

# 配置Cisco Aironet 1142和使用CUCM註冊7925 Wi-Fi電話的步驟

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## 簡介

本檔案介紹如何將思科無線電話註冊到Cisco Unified Communication Manager(CUCM)伺服器。本文檔詳細介紹了CUCM、接入點和無線電話的配置。

## 必要條件

### 需求

思科建議您瞭解CUCM和思科接入點。

### 採用元件

本文中的資訊係根據以下軟體和硬體版本：

- CUCM 9.1.2.15126-1版。
- Cisco Aironet 1140系列存取點15.3(3)JBB2版
- Cisco 7925電話，版本1.4(7)

本文中的資訊是根據特定實驗室環境內的裝置所建立。文中使用到的所有裝置皆從已清除 ( 預設 ) 的組態來啟動。如果您的網路正在作用，請確保您已瞭解任何指令可能造成的影響。

## 設定

使用本節中介紹的資訊在CUCM伺服器上註冊思科無線電話。

### 存取 點配置

#### 如何存取存取存取點(AP)

在L3交換機上配置DHCP，或確保Aironet所連線的交換機可以訪問DHCP伺服器。

```
ip dhcp excluded-address 10.106.121.1
ip dhcp excluded-address 10.106.121.1 10.106.121.20
ip dhcp excluded-address 10.106.121.1 10.106.121.30
ip dhcp excluded-address 10.106.122.1 10.106.122.130
!
ip dhcp pool VLAN487
  network 10.106.122.128 255.255.255.192
  default-router 10.106.122.129
  option 150 ip 10.106.122.180
  lease 0 0 5
!
```

將Aironet連線到Cisco交換機的switchport後，您可以在交換機上使用show cdp neighbors命令來查詢Aironet的詳細資訊。

```
Ramebala_vlan487#sh cdp neighbors
Capability Codes: R - Router, T - Trans Bridge, B - Source Route Bridge
                  S - Switch, H - Host, I - IGMP, r - Repeater, P - Phone,
                  D - Remote, C - CVTA, M - Two-port Mac Relay

Device ID         Local Intrfce    Holdtme    Capability    Platform    Port ID
SEPDC7B94F8C4BB  Fas 0/7         140        H P M        IP Phone    Port 1
SEPD0C282D07393  Fas 0/17        131        H P M        IP Phone    Port 1
SEP002497AB40D8  Fas 0/11        147        H P M        IP Phone    Port 1
SEP2893FE1262C4  Fas 0/14        174        H P M        IP Phone    Port 1
SEP503DE57D9995  Fas 0/19        169        H P M        IP Phone    Port 1
SEPB41489A2F295  Fas 0/13        127        H P M        IP Phone    Port 1
BGL14.M.18-LAP1142-1.LAB.com
                  Fas 0/6         157        T B I        AIR-AP114   Gig 0
UC-LAB-CUBE-SWITCH-FD2
                  Fas 0/24        153        R S I        WS-C3750E   Gig 2/0/5
```

要查詢Aironet的IP地址 ( 將通過DHCP獲取 )，請在交換機上使用命令show cdp neighbors fa 0/6 detail。

```

Ramebala_vlan487#show cdp neighbors fa 0/6 detail
-----
Device ID: BGL14.M.18-LAP1142-1.LAB.com
Entry address(es):
  IP address: 10.106.122.152
  IPv6 address: FE80::CEEF:48FF:FEFA:4426 (link-local)
Platform: cisco AIR-AP1142N-A-K9, Capabilities: Trans-Bridge Source-Route-Bridge IGMP
Interface: FastEthernet0/6, Port ID (outgoing port): GigabitEthernet0
Holdtime : 166 sec

Version :
Cisco IOS Software, C1140 Software (C1140-K9W7-M), Version 15.3(3)JBB2, RELEASE SOFTWARE (fc1)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2015 by Cisco Systems, Inc.
Compiled Thu 27-Aug-15 19:02 by prod_rel_team

advertisement version: 2
Duplex: full
Power drawn: 15.400 Watts
Power request id: 44652, Power management id: 2
Power request levels are:15400 14500 0 0 0
Management address(es):
  IP address: 10.106.122.152

```

Aironet的預設使用者名稱和密碼為Cisco和Cisco。

您可以使用Aironet的圖形使用者介面(GUI)訪問或Aironet的命令列介面(CLI)訪問來執行配置更改。在本檔案中，使用了Aironet的GUI訪問。

The screenshot displays the Cisco Aironet 1140 Series Access Point GUI. The top navigation bar includes links for HOME, NETWORK, ASSOCIATION, WIRELESS, SECURITY, SERVICES, MANAGEMENT, SOFTWARE, and EVENT LOG. The main content area shows the device's hostname as BGL14.M.18-LAP1142-1 and its uptime as 11 hours, 58 minutes. A 'Summary Status' section is expanded to show 'Association' (Clients: 0, Infrastructure clients: 0) and 'Network Identity' (IP Address: 10.106.122.152, IPv6 Address: FE80::CEEF:48FF:FEFA:4426, MAC Address: ccef48fa.4426). The 'Network Interfaces' section is also expanded, showing a table of interfaces:

Interface	MAC Address	Transmission Rate
GigabitEthernet	ccef48fa.4426	100Mbps
Radio0-802.11N2.4GHz	2c3f.387f.4810	Mcs Index 15
Radio1-802.11N5GHz	2c3f.3871.9c00	Mcs Index 15

## 啟用無線電介面

導覽至NETWORK功能表，然後按一下每個單選介面，然後在SETTINGS索引標籤的Enable單選按鈕下選擇Enable單選按鈕，如下圖所示。啟用所有無線電介面。

The screenshot shows the Cisco configuration interface for the **RADIO0-802.11N2.4GHZ** interface. The **SETTINGS** tab is active. The **Hostname** is **BGL14.M.18-LAP1142-1**. The **Network Interfaces: Radio0-802.11N2.4GHZ Settings** section includes:

- Operating Mode:** Mixed
- Enable Radio:**  Enable  Disable
- Current Status (Software/Hardware):** Disabled ↓  Down ↓
- Role in Radio Network:**
  - Access Point
  - Access Point (Fallback to Radio Shutdown)
  - Access Point (Fallback to Repeater)
  - Repeater
  - Root Bridge

## 新增新VLAN

按一下**Define VLANs**後，導航到**SECURITY**選單，然後選擇**SSID Manager**，在按一下**APPLY**按鈕後，您將獲得一個新增VLAN的選項。

The screenshot shows the Cisco configuration interface for **Security: Global SSID Manager**. The **SECURITY** menu is active. The **Hostname** is **ap**. The **SSID Properties** section includes:

- Current SSID List:** An empty list box.
- SSID:**
- VLAN:**  Define VLANs
- Band-Select:**  Band Select
- Universal Admin Mode:**  Universal Admin Mode
- Interface:**  Radio0-802.11N2.4GHz  Radio1-802.11N5GHz
- Network ID:**  (0-4096)

如圖所示，VLAN 487已新增並檢查兩個無線電。

如果此VLAN是本地VLAN，則可以選中本地VLAN框。

Services: VLAN

Global VLAN Properties

Current Native VLAN: None

Assigned VLANs

Current VLAN List

< NEW >

Delete

Create VLAN

VLAN ID: 487 (1-4094)

VLAN Name (optional):

Native VLAN

Enable Public Secure Packet Forwarding

Radio0-802.11N<sup>2.4GHz</sup>

Radio1-802.11N<sup>5GHz</sup>

Management VLAN (if non-native)

Define SSIDs

Apply

### 建立新SSID並關聯VLAN

導航到SECURITY選單，然後選擇SSID Manager。

在Current SSID List下選擇<NEW>，並給出SSID值。

選中兩個無線電介面的覈取方塊。

CISCO

HOME NETWORK ASSOCIATION WIRELESS SECURITY SERVICES MANAGEMENT SOFTWARE EVENT LOG

Save

Security

Admin Access

Encryption Manager

SSID Manager

Dot11u Manager

Server Manager

AP Authentication

Intrusion Detection

Local RADIUS Server

Advance Security

Hostname BGL14.M.18-LAP1142-1

BGL14.M.18-LAP1142-1

Security: Global SSID Manager

SSID Properties

Current SSID List

< NEW >

Delete

Network ID: (0-4096)

SSID: voicelab

VLAN: < NONE > Define VLANs

Backup 1:

Backup 2:

Backup 3:

Band-Select:  Band Select

Universal Admin Mode:  Universal Admin Mode

Interface:  Radio0-802.11N<sup>2.4GHz</sup>  Radio1-802.11N<sup>5GHz</sup>

按一下Apply按鈕。

**Multiple BSSID Beacon Settings**

**Multiple BSSID Beacon**

Set SSID as Guest Mode

Set DataBeacon Rate (DTIM): **DISABLED** (1-100)

**Apply** **Cancel**

---

**Guest Mode/Infrastructure SSID Settings**

**Radio0-802.11N<sup>2.4GHz</sup>:**

Set Beacon Mode:  Single BSSID    Set Single Guest Mode SSID: **< NONE >**  Multiple BSSID

Set Infrastructure SSID: **< NONE >**  Force Infrastructure Devices to associate only to this SSID

**Radio1-802.11N<sup>5GHz</sup>:**

Set Beacon Mode:  Single BSSID    Set Single Guest Mode SSID: **< NONE >**  Multiple BSSID

Set Infrastructure SSID: **< NONE >**  Force Infrastructure Devices to associate only to this SSID

**Apply** **Cancel**

**附註：**如果從GUI啟用無線電介面後無線電介面沒有啟動，請登入到CLI並在無線電介面 (Dot11Radio)下執行**no shutdown**命令。

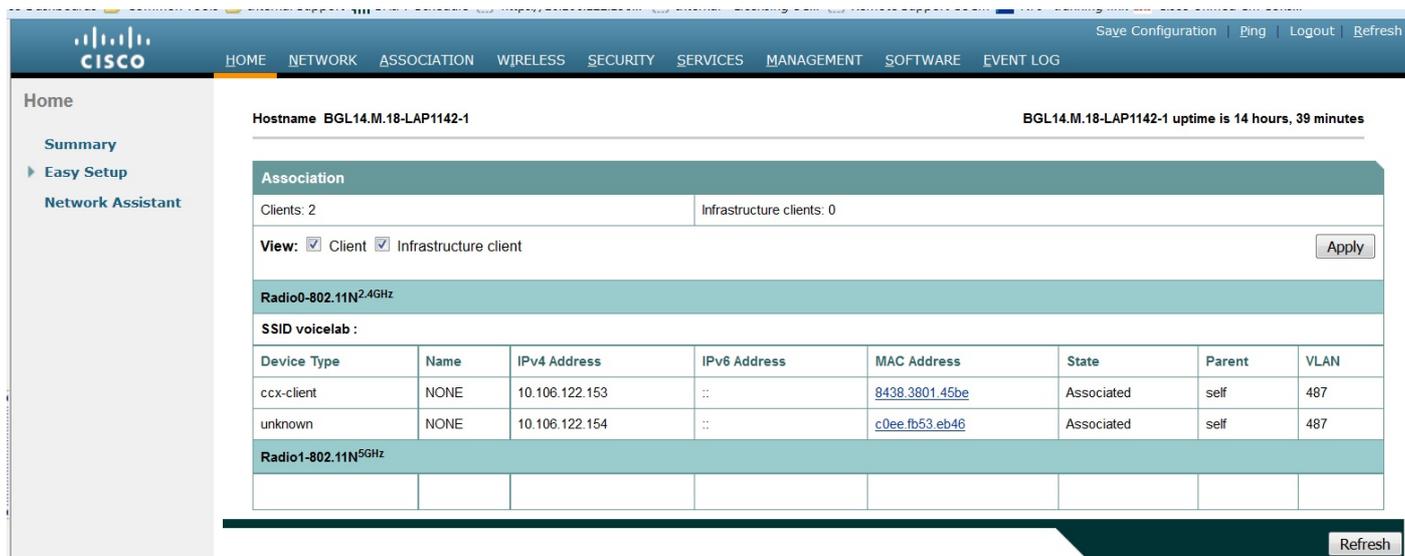
## 如何使SSID對客戶端可見

要檢視客戶端上的SSID，您必須在set Single Guest Mode SSID下為所有無線電選擇SSID，如下圖所示。

The screenshot shows the Cisco Security configuration interface. The left sidebar lists various security features, with 'Security' selected. The main content area displays the 'Guest Mode/Infrastructure SSID Settings' for two radio interfaces: Radio0-802.11N<sup>2.4GHz</sup> and Radio1-802.11N<sup>5GHz</sup>. For both radios, the 'Set Beacon Mode' is set to 'Single BSSID'. The 'Set Single Guest Mode SSID' dropdown menu is highlighted in yellow and set to 'voicelab'. The 'Set Infrastructure SSID' is set to '< NONE >' and the checkbox for 'Force Infrastructure Devices to associate only to this SSID' is unchecked. The 'Set DataBeacon Rate (DTIM)' is set to 'DISABLED (1-100)'. The page includes 'Apply' and 'Cancel' buttons at the bottom of each section and a 'Save Configuration' button in the top right corner.

## 如何驗證連線的使用者端

客戶端連線到接入點後，您將在HOME選單上看到客戶端詳細資訊。



The screenshot shows the Cisco configuration interface for a wireless network. The top navigation bar includes links for HOME, NETWORK, ASSOCIATION, WIRELESS, SECURITY, SERVICES, MANAGEMENT, SOFTWARE, and EVENT LOG. The main content area displays the hostname BGL14.M.18-LAP1142-1 and its uptime. Under the 'Association' section, it shows 2 clients and 0 infrastructure clients. A table lists the associated clients:

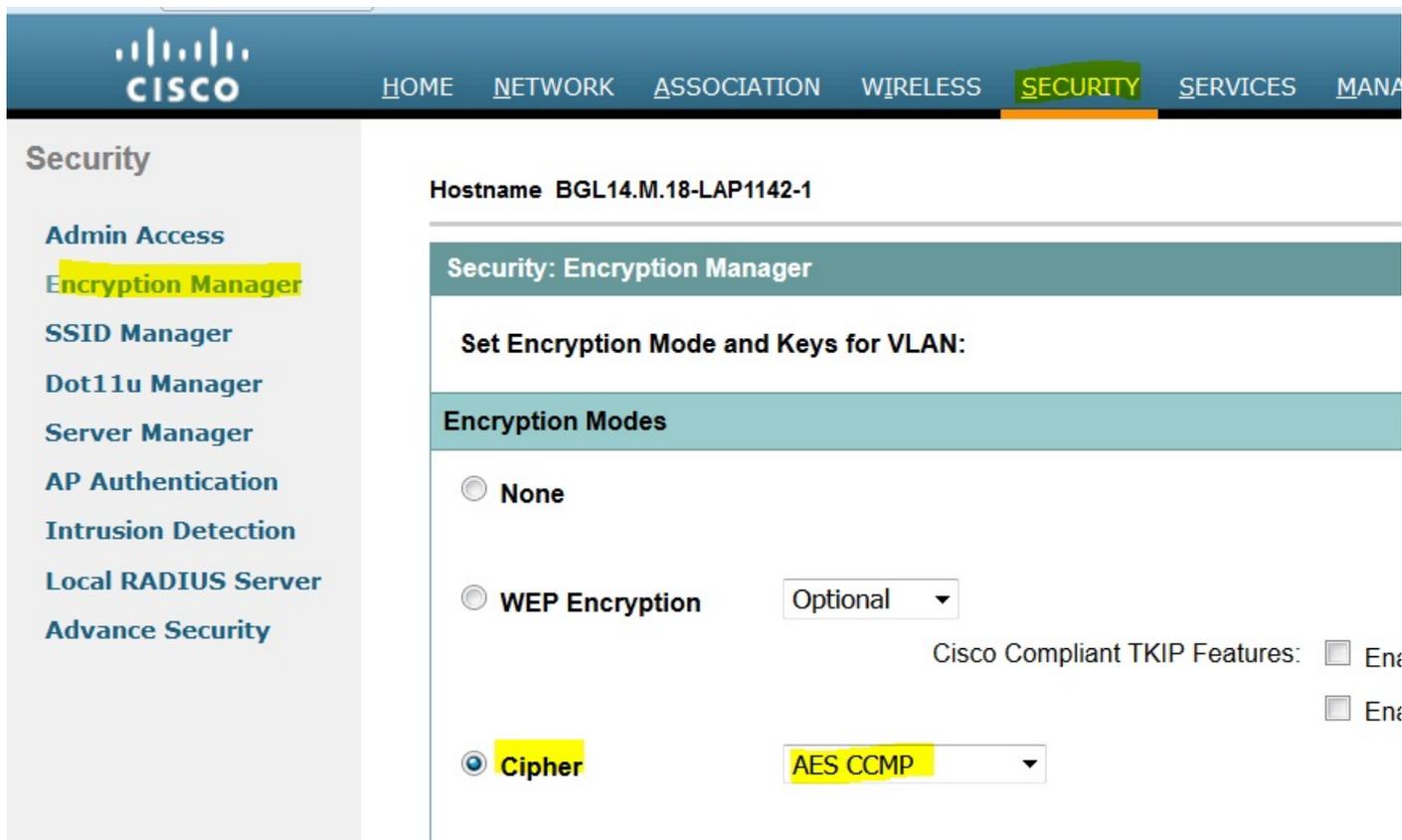
Device Type	Name	IPv4 Address	IPv6 Address	MAC Address	State	Parent	VLAN
ccx-client	NONE	10.106.122.153	::	8438.3801.45be	Associated	self	487
unknown	NONE	10.106.122.154	::	c0ee.fb53.eb46	Associated	self	487

可選 — 如何將密碼設定為SSID

導覽至SECURITY索引標籤，然後選擇Encryption Manager。

在加密模式中，選擇Cipher，然後選擇AES CCMP。

按一下「APPLY」。



The screenshot shows the Cisco configuration interface for the Security: Encryption Manager. The top navigation bar includes links for HOME, NETWORK, ASSOCIATION, WIRELESS, SECURITY, SERVICES, and MANA. The main content area displays the hostname BGL14.M.18-LAP1142-1. Under the 'Security: Encryption Manager' section, it shows the 'Set Encryption Mode and Keys for VLAN:' configuration. The 'Encryption Modes' section is visible, with the following options:

- None
- WEP Encryption
- Cipher

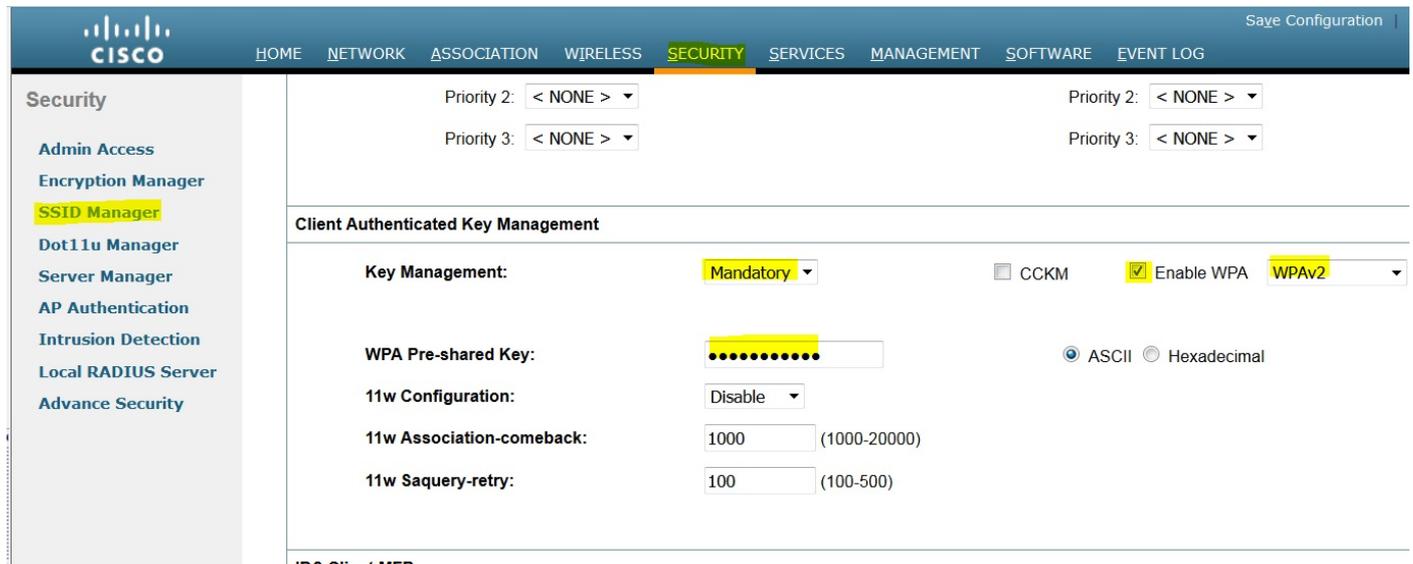
Below the 'Encryption Modes' section, there are checkboxes for 'Cisco Compliant TKIP Features: Enc' and 'Enc'.

然後在SECURITY選單下選擇SSID Manager

將Key Management設定為Mandatory，並選中Enable WPA覈取方塊，然後選擇WPAv2。

在WPA預共用金鑰下提供SSID的密碼。

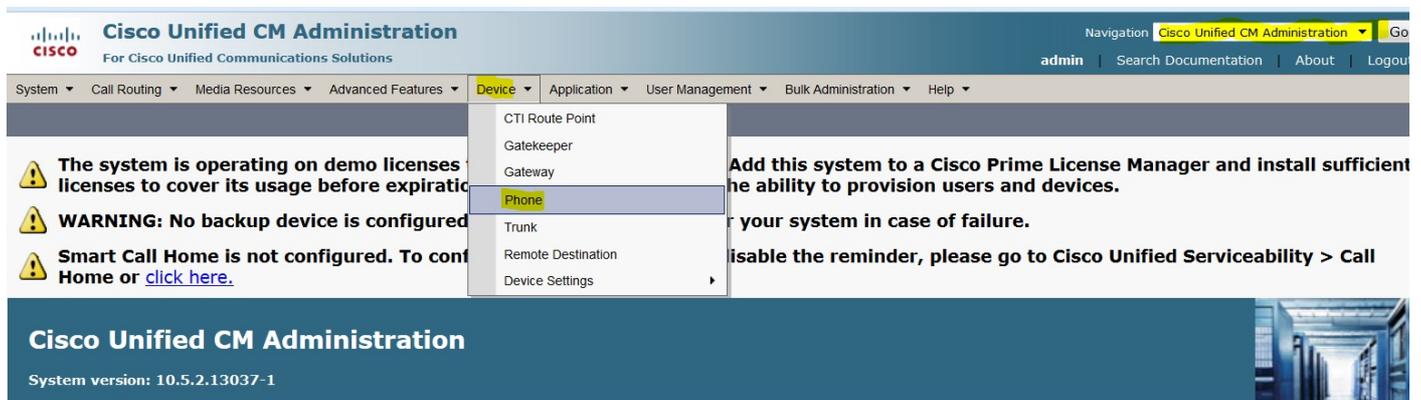
在此之後，按一下APPLY按鈕。



## CUCM配置

如何將7925電話新增到CUCM伺服器

登入到CUCM管理GUI並導航到Device > Phone



按一下Add New按鈕。

The screenshot shows the Cisco Unified CM Administration interface. At the top, there is a navigation menu with items: System, Call Routing, Media Resources, Advanced Features, Device, Application, and User Management. Below the navigation is a header for 'Find and List Phones'. A blue plus icon is followed by the text 'Add New'. Underneath is a section titled 'Phone' containing search filters. The 'Find Phone where' dropdown is set to 'Device Name', and the 'begins with' dropdown is empty. A 'Find' button is to the right. Below the search filters is a dropdown menu with the text 'Select item or enter search text'. At the bottom of the search section, there is a message: 'No active query. Please enter your search criteria.' A yellow highlight is placed over the 'Add New' button at the bottom left of the page.

在「Phone Type」下選擇「Cisco 7925」，然後按一下「Next」按鈕（您可以根據現有的無線電話選擇電話型別）。

The screenshot shows the 'Add a New Phone' page in Cisco Unified CM Administration. The navigation menu at the top includes System, Call Routing, Media Resources, Advanced Features, Device, and Application. The page title is 'Add a New Phone'. A green arrow icon is followed by the text 'Next'. Below this is a 'Status' section with an information icon and the text 'Status: Ready'. The next section is 'Select the type of phone you would like to create', which contains a dropdown menu for 'Phone Type\*'. The dropdown is currently set to 'Cisco 7925', which is highlighted in yellow. At the bottom of the page, there is a 'Next' button, also highlighted in yellow.

在「Phone Configuration」頁面中，新增電話的MAC Address，並將適當的值分配給特定部分，如下圖所示，然後按一下Save按鈕。



## Phone Configuration



### Status

Status: Ready

### Phone Type

**Product Type:** Cisco 7925

**Device Protocol:** SCCP

### Device Information

Device is trusted

**MAC Address\***

Description

**Device Pool\***  [View Details](#)

Common Device Configuration  [View Details](#)

**Phone Button Template\***

Softkey Template

Common Phone Profile\*  [View Details](#)

### Protocol Specific Information

Packet Capture Mode\*

Packet Capture Duration

BLF Presence Group\*

**Device Security Profile\***

SUBSCRIBE Calling Search Space

Unattended Port

按一下**Add a new Line**，然後為此電話指定一個電話號碼。



# Cisco Unified CM Administration

For Cisco Unified Communications Solutions

System ▾ Call Routing ▾ Media Resources ▾ Advanced Features ▾ Device ▾ Application ▾ User Management ▾ Bulk Administration ▾

## Phone Configuration

Save Delete Copy Reset Apply Config Add New

### Status

Status: Ready

### Association

[Modify Button Items](#)

- 1 [Line \[1\] - Add a new DN](#)
- 2 [Line \[2\] - Add a new DN](#)
- 3 [Add a new SD](#)
- 4 [Add a new SD](#)
- 5 [Add a new SD](#)
- 6 [Add a new SD](#)

### Phone Type

**Product Type:** Cisco 7925  
**Device Protocol:** SCCP

### Real-time Device Status

**Registration:** Unregistered  
**IPv4 Address:** [10.106.122.155](#)  
**Active Load ID:** None  
**Download Status:** None

### Device Information

提供任意目錄編號，然後按一下SAVE按鈕。然後，按一下Apply Config和Reset按鈕。



# Cisco Unified CM Administration

For Cisco Unified Communications Solutions

System ▾ Call Routing ▾ Media Resources ▾ Advanced Features ▾ Device ▾ Application ▾ User Management ▾ Bulk Administration ▾

## Directory Number Configuration

Save

### Status

Directory Number Configuration has refreshed due to a directory number change. Please click Save button to save the configuration.

### Directory Number Information

**Directory Number\***   Urgent Priority  
Route Partition   
Description   
Alerting Name   
ASCII Alerting Name   
External Call Control Profile   
 Active

### Directory Number Settings

## 物理7925電話配置

### 配置檔名稱

## 導覽至Settings > Network Profiles

- 進入任何個人資料
- 鍵入\*\*#解鎖電話設定
- 提供任意配置檔名稱



## 網路設定

### 導覽至Settings > Network Profile > Network Configuration

將DHCP Enabled值設定為YES

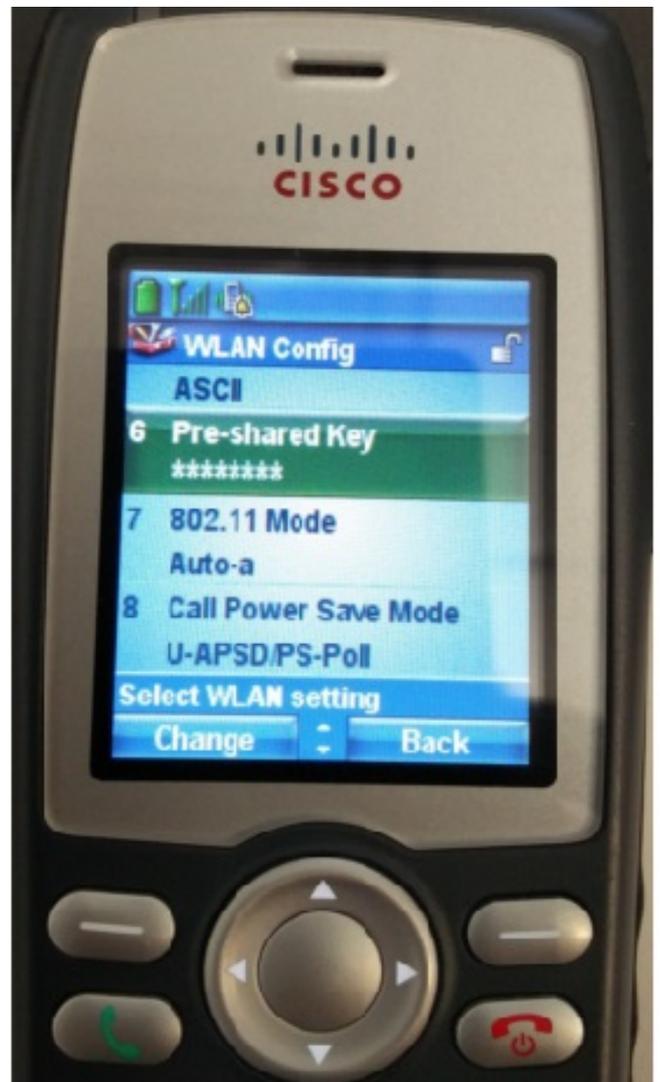
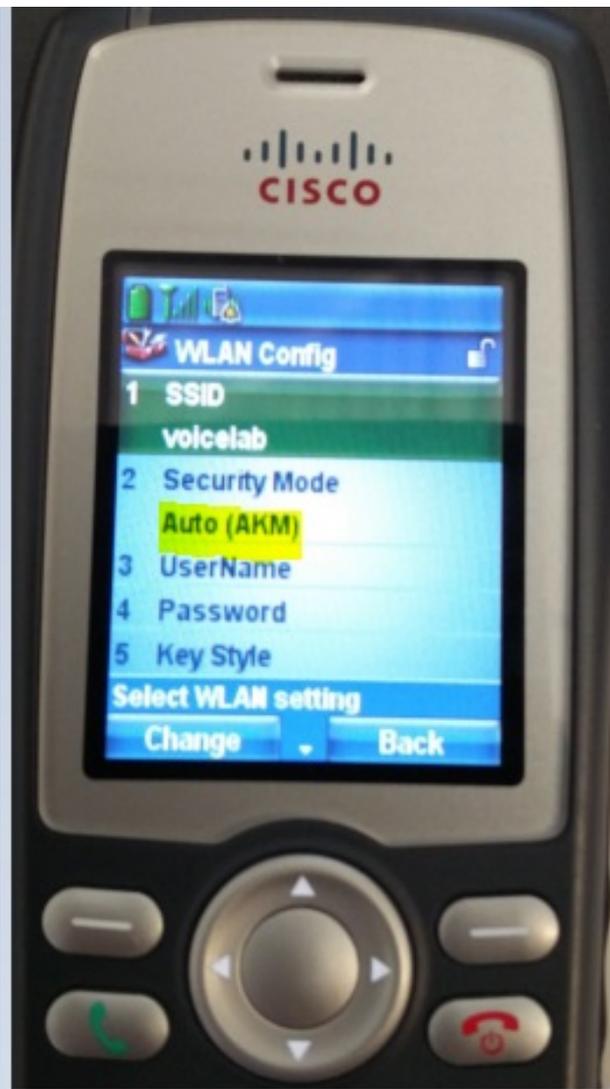
如果未從DHCP伺服器提取TFTP IP，請在此處手動新增TFTP IP地址。



## WLAN配置

導覽至Settings > Network Profile > WLAN Config

- 指定SSID名稱（在AP上配置），然後按Option並選擇SAVE
- 將安全模式設置為自動(AKM)
- 在Pre-shared Key部分下，輸入SSID的密碼（在我們的實驗中將密碼設定為voicelab123）



## 驗證

電話註冊到CUCM後，無線電話將在螢幕上顯示已配置的電話號碼。在CUCM管理GUI的「電話配置」頁面上，您會看到電話處於註冊狀態，如下圖所示。

A screenshot of the Cisco Unified CM Administration web interface. The page title is 'Cisco Unified CM Administration'. The navigation menu includes 'System', 'Call Routing', 'Media Resources', 'Advanced Features', 'Device', 'Application', 'User Management', 'Bulk Administration', and 'Help'. The current page is 'Phone Configuration'. The 'Association Information' section shows two lines: '1 Line [1] - 4002 (no partition)' and '2 Line [2] - 4004 (no partition)'. The 'Phone Type' section shows 'Product Type: Cisco 7925' and 'Device Protocol: SCCP'. The 'Device Information' section shows 'Registration: Registered with Cisco Unified Communications Manager cucm192', 'IP Address: 10.106.122.161', and 'Device is Active' checked.

## 疑難排解

目前尚無適用於此組態的具體疑難排解資訊。