



Product Bulletin No. 2704

# Cisco IOS Software Early Deployment Release 12.3(11)YF

## Introduction

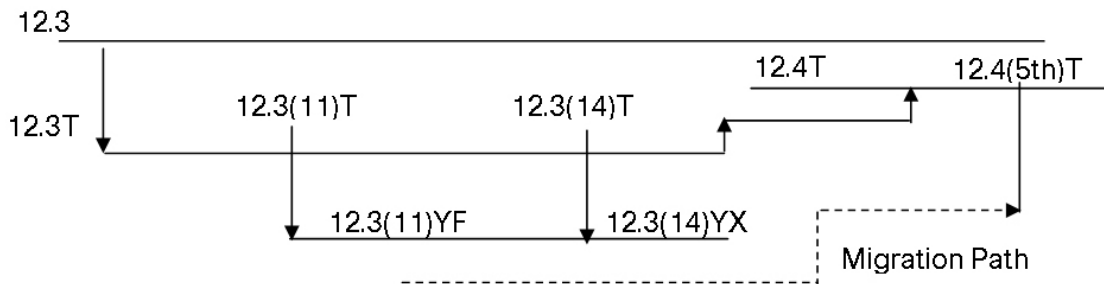
This product bulletin provides content and delivery information for Cisco IOS® Software Release 12.3(11)YF, which is the release vehicle for the Cisco® Packet Data Serving Node (PDSN) and Cisco Mobile Wireless Home Agent Release 2.1. It is also the migration vehicle for Cisco IOS Software Release 12.3(8)XW, the initial release vehicle for the Cisco PDSN and Mobile Wireless Home Agent 2.0. This release is focused on the Cisco 7206VXR Router, the Cisco 7600 Series routers, and the Cisco Catalyst® 6500 Series switches. The Cisco 7600 Series and Catalyst 6500 Series use the Multiprocessor WAN Application Module (MWAM). The features delivered with this new release will be incorporated into the Cisco IOS Software Release 12.4(5th)T, but Release 12.3(11)YF represents a release vehicle that provides these features sooner. For more information about the Cisco IOS Software release process, please see Product Bulletin Number 537.

## Migration Guide

Figure 1 displays Cisco IOS Software 12.3(11)YF functionality relative to the 12.3 and 12.3T releases. This figure also identifies the migration path.

Figure 1

Cisco IOS Software Release 12.3(11)YF Migration Path



This is also the migration path for the Cisco IOS Software Early Deployment Release 12.3(8)XW.

## New Features in Cisco IOS Software Release 12.3(11)YF

### Cisco IOS Software Release 12.3(11)YF Features (PDSN)

Table 1 lists the new features in the initial release of Cisco IOS Software Release 12.3(11)YF for the Cisco PDSN.

**Table 1.** New (PDSN) Features in Cisco IOS Software Release 12.3(11)YF

New Feature	Cisco 7206VXR	Cisco Catalyst 6500 Series (MWAM)	Cisco 7600 Series (MWAM)
PPPoGRE (SyncPPP Support)	X	X	X
Closed R-P Interface		X	X

Please see the following section for details about these new features. Any Early Deployment software release should be used first in a test network before being deployed in a production network.

#### Feature Details

##### PPPoGRE (SyncPPP support)

The PPPoGRE R-P interface is based on the Third-Generation Partnership Project 2 (3GPP2) TIA/EIA/IS-835 standard for the control and bearer data transport capabilities. This interface is used to support interfaces to specific packet control functions (PCFs) requiring these changes.

##### Closed R-P

The Closed R-P interface is based on Layer 2 Tunneling Protocol (L2TP) with support for the Connection and Call Management aspects of this standard. The Closed RP interface definition extends the Call Management messages with some additional attribute-value pairs (AVPs) to provide bearer connection to mobile stations. Note that the proper system is also required to enable this feature. See the Product Numbers section for details.

### Cisco IOS Software Release 12.3(8)XW Features (PDSN)

The following features were delivered in Cisco IOS Software Release 12.3(8)XW and will be maintained in Release 12.3(11)YF (Table 2).

**Table 2.** (PDSN) Features in Cisco IOS Software Release 12.3(8)XW

New Feature	Cisco 7206VXR	Cisco 6500 Series (MWAM)	Cisco 7600 Series (MWAM)
On-Demand Address Pools (ODAP)		X	X
Prepaid Billing (IS-835C)	X	X	X
Resource Revocation (IS-835C)	X	X	X
Packet of Disconnect (IS-835C)	X	X	X
Always On (IS-835B)	X	X	X

Please see the following section for details about these new features. Any Early Deployment software release should be used first in a test network before being deployed in a production network.

## Feature Details

### On-Demand Address Pools

The Cisco On-Demand Address Pool (ODAP) feature supports the capability of a large IP address pool per chassis. Each separate PDSN processor will request a subnet of IP addresses from the large IP address pool. Local pools per member would not require configuration; one main pool is configured on a centralized server. The benefits include more efficient use of IP addresses, centralized management, and simplified operational procedures.

### Prepaid Billing per IS-835C

The prepaid feature provides Cisco PDSN-to-AAA server support of the prepaid vendor-specific attributes (VSAs), as defined in IS-835C. It provides real-time metering of Simple IP, Proxy Mobile IP, and virtual private dialup network (VPDN)-based services. It also provides undifferentiated real-time metering of Mobile IP services. “Undifferentiated” means that all the Mobile IP flows for a single user will be rated equally. Metering can be based on data volume or call duration. Note that the authentication, authorization, and accounting (AAA) server must support the defined VSAs and be integrated with a prepaid billing server.

### Resource Revocation per IS-835C

This feature allows the Cisco PDSN to clean up a home agent binding (for example, when a call drops) and allows a home agent to clean up a PDSN session (for example, on handoff). This is the implementation of the standardized Cisco binding update feature available in Cisco Mobile Wireless Home Agent Release 1.2 with an additional enhancement.

### Packet of Disconnect per IS-835C

This provides a trigger mechanism to cancel sessions on the Cisco PDSN and/or Cisco Mobile Wireless Home Agent. The trigger can come from an AAA server billing mediation, etc. (whatever is controlling the access). It can be used alone or in conjunction with the Resource Revocation feature to clean up the session/binding to avoid wasting resources.

### Always-On per IS-835B

The always-on service maintains a subscriber’s packet data session irrespective of the PPP inactivity timer value for the user. At the same time, by making use of a finite PPP inactivity timer value, this feature provides a compromised approach to keep a session only as long as the user is reachable.

## Cisco IOS Release 12.3(7)XJ Features (Home Agent)

The following features (Table 3) were initially delivered in Cisco IOS Software Release 12.3(7)XJ and will be maintained in Release 12.3(11)YF.

**Table 3.** (Home Agent) Features in Cisco IOS Software Release 12.3(7)XJ

New Feature	Cisco 7206VXR	Cisco 6500 Series (MWAM)	Cisco 7600 Series (MWAM)
On-Demand Address Pools (ODAPs)		X	X
Home Agent Server Load Balancing (HA-SLB)		X	X
Resource Revocation (IS-835C)	X	X	X
Packet of Disconnect (IS-835C)	X	X	X
Home Agent Redundancy Enhancements	X	X	X
Conditional Debugs for Mobile IP	X	X	X

New Feature	Cisco 7206VXR	Cisco 6500 Series (MWAM)	Cisco 7600 Series (MWAM)
Hotlining	X	X	X
Virtual Routing and Forwarding (VRF)	X	X	X

Please see the next section for details on these new features. Any Early Deployment software release should be used first in a test network before being deployed in a production network.

## Feature Details

### On-Demand Address Pools (ODAP)

Cisco On-Demand Address Pool (ODAP) feature supports the capability of a large IP address pool per chassis. Each separate HA processor will request a subnet of IP addresses from the large IP address pool. Local pools per member would not need to be configured at all; one main pool would be configured on a Centralized Server. The benefits include more efficient use of IP addresses, centralized management benefits, and simplified operational procedures.

### Home Agent Server Load Balancing

The server load balancing (SLB) function runs on the supervisor and front ends a pool of home agents, providing load balancing across a group of home agents running on the Cisco MWAMs listed in its server farm. Only one virtual IP address must be known to the foreign agent. Note that the proper option is also required on the supervisor image to enable this feature. See the Product Numbers and Ordering sections for details.

### Resource Revocation per IS-835C

This feature allows the Cisco PDSN to clean up a home agent binding (for example, when a call drops) and allows a home agent to clean up a PDSN session (for example, on handoff). This is the implementation of the standardized Cisco binding update feature available in Cisco Mobile Wireless Home Agent Release 1.2 with an additional enhancement.

### Packet of Disconnect per IS-835C

This provides a trigger mechanism to cancel sessions on the Cisco PDSN and/or Cisco Mobile Wireless Home Agent. The trigger can come from an AAA server billing mediation, etc. (whatever is controlling the access). It can be used alone or in conjunction with the Resource Revocation feature to clean up the session/binding to avoid wasting resources.

### Home Agent Redundancy Enhancements

This is an enhancement to the existing Home Agent Redundancy feature. It adds support for the feature when local pool IP addressing, or proxy DHCP addressing, is used.

### Conditional Debugs

Enhancements have been made to the existing conditional debug feature to add support for Mobile IP.

### Hotlining

The Hotlining feature uses standard IS-835C-based care-of address (CoA) messages to change user session profiles at the start of the session or in mid session. Data packets from the subscriber in the upstream can be redirected to a different server that is capable of managing these packets. This provides support for "web steering" statically configured by realm and dynamically configured per user within the realm. For example, a prepaid user who runs out of quota can be redirected mid session.

## Virtual Routing and Forwarding

Cisco home agents can have virtual home agents that are using Virtual Routing and Forwarding (VRF) to support address overlapping. Thus, one home agent can provide connection to different corporate users using a different transport.

For more detailed information about the platforms and features being delivered in Cisco IOS Software Release 12.3(11)YF, please reference the following documents:

<http://www.cisco.com/univercd/cc/td/doc/product/software/ios123/123newft/123limit/123y/123yf11/>

<http://www.cisco.com/univercd/cc/td/doc/product/software/ios123/123newft/123limit/123x/123xw/123xw8/>

[http://www.cisco.com/en/US/products/sw/wirelssw/ps4341/prod\\_literature.html](http://www.cisco.com/en/US/products/sw/wirelssw/ps4341/prod_literature.html)

<http://www.cisco.com/en/US/products/ps5940/index.html>

<http://www.cisco.com/en/US/products/hw/routers/ps341/>

<http://www.cisco.com/en/US/products/hw/routers/ps368/index.html>

<http://www.cisco.com/en/US/products/hw/switches/ps708/index.html>

<http://www.cisco.com/en/US/products/ps5942/index.html>

## Support

Cisco IOS Software Release 12.3(11)YF follows the standard Cisco support policy as indicated in the following document:

[http://www.cisco.com/en/US/products/products\\_end-of-life\\_policy.html](http://www.cisco.com/en/US/products/products_end-of-life_policy.html)

Note that Cisco Software Application Support (SAS) must be ordered for the Cisco PDSN and Cisco Mobile Wireless Home Agent; they are not covered under Cisco SMARTnet® support. See the Product Numbers section for details. Cisco SAS includes 24-hour technical assistance from the Cisco Technical Assistance Center (TAC) via telephone and the Web, online tools, plus bug fixes, maintenance, and rebuilds of the same release (Release 2.0) of the Cisco PDSN and Cisco Mobile Wireless Home Agent.

## Product Numbers

The spare product code is designated with '=' and should be ordered when upgrading to a new release, moving to a different Cisco PDSN or Cisco Mobile Wireless Home Agent image, or when the platform hardware is not being ordered in conjunction with the software.

There are two Cisco PDSN images available with Release 2.0: Basic and Premium.

- Basic: Includes the basic feature set. 10k session capacity on 7206VXR; 20k session capacity on MWAM.
- Premium: Includes the basic feature set plus Closed R-P\* on MWAM, Prepaid. PPPoGRE, 20k session capability on 7206VXR and MWAM.

\*There is also a System Feature License (one per customer) required for Closed R-P support. The part number is listed in Table 4.

There are two home agent images available with Release 2.0: Basic and Premium.

- Basic: Includes the basic feature set.
- Premium: Includes the basic feature set plus Hotlining, VRF.

There is also a Feature License on the supervisor required for the HA-SLB feature. Table 4 lists the part number.

There are two options when ordering software for the Cisco MWAM:

- Single image
- Bundled image

Each single image contains one Cisco PDSN image to run on one of the five Cisco MWAM processors; each bundled image contains five Cisco PDSN images that run on each of five Cisco MWAM processors.

When ordering more than one single image, the first one should be ordered as an option to the Cisco MWAM. Any subsequent single images should be ordered as spares.

**Table 4.** Ordering Information: Cisco IOS Software Release 12.3(11)YF PDSN Part Numbers

Platform	Software Feature Set	Part Number	Image	Flash	DRAM
7206VXR	Cisco 7200 IOS PDSN R2.0 Basic	S72P2B-12311YF S72P2B-12311YF=	c7200-c6is-mz	64 MB	1 GB
7206VXR	Cisco 7200 IOS PDSN R2.0 Basic 3DES	S72P2K9-12311YF S72P2K9-12311YF=	c7200-c6ik9s-mz	64 MB	1 GB
7206VXR	Cisco 7200 IOS PDSN R2.0 Premium	S72P2X-12311YF S72P2X-12311YF=	c7200-c6is-mz	64 MB	1 GB
7206VXR	Cisco 7200 IOS PDSN R2.0 Premium 3DES	S72P2K9X-12311YF S72P2K9X-12311YF=	c7200-c6ik9s-mz	64 MB	1 GB
7206VXR	Cisco 7200 IOS PDSN R2.0 Basic Upgrade from R1.2 Base or Enhanced	S72P2UB-12311YF=	c7200-c6is-mz	64 MB	1 GB
7206VXR	Cisco 7200 IOS PDSN R2.0 Basic Upgrade 3DES from R1.2 Base 3DES	S72P2BUK9-12311YF=	c7200-c6ik9s-mz	64 MB	1 GB
7206VXR	Cisco 7200 IOS PDSN R2.0 Premium Upgrade from R1.2 Enhanced	S72P2EX-12311YF=	c7200-c6is-mz	64 MB	1 GB
7206VXR	Cisco 7200 IOS PDSN R2.0 Prem 3DES Upgrade from R1.2 Enhanced 3DES	S72PI2UK9-12311YF=	c7200-c6ik9s-mz	64 MB	1 GB
7206VXR	Cisco 7200 IOS PDSN R2.0 Upgrade (Basic to Premium)	S72P2UX-12311YF=	c7200-c6is-mz	64 MB	1 GB
7206VXR	Cisco 7200 IOS PDSN R2.0 Upgrade (Basic 3DES to Premium)	S72P2BK9X-12311YF=	c7200-c6ik9s-mz	64 MB	1 GB
7206VXR	Cisco 7200 IOS PDSN R2.0 Upgrade to 3DES	S72P2UK9-12311YF=	c7200-c6ik9s-mz	64 MB	1 GB
MWAM	Cisco MWAM Series PDSN R2.0 Basic	SC-SVC-PD20B SC-SVC-PD20B=	c6svc-5mwam-c6is-mz	128 MB	512 MB
MWAM	Cisco MWAM Series PDSN R2.0 Basic Single Image	SC-SVC-PD20BIM SC-SVC-PD20BIM=	c6svc-5mwam-c6is-mz	128 MB	512 MB
MWAM	Cisco MWAM Series PDSN R2.0 Premium	SC-SVC-PD20P SC-SVC-PD20P=	c6svc-5mwam-c6is-mz	128 MB	512 MB
MWAM	Cisco MWAM Series PDSN R2.0 Premium Single Image	SC-SVC-PD20PIM SC-SVC-PD20PIM=	c6svc-5mwam-c6is-mz	128 MB	512 MB
MWAM	Cisco MWAM Series Upgrade to PDSN R2.0 Basic from R1.2	SC-SVC-PD20B-UP=	c6svc-5mwam-c6is-mz	128 MB	512 MB

Platform	Software Feature Set	Part Number	Image	Flash	DRAM
MWAM	Cisco MWAM Series Upgrade to PDSN R2.0 Basic SI from R1.2 SI	SC-SVC-PD20BIM-UP=	c6svc-5mwam-c6is-mz	128 MB	512 MB
MWAM	Cisco MWAM Series Upgrade to PDSN R2.0 Premium from Basic	SC-SVC-PD20-UP=	c6svc-5mwam-c6is-mz	128 MB	512 MB
MWAM	Cisco MWAM Series Upgrade to PDSN R2.0 Premium from Basic SI	SC-SVC-PD20IM-UP=	c6svc-5mwam-c6is-mz	128 MB	512 MB
FL/MWAM	PDSN Closed R-P Interface Support (System License)	FL-CLOSEDRP=	–	–	–

The following part numbers should be used when ordering Cisco SAS for Cisco PDSN 2.1 (Table 5).

**Table 5.** Ordering Information: Cisco SAS for Cisco PDSN Release 2.1

Part Number	Description
CON-SAS-S72P2BXW	Support for part numbers: S72P2B-12311YF S72P2B-12311YF=
CON-SAS-S72P2K9XW	Support for part numbers: S72P2K9-12311YF S72P2K9-12311YF=
CON-SAS-S72P2XXW	Support for part numbers: S72P2X-12311YF S72P2X-12311YF=
CON-SAS-S72P2K9X	Support for part numbers: S72P2K9X-12311YF S72P2K9X-12311YF=
CON-SAS-S72P2UBXW	Support for part numbers: S72P2UB-12311YF=
CON-SAS-S72P2BUKX	Support for part numbers: S72P2BUK9-12311YF=
CON-SAS-S72P2EXXW	Support for part numbers: S72P2EX-12311YF=
CON-SAS-S72PI2UXW	Support for part numbers: S72PI2UK9-12311YF=
CON-SAS-S72P2UXXW	Support for part numbers: S72P2UX-12311YF=
CON-SAS-S72P2K9XX	Support for part numbers: S72P2BK9X-12311YF=
CON-SAS-S72UK912X	Support for part numbers: S72P2UK9-12311YF=
CON-SAS-PD20B	Support for part numbers: SC-SVC-PD20B SC-SVC-PD20B=
CON-SAS-PD20BI	Support for part numbers: SC-SVC-PD20BIM SC-SVC-PD20BIM=

Part Number	Description
CON-SAS-PD20P	Support for part numbers: SC-SVC-PD20P SC-SVC-PD20P=
CON-SAS-PD20PI	Support for part numbers: SC-SVC-PD20PIM SC-SVC-PD20PIM=

**Table 6.** Ordering Information: Cisco IOS Software Release 12.3(11)YF Home Agent Part Numbers

Platform	Software Feature Set	Part Number	Image	Flash	DRAM
7206VXR	Cisco 7200 IOS MW Home Agent R2.0 Basic	S72PSH2-12311YF S72PSH2-12311YF=	c7200-h1is-mz	64 MB	1 GB
7206VXR	Cisco 7200 IOS MW Home Agent R2.0 Basic 3DES	S72PH2K9-12311YF S72PH2K9-12311YF=	c7200-h1ik9s-mz	64 MB	1 GB
7206VXR	Cisco 7200 IOS MW Home Agent R2.0 Premium	S72PH2X-12311YF S72PH2X-12311YF=	c7200-h1is-mz	64 MB	1 GB
7206VXR	Cisco 7200 IOS MW Home Agent R2.0 Premium 3DES	S72PH2K9X-12311YF S72PH2K9X-12311YF=	c7200-h1ik9s-mz	64 MB	1 GB
7206VXR	Cisco 7200 IOS MW Home Agent R2.0 Basic Upgrade from R1.2	S72PH2-12311YF=	c7200-h1is-mz	64 MB	1 GB
7206VXR	Cisco 7200 IOS MW Home Agent R2.0 Basic 3DES Upgrade from R1.2	S72PH2UK9-12311YF=	c7200-h1ik9s-mz	64 MB	1 GB
7206VXR	Cisco 7200 IOS MW Home Agent R2.0 Upgrade to 3DES	S72PI2K9-12311YF=	c7200-h1ik9s-mz	64 MB	1 GB
7206VXR	Cisco 7200 IOS MW Home Agent R2.0 Upgrade (Basic 3DES to Premium)	S72PI2K9X-12311YF=	c7200-h1ik9s-mz	64 MB	1 GB
7206VXR	Cisco 7200 IOS MW Home Agent R2.0 Upgrade (Basic to Premium)	S72PI2-12311YF=	c7200-h1is-mz	64 MB	1 GB
MWAM	Cisco MWAM Series Home Agent R2.0 Basic	SC-SVC-HA20B SC-SVC-HA20B=	c6svc5fmwam-h1is-mz	128 MB	512 MB
MWAM	Cisco MWAM Series Home Agent R2.0 Basic Single Image	SC-SVC-HA20BIM SC-SVC-HA20BIM=	c6svc5fmwam-h1is-mz	128 MB	512 MB
MWAM	Cisco MWAM Series Home Agent R2.0 Premium	SC-SVC-HA20P SC-SVC-HA20P=	c6svc5fmwam-h1is-mz	128 MB	512 MB
MWAM	Cisco MWAM Series Home Agent R2.0 Premium Single Image	SC-SVC-HA20PIM SC-SVC-HA20PIM=	c6svc5fmwam-h1is-mz	128 MB	512 MB
MWAM	Cisco MWAM Series Upgrade to HA R2.0 Basic from R1.2	SC-SVC-HA20B-UP=	c6svc5fmwam-h1is-mz	128 MB	512 MB
MWAM	Cisco MWAM Series Upgrade to HA R2.0 Basic SI from R1.2 SI	SC-SVC-HA20BIM-UP=	c6svc5fmwam-h1is-mz	128 MB	512 MB
MWAM	Cisco MWAM Series Upgrade to HA R2.0 Premium from Basic	SC-SVC-HA20-UP=	c6svc5fmwam-h1is-mz	128 MB	512 MB
MWAM	Cisco MWAM Series Upgrade to HA R2.0 Premium from Basic SI	SC-SVC-HA20IM-UP=	c6svc5fmwam-h1is-mz	128 MB	512 MB
Supervisor/ MWAM	Mobile Wireless Exchange Director Load Balancer	FR-EXCHDR	–	–	–

The following part numbers should be used when ordering Cisco SAS for Cisco Mobile Wireless Home Agent 2.1 (Table 7).

**Table 7.** Ordering Information: Cisco SAS for Cisco Mobile Wireless Home Agent 2.1

Part Number	Description
CON-SAS-S72PSH2X	Support for part numbers: S72PSH2-12311YF S72PSH2-12311YF=
CON-SAS-S72PH2KW	Support for part numbers: S72PH2K9-12311YF S72PH2K9-12311YF=
CON-SAS-S72PH2XW	Support for part numbers: S72PH2X-12311YF S72PH2X-12311YF=
CON-SAS-S72PH2K9X	Support for part numbers: S72PH2K9X-12311YF S72PH2K9X-12311YF=
CON-SAS-S72PH2	Support for part numbers: S72PH2-12311YF=
CON-SAS-S72PH2UK	Support for part numbers: S72PH2UK9-12311YF=
CON-SAS-S72PI2K9	Support for part numbers: S72PI2K9-12311YF=
CON-SAS-S72PI2KX	Support for part numbers: S72PI2K9X-12311YF=
CON-SAS-S72PI2	Support for part numbers: S72PI2-12311YF=
CON-SAS-HA20B	Support for part numbers: SC-SVC-HA20B SC-SVC-HA20B=
CON-SAS-HA20BIM	Support for part numbers: SC-SVC-HA20BIM SC-SVC-HA20BIM=
CON-SAS-HA20P	Support for part numbers: SC-SVC-HA20P SC-SVC-HA20P=
CON-SAS-HA20PIM	Support for part numbers: SC-SVC-HA20PIM SC-SVC-HA20PIM=

### Bundle Product Numbers

When ordering multiple Cisco MWAMs with the Cisco PDSN 2.1 Premium image, there is a bundle available that includes:

- Two Cisco MWAMs (WS-SVC-MWAM-1)
- Two bundled images of Cisco PDSN 2.1 Premium (SC-SVC-PD20P)

When ordering multiple Cisco MWAMs with the Cisco Mobile Wireless Home Agent 2.1 Premium image, there is a bundle available that includes:

- Two Cisco MWAMs (WS-SVC-MWAM-1)
- Two bundled images of Cisco Mobile Wireless Home Agent 2.0 Premium (SC-SVC-HA20P)

Table 8 provides ordering information for these bundles.

**Table 8.** Ordering Information: Premium Software Image Bundles

Platform	Software Feature Set	Part Number	Image	Flash	DRAM
MWAM	Cisco MWAM Series PDSN R2.0 Premium 2 Unit Bundle	WS-SVC-MWPD20-BDL WS-SVC-MWPD20-BDL=	c6svc5fmwam-c6is-mz	128 MB	512 MB
MWAM	Cisco MWAM Series Home Agent R2.0 Premium 2 Unit Bundle	WS-SVC-MWHA20-BDL WS-SVC-MWHA20-BDL=	c6svc5fmwam-h1is-mz	128 MB	512 MB

**Download Information**

Customers can download Cisco IOS Software Release 12.3(11)YF for the Cisco 7206VXR from the Software Image Library on Cisco.com: <http://www.cisco.com/cgi-bin/Software/Iosplanner/Planner-tool/iosplanner.cgi?majorRel=12.3>

Customers can download Cisco IOS Software Release 12.3(11)YF for the Cisco MWAM from the Software Image Library on Cisco.com: <http://www.cisco.com/kobayashi/sw-center/sw-wireless.shtml>

**Special Note to Customers**

The following are additional ordering guidelines and sample configurations for a Cisco PDSN and Cisco Mobile Wireless Home Agent. Note that the configurations are provided for guidance only and do not include Cisco SMARTnet hardware support or ancillary equipment such as cables, rack mount kits, or high-speed fan trays. Please discuss your desired configuration with your Cisco representative prior to ordering.

**Cisco Mobile Wireless Home Agent and Cisco PDSN 2.1 on the Cisco 7206VXR**

The Cisco Mobile Wireless Home Agent and Cisco PDSN images operate on a Cisco 7206VXR Router; it can be used on the Cisco NPE-400 Network Processing Engine, providing backward compatibility to Release 1.2, and on the newer Cisco NPE-G1 Network Processing Engine. The NPE-G1 is the recommended platform for new orders.

Table 9 shows the recommended hardware configuration for a Cisco 7206VXR to support Cisco Mobile Wireless Home Agent or Cisco PDSN 2.1.

**Table 9.** Recommended Hardware Configuration for Cisco 7206VXR

Part Number	Description	Quantity
7206VXR/NPE-G1	7206VXR with NPE-G1 includes 3 GigE/FE/E Ports and IP SW	1
PWR-7200-DC+	Cisco 7200 DC Power Supply Option	1
PWR-7200/2-DC+	Cisco 7200 Dual DC Power Supply Option	1
MEM-NPE-G1-FLD128	Cisco 7200 Compact Flash Disk for NPE-G1, 128-MB Option	1
MEM-NPE-G1-1 GB	Two 512-MB mem modules (1 GB total) for NPE-G1 in 7200	1
PA-2FE-TX	2-Port Fast Ethernet 100BASE-TX Port Adapter	1
S72Pxx-xxxxxx	Home Agent or PDSN image	1
CON-SAS-S72Pxxxx	SAS for home agent or PDSN image	1

Note: This is the configuration as tested in the Cisco lab. Any variations to this configuration should be discussed with your Cisco representative prior to ordering.

### Cisco Mobile Wireless Home Agent and Cisco PDSN R2.1 on 7206VXR with 3DES Encryption

The Cisco Mobile Wireless Home Agent and Cisco PDSN Triple Data Encryption Standard (3DES) images operate on a Cisco 7206VXR; they can be used with the NPE-400 and the Cisco Integrated Services Adapter (SA-ISA), providing backward compatibility with Release 1.2, and on the NPE-G1 with the Cisco VPN Acceleration Module 2 (SA-VAM2).

Because the SA-ISA has reached end of sale, any new Cisco 7206VXR configurations with IPSec will require use of the NPE-G1 with SA-VAM2. One SA-VAM2 is required per chassis. IPSec operation is supported only with hardware acceleration.

Table 10 shows the recommended hardware configuration for a Cisco 7206VXR to support Cisco Mobile Wireless Home Agent or Cisco PDSN Release 2.1 with IPSec.

**Table 10.** Recommended Hardware Configuration for Cisco 7206VXR to Support IPSec

Part Number	Description	Quantity
7206VXR/NPE-G1	7206VXR with NPE-G1 includes 3 GigE/FE/E Ports and IP SW	1
PWR-7200-DC+	Cisco 7200 DC Power Supply Option	1
PWR-7200/2-DC+	Cisco 7200 Dual DC Power Supply Option	1
MEM-NPE-G1-FLD128	Cisco 7200 Compact Flash Disk for NPE-G1, 128-MB Option	1
MEM-NPE-G1-1 GB	Two 512-MB mem modules (1 GB total) for NPE-G1 in 7200	1
PA-2FE-TX	2-Port Fast Ethernet 100BASE-TX Port Adapter	1
SA-VAM2	Cisco VPN Acceleration Module 2	1
S72PxxK9x-xxxxxx	Home Agent or PDSN image	1
CON-SAS-S72Pxxxx	SAS for Home Agent or PDSN image	1

Note: This is the configuration as tested in the Cisco lab. Any variations to this configuration should be discussed with your Cisco representative prior to ordering.

### Cisco Mobile Wireless Home Agent and Cisco PDSN 2.1 on the Cisco 7600 Series

Cisco Mobile Wireless Home Agent and Cisco PDSN operate on separate Cisco MWAMs. They can be licensed by MWAM (five processors) or by processor (single image). Note that Cisco PDSN and home agent images cannot coexist on the same Cisco MWAM, though a home agent MWAM and a PDSN MWAM can coexist in the same chassis.

The 12.2.18-SXDx software version must run on the supervisor engine. Cisco Mobile Wireless Home Agent and Cisco PDSN on the Cisco MWAM are supported with the Cisco Catalyst 6500/7600 Series Supervisor Engine 2 and the Multilayer Switch Feature Card (MSFC2), and the Cisco Catalyst 6500/7600 Series Supervisor Engine 720-3B and 720-3BXL. The Supervisor Engine 720-3BXL is recommended for new orders.

Table 11 shows the recommended hardware configuration for a Cisco 7613 Router to support Cisco Mobile Wireless Home Agent and/or Cisco PDSN 2.1. Recommended supervisor software is also included.

**Table 11.** Recommended Hardware Configuration for Cisco 7613 Router

Product	Description	Quantity
CISCO7613	7613 Chassis Bundles	1
7613-2SUP720XL-2PS	Cisco 7613 13-slot, Redundant System, 2 SUP720-3BXL and 2 PS	1
SUP720-3BXL	Supervisor Engine 720-3BXL	1
MEM-C6K-CPTFL256M	Catalyst 6500 Sup720 Compact Flash Mem 256 MB	1
SUP720-3BXL	Supervisor Engine 720-3BXL	1
MEM-C6K-CPTFL256M	Catalyst 6500 Sup720 Compact Flash Mem 256 MB	1
4000W-DC	2700W/4000W DC Option for CISCO7609/Catalyst 6509 Chassis	2
GLC-SX-MM	GE SFP, LC connector SX transceiver	1...4
S763Z-12218SXD	Cisco 7600-SUP720 IOS IP	1
WS-X6408A-GBIC	Catalyst 6000 8-port GE, Enhanced QoS (Req. GBICs)	1
WS-G5484	1000BASE-SX Short Wavelength GNIC (Multimode Only)	2 to 8
WS-SVC-MWAM-1	Multiprocessor WAN Application Module	1 to 10
SC-SVC-xx20xxx	Home Agent or PDSN image, full or single image	x

If the HA-SLB feature is desired, the following part number must also be ordered as an option to the Supervisor Engine image, S762Z-12218SXDx:

Part Number	Description	Quantity
FR-EXCHDR	Mobile Wireless Exchange Director Load Balancer	1

Depending on network configuration, a Fast Ethernet interface card can be ordered instead of Gigabit Ethernet interface. In this case, the following could be ordered instead of WS-X6408A-GBIC:

Part Number	Description	Quantity
WS-X6548-RJ-45	Catalyst 6500 48-port 10/100, Inline Power, RJ-45	1

Note: This is the configuration as tested in the Cisco lab. Any variations to this configuration should be discussed with your Cisco representative prior to ordering.

### Cisco Mobile Wireless Home Agent and Cisco PDSN 2.0 on the Cisco 7600 Series with DES3 Encryption

Cisco Mobile Wireless Home Agent and Cisco PDSN operate on one Cisco MWAM. They can be licensed by MWAM (five processors) or by processor (single image). Note that Cisco PDSN and Cisco Mobile Wireless Home Agent images cannot coexist on the same Cisco MWAM, though a home agent MWAM and a PDSN MWAM can coexist in the same chassis.

The 12.2.18-SXDx DES3 software version must run on the supervisor engine. The Cisco Mobile Wireless Home Agent and Cisco PDSN on MWAM are supported with the Supervisor Engine 2 and MSFC2, and the Supervisor Engine 720-3B and Supervisor Engine 720-3BXL. The Supervisor Engine 720-3BXL is recommended for new orders.

One IPSec VPN security module is required per chassis. IPSec operation is supported only with hardware acceleration.

The same Cisco Mobile Wireless Home Agent and Cisco PDSN images support both non-IPSec and IPSec operation.

Table 12 lists the recommended hardware configuration for a Cisco 7613 Router to support Cisco Mobile Wireless Home Agent and/or Cisco PDSN 2.1 with 3DES encryption. Recommended supervisor engine software is also included.

**Table 12.** Recommended Hardware Configuration for Cisco 7613 Router with 3DES

Product	Description	Quantity
CISCO7613	7613 Chassis Bundles	1
7613-2SUP720XL-2PS	Cisco 7613 13-slot, Redundant System, 2 SUP720-3BXL and 2 PS	1
SUP720-3BXL	Supervisor Engine 720-3BXL	1
MEM-C6K-CPTFL256M	Catalyst 6500 Sup720 Compact Flash Mem 256 MB	1
SUP720-3BXL	Supervisor Engine 720-3BXL	1
MEM-C6K-CPTFL256M	Catalyst 6500 Sup720 Compact Flash Mem 256 MB	1
4000W-DC	2700W/4000W DC Option for CISCO7609/Catalyst 6509 Chassis	2
GLC-SX-MM	GE SFP, LC connector SX transceiver	1 to 4
S762ZK9-12218SXD	Cisco 7600-SUP2/MSFC2 IOS IP W/SSH/3DES	1
WS-X6408A-GBIC	Catalyst 6000 8-port GE, Enhanced QoS (Req. GBICs)	1
WS-G5484	1000BASE-SX Short Wavelength GNIC (Multimode Only)	2 to 8
WS-SVC-IPSEC-1	IPSec VPN Security Module	1
WS-SVC-MWAM-1	Multiprocessor WAN Application Module	1 to 9
SC-SVC-xx20xxx	Home Agent or PDSN image, full or single image	x

If the HA-SLB feature is desired, the following part number must also be ordered as an option to the supervisor engine image, S762Z-12218SXDx:

Part Number	Description	Quantity
FR-EXCHDR	Mobile Wireless Exchange Director Load Balancer	1

Depending on network configuration, a Fast Ethernet interface card can be ordered instead of Gigabit Ethernet interface. In this case, the following could be ordered instead of WS-X6408A-GBIC:

Part Number	Description	Quantity
WS-X6548-RJ-45	Catalyst 6500 48-port 10/100, Inline Power, RJ-45	1

Note: This is the configuration as tested in the Cisco lab. Any variations to this configuration should be discussed with your Cisco representative prior to ordering.

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