

# Understand SNMP Traps for Access Point (AP) Association/Disassociation on AireOS Wireless LAN Controller (WLC)

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## Introduction

This document describes the SNMP (Simple Network Manager Protocol) traps that an AireOS WLC sends for AP association/disassociation.

## Prerequisites

## Requirements

Cisco recommends that you have knowledge of these topics:

- Wireless LAN Controller (WLC)
- Access Points (AP)
- SNMP (Simple Network Manager Protocol)

## Components Used

This document is not restricted to specific software and hardware versions.

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, ensure that you understand the potential impact of any step.

## Background Information

For each AP dissociation/association event, the WLC must send a SNMP trap with the following Object Identifiers (OIDs):

### Dissociation trap (variable bindings)

1.3.6.1.2.1.1.3.0 (sysUpTime)  
**variable binding**

**<---- included in traps as the first**

1.3.6.1.6.3.1.1.4.1 (snmpTrapOID) <---- second variable binding (the value of this is another OID, indicating the AP dissociation event)

1.3.6.1.4.1.14179.2.6.3.8 (bsnAPDisassociated) <---- OID indicating the event

1.3.6.1.4.1.14179.2.6.2.20 (bsnAPMacAddrTrapVariable) <---- trap component, base radio  
**MAC (Media Access Control) address of the AP**

1.3.6.1.4.1.14179.2.2.1.1.3 (bsnAPName) <---- trap component

**Management Information Base (MIB):** AIRESPACE-WIRELESS-MIB (all OIDs except sysUpTime and snmpTrapOID):

### Association trap (variable bindings)

1.3.6.1.2.1.1.3.0 (sysUpTime) <---- included in traps as the first variable binding

1.3.6.1.6.3.1.1.4.1 (snmpTrapOID) <---- second variable binding (the value of this is another OID, indicating the AP association event)

1.3.6.1.4.1.9.9.513.0.4 (ciscoLwappApAssociated) <---- OID indicating the event

1.3.6.1.4.1.9.9.513.1.1.1.1.5 (cLApName) <---- trap component, AP name

1.3.6.1.4.1.9.9.513.1.1.1.1.16 (cLApLastRebootReason) <---- trap component (essentially the reason why the AP disconnected previously)

1.3.6.1.4.1.9.9.513.1.1.1.1.36 (cLApDataEncryptionStatus) <---- trap component

**MIB:** CISCO-LWAPP-AP-MIB (all OIDs except sysUpTime and snmpTrapOID).

## SNMP Traps for AP Association/Disassociation on AirOS WLC

### Configuration

The trap control configuration can be set on the WLC GUI with the **AP Register** control (**Management > SNMP > Trap Controls > AP > AP Register**). This is enabled by default. Also, the WLC needs a trap receiver configured (**Management > SNMP > Trap Receivers**) on the GUI as well.

### Verify Association and dissociation of the AP:

#### 1. Traplog

The output of **show traplog** on the WLC shows counters for both associated and dissociated traps, in addition to messages for each event as shown below:

```
(Cisco Controller) >show trap log
```

## AP Traps Statistics

AP Associated Traps ..... 1  
AP Disassociated Traps ..... 1

23 Fri Jun 14 23:32:22 2019 AP 'torres-3802', MAC: 40:01:7a:73:fd:c0 disassociated previously due to AP Reset. Uptime: 0 days, 00 h 02 m 05 s . Reason: controller reboot command.

24 Fri Jun 14 23:29:32 2019 **AP Disassociated**. Base Radio MAC:40:01:7a:73:fd:c0 ApName - torres-3802

## 2. Packet Capture

Disassociation will appear in the packet captures as shown in the image:

Time	Source	Destination	Protocol	Info
23:29:32.943819			SNMP	snmpV2-trap 1.3.6.1.2.1.1.3.0 1.3.6.1.6.3.1.1.4.1.0 1.3.6.1.4.1.14179.2.6.2.20.0 1.3.6.1.4.1.14179.2.2.1.1.3.0

- variable-bindings: 4 items
  - 1.3.6.1.2.1.1.3.0: 60511000
    - Object Name: 1.3.6.1.2.1.1.3.0 (iso.3.6.1.2.1.1.3.0)
    - Value (Timeticks): 60511000
  - 1.3.6.1.6.3.1.1.4.1.0: 1.3.6.1.4.1.14179.2.6.3.8 (iso.3.6.1.4.1.14179.2.6.3.8)
    - Object Name: 1.3.6.1.6.3.1.1.4.1.0 (iso.3.6.1.6.3.1.1.4.1.0)
    - Value (OID): 1.3.6.1.4.1.14179.2.6.3.8 (iso.3.6.1.4.1.14179.2.6.3.8)
  - 1.3.6.1.4.1.14179.2.6.2.20.0: 40017a73fdc0
    - Object Name: 1.3.6.1.4.1.14179.2.6.2.20.0 (iso.3.6.1.4.1.14179.2.6.2.20.0)
    - Value (OctetString): 40017a73fdc0
  - 1.3.6.1.4.1.14179.2.2.1.1.3.0: 746f727265732d33383032
    - Object Name: 1.3.6.1.4.1.14179.2.2.1.1.3.0 (iso.3.6.1.4.1.14179.2.2.1.1.3.0)
    - Value (OctetString): 746f727265732d33383032

**1.3.6.1.4.1.14179.2.6.3.8** is the OID to indicate that the AP disconnected, followed by instance of **bsnAPMacAddrTrapVariable** with the base radio MAC of the AP (40:01:7a:73:fd:c0) and instance of **bsnAPName** with the AP name (**torres-3802** is translated from the hexadecimal value).

Association will appear in the packet captures as shown in the image:

Time	Source	Destination	Protocol	Info
23:32:22.399182			SNMP	snmpV2-trap 1.3.6.1.2.1.1.3.0 1.3.6.1.6.3.1.1.4.1.0 1.3.6.1.4.1.9.9.513.1.1.1.5.64.1.122.115.253.192 1.3.6.1.4.1.9.9.513.1.1.1.1.16.64.1.122.115.253.192

- variable-bindings: 5 items
  - 1.3.6.1.2.1.1.3.0: 60527900
    - Object Name: 1.3.6.1.2.1.1.3.0 (iso.3.6.1.2.1.1.3.0)
    - Value (Timeticks): 60527900
  - 1.3.6.1.6.3.1.1.4.1.0: 1.3.6.1.4.1.9.9.513.0.4 (iso.3.6.1.4.1.9.9.513.0.4)
    - Object Name: 1.3.6.1.6.3.1.1.4.1.0 (iso.3.6.1.6.3.1.1.4.1.0)
    - Value (OID): 1.3.6.1.4.1.9.9.513.0.4 (iso.3.6.1.4.1.9.9.513.0.4)
  - 1.3.6.1.4.1.9.9.513.1.1.1.1.5.64.1.122.115.253.192: 746f727265732d33383032
    - Object Name: 1.3.6.1.4.1.9.9.513.1.1.1.1.5.64.1.122.115.253.192 (iso.3.6.1.4.1.9.9.513.1.1.1.1.5.64.1.122.115.253.192)
    - Value (OctetString): 746f727265732d33383032
  - 1.3.6.1.4.1.9.9.513.1.1.1.1.16.64.1.122.115.253.192: 4
    - Object Name: 1.3.6.1.4.1.9.9.513.1.1.1.1.16.64.1.122.115.253.192 (iso.3.6.1.4.1.9.9.513.1.1.1.1.16.64.1.122.115.253.192)
    - Value (Integer32): 4
  - 1.3.6.1.4.1.9.9.513.1.1.1.1.36.64.1.122.115.253.192: 2
    - Object Name: 1.3.6.1.4.1.9.9.513.1.1.1.1.36.64.1.122.115.253.192 (iso.3.6.1.4.1.9.9.513.1.1.1.1.36.64.1.122.115.253.192)
    - Value (Integer32): 2

**1.3.6.1.4.1.9.9.513.0.4** is the OID to indicate that the AP connected back to the WLC, followed by instance of **cLApName** with the AP name (**torres-3802** is translated from the hexadecimal value) and instance of **cLApLastRebootReason** (in this case it is number 4 to indicate a manual reboot from the WLC).

Below Wireshark filters can be used for the SNMP packets:

1. **snmp.value.oid == 1.3.6.1.4.1.14179.2.6.3.8**
2. **snmp.value.oid == 1.3.6.1.4.1.9.9.513.0.4**
3. **(snmp.value.oid == 1.3.6.1.4.1.14179.2.6.3.8 or snmp.value.oid == 1.3.6.1.4.1.9.9.513.0.4) and snmp.value.octets == "<AP name>"**