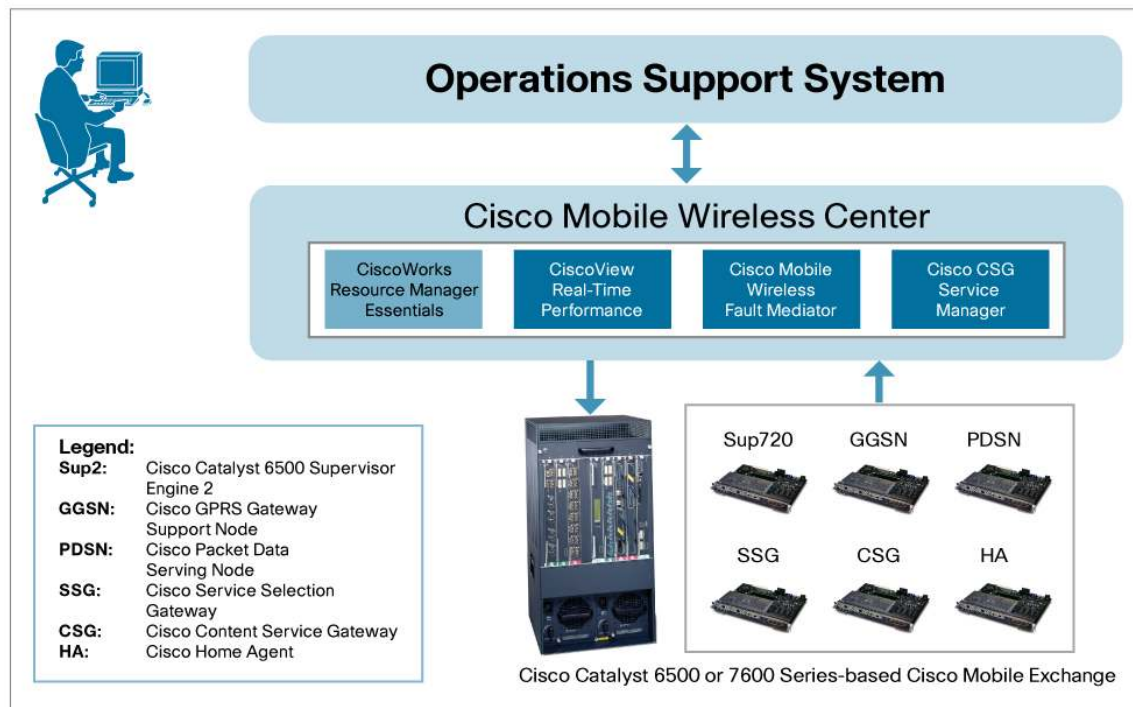


Cisco Home Agent Service Manager 4.1

PRODUCT OVERVIEW

Cisco Systems® announces the availability of Cisco® Home Agent Service Manager 4.1 for configuring and troubleshooting Cisco Home Agent. As part of the Mobile Wireless Center for Cisco Mobile Exchange suite of applications, Cisco Home Agent Service Manager complements the CiscoWorks LAN Management Solution (LMS) to provide end-to-end management of Cisco Mobile Exchange (Figure 1). The Mobile Wireless Center addresses the element-management requirements of mobile operators and provides fault, configuration, and troubleshooting capability as mobile operators transition their networks from second-generation (2G) circuit-based traffic to 2.5G and third-generation (3G) IP-based services.

Figure 1. Mobile Wireless Center for Cisco Mobile Exchange



Cisco Home Agent forms part of the Cisco Mobile Exchange framework, which offers mobile operators a standards-based framework that links the radio access network (RAN) to IP networks and their value-added, content-based IP services. Cisco Mobile Exchange enables the intelligent framework that identifies users, knows where they are, and delivers services to them anywhere, over any access medium, to any client device. In this context, Cisco Home Agent identifies a host device by a single IP address even if the device moves its physical point of attachment from one network to another. The result: subscribers with mobile devices can roam to another network without restarting applications or terminating and re-establishing a connection.

Cisco Mobile Wireless Home Agent is deployed at the mobile operator's data center. It resides on the Cisco Catalyst® Series Multiprocessor WAN Application Module, which is used in the Cisco Catalyst 6500 Series and the Cisco 7600 Series platforms. All traffic sent to the subscriber terminal is routed through the home agent, regardless of the network where the traffic originates. Likewise, traffic from the subscriber terminal is also routed through the home agent, regardless of its ultimate destination. As a result, the subscriber retains

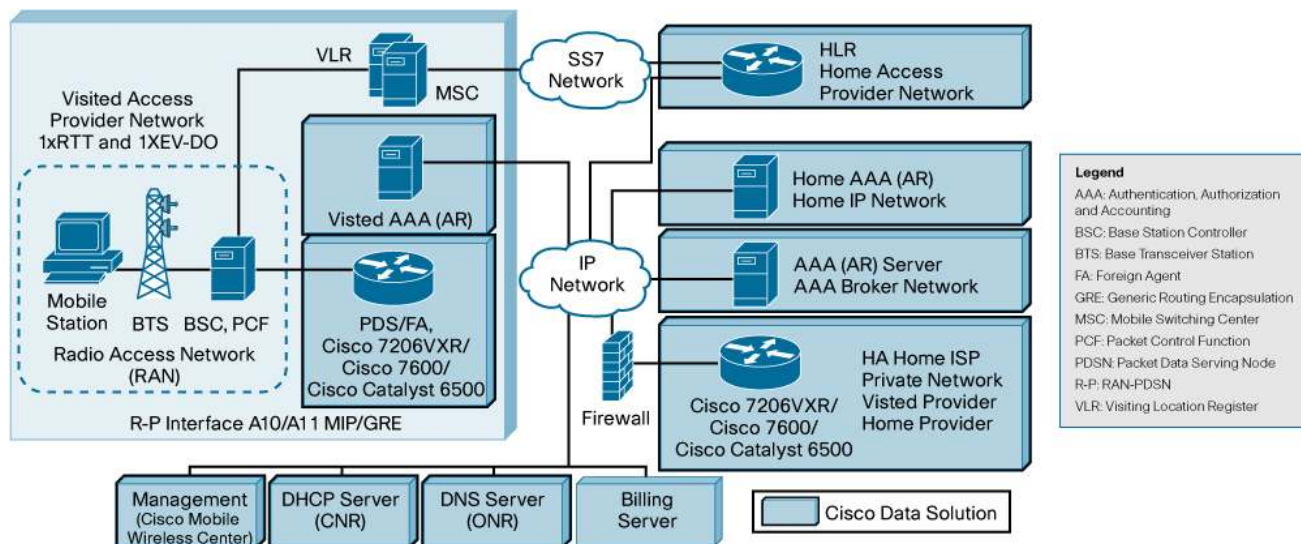
a constant connection and remains addressable even while roaming across different access networks. That is, Cisco Mobile Wireless Home Agent serves as an anchor point for subscriber PCs or PDAs, no matter how many times the subscriber changes link types and crosses network boundaries.

Cisco Mobile Exchange uses the proven Cisco 7600 Series Router platform to deliver all of the connectivity needs required, including support for General Packet Radio Service (GPRS), Universal Mobile Telecommunications Service (UMTS), Code Division Multiple Access 2000 (CDMA2000), wireless LAN (WLAN), packet data serving node (PDSN), and tunneling protocols such as generic routing encapsulation (GRE), IP Security (IPSec), and Layer 2 Tunneling Protocol (L2TP).

A typical IP-based CDMA2000 mobile wireless network built around Cisco Mobile Exchange is represented in Figure 2, where the Cisco Home Agent solution provides proxy Address Resolution Protocol (ARP) services to wireless subscribers.

In this context, Cisco Home Agent Service Manager has functions for provisioning and troubleshooting Mobile IP services to efficiently activate services and improve network reliability. Integrated with CiscoWorks LMS, Cisco Home Agent Service Manager provides a GUI similar to other CiscoWorks applications and interacts with the CiscoWorks Common Services Job Browser, making it a powerful tool for bidirectional device interaction and status. Furthermore, the Cisco Home Agent Service Manager console allows easy navigation through configuration and troubleshooting tasks in a familiar environment.

Figure 2. Mobile Wireless Center in a Cisco Mobile Exchange–Based GPRS/UMTS Network



HOME AGENT SERVICE ACTIVATION

Cisco Home Agent Service Manager provides a Web-based GUI to create, modify, and delete services within the Cisco Home Agent–Cisco Mobile Exchange complex to support seamless roaming to customers, by offering an always-on IP connection that persists independent of location, movement, or wireless infrastructure. Cisco Home Agent also provides the ability to forward packets at rates appropriate for each connection based on the Quality of Service (QoS). Cisco Home Agent Service Manager activates, deactivates, and modifies the following services within Cisco Home Agent:

- Local IP Pools
- Virtual Networks
- Home Address Assignment (with or without NAI)
- Mobile IP Mobility Security Association

- Home Agent VRF Sub-Network
- Hot Lining
- Domain Name Server Address Assignment
- On Demand Address Pools Manager for generic client and client pools

Figure 3 shows one of the Cisco Home Agent provisioning consoles.

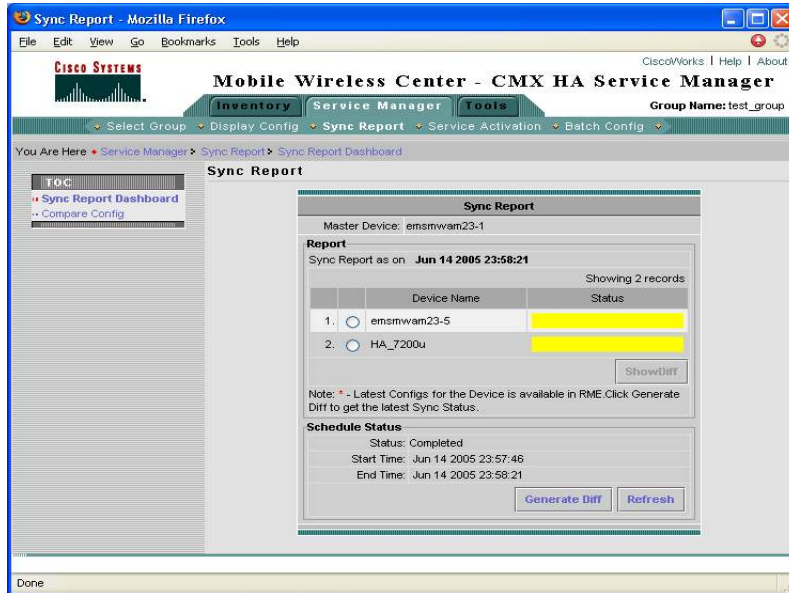
Figure 3. Cisco Home Agent Service Manager Console for Home Address Assignment

The screenshot displays the Cisco Mobile Wireless Center - CMX HA Service Manager interface. The top navigation bar includes 'Inventory', 'Service Manager', and 'Tools'. The 'Service Manager' tab is active, showing a breadcrumb trail: 'You Are Here > Service Manager > Service Activation > Local IP Pool'. The main title is 'Home Address Assignment - NAI'. On the left, a sidebar shows a tree view with '1. Home Address Assignment - NAI' selected. The main content area is divided into two columns. The left column contains 'Mobile Station Identifier' with an 'NAI String' field, 'Mobile Node IP Address' with 'Authorized Static Address' (radio buttons for 'Address' and 'Local-Pool'), and 'Allocate Dynamic IP Address' (radio buttons for 'IP Address', 'Local-Pool', 'DHCP/ODAP Pool', and 'DHCP Server'). The right column contains 'Home Link' with 'Interface' and 'Virtual Network Address' fields, 'Mask' field, and checkboxes for 'Skip Chap', 'Security Associations on AAA', and 'Download Security Associations'. Below these are fields for 'Authorized-pool', 'Care-of address access-list', and 'Mobile Host Lifetime'. At the bottom, there are navigation buttons: '< Back', 'Next >', 'Finish', and 'Cancel'. The status bar at the bottom indicates '- Step 1 of 2 -'.

HOME AGENT CONFIGURATION DISCREPANCY ANALYSIS

Cisco Home Agent Service Manager also provides the capability of analyzing home agent configuration discrepancies within the defined grouping to proactively flag questionable configurations and prevent service-impacting misconfigurations. The Sync Report dashboard provides an intuitive report card that shows devices out of sync status as shown in Figure 4. The dashboard also allows the operator to see the actual commands that are not matching.

Figure 4. Cisco Home Agent Service Manager Console for Configuration Discrepancy Analysis



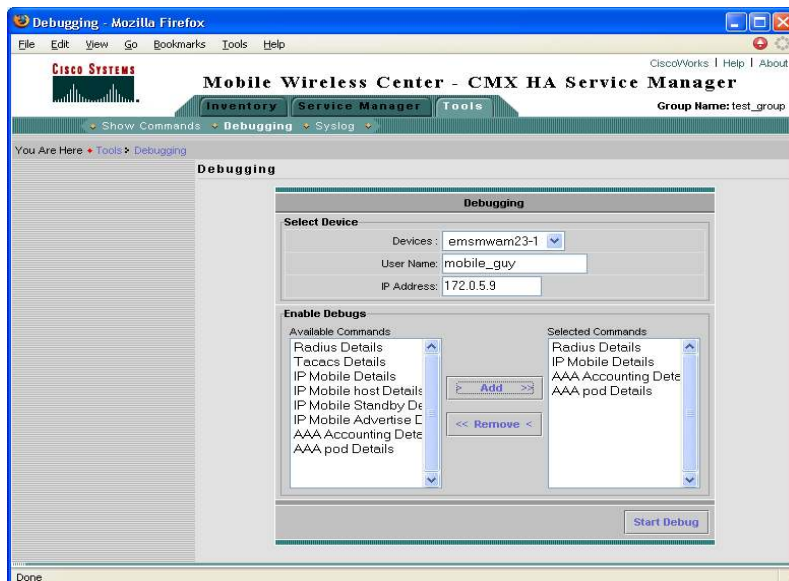
TROUBLESHOOTING DASHBOARD

Cisco Home Agent Service Manager features a troubleshooting dashboard that provides predefined key information on:

- Home agent show commands outputs
- Home agent debug results
- Home agent syslog messages

Figure 5 illustrates a sample troubleshooting console.

Figure 5. Cisco Home Agent Service Manager Troubleshooting Dashboard



KEY FEATURES AND BENEFITS

Table 1 describes the benefits of Cisco Home Agent Service Manager when deployed as part of an element manager system (EMS) infrastructure.

Table 1. Features and Benefits of Cisco Home Agent Service Manager

Feature	Description	Benefits
Centralized management of home agent configuration	<ul style="list-style-type: none"> Automates Mobile IP provisioning in all Cisco Home Agent installations defined in a server farm. 	<ul style="list-style-type: none"> Reduces complexity of Mobile IP provisioning process by simultaneous interfacing with all installations of Cisco Home Agent. Reduces time to add new mobile subscribers.
Troubleshooting dashboard	<ul style="list-style-type: none"> Allows operators to execute maintenance tasks on Cisco Home Agent. Allows easy selection of tools to view syslogs, show commands output, and debug. 	<ul style="list-style-type: none"> Improves network serviceability by allowing operators to proactively assess Cisco Home Agent status. Enables easier problem identification and troubleshooting.
Multiple-device management	<ul style="list-style-type: none"> Allows management of multiple installations of Cisco Home Agent in a user-defined grouping. Automatically downloads configurations in all Cisco Home Agent installations in the server farm. 	<ul style="list-style-type: none"> Provides a unique Mobile IP provisioning scheme that spans all installations of Cisco Home Agent in the server farm. Prevents out-of-sync configurations.
CiscoWorks-based GUI	<ul style="list-style-type: none"> Allows easy viewing, creation, modification, and deletion of Mobile IP profiles in a GUI. Provides automatic entry validation to help minimize configuration error while conforming to CiscoWorks look and feel. 	<ul style="list-style-type: none"> Improves time to service as operators don't need specialized skills in Cisco IOS® Software to configure Mobile IP profiles. Provides all the tools of the CiscoWorks LMS product suite.
Automatic device inventory	<ul style="list-style-type: none"> Uses CiscoWorks Common Services Device and Credentials Repository data to automatically discover Cisco Home Agent devices and gather management information from them. 	<ul style="list-style-type: none"> Accelerates time to service as operator avoids manual entry. Reduces complexity.
Cisco Home Agent discrepancy analysis	<ul style="list-style-type: none"> Detects configuration discrepancies in installations of Cisco Home Agent in the server farm. Provides a report of discrepancies; shows any divergent Cisco IOS Software commands between Cisco Home Agent installations. 	<ul style="list-style-type: none"> Helps eliminate misconfigurations. Increases productivity by highlighting discrepancies. Increases network serviceability.
CiscoWorks LMS interface	<ul style="list-style-type: none"> Interacts with CiscoWorks Resource Manager Essentials (RME) to download/upload device configurations to Cisco Home Agent. CiscoWorks RME automatically uploads latest Cisco Home Agent running configuration and synchronizes with Cisco Home Agent Service Manager. 	<ul style="list-style-type: none"> Helps ensure that Cisco Home Agent device configurations are synchronized with Cisco Home Agent Service Manager. Increases network reliability by using CiscoWorks RME Job Browser for orderly tasks such as device auditing.
Device configuration display	<ul style="list-style-type: none"> Provides hierarchical Cisco Home Agent configuration view. Filters out Cisco IOS Software configurations unrelated to Mobile IP. Shows configuration of any installation of Cisco Home Agent in user-defined server farm. 	<ul style="list-style-type: none"> Allows operator to focus on mission-critical tasks without being overwhelmed by the whole device's configuration. Reduces errors by showing only Cisco Home Agent–related configurations. Reduces configuration complexity.
System security and user account management	<ul style="list-style-type: none"> Uses CiscoWorks user security levels to assign Cisco Home Agent Service Manager predefined user roles. User security levels include Help Desk Approver, Network Operator, Network Administrator, and System Administrator. 	<ul style="list-style-type: none"> Increases system security to restrict potential disruptions to the network or to the application itself. Helps maintain system integrity by preventing accidental or malicious operations by unauthorized users.

PRODUCT SPECIFICATIONS

Cisco Home Agent Service Manager supports the Cisco Mobile Exchange devices listed in Table 2.

Table 2. Cisco Home Agent Service Manager Device Support

Supported Device	Cisco IOS Software Release	Cisco Hardware
Cisco Home Agent 2.0	12.3(8)XW or later	Cisco 7206 Router or Cisco 6500/7600 Series Multiprocessor WAN Application Module (MWAM)
Cisco Home Agent 2.1	12.3(11)YF or later	Cisco 7206 Router or Cisco 6500/7600 Series Multiprocessor WAN Application Module (MWAM)
Cisco Home Agent 3.0	12.3(14) YX or later	Cisco 7206 Router or Cisco 6500/7600 Series Multiprocessor WAN Application Module (MWAM)

SYSTEM REQUIREMENTS

Tables 3 and 4 list the system and client requirements for Cisco Home Agent Service Manager.

Table 3. Sun Server System Requirements

Requirement Type	Minimum Requirement
System hardware	Dual processor UltraSPARC IIIi at minimum, clock speed 1 GHz, RAM 4 GB
Swap space	8 GB
Disk drives	Dual 80+ GB SCSI or FC-AL drives
Network adapter	Suggested 100 MB or more
Operating system	Solaris 2.9
CiscoWorks LMS for coexistence	2.5.1

Table 4. Client Requirements

Requirement Type	Minimum Requirement
System hardware	<ul style="list-style-type: none">At least a 1 GHz single CPU running Windows 2000 Professional or Windows XPSun UltraSPARC IIIi, single CPU 1 GHz or equivalent
Software	<ul style="list-style-type: none">Windows: Internet Explorer 6.0 SP1, Mozilla 1.7Solaris: Mozilla 1.7
Memory (RAM)	512 MB
Available disk space	80 GB
Operating environment	<ul style="list-style-type: none">Sun Solaris 2.9Windows XP, Windows 2000 Professional, Windows Server 2003
Swap space	Space equal to twice the amount of memory (RAM)
Java Runtime Environment (JRE)	Java Plug-in version 1.4.2_04

ORDERING INFORMATION

Cisco Home Agent Service Manager and the related upgrade for CiscoWorks for Mobile Wireless and Mobile Wireless Center for Cisco Mobile Exchange 2.0 customers are available for purchase through regular Cisco sales and distribution channels worldwide. To place an order, visit the [Cisco Ordering Home Page](#).



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FOR MORE INFORMATION

For more information about Cisco Home Agent Service Manager, visit www.cisco.com/go/mwc-cmx, contact your local account representative, or send e-mail to info-mwc@cisco.com.



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