



CHAPTER 15

Network Management, MIBs, and SNMP on the Home Agent

This chapter contains information pertaining to various aspects of Network Management on the Cisco Mobile Wireless Home Agent.

This chapter includes the following sections:

- [Operating and Maintaining the Cisco Mobile Wireless Home Agent, page 15-1](#)
- [Statistics, page 15-2](#)
- [SNMP, MIBs and Network Management, page 15-2](#)
- [Conditional Debugging, page 15-3](#)
- [Monitoring and Maintaining the HA, page 15-3](#)

Operating and Maintaining the Cisco Mobile Wireless Home Agent

This section describes configuration details, statistics, and MIBs supported by the Home Agent. A definitive description of each Mobile IP command can be found at the following URL:

http://www.cisco.com/univercd/cc/td/doc/product/software/ios122/122cgcr/fipras_r/1rfmobip.htm

The Home Agent can be managed using either the Cisco IOS CLI or using Cisco Works for Mobile Wireless.

Cisco's Mobile Wireless Home Agent has the following configurable parameters:

- Managing user profiles (local users)
- Configuring IP pools locally
- Configuring security associations with communicating nodes
- Configuring ingress/egress filtering
- Configuring mobile binding updates
- Configuring routing information

Statistics

The Mobile Wireless Home Agent maintains statistics on a global basis for the following parameters:

- Advertisements, received and sent
- Registrations, requests and replies
- Registrations, accepted and denied
- Bindings
- Binding Updates
- Gratuitous and Proxy ARPs
- Route Optimization Binding Updates

The Mobile Wireless Home Agent maintains statistics on a per FA-HA tunnel basis for the following parameters:

- Source and Destination IP address of the tunnel
- Tunnel Type, IPinIP or GRE
- Reverse Tunneling allowed
- Number of Users using that tunnel
- Traffic sent on the tunnel, packets and bytes
- Traffic received on the tunnel, packets and bytes

The Mobile Wireless Home Agent maintains statistics per host, identified by NAI or home IP address, for the following parameters:

- Lifetime
- Session duration
- Traffic transmitted to the host, packets and bytes
- Traffic received from the host on the reverse tunnel, packets and bytes

**Note**

The statistics can be cleared from the CLI. The MIB counters are not cleared.

SNMP, MIBs and Network Management

The HA implements SNMPv2 as specified in the suite of protocols: RFC 1901 to RFC 1908. The Home Agent supports the MIB defined in “The Definitions of Managed Objects for IP Mobility Support UsingSMIv2,” RFC 2006, October 1995. An additional Cisco MIB, CISCO- MOBILE-IP-MIB provides enhanced management capabilities. The RADIUS MIB, as defined in RADIUS Authentication Client MIB, RFC 2618, June 1999. A full list of MIBs that are supported on the Cisco 7200 Internet Router, Cisco 7600 Switch and Cisco 6500 Catalyst series platforms can be found at the following URL: <http://www.cisco.com/public/sw-center/netmgmt/cmtk/mibs.shtml>

Session counters maintained in the MIB cannot be reset using SNMP or the Cisco IOS CLI. Home Agent CPU and Memory Utilization counters are accessible using the CISCO-PROCESS-MIB.

Release 3.0 adds a Home Agent Version MIB Object.

Conditional Debugging

The HA supports conditional debugging based on NAI, as well as conditional debugging based on the MN's home address. Only AAA and Mobile IP components will support conditional debugging.

From the CLI, it is possible to trace activity of all or a particular user identified by NAI. Monitoring the activity of a particular user, called conditional debugging, will display the user activity related to Mobile IP messages and the RADIUS messages.

This release provides an option to display the condition (username/IMSI), along with each debug statement. This helps to match a debug statement to its condition. To enable this feature, use the following command:

ip mobile debug include username

The following MobileIP debugs are supported for conditional debugging:

- debug ip mobile
- debug ip mobile host

The following AAA debugs are supported for conditional debugging:

- debug aaa authentication
- debug aaa authorization
- debug aaa accounting
- debug aaa ipc
- debug aaa attr
- debug aaa id
- debug aaa subsystem

The following RADIUS debugs are supported for conditional debugging:

- debug radius
- debug radius accounting
- debug radius authentication
- debug radius retransmit
- debug radius failover
- debug radius brief

Monitoring and Maintaining the HA

To monitor and maintain the HA, use the following commands in privileged EXEC mode:

Command	Purpose
Router# clear ip mobile binding	Removes mobility bindings.
Router# clear ip mobile host-counters	Clears the mobility counters specific to each mobile station.
Router# clear ip mobile secure	Clears and retrieves remote security associations.

Command	Purpose
Router# clear ip mobile traffic	Clears IP mobile traffic counters.
Router# debug ip mobile advertise	Displays advertisement information.
Router# debug aaa pod	Displays debug information for Radius Disconnect message processing at AAA subsystem level
Router# debug ip mobile	Displays IP mobility activities.
Router# debug ip mobile host	Displays mobility event information.
Router# debug ip mobile redundancy	Displays IP mobility events.
Router# debug radius	Displays information associated with RADIUS.
Router# debug tacacs	Displays information associated with TACACS.
Router# show ip mobile binding	Displays the mobility binding table.
Router# show ip mobile binding vrf	Displays all the bindings on the HA that are VRF-enabled.
Router# show ip mobile binding vrf realm	Displays all bindings for the realm that are VRF-enabled.
Router# show ip mobile globals	Displays global information for Mobile Agents.
Router# show ip mobile host	Displays mobile station counters and information.
Router# show ip mobile proxy	Displays information about a proxy Mobile IP host.
Router# show ip mobile secure	Displays mobility security associations for Mobile IP.
Router# show ip mobile traffic	Displays Home Agent protocol counters.
Router# show ip mobile tunnel	Displays information about the mobile IP tunnel.
Router# show ip mobile violation	Displays information about security violations.
Router# show ip route vrf	Displays the routing table information corresponding to a VRF.