

Wireless – Proxim LAN Access Point

Version 1.1

This probe monitors a Proxim wireless LAN access points (AP-4000, AP-700, AP-600, AP-2000). The information are obtained from ORiNOCO, IEEE 802.11 and MIB-II MIBs.

Status page:

Device Status

```
Name: Proxim AP-xxxx
DNS Name: ap4000.mywirelessdomain.net
Address: 172.16.0.1
Status: (UP|DOWN) (Reachable since Jan 20, 12:01:03)
Protocol: Wireless - Proxim LAN Access Point(port 161)
Up Time: 8 days, 1 hours, 23 minutes
SysName: Proxim AP-xxxx
Location: 999 This A Way Dr. NW
          Issaquah, WA 98027
Contact: John Doe / 555-225-8978
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
```

AP-xxxx Information

```
Ethernet: 100 Mbps
Management VLAN: 3
Station Stats Mon: Enabled
Number of clients: 2
Wireless interface RF parameters
MAC Address: 00:20:EF:23:56:AB      00:20:EF:BB:AA:CC
Network Name (SSID): WirelessA      Wireless B
                  WirelessA-ns
Operational Mode: 802.11b-only      802.11g-wifi
Channel: 10                          11
Auto Channel Select: Enabled         Enabled
Wireless Service: Enabled            Enabled
Tx Rate: Auto fallback               Auto fallback
Multicast Tx Rate: 24 Mbps           24 Mbps
Turbo Mode: Enabled                  Enabled
Super Mode: Enabled                  Enabled
QoS: Enabled (max 70)                Disabled
Rogue Scan: Disabled                 Enabled (Background/60 mins)
FCS Error Count: 1/sec                3/sec
Failed Count: 1/sec                   2/sec
Retry Count: 1/sec                    1/sec
```

Security information:

```
Network Name (SSID): Wireless A      WirelessA-ns      Wireless B
SSID Broadcast: Enabled               Enabled           Disabled
VLAN: Untagged                        Untagged          1
Closed System: Disabled               Disabled          Enabled
Security Profile: 1                    2                 3
                  802.1x                non-secure        802.11i-PSK
                  WEP
```

Wireless Station Statistics

Mac	IP Addr	Interface	Type	Proto	SNR
00:20:EF:BB:AA:B1	172.16.0.50	Wireless A	STA	801.11b	20 dBm
00:20:EF:23:56:EF	172.16.0.2	Wireless B	WDS	801.11g	16 dBm

Notes:

- The grayed out area in the status page will be filled-in with the standard device info and cannot be changed.
- MIB-II interface statistics will be shown in a separate status page (link status page).
- Wireless Station Statistics section will only be shown if station statistics monitoring is enabled.
- Wireless Service and Super Mode status will only be shown for AP-700 and AP-4000.
- There is an option to not display the wireless interface settings, security information, and wireless station statistics.

Glossary of Terms:

Device Information:

- **Device name:** The type of the device (model). This is determined from comparing the sysObjectID against the OIDs listed in orinocoProducts in ORiNOCO MIB.
- **Ethernet:** The speed of the first ethernet interface (OID OriEthernetIfConfigTableEntry.oriEthernetIfConfigSettings).
- **Management VLAN:** The management VLAN identifier (OID oriVLANMgmtIdentifier). This information is only applicable when VLAN Status (OID oriVLANStatus) is enabled.
- **Station stats mon:** This indicates whether the monitoring of the wireless station statistics is enabled (OID oriStationStatStatus).
- **Number of clients:** The number of active wireless clients associated to the access point (OID oriStationStatNumberOfClients).

Wireless interface RF parameters

- **MAC Address:** This is the MAC address of the wireless interface (OID OriWirelessIfPropertiesEntry.oriWirelessIfMACAddress, if not available the MAC address will be obtained from ifTable.ifPhysAddress).
- **Network Name (SSID):** the wireless card SSID string (wireless network name). A wireless interface can have several SSIDs. InterMapper will display of the SSIDs for the wireless interface (all oriWirelessIfSSIDTableEntry whose oriWirelessIfSSIDTableIndex matches the index of this wireless interface).
- **Operational Mode:** The wireless NIC Operational mode, eg. 802.11b, 802.11g, 802.11b/g, 802.11a only, 802.11g-wifi (OID OriWirelessIfPropertiesEntry.oriWirelessIfOperationalMode).
- **Channel:** The radio frequency channel for this wireless interface (OID OriWirelessIfPropertiesEntry.oriWirelessIfChannel).
- **Auto Channel Select:** This indicates if the automatic frequency channel feature for the wireless interface is enabled (OID OriWirelessIfPropertiesEntry.oriWirelessIfAutoChannelSelectStatus).
- **Wireless Service Status:** This indicates if wireless client services is disabled/enabled (OID OriWirelessIfPropertiesEntry.oriWirelessIfWSSStatus). Not available on AP-600 and AP-2000.
- **Tx rate:** The configured transmit rate for unicast traffic for the wireless interface (OID OriWirelessIfPropertiesEntry.oriWirelessIfTxRate).
- **Multicast rate:** The multicast rate of the wireless interface (OID OriWirelessIfPropertiesEntry.oriWirelessIfMulticastRate).
- **Turbo mode:** This indicates if the turbo mode support is enabled/disabled for the wireless interface (OID OriWirelessIfPropertiesEntry.oriWirelessIfTurboModeStatus).
- **Super mode:** This indicates if the super mode support is enabled/disabled for the wireless interface (OID OriWirelessIfPropertiesEntry.oriWirelessIfSuperModeStatus). Not available on AP-600 and AP-2000.
- **QoS status:** This indicates if Quality of Service (QoS) is enabled/disabled for the wireless interface (OID OriWirelessIfPropertiesEntry.oriWirelessIfQoSStatus). If enabled, InterMapper will also show the QoS admission control maximum medium threshold (OID OriWirelessIfPropertiesEntry.oriWirelessIfQoSMaxMediumThreshold). Not available on AP-600 and AP-2000.
- **Rogue scan:** This indicates if rogue scan is enabled for the wireless interface (OID OriRogueScanConfigTableEntry.oriRogueScanConfigTableScanStatus). If rogue scan is enabled, the scan mode (background/continuous, OID OriRogueScanConfigTableEntry.oriRogueScanConfigTableScanMode) and the scan cycle time (OID OriRogueScanConfigTableEntry.oriRogueScanConfigTableScanCycleTime) will also be shown.
- **FCS Error Count:** The number of MPDU received with Frame Check Sequence (FCS) error per second (OID dot11FCSErrorCount).
- **Failed Count:** The number of MSDUs per second not transmitted successfully due to the number of transmit attempts exceeding either the retry limit or long retry limit (OID dot11FailedCount).
- **Retry Count:** The number of MSDUs per second successfully transmitted after one or more retransmissions (OID dot11RetryCount).

Security information:

- **Network Name (SSID):** The wireless card SSID string/wireless network name (OID: OriWirelessIfSSIDTableEntry.oriWirelessIfSSIDTableSSID).
- **SSID Broadcast:** This indicates if the SSID is broadcasted in beacon messages. Only a single entry in the SSID table can be enabled to broadcast (OID: OriWirelessIfSSIDTableEntry.oriWirelessIfSSIDTableBroadcastSSID).
- **VLAN:** The VLAN Identifier (OID: OriWirelessIfSSIDTableEntry.oriWirelessIfSSIDTableVLANID).
- **Closed system:** This indicates if the closed system feature (null respond for "ANY" SSID) is enabled for this SSID (OID: OriWirelessIfSSIDTableEntry.oriWirelessIfSSIDTableClosedSystem).

- **Security profile:** The security profile used for this SSID (OID: OriWirelessIfSSIDTableEntry.oriWirelessIfSSIDTableSecurityProfile).
- **Security modes:** All authentication/cipher mode pairs that are enabled for the SSID's security profile (OIDs: all oriSecurityProfileTableAuthenticationMode and oriSecurityProfileTableCipherMode entries from OriSecurityProfileTableEntry corresponding to the security profile used by a given SSID).

Wireless station statistics:

- **MAC:** The the MAC address of the station for which the statistics are gathered (OID: OriStationStatTableEntry.oriStationStatTableMACAddress)
- **IP Addr:** The IP address of the stations for which the statistics are gathered. If the IP address is not known, 0.0.0.0 will be displayed (OID OriStationStatTableEntry.oriStationStatTableIPAddress)
- **Wireless Interface:** The number of the interface on which the station is last seen (OID: OriStationStatTableEntry.oriStationStatTableInterface).
- **Client type:** The type of station (OID: OriStationStatTableEntry .oriStationStatTableType).
- **Protocol:** The MAC protocol for this station (OID: OriStationStatTableEntry.oriStationStatTableMACProtocol)
- **SNR:** The current signal/noise ratio calculated over the inbound packets from this station (OID: OriStationStatTableEntry .oriStationStatTableInSignal).

Thresholds:

Alarms:

- **Clients: maximum number of stations reached**
This alarm will be raised the number of active wireless clients associated to the access point reaches a specified parameter (user-defined). InterMapper obtains the number of clients from polling the device (OID oriStationStatNumberOfClients). This alarm will clear as soon as this number falls below the specified parameter. The default values are as follows:

Model	Maximum # of stations
AP-700	63
AP-4000	126
AP-600	250
AP-2000	250

- **FCS errors/sec too high:**
This alarm will be raised if the number of MPDU received with Frame Check (FCS) error per second is greater than or equals to the given user-defined parameter (default 100). OID: dot11FCSErrorCount.
- **Failures/sec too high:**
This alarm will be raised if the number of MSDUs not transmitted successfully per second is greater than or equals to the given user-defined parameter (default 100). OID: dot11FailedCount.
- **Retries/sec too high:**
This alarm will be raised if the number of MSDUs successfully transmitted after one or more retransmissions per second is greater than or equals to the given user-defined parameter (default 100). OID: dot11RetryCount.
- **Security: Rogue AP detected (trap-based)**
This alarm is based on oriTrapRogueScanStationDetected, which will be generated when a rogue station is detected. This alarm will clear when acknowledged manually.
- **Security: Unauthorized Manager (trap-based)**
This alarm is based on oriTrapUnauthorizedManagerDetected, which will be generated when generated when an unauthorized manager has attempted to view and/or modify parameters. This alarm will clear when acknowledged manually.
- **Security: Invalid encryption key (trap-based)**
This alarm is based on oriTrapInvalidEncryptionKey, which will be generated when an invalid encryption key has been detected. This alarm will clear when acknowledged manually.
- **Security: Authentication failure (trap-based)**
This alarm is based on oriTrapAuthenticationFailure, which will be generated when a client authentication failure has occurred. The authentication failures can range from: MAC Access Control Table, RADIUS MAC Authentication, 802.1x Authentication specifying the EAP-Type, WOPR Mutual Authentication, SSID Authorization (failure specifying the SSID), VLAN ID Authorization (failure specifying the VLAN ID). This alarm will clear when acknowledged manually.
- **WirelessIf: Wireless card failure (trap-based)**
This alarm is based on oriTrapWLCFailure, will clear when acknowledged manually

Warnings:

- **Clients: many clients**
This warning will be raised when the number of active wireless clients associated to the access point reaches a specified parameter (user-defined). InterMapper obtains the number of clients from polling the device (OID `oriStationStatNumberOfClients`). This alarm will clear as soon as this number falls below the specified parameter. The default values are as follows:

Model	Maximum # of stations
AP-700	60
AP-4000	120
AP-600	240
AP-2000	240

- **FCS errors/sec high:**
This warning will be raised if the number of MPDU received with Frame Check (FCS) error per second is greater than or equals to the given user-defined parameter (default 50). OID: `dot11FCSErrorCount`.
- **Failures/sec high:**
This warning will be raised if the number of MSDUs not transmitted successfully per second is greater than or equals to the given user-defined parameter (default 50). OID: `dot11FailedCount`.
- **Retries/sec high:**
This warning will be raised if the number of MSDUs successfully transmitted after one or more retransmissions per second is greater than or equals to the given user-defined parameter (default 50). OID: `dot11RetryCount`.
- **Operational: Wireless service shutdown**
This warning is based on `oriTrapWirelessServiceShutdown`, which will be generated when the wireless interface has shutdown services for wireless clients. This warning will clear when acknowledged manually.

Supported Equipments:

AP700, AP600, AP4000, AP2000, and other Proxim LAN Access Points that supports the ORiNOCO MIB.

Trap Host:

The trap-based alarms/warnings requires that the InterMapper server's IP Address is added into the device's Trap host.

Version:

Included with WISPerMapper 4.3, part of wireless bundle 1.1. Requires InterMapper 4.3 or later.

License:

IMWirelessAddon

Sample Screen Shots:

```
Device Status
  Name: MyA4000.mynetwork.com
  DNS Name: MyAP4000.mynetwork.com
  Address: 192.168.1.2
  Status: UP
  Protocol: Wireless - Proxim AP-4000 (port 161)
  Up Time: 32 days, 16 hours, 20 minutes
  SysName: MyAP4000
  Contact: Joe Smith
  Location: Joe Smith's loc
  Availability: 100 % (of 7 seconds)
  Packet Loss: 0.0 % (of 40 total attempts) [Reset]
  Recent Loss: None
  Round-trip time: 125 msec
AP-4000 Information
  Ethernet: Auto speed - Auto Duplex
  Management VLAN: -1
  Station Stats Mon: Enabled
  Number of clients: 1
Wireless interface RF parameters
  MAC Address: 00:20:A6:49:1F:4E 00:20:A6:49:1F:4F
  Network Name (SSID): Smith1 Smith2
  Operational Mode: 802.11a 802.11b/g
  Channel: 60 1
  Auto Channel Select: Disabled Enabled
  Wireless Service: Enabled Enabled
  Tx Rate: Auto fallback Auto fallback
  Multicast Tx Rate: 24 Mbps 2 Mbps
  Turbo Mode: Disabled Disabled
  Super Mode: Disabled Disabled
  QoS: Disabled Disabled
  Rogue Scan: Disabled Disabled
  FCS Error Count: n/a/sec n/a/sec
  Failed Count: n/a/sec n/a/sec
  Retry Count: n/a/sec n/a/sec
Security Information
  Network Name (SSID): Smith1 Smith2
  SSID Broadcast: Disabled Disabled
  VLAN: -1 -1
  Closed System: Enabled Enabled
  Security Profile: 1 1
  None/WEP None/WEP
  PSK/TKIP PSK/TKIP
Wireless Station Statistics
  Mac IP Addr Interface Type Proto SNR
  00:20:A6:4A:D0:94 0.0.0.0 Wireless A WDS 802.11a 27 dBm

Last updated Apr 12, 17:19:21; interval: 30 minutes, 0 seconds
```

Sample screen shot when wireless interface settings, security information, and station statistics are not displayed:

```
Device Status
  Name: MyAP4000.mynetwork.com
  DNS Name: MyAP4000.mynetwork.com
  Address: 192.168.1.2
  Status: UP
  Protocol: Wireless - Proxim AP-4000 (port 161)
  Up Time: 32 days, 16 hours, 20 minutes
  SysName: MyAP4000
  Contact: Joe Smith
  Location: Joe Smith's loc
  Availability: 100 % (of 48 seconds)
  Packet Loss: 0.0 % (of 80 total attempts) [Reset]
  Recent Loss: None
  Round-trip time: 125 msec
AP-4000 Information
  Ethernet: Auto speed - Auto Duplex
  Management VLAN: -1
  Station Stats Mon: Enabled
  Number of clients: 1
Wireless interface RF parameters
  MAC Address: 00:20:A6:49:1F:4E 00:20:A6:49:1F:4F
  Network Name (SSID): Smith1 Smith2
  FCS Error Count: 0/sec 0/sec
  Failed Count: 0/sec 0/sec
  Retry Count: 0/sec 0/sec

Last updated Apr 12, 17:20:03; interval: 30 minutes, 0 seconds
```