无线局域网控制器和轻量接入点故障切换外部移动组配置示例

目录

简介

本文档说明如何在无线局域网控制器(WLC)上配置故障切换功能。 此功能允许轻量接入点(LAP)故障切换到移动组外的WLC。

先决条件

要求

尝试进行此配置之前，请确保满足以下要求：

- 了解轻量接入点 (AP) 和 Cisco WLC 配置的基础知识
- 了解轻量 AP 协议 (LWAPP) 的基础知识
- 基本了解WLC故障切换和移动组。有关WLC故障切换功能的详细信息，请参阅轻量接入点的WLAN控制器故障切换配置示例。有关移动组的详细信息，请参阅配置移动组。

使用的组件

本文档中的信息基于以下软件和硬件版本：

- Cisco Aironet 1000 系列轻量 AP
- 运行固件版本4.2.61.0的Cisco 2100系列WLC
- 运行固件版本4.2.61.0的Cisco 4400系列WLC

本文档中介绍的功能在WLC版本4.2.61.0中引入。此配置仅适用于运行4.2.61.0或更高版本的Cisco WLC。

注意：如果运行最新的WLC版本5.0.148.0，请确保您了解以下限制：

- 2000系列控制器不支持与控制器软件版本5.0.148.0一起使用。
- 1000系列接入点不支持与控制器软件版本5.0.148.0一起使用。

注：有关详细信息，请参阅5.0.148.0版的思科无线LAN控制器和轻量接入点的版本说明。

本文档中的信息都是基于特定实验室环境中的设备编写的。本文档中使用的所有设备最初均采用原始（默认）配置。如果您使用的是真实网络，请确保您已经了解所有命令的潜在影响。

规则

有关文档规则的详细信息，请参阅 Cisco 技术提示规则。

背景信息

在4.2.61.0之前的所有WLC版本中，当WLC“关闭”时，注册到此WLC的LAP**仅可故障切换到同一移动组的另**一个WLC，如果LAP配置为故障切换。有关详细信息，请参阅轻量接入点的WLAN控制器故障切换配置示例。

从Cisco WLC版本4.2.61.0中，引入了一项名为*Backup Controller Support*的新功能，即使在移动组之外，也可以为接入点**故障切换到控制器**。

当接入点丢失本地区域的主控制器时，集中位置的单个控制器可充当接入点的备份。**集中式控制器和区域控制器不必位于同一移动组中**。通过使用控制器CLI，您可以为网络的接入点指定主控制器、辅助控制器和第三控制器。在控制器软件版本4.2.61.0中，可以指定备用控制器的IP地址，这允许接入点故障切换到移动组外的控制器。**当前仅通过控制器CLI支持此功能。**

本文档使用此初始配置设置来解释此功能：

- 运行固件版本4.2.61.0的两个Cisco WLC。为清楚起见，本文档使用名称**WLC1**和**WLC2**，以在整个配置中引用WLC。
- WLC1的管理接口IP地址为10.77.244.210/27。
- WLC2的管理接口IP地址为10.77.244.204/27。
- 当前注册到WLC1的Cisco 1000系列LAP。在我们的**配置中**，此LAP的名称是**AP1**。

有关如何在WLC上配置基本参数的详细信息，请参阅无线LAN控制器和轻量接入点基本配置示例。

配置

本部分提供有关如何配置本文档所述功能的信息。

要配置此功能，请完成以下步骤：

1. 配置 WLC 的移动组
2. 配置WLC和LAP以在移动组外进行故障转移

配置 WLC 的移动组

第一步是在两个不同的移动组中配置WLC1和WLC2。

在本示例中，WLC1在TSWEB移**动组**中配置，WLC2在backupwlc移动组**中**配置。本节介绍如何通过控制器的CLI为WLC配置移动组。

在WLC的CLI模式下输入以下命令以配置移动组：

- WLC1>**config mobility group domain TSWEB(配置移动组域*TSWEB)***
- WLC2>**config mobility group domain backupwlc**

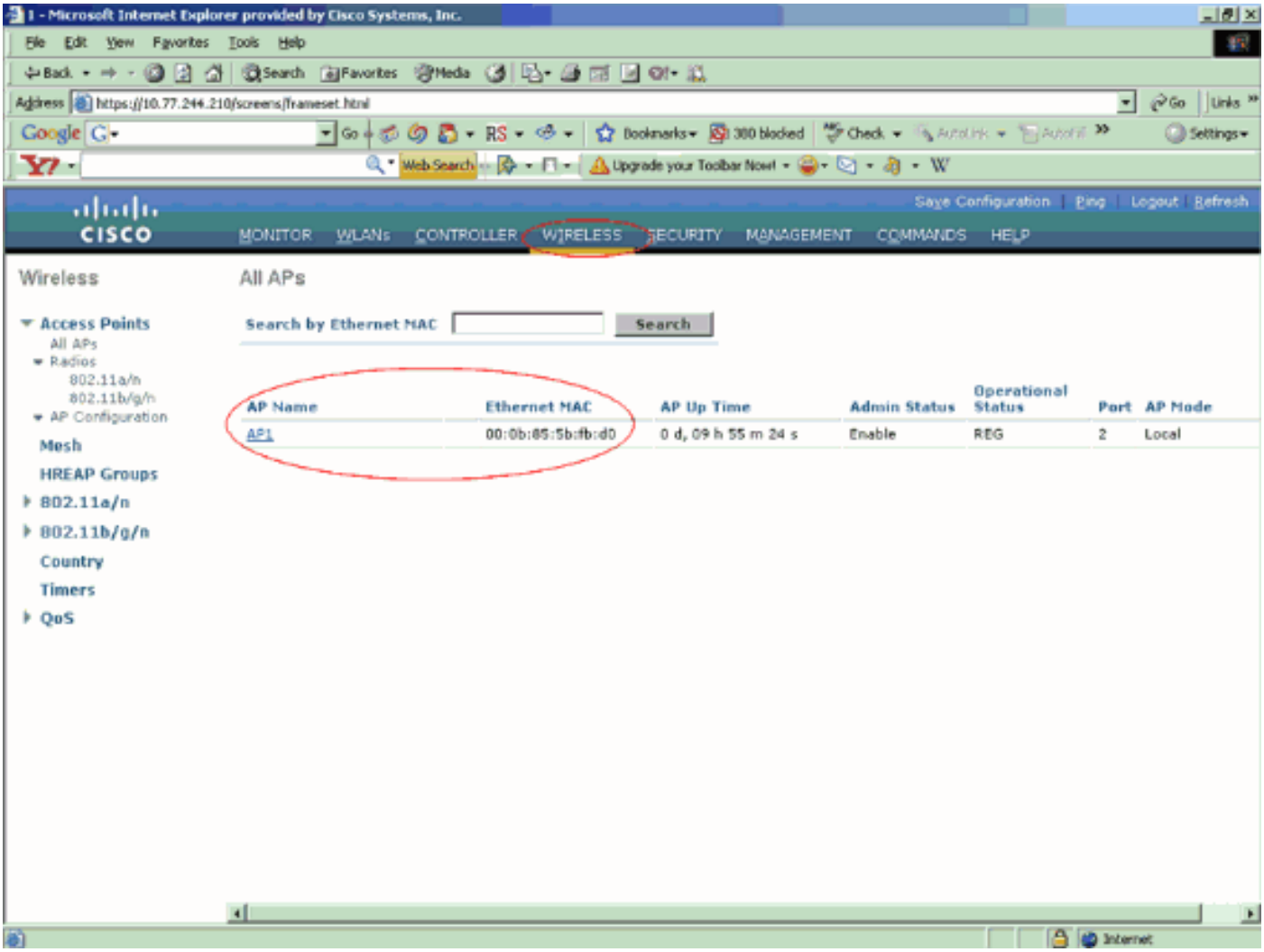
因此，WLC1和WLC2配置为位于两个不同的移动组中。

您也可以使用WLC GUI配置此配置。有关详细信息，请参阅为WLC配置移动组。

配置WLC和LAP以在移动组外进行故障转移

下一步是配置WLC和LAP，以在移动组外进行故障转移。

如本文档前面所述，LAP当前已注册到WLC1。您可以在WLC1上验证此情况，在本例中为**10.77.244.210**。要执行此操作，请从控制器GUI中单击**Wireless**。在本例中，LAP名称**为AP1**。



目标是配置此LAP，使其能够故障切换到位于不同移动组中的WLC2(10.77.244.204)。为此，请通过Telnet应用或直接控制台连接登录LAP当前注册到的WLC(WLC1)的CLI模式，并配置此LAP的主WLC和辅助WLC。

1. 在WLC1的CLI模式下，发出以下命令：
   WLC1>**config ap primary-base**
   controller_name Cisco_AP [controller_ip_address]

   controller_name字段表示主WLC的系统名称。在本例中，WLC1本身是AP1 LAP的**主WLC**。此处，**WLC1是WLC1的系统名称。**。在WLC的“监控”(Monitor)屏幕上，您可以在GUI模**式下**看到控制器名称。Cisco_AP字段表示Cisco AP的名称。在本例中，它是**AP1**。[controller_ip_address]字段表示主WLC的管理接口IP地址。在本例中，10.77.244.210是WLC1的管理接口IP地址。**注意：**如果备份控制器位于接入点所连接的移动组（主控制器）之外，则您始终需要分别提供主控制器、辅助控制器或第三控制器的IP地址。否则，接入点无法加入备用控制器。因此，本示例中用于配置的命令是WLC1 **>config ap primary-base *WLC1 AP1 10.77.244.210***
2. 现在，将**WLC2**配置为辅助WLC，以便在主WLC WLC1关闭时，LAP进**行故障**切换。要配置来自不同移动组的WLC2，请在WLC1的CLI模式**下发出以下命令**:
   WLC1>**config ap secondary-base**
   controller_name Cisco_AP [controller_ip_address]

   controller_name字段表示备份或辅助WLC的系统名称。在本例中，WLC2是AP1 LAP的**辅助**WLC。此处**,WLC2是WLC2的系统名称。Cisco_AP**字段表示Cisco AP的名称。在本例中，它是**AP1**。[controller_ip_address] 字段表示辅助WLC(WLC2)的管理接口IP地址。在本例中，10.77.244.204是WLC2的管理接口IP地址。**注意：**如果备份控制器始终位于接入点所连接的移动组（主控制器）之外，则您需要分别提供主控制器、辅助控制器或第三控制器的IP地址。否则，接入点无法加入备用控制器。因此，在本例中，用于配置的命令是WLC1 **>config ap secondary-base *WLC2 AP1 10.77.244.204*。**

这是CLI屏幕，演示WLC1的配置。

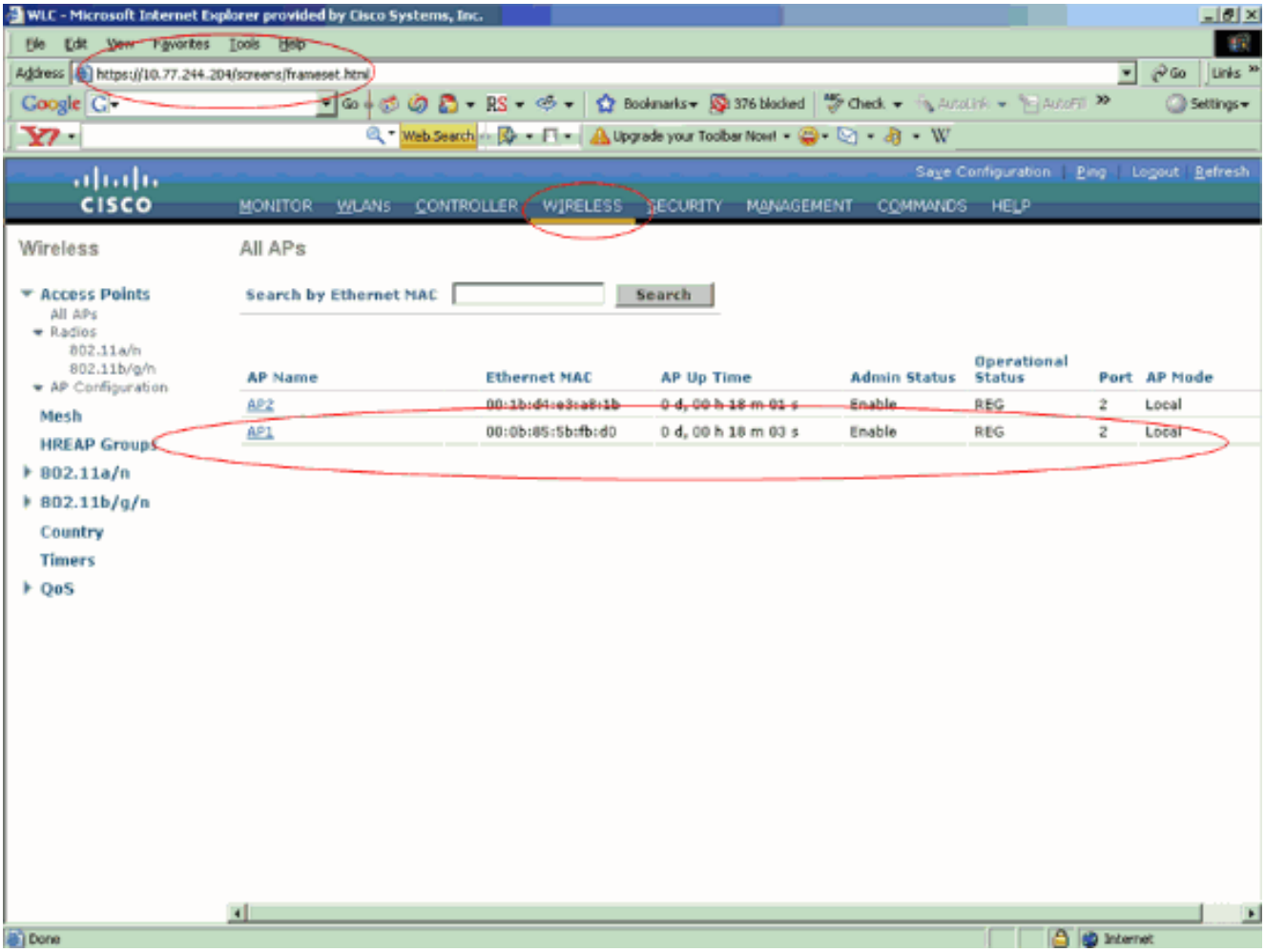
```
WLC1 >config ap primary-base  WLC1 AP1 10.77.244.210


WLC1 >config ap secondary-base WLC2 AP1 10.77.244.204


WLC1 >save config

Are you sure you want to save? (y/n) y


Configuration Saved!
```

验证

您需要验证配置是否正常工作。在示例中，当WLC1关闭时，AP1必须故障切换并注册到位于不同移动组中的WLC2。

要验证此情况，请完成以下步骤：

1. 断开连接WLC1和AP1的电源或以太网电缆。断开后，LAP会从WLC中自行注销并搜索其他WLC。
2. 根据LAP与WLC的正常注册过程，AP1必须能够成功注册到WLC2。请从WLC2的GUI模式(10.77.244.204)验证此点。



注意此屏幕截图中的圈定参数。您会看到AP1已注册到WLC2(10.77.244.204)。

您还可以使用debug lwapp events enable命令从WLC2的CLI模式验证注册过程。示例如下：

```
(Cisco Controller) >Fri Apr  4 04:31:36 2008: 00:0b:85:5b:fb:d0
Received LWAPP ECHO_REQUEST from AP 00:0b:85:5b:fb:d0
Fri Apr  4 04:31:36 2008: 00:0b:85:5b:fb:d0 Successful transmission of LWAPP Ech
o-Response to AP 00:0b:85:5b:fb:d0
Fri Apr  4 04:31:36 2008: 00:0b:85:5b:fb:d0 Received LWAPP PRIMARY_DISCOVERY_REQ
 from AP 00:0b:85:5b:fb:d0
Fri Apr  4 04:31:36 2008: 00:0b:85:5b:fb:d0 Successful transmission of LWAPP Pri
mary Discovery Response to AP 00:0b:85:5b:fb:d0
Fri Apr  4 04:31:37 2008: 00:0b:85:5b:fb:d0 Received LWAPP RRM_DATA_REQ from AP
00:0b:85:5b:fb:d0
Fri Apr  4 04:31:37 2008: 00:0b:85:5b:fb:d0 Successful transmission of LWAPP Air
ewave-Director-Data Response to AP 00:0b:85:5b:fb:d0
Fri Apr  4 04:31:37 2008: 00:0b:85:5b:fb:d0 Received LWAPP RRM_DATA_REQ from AP
00:0b:85:5b:fb:d0
Fri Apr  4 04:31:37 2008: 00:0b:85:5b:fb:d0 Successful transmission of LWAPP Air
ewave-Director-Data Response to AP 00:0b:85:5b:fb:d0
Fri Apr  4 04:31:37 2008: 00:1c:58:05:e9:c0 Received LWAPP ECHO_REQUEST from AP
00:1c:58:05:e9:c0
Fri Apr  4 04:31:37 2008: 00:1c:58:05:e9:c0 Successful transmission of LWAPP Ech
o-Response to AP 00:1c:58:05:e9:c0
Fri Apr  4 04:31:37 2008: 00:1c:58:05:e9:c0 Received LWAPP PRIMARY_DISCOVERY_REQ
 from AP 00:1c:58:05:e9:c0
Fri Apr  4 04:31:37 2008: 00:1b:d4:e3:a8:1b Successful transmission of LWAPP Pri
mary Discovery Response to AP 00:1b:d4:e3:a8:1b
Fri Apr  4 04:31:38 2008: 00:1c:58:05:e9:c0 Received LWAPP RRM_DATA_REQ from AP
00:1c:58:05:e9:c0
Fri Apr  4 04:31:38 2008: 00:1c:58:05:e9:c0 Successful transmission of LWAPP Air
ewave-Director-Data Response to AP 00:1c:58:05:e9:c0
```

```
Fri Apr  4 04:31:56 2008: 00:1c:58:05:e9:c0 Received LWAPP RRM_DATA_REQ from AP
00:1c:58:05:e9:c0
Fri Apr  4 04:31:56 2008: 00:1c:58:05:e9:c0 Successful transmission of LWAPP Air
ewave-Director-Data Response to AP 00:1c:58:05:e9:c0
Fri Apr  4 04:32:06 2008: 00:0b:85:5b:fb:d0 Received LWAPP ECHO_REQUEST from AP
00:0b:85:5b:fb:d0
Fri Apr  4 04:32:06 2008: 00:0b:85:5b:fb:d0 Successful transmission of LWAPP Ech
o-Response to AP 00:0b:85:5b:fb:d0
Fri Apr  4 04:32:06 2008: 00:0b:85:5b:fb:d0 Received LWAPP PRIMARY_DISCOVERY_REQ
 from AP 00:0b:85:5b:fb:d0
Fri Apr  4 04:32:06 2008: 00:0b:85:5b:fb:d0 Successful transmission of LWAPP Pri
mary Discovery Response to AP 00:0b:85:5b:fb:d0
Fri Apr  4 04:32:07 2008: 00:1c:58:05:e9:c0 Received LWAPP ECHO_REQUEST from AP
00:1c:58:05:e9:c0
Fri Apr  4 04:32:07 2008: 00:1c:58:05:e9:c0 Successful transmission of LWAPP Ech
o-Response to AP 00:1c:58:05:e9:c0
Fri Apr  4 04:32:07 2008: 00:1c:58:05:e9:c0 Received LWAPP PRIMARY_DISCOVERY_REQ
 from AP 00:1c:58:05:e9:c0
Fri Apr  4 04:32:07 2008: 00:1b:d4:e3:a8:1b Successful transmission of LWAPP Pri
mary Discovery Response to AP 00:1b:d4:e3:a8:1b
Fri Apr  4 04:32:36 2008: 00:0b:85:5b:fb:d0 Received LWAPP ECHO_REQUEST from AP
00:0b:85:5b:fb:d0
Fri Apr  4 04:32:36 2008: 00:0b:85:5b:fb:d0 Successful transmission of LWAPP Ech
o-Response to AP 00:0b:85:5b:fb:d0
Fri Apr  4 04:32:36 2008: 00:0b:85:5b:fb:d0 Received LWAPP PRIMARY_DISCOVERY_REQ
 from AP 00:0b:85:5b:fb:d0
Fri Apr  4 04:32:36 2008: 00:0b:85:5b:fb:d0 Successful transmission of LWAPP Pri
mary Discovery Response to AP 00:0b:85:5b:fb:d0
Fri Apr  4 04:32:36 2008: 00:0b:85:5b:fb:d0 Received LWAPP STATISTICS_INFO from
AP 00:0b:85:5b:fb:d0
Fri Apr  4 04:32:36 2008: 00:0b:85:5b:fb:d0 Successful transmission of LWAPP Sta
tistics Info Response to AP 00:0b:85:5b:fb:d0
Fri Apr  4 04:32:37 2008: 00:0b:85:5b:fb:d0 Received LWAPP RRM_DATA_REQ from AP
00:0b:85:5b:fb:d0
Fri Apr  4 04:32:37 2008: 00:0b:85:5b:fb:d0 Successful transmission of LWAPP Air
ewave-Director-Data Response to AP 00:0b:85:5b:fb:d0
Fri Apr  4 04:32:37 2008: 00:0b:85:5b:fb:d0 Received LWAPP RRM_DATA_REQ from AP
00:0b:85:5b:fb:d0
Fri Apr  4 04:32:37 2008: 00:0b:85:5b:fb:d0 Successful transmission of LWAPP Air
ewave-Director-Data Response to AP 00:0b:85:5b:fb:d0
Fri Apr  4 04:32:37 2008: 00:0b:85:5b:fb:d0 Received LWAPP RRM_DATA_REQ from AP
00:0b:85:5b:fb:d0
Fri Apr  4 04:32:37 2008: 00:0b:85:5b:fb:d0 Successful transmission of LWAPP Air
ewave-Director-Data Response to AP 00:0b:85:5b:fb:d0
Fri Apr  4 04:32:37 2008: 00:0b:85:5b:fb:d0 Received LWAPP RRM_DATA_REQ from AP
00:0b:85:5b:fb:d0
Fri Apr  4 04:32:37 2008: 00:0b:85:5b:fb:d0 Successful transmission of LWAPP Air
ewave-Director-Data Response to AP 00:0b:85:5b:fb:d0
Fri Apr  4 04:32:37 2008: 00:0b:85:5b:fb:d0 Received LWAPP RRM_DATA_REQ from AP
00:0b:85:5b:fb:d0
Fri Apr  4 04:32:37 2008: 00:0b:85:5b:fb:d0 Successful transmission of LWAPP Air
ewave-Director-Data Response to AP 00:0b:85:5b:fb:d0
Fri Apr  4 04:32:37 2008: 00:0b:85:5b:fb:d0 Received LWAPP STATISTICS_INFO from
AP 00:0b:85:5b:fb:d0
Fri Apr  4 04:32:37 2008: 00:0b:85:5b:fb:d0 Successful transmission of LWAPP Sta
tistics Info Response to AP 00:0b:85:5b:fb:d0
Fri Apr  4 04:32:37 2008: 00:0b:85:5b:fb:d0 Received LWAPP RRM_DATA_REQ from AP
00:0b:85:5b:fb:d0
Fri Apr  4 04:32:37 2008: 00:0b:85:5b:fb:d0 Successful transmission of LWAPP Air
ewave-Director-Data Response to AP 00:0b:85:5b:fb:d0
Fri Apr  4 04:32:37 2008: 00:0b:85:5b:fb:d0 Received LWAPP RRM_DATA_REQ from AP
00:0b:85:5b:fb:d0
Fri Apr  4 04:32:37 2008: 00:0b:85:5b:fb:d0 Successful transmission of LWAPP Air
ewave-Director-Data Response to AP 00:0b:85:5b:fb:d0
```

```
Fri Apr  4 04:32:37 2008: 00:0b:85:5b:fb:d0 Received LWAPP RRM_DATA_REQ from AP
00:0b:85:5b:fb:d0
Fri Apr  4 04:32:37 2008: 00:0b:85:5b:fb:d0 Successful transmission of LWAPP Air
ewave-Director-Data Response to AP 00:0b:85:5b:fb:d0
Fri Apr  4 04:32:37 2008: 00:0b:85:5b:fb:d0 Received LWAPP STATISTICS_INFO from
AP 00:0b:85:5b:fb:d0
Fri Apr  4 04:32:37 2008: 00:0b:85:5b:fb:d0 Successful transmission of LWAPP Sta
tistics Info Response to AP 00:0b:85:5b:fb:d0
Fri Apr  4 04:32:37 2008: 00:1c:58:05:e9:c0 Received LWAPP ECHO_REQUEST from AP
00:1c:58:05:e9:c0
Fri Apr  4 04:32:37 2008: 00:1c:58:05:e9:c0 Successful transmission of LWAPP Ech
o-Response to AP 00:1c:58:05:e9:c0
Fri Apr  4 04:32:37 2008: 00:1c:58:05:e9:c0 Received LWAPP PRIMARY_DISCOVERY_REQ
 from AP 00:1c:58:05:e9:c0
Fri Apr  4 04:32:37 2008: 00:1b:d4:e3:a8:1b Successful transmission of LWAPP Pri
mary Discovery Response to AP 00:1b:d4:e3:a8:1b
Fri Apr  4 04:32:38 2008: 00:1c:58:05:e9:c0 Received LWAPP RRM_DATA_REQ from AP
00:1c:58:05:e9:c0
Fri Apr  4 04:32:38 2008: 00:1c:58:05:e9:c0 Successful transmission of LWAPP Air
ewave-Director-Data Response to AP 00:1c:58:05:e9:c0
Fri Apr  4 04:32:56 2008: 00:1c:58:05:e9:c0 Received LWAPP RRM_DATA_REQ from AP
00:1c:58:05:e9:c0
Fri Apr  4 04:32:56 2008: 00:1c:58:05:e9:c0 Successful transmission of LWAPP Air
ewave-Director-Data Response to AP 00:1c:58:05:e9:c0
```

在此输出中，您可以看到所有配置参数都已成功从WLC2下载到AP1。此下载过程仅在LAP注册到该WLC时发生。

使用show ap config general Cisco_AP命令查看本文档中介绍的配置。示例如下：

```
WLC2 >show ap config general AP1 Cisco AP Identifier.............................. 5 Cisco AP
Name..................................... AP1
.....................................................
.....................................................
.....................................................
..................................................... Name
Server...................................... Cisco AP Location...............................
default_location Cisco AP Group Name............................. default-group Primary Cisco
Switch Name......................... WLC1
Primary Cisco Switch IP Address................... 10.77.244.210
Secondary Cisco Switch Name...................... WLC2
Secondary Cisco Switch IP Address................ 10.77.244.204
Tertiary Cisco Switch Name......................
```

故障排除

您可以使用以下debug命令排除配置故障：

- debug lwapp errors enable — 配置 LWAPP 错误的调试。
- debug dhcp message enable — 配置与 DHCP 服务器相互交换的 DHCP 消息的调试。
- debug dhcp packet enable — 配置与 DHCP 服务器相互往来的 DHCP 数据包详细信息的调试。

相关信息

- 思科无线局域网控制器配置指南，版本4.2 — 控制轻量接入点
- 轻量 AP (LAP) 注册到无线 LAN 控制器 (WLC)

- 对轻量接入点进行 WLAN 控制器故障切换配置示例
- 无线 LAN 控制器和轻量接入点基本配置示例
- 无线 LAN 控制器 (WLC) 配置最佳实践
- 技术支持和文档 - Cisco Systems