WLC Configuration for AeroScout RFID Tags

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Introduction

This document provides a quick checklist for Radio Frequency Identification (RFID) when the tags are not seen on the controller.

Note: The Wireless Control System (WCS) and Location Server poll the SNMP table of the controller in order to view tag information. This document does not cover debugging them when the tag (or tags) are not visible on these products.

Note: This document does not replace the document, *Wi−Fi Location−Based Services Design and Deployment Considerations* , which provides RFID troubleshooting and deployment information.

Prerequisites

Requirements

There are no specific requirements for this document.

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, make sure that you understand the potential impact of any command.

Conventions

Refer to the Cisco Technical Tips Conventions for information on document conventions.

Background Information

AeroScout tags transmit Layer 2 multicast packets (native multicast 01:0C:CC:00:00:00 or CCX v1 multicast format 01:40:96:00:00:03) at a configurable interval on specific channels (can be set to 1 6 11). The tags do not scan for the channel that the nearby access point (AP) is on. The Windows−based AeroScout Tag

Manager connects to the AeroScout Tag Activator (similar to an AP) in order to configure the tags. In order to configure the tag through the AeroScout Manager so that the controller recognizes and intercepts it, refer to Appendix B of *Wi−Fi Location−Based Services Design and Deployment Considerations* .

Since this is a Layer 2 multicast packet, the AeroScout tag does not associate or authenticate to the AP and is not affected by WLAN settings on the Wireless LAN Controller (WLC). If the AP is powered on and receives radio packets, it forwards the Layer 2 multicast packets to the controller when the RFID Tag Data Collection is enabled.

Configure

The only configuration required on the WLC is to turn on Tag Data Collection, which can be accomplished with the **config rfid status enable** CLI command.

```
(Cisco Controller) >config rfid status enable
```

Multicast or broadcast does *not* need to be turned on for the controller to see the tag since the Layer 2 multicast packet does not pass through the controller, but is intercepted and consumed by the controller. In fact, it is not necessary even to have WLANs. As long as the radio interface is up on the AP, it receives and forwards the multicast frames to the controller. The auto−timeout algorithm that discovers the interval set in the tags automatically has some issues and should be turned off. Instead, use the fixed timeout interval.

In order to configure AeroScout tags, refer to Appendix B of *Wi−Fi Location−Based Services Design and Deployment Considerations* .

Note: The most common configuration mistake is when the AeroScout tag is set to Independent Basic Service Set (IBSS) data format. When this is done, the AP does not forward the tag in this format. Ensure the customer sets the data format to *Wireless Distribution System (WDS)* as described in Appendix B of *Wi−Fi Location−Based Services Design and Deployment Considerations* . If the customer changes some other configuration, the AeroScout software (version 2.1) can change this value without the customer's knowledge.

Verify

Use this section to confirm that your configuration works properly. You can use these CLI **show** commands on the WLC:

- **show rfid config** This command provides information about whether the RFID Tag Data Collection is enabled or disabled. For example:

```
(Cisco Controller) >show rfid config


RFID Tag data Collection..................... Enabled
RFID Tag Auto−Timeout..................... Disabled
RFID data timeout.............................. 1200 seconds
RFID mobility.................................. Oui:00:14:7e :
                                               Vendor:pango  State:Disabled
```

- **show rfid summary** This command provides polling information on RFID tags, such as the RFID ID, the closest AP, the RSSI value for each tag, and the time since the tag was last heard. For example:

```
(Cisco Controller) >show rfid summary


Total Number of RFID   : 2
_________________ ________ _________________ ______ ____________________
```

```
     RFID ID      VENDOR       Closest AP      RSSI  Time Since Last Heard
----------------- -------- ------------------ ------ --------------------
00:0c:cc:5d:4e:a5 Aerosct  AP1242#7            -43        5 seconds ago
00:0c:cc:5d:4e:aa Aerosct  AP1242#7            -38       27 seconds ago
```

- **show rfid detail** <*mac_address*> This command indicates which APs receive the tag s transmissions, as well as signal strength. For example:

```
(Cisco Controller) >show rfid detail 00:0c:cc:5d:4e:a5


RFID address..................................... 00:0c:cc:5d:4e:a5
Vendor........................................... Aerosct
Last Heard....................................... 24 seconds ago
Packets Received................................. 12
Bytes Received................................... 624
Detected Polling Interval........................ 1 seconds
Cisco Type.....................................

Content Header
==================
CCX Tag Version.................................  1
Tx Power......................................... 19 dBm
Channel.........................................  11
Reg Class.......................................  0x6
Burst Length....................................  1

System Group
====================
Product Type..................................... Reserved (51)
Battery Status
====================

Tolerance.......................................  +/- 20%
Percentage Remaining............................  80%
Days Remaining..................................  0 days
Battery Age.....................................  0 days
Telemetry Group
====================
Motion Probability..............................  No Motion
Nearby AP Statistics:
      AP1242#4(slot 0) 24 seconds ago............. -66 dBm
      AP1242#7(slot 0) 24 seconds ago............. -43 dBm
```

Troubleshoot

If you do not see the tag (or tags) on the controller with the **show rfid summary** command, use the debug commands listed in this section in order to determine if the tag sends signals to the controller. If you can see the tag in the summary, use **show rfid detail** <*mac address*> in order to determine what the tag sends out.

debug dot11 rfid enable For example:

```
(Cisco Controller) >debug dot11 rfid enable

(Cisco Controller) >show debug


MAC debugging ............................. disabled

Debug Flags Enabled:
  arp error enabled.
  bcast error enabled
```

```
(Cisco Controller) >
Wed Jun  6 13:48:13 2007: 00:0c:cc:5d:4e:aa Parsing Cisco Tag RFID packet 52
Wed Jun  6 13:48:13 2007: 00:0c:cc:5d:4e:aa System group 51
Wed Jun  6 13:48:13 2007: 00:0c:cc:5d:4e:aa Battery group: status 0x42, days 0, age 0
Wed Jun  6 13:48:13 2007: 00:0c:cc:5d:4e:aa Telemetry group
Wed Jun  6 13:48:13 2007: 00:0c:cc:5d:4e:aa Telemetry Motion Prob 0
Wed Jun  6 13:48:13 2007: 00:0c:cc:5d:4e:aa rfid Aerosct updated by AP
         00:14:1B:59:40:00 (Incoming rssi -44,snr 54), New saved values rssi -44,
         snr 54, timestamp 36086857
Wed Jun  6 13:48:13 2007: 00:0c:cc:5d:4e:aa  Dropping Cisco Tag Packet from AP
         00:14:1b:59:40:00:  -- off channel pkts, rcv on 6, ap on 1
Wed Jun  6 13:48:13 2007: 00:0c:cc:5d:4e:aa  Dropping Cisco Tag Packet from AP
         00:14:1b:59:3f:40:  -- off channel pkts, rcv on 6, ap on 11
Wed Jun  6 13:48:13 2007: 00:0c:cc:5d:4e:aa Parsing Cisco Tag RFID packet 52
Wed Jun  6 13:48:13 2007: 00:0c:cc:5d:4e:aa System group 51
Wed Jun  6 13:48:13 2007: 00:0c:cc:5d:4e:aa Battery group: status 0x42, days 0, age 0
Wed Jun  6 13:48:13 2007: 00:0c:cc:5d:4e:aa Telemetry group
Wed Jun  6 13:48:13 2007: 00:0c:cc:5d:4e:aa Telemetry Motion Prob 0
Wed Jun  6 13:48:13 2007: 00:0c:cc:5d:4e:aa rfid Aerosct updated by AP
         00:14:1B:59:3F:40 (Incoming rssi -44,snr 53), New saved values rssi -44,
         snr 53, timestamp 36087119
Wed Jun  6 13:48:28 2007: 00:0c:cc:5d:4e:a5 Parsing Cisco Tag RFID packet 52
Wed Jun  6 13:48:28 2007: 00:0c:cc:5d:4e:a5 System group 51
Wed Jun  6 13:48:28 2007: 00:0c:cc:5d:4e:a5 Battery group: status 0x42, days 0, age 0
Wed Jun  6 13:48:28 2007: 00:0c:cc:5d:4e:a5 Telemetry group
Wed Jun  6 13:48:28 2007: 00:0c:cc:5d:4e:a5 Telemetry Motion Prob 0
Wed Jun  6 13:48:28 2007: 00:0c:cc:5d:4e:a5 rfid Aerosct updated by AP
         00:14:1B:59:40:00 (Incoming rssi -42,snr 50), New saved values rssi -42,
         snr 50, timestamp 36101903
Wed Jun  6 13:48:28 2007: 00:0c:cc:5d:4e:a5  Dropping Cisco Tag Packet from AP
         00:14:1b:59:3f:40: -- off channel pkts, rcv on 6, ap on 11
Wed Jun  6 13:48:28 2007: 00:0c:cc:5d:4e:a5 Parsing Cisco Tag RFID packet 52
Wed Jun  6 13:48:28 2007: 00:0c:cc:5d:4e:a5 System group 51
Wed Jun  6 13:48:28 2007: 00:0c:cc:5d:4e:a5 Battery group: status 0x42, days 0, age 0
Wed Jun  6 13:48:28 2007: 00:0c:cc:5d:4e:a5 Telemetry group
Wed Jun  6 13:48:28 2007: 00:0c:cc:5d:4e:a5 Telemetry Motion Prob 0
Wed Jun  6 13:48:28 2007: 00:0c:cc:5d:4e:a5 rfid Aerosct updated by AP
         00:14:1B:59:3F:40 (Incoming rssi -56,snr 41),
         New saved values rssi -56, snr 41, timestamp 36102175
Wed Jun  6 13:48:42 2007: 00:0c:cc:5d:4e:aa Parsing Cisco Tag RFID packet 52
Wed Jun  6 13:48:42 2007: 00:0c:cc:5d:4e:aa System group 51
```

Note: With software release 4.0.217.0 or later, you can use **debug mac addr** <*mac_address*> in order to reduce the debug output.

Note: If there is no debug output at the controller, verify that the tag is active and set to the proper data format. For more information, see the note in the Configure section.

Related Information

- **Wi−Fi Location−Based Services Design and Deployment Considerations**
- **Cisco Wireless LAN Controller Command References**
- **Wireless Support Page**
- **Technical Support & Documentation − Cisco Systems**

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