

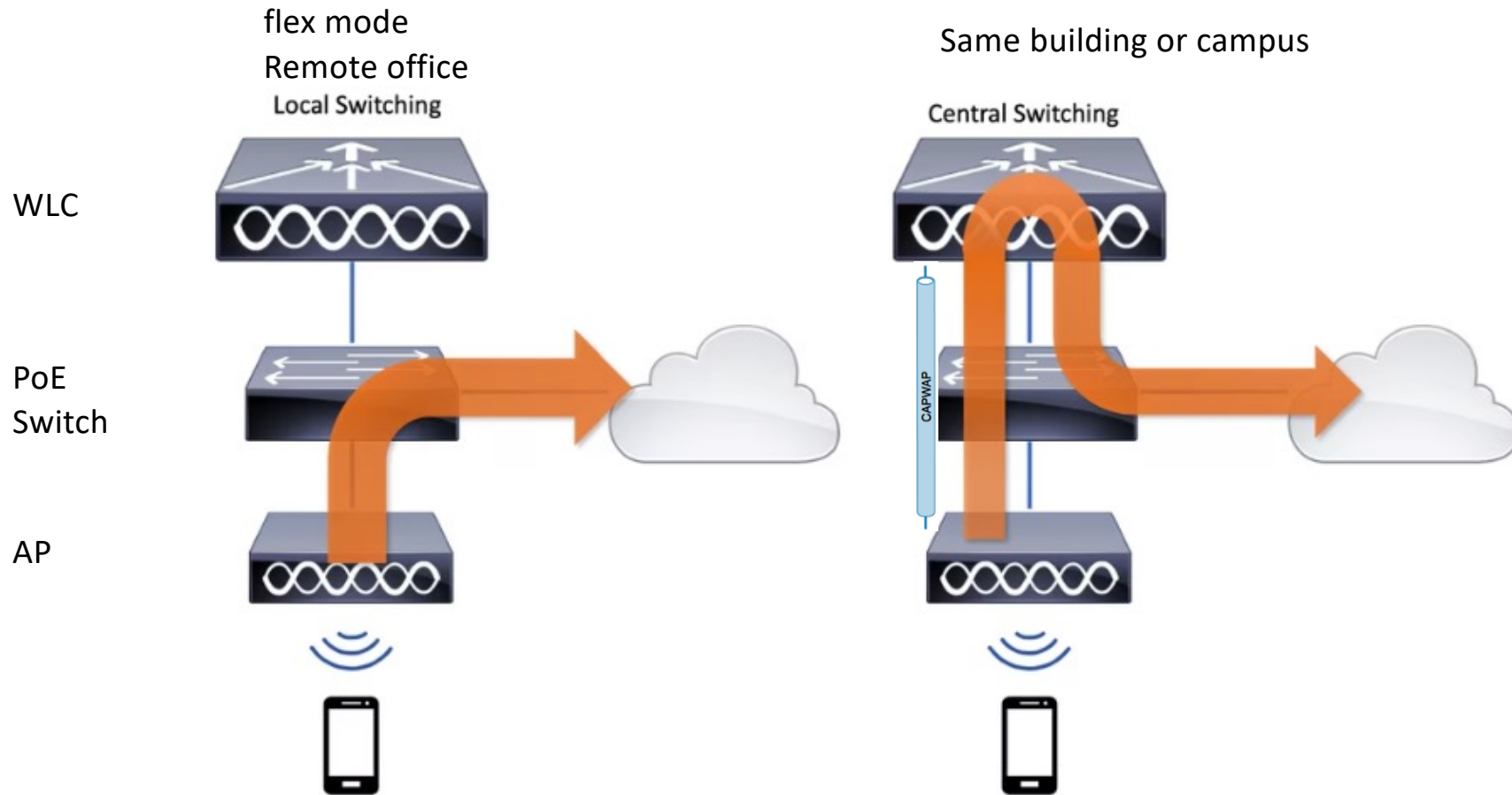
Cisco WLC 9800
#flex mode
#17.9.4a

2024年 2月

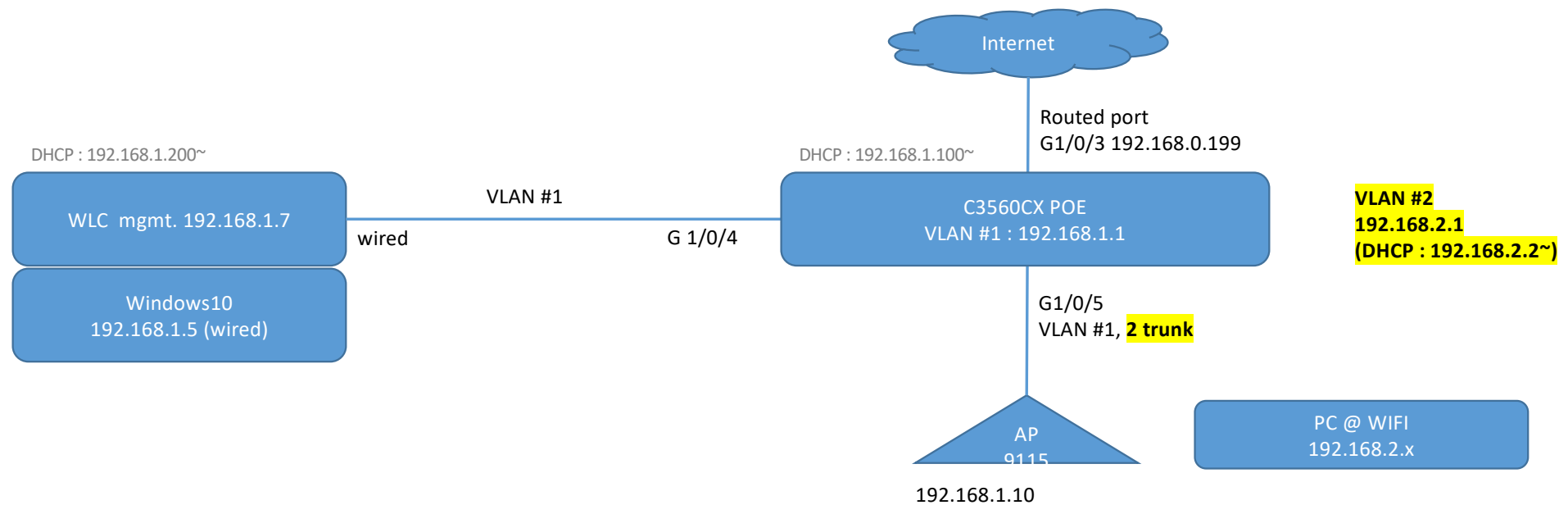
Reference

- English
 - <https://www.cisco.com/c/en/us/support/docs/wireless/catalyst-9800-series-wireless-controllers/213945-understand-flexconnect-on-9800-wireless.html>
- Korean
 - https://www.cisco.com/c/ko_kr/support/docs/wireless/catalyst-9800-series-wireless-controllers/213945-understand-flexconnect-on-9800-wireless.html

Flex mode or Central Mode



Topology #flex mode



VLAN #1 : WLC, AP
VLAN #2 : client

Catalyst Switch Config

```
ip dhcp pool vlan2
  network 192.168.2.0 255.255.255.0
  default-router 192.168.2.1
  dns-server 8.8.8.8
!
interface GigabitEthernet1/0/4
description ##### WLC
switchport mode access
spanning-tree portfast edge
!
interface GigabitEthernet1/0/5
description ##### AP 9115
switchport mode trunk
!
interface Vlan1
ip address 192.168.1.1 255.255.255.0
!
interface Vlan2
ip address 192.168.2.1 255.255.255.0
```

WLC Install

C9800 trustpoint issue #reboot

<config after set up the mgmt. IP address of WLC>

```
wireless config vwlc-ssc key-size 2048 signature-algo sha256 password 0 <pwd>
```

```
C9800#show wireless management trustpoint
```

Trustpoint Name : ewlc-default-tp

Certificate Info : Available

Certificate Type : SSC

Certificate Hash : c4e57f728e523f64ade21597ab8ee472e7a7a8b7

Private key Info : Available

FIPS suitability : Not Applicable

```
[*10/21/2019 17:30:17.7700] CAPWAP State: Discovery
[*10/21/2019 17:30:17.7730] Discovery Request sent to 192.168.30.200, discovery type STATIC_CONFIG(1)
[*10/21/2019 17:30:17.7770] Discovery Request sent to 192.168.30.200, discovery type STATIC_CONFIG(1)
[*10/21/2019 17:30:17.7790] Discovery Request sent to 255.255.255.255, discovery type UNKNOWN(0)
[*10/21/2019 17:30:17.7790] Discovery Response from 192.168.30.200
[*10/21/2019 17:30:17.7800] Discovery Response from 192.168.30.200
• [*10/21/2019 17:30:17.7810] Discovery Response from 192.168.30.200
• [*10/21/2019 17:30:26.0000]
• [*10/21/2019 17:30:26.0000] CAPWAP State: DTLS Setup
• [*10/21/2019 17:31:23.0150]
• [*10/21/2019 17:31:23.0150] CAPWAP State: DTLS Teardown
• [*10/21/2019 17:31:23.0260] Aborting image download(0x0): Dtls cleanup,
• [*10/21/2019 17:31:23.0850] do ABORT, part1 is active part
• [*10/21/2019 17:31:23.1000] upgrade.sh: Cleanup tmp files ...
• [*10/21/2019 17:31:27.7670] No more AP manager addresses remain..
• [*10/21/2019 17:31:27.7670] No valid AP manager found for controller 'c9800' (ip: 192.168.30.200)
```

WLC Config

Access Point

Configuration >
Tags & Profiles >
Tags

Policy tag

SSID

Policy Profile

SSIDs

Configuration >
Wireless >
WLANs

- Security
- Authentication Methods (RADIUS servers)
- Accounting Methods (RADIUS servers)
- Advanced settings

Policy Profile

Configuration >
Tags & Profiles >
Policy

- ✓ Access Policies (HTTP/DHCP Profiling, VLAN, IPv4/6 ACLs)
- QoS and AVC
- Anchors
- WLAN Timeouts
- AAA override / NAC State
- FlexConnect settings
- Local/Central Switching
- AAA Policy (NAS ID election)
- Local Subscriber Policy Map

Site Tag

Local Site

- Enabled = APs set as local mode, only AP Join Profile Available
- Disabled = AP set as FlexConnect Mode, Flex Profile is enabled

AP Join Profile

Configuration >
Tags & Profiles >
AP Join

- LED State
- TCP MSS
- Timer Statistics
- CAPWAP Timers
- Backup Controller Configuration
- User / Dot1x Credentials
- Telnet/SSH
- Rogue Detection
- CDP

✓ Flex Profile

Configuration >
Tags & Profiles >
Flex

- HTTP Proxy
- ARP Caching
- Office Extended AP
- Local Authentication
- AAA servers
- Policy ACL (General or for CWA)
- ✓ VLAN / ACL Mapping
- Efficient Image Upgrade

RF Tag

RF Profiles

Configuration >
Tags & Profiles >
RF

- 2.4GHz
- 5GHz

For Tag assignment to APs you can:

Configuration >
Wireless >
Wireless Setup

Configuration >
Tags & Profile >
Tags >
AP

Or directly to the AP:
Configuration >
Wireless >
Access Points >
General

Step

• — DHCP

- **Flex** mode
 - WLAN (SSID)
 - Policy
 - Tag (policy)
 - **Flex Profile**
 - **Tag (site)**
- Tag AP apply

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RRM

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Multi BSSID

Policy

Power Profile

Remote LAN

RF/Radio

Tags

WLANS

Wireless

Access Points

Advanced

Air Time Fairness

DHCP

Administration ▾ Pools

Create DHCP Pool ✕

☐ Basic ☒ Advanced

DHCP Pool Name*

(1-23)

IP Type

☐

VRF

☐

Network*

Subnet Mask*

Starting ip*

Ending ip*

Create DHCP Pool ✕☐ Basic ☒ Advanced

Default Gateway

DNS Server(s)

IP Address	Remove
192.168.1.1	<input type="button" value="✕"/>

IP Address	Remove
8.8.8.8	<input type="button" value="✕"/>

WLAN (SSID)

Configuration ▾ > Tags & Profiles ▾ > WLANs

Add WLAN ✕

GeneralSecurityAdvanced

Profile Name*

SSID*

WLAN ID*

Status

ENABLED

Broadcast SSID

ENABLED

Radio Policy ⓘ

Show slot configuration

6 GHz

Status

DISABLED

5 GHz

Status

ENABLED

2.4 GHz

Status

ENABLED

802.11b/g Policy

802.11b/g ▾

Add WLAN

GeneralSecurityAdvanced

Layer2Layer3AAA

☐ WPA + WPA2

☐ WPA2 + WPA3

☐ WPA3

☐ Static WEP

☒ None

MAC Filtering

OWE Transition Mode

Lobby Admin Access

Policy

Configuration > Tags & Profiles > Policy

Edit Policy Profile

⚠ Disabling a Policy or configuring it in 'Enabled' state, will result in loss of connectivity for clients associated with this Policy profile.

General Access Policies QOS and AVC Mobility Advanced

Name*	Oyame_flex
Description	Enter Description
Status	ENABLED <input checked="" type="checkbox"/>
Passive Client	<input type="checkbox"/> DISABLED
IP MAC Binding	ENABLED <input checked="" type="checkbox"/>
Encrypted Traffic Analytics	<input type="checkbox"/> DISABLED

WLAN Switching Policy

Central Switching	<input type="checkbox"/> DISABLED
Central Authentication	ENABLED <input checked="" type="checkbox"/>
Central DHCP	<input type="checkbox"/> DISABLED
Flex NAT/PAT	<input type="checkbox"/> DISABLED

Edit Policy Profile

⚠ Disabling a Policy or configuring it in 'Enabled' state, will result in loss of c

General Access Policies QOS and AVC Mobility Advanced

RADIUS Profiling	<input type="checkbox"/>
HTTP TLV Caching	<input type="checkbox"/>
DHCP TLV Caching	<input type="checkbox"/>

WLAN Local Profiling

Global State of Device Classification	Disabled ⓘ
Local Subscriber Policy Name	Search or Select ⓘ

VLAN

VLAN/VLAN Group	2 ⓘ
Multicast VLAN	Enter Multicast VLAN

Policy Tag – WLAN profile mapping

Configuration > Tags & Profiles > Tags

Policy Site RF AP

Add Policy Tag

Name*

Oyame_flex

Description

Enter Description

WLAN-POLICY Maps: 0

+ Add

× Delete

WLAN Profile



Policy Profile



0

10

No items to display

Map WLAN and Policy

WLAN Profile*

Oyame_flex



Policy Profile*

Oyame_flex



Flex Profile

Configuration ▾ > Tags & Profiles ▾ > Flex

Add Flex Profile

GeneralLocal AuthenticationPolicy ACLVLANDNS Layer Security

Name*Oyame_flex

DescriptionEnter Description

Native VLAN ID1

HTTP Proxy Port0

HTTP-Proxy IP Address0.0.0.0

CTS Policy

Inline Tagging☐

SGACL Enforcement☐

CTS Profile Namedefault-sxp-profile ▾

FallbFlexARPEfficiOfficJoinIP Ov mDN PMK

Edit Flex Profile

GeneralLocal AuthenticationPolicy ACLVLANDNS Layer Security

+ Add- Delete

	VLAN Name ▾	ID ▾	Ingress ACL ▾	Egress ACL ▾
<input type="checkbox"/>	2	2		

1

10 ▾

1 - 1 of 1 items

VLAN Name*2 ▾

VLAN Id*2

ACL☒ Unidirectional☐ Bidirectional

Ingress ACLSelect ACL ▾

Egress ACLSelect ACL ▾

✓ Save




↺ Cancel

Site Tag





[Configuration](#) > [Tags & Profiles](#) > [Tags](#)

[Policy](#) **[Site](#)** [RF](#) [AP](#)

Add Site Tag

Name*	<input type="text" value="Oyame_flex"/>
Description	<input type="text" value="Enter Description"/>
AP Join Profile	<input type="text" value="default-ap-profile"/> ▼ 
Fabric Control Plane Name	<input type="text"/> ▼ 
Enable Local Site	<input checked="" type="checkbox"/>
Load* 	<input type="text" value="0"/>

Add Site Tag

Name*	<input type="text" value="Oyame_flex"/>
Description	<input type="text" value="Enter Description"/>
AP Join Profile	<input type="text" value="default-ap-profile"/> ▼ 
Flex Profile	<input type="text" value="Oyame_flex"/> ▼ 
Fabric Control Plane Name	<input type="text"/> ▼ 
Enable Local Site	<input type="checkbox"/>
Load* 	<input type="text" value="0"/>

AP config

AP config

- Use the factory default AP
 - Or push reset the button for 30 sec when booting
- ID / password : Cisco
- Use this command
 - `capwap ap primary-base wlc 192.168.1.7`
 - `capwap ap ip 192.168.1.10 255.255.255.0 192.168.1.1`

BootImage: MASTER

Button is pressed. Configuration reset activated..
Keep the button pressed for > 20 seconds for full reset

Wait for the button to be released
Button pressed for 20 seconds

AP tag change #AP rebooting

[Configuration](#) > [Wireless](#) > [Access Points](#)

Edit AP

General

[Interfaces](#)

[High Availability](#)

[Inventory](#)

[ICap](#)

[Advanced](#)

[Support Bundle](#)

General

AP Name*

APC4F7.D5E8.BF30

Location*

default location

Base Radio MAC

c4f7.d5e9.5560

Ethernet MAC

c4f7.d5e8.bf30

Admin Status

ENABLED

AP Mode

Local

Operation Status

Registered

Tags

⚠ Changing Tags will cause the AP to momentarily lose association with the Controller. Writing Tag Config to AP is not allowed while changing Tags.

Policy

0yame_flex

Site

0yame_flex

RF

default-rf-tag

Write Tag Config to AP



Monitoring

Monitoring

Search Menu Items


Dashboard


Monitoring >

Configuration


Dashboard


Wireless LANs

 0

 0

Access Points

 1

 0

Clients

Active 1

Excluded 0



Monitoring > Wireless > Clients

Clients Sleeping Clients Excluded Clients

< Delete

Total Client(s) in the Network: 2

Number of Client(s) selected: 0

<input type="checkbox"/>	Client MAC Address		IPv4 Address	IPv6 Address	AP Name	SSID	WLAN ID	State
<input type="checkbox"/>	7ca1.ae94.d754		192.168.2.101	fe80::142e:a54c:fd82:b1a1	APC4F7.D5E8.BF30	yame	1	Run
<input type="checkbox"/>	8c85.9072.992e		192.168.2.100	fe80::1cc8:1595:c99d:1763	APC4F7.D5E8.BF30	yame	1	Run

< < 1 > >

10 items per page