.R.bin' (103MB), 'wec8500_1.3.11.R.bin' (110MB), and 'wec8500_1.3.12.R.bin' (110MB). Below the table, an upload dialog box is open, showing a 'Choose File' button, an 'Upload' button, and a note: 'Foot Notes : 1. The maximum file size is 200MB'.

Name	DateTime	Size
ap		
wec8500_1.2.25.R.bin	1970-02-27 Fri 02:00	103MB
wec8500_1.3.11.R.bin	1970-02-23 Mon 23:10	110MB
wec8500_1.3.12.R.bin	1970-02-23 Mon 23:17	110MB

The 'package' folder is for APC software

4.5.3 Uploading APC Software

Uploading APC software

File Management > APC-Local PC

Package Info Package Verify Download Upload Rename Copy Move Delete

Name	DateTime	Size
ap		
wec8500_1.2.25.R.bin	1970-02-27 Fri 02:00	103MB
wec8500_1.3.11.R.bin	1970-02-23 Mon 23:10	110MB
wec8500_1.3.12.R.bin	1970-02-23 Mon 23:17	110MB

192.168.100.11/content/administration/upload.php?cate=administration&path=File Ma...
192.168.100.11/content/administration/upload.php?cate=administration&path=Fi

Choose File No file chosen

Upload

Foot Notes :
1. The maximum file size is 200MB

Hit upload and choose the file to upload

1

2

After you have chosen the file, press upload here

4.5.3 Uploading AP Software

Uploading AP software

Note: 'wea' is the AP software

File Management > APC-Local PC

Package Info Package Verify Download Upload Rename Copy Move Delete

Name	DateTime	Size
weafama_1.2.20.R.bin	1970-02-24 Tue 03:01	34MB
weafama_1.3.12.R.bin	1970-02-27 Fri 02:42	35MB
weafama_1.3.13.R.bin	1970-02-23 Mon 23:18	35MB

Choose File No file chosen Upload

Foot Notes :

1. The maximum file size is 200MB

The 'ap' folder is for AP software

4.5.3 Uploading AP Software

Uploading AP software

Note: 'wea' is the AP software

File Management > APC-Local PC

Package Info Package Verify Download Upload Rename Copy Move Delete

Name	DateTime	Size
weafama_1.2.20.R.bin	1970-02-24 Tue 03:01	34MB
weafama_1.3.12.R.bin	1970-02-27 Fri 02:42	35MB
weafama_1.3.13.R.bin	1970-02-23 Mon 23:18	35MB

192.168.100.11/content/administration/upload.php?cate=administration&path=File Ma...
192.168.100.11/content/administration/upload.php?cate=administration&path=Fi

Choose File No file chosen

Upload

Foot Notes :
1. The maximum file size is 200MB

Hit upload and choose the file to upload

After you have chosen the file, press upload here

Lab 4 -

Enable FTP and SFTP on the APC and upload software on APC and AP.

1. Go to Administration → FTP-SFTP
2. Set both to Enable
3. Hit Apply
4. (APC Software) Go to Administration -> File Management -> APC-Local PC
5. Under the disk folder, find the package folder and hit upload
6. Choose the APC software and hit upload
7. (AP Software) Go to Administration -> File Management -> APC-Local PC
8. Find the AP folder under disk -> package and then hit upload
9. Choose the AP software and hit upload

SAVE CONFIGURATION

User [eddie] | Logout | **Save Configuration** | Ping | Refresh

The page at 192.168.100.11 says:

Do you really want to save the configuration change onto storage?

OK Cancel

VERSION	1.4.5.R
BUILD TIME	Sat Sep 14 18:24:48 2013
STATUS	Active

Top WLANs [View All](#)

PROFILE NAME	CURRENT STATIONS	
npi_lab	6	Edit

In Progress ...

Access Points

	TOTAL	UP	DOWN	
ALL APs	2	1	1	Detail
802.11A/N RADIOS	2	1	1	Detail

APC 8500 comes by default with a license for 2
APs

APC 8050 comes by default with a license for 5
APs

You will need to add your purchased license
before moving forward

4.6 License Setup

- 4.6.1 Activation Key File
- 4.6.2 Verify License Installed

4.6.1 Activation Key File

- SNMP
- HTTP-HTTPS
- Telnet-SSH
- Local Management Users
- Logs
- DB Backup/Restore
- Reboot
- Factory Reset
- File Management
- Package Upgrade
- FTP-SFTP
- Time
- License**
- Tech Support

License

Service Status and Current Limits

NUMBER OF AP	25
VQM	Enable
FIREWALL	Enable

License Redundancy Status

LICENSE TYPE	Unknown
PEER MAC ADDRESS	N/A
PEER LICENSE STATUS	N/A
PEER LICENSE INSTALLATION FAIL REASON	N/A

License Key Status ¹

OFFICIAL KEY	Valid
TEMPORARY KEY	Not valid

SLM License Key Status

SLM LICENSE KEY 1	None
SLM LICENSE KEY 2	None

Go to Administration>License to upload the license file you received. Hit Activation.

NEW ACTIVATION KEY FILE

Note: APC has to reboot for the licenses to take effect.

Foot Notes :

1. License key cannot be modified by user.
2. After deactivation is completed, you should copy the deactivation key from 'SLM License Key Status'. It should be sent to the License Server.
3. AP might be disconnected or VQM/Firewall service stopped, if license deactivated.

4.6.2 Verify License Installed

SNMP	▶
HTTP-HTTPS	
Telnet-SSH	
Local Management Users	▶
Logs	▶
DB Backup/Restore	
Reboot	▶
Factory Reset	
File Management	▶
Package Upgrade	▶
FTP-SFTP	
Time	▶
License	
Tech Support	▶

License

Service Status and Current Limits

NUMBER OF AP	25
VQM	Enable
FIREWALL	Enable

License Redundancy Status

LICENSE TYPE	Unknown
PEER MAC ADDRESS	N/A
PEER LICENSE STATUS	N/A
PEER LICENSE INSTALLATION FAIL REASON	N/A

License Key Status ¹

OFFICIAL KEY	Valid
TEMPORARY KEY	Not valid

SLM License Key Status

SLM LICENSE KEY 1	None
SLM LICENSE KEY 2	None

NEW ACTIVATION KEY FILE	<input type="text"/>	Browse...	Activation
-------------------------	----------------------	-----------	------------

Foot Notes :

1. License key cannot be modified by user.
2. After deactivation is completed, you should copy the deactivation key from 'SLM License Key Status'. It should be sent to the License Server.
3. AP might be disconnected or VQM/Firewall service stopped, if license deactivated.

4.7 General Configuration

- 4.7.1 DNS Server
- 4.7.2 NTP Server (Internal / External)
- 4.7.3 DHCP Server (Internal / External)
- 4.7.4 APC Country Code
- 4.7.5 User Accounts
- 4.7.6 Radius Authentication
- 4.7.7 Adding a RADIUS Server

There are two ways of setting NTP on APC.

- 1. Internal NTP:** APC acts as NTP server
- 2. External NTP:** APC acts as NTP client

4.7.2 NTP: APC

Internal NTP

Administration > Time > Manual Time Set

You can use PC Time if your PC is on the same Time Zone as your Customer

Monitor | Configuration | Administration | Help

Time > Manual Time Set

Select Hours and Minutes

System Time

SYSTEM TIME

2013-09-26 20 49

Select Local Time Zone

System Time

TIME ZONE

CST

PC Time Apply

Apply

1 2 3 4

4.7.2 NTP: APC

Internal NTP

Configuration > NTP > APC

Controller > NTP > APC

Access Points

AP Groups

Remote AP Groups

Security

Rogues

Mobility Management

DNS

NTP

APC

AP

DHCP

NTP Client

POLLING Enable Disable

POLLING INTERVAL ¹

Add Delete

Total Entry : 1

INDEX	SERVER IP ADDRESS	SERVER DOMIAN NAME	TYPE
1		us.pool.ntp.org	Domain Name

NTP Server

SERVICE Enable Disable

Apply

If you want the APC to act as a NTP server enable that here

Enable the Server



4.7.2 NTP: APC

External NTP

Controller > NTP > APC

Access Points

AP Groups

Remote AP Groups

Security

Rogues

WLANs

Radio

User QoS

Mobility Management

DNS

NTP

APC

AP

DHCP

NTP Client

POLLING Enable Disable

POLLING INTERVAL ¹

1

Total Entry : 1

INDEX	SERVER NAME	TYPE
1	ap.org	Domain Name

To add a NTP server start by adding a remote server

NTP Server

SERVICE Enable Disable

4.7.2 NTP: APC

External NTP

NTP > APC > Add

2 If using IP setup like this

3

INDEX	2
TYPE	<input checked="" type="radio"/> IP Address <input type="radio"/> Domain Name
SERVER IP ADDRESS	0 . 0 . 0 . 0
SERVER DOMIAN NAME	

Back Apply

OR

NTP > APC > Add

2 If using domain setup like this

3

INDEX	2
TYPE	<input type="radio"/> IP Address <input checked="" type="radio"/> Domain Name
SERVER IP ADDRESS	0 . 0 . 0 . 0
SERVER DOMIAN NAME	

Back Apply

4.7.2 NTP: APC

External NTP

Controller > NTP > APC

Enable the Client **4**

5 → Apply

6 hours → POLLING INTERVAL ¹ 6

NTP Client

POLLING Enable Disable

POLLING INTERVAL ¹ 6

Add Delete

1 Total Entry : 1

INDEX	SERVER IP ADDRESS	SERVER DOMIAN NAME	TYPE
1		us.pool.ntp.org	Domain Name

Apply

NTP Server

SERVICE Enable Disable

4.7.2 NTP: AP

Configuration > NTP > AP

Controller > NTP > AP

WLANS

Radio

Access Points

AP Groups

Remote AP Groups

Security

Wireless Intrusion

User QoS

Mobility Management

DNS

NTP

APC

AP

MODE TimeStamp NTP

STAMP INTERVAL

NTP POLLING INTERVAL

NO **AP NTP SERVER**

IP address

1 Input the CAPWAP IP address Then hit Add

2 Select mode as NTP Then hit Apply

3 Apply

Here we will tell the AP's where to get their time from by adding the APC as the NTP server

Lab 6 -

Manually set the time on your APC and Enable the NTP service for the APC and APs

1. Go to Administration → Time → Manual Time Set
2. Select PC Time → Hit Apply
3. Set Time Zone to “CST” → Hit Apply
4. Go to Configuration → NTP → APC
5. Set NTP Server to Enable → Hit Apply
6. Go to Configuration → NTP → AP
7. Input CAPWAP IP address
8. Hit Add

There are two ways for clients to get an IP address.

- ***INTERNAL*** – use the DHCP server in the APC
- OR
- ***EXTERNAL*** - use a remote DHCP server

The following slides will show how to do both

Please Note: When you connect AP's they will have to be on the Management VLAN, the DHCP server for that VLAN must have a user option added.

Example = user_option 138 ipaddress 192.168.72.10 (CAPWAP IP) active

4.7.3 DHCP Server (Internal)

Controller > Interfaces > Edit

Back Apply

Address

IP ADDRESS	
NETMASK	

We showed you this option back in 4.2.2 under interfaces. When you check use Global Use, this will allow you to use the Global DHCP for Internal DHCP

DHCP

GLOBAL USE	<input checked="" type="checkbox"/>
PRIMARY DHCP SERVER	0 . 0 . 0 . 0
SECONDARY DHCP SERVER	0 . 0 . 0 . 0
OPTION 82 STATE	Disable ▾
OPTION 82 TYPE	AP-MAC ▾

Access Control List

ACL NAME	----- ▾
----------	---------

1

4.7.3 DHCP Server (Internal)

Configuration > DHCP > Proxy

Monitor | Configuration | Administration | Help

DHCP > Proxy

Choose Proxy or Relay

2

4

Apply

Global Parameter

DHCP PROXY MODE Proxy Relay

TIMEOUT 5

PRIMARY SERVER 1 . 1 . 1 . 1

SECONDARY SERVER 0 . 0 . 0 . 0

Global Parameter should be set to 1.1.1.1 if you are planning on using the internal DHCP server built into the APC.

3

Foot Notes :

1. Interface settings override DHCP global configuration if there is a corresponding DHCP configuration in the Interface
2. If you do not receive a response until after the timeout from the Primary Server, the Secondary Server can attempt the request
3. If you change the settings, the DHCP service is temporarily down (less than 1 second)
4. OPTION 82 setting can be done in the Interface.

4.7.3 DHCP Server (Internal)

Configuration > DHCP > Internal Server

DHCP > Internal Server

[Apply](#)

DHCP SERVER SERVICE Enable Disable

Lets build our Internal DHCP pool ① [Add](#) [Delete](#)

POOL NAME	NETWORK	MASK	LEASE TIME (SEC)
No data			

4.7.3 DHCP Server (Internal)

DHCP > Internal Server > Add

Fill in your DHCP Pool information

Back

Apply

POOL NAME	<input type="text" value="Cowboys_Pool"/>
NETWORK	<input type="text" value="192"/> . <input type="text" value="168"/> . <input type="text" value="20"/> . <input type="text" value="0"/>
MASK	<input type="text" value="255"/> . <input type="text" value="255"/> . <input type="text" value="255"/> . <input type="text" value="0"/>
LEASE TIME (SEC)	<input type="text" value="3600"/>
DOMAIN NAME	<input type="text" value="cowboys.com"/>
DEFAULT GATEWAY	<input type="text" value="192"/> . <input type="text" value="168"/> . <input type="text" value="20"/> . <input type="text" value="10"/>
1ST DNS SERVER	<input type="text" value="8"/> . <input type="text" value="8"/> . <input type="text" value="8"/> . <input type="text" value="8"/>
2ND DNS SERVER	<input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/>
3RD DNS SERVER	<input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/>
1ST NTP SERVER	<input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/>
2ND NTP SERVER	<input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/>
3RD NTP SERVER	<input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/>

2

4.7.3 DHCP Server (Internal)

Internal DHCP Options and Pool Range

DHCP > Internal Server > Edit

Remember the APs will use this Option to register to the APC

APC List (Option 138)

IP Address 0 . 0 . 0 . 0 Add Delete

IP ADDRESS	EDIT
192.168.10.10	Edit

If you using the Internal DHCP for your APC and Aps, then you will need to add the IP address of your APC here

A Range must be defined

Range Pool

Start IP Address 0 . 0 . 0 . 0 End IP Address 0 . 0 . 0 . 0 Add Delete

NO.	START IP ADDRESS	END IP ADDRESS	EDIT
1	192.168.10.50	192.168.10.99	Edit

Internal DHCP Options and Pool Range

DHCP > Internal Server > Edit 5

Back Apply

APC List (Option 138)

3

IP Address 0 . 0 . 0 . 0 Add Delete

NO.	IP ADDRESS	EDIT
	Enter your CAPWAP IP address and select Add	Edit

4

Enter your Range of addresses for DHCP and select Add

Range Pool

Start IP Address 0 . 0 . 0 . 0 End IP Address 0 . 0 . 0 . 0 Add Delete

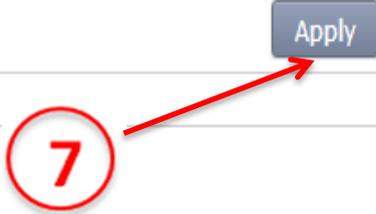
NO.	START IP ADDRESS	END IP ADDRESS	EDIT
1	192.168.10.50	192.168.10.99	Edit

Enabling the Internal DHCP Server

Monitor | Configuration | Administration | Help

DHCP > Internal Server

DHCP SERVER SERVICE Enable Disable

6  **7** 

Add Delete

	POOL NAME	NETWORK	MASK	LEASE TIME (SEC)
<input type="checkbox"/>	AP Management	192.168.10.0	255.255.255.0	86400

Lab 7 -

Setup the DHCP Pool for the AP_MGMT Interface

1. Go to Configuration → DHCP → Proxy
2. Set Primary Server to 1.1.1.1 → Hit Apply
3. Go to Configuration → DHCP → Internal Server
4. Click Add → Input DHCP pool info [“See Student Info”](#)
5. Hit Apply
6. Set Option 138 to the CAPWAP IP of 192.168.xx.10 → Hit Add
7. Set the Range to 192.168.xx.100 – 192.168.xx.110
8. Hit Add
9. Set the DHCP Server Service to Enable → Hit Apply

Please Note

If you are using a remote/external DHCP server, you must setup a relay rule on your DHCP server to the interface IP address of the WLAN

4.7.3 DHCP Server (External)

External DHCP

There are two locations you specify the IP address of your DHCP server.

- Location #1 = Interfaces Section

Interface Setup

Controller > Interfaces > Edit

Back Apply

INTERFACE NAME	test_20
VLAN ID	20
ADMIN STATUS	<input checked="" type="radio"/> Up <input type="radio"/> Down

2

2



DHCP

GLOBAL USE	<input type="checkbox"/>
PRIMARY DHCP SERVER	192 . 168 . 20 . 1
SECONDARY DHCP SERVER	0 . 0 . 0 . 0
OPTION 82 STATE	Disable
OPTION 82 TYPE	AP-MAC

1



Uncheck this box and
Enter the IP of your DHCP Server

4.7.3 DHCP Server (External)

External DHCP

There are two locations you have to specify the IP address of your DHCP server.

- Location #2 = WLAN Section

Here we can set the WLAN to use a remote DHCP server
Hit Apply for this section!

PROFILE NAME	Wlan
ACL RULE	----- ▾
STATIC ADDRESS DISALLOWED	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
DHCP OVERRIDE	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
DHCP SERVER ¹	192 . 168 . 20 . 1

Back Apply

4.7.4 APC Country Code

Configuration > Radio > 802.11a/n/ac or 802.11b/g/n > General

The screenshot shows the configuration interface for Samsung Wireless Enterprise. On the left is a navigation tree with categories: Controller, WLANs, Radio, and Access Points. Under 'Radio', there are two main sections: '802.11a/n/ac' and '802.11b/g/n'. Each section has a 'General' sub-section. The '802.11a/n/ac' section is highlighted with a red box and an arrow pointing to its 'General' page. The '802.11b/g/n' section is also highlighted with a red box and an arrow pointing to its 'General' page. In the main content area, there are two configuration panels. The top panel is for 'Radio > 802.11a/n/ac > General'. It shows a 'SERVICE' row with 'Enable' and 'Disable' radio buttons. The 'Disable' button is circled in red with a '1' in a red octagon. An arrow points from this button to an 'Apply' button, which is also circled in red with a '2' in a red octagon. The bottom panel is for 'Radio > 802.11b/g/n > General'. It shows a 'SERVICE' row with 'Enable' and 'Disable' radio buttons. The 'Disable' button is circled in red with a '3' in a red octagon. An arrow points from this button to an 'Apply' button, which is also circled in red with a '4' in a red octagon. A green text box in the center states: 'We must disable the Radios in order to change the Country Code to US'.

4.7.4 APC Country Code

Controller > Country

Configuration > Controller > Country

Select your Country

1

2

Apply

Configured Country Code

DEFAULT COUNTRY CODE

North America(US)

DEFAULT ENVIRONMENT

Both

CONFIGURED COUNTRY CODE#1

None

CONFIGURED ENVIRONMENT #1

Both

CONFIGURED COUNTRY CODE#2

None

CONFIGURED ENVIRONMENT #2

Both

CONFIGURED COUNTRY CODE#3

None

CONFIGURED ENVIRONMENT #3

Both

CONFIGURED COMMON CHANNELS AND
MAX TX POWER LEVEL(5GHZ)

36 [17]	40 [17]	44 [17]	48 [17]	52 [20]	56 [20]	60 [20]	64 [20]	100 [30]	
104 [30]	108 [30]	112 [30]	116 [30]	120 [30]	124 [30]	149 [30]	153 [30]	157 [30]	161 [30]

CONFIGURED COMMON CHANNELS AND
MAX TX POWER LEVEL(2.4GHZ)

1 [20]	2 [20]	3 [20]	4 [20]	5 [20]	6 [20]	7 [20]	8 [20]	9 [20]
10 [20]	11 [20]	12 [20]	13 [20]					

CONFIGURED ALL CHANNELS (5GHZ)

36	40	44	48	52	56	60	64	100	
104	108	112	116	120	124	149	153	157	161

CONFIGURED ALL CHANNELS (2.4GHZ)

1	2	3	4	5	6	7	8	9
10	11	12	13					

4.7.4 APC Country Code

Select your Country and hit Apply

Note: Samsung is DFS (Dynamic Frequency Selection) certified. DFS is a spectrum-sharing mechanism that allows wireless LANs (WLANs) to coexist with radar systems. It automatically selects a frequency that does not interfere with certain radar systems while operating in the 5 GHz band.

COUNTRY CODE	North America(US)									
MAX TX POWER LEVEL(5GHZ)	36	17	40	17	44	17	48	17	52	24
	56	24	60	24	64	24	100	24	104	24
	108	24	112	24	116	24	132	24	136	24
	140	24	149	30	153	30	157	30	161	30
	165	30								
MAX TX POWER LEVEL(2.4GHZ)	1	27	2	27	3	27	4	27	5	27
	6	27	7	27	8	27	9	27	10	27
	11	27								

Lab 8 -

Change the country code on your APC

1. Go to Configuration → Radio → 802.11a/n → General
2. Set service to Disable → Hit Apply
3. Go to Configuration → Radio → 802.11b/g/n → General
4. Set service to Disable → Hit Apply
5. Go to Configuration → Controller → Country
6. Change the Country Code to “United States”
7. Hit Apply
8. Go back and enable the Radio Service

SAVE CONFIGURATION

User [eddie] | Logout | **Save Configuration** | Ping | Refresh

The page at 192.168.100.11 says:

Do you really want to save the configuration change onto storage?

OK Cancel

VERSION	1.4.5.R
BUILD TIME	Sat Sep 14 18:24:48 2013
STATUS	Active

Top WLANs [View All](#)

PROFILE NAME	CURRENT STATIONS
npi_lab	6 Edit

In Progress ...

Access Points

	TOTAL	UP	DOWN	
ALL APS	2	1	1	Detail
802.11A/N RADIOS	2	1	1	Detail

4.7.5 Set up User Accounts

Monitor | Configuration | Administration | Help

Logout | Save Configuration

Local Management Users

Let us go to Administration > Local Management Users > APC and hit Add to add a user

1

Add Delete

Total Entry : 4

<input type="checkbox"/>	NO.	ID	LEVEL
<input type="checkbox"/>	1	samsung	Administrator
<input type="checkbox"/>	2	eddie	Administrator
<input type="checkbox"/>	3	john	Administrator
<input type="checkbox"/>	4	terrell	Administrator

Foot Notes :

1. Maximum 10 admin accounts can be added.

4.7.5 Set up User Accounts

Note: User Names & Passwords are case sensitive.

Password Restrictions:

- Password must be any combination of alphabetic, numeric and special character.
- Password length: 8 ~ 25

Monitor | Configuration | Administration

Local Management Users > Add

2 Enter ID & Password

ID	<input type="text"/>
PASSWORD	<input type="password"/>
CONFIRM PASSWORD	<input type="password"/>
LEVEL	<input type="text"/>

3 Select user level

- 4 (Lobby Ambassador)
- 1 (Administrator)
- 2 (Operator)
- 3 (Monitor)
- 4 (Lobby Ambassador)

4

Back Apply

ser [john] | Logout | Save Configuration

4.7.5 Set up User Accounts

User [eddie]

Logout

Save Configuration | Ping |

Logout and log back in as your
created ID

Please Note: Only one ID can be used at a
time. If sharing the APC, you must create a
login for each person

4.5.5 Set up User Accounts

Changing Password: Via CLI

Use the password command as shown below.

- Next, type your current password.
- Type your new password.
- Confirm your new password.

```
WEC8500# password
CURRENT PASSWORD      : *****
NEW PASSWORD          : *****
CONFIRM NEW PASSWORD : *****
PASSWORD SUCCESSFULLY CHANGED.
```

4.7.5 Set up User Accounts

Changing Password: Via GUI

Click on the account username at top right corner of your screen

Monitor | Configuration | Administration | Help

User [**samsung**] | Logout | Save Configuration

Local Management Users > APC > Edit

Back Apply

ID	samsung	
CURRENT PASSWORD	<input type="checkbox"/> 2	<input type="password"/>
NEW PASSWORD ¹	<input type="checkbox"/> 2	<input type="password"/>
CONFIRM PASSWORD	<input type="password"/>	8~25
LEVEL	Administrator	
PASSWORD INPUT FOR CONFIRMATION ³	<input checked="" type="radio"/> Enable <input type="radio"/> Disable	

Enter your current and new password.

- Password Restrictions:
- Password must be any combination of alphabetic, numeric and special character.
 - Password length: 8 ~ 25

Account Levels

1. Administrator: Administrator privilege that allows to execute all the commands.
2. Operator: Can change system configuration.
3. Monitor: Can retrieve system status.
4. Lobby Ambassador: This user can create accounts for Guest Access

Lab 9 -

Create a User Account for yourself

1. Go to Administration → Local Management Users
2. Click Add and create a user account for yourself
3. Level should be equal to Administrator
4. Save Configuration
5. Logout of the APC
6. Login with your new User Account

SAVE CONFIGURATION

User [eddie] | Logout | **Save Configuration** | Ping | Refresh

The page at 192.168.100.11 says:

Do you really want to save the configuration change onto storage?

OK Cancel

VERSION	1.4.5.R
BUILD TIME	Sat Sep 14 18:24:48 2013
STATUS	Active

Top WLANs [View All](#)

PROFILE NAME	CURRENT STATIONS
npi_lab	6 Edit

In Progress ...

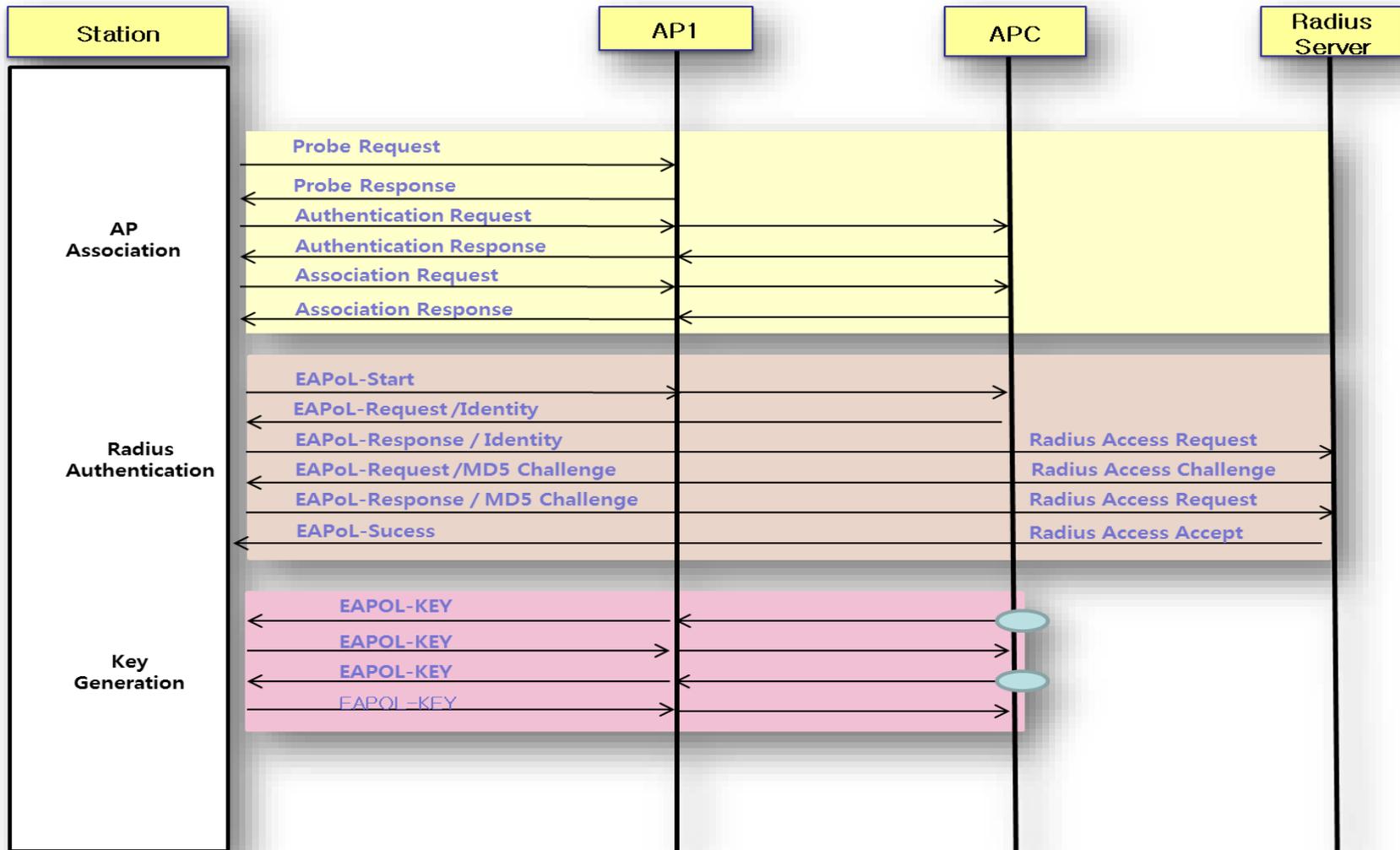
Access Points

	TOTAL	UP	DOWN	
ALL APs	2	1	1	Detail
802.11A/N RADIOS	2	1	1	Detail

Radius Authentication

4.7.6 Radius Authentication

The Flow of Authentication of WLAN Station



4.7.7 Adding a RADIUS Server

Configuration > Security > AAA > RADIUS

Controller ▸
Access Points
AP Groups
Remote AP Groups
Security ▾
AAA ▾
RADIUS
TACACS+
Local Net Users
Management User
Captive Portal ▸
MAC Filter
Access Control Lists ▸
Firewall ▸

Security > AAA > RADIUS

1 Add the RADIUS Server here

(*) Internal Radius Server Total Entry : 1

<input type="checkbox"/>	INDEX	TYPE	IP ADDRESS	PORT
	0 (*)	Auth	127.0.0.1	1812

1

Foot Notes :

1. Can't be deleted if the server configuration is used in 'WLANs > Security > Radius'.

4.7.7 Adding a RADIUS Server

Security > AAA(Stations) > RADIUS > Add

3

Back

Apply

INDEX	1
TYPE	Auth
IP ADDRESS	0 . 0 . 0 . 0
SHARED SECRET FORMAT	<input checked="" type="radio"/> ASCII <input type="radio"/> HEX
SHARED SECRET	<input type="password"/> 1
CONFIRM SHARED SECRET	<input type="password"/>
AUTH PORT NUMBER	1812
ACCT PORT NUMBER	1813
RETRANSMIT INTERVAL (SECONDS)	2
TOTAL RETRANSMIT COUNT	10
RETRANSMIT COUNT FAILOVER	3

- Select Type
- Enter IP address
- Enter Shared Secret (password) and confirm

2

Note: The shared secret should match the shared secret on the RADIUS server

4.7.7 Adding a RADIUS Server

Samsung Wireless Enterprise Monitor | Configuration | Administration | Help

Controller > Security > AAA > RADIUS > Add

Back Apply

INDEX	1
TYPE	Auth/Acct
IP ADDRESS	0.0.0.0
SHARED SECRET FORMAT	HEX
SHARED SECRET	1
CONFIRM SHARED SECRET	
AUTH PORT NUMBER	1812
ACCT PORT NUMBER	1813
RETRANSMIT INTERVAL (SECONDS)	2
TOTAL RETRANSMIT COUNT	10
RETRANSMIT COUNT FAILOVER	3

Here you can determine the type of Radius

Please note the default ports for AUTH and ACCT

4.8 Radio Resource Management

- 4.8.1 Setup and Enable 802.11 a/b/g/n/ac
- 4.8.2 Delayed Channel Change

Purpose

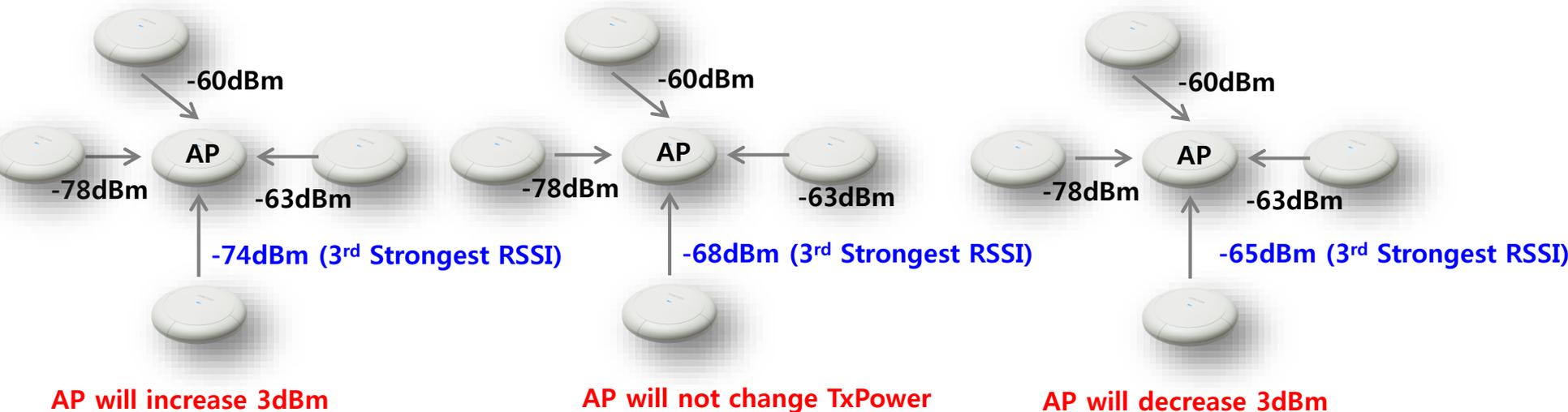
- RRM performs automatic setup function of channel and Tx Power for the Access Points.
- RRM is functionally divided into Dynamic Channel Selection (DCS), Dynamic Power control (DPC), and Coverage Hole Detection and Control (CHDC).
 - The DCS automatically sets the channels of the APs.
 - The DPC automatically sets the Tx Power of the AP.
 - The CHDC adjusts the Tx Power when Coverage Hole occurs.

4.8 Radio Resource Management

Example of RRM – DPC(Dynamic Power Control)

$$| \text{RSSI}(3^{\text{rd}}) - \text{RSSI}(\text{Threshold}) | \geq 3\text{dBm}$$

- * RSSI(3rd) : 3rd strongest RSSI of adjacent APs
- * RSSI(Threshold) : RSSI Threshold (default : -70dBm)



4.8.1 Setup and Enable 802.11a/b/g/n/ac

Configuration > Radio > 802.11a/n/ac or 802.11b/g/n > RRM

Enabling RRM

Radio > 802.11a/n/ac > RRM

1 → Radio Resource Management

SERVICE ¹	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
RF GROUP NAME	<input type="text"/>

2 → Apply

Enabling RRM

Radio > 802.11b/g/n > RRM

1 → Radio Resource Management

First you will need to enable RRM for 802.11b/g/n

SERVICE ¹	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
RF GROUP NAME	<input type="text"/>

2 → Apply

4.8.1 Setup and Enable 802.11a/b/g/n/ac

Enabling Dynamic TX Power Control

The screenshot shows the configuration page for Dynamic TX Power Control. A red octagon with the number '1' is placed over the 'Dynamic TX Power Control' header. A red arrow points from this octagon to the 'Enable' radio button. Another red octagon with the number '2' is placed over the 'Apply' button, with a red arrow pointing from it to the button. A green box labeled 'Adjusting Power' has a red bracket pointing to the input fields for RSSI THRESHOLD, INTERVAL, TX POWER MINIMUM, and TX POWER MAXIMUM.

Dynamic TX Power Control	
SERVICE ²	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
RSSI THRESHOLD(DBM)	<input type="text" value="-70"/>
INTERVAL(SEC.)	<input type="text" value="600"/>
TX POWER MINIMUM	<input type="text" value="16"/>
TX POWER MAXIMUM	<input type="text" value="20"/>

Apply

TX Power Range: 6 ~ 30

4.8.1 Setup and Enable 802.11a/b/g/n/ac

Enabling Dynamic Channel Selection (802.11b/g/n)

Dynamic Channel Selection

SERVICE ³	<input checked="" type="radio"/> Enable <input type="radio"/> Disable	3 → <input type="button" value="Apply"/>
INTERVAL(SEC.)	<input type="text" value="120"/>	
CHANNEL UTILIZATION THRESHOLD(%)	<input type="text" value="80"/>	My Utilization Threshold(%) <input type="text" value="40"/>
INTERFERENCE LEVEL THRESHOLD(%)	<input type="text" value="80"/>	
DELAYED CHANNEL CHANGE ⁴	<input type="radio"/> Enable <input checked="" type="radio"/> Disable	
AWARE OPTION	<input checked="" type="checkbox"/> Voice <input type="checkbox"/> Traffic <input type="checkbox"/> Station Association	2 → Select what channels available for use
ANCHOR TIME START	<input type="text" value="4"/>	
ANCHOR TIME END	<input type="text" value="5"/>	
CHANNELS	<input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input checked="" type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/> 8 <input type="checkbox"/> 9 <input type="checkbox"/> 10 <input checked="" type="checkbox"/> 11	5 →

4.8.1 Setup and Enable 802.11a/b/g/n/ac

Enabling Dynamic Channel Selection (802.11a/n/ac)

Dynamic Channel Selection

SERVICE ³	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
INTERVAL(SEC.)	<input type="text" value="120"/>
CHANNEL UTILIZATION THRESHOLD(%)	<input type="text" value="80"/> My Utilization Threshold(%) <input type="text" value="10"/>
INTERFERENCE LEVEL THRESHOLD(%)	<input type="text" value="80"/>
DELAYED CHANNEL CHANGE ⁴	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
AWARE OPTION	<input checked="" type="checkbox"/> Voice <input type="checkbox"/> Traffic <input type="checkbox"/> Station Association
ANCHOR TIME START	<input type="text" value="4"/>
ANCHOR TIME END	<input type="text" value="5"/>
CHANNELS	<input checked="" type="checkbox"/> 36 <input checked="" type="checkbox"/> 40 <input checked="" type="checkbox"/> 44 <input checked="" type="checkbox"/> 48 <input type="checkbox"/> 52 <input type="checkbox"/> 56 <input type="checkbox"/> 60 <input type="checkbox"/> 64 <input type="checkbox"/> 100 <input type="checkbox"/> 104 <input type="checkbox"/> 108 <input type="checkbox"/> 112 <input type="checkbox"/> 116 <input type="checkbox"/> 120 <input type="checkbox"/> 124 <input type="checkbox"/> 128 <input type="checkbox"/> 132 <input type="checkbox"/> 136 <input type="checkbox"/> 140 <input checked="" type="checkbox"/> 149 <input checked="" type="checkbox"/> 153 <input checked="" type="checkbox"/> 157 <input checked="" type="checkbox"/> 161 <input checked="" type="checkbox"/> 165

Apply

1 → **3**

2 → Select what channels available for use

4.8.2 Delayed Channel Change

- Here we can setup Delayed Channel Change
- After the Radio scans it will determine the best channel to use from the list of channels below

Apply

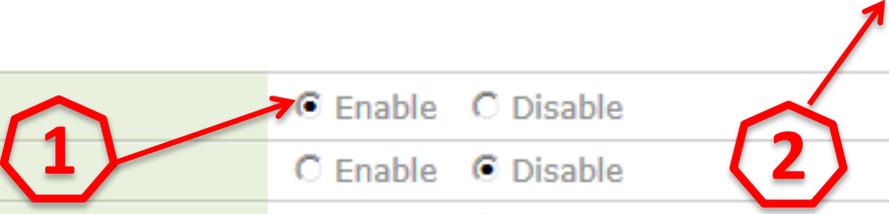
Dynamic Channel	
SERVICE ³	Disable
INTERVAL(SEC.)	120
CHANNEL UTILIZATION THRESHOLD(%)	80
INTERFERENCE LEVEL THRESHOLD(%)	80
My Utilization Threshold(%)	10
DELAYED CHANNEL CHANGE ⁴	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
AWARE OPTION	<input checked="" type="checkbox"/> Voice <input type="checkbox"/> Traffic <input type="checkbox"/> Station Association
ANCHOR TIME START	4
ANCHOR TIME END	5
CHANNELS	<input checked="" type="checkbox"/> 36 <input checked="" type="checkbox"/> 40 <input checked="" type="checkbox"/> 44 <input checked="" type="checkbox"/> 48 <input type="checkbox"/> 52 <input type="checkbox"/> 56 <input type="checkbox"/> 60 <input type="checkbox"/> 64 <input type="checkbox"/> 100 <input type="checkbox"/> 104 <input type="checkbox"/> 108 <input type="checkbox"/> 112 <input type="checkbox"/> 116 <input type="checkbox"/> 120 <input type="checkbox"/> 124 <input type="checkbox"/> 128 <input type="checkbox"/> 132 <input type="checkbox"/> 136 <input type="checkbox"/> 140 <input checked="" type="checkbox"/> 149 <input checked="" type="checkbox"/> 153 <input checked="" type="checkbox"/> 157 <input checked="" type="checkbox"/> 161 <input checked="" type="checkbox"/> 165

With this Enabled, we can determine when the Radio is allowed to switch channels

4.8.1 Setup and Enable 802.11a/b/g/n/ac

Coverage Hole Detection Control

SERVICE ⁵	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
STATISTICS COLLECTION	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
NOTIFY TRAP WARNING MESSAGE	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
STATISTICS ACTIVATE POWER CONTROL	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
PERCENTAGE OF FAILED CLIENT COUNT	<input type="text" value="25"/>
MINIMUM RSSI THRESHOLD FOR VOICE TRAFFIC(DBM)	<input type="text" value="-75"/>
MINIMUM RSSI THRESHOLD FOR DATA TRAFFIC(DBM)	<input type="text" value="-80"/>
MINIMUM FAILED CLIENT COUNT	<input type="text" value="5"/>
TIME INTERVAL	<input type="text" value="120"/>
MINIMUM IDLE TIME-OUT COUNT	<input type="text" value="10"/>



Lab 10 -

Verify that the RRM is Enabled for 802.11a/n/ac AND 802.11b/g/n

1. Go to Configuration → Radio → 802.11a/n/ac → RRM
2. Check that the following are set to Enable
 - Radio Resource Management
 - Dynamic TX Power Control
 - Dynamic Channel Selection
 - Delayed Channel Change (Also select the channels and set the Anchor start and end time)
 - Coverage Hole Detection Control
3. If not, set to Enable and hit Apply for each section
4. Repeat steps 1 – 3 for 802.11b/g/n
5. Save Configuration

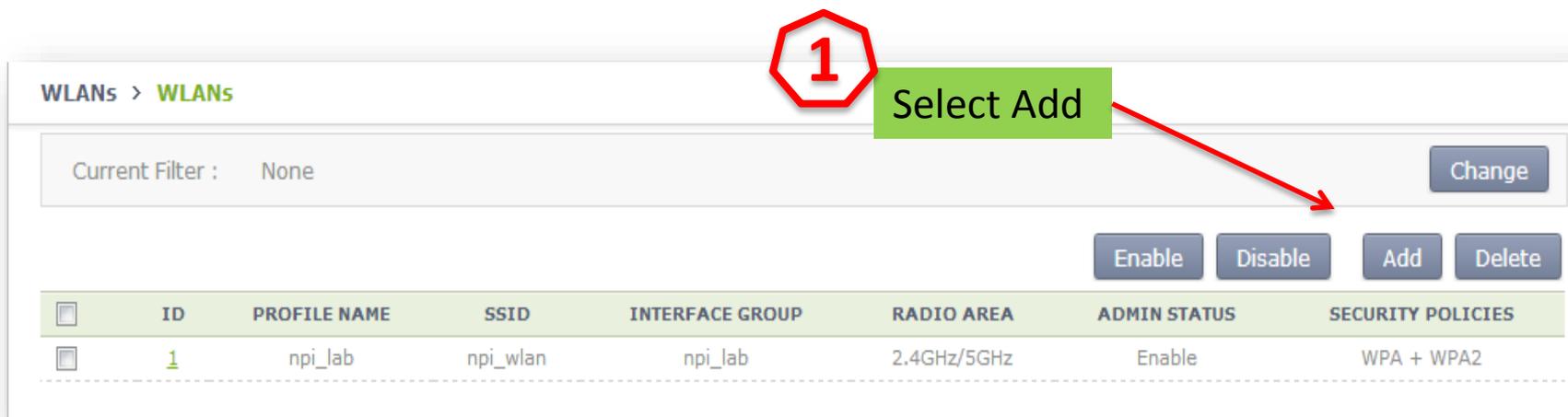
4.9 Configure WLANs

- 4.9.1 Creating a WLAN
- 4.9.2 General Options
- 4.9.3 Security Setup
- 4.9.4 Advanced Options
- 4.9.5 Selecting Radius Server
- 4.9.6 Enabling the WLAN

4.9.1 Creating a WLAN

Configuration > WLANs > WLAN

Note: Profile name and SSID cannot be changed once applied



WLANs > WLANs

Current Filter : None Change

Enable Disable Add Delete

ID	PROFILE NAME	SSID	INTERFACE GROUP	RADIO AREA	ADMIN STATUS	SECURITY POLICIES
<u>1</u>	npi_lab	npi_wlan	npi_lab	2.4GHz/5GHz	Enable	WPA + WPA2

Note: By default, if your WLAN ID is less than or equal to 16, the WLAN is automatically added to the default AP group. But, if the WLAN ID is greater than 16, the WLAN is not automatically added to the default AP group. So, it won't be broadcasted. If you wish to broadcast this WLAN, you must manually add that WLAN in the AP group. This is a security feature. AP Groups will be discussed later on.

4.9.1 Creating a WLAN

Note: Profile name and SSID cannot be changed once applied

WLANs > WLANs > Add **2**

Profile name and SSID

ID	2
PROFILE NAME	Wlan
SSID	Cowboys Wlan
INTERFACE GROUP	----
RADIO AREA	AP_MGMT
GUEST SERVICE	npi_lab test_20

WLANs > WLANs > Add **3**

Select the interface group that belongs to this WLAN

ID	2
PROFILE NAME	Wlan
SSID	Cowboys_Wlan
INTERFACE GROUP	----
RADIO AREA	AP_MGMT
GUEST SERVICE	npi_lab test_20

4.9.1 Creating a WLAN

WLANs > WLANs > Add **4**

Choose your type of Radio Area

ID	2
PROFILE NAME	Wlan
SSID	Cowboys_Wlan
INTERFACE GROUP	----
RADIO AREA	5GHz
GUEST SERVICE	able

BAND STEERING	5GHz preferred
LOAD BALANCING	Disabled
THRESHOLD	2.4GHz preferred
MAXIMUM DENIAL COUNT	2

Later on you can set Band Steering if you have chosen 2.4GHz/5GHz

4.9.1 Creating a WLAN

The screenshot displays the configuration interface for creating a WLAN. The configuration fields are as follows:

ID	2
PROFILE NAME	Wlan
SSID	Cowboys_Wlan
INTERFACE GROUP	test_20
RADIO AREA	2.4GHz/5GHz
GUEST SERVICE	<input type="radio"/> Enable <input checked="" type="radio"/> Disable

Step 5: A green box labeled "Hit Apply" points to the "Apply" button in the top right corner of the configuration form.

Step 6: A red circle labeled "6" points to a modal dialog box titled "Wireless Enterprise Manager - Google Chrome". The dialog shows a password confirmation screen with a "Password" field (masked with dots) and an "Apply" button. A red arrow points from the text "You will be asked to enter your GUI password" to the password field.

4.9.1 Creating a WLAN

WLANs > WLANs

Current Filter : None

Change

Enable

Disable

Add

Delete

Total Entry : 2

<input type="checkbox"/>	ID	PROFILE NAME	SSID	INTERFACE GROUP	RADIO AREA	ADMIN STATUS	SECURITY POLICIES
<input type="checkbox"/>	<u>17</u>	Company70	Company70	Company70grp	2.4GHz/5GHz	Disabled	None
<input type="checkbox"/>	<u>18</u>	Guest71	Guest71	Guest71grp	2.4GHz	Disabled	None

Click here to open options for this WLAN

1

You can see here that we still need to setup our security policies
After do so, we can come back on enable the admin status

4.9.2 General Options

The screenshot displays the configuration page for a WLAN. The breadcrumb trail is 'WLANs > WLANs > General'. The 'General' tab is selected, with 'Security' and 'Advanced' tabs also visible. The page contains several configuration fields and options:

- Buttons:** 'Back' and 'Apply' buttons are located in the top right corner.
- Fields:** ID (2), PROFILE NAME (Wlan), SSID (Cowboys_Wlan), AP GROUP LISTS (default), INTERFACE GROUP (test_20), RADIO AREA (All), CAPWAP TUNNEL MODE (802.3 Tunnel), LOCAL VLAN (Used 0, Not Used), SUPPRESS SSID (Enable, Disable), AAA OVERRIDE (Enable, Disable), MAXIMUM CONNECTIONS (127), GUEST SERVICE (Enable, Disable), and ADMIN STATUS (Enable, Disable).
- Annotations:** A green box points to the 'Apply' button with the text 'Hit Apply if any changes made'. A yellow box points to the 'RADIO AREA' dropdown with the text 'If needed you can change your radio area setting here.' A red box highlights the 'RADIO AREA' dropdown, and a larger red box shows its expanded menu with options 'All', '5GHz', '2.4GHz', and 'All'. Two yellow boxes point to the 'SUPPRESS SSID' and 'AAA OVERRIDE' options with instructions: 'Choose enable to hide the SSID from being broadcasted' and 'Enable AAA OVERRIDE if you are using RADIUS authentication'.

ID	2
PROFILE NAME	Wlan
SSID	Cowboys_Wlan
AP GROUP LISTS	default
INTERFACE GROUP	test_20
RADIO AREA ¹	All
CAPWAP TUNNEL MODE ²	802.3 Tunnel
LOCAL VLAN ³	<input type="radio"/> Used 0 <input checked="" type="radio"/> Not Used
SUPPRESS SSID	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
AAA OVERRIDE	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
MAXIMUM CONNECTIONS	127
GUEST SERVICE	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
ADMIN STATUS	<input type="radio"/> Enable <input checked="" type="radio"/> Disable

4.9.3 Security Setup

General Security Advanced

WLANs > WLANs > Security > L2

L2 | L3 | Radius

PROFILE NAME	Wlan
L2 SECURITY TYPE ¹	None
MAC FILTER	

None
Static WEP
802.1x(Dynamic WEP)
Static WEP + 802.1x(Dynamic WEP)
WPA + WPA2

1

Choose your Security Type

Back Apply

PROFILE NAME	Wlan
L2 SECURITY TYPE ¹	WPA + WPA2
WPA POLICY	<input type="checkbox"/> WPA
ENCIPHERMENT TYPE	TKIP
WPA2 POLICY	<input checked="" type="checkbox"/> WPA2
ENCIPHERMENT TYPE	CCMP
AUTH KEY MGMT	<input checked="" type="radio"/> PSK <input type="radio"/> 802.1x
PSK FORMAT	ASCII
PSK KEY	<input type="checkbox"/> ³
PMK LIFETIME (SECONDS)	43200
EAPOL REAUTHENTICATION PERIOD	0
MAC FILTER

2

Fill out your security settings. Make sure WPA2 is selected with CCMP and hit apply

Note: CCMP is Samsung's recommended encryption type WLAN.

4.9.3 Security Setup

General **Security** Advanced

WLANs > WLANs > Security > L2

L2 | L3 | Radius

PROFILE NAME: npi_network

L2 SECURITY TYPE ¹: WPA + WPA2

WPA POLICY: WPA

ENCIPHERMENT TYPE: TKIP

WPA2 POLICY: WPA2

ENCIPHERMENT TYPE: CCMP

AUTH KEY MGMT: PSK 802.1x

PSK FORMAT: ASCII

PSK KEY: ³ ●●●●●●●●

PMK LIFETIME (SECONDS): 43200

EAPOL REAUTHENTICATION PERIOD: 0

MAC FILTER: -----

Back Apply

If you use TKIP, when the client connects will not be able to connect at 802.11n, they can only use 802.11a/g



4.9.4 Advanced Options

Location #2 WLAN DHCP
Here we can set the WLAN to use a remote DHCP server

1

2

Back Apply

PROFILE NAME	Wlan
ACL RULE	----- ▾
STATIC ADDRESS DISALLOWED	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
DHCP OVERRIDE	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
DHCP SERVER ¹	192 . 168 . 20 . 1

Please note: If you are using a remote DHCP server, you must setup a **relay rule** on your DHCP server to the interface IP of this WLAN

BAND STEERING

Disabled ▾

Disabled

5GHz preferred

2.4GHz preferred

Apply

If using 2.4GHz/5GHz, you can determine here what the preferred connection should be
Hit Apply once selected for this section

4.9.5 Selecting Radius Server

General Security

WLANs > WLANs > Security > Radius

L2 | L3 | Radius

If you have chosen to use a radius server for connection, here is where you would select that radius server added earlier for this WLAN.

Back Apply

PROFILE NAME	Wlan
AUTHENTICATION SERVER	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
RADIUS SERVER 1	----- ▾
RADIUS SERVER 2	----- ▾
RADIUS SERVER 3	----- ▾
ACCOUNTING SERVER	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
RADIUS SERVER 1	----- ▾
RADIUS SERVER 2	----- ▾
RADIUS SERVER 3	----- ▾
FALLBACK TEST INTERVAL (SECONDS)	0
ACCOUNTING INTERVAL (SECONDS)	600

Hit Apply when your done!

4.9.6 Enabling the WLAN

WLANs > WLANs

Current Filter : None

Change

2

Hit Enable

Enable

Disable

Add

Delete

Total Entry : 2

<input checked="" type="checkbox"/>	ID	PROFILE NAME	SSID	INTERFACE GROUP	RADIO AREA	ADMIN STATUS	SECURITY POLICIES
<input checked="" type="checkbox"/>	17	Company70	Company70	Company70grp	2.4GHz/5GHz	Disabled	WPA + WPA2
<input checked="" type="checkbox"/>	18	Guest71	Guest71	Guest71grp	2.4GHz	Disabled	WPA + WPA2

1

Check the WLAN

Wireless Enterprise Manager - Windows Internet E...

http://192.168.1.2/confirm_password.php?frm=form&fn_name=chk_o

Password

Apply

Type in your GUI password

3

Lab 11 – (1/2)

Setup a second WLAN called Company_X0 “See Student Info”

1. Go to Configuration → WLANs → WLANs
2. Click Add and fill in the following according to the “Student Info”
 1. Profile Name
 2. SSID
 3. Interface Group
 4. Radio Area
 5. Guest Service
3. Hit Apply
4. Go back to the Company WLAN
5. Go to the security tab and setup the “L2” Security Type “See Student Info”
6. Hit Apply

Lab 11 – (2/2)

Setup a second WLAN called `guest_x1` “See Student Info”

1. Go to Configuration → WLANs → WLANs
2. Click Add and fill in the following according to the “Student Info”
 1. Profile Name
 2. SSID
 3. Interface Group
 4. Radio Area
 5. Guest Service
3. Hit Apply
4. Go back to the guest WLAN
5. Go to the security tab and setup the “L2” Security Type “See Student Info”
6. Hit Apply
7. Go to Configuration → WLANs → WLANs
8. Check all WLANs → Enable WLAN

4.10 Set Up Access Points

- 4.10.1 Connect all APs to the network
- 4.10.2 Check List of Access Points
- 4.10.3 Configure Access Points
- 4.10.4 Hard setting a channel
- 4.10.5 Advanced Settings

At this point in the WLAN configuration the LED on the Access Points will go through the following sequence as soon as they are plugged in.

1. System Start > Steady White LED 
2. Initializing the AP > Steady Blue LED 
3. Provisioning > Repeat Red > Green 

Make sure all of the APs are plugged in and connected to the switch ports with the Management VLAN designated in the APC setup.

Lab 12 -

Connect the Aps to the PoE Switch

1. Plug in the APs to a port in this range 17 – 24
2. Go to Configuration → Access Points
3. Confirm that all APs show in the table

4.10.2 List of Access Points

All Access Points that are plugged in and registered will show up in the list below.

Access Points

Current Filter : None

Change

Multi Set

Enable

Disable

Add

Delete

Export

(e) : Edge AP, (r) : Remote AP

Total Entry : 1

<input type="checkbox"/>	AP PROFILE NAME	AP NAME	MAC	IP ADDRESS	ADMIN STATUS	OPER STATUS	MAP LOCATION	APC ~ AP COUNTRY	MODE	MODEL	VERSION
<input type="checkbox"/>	ap_1	AP_NPI	f4:d9:fb:3d:e1:44	192.168.50.103	Up	Up		Matched	General AP	WEA302i	2.0.4.R

1

4.10.3 Configure Access Points

1

To configure an AP, click on the AP Profile Name

Access Points

Current Filter : None

Change

Multi Set

Enable

Disable

Add

Delete

Export

(e) : Edge AP, (r) : Remote AP

Total Entry : 1

<input type="checkbox"/>	AP PROFILE NAME	AP NAME	MAC	IP ADDRESS	ADMIN STATUS	OPER STATUS	MAP LOCATION	APC ~ AP COUNTRY	MODE	MODEL	VERSION
<input type="checkbox"/>	ap_1	AP_NPI	f4:d9:fb:3d:e1:44	192.168.50.103	Up	Up		Matched	General AP	WEA302i	2.0.4.R

1

4.10.3 Configure Access Points

General 80

Access Points > General

1

Enter or change the AP name

3

Back Apply

AP PROFILE NAME	ap_1
AP NAME	<input type="text" value="npi_AP1"/>
AP GROUP NAME	npi_AP1
AP MODE ¹	<input type="text" value="General AP"/>
MAC ADDRESS	f4:d9:fb:3d:e1:14
MAP LOCATION	
LOCATION	<input type="text"/>
IP ADDRESS	192.168.10.50
IP ADDRESS POLICY	<input type="radio"/> DHCP <input checked="" type="radio"/> AP Priority (AP Followed) <input type="radio"/> Static IP
IP ADDRESS	<input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/>
NETMASK	<input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/>
GATEWAY	<input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/>
DISCOVERY TYPE ²	<input type="text" value="AP Followed"/> Current Discovery Type : DHCP
ADMIN STATUS	Up
OPER STATUS	Up
PRIMARY CONTROLLER NAME ³	<input type="text" value="-----"/>
SECONDARY CONTROLLER NAME ³	<input type="text" value="-----"/>
TERTIARY CONTROLLER NAME ³	<input type="text" value="-----"/>

2

AP Mode // Default: General AP

4.10.4 Hard setting a channel

Access Points > **802.11a/n/ac**

Back Apply

AP PROFILE NAME
AP NAME
SERVICE

Here you can hard set a channel that you would like this AP to use

1

CURRENT CHANNEL 153
CHANNEL FIX Enable Disable

Select Enable after picking the channel

2

Apply

Access Points > **802.11b/g/n**

Back Apply

AP PROFILE NAME
AP NAME
SERVICE

Here you can hard set a channel that you would like this AP to use

1

CURRENT CHANNEL 6
CHANNEL FIX Enable Disable

Select Enable after picking the channel

2

Apply

4.10.5 Advanced Settings

The screenshot shows the configuration page for Access Points in the Samsung Wireless Enterprise web interface. The page is titled "Access Points > Advanced" and is for controller "802.11a/". The left sidebar shows navigation options: Controller, Access Points (selected), AP Groups, Radio, User QoS, Mobility Management, DNS, NTP, and DHCP. The main content area contains various configuration fields for an AP profile named "ap_1".

Annotations:

- A green box at the top right says "If a change is made don't forget to Apply!" with a red arrow pointing to the "Apply" button.
- A yellow box on the left says "Here is where you can enable the ability to telnet, SSH or console access into a AP." with a red arrow pointing to the TELNET, SSH, and CONSOLE settings.
- A yellow box on the right says "Here you can turn off the LED lights on your AP during a set time" with a red arrow pointing to the LED settings.

Field	Value
AP PROFILE NAME	ap_1
API	npi_Lab_AP
30	30
AL (SEC) 2	20
3	120
4	120
100MS) 5	5
MAX RETRANSMIT 6	5
ECHO RETRANSMIT INTERVAL (SEC) 7	3
MAX ECHO RETRANSMIT 8	5
TELNET 9	<input checked="" type="radio"/> Enable <input type="radio"/> Disable 50023
SSH 10	<input type="radio"/> Enable <input checked="" type="radio"/> Disable 50022
CONSOLE	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
DTLS 11	Disable
LED	On 18 : 00 ~ 06 : 00
EDGE AP	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
EDGE AP OPERATION MODE	RSSI

4.10.5 Advanced Settings

Access Points > **Advanced**

Back Apply **2**

Hit Apply

AP PROFILE NAME	ap_1
AP NAME	AP_NPI
ECHO INTERVAL (SEC) ¹	<input type="text" value="30"/>
MAX DISCOVERY INTERVAL (SEC) ²	<input type="text" value="20"/>
REPORT INTERVAL (SEC) ³	<input type="text" value="120"/>
STATISTICS TIMER (SEC) ⁴	<input type="text" value="120"/>
RETRANSMIT INTERVAL (100MS) ⁵	<input type="text" value="5"/>
MAX RETRANSMIT ⁶	<input type="text" value="5"/>
ECHO RETRANSMIT INTERVAL (SEC) ⁷	<input type="text" value="3"/>
MAX ECHO RETRANSMIT ⁸	<input type="text" value="5"/>
TELNET ⁹	<input type="radio"/> Enable <input checked="" type="radio"/> Disable <input type="text" value="50023"/>
SSH ¹⁰	<input type="radio"/> Enable <input checked="" type="radio"/> Disable <input type="text" value="50022"/>
CONSOLE	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
DTLS ¹¹	
LED	
EDGE AP	
EDGE AP OPERATION MODE	<input type="text" value="RSSI"/>
SMHO THRESHOLD (DBM)	<input type="text" value="-80"/>
SMHO WINDOW SIZE (MS)	<input type="text" value="300"/>
COUNTRY CODE	<input type="text" value="North America(US)"/>
ENVIRONMENT	<input type="text" value="Both"/>
TIME ZONE	<input type="text" value="US/Central"/>

If you have set the country code on the APC, it will carry over to the AP once they have connected to the APC



Set the time zone to US/Central

1

4.11 AP Groups

- 4.11.1 Creating an AP Group
- 4.11.2 Setup the AP Group
 - *4.11.2.1 General Tab*
 - *4.11.2.2 Adding AP's*
 - *4.11.2.3 WLANs*
 - *4.11.2.4 Hard setting a channel*
 - *4.11.2.5 Confirm AP Groups*

4.11.1 Creating an AP Group

Samsung Wireless Enterprise

Monitor | Configuration | Administration | Help

Controller > AP Groups

Access Points

AP Groups

Remote AP Groups

Security >

Rogues >

1 → Add Delete

Total Entry : 2

<input type="checkbox"/>	AP GROUP NAME	AP GROUP DESCRIPTION	AP COUNT	WLAN COUNT
<input type="checkbox"/>	default		1	3
<input type="checkbox"/>	npi_AP1	npi_wlan	1	1

4.11.1 Creating an AP Group

The screenshot shows the Samsung Wireless Enterprise web interface. The top navigation bar includes 'Monitor', 'Configuration', 'Administration', and 'Help'. The left sidebar has a menu with 'Controller', 'Access Points', 'AP Groups', 'Remote AP Groups', and 'Security'. The main content area is titled 'AP Groups > Add' and contains a form with a text input field labeled 'GROUP NAME' containing the text 'Guest_Group'. A green box above the form says 'Enter the Name'. At the bottom right of the form are 'Back' and 'Apply' buttons. Red annotations include a circled '2' pointing to the 'Add' link, a circled '3' pointing to the 'Apply' button, and a red arrow pointing from the 'Enter the Name' box to the text input field.

4.11.2 Setup the AP Group

Now we can assign which APs, WLANs (SSID) will be used in this AP Group

Samsung Wireless Enterprise Monitor | Configuration | Administration | Help

Group Added

Lets Setup the Group now
Click on the name of the Group

AP Groups

AP GROUP NAME	AP GROUP DESCRIPTION	AP COUNT	WLAN COUNT
default		1	3
npi_AP1	npi_wlan	1	1
Guest_Group	0	0	0

Total Entry : 3

Add Delete

4.11.2.1 General Tab

General

APs

WLANs

802.11a/n

802.11b/g/n

Advanced

AP Groups > General

AP GROUP NAME	Main_AP_Group
AP GROUP DESCRIPTION	0
AP COUNT	1
WLAN COUNT	2
<input type="checkbox"/> OVERWRITE AP CONFIG	
AP MODE ¹	General AP
<input type="checkbox"/> OVERWRITE AP CONFIG	
LOCATION	0
<input type="checkbox"/> OVERWRITE AP CONFIG	
IP MODE	<input type="radio"/> DHCP <input checked="" type="radio"/> AP Priority (AP Followed)
<input type="checkbox"/> OVERWRITE AP CONFIG	
ADMIN STATUS	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
<input type="checkbox"/> OVERWRITE AP CONFIG	
DISCOVERY TYPE ²	AP Followed
PRIMARY CONTROLLER NAME	-----
SECONDARY CONTROLLER NAME	-----

Set the AP Group Description Here

Back

Apply

1

2

Message from webpage



NOTE:

Changing AP Group configurations will cause temporary disruption to service.

All APs in AP Group will be disconnected from the APC if the configuration is incorrect.

Be careful of the following items:

* AP MODE

All APs will be reboot after AP Mode configuration is changed.

Especially, be careful when setting the AP to Repeater Mode because it cannot be accessed without Root AP

* IP MODE

Changing IP mode to DHCP will cause disconnection between APC and AP unless DHCP environment is established.

* Redundancy Configurations (DISCOVERY TYPE, CONTROLLER NAMES)

It's possible to connect APs to another APCs for Redundancy.

Do you really want to apply?

OK

Cancel

4.11.2.2 Adding APs

General **APs** WLANs 802.11a/n 802.11b/g/n Advanced

AP Groups > APs Back

AP GROUP NAME Guest_Group

Current Filter : None Change

Selected APs

AP NAME	MAC ADDRESS	IP ADDRESS	AP GROUP NAME
No data			

Select the APs to be used in this group

Use this up arrow to move the APs into this group

1

2

Current Filter None Change

All APs

AP PROFILE NAME	AP NAME	MAC ADDRESS	IP ADDRESS	AP GROUP NAME	
<input checked="" type="checkbox"/>	ap_1	npi_AP1	f4:d9:fb:3d:e1:44	192.168.10.50	default
<input checked="" type="checkbox"/>	ap_2	npi_AP2	f4:d9:fb:3d:c4:84	192.168.10.52	default

4.11.2.2 Adding APs

General **APs** WLANs 802.11a/n 802.11b/g/n Advanced

AP Groups > APs

AP GROUP NAME: Guest_Group Back

Current Filter : None Change

Selected APs

<input type="checkbox"/>	AP PROFILE NAME	AP NAME	MAC ADDRESS	IP ADDRESS	AP GROUP NAME
<input type="checkbox"/>	ap_1	npi_AP1	f4:d9:fb:3d:e1:44	192.168.10.50	Guest_Group
<input type="checkbox"/>	ap_2	npi_AP2	f4:d9:fb:3d:c4:84	192.168.10.52	Guest_Group

▼ ▲

Current Filter : None Change

All APs

<input type="checkbox"/>	AP PROFILE NAME	AP NAME	MAC ADDRESS	IP ADDRESS	AP GROUP NAME
No data					

Selected APs added

4.11.2.3 WLANs

General APs **WLANs** 802.11a/n 802.11b/g/n Advanced

AP Groups > WLANs

Back

AP GROUP NAME Guest_Group

Current Filter : None Change

Selected WLANs

No data

1 Select the WLANs to be used in this group

2 Use this up arrow to move the WLANs into this group

Current Filter : None Change

All WLANs

	PROFILE NAME	SSID	INTERFACE GROUP
<input type="checkbox"/>	npi_lab	npi_wlan	npi_lab
<input type="checkbox"/>	Wlan	Cowboys_Wlan	test_20
<input checked="" type="checkbox"/>	guest	Guest_Samsung_WLAN	guest11

4.11.2.3 WLANs

General APs **WLANs** 802.11a/n 802.11b/g/n Advanced

AP Groups > WLANs

AP GROUP NAME Guest_Group Back

Current Filter : None Change

Selected WLANs

<input type="checkbox"/>	PROFILE NAME	SSID	INTERFACE GROUP
<input type="checkbox"/>	guest	Guest_Samsung_WLAN	guest11

▽ ▲

Current Filter : None Change

All WLANs

<input type="checkbox"/>	PROFILE NAME	SSID	INTERFACE GROUP
<input type="checkbox"/>	npi_lab	npi_wlan	npi_lab
<input type="checkbox"/>	Wlan	Cowboys_Wlan	test_20

4.11.2.4 Hard setting a channel

AP Groups > **802.11a/n**

Here you can hard set a channel that you would like this AP Group to use

AP GROUP NAME: Guest_Gr

SERVICE: Enable Disable

CURRENT CHANNEL: 36

CHANNEL FIX: Enable Disable

Back Apply

Apply

1

2

Select Enable after picking the channel

AP Groups > **802.11b/g/n**

Here you can hard set a channel that you would like this AP Group to use

AP GROUP NAME: Guest_Gr

SERVICE: Enable Disable

CURRENT CHANNEL: 1

CHANNEL FIX: Enable Disable

Back Apply

Apply

1

2

Select Enable after picking the channel

4.11.2.4 Selecting the PoE type

General	APs	WLANs	802.11a/n	802.11b/g/n	Advanced
AP Groups > Advanced					
TELNET ⁹		<input type="radio"/> Enable <input checked="" type="radio"/> Disable		50023	
SSH ¹⁰		<input type="radio"/> Enable <input checked="" type="radio"/> Disable		50022	
<input type="checkbox"/> OVERWRITE AP CONFIG					
CONSOLE		<input type="radio"/> Enable <input checked="" type="radio"/> Disable			
<input type="checkbox"/> OVERWRITE AP CONFIG					
DTLS ¹¹		Disable ▾			
<input type="checkbox"/> OVERWRITE AP CONFIG					
LED		On ▾ : 00 ▾ : 00 ▾ ~ 00 ▾ : 00 ▾			
<input type="checkbox"/> OVERWRITE AP CONFIG					
POE TYPE		802.3at ▾			
<input type="checkbox"/> OVERWRITE AP CONFIG					
VLAN SUPPORT ¹²		<input type="radio"/> Enable <input checked="" type="radio"/> Disable			
NATIVE VLAN ID ¹³		0			

Select your PoE type as per your PoE switch. Default type: Auto

4.11.2.5 Confirm AP Groups

After configuring AP Groups, all of the APs that are plugged in and connected should have the following LED status.

Normal Operation > Steady Green LED 
Operational - with no clients currently connected.

Normal Operation > Steady Blue LED 
Operational - with one or more clients connected.

Lab 14 – (1/2)

Setup and Configure a AP Group “Main_AP_Group”

1. Go to Configuration → AP Groups
2. Select Add → Name this AP Group “Main_AP_Group”
3. Hit Apply
4. Give this AP a Group Description of “Main_AP_Group”
5. Hit Apply
6. Click on “Main_AP_Group”
7. Go to the APs tab → Add the AP named “Company_AP”
8. Click “OK” when prompted
9. Go to the WLANs tab → Add the WLAN names “company_x0”
10. Click “OK” when prompted
11. Verify by connecting a cell phone or laptop to the SSID “company_x0”

Lab 14 – (2/2)

Setup and Configure a AP Group “Main_AP_Group”

1. Go to Configuration → AP Groups
2. Select Add → Name this AP Group “Main_AP_Group”
3. Hit Apply
4. Give this AP a Group Description of “Main_AP_Group”
5. Hit Apply
6. Click on “Main_AP_Group”
7. Go to the APs tab → Add the AP named “Guest_AP”
8. Click “OK” when prompted
9. Go to the WLANs tab → Add the WLAN names “guest_x1”
10. Click “OK” when prompted
11. Verify by connecting a cell phone or laptop to the SSID “guest_x1”

5. Maintenance

- 5.1 Backup the APC
- 5.2 Downloading the Backup
- 5.3 Upgrading the APC
- 5.4 AP Upgrade
- 5.5 Default the APC
- 5.6 How to Restore the APC

5.1 Backup the APC

The screenshot shows the Samsung Wireless Enterprise Administration interface. The top navigation bar includes 'Monitor', 'Configuration', 'Administration', and 'Help'. The left sidebar lists various system functions, with 'DB backup/restore' highlighted in green. The main content area is titled 'DB backup/restore' and contains a 'DB Backup' section. A red box labeled '1' highlights the 'FILE NAME' input field, which contains the text 'npi_backup_wlan10292013'. A green callout box with the text 'Start by entering the name for your backup' points to this field. A red box labeled '2' highlights the 'Apply' button at the top right of the configuration area. Below the 'FILE NAME' field, there is a 'STATUS' field and a section for 'MANAGEMENT USERS' with radio buttons for 'Include' and 'Not include'.

Samsung
Wireless Enterprise

Monitor | Configuration | Administration | Help

SNMP ▶ DB backup/restore

HTTP-HTTPS

Telnet-SSH

Local Management Users

Logs ▶

DB backup/restore

Reboot ▶

Factory Reset

File I

Pack

FTP-

Time ▶

DB Backup

FILE NAME npi_backup_wlan10292013

STATUS

MANAGEMENT USERS Include Not include

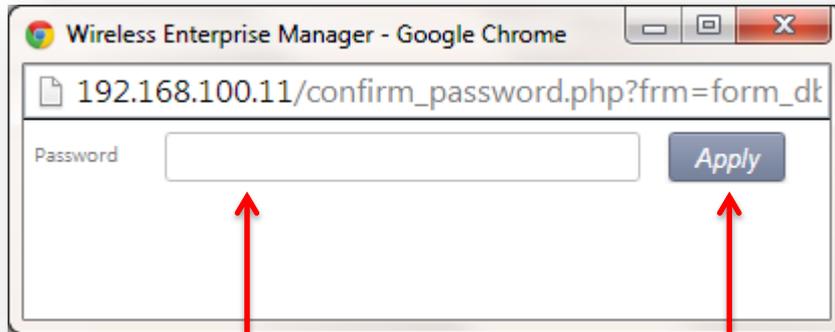
Apply

Apply

1 Start by entering the name for your backup

2

5.1 Backup the APC

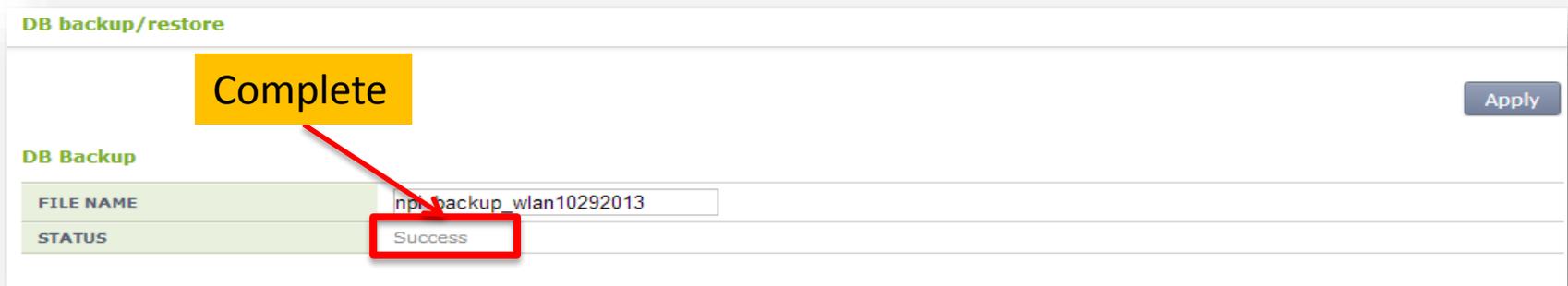
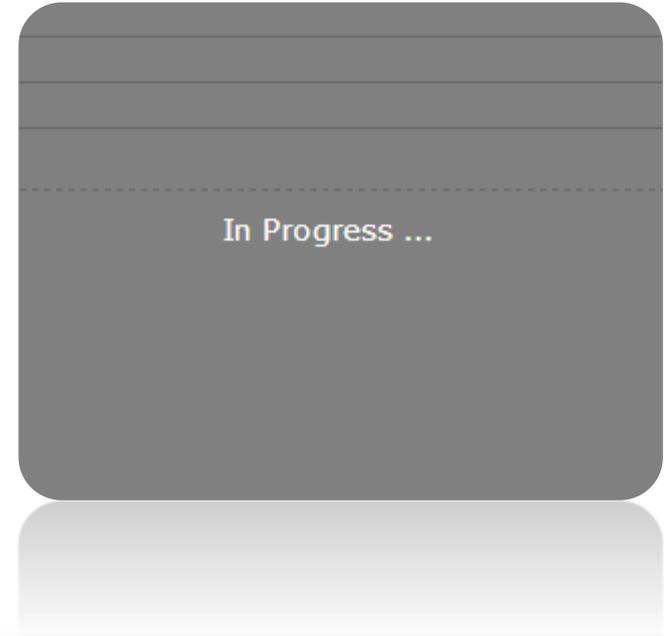


Wireless Enterprise Manager - Google Chrome
192.168.100.11/confirm_password.php?frm=form_dt

Password

Enter the password,
then hit Apply

3



DB backup/restore

Complete

DB Backup

FILE NAME	np1_backup_wlan10292013
STATUS	Success

5.1 Backup the APC

Periodic Backup

Apply

Periodic Upload

UPLOAD	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
CYCLE	<input type="radio"/> Monthly <input type="radio"/> Weekly <input checked="" type="radio"/> Daily
	Time <input type="text" value="11"/> : <input type="text" value="21"/>
IP VERSION	<input checked="" type="radio"/> v4 <input type="radio"/> v6
IPV4 ADDRESS	<input type="text" value="12"/> . <input type="text" value="204"/> . <input type="text" value="121"/> . <input type="text" value="12"/>
IPV6 ADDRESS	<input type="text" value="0000"/> : <input type="text" value="0000"/>
PORT	<input type="text" value="21"/>
USER ACCOUNT	<input type="text" value="jhannon"/>
USER PASSWORD <input type="checkbox"/> 1	<input type="password" value="●●●●●●●●"/>
REMOTE PATH	<input type="text" value="/"/>
TRANSFER MODE	<input checked="" type="radio"/> FTP <input type="radio"/> SFTP

You can also schedule a periodic backup and send the backup files to a remote FTP server.

5.2 Downloading the Backup

The backup is stored under /disk/etc/config. Not available when doing periodic backup as the backup files are stored in a remote FTP server in that case.

Administration | Help

Package Info Package Verify Download Upload Rename Copy Move Delete

Name	DateTime	Size
npibackup_wlan10292013.wec8500.config	2013-10-30 Wed 05:13	4MB
npibackup_1082013.wec8500.config	2013-10-08 Tue 23:07	4MB

1 To download, simply check the backup

2 Then Click Download

5.3 Upgrading the APC

The screenshot shows the Samsung Wireless Enterprise Administration interface. The top navigation bar includes 'Monitor', 'Configuration', 'Administration' (highlighted with a red box), and 'Help'. The left sidebar contains various system management options, with 'Package Upgrade' expanded to show 'APC' (highlighted with a red box). The main content area is titled 'Package Upgrade > APC' and features an 'Apply' button. Under the 'Select Package File' section, a table shows the current version (1.5.9.R) and a dropdown menu for 'PACKAGE NAME' with a list of available firmware files. A green callout box with a red arrow points to the dropdown menu, containing the text: 'Here you will select the package you wish to upgrade to'. Below the dropdown, there are radio buttons for 'Save and Package Upgrade' (selected) and 'Package Upgrade Without Save'. At the bottom, the 'Package Upgrade Status' section shows the status as 'None'.

CURRENT VERSION	1.5.9.R
PACKAGE NAME	-----
COMPATIBILITY	
BACKUP CONFIGURATION ¹	
<input type="text" value="wec8500_1.4.12.R.bin"/>	
<input type="text" value="wec8500_1.4.5.R.tmp.bin"/>	
<input type="text" value="wec8500_1.4.8.R.bin"/>	
<input type="text" value="wec8500_1.5.4.T1.bin"/>	
<input type="text" value="wec8500_1.5.6.T.bin"/>	
<input type="text" value="wec8500_1.5.9.R.bin"/>	

Here you will select the package you wish to upgrade to

Saving Control ²

Save and Package Upgrade Package Upgrade Without Save

Package Upgrade Status

STATUS	None
--------	------

5.3 Upgrading the APC

Samsung Wireless Enterprise | Monitor | Configuration | Administration | Help

Package Upgrade > APC

Apply

Select Package File

CURRENT VERSION	1.5.3.T1
PACKAGE NAME	wec8500_1.5.4.T1.bin
COMPATIBILITY	Compatible
BACKUP CONFIGURATION ¹	exist

Model: WEC8500
Version: 1.5.4
AddInfo: T1
BuildTime: Mon Jan 6 16:31:07 2014
Builder: apcbuild
Directory: /home2/apcbuild/release/wec8500_1.5.4
PLD Version: R1.01.040;
MD5Sum: 4e2e82b5f1d7400f1e40208cc1877590

COMPATIBILITY: Compatible

BACKUP CONFIGURATION ¹: exist

Restore Backup Configuration Keep Current Configuration

Saving Control ²

Save and Package Upgrade Package Upgrade Without Save

Package Upgrade Status

STATUS	None
--------	------

Foot Notes :

1. If the backup configuration exists, apply the configuration. If you select "Restore Backup Configuration", the backup configuration will be restored.
2. It is recommended that you save the configuration before upgrade. If you select "Save and Package Upgrade", configuration is saved and a backup configuration is created. You can apply the configuration in "Backup Configuration".
3. The system will be reboot after upgrade operations.

With V2.3.5.R and higher, the system will now inform you that a backup configuration does exist and give you the option to restore this configuration or keep your current configuration.

5.3 Upgrading the APC

The screenshot shows the Samsung Wireless Enterprise Administration interface. The left sidebar contains a menu with items like SNMP, HTTP-HTTPS, Telnet-SSH, Local Management Users, Logs, DB Backup/Restore, Reboot, Factory Reset, File Management, Package Upgrade (expanded), APC (selected), AP, FTP-SFTP, Time, License, and Tech Support. The main content area is titled 'Package Upgrade > APC' and includes an 'Apply' button in the top right. Below the title is a 'Select Package File' section with a table showing the current version (1.5.9.R) and a dropdown menu for the package file (wec8500_1.5.9.R.bin). A red arrow points from a green 'Hit Apply' box to the 'Apply' button. Below the package name, a table lists details: Model: WEC8500, Version: 1.5.9, AddInfo: R, BuildTime: Mon Feb 17 13:22:22 2014, Builder: apcbuild, Directory: /home2/apcbuild/release/wec8500_1.5.9, PLD Version: R1.01.040, MD5Sum: b4728d2e56c84de75eccdceeadd6f951c. A red box highlights the 'COMPATIBILITY' (Compatible) and 'BACKUP CONFIGURATION' (not exist) rows. A red arrow points from a yellow box containing the text 'Conversely, it will also inform you if no backup configuration exist.' to the 'BACKUP CONFIGURATION' row. At the bottom, there is a 'Saving Control' section with two radio buttons: 'Save and Package Upgrade' (selected) and 'Package Upgrade Without Save'.

CURRENT VERSION	1.5.9.R
PACKAGE NAME	wec8500_1.5.9.R.bin
Model:	WEC8500
Version:	1.5.9
AddInfo:	R
BuildTime:	Mon Feb 17 13:22:22 2014
Builder:	apcbuild
Directory:	/home2/apcbuild/release/wec8500_1.5.9
PLD Version:	R1.01.040;
MD5Sum:	b4728d2e56c84de75eccdceeadd6f951c
COMPATIBILITY	Compatible
BACKUP CONFIGURATION ¹	not exist

Conversely, it will also inform you if no backup configuration exist.

YOU SHOULD ALWAYS UPGRADE THE APC BEFORE YOU
ATTEMPT TO UPGRADE THE ACCESS POINTS

5.4 AP Upgrade

Administration

AP Upgrade

Global Individual

Change

Global Settings to upgrade all AP's

Current Download : 0 Wait AP Count : 0 Total Entry : 5

AP NAME	AP GROUP	MODEL	IP ADDRESS	CAPWAP STATUS	ACTIVE VERSION	OTHER VERSION	CONFIG VERSION	SCOPE	FORCE UPGRADE	UPGRADE STATUS	FAIL REASON
npi_Lab_AP	npi_team	WEA302i	192.168.10.100	RUN	1.5.9.R	1.5.6.T		Global	-	Upgrade Success	Success
Eddie_Home	HomeGroup	WEA302i	192.168.0.114	RUN	1.5.9.R	1.4.12.R		Global	-	Upgrade Success	Success
AP_303i	303i_Group	WEA303i	192.168.10.102	RUN	1.5.9.R	1.5.6.T		Global	-	Upgrade Success	Success
Student4_AP1	WareHouseGroup	WEA302i	192.168.10.105	RUN	1.5.9.R	1.4.12.R	1.5.9.R	Individual	True	Upgrade Success	Success
Student4_AP2	WareHouseGroup	WEA302i	192.168.10.104	RUN	1.5.9.R	1.4.8.R		Global	-	None	Success

1

5.4 AP Upgrade

AP Upgrade Advanced

Upgrade > AP > AP Upgrade

Select the Scope of your upgrade

Individual List Apply

Predownload Upgrade & Reboot

Global

SCOPE ¹ Quick Upgrade Predownload Abort

TARGET AP ² Keeping individual setting

SELECT AP PACKAGE ³ 300 series (weafama) Current 400 series (weafamb) Current

Current Filter : None Change

Current Download : 0 Wait AP Count : 0 Total Entry : 1

AP NAME	AP GROUP	MODEL	IP ADDRESS	CAPWAP STATUS	ACTIVE VERSION	OTHER VERSION	CONFIG VERSION	SCOPE	FORCE UPGRADE	UPGRADE STATUS	FAIL REASON
AP_NPI	default	WEA302i	192.168.50.103	RUN	2.0.4.R	1.5.9.R	2.0.4.R	Individual	-	Upgrade Success	Success

1

5.4 AP Upgrade

AP Upgrade Advanced

Package Upgrade > AP > AP Upgrade

Individual List Apply

Predownload Upgrade & Reboot

Global

scope 1 Quick Upgrade Predownload Abort

After hitting Apply you will be able to watch the progress below

Current Filter : None Change

Current Download : 0 Wait AP Count : 0 Total Entry :

AP NAME	AP GROUP	MODEL	IP ADDRESS	CAPWAP STATUS	ACTIVE VERSION	OTHER VERSION	CONFIG VERSION	SCOPE	FORCE UPGRADE	UPGRADE STATUS	FAIL REASON
AP_NPI	default	WEA302i	192.168.50.103	RUN	2.0.4.R	1.5.9.R	2.0.4.R	Individual	-	Upgrade Success	Success

1

5.4 AP Upgrade

Package Upgrade > AP > AP Upgrade

The page at 192.168.100.11 says:
The selected package file is not suitable for the AP model.
OK

Individual List
Apply

Global

SCOPE ¹ Quick Upgrade Pre-download Abort

TARGET AP ² Keeping individual setting

300 series (weafama)

400 series (weafamb)

Family: weafama
Version: 1.5.9.R
Build Date: Tue Feb 18 19:17:45 KST 2014
Size: 36950144
CRC: efe4c348

Current Filter: None

Current Download : 0 Wait AP Count : 0 Total Entry : 5

AP NAME	AP GROUP	MODEL	IP ADDRESS	CAPWAP STATUS	ACTIVE VERSION	OTHER VERSION	CONFIG VERSION	SCOPE	FORCE UPGRADE	UPGRADE STATUS	FAIL REASON
npi_Lab_AP	npi_team	WEA302i	192.168.10.100	RUN	1.5.9.R	1.5.6.T		Global	-	Upgrade Success	Success
Eddie_Home	HomeGroup	WEA302i	192.168.0.114	RUN	1.5.9.R	1.4.12.R		Global	-	Upgrade Success	Success
AP_303i	303i_Group	WEA303i	192.168.10.102	RUN	1.5.9.R	1.5.6.T		Global	-	Upgrade Success	Success
Student4_AP1	WareHouseGroup	WEA302i	192.168.10.105	RUN	1.5.9.R	1.4.12.R	1.5.9.R	Individual	True	Upgrade Success	Success
Student4_AP2	WareHouseGroup	WEA302i	192.168.10.104	RUN	1.5.9.R	1.4.8.R		Global	-	None	Success

If you try and upgrade an AP with a package that is not intended for said AP, the system will alert you

Lab 15 -

Upgrading the APC and AP

1. Go to Administration → Package Upgrade → APC
2. Select the package
3. Select Save and Package upgrade
4. Select Restore Backup Configuration
5. Hit Apply
6. Verify the new version by clicking on Monitor
7. Go to Administration → Package Upgrade → AP
8. Select Global Settings
9. Select the scope as Quick Upgrade
10. Select the AP Package
11. Hit Apply
12. Verify new version by going back to Administration → Package Upgrade → AP

5.5 Default the APC

Check the Reset you would like to use

Configuration | Administration | Help

SNMP

HTTP-HTTPS

Telnet-SSH

Local Management Users

Logs

DB backup/restore

Reboot

Factory Reset

Factory Reset

Factory Reset Control

Reset all configurations Reset all configurations and delete user files

Foot Notes :

1. The system will reboot after applying this configuration.

Apply

Enter the password, then hit Apply

Wireless Enterprise Manager - Google Chrome

192.168.100.11/confirm_password.php?frm=form_dk

Password:

Apply

5.6 Disaster Recovery for APC

1 Upload the back to the /disk/etc/config folder

2 Press Upload

3 Choose File

4 npi_backup_wlan10292013.wec8500.config

5 Upload

In the event of disaster, the new APC must first be upgraded to the same version as that of the Backup database

File Management > APC-Local PC

Package Info Package Verify Download Upload

192.168.100.11/content/administration/upload.php?cate=administration&path=File Ma...
192.168.100.11/content/administration/upload.php?cate=administration&path=Fi

Choose File No file chosen

Upload

Open

Samsung_W... NPI_WLAN_SYSTEM

Name	Date modified	Type
npi_backup_wlan10292013.wec8500.config	10/9/2013 4:19 PM	Configura
npibackup_1082013.wec8500.config	10/29/2013 2:27 PM	XML Conf
npibackup_1082013.wec8500.config	10/8/2013 9:08 AM	XML Conf

File name: npi_backup_wlan10292013.wec8500.config All Files

Open Cancel

5.6 Disaster Recovery for APC

Samsung Wireless Enterprise Administration | Monitor | Configuration | Administration | Help

SNMP | HTTP-HTTPS | Telnet-SSH | Local Management Users | Logs | **DB backup/restore** | Package Upgrade | FTP-SFTP | Time

DB backup/restore

DB Backup

FILE NAME: npi_backup_wlan10292013

STATUS

DB Restore

FILE NAME

LOCAL MANAGEMENT USERS: Include Not include

STATUS

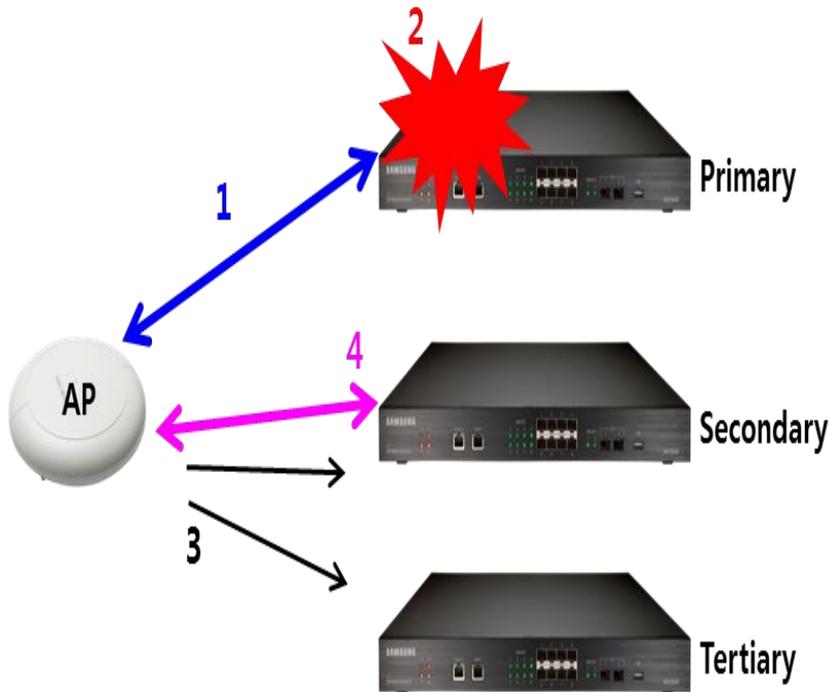
Apply

Apply

Using the dropdown, select the file name to be uploaded

Optional: Choose if you want the Users uploaded from the backup

5.7 APC Redundancy



1. AP setting & CAPWAP joining

- Setting Ethernet IP address & CAPWAP IP of AP
- AP gets all APC's IP Lists by provisioning

2. Primary APC failure

3. AP discovers APCs except Primary

- Once AP detects the failure of Primary APC, AP sends Discovery Request to whole APCs except Primary.

4. AP joins APC

- If AP receives Response from Secondary, AP tries immediately CAPWAP join to Secondary.

If not, AP collect Response from all APCs during Discovery Interval and AP joins CAPWAP to APC of the highest priority.

5.7 APC Redundancy

Prerequisites

1. To configure redundancy, candidate APCs have to be added in APC List.

Controller > APC Lists > Add

Back

Apply

APC NAME

APC-2

MAC ADDRESS

f4 : d9 : fb : 40 : c8 : fc

Add the APCs in the APC list to redundancy

1. Add APCs to Redundancy

Controller > Redundancy > Add

Back

Apply

APC NAME

APC-2

MAC ADDRESS

f4:d9:fb:40:c8:fc

IP ADDRESS

10 . 10 . 10 . 12

PORT

5246

PUBLIC IP ADDRESS

0 . 0 . 0 . 0

PUBLIC PORT

5246

5.7 APC Redundancy

Configure redundant APC servers per AP

1. Set DISCOVERY TYPE of AP as APC Referral
2. Set PRIMARY CONTROLLER NAME or SECONDARY CONTROLLER NAME

Access Points > General

Back Apply

AP PROFILE NAME	ap_1
AP NAME	<input type="text" value="ap_1"/>
AP GROUP NAME	ap_group
AP MODE ¹	General AP <input type="button" value="v"/>
MAC ADDRESS	11:11:11:11:11:11
MAP LOCATION	
LOCATION	<input type="text"/>
IP ADDRESS	0.0.0.0
IP ADDRESS POLICY	<input type="radio"/> DHCP <input checked="" type="radio"/> AP Priority (AP Followed) <input type="radio"/> Static IP
IP ADDRESS	<input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/>
NETMASK	<input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/>
GATEWAY	<input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/>
DISCOVERY TYPE ²	APC Referral <input type="button" value="v"/>
ADMIN STATUS	Up
OPER STATUS	Down
PRIMARY CONTROLLER NAME ³	APC-1 (10.10.10.11) <input type="button" value="v"/>
SECONDARY CONTROLLER NAME ³	APC-2 (10.10.10.12) <input type="button" value="v"/>
TERTIARY CONTROLLER NAME ³	----- <input type="button" value="v"/>

[NOTICE]

All APC's must have the same setup, a mirror image of one another.

The interfaces will have different IP's, but should belong to the same vlan.

Naming should match for groups, wlans etc.

Security should be setup the same on both APC's

5.7 APC Redundancy

Configure redundant APC servers per AP Group

1. Enable OVERWRITE AP CONFIG for Redundancy configuration. It makes APC copy AP group profile of redundancy to APs in the AP group.
2. Set DISCOVERY TYPE of AP Group as APC Referral
3. Set PRIMARY CONTROLLER NAME or SECONDARY CONTROLLER NAME

AP Groups > General

Back Apply

AP GROUP NAME	ap_group <input type="checkbox"/> Remote AP Group
AP GROUP DESCRIPTION	0
AP COUNT	1
WLAN COUNT	0
<input type="checkbox"/> OVERWRITE AP CONFIG	
AP MODE ¹	General AP ▼
<input type="checkbox"/> OVERWRITE AP CONFIG	
LOCATION	0
<input type="checkbox"/> OVERWRITE AP CONFIG	
IP MODE	<input type="radio"/> DHCP <input checked="" type="radio"/> AP Priority (AP Followed)
<input type="checkbox"/> OVERWRITE AP CONFIG	
ADMIN STATUS	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
<input checked="" type="checkbox"/> OVERWRITE AP CONFIG	
DISCOVERY TYPE ²	APC Referral ▼
PRIMARY CONTROLLER NAME	APC-1 (10.10.10.11) ▼
SECONDARY CONTROLLER NAME	APC-2 (10.10.10.12) ▼
TERTIARY CONTROLLER NAME	----- ▼

5.7 APC Redundancy

Samsung Wireless Enterprise | Monitor | Configuration | Administration | Help

Controller > Redundancy

Here is where you setup the Fall Back Feature

Fall Back

FALL BACK Enable Disable

TYPE Now At Time

TIME 23 : 00 ~ 23 : 30

INTERVAL (SEC) 120

Apply

Fallback Parameter	Description
TYPE	Select fallback type(now/at-time) - now: Initiates fallback as soon as failover occurs. - at-time: Initiates fallback only at the set time.
TIME	Sets operating time when the TYPE is at-time - hh:mm-hh:mm (start hour:start minute-end hour:end minute)

Lab 15 -

Default the APC

1. Go to Administration → Factory Reset
2. Check “Reset all configurations and delete user files”
3. Hit Apply
4. Enter Password and press OK

End of Day 1