

Wireless – smartBridges airPoint

Version 1.1

This probe monitors a smartBridges airPoint device. It retrieves and displays a variety of information, including traffic, the number of clients associated, and RF information. It places the device into alarm or warning based on user-defined thresholds for the number of clients. This probe uses SNMP v1 GET commands, as required by ATMEL AT76C510 chip.

Thresholds:

Alarms:

Max number of clients reached: User-defined (≥ 128)

Too many retry packets/sec: User-defined (≥ 100)

Too many failed packets/sec: User defined (≥ 100)

Warnings:

Too many clients: User-defined (> 120)

Version/License:

Included in the wireless probe bundle version 1.1. Requires InterMapper 4.3d4 or later.

Requires: IMWirelessAddon license.

Supported Equipment:

smartBridges airPoint (all series: indoor, PRO, and XO) and all operating modes (wireless access point, wireless bridge point-to-point, wireless bridge point-to-multi-point, wireless repeater, and wireless client).

We also think that the probe should work other devices based on ATMEL AT76C510 chip.

Status window

The probe status window will display different information depending on the device's operating mode.

Device Status

Name: myairpoint.mydomain.com
DNS Name: myairpoint.mydomain.com
Address: 172.16.0.1
Status: (UP|DOWN) (Reachable since Jan 20, 12:01:03)
Protocol: Wireless - smartBridges airPoint
Up Time: n/a¹
Availability: 99.8 % (of 1 day, 20 hours, 25 minutes)
Packet Loss: 0.85 % (of 10680 total attempts) [Reset]
Recent Loss: 1 pkts at Jan 28, 10:26:28
Round-trip time: 87 msec

Operational Information

Operational Mode: Access Point
Authorized MAC Address: 00:30:BD:C1:DD:F8²

Wireless Base Station Information³

Number of Active Stations: 3
00-30-1A-00-E4-5A: 7 dBm (100.00%) signal 87% quality
00-30-1A-00-E4-5B: -16 dBm (92.50%) signal 77% quality
00-30-1A-00-E4-5C: -12 dBm (97.50%) signal 78% quality

Wireless Client Information⁴

ESSID: My Access Point ESSID
BSSID: 32:12:AB:EF:FC:01
Channel: 0
Link quality: 90 %
RSSI: -31 dBm (75 %)

airPoit-PROTOTAL Information ([manage](#))

Station name: airPointAP
Firmware Version: 1.4k5
SSID: 00:30:1A:00:E4:5D
ESSID: myESSID
Primary port: Wireless
Channel ID: 8

Traffic Information

Ethernet: 0 total (0 Tx 0 Rx) bytes/sec
Wireless: 0 total (0 Tx 0 Rx) packets/sec
0 Tx retry 0 Rx failed packets/sec
Total wireless traffic: 17% Unicast 0% Multicast 83% Broadcast
Last updated Feb 08, 14:34:36; interval: 30 seconds

Note that a typical status window will not display all of the information above (not all information is available in all modes). See the sample status pages below for examples.

Data Source

- Operational mode: 1.3.6.1.4.1.410.1.1.4.1 (operationalMode)
- Authorized MAC Address: 1.3.6.1.4.1.410.1.1.4.2 (remoteBridgeSSID)
- Wireless client information:
 - Number of clients: 1.3.6.1.4.1.410.1.2.5.1 (associatedSTAsNum)
 - Client information: 1.3.6.1.4.1.410.1.2.5.2 (associatedSTAsInfo)
- Station name: 1.3.6.1.4.1.410.1.2.1.10.0 (operWirelessBridgeName)
- Firmware version: 1.3.6.1.4.1.410.1.1.1.1.0 (sysDescr)
- SSID: 1.3.6.1.4.1.410.1.1.2.3.0 (operEthernetAddress)
- ESSID: 1.3.6.1.4.1.410.1.2.1.3.0 (operESSID)
- Wireless client info: 1.3.6.1.4.1.410.1.2.8.1.0 (NetworkSettings)
- Primary port: 1.3.6.1.4.1.410.1.1.2.6.0 (operPrimaryPort)

¹ This information is not available since the device doesn't support MIB-II.

² This information is only applicable for wireless bridge p2p operational mode.

³ This information is only applicable for wireless AP and repeater modes.

⁴ This information is only applicable for wireless client and repeater modes.

- Channel ID: 1.3.6.1.4.1.410.1.2.1.1.0 (operChannelID)
- Traffic information (these statistics MIB objects will result in a C struct in little endian order that will need to be parsed/unpacked – for details see the Atmel MIB):
 - Ethernet Rx statistics: 1.3.6.1.4.1.410.1.1.7.2.0 (EthTxStatistics)
 - Ethernet Tx statistics: 1.3.6.1.4.1.410.1.1.7.1.0 (EthRxStatistics)
 - Wireless statistics: 1.3.6.1.4.1.410.1.2.3.1.0 (WirelessStatistics)

Caveats/FAQs:

1. You may see stability issues with your smartBridges airPoint devices if you access them directly too frequently (device may not respond in time and InterMapper will think that they're down). The device resets its wireless and ethernet statistics periodically, the probe will display a slightly lower number of bytes/sec or packets/sec the first time the device is being reprobod after a reset.
2. To be able to run both InterMapper and smartBridges simpleMonitor on the same machine, disable SNMP trap processing in InterMapper. In InterMapper Console window, choose Edit/Server Settings, navigate to Server Preferences/SNMP, and uncheck the box labeled "Listen for SNMP traps on UDP port 162", then click OK.
3. The default community string for the airPoint devices is "public".
4. This probe has to be set manually (will not be autodiscovered from automatic/auto-discovery mode).
5. Implementation notes:
 - airPoint devices don't support SNMP get-next (attempts to do get-next on a non-existent MIB objects will cause "tooBig" error)
 - the formulas for link quality % and RSSI % were reversed engineered from network dump. We are using the following formulas (\$RSSI and \$LinkQuality is the value of the RSSI and link quality obtained from the device):
 - rssI pct = (\$RSSI > 40) ? 100 : max(\$RSSI, 0)/40.0 * 100.0
 - rssI dBm = 85.0/40.0*\$RSSI- 95
 - link quality pct = max(40-\$LinkQuality,
 - 0)/40.0) * 100.00
 - the traffic statistics from the device will reset itself to zero every now and then – to calculate the rates, we need to make sure that the previous traffic statistic values are smaller than the current values (see the probe files for details).

Sample status pages

Sample status page for airPoint operating as an Access Point:

```
192.168.1.241
Device Status
  Name: 192.168.1.241
  DNS Name: (Unknown)
  Address: 192.168.1.241
  Status: UP
  Protocol: Wireless - smartBridges airPoint (port 161)
  Up Time: n/a
  Availability: 100 % (of 2 minutes, 32 seconds)
  Packet Loss: 0.0 % (of 38 total attempts) [Reset]
  Recent Loss: None
  Round-trip time: 16 msec
Operational Information
  Operational Mode: Access Point
Wireless Base Station Information
  Number of Active Stations: 3
  00-06-25-56-65-62: 7 dBm (100.00%) signal 95 % quality
  00-06-25-56-7A-41: -16 dBm (92.50%) signal 90 % quality
  00-06-25-56-77-41: -12 dBm (97.50%) signal 100 % quality
airBridge Information
  Station name: Dartware airBridge
  Firmware Version: 0.01.11
  SSID: 00:30:1A:00:E4:5D
  ESSID: dutnetwork2
  Primary port: Wireless
  Channel ID: 8
Traffic Information
  Ethernet: 1286 total (118 Tx 1168 Rx) bytes/sec
  Wireless: 0 total (0 Tx 0 Rx) packets/sec
             0 Tx retry 0 Rx failed packets/sec
  Total wireless traffic: 3% Unicast 0% Multicast 97% Broadcast
Last updated Mar 03, 15:22:15; interval: 30 seconds
```

Sample status page for airPoint operating as a wireless Bridge P2P:

```
192.168.1.241
Device Status
  Name: 192.168.1.241
  DNS Name: (Unknown)
  Address: 192.168.1.241
  Status: UP
  Protocol: Wireless - smartBridges airPoint
  Up Time: n/a
  Availability: 100 % (of 26 minutes, 32 seconds)
  Packet Loss: 4.14 % (of 169 total attempts) [Reset]
  Recent Loss: 1 pkts at Feb 08, 15:07:40
  Round-trip time: 16 msec
Operational Information
  Operational Mode: Wireless Bridge Point to Point
  Authorized MAC Address: 00:30:BD:C1:DD:F8
airPoint-PROTOTAL Information
  Station name: airPoint AP
  Firmware Version: 1.4k5
  SSID: 00:30:1A:00:E4:5D
  ESSID: myESSID
  Primary port: Wireless
  Channel ID: 8
Traffic Information
  Ethernet: 809 total (2 Tx 801 Rx) bytes/sec
  Wireless: 1 total (0 Tx 1 Rx) packets/sec
             0 Tx retry 0 Rx failed packets/sec
  Total wireless traffic: 8% Unicast 0% Multicast 92% Broadcast
Last updated Feb 08, 15:15:07; interval: 30 seconds
```

Sample status page for airPoint operating as a wireless Bridge P2MP:

```
192.168.1.241
Device Status
  Name: 192.168.1.241
  DNS Name: (Unknown)
  Address: 192.168.1.241
  Status: UP
  Protocol: Wireless - smartBridges airPoint
  Up Time: n/a
  Availability: 100 % (of 1 minute, 19 seconds)
  Packet Loss: 20.0 % (of 10 total attempts) [Reset]
  Recent Loss: 1 pkts at Feb 08, 15:17:36
  Round-trip time: 15 msec
Operational Information
  Operational Mode: Wireless Bridge Point to MultiPoint
airPoit-PROTOTAL Information
  Station name: airPoint AP
  Firmware Version: 1.4k5
  SSID: 00:30:1A:00:E4:5D
  ESSID: myESSID
  Primary port: Wireless
  Channel ID: 8
Traffic Information
  Ethernet: 1148 total (98 Tx 1050 Rx) bytes/sec
  Wireless: 1 total (0 Tx 1 Rx) packets/sec
             0 Tx retry 0 Rx failed packets/sec
  Total wireless traffic: 2% Unicast 0% Multicast 98% Broadcast
Last updated Feb 08, 15:18:03; interval: 30 seconds
```

Sample status page for airPoint operating as a wireless client:

```
192.168.1.241
Device Status
  Name: 192.168.1.241
  DNS Name: (Unknown)
  Address: 192.168.1.241
  Status: UP
  Protocol: Wireless - smartBridges airPoint
  Up Time: n/a
  Availability: 100 % (of 8 seconds)
  Packet Loss: 0.0 % (of 5 total attempts) [Reset]
  Recent Loss: None
  Round-trip time: 16 msec
Operational Information
  Operational Mode: Access Point client
Wireless Client Information
  ESSID: My Access Point ESSID
  BSSID: 32:12:AB:EF:FC:01
  Channel: 0
  Link quality: 90 %
  RSSI: -31 dBm (75 %)
airPoit-PROTOTAL Information
  Station name: airPoint AP
  Firmware Version: 1.4k5
  SSID: 00:30:1A:00:E4:5D
  ESSID: myESSID
  Primary port: Wireless
  Channel ID: 8
Traffic Information
  Ethernet: 0 total (0 Tx 0 Rx) bytes/sec
  Wireless: 0 total (0 Tx 0 Rx) packets/sec
             0 Tx retry 0 Rx failed packets/sec
  Total wireless traffic: 2% Unicast 0% Multicast 98% Broadcast
Last updated Feb 08, 15:32:28; interval: 30 seconds
```

Sample status page for airPoint operating as a wireless repeater:

```
192.168.1.241
Device Status
  Name: 192.168.1.241
  DNS Name: (Unknown)
  Address: 192.168.1.241
  Status: UP
  Protocol: Wireless - smartBridges airPoint
  Up Time: n/a
  Availability: 100 % (of 7 seconds)
  Packet Loss: 0.0 % (of 7 total attempts) [Reset]
  Recent Loss: None
  Round-trip time: 16 msec
Operational Information
  Operational Mode: Wireless Repeater
Wireless Base Station Information
  Number of Active Stations: 0
Wireless Client Information
  ESSID: My Access Point ESSID
  BSSID: 32:12:AB:EF:FC:01
  Channel: 0
  Link quality: 90 %
  RSSI: -31 dBm (75 %)
airPoint-PROTOTAL Information
  Station name: airPoint AP
  Firmware Version: 1.4k5
  SSID: 00:30:1A:00:E4:5D
  ESSID: myESSID
  Primary port: Wireless
  Channel ID: 8
Traffic Information
  Ethernet: 0 total (0 Tx 0 Rx) bytes/sec
  Wireless: 0 total (0 Tx 0 Rx) packets/sec
             0 Tx retry 0 Rx failed packets/sec
  Total wireless traffic: 3% Unicast 0% Multicast 97% Broadcast
Last updated Feb 08, 15:34:05; interval: 30 seconds
```