

Portable Product Sheet - IOS Packaging



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This reference is provided to assist engineers as a guide in understanding IOS packaging, feature sets, and IOS image file naming conventions for routers and switches. For additional details regarding IOS packaging, please refer to the following URL:

<http://www.cisco.com/go/packaging>

Cisco IOS Planning Tools

Some features/feature sets may not be available across all router and switch platforms. Please refer to the following tools when determining specific features supported.

IOS Feature Navigator:

<http://www.cisco.com/go/fn>

IOS Software Advisor:

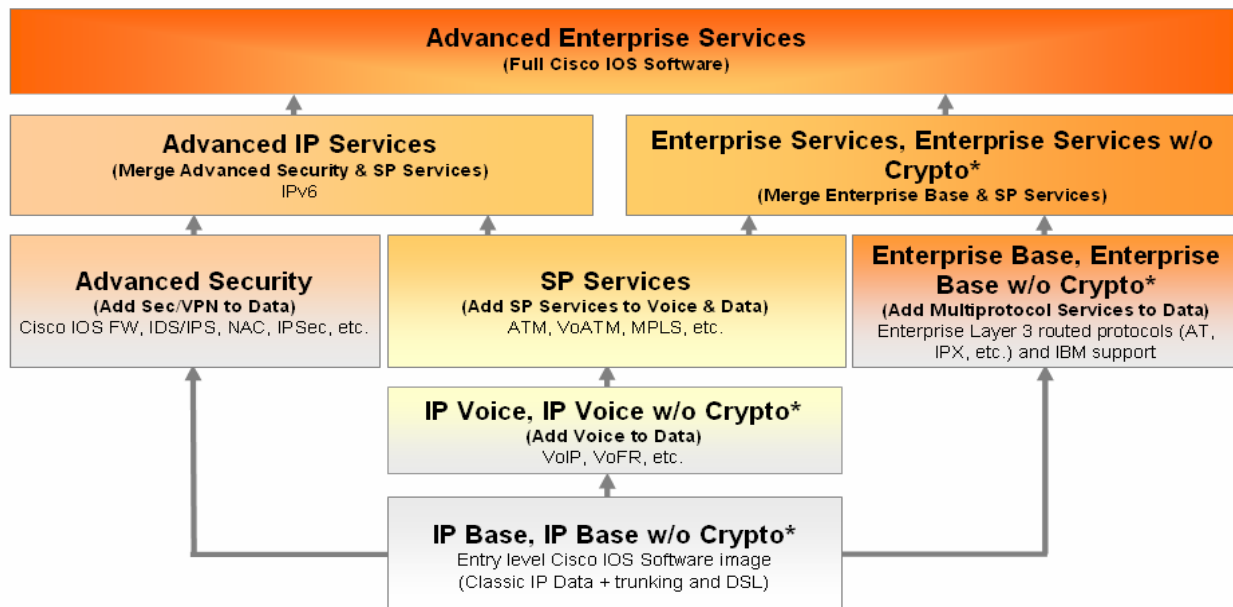
<http://tools.cisco.com/Support/Fusion/index.do>

IOS Software Upgrade Planner:

<http://www.cisco.com/cgi-bin/Software/Iosplanner/Planner-tool/iosplanner.cgi?>

Cisco IOS Packaging - Routers

Cisco IOS Packaging 12.4M/T (Access & Int. Services Routers)



Notes:

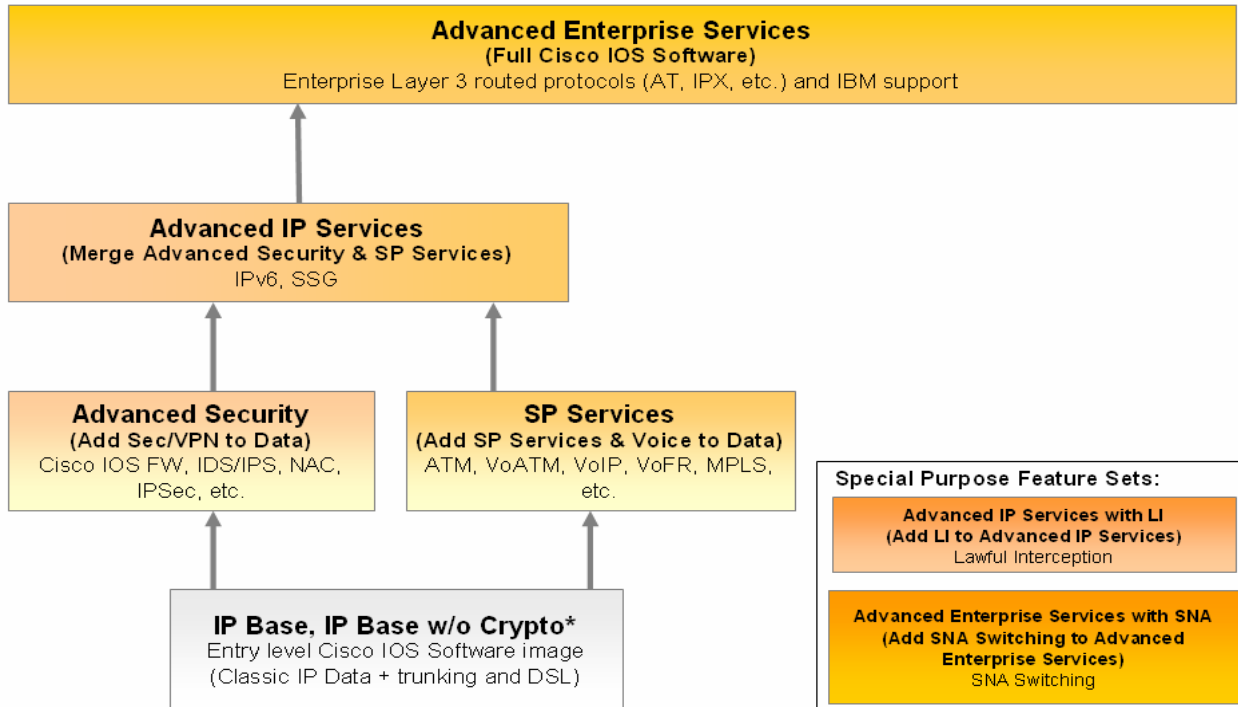
* Starting with 12.4 all Feature Sets offer SSH/SSL/SNMPv3 secure management (K9 indicator in image/part number). Non-crypto packages are available for IPB/IPV/EB/ES.

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Cisco IOS Packaging - Routers

Cisco IOS Packaging 12.4T (7200, 7301)



Notes:

* Starting with 12.4T all Feature Sets offer SSH/SSL/SNMPv3 secure management (K9 indicator in image/part number). A non-crypto package is available for IPB.

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Cisco IOS Packaging - Routers

Feature inheritance is a powerful aspect of Cisco IOS Packaging. Once a feature is introduced, it is always present in the more comprehensive packages; for example, all the features in IP Base are in IP Voice, Service Provider Services, Advanced Security, Advanced IP Services, Enterprise Base, Enterprise Services, and Advanced Enterprise Services. Feature inheritance clarifies the feature content of the different packages and illustrates their relationship.

Packages for Routers:

- **IP Base** is a baseline set of Cisco IOS Software services required to operate a Cisco IOS Router in a data environment. It includes technologies such as DSL connectivity, Ethernet Switching modules, 802.1q routing, and trunking on Ethernet interfaces.
- **IP Voice** adds voice features in addition to functionality found in IP Base. It integrates support for VoIP or VoFR. Additional functionality includes support for all existing voice interfaces and their signaling protocols (ie: H.323, MGCP Signaling), key leadership capabilities (ie: Cisco CallManager Express), and Survivable Remote Site Telephony (SRST). IP Voice is a full superset of IP Base, as it supports all features and hardware supported in the IP Base feature set.
- **Enterprise Base** integrates support for data connectivity, multi-protocol services, and IBM services (ie: Appletalk, Novell, and IPX). Enterprise Base is a full superset of IP Base, as it supports all features and hardware supported in the IP Base feature set.
- **Advanced Security** combines Security and VPN with data connectivity. Additional functionality includes Cisco IOS Firewall, Intrusion Detection Systems (IDS), and support for Cisco Easy VPN Client and Server. All encryption technologies (3DES and AES as applicable) will be provided in a single feature set. Advanced Security is a full superset of IP Base, as it supports all features and hardware supported in the IP Base feature set.
- **SP Services** combines voice services with data connectivity and is a full superset of IP Voice, as it supports all features and hardware supported in the IP Voice feature set. The SP Services feature set also provides other premium features, such as BGP and MPLS.

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Cisco IOS Packaging - Routers

- **Advanced IP Services** combines support for data and voice with Security and VPN capabilities. It supports all features and hardware supported in the SP Services and Advanced Security feature sets, and adds support for IPv6.
- **Enterprise Services** combines support for IPX, Apple Talk, DECnet and IBM services with voice and/or ATM services. It supports all features and hardware supported in the SP Services and Enterprise Base. It fully meets the requirements of customers who wish to integrate full IBM support and voice services.
- **Advanced Enterprise Services** merges support for multi-protocol services (ie: Appletalk, Novell, IPX, and DECnet) with voice, security (ie: Cisco IOS Firewall and IDS), VPN, and other premium features (ie: IPv6, BGP, MPLS). It is the most comprehensive feature set.

Example Image Naming - Routers

xxxx=platform (ie: c2600-ipbase-mz)

Image Name	Feature Set
cxxxx-ipbase-mz	IP Base
cxxxx-ipvoice-mz	IP Voice
cxxxx-advsecurityk9-mz	Advanced Security
cxxxx-spservicesk9-mz	Service Provider Services (note: also known as SP Services)
cxxxx-entbase-mz	Enterprise Base
cxxxx-advipservicesk9-mz	Advanced IP Services
cxxxx-entservicesk9-mz	Enterprise Services
cxxxx-adventerprisek9-mz	Advanced Enterprise Services

Notes:

"k9" in image name means strong encryption included, such as 3DES and/or AES.

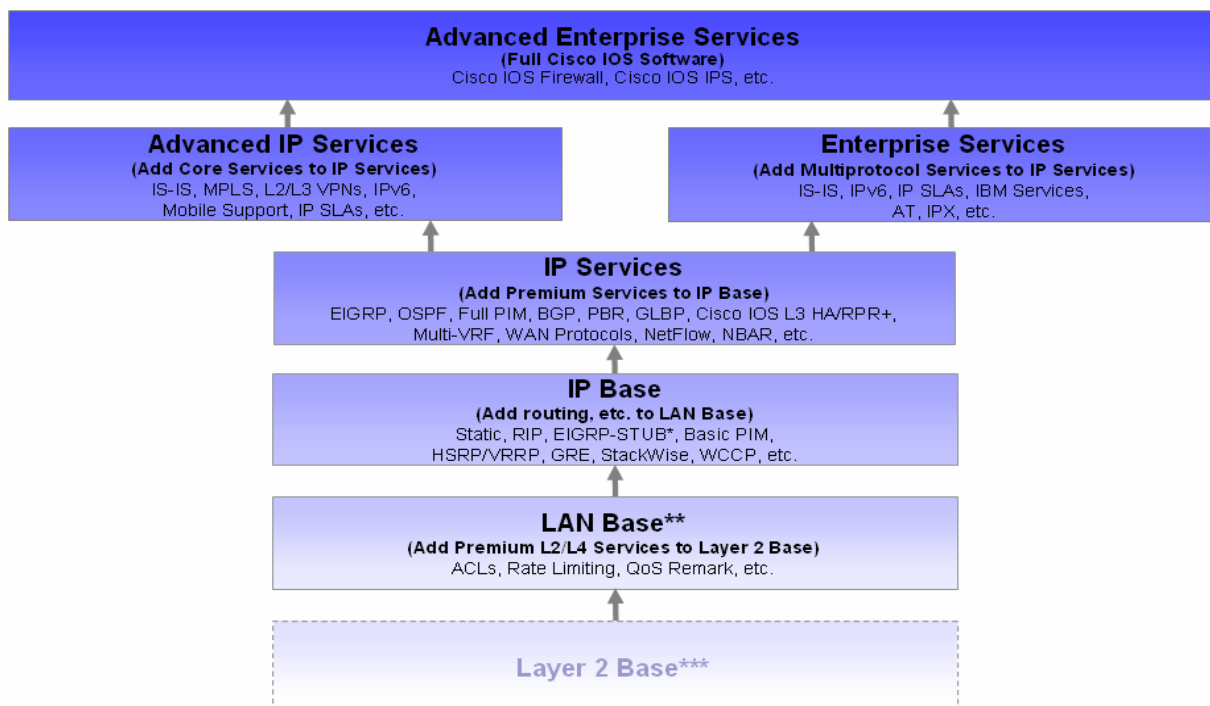
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IOS Packaging - Switches

Cisco IOS Packaging redefines and simplifies the current Cisco IOS Software feature sets across Cisco Catalyst Switches and offers one simple framework applicable to the entire switching portfolio, including feature parity and consistency across all the packages. This new model also provides closer realignment between the routers and switches that run Cisco IOS Software.

Cisco IOS Packaging 12.2S (Switches)



Notes:

- * In IP Base only, on Catalyst 4500 (Sup IV or later) and Catalyst 6500.
- ** For C2960 and newer platforms only. Previous C2900 families will not migrate to new Cisco IOS. Packaging model
- *** Layer 2 Base currently not supported by any platforms. For future use only.

Cisco Catalyst Express 500 family does not follow this Packaging and has a customized Feature Set.

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Cisco IOS Packaging - Switches

Packages for Switches:

- **Layer 2 Base** is a baseline set of Cisco IOS Software services required for the Layer 2 Ethernet switched environment. It includes IEEE Ethernet functionality, including IEEE 802.1D support, 802.1x point authentication, 802.3ad EtherChannel, 802.1s/w Rapid Spanning Tree, Port Security, SmartPorts, and SSHv2. *This package is currently not supported by any platforms.*
 - Deployment Guidelines: Typically Wiring Closet
- **LAN Base** includes everything in the Layer 2 Base, plus advanced LAN/security/quality features such as advanced Access Control Lists (ACL), rate limiting capabilities, Quality of Service (QoS) marking/remarking and others.
 - Deployment Guidelines: LAN Wiring Closet
- **IP Base** is a baseline set of Layer 2 and Layer 3 Cisco IOS Software services required to operate Cisco Switches. IP Base includes all the features of LAN Base, plus Edge IP Routing (Static, RIP, & Basic PIM), HSRP/ VRRP, and GRE Tunneling.
 - Deployment Guidelines: LAN Wiring Closet
- **IP Services** is an advanced Cisco IOS Software feature set that supports full IP routing capabilities. IP Services includes all the features of IP Base plus full IP routing (EIGRP, OSPF & PIM), BGP, Policy Based Routing, GLBP, High Availability, Redundant PR+, Multi-VRF, WAN Protocols*, and enhanced QoS functionality (NBAR). Note Not all Switches support WAN Protocols and NBAR.
 - Deployment Guidelines: Advanced Wiring Closet, Switch Aggregation (Distribution and Core)
- **Advanced IP Services** is a comprehensive set of Cisco IOS Software features designed for IP-only networks. It includes all the features of IP Services plus additional features including IS-IS, MPLS, Layer 2 VPNs, Layer 3 VPNs.
 - Deployment Guidelines: Service Provider Environments, Enterprise: Campus WAN and Metro Edge
- **Enterprise Services** is a comprehensive set of Cisco IOS Software features for Enterprise environments. It includes IPv6, all the features of IP Services and additional features for Layer 3 multi-protocol environments, such as AppleTalk Routing, IPX Routing, IS-IS, and IBM Networking Services.
 - Deployment Guidelines: Switch Aggregation (Distribution and Core), WAN edge, Metro edge
- **Advanced Enterprise Services** merges support for all Enterprise and IP protocols (ie: AppleTalk, Novell, IPX, IS-IS, and BGP) and adds Advanced Security (IOS Firewall, IDS) features. It is the most comprehensive, feature rich package and it includes all the features of Advanced IP Services and Enterprise Services.
 - Deployment Guidelines: Switch Aggregation (Distribution and Core), Internet edge, WAN edge, Metro edge

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Cisco IOS Packaging - Switches

Example Image Naming - Switches

Image Name	Feature Set
To Be Determined	Layer 2 Base (currently not supported by any platforms)
c2900-lanbasek9-mz	LAN Base
c6500-ipbasek9-mz	IP Base
c6500-ipservicesk9-mz	IP Services
c6500-advipservicesk9	Advanced IP Services
c6500-entservicesk9	Enterprise Services
c6500-adventservicesk9	Advanced Enterprise Services

Traditional IOS Packaging - Image Naming Conventions

The following serves as a reference for earlier IOS packaging image file naming conventions, provided to assist engineers in ascertaining the feature sets included with an image. In most cases, the image name should correspond with the image name as downloaded from CCO. Assuming this to be the case, the image will have many numbers and letters in it, which indicate the feature functionality included in the image. The list below, while not "comprehensive," is a list of the most popular codes in earlier IOS image naming convention.

Letters at the beginning	
IOS Code Letter	Feature
a	APPN
a2	ATM
a3	SNASW
b	Appletalk Routing
c	Remote Access Server
d	Desktop routing
dsc	Dial Shelf Controller
g5	Enterprise Wireless (7200)
g6	GPRS Gateway Support Node (7200)
i	IP routing
i5	IP routing, no ISDN (mc3810)
in	Base IP (8500CSR)
j	Enterprise (kitchen sink routing)
n	IPX Routing (low-end routers)
p	Service Provider (or DOCSIS for uBR)
r(x)	IBM
telco	Telco
w3	Distributed Director
wp	IP/ATM Base Image (8500MSR,LS1010)
y/y5	IP Routing (low-end routers) (missing some IP routing/features like BGP)
y7	IP/ADSL

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Traditional IOS Packaging - Image Naming Conventions

Letters in the middle	
56i	Encryption(DES)
ent	Plus (only when used with 'telco')
k1	BPI
k2/k8/k9	Encryption(DES=k8, 3DES=k9)
o	Firewall
o3	Firewall/IDS
s	Plus, or "LAN Only" on Cat6K/7600
s2	Voice IP to IP Voice Gateway (26xx/36xx/37xx only)
s3	"Basic" (limited IP routing, for limited-memory 26xx, 36xx)
s4	"Basic" without switching
s5	"Basic" without HD analog/AIM/Voice
t	Telco Return
v	VIP Support
v3,v8	Voice (17xx) - v3=VOICE, v8=VOX
w6	Wireless
x(or x2)	MCM
Letters at the end	
l	Runs from Flash
m	Runs from RAM
z	Compressed image

Notes: Traditional IOS Packaging - Naming Conventions

7200 and 7500 images for "IP Only" are always "IP Plus." Therefore, Base IP supports IP Gateway cards like the PA-VXC's, whereas in the 17/26/36/37xx's you need IP Plus.

In the 1700, the "s" for PLUS feature sets sometimes is the first letter, as opposed in the middle, and the

Some sample decodes:

c1700-bk2no3r2sv3y7-mz.121-5.YB5.bin - 12.1(5)YB2, AT/3DES/IPX/FW/IDS/IBM/Plus/Voice/IP/ADSL,

c7200-is-mz.121-11.bin - 12.1(11) mainline, IP Only (note: this is a 7200, so IP Plus = IP), runs from RAM and is a compressed image.

Traditional IOS Packaging, Feature Sets - Common Features Needed

Plus: Needed for modems, ATM, voice (non-17xx), DLSw+. Also adds "back in" IP features not in low-end router "y" images, like BGP.

VIP Support: Needed for VIP2/4/6 (75xx), FlexWAN (C6K).

Desktop: Has IP, IPX, and usually AT. Some older IOS revs have DEC/LAT in there, too.

Enterprise: "Kitchen Sink" - has every protocol possible, except those that require their own letter code.