

CT5760控制器和Catalyst 3850交換機配置示例

目錄

[簡介](#)

[必要條件](#)

[需求](#)

[採用元件](#)

[統一接入CT5760無線控制器的背景資訊](#)

[統一接入Catalyst 3850交換機的背景資訊](#)

[5760 WLC初始設定](#)

[設定](#)

[安裝指令碼](#)

[接入點加入所需的配置](#)

[驗證](#)

[疑難排解](#)

[3850交換器初始設定](#)

[設定](#)

[安裝指令碼](#)

[接入點加入所需的配置](#)

[驗證](#)

[疑難排解](#)

簡介

本檔案介紹在5760無線LAN控制器(WLC)和3850交換器上安裝和準備無線服務的步驟。本文檔介紹兩個平台的初始配置和接入點(AP)加入過程。

必要條件

需求

本文件沒有特定需求。

採用元件

本文中的資訊係根據以下軟體和硬體版本：

- 整合存取CT5760無線控制器 — 3.02.02SE版

- 整合存取Catalyst 3850交換器 — 版本3.02.02SE

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。

統一接入CT5760無線控制器的背景資訊

CT5760 WLC是第一個使用智慧ASIC構建的基於Cisco IOS-XE[®]軟體的控制器，旨在作為下一代統一無線架構中的集中控制器進行部署。該平台還支援融合接入3850系列交換機的新移動功能。

CT5760控制器通常部署在核心附近。連線到核心交換機的上行鏈路埠可以配置為EtherChannel中繼埠，以確保埠冗餘。此新控制器是一個可擴展的高效能無線控制器，最多可擴展1000個AP和12,000個客戶端。控制器有六個10 Gbps資料埠，總容量為60 Gbps。

5760系列與Cisco Aironet AP、Cisco Prime Infrastructure和Cisco Mobility Services Engine配合使用，以支援業務關鍵型無線資料、語音、影片和位置服務應用。

統一接入Catalyst 3850交換機的背景資訊

Cisco Catalyst 3850系列是下一代企業級堆疊式接入層交換機，可在單個平台上實現有線和無線之間的完全融合。無線服務由IOS-XE軟體支援，通過無線接入點的控制和調配(CAPWAP)協定提供支援。思科的全新統一接入資料平面(UADP)ASIC為交換機提供支援，實現統一的有線 — 無線策略實施、應用可視性、靈活性和應用最佳化。此融合基於新型Cisco StackWise-480的恢復能力。Cisco Catalyst 3850系列交換機支援完整的IEEE 802.3at Power over Ethernet Plus(PoE+)、模組化和現場可更換網路模組、冗餘風扇和電源。

5760 WLC初始設定

本節概述成功配置5760 WLC以託管無線服務的步驟。

設定

安裝指令碼

```
--- System Configuration Dialog ---
```

```
Enable secret warning
```

```
-----  
In order to access the device manager, an enable secret is required  
If you enter the initial configuration dialog, you will be prompted for the  
enable secret
```

```
If you choose not to enter the initial configuration dialog, or if you exit setup  
without setting the enable secret,  
please set an enable secret using the following CLI in configuration mode-  
enable secret 0 <cleartext password>
```

```
-----
```

Would you like to enter the initial configuration dialog? [yes/no]: **yes**

At any point you may enter a question mark '?' for help.
Use ctrl-c to abort configuration dialog at any prompt.
Default settings are in square brackets '['].

Basic management setup configures only enough connectivity
for management of the system, extended setup will ask you
to configure each interface on the system

Would you like to enter basic management setup? [yes/no]: **yes**

Configuring global parameters:

Enter host name [Controller]: **w-5760-1**

The enable secret is a password used to protect access to
privileged EXEC and configuration modes. This password, after
entered, becomes encrypted in the configuration.

Enter enable secret: **cisco**

The enable password is used when you do not specify an
enable secret password, with some older software versions, and
some boot images.

Enter enable password: **cisco**

The virtual terminal password is used to protect
access to the router over a network interface.

Enter virtual terminal password: **cisco**

Configure a NTP server now? [yes]:

Enter ntp server address : **192.168.1.200**

Enter a polling interval between 16 and 131072 secs which is power of 2: **16**

Do you want to configure wireless network? [no]: **no**

Setup account for accessing HTTP server? [yes]: **yes**

Username [admin]: **admin**

Password [cisco]: **cisco**

Password is UNENCRYPTED.

Configure SNMP Network Management? [no]: **no**

Current interface summary

Any interface listed with OK? value "NO" does not have a valid configuration

Interface	IP-Address	OK?	Method	Status	Protocol
Vlan1	unassigned	NO	unset	up	up
GigabitEthernet0/0	unassigned	YES	unset	up	up
Tel1/0/1	unassigned	YES	unset	up	up
Tel1/0/2	unassigned	YES	unset	down	down
Tel1/0/3	unassigned	YES	unset	down	down
Tel1/0/4	unassigned	YES	unset	down	down
Tel1/0/5	unassigned	YES	unset	down	down
Tel1/0/6	unassigned	YES	unset	down	down

Enter interface name used to connect to the
management network from the above interface summary: **vlan1**

Configuring interface Vlan1:

Configure IP on this interface? [yes]: **yes**

IP address for this interface: **192.168.1.20**
Subnet mask for this interface [255.255.255.0] : **255.255.255.0**
Class C network is 192.168.1.0, 24 subnet bits; mask is /24

Wireless management interface needs to be configured at startup
It needs to be mapped to an SVI that's not Vlan 1 (default)

Enter VLAN No for wireless management interface: **120**
Enter IP address :**192.168.120.94**
Enter IP address mask: **255.255.255.0**

建立了以下配置命令指令碼：

```
w-5760-1
enable secret 4 tnhtc92DXBhelxjYk8LWJrPV36S2i4ntXrpb4RFmfqY^Q
enable password cisco
line vty 0 15
password cisco
ntp server 192.168.1.200 maxpoll 4 minpoll 4
username admin privilege 15 password cisco
no snmp-server
!
no ip routing

!
interface Vlan1
no shutdown
ip address 192.168.1.20 255.255.255.0
!
interface GigabitEthernet0/0
shutdown
no ip address
!
interface TenGigabitEthernet1/0/1
!
interface TenGigabitEthernet1/0/2
!
interface TenGigabitEthernet1/0/3
!
interface TenGigabitEthernet1/0/4
!
interface TenGigabitEthernet1/0/5
!
interface TenGigabitEthernet1/0/6
vlan 120
interface vlan 120
ip addr 192.168.120.94 255.255.255.0
exit
wireless management interface Vlan120
!
end
```

[0] Go to the IOS command prompt without saving this config.
[1] Return back to the setup without saving this config.
[2] Save this configuration to nvram and exit.

Enter your selection [2]: **2**

Building configuration...
Compressed configuration from 2729 bytes to 1613 bytes[OK]
Use the enabled mode 'configure' command to modify this configuration.

Press RETURN to get started!

接入點加入所需的配置

附註：重要資訊 — 確保交換機在全域性配置下具有正確的boot命令。如果在快閃記憶體上擷取該檔案，則需要w-5760-1(config)#boot system flash:packages.conf boot指令。

1. 配置網路連線。配置連線到主幹網路的TenGig介面，其中CAPWAP流量流入/出站。在本範例中，使用的介面是TenGigabitEthernet1/0/1。允許使用VLAN 1和VLAN 120。

```
interface TenGigabitEthernet1/0/1
switchport trunk allowed vlan 1,120
switchport mode trunk
ip dhcp relay information trusted
ip dhcp snooping trust
```

配置預設出站路由：

```
ip route 0.0.0.0 0.0.0.0 192.168.1.1
```

2. 設定Web存取。可通過https://<ipaddress>/wireless訪問GUI登入憑據已在初始配置對話方塊中定義。

```
username admin privilege 15 password cisco
```

3. 確保無線管理介面配置正確。

```
wireless management interface Vlan120
```

```
w-5760-1#sh run int vlan 120
```

```
Building configuration...
```

```
Current configuration : 62 bytes
```

```
!
```

```
interface Vlan120
ip address 192.168.120.94 255.255.255.0
end
```

```
w-5760-1#sh ip int br
```

Interface	IP-Address	OK?	Method	Status	Protocol
Vlan1	192.168.1.20	YES	manual	up	up
Vlan120	192.168.120.94	YES	manual	up	up
GigabitEthernet0/0	unassigned	YES	unset	down	down
Tel/0/1	unassigned	YES	unset	up	up
Tel/0/2	unassigned	YES	unset	down	down
Tel/0/3	unassigned	YES	unset	down	down
Tel/0/4	unassigned	YES	unset	down	down
Tel/0/5	unassigned	YES	unset	down	down
Tel/0/6	unassigned	YES	unset	down	down
Capwap2	unassigned	YES	unset	up	up

```
w-5760-1#
```

4. 確保使用正確的AP計數啟用活動許可證。**附註：**1)5760沒有啟用的許可證級別，映像已經是ipservices。2)作為移動控制器(MC)的5760最多可支援1000個AP。

```
w-5760-1#license right-to-use activate apcount <count> slot 1 acceptEULA
```

5. 確保WLC上配置的正确國家/地區代碼符合部署AP所在國家/地區的監管域。

```
w-5760-1#show wireless country configured
```

```
Configured Country.....: US - United States
```

```
Configured Country Codes
```

```
US - United States : 802.11a Indoor,Outdoor/ 802.11b / 802.11g
```

若要修改國家/地區代碼，請輸入以下命令：

```
w-5760-1(config)#ap dot11 24ghz shutdown
```

```
w-5760-1(config)#ap dot11 5ghz shutdown
```

```
w-5760-1(config)#ap country BE
Changing country code could reset channel and RRM grouping configuration.
If running in RRM One-Time mode, reassign channels after this command.
Check customized APs for valid channel values after this command.
Are you sure you want to continue? (y/n)[y]: y
w-5760-1(config)#no ap dot11 24ghz shut
w-5760-1(config)#no ap dot11 5ghz shut
w-5760-1(config)#end
w-5760-1#wr
Building configuration...
Compressed configuration from 3564 bytes to 2064 bytes[OK]
```

```
w-5760-1#show wireless country configured
```

```
Configured Country.....: BE - Belgium
Configured Country Codes
  BE - Belgium : 802.11a Indoor,Outdoor/ 802.11b / 802.11g
```

6. 確保AP能夠通過DHCP選項43、域名服務(DNS)或CAPWAP中的任何其他發現機制獲取WLC的IP地址 (本例中為192.168.120.94)。

驗證

要確保接入點已加入，請輸入show ap summary命令：

```
w-5760-1#show ap summary
```

```
Number of APs: 1
```

```
Global AP User Name: Not configured
Global AP Dot1x User Name: Not configured
```

AP Name	AP Model	Ethernet MAC	Radio MAC	State
APa493.4cf3.232a	1042N	a493.4cf3.232a	10bd.186d.9a40	Registered

疑難排解

用於排除AP加入問題的有用調試：

```
w-5760-1#debug capwap ap events
capwap/ap/events debugging is on
```

```
w-5760-1#debug capwap ap error
capwap/ap/error debugging is on
```

```
w-5760-1#debug dtls ap event
dtls/ap/event debugging is on
```

```
w-5760-1#debug capwap ios event
CAPWAP Event debugging is on
```

```
5760-1#debug capwap ios error
CAPWAP Error debugging is on
```

3850交換器初始設定

本節包括在3850上託管無線服務所需的配置。

設定

安裝指令碼

```
--- System Configuration Dialog ---

Enable secret warning
-----
In order to access the device manager, an enable secret is required
If you enter the initial configuration dialog, you will be prompted
for the enable secret
If you choose not to enter the initial configuration dialog, or if you
exit setup without setting the enable secret,
please set an enable secret using the following CLI in configuration mode-
enable secret 0 <cleartext password>
-----
Would you like to enter the initial configuration dialog? [yes/no]: yes

At any point you may enter a question mark '?' for help.
Use ctrl-c to abort configuration dialog at any prompt.
Default settings are in square brackets '['].

Basic management setup configures only enough connectivity
for management of the system, extended setup will ask you
to configure each interface on the system

Would you like to enter basic management setup? [yes/no]: yes
Configuring global parameters:

Enter host name [Switch]: sw-3850-1

The enable secret is a password used to protect access to
privileged EXEC and configuration modes. This password, after
entered, becomes encrypted in the configuration.
Enter enable secret: Cisco123

The enable password is used when you do not specify an
enable secret password, with some older software versions, and
some boot images.
Enter enable password: Cisco123

The virtual terminal password is used to protect
access to the router over a network interface.
Enter virtual terminal password: Cisco123

Do you want to configure country code? [no]: yes

Enter the country code[US]:US

Note : Enter the country code in which you are installing this 3850 Switch and
the AP(s). If your country code is not recognized, enter one that is compliant
with the regulatory domain of your own country
```

Setup account for accessing HTTP server? [yes]: **yes**

Username [admin]: **admin**

Password [cisco]: **cisco**

Password is UNENCRYPTED.

Configure SNMP Network Management? [no]: **no**

Current interface summary

Any interface listed with OK? value "NO" does not have a valid configuration

Interface	IP-Address	OK?	Method	Status	Protocol
Vlan1	unassigned	NO	unset	up	down
GigabitEthernet0/0	unassigned	YES	unset	up	up
GigabitEthernet2/0/1	unassigned	YES	unset	down	down
GigabitEthernet2/0/2	unassigned	YES	unset	down	down
GigabitEthernet2/0/3	unassigned	YES	unset	down	down
...					
...					
...					
GigabitEthernet2/0/46	unassigned	YES	unset	down	down
GigabitEthernet2/0/47	unassigned	YES	unset	down	down
GigabitEthernet2/0/48	unassigned	YES	unset	up	up
GigabitEthernet2/1/1	unassigned	YES	unset	down	down
GigabitEthernet2/1/2	unassigned	YES	unset	down	down
GigabitEthernet2/1/3	unassigned	YES	unset	down	down
GigabitEthernet2/1/4	unassigned	YES	unset	down	down
Te2/1/1	unassigned	YES	unset	down	down
Te2/1/2	unassigned	YES	unset	down	down
Te2/1/3	unassigned	YES	unset	down	down
Te2/1/4	unassigned	YES	unset	down	down

Enter interface name used to connect to the management network from the above interface summary: **vlan1**

Configuring interface Vlan1:

Configure IP on this interface? [yes]: **yes**

IP address for this interface: **192.168.1.2**

Subnet mask for this interface [255.255.255.0] : **255.255.255.0**

Class C network is 192.168.1.0, 24 subnet bits; mask is /24

已建立此配置命令指令碼：

```
hostname sw-3850-1
enable secret 4 vwcGVdcUZcRMCyxaH2U9Y/PTujsnQWPSbt.LFG8lhTw
enable password Cisco123
line vty 0 15
password Cisco123
 ap dot11 24ghz shutdown
 ap dot11 5ghz shutdown
 ap country US
 no ap dot11 24ghz shutdown
 no ap dot11 5ghz shutdown

username admin privilege 15 password 0 cisco
no snmp-server
!
no ip routing

!
interface Vlan1
```



```
no shutdown
ip address 192.168.1.2 255.255.255.0
!
interface GigabitEthernet0/0
shutdown
no ip address
!
interface GigabitEthernet2/0/1
!
interface GigabitEthernet2/0/2
!
interface GigabitEthernet2/0/3
...
...
...
interface GigabitEthernet2/0/46
!
interface GigabitEthernet2/0/47
!
interface GigabitEthernet2/0/48
!
interface GigabitEthernet2/1/1
!
interface GigabitEthernet2/1/2
!
interface GigabitEthernet2/1/3
!
interface GigabitEthernet2/1/4
!
interface TenGigabitEthernet2/1/1
!
interface TenGigabitEthernet2/1/2
!
interface TenGigabitEthernet2/1/3
!
interface TenGigabitEthernet2/1/4
!
end
```

- [0] Go to the IOS command prompt without saving this config.
- [1] Return back to the setup without saving this config.
- [2] Save this configuration to nvram and exit.

```
Enter your selection [2]: 2
The enable password you have chosen is the same as your enable secret.
This is not recommended. Re-enter the enable password.
Changing country code could reset channel and RRM grouping configuration.
If running in RRM One-Time mode, reassign channels after this command.
Check customized APs for valid channel values after this command.
Are you sure you want to continue? (y/n)[y]: y
% Generating 1024 bit RSA keys, keys will be non-exportable...
[OK] (elapsed time was 1 seconds)
```

```
Building configuration...
Compressed configuration from 4414 bytes to 2038 bytes[OK]
Use the enabled mode 'configure' command to modify this configuration.
```

Press RETURN to get started!

接入點加入所需的配置

附註：重要資訊 — 確保在全域性配置下配置了正確的boot命令。如果已在快閃記憶體上提取該命令，則需要boot system switch all flash:packages.conf命令。

1. 配置無線先決條件。為了啟用無線服務，3850必須運行ipservices或ipbase許可證。
2. 在交換機上啟用無線。**附註：** AP需要連線到同一VLAN中的接入模式交換機埠！啟用無線管理

```
sw-3850-1(config)#wireless management interface vlan <1-4095>
```

定義MC必須定義MC才能允許AP加入。如果此3850將是MC，請輸入wireless mobility controller指令：

```
sw-3850-1(config)#wireless mobility controller
```

附註： 此配置更改需要重新啟動！如果這3850是作為行動代理(MA)執行，請使用以下命令將其指向MC IP位址：

```
sw-3850-1(config)#wireless mobility controller ip a.b.c.d
```

在MC上，輸入以下命令：

```
3850MC(config)#wireless mobility controller peer-group
```

```
3850MC(config)#wireless mobility controller peer-group
```

3. 確保許可證可用性。確保MC上有活動的AP許可證 (MA使用在MC上啟用的許可證)：**附註**：
1)3850必須運行ipservices或ipbase許可證才能在3850上啟用無線服務。 2)AP計數許可證在MC上應用，並在MA上自動調配和實施。 3)充當MC的3850最多可支援50個AP。

```
sw-3850-1#show license right-to-use summary
```

License Name	Type	Count	Period left
ipservices	permanent	N/A	Lifetime
apcount	base	1	Lifetime
apcount	adder	49	Lifetime

```
License Level In Use: ipservices
License Level on Reboot: ipservices
Evaluation AP-Count: Disabled
Total AP Count Licenses: 50
AP Count Licenses In-use: 1
AP Count Licenses Remaining: 49
```

若要啟用3850上的AP計數許可證，請輸入以下命令，並在MC上輸入所需的AP計數：

```
sw-3850-1#license right-to-use activate apcount
```

4. 配置AP發現過程。為了讓AP加入控制器，必須將交換器連線埠組態設定為無線管理vlan中的存取連線埠：如果VLAN 100用於無線管理介面：

```
sw-3850-1(config)#interface gigabit1/0/10
```

```
sw-3850-1(config-if)#switchport mode access
sw-3850-1(config-if)#switchport access vlan 100
```

5. 設定Web存取。可通過https://<ipaddress>/wireless訪問GUI登入憑據已在初始配置對話方塊中定義。

```
username admin privilege 15 password 0 cisco ( username for Web access)
```

6. 確保交換機上配置的正確國家/地區代碼符合部署AP所在國家/地區的監管域。

```
sw-3850-1#show wireless country configured
```

```
Configured Country.....: US - United States
Configured Country Codes
US - United States : 802.11a Indoor,Outdoor/ 802.11b / 802.11g
```

若要修改國家/地區代碼，請輸入以下命令：

```
sw-3850-1(config)#ap dot11 24ghz shutdown
```

```
sw-3850-1(config)#ap dot11 5ghz shutdown
```

```
sw-3850-1(config)#ap country BE
```

```
Changing country code could reset channel and RRM grouping configuration.
If running in RRM One-Time mode, reassign channels after this command.
Check customized APs for valid channel values after this command.
```

```
Are you sure you want to continue? (y/n)[y]: y
```

```
sw-3850-1(config)#no ap dot11 24ghz shut
```

```
sw-3850-1(config)#no ap dot11 5ghz shut
```

```
sw-3850-1(config)#end
```

```
sw-3850-1#wr
```

```
Building configuration...
```

```
Compressed configuration from 3564 bytes to 2064 bytes[OK]
```

```
sw-3850-1#show wireless country configured
```

```
Configured Country.....: BE - Belgium
Configured Country Codes
BE - Belgium : 802.11a Indoor,Outdoor/ 802.11b / 802.11g
```

驗證

若要確保AP已加入，請輸入show ap summary命令：

```
sw-3850-1#show ap summary
```

```
Number of APs: 1
```

```
Global AP User Name: Not configured
```

```
Global AP Dot1x User Name: Not configured
```

AP Name	AP Model	Ethernet MAC	Radio MAC	State
APa493.4cf3.232a	1042N	a493.4cf3.231a	10bd.186e.9a40	Registered

疑難排解

用於排除AP加入問題的有用調試：

```
sw-3850-1#debug capwap ap events
```

```
capwap/ap/events debugging is on
```

sw-3850-1#**debug capwap ap error**
capwap/ap/error debugging is on

sw-3850-1#**debug dtls ap event**
dtls/ap/event debugging is on

sw-3850-1#**debug capwap ios event**
CAPWAP Event debugging is on

sw-3850-1#**debug capwap ios error**
CAPWAP Error debugging is on