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Router Products Release Notes for Software Release 9.0

These release notes describe the features, modifications, and caveats for Software Release 9.0, up to an including maintenance release 9.0(9). Refer to the *Router Products Configuration and Reference* document set, dated April 1992, for complete product documentation for Release 9.0.

Note: Release 9.0(9) is the last maintenance release for 9.0. Maintenance customers will continue to receive phone support from CE, but fixes will be made only to later software releases. If you want to upgrade to a later software release, there is a choice of upgrade paths. Consult your account representative for further information.

Introduction

These release notes describe the following topics:

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Current Software Versions

Refer to the Cisco Price List for the version number and ordering instructions for the current 9.0 software release.

Note: CSC/2 is no longer supported in 9.0.

Note: STSX images are no longer supported in 9.0.

New Hardware Features

The following new hardware features are supported in Release 9.0:

- CSC/4
- Token Ring interface cards
- Flash memory card

CSC/4

Release 9.0 introduces support for the CSC/4 processor card. This card offers additional memory and faster processing.

Token Ring Interface Cards

Release 9.0 introduces support for the CSC-1R and CSC-2R Token Ring interface cards. The CSC-1R and CSC-2R can connect to IEEE-802.5 and IBM Token Ring media. Under software control the card can operate a Token Ring port at either 16 or 4 megabits per second (Mbps). These cards support the Cisco XBus interface that allows connections to the CSC-MC Nonvolatile Random Access Memory (NVRAM) card, as well as to the Flash memory (CSC-MC+) card. Neither of these cards requires a chassis slot.

The CSC-1R provides a single Token Ring port. The CSC-2R card provides two Token Ring ports that are individually configurable.

Flash Memory Card

The Flash memory card is an add-in card containing flash EEPROM memory storage onto which system software images can be stored, booted, and rewritten as necessary. This card also is called the CSC-MC+. The Flash Memory card provides a fault-tolerant solution to users who only netboot and reduces the effects of network failure on system netbooting.

To use the Flash memory card, you must have an appropriate level of system software, firmware, and hardware. In addition, several prerequisites and caveats apply to installation and use of the Flash memory card. Refer to the *Modular Products Hardware Installation and Reference* publication for complete hardware requirements, specifications, caveats, and step-by-step installation instructions.

EXEC commands that support this feature include:

copy tftp flash

copy flash tftp

show flash [**all**]

Note: Use of the Flash memory card is subject to the terms and conditions of the software license agreement that accompanies your Cisco product.

System Management and Interface Configuration Features

This section describes features and enhancements for the router system and interface configuration software.

System Features

Software Release 9.0 includes enhancements to Cisco's interface configuration software.

The setup Command Facility

- The **setup** command facility now supports extended AppleTalk networks.

  Extended AppleTalk networks can be configured for cable ranges and multiple AppleTalk zone names. Nonextended AppleTalk networks are configured by network number and zone name. Note that Token Ring and FDDI interfaces require extended AppleTalk networks.
- For Token Ring interfaces, the software prompts for Token Ring ring speed (4 or 16 Mbps).
- The prompt for configuring MOP no longer appears.

Telnet Online Help

Telnet sessions now provide online help information for special Telnet escape sequences.

AGS+ Environmental Monitor show Command

Use the **show environment** command to display temperature and voltage information on the AGS+ console.

Note: This capability requires ENVM microcode version 2.0 and router microcode version 9.0.

Process Memory

A **show process memory** command has been added that shows current memory use.

Trivial File Transfer Protocol (TFTP)

The TFTP server now displays verbose messages during file transfer sessions to help you monitor TFTP sessions.

Authenticating User Names

For networks that cannot support a TACACS service, you still can use a user name-based authentication system. In addition, you can define user names that get special treatment, for example, an "info" user name that requires no password, but connects the user to a general-purpose information service.

The network server software provides a local **username** configuration command that supports user name authentication.

Dynamic Buffer Sizing

The **buffers huge** *size* command is an optional global configuration command that adjusts huge buffer sizes.

FDDI

Software Release 9.0 includes enhancements to Cisco's FDDI support.

Setting SMT Message Queue Size

Use the global configuration command **smt-queue-threshold** to set the maximum number of unprocessed Station Management (SMT) frames that will be held for processing.

FDDI MIB

Cisco provides support for some of the FDDI MIB variables as described in RFC 1285, "FDDI Management Information Base," published in January 1992 by Jeffrey D. Case of the University of Tennessee and SNMP Research, Inc.

Token Ring

Software Release 9.0 includes enhancements to Cisco's Token Ring support.

Early Token Release

The CSC-R16 (or CSC-R16M), CSC-2R, and CSC-1R cards all support *early token release*, a method by which these interfaces can release the token back onto the ring immediately after transmitting, rather than waiting for the frame to return. The following interface subcommands control this feature:

[no] early-token-release

Ring Speed

The Token Ring interface on the CSC-1R/2R interfaces can run at either 4 or 16 Mbps. The following interface subcommand controls this feature:

[**no**] **ring-speed** *speed*

Dial-on-Demand

Dial-on-demand routing (DDR) provides network connections in an environment that uses the public switched telephone network (PSTN). Traditionally, networks have been interconnected using dedicated lines for WAN connections. When used with modems (or ISDN terminal adapters), DDR facilitates low-volume, periodic network connections over a PSTN.

The following commands are added for support of DDR:

[**no**] **dialer in-band**

[**no**] **dialer idle-timeout** *number-of-seconds*

[**no**] **dialer idle-timeout** *number-of-seconds*

[**no**] **dialer fast-idle** *number-of-seconds*

[**no**] **dialer enable-timeout** *number-of-seconds*

[**no**] **dialer string** *dial-string*

[**no**] **dialer map** *protocol next-hop-address dial-string*

[**no**] **dialer-group** *group-number*

[**no**] **dialer-list** *dialer-group* **protocol** *protocol-name* **permit**|**deny**

Dial-on-Demand Cables

You need special cable configurations to use the dial-on-demand feature. The pinouts for RS-232 and Cisco HD V.35 cables are shown in Figures 1 and 2.

On an RS-232 cable, swap pin 6 (DSR) and pin 8 (CD) at one end.

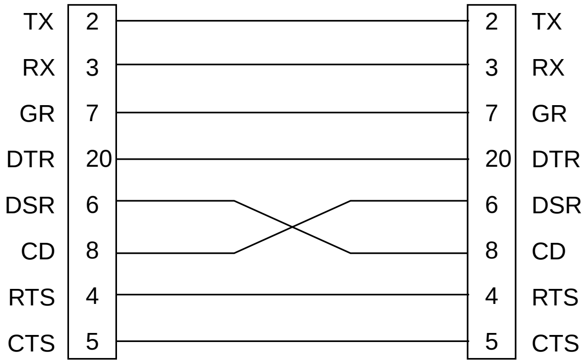
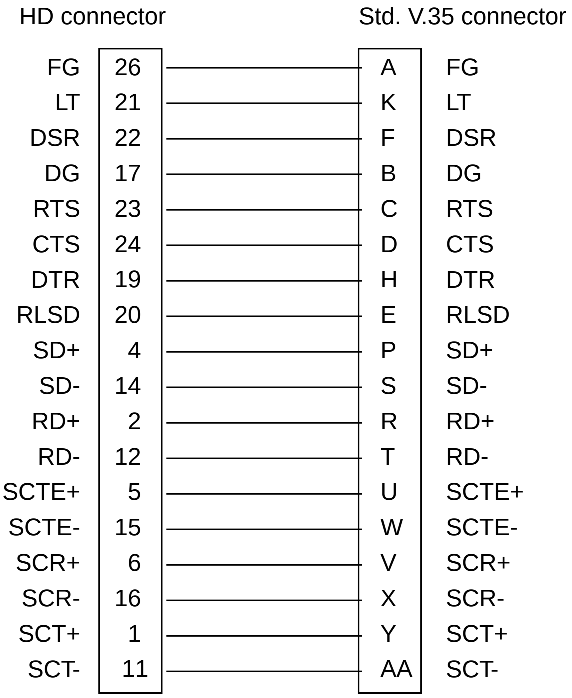


Figure 1 RS-232 Cable for Dial-on-Demand

On a Cisco high-density (HD) V.35 cable, swap pin E (DSR) and pin F (RLSD) at the standard V.35 end, or pin 20 (DSR) and pin 22 (RLSD) at the high-density end.



	HD connector	Std. V.35 connector	
FG	26	A	FG
LT	21	K	LT
DSR	22	F	DSR
DG	17	B	DG
RTS	23	C	RTS
CTS	24	D	CTS
DTR	19	H	DTR
RLSD	20	E	RLSD
SD+	4	P	SD+
SD-	14	S	SD-
RD+	2	R	RD+
RD-	12	T	RD-
SCTE+	5	U	SCTE+
SCTE-	15	W	SCTE-
SCR+	6	V	SCR+
SCR-	16	X	SCR-
SCT+	1	Y	SCT+
SCT-	11	AA	SCT-

Figure 2 Cisco HD V.35 Cable for Dial-on-Demand

Packet-Switched Software

Software Release 9.0 includes enhancements to Cisco's packet-switched software support.

Note: Bridge circuit-groups are supported only over parallel HDLC links.

Netbooting over X.25 and Frame Relay

When netbooting over X.25 or Frame Relay, you cannot netboot via a broadcast: you must netboot from a specific host.

X.25 TCP Header Compression

TCP header compression is supported over X.25 links through the use of the following interface subcommand:

x25 map compressedtcp

ANSI Frame Relay

Cisco provides support for the exchange of local management interface messages as defined by ANSI standard T1.617.

Use the **frame-relay lmi-type ANSI** interface subcommand to specify use of the ANSI LMI.

Switched Multimegabit Data Services (SMDS)

Cisco's implementation of SMDS includes a configuration option that allows you to enable or disable the router's ability to interface to an AT&T SMDS switch that implements AT&T's SMDS d15-mode. Please consult with your service provider to find out whether this command is needed.

Use the **smds d15-mode** interface subcommand to operate with an AT&T SMDS switch that implements the AT&T d15-mode packet structure.

Connection Mode Network Service (CMNS)

Connection Mode Network Service (CMNS) is now supported over broadcast media. Cisco's CMNS implementation supports services defined in ISO Standards 8208 (packet level) and 8802-2 (frame level).

New Protocol Features and Enhancements

This section describes features and enhancements provided with Software Release 9.0.

AppleTalk Routing

This section describes changes and enhancements to Cisco's support of AppleTalk routing.

AppleTalk Access Control Lists

Release 9.0 now supports true AppleTalk-style access control lists based on AppleTalk zones. IP-style access lists, which are based on network numbers, are still supported.

AppleTalk Responder

Release 9.0 supports version 1.0 of the AppleTalk responder. The router responds to AppleTalk responder requests.

MacIP

Release 9.0 routers allow routing of IP datagrams to IP clients using DDP as a low-level encapsulation, which is a technique commonly referred to as MacIP. Several commands have been added to configure and manage this feature.

Permitting Partial Zones

Release 9.0 allows the advertisement of partial zones in an AppleTalk network. The **appletalk permit-partial-zones** command enables this feature.

Requiring Specific Route Zones

Bad routing information, sometimes caused by a corrupt packet or a broken router, can cause ZIP storms on the network. The **appletalk require-route-zones** global configuration command now prevents bad routes from being propagated.

NBP Ping Interface Lookup Features

The **show appletalk nbp** command displays the NBP name registration table, which shows services registered by the router.

DECnet Routing

This section describes changes and enhancements to Cisco's support of DECnet Routing.

DECnet Phase IV to Phase V Conversion

Release 9.0 supports DECnet Phase IV to Phase V translation. DECnet Phase V is OSI-compatible and conforms to the ISO 8473 (CLNP/CLNS) and ISO 9542 (ES-IS) standards.

Connect-Initiate Filters on Objects

DECnet access lists now can be used to filter on DECnet objects.

IP Routing Features

This section describes changes and enhancements to Cisco's support of IP routing features.

Routing Processes

Release 9.0 router products now support up to 30 concurrent IP routing processes.

Default SLIP Addresses

Release 9.0 supports a default SLIP address with the addition of the **slip default** EXEC command. When a default SLIP address is used, the transaction is validated by the TACACS server (when enabled), and the line is put into SLIP mode using the address configured with the IP address argument of the **slip address dynamic** configuration command.

SLIP on AUX Port

Release 9.0 has provided an implementation of SLIP over the auxiliary port (asynchronous serial line) of its chassis-based router products. Its use is to provide access from a network management workstation to a router in a network where one or more routers are otherwise inaccessible.

Asynchronous BootP for SLIP

Release 9.0 supports asynchronous Boot Protocol over SLIP. The Boot Protocol (BootP) server for SLIP supports the extended BootP requests specified in RFC 1084. These requests are specified with the **async-bootp** global configuration command.

IP Routing Protocols

This section describes changes and enhancements to Cisco's support of IP routing protocols.

IP Split Horizon

Release 9.0 now allows you to enable or disable the *split horizon* mechanism in IP networks. This is particularly important in non-broadcast packet switching networks to prevent routing loops. Use the **no ip split-horizon** interface subcommand to disable the split horizon mechanism.

IGRP

IGRP has been enhanced to simultaneously use an asymmetric set of paths for a given destination. This feature is known as *unequal-cost load balancing*.

OSPF

With Release 9.0, Cisco supports OSPF routing and route distribution. The following commands have been added for OSPF support:

[**no**] **ip ospf cost** *cost*

[**no**] **ip ospf retransmit-interval** *number-of-seconds*

[**no**] **ip ospf transmit-delay** *number-of-seconds*

[**no**] **ip ospf priority** *8-bit-number*

[**no**] **ip ospf hello-interval** *number-of-seconds*

[**no**] **ip ospf dead-interval** *number-of-seconds*

[**no**] **ip ospf authentication-key** *8-bytes-of-password*

[**no**] **router ospf** *ospf-process-id*

[**no**] **area** *area-id* **authentication**

[**no**] **area** *area-id* **stub**

[**no**] **area** *area-id* **default-cost** *cost*

[**no**] **area** *area-id* **range** *address mask*

[**no**] **area** *area-id* **virtual-link** *router-id* [**hello-interval** *number-of-seconds*]
retransmit-interval *number-of-seconds*] [**transmit-delay** *number-of-seconds*]
[**dead-interval** *number-of-seconds*] [**authentication-key** *number-of-seconds*]

BGP

The Release 9.0 implementation of BGP now supports Versions 2 and 3 of the protocol and permits dynamic version negotiation with neighbors. Routers can be configured to handle only Version 2 of the protocol using the **neighbor version** router subcommand.

EGP

Release 9.0 supports EGP core gateways. In some situations, certain external routing problems can be solved by having a single, central clearinghouse of routing information. The EGP protocol with *core gateway* support can be used to implement this structure.

ISO CLNS Routing Protocols

This section describes changes and enhancements to Cisco's support of ISO CLNS routing protocols.

DECnet Cluster Alias

Release 9.0 supports DECnet cluster aliases. DECnet Phase V *cluster aliasing* allows multiple systems to advertise the same system ID in end-system hello messages. The router does this by caching multiple ES adjacencies with the same NSAP, but different SNPA addresses. When a packet is destined to the common NSAP address, the router load-splits the packets among the different SNPA addresses. A router that supports this capability forwards traffic to each individual system.

IS-IS Protocol

Release 9.0 supports the IS-IS ISO CLNS routing protocol. The IS-IS routing protocol supports the concept of *areas*. Within an area, all routers know how to reach all of the station IDs. Between areas, routers know how to reach the proper area. IS-IS supports two levels of routing: *station routing* (within an area) and *area routing* (between areas). Commands that support IS-IS are as follows:

[**no**] **router isis** *tag*

[**no**] **is-type** [**level-1**|**level-1-2**|**level-2-only**]

[**no**] **redistribute** *router-name tag*

[**no**] **clns router isis** *tag*

isis metric *default-metric delay-metric expense-metric error_metric* [**level-1**|**level-2**]
no isis metric [**level-1**|**level-2**]

[**no**] **isis priority** *value* [**level-1**|**level-2**]

[**no**] **isis circuit-type** [**level-1**|**level-1-2**|**level-2-only**]

[**no**] **isis password** *password* [**level-1**|**level-2**]

XNS Routing Protocols

This section describes changes and enhancements to Cisco's support of XNS Routing.

Ungermann-Bass Net/One XNS

Release 9.0 supports specific configurations for Ungermann-Bass Net/One networks. Net/One end nodes communicate using the XNS protocol, but there are a number of differences between Net/One's usage of the protocol and the usage common among other XNS nodes. Commands provided for configuring Ungermann-Bass Net/One networks are as follows:

[**no**] **xns ub-emulation**

[**no**] **xns ub-routing**

[**no**] **xns hear-rip**

New Bridging Features

This section describes changes and enhancements to Cisco's support of bridging.

Transit Bridging over UltraNet

Release 9.0 supports transit bridging of Ethernet frames across UltraNet media. The term *transit* refers to the fact that neither the source nor destination of the frame cannot be on the UltraNet media itself. This allows UltraNet to act as a highly efficient backbone for interconnecting many bridged networks. Configuring UltraNet transit bridging is identical to configuring FDDI transit bridging as well as transparent bridging on all other media types.

Source-Route Transparent Bridging

Source-route transparent (SRT) bridging is supported on Token Ring interfaces capable of supporting transparent bridging. Transparent bridging is supported only on the CSC-R16 or CSC-R16M Token Ring interface running at least Version 3.0 of the Token Ring monitor (SBEMON). As with all other media types, all **bridge-group** commands can be used on Token Ring interfaces.

New Features for IBM Networks

This section describes changes and enhancements to Cisco's support of IBM networks.

Source-Route Bridging

This section describes changes and enhancements to Cisco's support of source-route bridging.

Source-Route Fast Switching

Fast switching allows faster implementations of local source-route bridging between 4/16-megabit Token Ring cards in the same Cisco router/bridge. This feature also allows faster implementations of local source-route bridging between two Cisco router/bridges using 4/16–megabit Token Ring cards and the direct interface encapsulation. The following command has been added:

[**no**] **source-bridge route-cache**

Source-Route Translation Bridging

You can bridge packets between a source-route bridging domain and a transparent bridging domain. Using this feature, a software "bridge" is created between a specified virtual ring group and a transparent bridge group. To the source-route station, this bridge looks like a standard source-route bridge. There is a ring number and a bridge number associated with a "ring" that actually represents the entire transparent bridging domain. To the transparent bridging station, the bridge represents just another port in the bridge group.

Local Acknowledgment Function

The Local Acknowledgment capability in router/bridges supporting RSRB addresses the problems of unpredictable time delays, multiple retransmissions, or loss of user sessions.

Boolean Access Expressions

The Boolean access expression functionality allows you to combine access filters in new ways for Token Rings. With these access expressions, you can now indicate complex conditions under which bridged frames can enter or leave an interface. With these expressions, you can achieve levels of control on frame forwarding that would be impossible when using only the simple access expressions.

LAN Network Manager

LAN Network Manager (LNM), formerly called LAN Manager, is an IBM product used to manage a collection of source-route bridges. A source-route bridge connects multiple physical Token Rings into one logical network segment. LNM provides access to services so that you can monitor the entire source-route bridge environment through the use of a proprietary protocol.

LLC2 and SDLC Link-Level Support

This section describes changes and enhancements to Cisco's support of LLC2 and SDLC link-level support.

LLC2

The Release 9.0 router software supports LLC2 connections over the following IEEE interfaces:

- MCI Ethernet
- MEC Ethernet
- Token Ring
- IGS Ethernet
- FDDI

LLC2 connections are used in support of the IBM LAN Network Manager, LLC2 Local Acknowledgment, SDLLC SDLC/LLC2 Media Translation, and CMNS.

SDLC

SDLC is used in Cisco's implementation of SDLLC, the media translator between LLC2 and SDLC.

Cisco's implementation of SDLC supports *multipoint*, using a modem or line sharing device (MSD or LSD), in configurations where the device speaks a full-duplex protocol to the Cisco router.

Currently, the Cisco router can only act as the primary end of the SDLC session. As a result, in SDLLC applications, the Token Ring station always must act as the primary station, and the SDLC station always must act as the secondary station.

SDLLC: SDLC-to-LLC2 Media Translation

SDLLC is Cisco's term for media translation between IBM's Synchronous Data Link Control (SDLC) data link protocol for serial lines and ISO's Logical Link Control (LLC) Type 2 data link protocol used over Token Ring networks. The media conversion occurs between Token Ring and serial lines. The protocol conversion occurs between LLC Type 2 protocol used over Token Rings and the SDLC protocol used by IBM machines in an SNA network over serial lines. Any router that supports bridging can support the translation between SDLC on serial links and LLC2 on Token Rings using SDLLC.

Obsolete Commands

The **smds att mode** command is obsolete.

Router Products Documentation Enhancements

In Release 9.0, the following documentation changes have occurred:

- Additional explanations of MTU limitations have been added.
- Additional examples of AppleTalk CAP/IPTalk configurations have been added.
- Chapter 24 and Chapter 25 discuss SDLC/LLC2 parameters and SDLLC, and media translation.
- A new appendix that describes the X.25 international diagnostics has been added.
- A new appendix that describes frame formats has been added
- A new appendix that presents error messages has been added.
- A separate booklet, *Router Products Command Summary,* has been provided.
- With Release 9.0, ISO routing protocols are documented in a separate chapter from the ISO switching protocols.

9.0(9) Caveats

There are no outstanding caveats against Release 9.0(9).

9.0(8) Caveats/9.0(9) Modifications

This section describes possibly unexpected behavior by Release 9.0(8). Unless otherwise noted, these caveats apply to all 9.0 releases up to and including 9.0(8). For additional caveats applicable to Release 9.0(8), see the caveats sections for newer 9.0 releases. The caveats for newer releases precede this section.

All the caveats listed in this section are resolved in release 9.0(9).

ISO CLNS

- After an uptime of nearly 25 days the IS-IS level 2 LSP may stop being sent, causing the IS-IS routing entry to disappear in the neighbor router. This is likely to happen when a router has only one Level 2 adjacency. [CSCdi13482]

9.0(7) Caveats/9.0(8) Modifications

This section describes possibly unexpected behavior by release 9.0(7). Unless otherwise noted, these caveats apply to all 9.0 releases up to and including 9.0(7). For additional caveats applicable to release 9.0(7), please see the caveats sections for newer 9.0 releases. The caveats for newer releases precede this section.

All the caveats listed in this section are resolved in release 9.0(8).

AppleTalk

- When configuring an AppleTalk access group on an interface, the **access-group** command may allow or disallow traffic in violation of the list. A workaround is to issue the interface subcommand **no apple route-cache**. [CSCdi12917]
- When converting NBP BrRq packets into NBP FwdReq, the system does not preserve the original DDP source address. It, instead, uses the address of the outgoing interface. This can short-circuit **access-group** filtering. [CSCdi13287]
- When NBP BrRq and NBP FwdReq packets are converted to NBP LkUps, the source address is not preserved. This can cause access-groups to inadvertently filter out the LkUps. The workaround is to disable access-groups. [CSCdi14245]

- Devices that perform gleaning of MAC addresses from AppleTalk Phase 2 packets may experience connectivity problems. This problem can manifest itself as services on the local network appearing and disappearing in Mac Choosers. There is no workaround. An upgrade is necessary. [CSCdi14732]

Basic System Services

- Certain debugging messages are unexpectedly displayed to the console regardless of the state of the **logging console** configuration command. [CSCdi12665]
- Under conditions of high network or TACACS authentication server load, multiple responses can be received by the router or communication server. The multiple responses can be lost and cause the input queue to fill up on the interface the responses were received on. [CSCdi13626]

DECnet

- The router fails to become a DECnet designated router on an FDDI interface when it is supposed to do so (it is the highest priority DECnet router on the FDDI ring). As a result, DECnet router hellos to end-nodes are not sent out on the FDDI ring and the end-nodes on the ring do not see a designated router. [CSCdi10442]
- Cisco routers do not listen to the DECnet multicast address for Level 2 only routers. This can create problems in situations where DEC routers are configured Level 2 only. The workaround is to configure those routers for both Level 1 and Level 2 routing. [CSCdi14521]

Interfaces and Bridging

- In certain environments, use of the **source-bridge proxy-explorer** command may cause a router to reload, reporting a “Jump to Zero” error. [CSCdi12328]

IP Routing

- Under extreme circumstances, if autonomous switching is enabled (that is, **ip route-cache cbus** is configured), the router will reload. [CSCdi12415]

ISO CLNS

- When a CLNS NET is configured on a router using the command **clns router igrp** *areatag* net *nsap1*, and is then “undone” by the command **no clns router igrp** *areatag* net *nsap1*, and another NET is configured by the command **clns router igrp** *areatag* net *nsap2*, the system may reload. Caution is advised when adding and deleting CLNS NETs. [CSCdi09094]
- IS-IS, when redistributing static routes, should not include the prefix in a Level 2 LSP if the next-hop interface for the static route goes down. This is not a problem for ISO-IGRP. [CSCdi13023]

- The configuration command **redistribute isis** is not properly written to nonvolatile configuration memory. [CSCdi13154]

VINES

- If the router receives a redirect that lists itself as the next hop for a router, it will process the packet resulting in a circular routing table entry. This makes the destination listed in the redirect become unreachable from behind the router. [CSCdi12292]
- A Cisco router does not forward a subnet-only broadcast in the same manner that a Banyan server does. The Cisco router will forward it as a MAC layer broadcast onto the LAN segment containing the server, whereas a Banyan server will forward it directly to the server as a MAC unicast and let the server rebroadcast it. [CSCdi12555]

Wide-Area Networking

- The **dialer-list 10** command would cause the router to take an exception. This is because only dialer lists from 1 to 9 are allowed. [CSCdi11279]

XNS/Novell IPX/Apollo Domain

- When responding to a RIP request from a NetWare 3.1x/4.x server/router the response is sent to an incorrect MAC address (0000.0000.0001) and therefore is never received. This will only happen on NetWare devices that use an internal network number: a response to normal NetWare Client is sent to the correct MAC address. [CSCdi13400]
- If you configure a Novell IPX static RIP or static SAP entry using a host ID that matches the host ID being used by any Cisco interface, the static RIP or static SAP will be disallowed. The verification of host id should use the entire network.host-id address for a match instead of only the host ID. The 9.0 version of this bug only applies to static RIP configuration as static SAP configuration is not supported in the 9.0 software release. [CSCdi13332]
- In a topology where multiple equal cost routes exist to a destination and **novell maximum-path** is still at the default value of 1 a situation can happen such that an old route-cache entry exists pointing to a route that no longer exists. Using a nondefault value of **novell maximum-path** will avoid this issue, which will clear itself the next time the route cache changes, or when a **clear novell cache** is done. [CSCdi14410]
- Novell routes are flushed whenever a **novell network** *xxx* command is issued against an interface, even if the network number is unchanged from its previous value. This is most often seen when a configuration file is uploaded using the ciscoworks configuration management feature. The impact is Novell routing to some destinations will stop for up to 1 minute while the Novell route tables are rebuilt. SPX sessions, which have relatively short timeout values, may be dropped. [CSCdi14444]

9.0(6) Caveats/9.0(7) Modifications

This section describes possibly unexpected behavior by release 9.0(6). Unless otherwise noted, these caveats apply to all 9.0 releases up to and including 9.0(6). For additional caveats applicable to release 9.0(6), please see the caveats sections for newer 9.0 releases. The caveats for newer releases precede this section.

All the caveats listed in this section are resolved in release 9.0(7).

AppleTalk

- AppleTalk GMZ (GetMyZone) packets received on a nonextended interface are not handled properly by the system and get held in the small buffer pool. Evidence for this problem would include a slow depletion on the available system memory (as shown by **show memory**) and a continuous rise in the small buffer "total" count (as shown by **show buffers**). A GMZ request on a nonextended interface is an undefined call and should be ignored, but some AppleTalk-based network management packages use these packets to determine network configuration. [CSCdi10715]
- Occasionally, a newly configured MACIP server in a running router will not begin operation. Instead, it will hang in state "initial." This problem will only occur in routers that have been running for more than three weeks. The workaround is to configure MACIP prior in the first three weeks of operation, or to restart the router and reconfigure MACIP. This problem will not occur in routers that have a continuously running MACIP server. [CSCdi10771]
- Zone names that begin with one or more leading blank spaces are not properly stored in the configuration memory. This may lead to zone conflicts when the system is rebooted; the parser will consume all leading white space when parsing the zone name. To prevent such a situation, zone names with leading blank spaces should not be used. The correct system behavior would be to store the first leading blank space as the sequence :20 using the special colon notation. [CSCdi11052]
- A ZIP GetMyZone reply is sent in response to a ZIP GetLocalZones request on nonextended interfaces. This is an unexpected response on Macintoshes running AppleTalk v58. The correct behavior is to respond with a GetLocalZones reply. [CSCdi11248]
- When an interface is configured for nonextended AppleTalk, it will unexpectedly try to bring itself up after an AppleTalk address is assigned but before a zone is specified. This leads to improper port startup. This can be avoided by specifying the zone first and the AppleTalk address second. [CSCdi11516]
- When **debug apple-events** and **debug apple-routing** are enabled, state changes for routes are reported with incorrect cable ranges. There is no system impact. To get an accurate picture of the state of a route, use **show appletalk route**. [CSCdi11558]
- During a **write terminal** or a **show configuration**, trailing white space in a zone name is not visible, although present. There is no system impact. [CSCdi11847]

Basic System Services

- Changing the logging level via the **logging console** global configuration command does not limit the display of logging messages to the console. The workaround is to log in via a virtual terminal and control the logging of messages with the **logging monitor** global configuration command. [CSCdi11676]

DECnet

- A router running with IV/V conversion enabled converts any Phase IV hellos it receives and adds it to the Phase V adjacency database. The format of this entry in the Phase V database is recorded as “Phase IV”. If a corresponding Phase V hello comes in (i.e., the other router is also running Phase V), it should overwrite the entry in the Phase V adjacency data base that was always forwarding to the final destination instead of the next hop. A IV adjacency is stored in the V adjacency database as noted above. This info is also entered into the V routing table, so that it is propagated through the OSI cloud. The caveat results in the router not updating this route, so the route would go into holddown and ultimately go away. Therefore Phase IV ES information never stays long enough in the V routing table. [CSCdi11174]

IBM Connectivity

- The Token Ring interface was sending ring status messages to the LAN manager when it was in the DOWN state. The status messages are valid only after the interface has begun the insertion process. [CSCdi10364]

Interfaces and Bridging

- Spurious entries may appear in the bridge table (**show bridge**) when the MAC address of an interface changes (for example, in reconfiguring an interface with a different DECnet address). This can be corrected with **clear bridge** *n*, where *n* is the bridge group identifier. [CSCdi09802]
- IP accounting is not supported for UltraNet interfaces. Incorrect data is entered into the accounting table. The fix is to disable IP accounting on UltraNet interfaces. Future releases will prevent this unsupported configuration from being set up. [CSCdi10595]
- There is a window in which commands to the interface get dropped. The fix is to protect against interrupts when issuing commands. In this case, the system drops the command to throttle the interface. When the system later tries to unthrottle the interface, it can get passed random pointer values to the interfaces shared memory. Also, store the throttle count in idb and display in **show controller**. [CSCdi11046]

IP

- If a router receives IP packet fragments which are broadcasts, or addressed to the router and the fragments arrive more quickly than they can be reassembled, large amounts of processor memory can be consumed. [CSCdi10903]
- The router will not accept a partial command for **ip route-cache** because of the addition of a new command **ip route-cache-same-interface**. [CSCdi11171]

IP Routing Protocols

- If you run **setup** from enabled mode and configure a Token Ring interface that was previously shut down and had no ring speed, the configuration fails because **setup** configures **no shutdown** before **ring-speed 16**. The problem is encountered if the customer uses the **setup** command to configure an unconfigured CSC-2R/1R for the first time, but after the box had been booted some other interfaces have already been configured. It doesn't seem to happen to routers just out of the box with no configuration at all such that the customer uses **setup** to configure all the interfaces. [CSCdi09032]
- Routes learned via core EGP are redistributed into BGP with an AS path of zero (0) rather than the AS of the remote peer. [CSCdi11575]

VINES

- If a user waits at the --More-- prompt in the middle of **show vines neighbor** or **show vines route** output for any period of time, it is possible that the router will reload when the output is continued. This will only happen if the neighbor entry about to be displayed is deleted before the user continues. This is very unlikely to happen in normal usage of the router. [CSCdi10788]
- In their Release 5.50, Banyan changed the way that a client determines the name of its routing server. This fix changes the router to support that new method as well as the old method. [CSCdi11384]
- If a network is set up such that two or more routers are connected to a LAN segment containing a server, and the router interfaces connected to that LAN segment have been configured as serverless, then it is likely that there will be a broadcast storm. The workaround is to correctly configure the routers by removing the serverless specification on the interfaces that have servers connected to them. [CSCdi11991]

Wide-Area Networking

- Incoming SMDS ARPs are not entered into the SMDS ARP table. This is only evident in test situations where the interface is looped. There is no regular operational impact. [CSCdi10269]

XNS/Novell IPX/Apollo Domain

- The SAP Flash updates that result from adding a static SAP to a router are not filtered according to any assigned SAP filter list. SAP poison packets, hop count 16, are not filtered according to the configured SAP filter access list on the outgoing interface. Static SAP entries are Flash-announced to the world at the wrong hop count. When the correct hop count is sent in the periodic updates, it will cause neighbor routers to think the topology has changed and to place the service into hold down, timeout, and flash an advertisement of hops equal 16 before advertising the correct hop count. [CSCdi10834]
- When bringing up an interface which has been down since system startup, on a router running with XNS UB emulation configured for over four weeks, the newly installed XNS interface will not send out UB XNS RIP packets after the initial update at interface startup. A workaround is to briefly turn off XNS UB emulation and then turn it back on. This may cause a couple minutes of UB route disruption on routes using this router. [CSCdi11543]
- If a Novell SAP update is received which has more than the normal seven services per frame advertised and all those services are new, there is a strong possibility that memory will be corrupted. [CSCdi12108]
- The optional behavior of the **rip-check** command installed as of CSCdi09056 has now become the default. To turn off the RIP-check handling of RIP requests use the **no novell rip-check**. Two new counters have been added to the **show novell traffic** display: SAP format errors and RIP format errors. Should these counters be incrementing on a router, it might be prudent to investigate which client is sending malformed RIP requests by turning on **debug novell-rip-event**; information will then be displayed about the next one of these packets which arrives along with other RIP events which may or may not be interesting. Note: turning on debugging may cause unwanted overhead on the router, use of an analyzer may also be warranted. [CSCdi12244]

9.0(5) Caveats/9.0(6) Modifications

This section describes possibly unexpected behavior by release 9.0(5). Unless otherwise noted, these caveats apply to all 9.0 releases up to and including 9.0(5). For additional caveats applicable to release 9.0(5), please see the caveats sections for newer 9.0 releases. The caveats for newer releases precede this section.

All the caveats listed in this section are resolved in release 9.0(6).

AppleTalk

- Serial interfaces configured with discovery mode never become operational. [CSCdi09532]

- The router may remember old, deconfigured AppleTalk networks as directly connected for reconfigured AppleTalk interfaces in rare circumstances if all of the following are true: 1) The router has an existing cable-range or address associated with it., and 2) The router is reconfigured with a new cable-range or address while it is not administratively shut down. This problem does not exist in releases 9.1 and above of the router software. The workaround in release 9.0 is to ensure that one of the above two conditions are not met by either administratively shutting the interface down with the **shutdown** command, or removing the existing AppleTalk address with either the **no appletalk address** or **no appletalk cable-range** command. [CSCdi09635]
- Under certain conditions, the configuration interface subcommand **multiring all** or **multiring appletalk** will prevent the router from being able to acquire an AppleTalk node address, thereby preventing the interface from becoming active as a routing node. You can detect this condition using the command **debug apple-arp**, which shows the router attempting to probe for an address indefinitely, incrementing the requested node address at each cycle. To circumvent this condition, remove the **multiring** command from the afflicted interface. (Multiring is necessary only if AppleTalk traffic will be source-routed from the adjacent Token Ring network to remote Token Ring networks.) If multiring is necessary, a temporary workaround is to disable multiring only during the AppleTalk ARP process. Once the interface has become operational for AppleTalk, multiring can again be applied to the interface. However, if the interface should restart for any reason, AppleTalk will again be disabled, so this should be considered an emergency workaround only. [CSCdi09753]
- AppleTalk Packets cannot be fast switched between MEC Ethernet controllers and HSSI serial controllers when the Ethernet interface is running Phase I AppleTalk, and the HSSI interface is running Phase II AppleTalk. [CSCdi09818]
- A pending ZIP garbage collection request may not be fulfilled as expected. This can occur whenever a route and its associated zone is deleted. There is no user visible impact. [CSCdi10254]
- All inactive zones may not be freed during ZIP garbage collection; **show appletalk zone** will display zones without any networks. This can occur when a large number of routes and their associated zones are deleted. There is no router impact. [CSCdi10279]
- The **no appletalk cable-range** and **no appletalk address** commands do not properly release assigned zone(s). As a result, the zone(s) may not be properly cleared during ZIP garbage collection and may show up as orphaned zones in **show appletalk zone**. There is no significant router impact. To ensure proper cleanup of zones, the user should issue a **no appletalk zone** command before issuing either of the two previous commands. [CSCdi10297]
- Partially qualified AppleTalk addresses of the form, 0.X, are unexpectedly inserted into the AARP cache on all nonextended interfaces. Since the entries are not valid, they will shortly age out. No user intervention is required. [CSCdi10426]
- AARP response debugging messages print bogus return addresses when **debug apple-arp** is enabled. [CSCdi10439]

- AppleTalk addresses of the form 0.X, where X is any valid node number, are erroneously entered into the fast-switching cache. This may possibly affect systems with more than one operational nonextended interface. [CSCdi10802]
- The AppleTalk address of the dissenting router is incorrectly reported as 0.0 when a network number conflict is discovered during port startup of an extended interface. There is no system impact. [CSCdi10839]

Basic System Services

- A terminal line configured for flow control will not successfully time out (due to a “session-timeout” configuration) if the line is XOFFed at the time of the timeout. [CSCdi09310]

DECnet

- DECnet should look at the MAX AREA parameter and not advertise reachability to any areas greater than this parameter. Likewise, it should not advertise reachability to a node that is MAX NODE. It should also not accept hellos from such nodes. [CSCdi09716]
- Any FDDI attached DECnet Phase IV end-nodes will have an OSI adjacency entry with a multicast SNPA. This occurs only when DECnet conversion is enabled on the router. [CSCdi09956]

EXEC and Configuration Parser

- The parser sometimes claims that incomplete command names are not unique. [CSCdi10554]

IBM Connectivity

- When a router with multiple Token Ring interfaces runs with the DECnet protocol, there are duplicate Token Ring MAC addresses on the bridge network because the Cisco implementation of DECnet modifies all the Token Ring interface MAC addresses to the same address. The IBM LNM protocol does not allow multiple stations with the same MAC address to exist on the bridge network. All the LNM functionality that relates to the duplicate MAC addresses, such as path test, station, profile, and link with bridge, will not perform normally.

  A configuration command was added to allow the router’s LNM module to accept link requests from the adapter that is not closer to the LNM station ring. In a normal case, the LNM station links with the adapter of a bridge that is closer to the LNM ring and expects to receive an error if an LNM station tries to link with the other end of a bridge. This addition allows a router to stay linked with LNM station and to report problems. However, other LNM station-related functionality is still not acting properly.

The following is the procedure to configure the router and LNM station:

— 1. Define the router as a bridge on LNM station. Use the burn-in address and the virtual interface address.

— 2. Issue the **lnm duplicate-address** global command on the router to turn on the option. [CSCdi09396]

- A TCP connection that has transmitted a very large amount of data (on the order of 2 billion bytes) can remove packets from the retransmission queue prematurely, causing the connection to unexpectedly close due to a retransmission timeout, even though the network path is working correctly. This can affect router functions like remote source route bridging, which can transmit large amounts of data over a long period of time. [CSCdi09764]
- The RSRB state machine goes to a null state when one of the peers of the WAN peers is power cycled. The workaround is to reset both routers. [CSCdi09767]

Interfaces and Bridging

- The system did not learn the burned-in address of the Token Ring adapter card until after the interface inserted onto the ring. If the interface was shutdown when the router was booted and the router was configured for bridging, the virtual ring address would be configured with the address 4000.0000.0000. This happened because the virtual ring uses the burned-in address of the adapter, logically ORed with the 4 to obtain its unique address, which is a problem in the above scenario. [CSCdi07105]
- The **transmitter-delay** *microseconds* command does not show up when issuing a **write terminal** or a **show config** command on Ethernet or Token Ring interfaces. For this reason, the command must be issued at each *reload* for it to take effect. Serial interfaces function as described in the manual and don't exhibit the same failure. [CSCdi08710]
- There is a problem of setting access filters on source-route bridge networks based on SNAP type codes. [CSCdi09010]
- OSPF does not listen to multicasts on an old Type 2 Ethernet card. [CSCdi09553]
- In pre-9.0(5.4) environments, IP fast switching is not allowed on the same interface. This becomes desirable in a scenario like this:

```
A-----FR network------B
         |
         |
         C
```

Here, router A has DLCI to B, and router B has DLCI to C. There is no DLCI between A and C, so traffic between A and C would have to go through B.

A new IP subinterface command has been defined to allow IP fast switching on the same interface:

int s 0 ip route-cache-same-interface

IP fast switching on the same interface and ICMP redirects are incompatible. Therefore, when the user enters the **ip route-cache-same-interface** command, ICMP redirects are never sent on the specific interface. If the user enters the command **ip redirect**, ICMP redirects are sent and the IP fast-switching cache is not updated with new entries if the output and input interface are the same. IP fast switching between serial interfaces does not work properly on low-end products in 9.0(5.3) and previous environments. This fix includes changes to the IP fast switching code to properly handle the frame header when switching between serial lines. [CSCdi09761]

- In the case where there are excessive token-to-mother interrupts, the system should call str_reset( ) instead of str_soft_reset( ) so that the interface transitions correctly. [CSCdi10116]
- The R16M will accept the configuration command **ring-speed 4/16** even though its ring speed can only be changed by a jumper. The interface display will show the ring speed from the **configuration** command. However, the ring will continue to operate at the correct (jumpered) speed. The fix is to reject an attempt to change the ring speed on interfaces that are hardware configurable only. [CSCdi10617]

IP Routing Protocols

- It was observed once that a router was continuously looping running SPF, which resulted in locking the router. [CSCdi08089]
- OSPF fails to install an external route which it receives in external link state advertisement in some circumstance. The workaround is to cause the shortest path calculation to run again by issuing a **clear ip route *** command. [CSCdi09149]
- OSPF installs a wrong next hop for a route that is advertised in AS external advertisement. This happens when there is more than one AS external advertisement to the same destination. [CSCdi09213]
- Static routes with destination gateways routed to via an interface that goes down (or is shutdown) are not always removed from the main routing table. [CSCdi09374]
- If the router has more than one Network Entity Title (NET) configured, it will advertise only the first one configured in ES-IS ISH packets. The effects of this is that autoconfiguring end-systems will not learn of all addresses in a multihomed area. [CSCdi09414]
- When initiating a TFTP read request, the system can generate TFTP packets with invalid UDP checksums. This only happens when the request is transmitted out an unnumbered interface. If the TFTP server has UDP checksumming enabled, TFTP read requests via the unnumbered interface will fail. Turning off UDP checksumming at the TFTP server, or restricting TFTP reads to numbered interfaces avoids this problem. [CSCdi09577]

- Upon receipt of IP directed broadcast packets, the system erroneously attempts to resolve the directed broadcast address via HP Probe address resolution broadcasts. This occurs if the directed broadcast is destined for a directly connected interface, and that interface is configured for **arp** probe. The system then also correctly forwards the directed broadcast as a data link layer broadcast (if not disabled via the configuration command **no ip directed-broadcast**). The system should be sending the directed broadcast as a (data link layer) broadcast out the directly connected interface, but should not be attempting to perform address resolution on the IP directed broadcast address. [CSCdi09627]
- OSPF summary lock timer is created as continuous timer where it should be a one shot timer. If this timer is set once, it will try to come back even when it is not supposed to. [CSCdi09684]
- If a new BGP neighbor is configured after the router has been operational for 24 days, BGP will not attempt to start the session. The workaround it to manually start the session with the **clear ip bgp** command. [CSCdi09732]
- If an interface flaps, or if an IP routing protocol is removed from the configuration, then the gateway of last resort will be lost. [CSCdi09903]
- When an interface whose IP address is used as router ID by an OSPF router is shut down, the router mistakenly regenerates a router LSA with the old router ID that consequently fails to be deleted after an acknowledgment is received. This causes it to be continuously retransmitted. Note that this does not prevent the router from performing the normal operation. The router changes its router ID and reforms adjacencies with its neighbors with the new router ID correctly. This caveat is introduced in 9.1(3.1) and 9.0(4.2). [CSCdi09931]
- The LAN Net Manager “frame forward” used to verify an SRB route was causing a call to the function send_trace_report( ) with parameters in reverse order. This caused an attempt to jump to a null vector, thus “jump to zero error.” The patches not only fix the function call, but also puts in paranoid code to check for invalid pointers. [CSCdi09980]
- BGP routes aged out of IP forwarding table. [CSCdi09983]
- OSPF default hello interval for non-broadcast interface is not set to 30 seconds as documented. Instead, it is set to 10 seconds. Interface subcommand **ip ospf hello-interval** *number-of-seconds* can be used to specify this interval. [CSCdi10027]
- The **show ip ospf database** command can cause the system to reload when the link state advertisement is removed from the OSPF database after the command has been issued. [CSCdi10228]
- This is a dynamic configuration problem. If you issue an **area range** command while the router is in operation, the router will not remove the summary LSAs that fall into that range. The workaround is that after completing the configuration, do a **write** memory and remove the OSPF process. Then configure the process again from memory. [CSCdi10293]
- A router which is configured as an area border router in OSPF domain fails to generate a summary network link state advertisement into the backbone area for a network in non-backbone area that is configured as an interface’s secondary address. [CSCdi10302]

- On Cisco 2000, 3000, and 4000 routers equipped with Token Ring interfaces, enabling OSPF using the commands **router ospf** *ospf-process-id* and **network** *address wildcard-mask area area-id* may cause the router to execute an immediate system reload. There is no workaround. Users wishing to use OSPF under these circumstances are advised to call the Cisco TAC for more information [CSCdi10488]
- The router crashes if there is a virtual link configured and the interface whose IP address is used as Router ID is shutdown. The workaround is not to shut down the interface whose IP address whose IP address is used the OSPF Router ID. [CSCdi10555]
- When two routers are connected by a unnumbered serial link, OSPF does not calculate the routes properly. The workaround is to number the unnumbered link. [CSCdi10563]
- The area route summarization command **area range** *xxxx xxxx* accepts 0.0.0.0 as the summary address even though this address might cause routing loops. You should not add 0.0.0.0 as the range address. [CSCdi10627]

ISO CLNS

- A redirect sent out over an X25 interface does not get encapsulated and CLNS returns a failure. [CSCdi04417]
- ES-IS cache entries for a disabled interface are not flushed when the interface is disabled. This means that packets destined to systems that were formerly reachable through that interface may be lost until the cache entries time out (maximum of 5 minutes). [CSCdi08490]
- CLNS packets that are slow switched will always have their checksums calculated from scratch, even when the incoming packet has checksums turned off. This has no operational impact, other than slowing down packet forwarding and receipt if the original packet did not have checksums enabled. [CSCdi08567]
- IS-IS will send Level 1 LSPs over a point-to-point link to a Level 2 adjacency. The router on the other end discards the packet, and the sending side continually retransmits these LSPs. [CSCdi09335]
- When CLNS receives a packet that needs to be fragmented, but the segmentation permitted bit in the packet is off, it should send back an error packet (ERPDU) indicating this situation. [CSCdi09413]
- Duplicate adjacencies are formed (both system-id and SNPA are the same) when CLNS cluster aliasing is enabled on an interface. This happens for ISO-IGRP and DECnet Phase IV systems. This does not happen for IS-IS and OSI end-system adjacencies. [CSCdi09525]
- There are four obscure cases where IS-IS does not purge its own LSPs. The effect is LSPs harmlessly stay in the database longer than necessary. [CSCdi09526]
- IS-IS sends point-to-point IIHs out HSSI interfaces that are 1 byte larger than the allowable MTU. This results in a %TOOBIG.... error message. The adjacency still forms. [CSCdi09538]

- If IS-IS areas are configured in neighboring routers such that they are not in the correct order, a level-1 adjacency will not form. This only occurs in multihomed areas over point-to-point links. [CSCdi09555]
- Interface static routes with no SNPA specified will not be deleted from the configuration file. They are deleted from the routing table. [CSCdi09579]
- The router will create an adjacency with an end-system that has advertised an invalid NSAP format in its ESHes. [CSCdi09670]
- If and OSI end-system advertises an NSAP address that exceeds the legal length (20 octets), the router will accept and process the NSAP and build an adjacency. [CSCdi09672]
- If there exists a Phase IV end-node directly connected to a router, and IS-IS is enabled where the router is designated router, the Phase IV end-system is not inserted into the level-1 routing table and therefore is not reachable. This is a problem for end-systems that are both Phase IV and Phase V. [CSCdi09678]
- IS-IS does not free the memory used for any LSP when the Lifetime expires and it is deleted from the link state database. This event does not occur very often. [CSCdi09759]
- There are rare occurrences that the system may reload when a **show isis database detail** command is issued when the link state database contents is changing. [CSCdi09805]
- The NSAP lookup routine goes through the entire hash table even when a matching entry has been found. [CSCdi09915]
- If there are any CLNS discard routes configured and they are redistributed into ISO-IGRP, they will not be advertised. The workaround is to configure a fictitious static route so it can be redistributed. [CSCdi09917]
- If a static CLNS route to the zero-length prefix (default) is configured, it will not be written correctly to NVRAM. The workaround is to install a small number of static routes of length one instead. [CSCdi09997]
- If there is a neighboring IS on a LAN, and a router is configured to run IS-IS on the interface, the router does not advertise the IS as an ES link in the pseudo-node LSP. This fix allows ISs that do not run IS-IS to be reachable via the IS-IS running domain. [CSCdi10002]
- When there exists static routes in which the next-hop interface is no longer reachable, and ISO-IGRP is redistributing static routes, it will continue to do so if the interface goes down or the next-hop goes unreachable. [CSCdi10060]
- When deconfiguring an ISO-IGRP routing process, static prefix routes learned by that process are not deleted from the routing table. These routes stay in the table indefinitely. A system reload is the only cure for the problem. [CSCdi10406]
- There are situations when two routers running IS-IS are brought up on a serial interface and all the LSPs are not flooded to each other. [CSCdi10532]
- If static adjacencies are configured before the IS-IS routing process is configured, the adjacencies are not inserted into the non-pseudo node LSP. This is a race condition and does not happen very often. [CSCdi10587]

Local Services

- If an attempt is made to either write a read-only object or read a write-only object, the wrong error code is returned. [CSCdi09714]
- If two users attempt a TACACS login or SLIP address request at the same time, the password one user types in can be sent with both authentication requests, causing authentication failures. This is due to the use of a static buffer. The problem will be fixed by using dynamic storage. [CSCdi10479]

TCP/IP Host-Mode Services

- When a TCP connection has a closed window, packets containing valid ACKs are discarded if they also contain any data (since the data is outside of the window). The correct behavior is to continue to process the ACKs for segments with reasonable ACK values. This is especially a problem in the initial stages of a connection, when we send the SYN-ACK with a 0 window. If the ACK to our SYN contains data also, we will not process that ACK, and the connection never gets to ESTABLISHED state. [CSCdi05962]
- Telnet connections to a router will not transfer any data during the first couple of seconds after a connection is first opened, resulting in a visible pause if the user begins typing immediately. [CSCdi09576]
- The ability to debug TCP-based remote source route bridging, X.25 switching, and SDLC tunneling, is inadequate. New commands **debug ip-tcp-driver** and **debug ip-tcp-driver-pak** would be very useful. [CSCdi10382]

Wide-Area Networking

- All ARPs over an SMDS link were being discarded preventing routing of IP traffic over SMDS. [CSCdi09781]

XNS/Novell IPX/Apollo Domain

- If a Novell network number is assigned to an interface that is administratively shut down and the router has a valid alternative route to that same network in its routing table, poison SAPs will be routed to that network. A result of this possibly unexpected behavior is that it will sometimes appear that the router is violating split-horizon and sending poison SAPs back out the interface they arrived on. Regular periodic SAP updates do not display this behavior. The workaround is to remove Novell network numbers from interfaces that are administratively shut down. [CSCdi07425]

- There was an interoperability issue between the Novell IPX routing fast switching implementation between release 9.1 and 8.3 or 9.0 software releases before either 8.3(7.2) or 9.0(5.1). This fix allows 8.3 and 9.0 to operate correctly with both correctly formatted input frames from release 9.1, or incorrectly formatted input frames from previous releases, on both FDDI or serial. The problem in 8.3 and 9.0 can be worked around by turning off fast switching on the 9.1 router's FDDI or serial interface. This patch will also fix problems where 8.3 or 9.0 cannot correctly forward frames sent by a PC FDDI end host onto an Ethernet. [CSCdi09754]
- The **show novell route** and **show xns route** displays are missing the count of learned routes in the header of the display. [CSCdi09923]
- Novell, XNS, and Apollo maximum path 0 is accepted and displayed by the system, but the default maximum-paths is 1. If a user types a maximum path of 0, make this return to the default setting of 1. [CSCdi09955]
- The IPX **ping** command was limited to a maximum of 1500 bytes. This patch increases the **ping** maximum to 4096 bytes for segments which supports that size. [CSCdi10130]
- XNS RIP General Request replies have the split-horizon rule inadvertently applied to them, split-horizons should not be applied to XNS General Requests Responses. [CSCdi10294]

9.0(4) Caveats/9.0(5) Modifications

This section describes possibly unexpected behavior by release 9.0(4). Unless otherwise noted, these caveats apply to all 9.0 releases up to and including 9.0(4). For additional caveats applicable to release 9.0(4), please see the caveats sections for newer 9.0 releases. The caveats for newer releases precede this section.

All the caveats listed in this section are resolved in release 9.0(5).

AppleTalk

- The computed total in the summary line of the **show appletalk zones** command is not the same as the number of zone names shown in the output of the command. This is cosmetic and does not affect routing operation. [CSCdi06993]
- The AppleTalk name lookup cache may not always be reflected in the output of various **show apple** commands. This affects the output of these **show** commands only, and does not affect any core router functionality. [CSCdi07775]
- A **clear interface** command will not clear the IPtalk port. Use the configuration command **no apple iptalk** instead. [CSCdi07778]
- AppleTalk zone multicasts such as NBP Lookups are unexpectedly ignored on FDDI interfaces. [CSCdi09424]

DECnet

- DECnet fast-switching on Cisco 7000 works fine on Ethernet when the encapsulation is ARPA. It does not seem to work for ISO1/SNAP encapsulations. A (crude) workaround to the ISO1/SNAP ethernet encapsulation switching problem is to enable the default encapsulation (ARPA), set your switching mode, and enable the desired encapsulation (ISO1 or SNAP). Fast-switching is supported only for ARPA encapsulation (for Ethernet). The problem is that the code does not change the decnet fast-switch flag to FALSE when the encapsulation flag is changed to anything other than ARPA. Likewise, the code does not set the flag to TRUE when the encapsulation is changed back to ARPA (and DECnet fast-switching is turned on). [CSCdi08415]
- Turning on fast switching on an interface should be disallowed if that interface does not support fast switching, or in the case of serial interfaces, if the encapsulation does not support fast switching. [CSCdi08806]
- The DECnet fast-switching code will not process an extended ACL if no standard ACL is present. To be consistent with the slow-switched case, the check for the presence of a standard ACL should be removed, so that a list consisting of only extended ACEs will be processed. [CSCdi08875]
- If a DECnet Phase V end-node sends both Phase IV hellos and ESHes, the Cisco router continually changes the adjacency type stored in the OSI adjacency database. Therefore, packets are sometimes converted and sometimes not. The correct behavior is to set the adjacency type to Phase V and use this adjacency. Phase IV packets should then always be converted. Phase V packets should not. [CSCdi09235]

Interfaces and Bridging

- When routing IP in conjunction with bridging, HP Probe packets will be bridged rather than received by the router. [CSCdi07039]
- If **enable use-tacacs** is configured without defining a tacacs-server host, then any username/password combination will allow any user to enable. [CSCdi08070]
- The **clear counter** [*type unit*] command always clears the counters regardless of the users respond to confirmation. [CSCdi08774]
- If a router is configured with a username having an encrypted password of invalid format, it is possible that the unit will reload when someone tries to log in using that username. The only way to get an encrypted password is for the Cisco unit to create it; users should not enter **username myname password 7 mypassword**, since **mypassword** is not a valid format for a type 7 encrypted password. [CSCdi08805]
- On routers without NVRAM, part of the sequence used to determine IP addresses is to send a BOOTP request. The replies to these requests are being ignored. [CSCdi08893]
- The **lapb hold-queue** interface subcommand is not properly stored in the routers configuration memory. [CSCdi08957]

- There is a messaging scheme whereby the token ring interface board can send status info to the system. There was no protection against a runaway board dominating the system with interrupts. The fix is to watch for excessive amounts of interrupts over a short period and reset the board if necessary. [CSCdi09022]
- Misconfiguration of the router with peers that do not exist or are powered down can cause the router to lose all memory. [CSCdi09041]
- A Cisco router sends VINES routing updates as spanning tree explorers whereas a VINES server sends routing updates as all routes explorers. The Cisco implementation provides lower explorer impact upon the network, whereas the Banyan implementation finds the shortest path between any two nodes. The fix for this behavior allows choosing between spanning tree explorers and all routes explorers on a per protocol basis. This is done via an extension to the **multiring** command. The new command syntax is:

  [**no**] **multiring** {*protocol* | **all**} [**all-routes** | **spanning**]

  The trailing **all-routes** and **spanning** keywords specify the explorer type to be used. The default is to use spanning tree explorers. [CSCdi09091]
- There was a condition whereby the token ring chipset would become the Ring Parameter Server but the LAN Manager could not discover this fact and so would not respond to requests by other stations to insert onto the ring. [CSCdi09108]
- The message “Ignore Format 3 type 4 XIDs for SDLLC connections” is sent by NCP when VTAM is brought down. Once VTAM is brought down there is no point for the Cisco to initiate connection. [CSCdi09211]
- Due to interactions between the bridging code and driver code, the spanning tree state would be handled correctly. In pre-9.1, this would show up most readily on Serial lines. If a serial line was shut and then no-shut the port would go into blocking and then stay there. This same bug also shows up in other ways. Namely if you have an Ethernet port and you pull the cable out, the port will go down. But if you wait for a minute or so (give the Spanning Tree protocol time to recompute) and then plug the cable back in you’ll see the port go into Forwarding immediately. This can cause temporary network meltdowns. [CSCdi09535]

IP Host Mode Services

- When using the domain-list feature, the software may fail to properly update domain cache entries that have been timed out. [CSCdi03896]
- Source routed IP packets which are supposed to be discarded by the system sometimes are not. Such packets are being packet switched when the local system does not appear as the next hop in the source route. These packets should never be packet switched when the user has entered the **no ip source-route** configuration command. This unexpected behavior can pose a security problem for sites who use this command to restrict access. Access lists can probably be used as a substitute means of restricting access. [CSCdi09517]

- Sometimes, when OSPF processes the link state advertisement retransmission list, the system will reload. This happens right after the system starts. [CSCdi04617]
- During designated router election process, a router who used to be a designated router but just lose the election fails to choose itself as backup designated router when it should. The correct behavior is to choose a router with the highest router priority among the rest, excluding the router that declared itself as DR. [CSCdi08732]
- OSPF generates a Seq Number Mismatch event after receiving a duplicate database description packet after it moved into state Full and it was a slave during database synchronization. The correct is behavior is to simply discard it, up until Dead Interval time since transition into state Full. And after that period end it will generate a Seq Number Mismatch event. [CSCdi08829]
- When configuring a router with **redistribute static metric-type 1** router subcommand for OSPF router, the metric-type 1 argument is correctly set for redistributed routes but it is not recorded in configuration file as indicated by **write terminal** command. This can cause the router to use the default metric-type of 2 if the incorrect configuration file is written to either file or memory, then reloaded back to the router. [CSCdi08870]
- BGP does not accept advertisements of network 0.0.0.0 [CSCdi08880]
- The Chaos, PUP, and Hello routing protocols do not properly expire old routing entries, leading to a memory leak, race conditions, crashes, and incorrect routing decisions. [CSCdi08881]
- The system reloads after loading configuration file with **distribute-list** *access-list-number* out router subcommand for an OSPF router. This only happen when loading configuration file from TFTP server. Configuring from console will not cause a reload. [CSCdi08956]
- If a BGP router learns a route via IBGP and it has an EBGP neighbor as the next hop, and it then advertises the same route to the EBGP neighbor, the resulting next hop will be the EBGP neighbor itself. This will cause the BGP session to disconnect. [CSCdi08963]
- OSPF packet is sent with IP-TTL 1 on virtual link. This can cause the packet to be discarded when it is crossing the transit area. The IP-TTL for packet to virtual link is now set to 255. [CSCdi09000]
- When a system is attempting to TFTP boot, it may not know a route to the TFTP server. If the system has multiple interfaces by which it might contact the TFTP server, it can fail to continue to use the interface on which the TFTP transfer was just established. The result is that the TFTP boot attempt fails. The system should remember by means of its arp table the interface to use to reach the TFTP server. Configuring the systems NVRAM so that it can only reach the server by one interface at boot time avoids this problem. [CSCdi09068]
- Sometimes, when OSPF processes an incoming summary link state advertisement, the system will reload. This problem occurs under heavy OSPF load conditions. [CSCdi09090]

- OSPF removes the wrong instance of link state advertisement from link state retransmission list after receiving a link state acknowledgment. This happens in a rare circumstance when the acknowledgment is for an older instance of link state advertisement. [CSCdi09189]
- OSPF module miscalculates whether two link state advertisements are the same instance. [CSCdi09190]
- System normally disallows multiple interfaces to be configured with IP addresses on the same subnet. Such IP address overlap should be allowed when it occurs between a transmit only interface and its associated receive interface, as designated by the **transmit-interface** interface subcommand. [CSCdi09300]
- OSPF module miscalculates whether two link state requests are for the same link state advertisement instance. [CSCdi09338]
- Debugging messages showed by OSPF module during designated router election process shows a wrong router ID. [CSCdi09411]
- When redistributing core egp into another protocol, the command **redistribute egp 0** is written out as **redistribute egp** which is an invalid command. This only happens if the EGP AS is 0. [CSCdi09524]

ISO CLNS

- CLNS static routes will not be written to NVRAM when a routing protocol has learned the same route and has better administrative distance. The correct behavior is for static routes to be written to NVRAM. [CSCdi05767]
- If there are multiple options present in an IS-IS hello packet, there are cases that the area address is not extracted and stored in the adjacency database. This occurs when the router on the other end of a serial link advertises both an IP address and an area address. This does not occur between two Cisco routers. [CSCdi09048]
- When using ISIS as the OSI routing protocol, any static routes that are configured are not entered into the Level 1 ISIS routing table. As a result, route table look-ups on the static address fail. The ISIS code will add a route to the routing table if the route is ISIS or ESIS derived; it should also add the route if the route is a static one. [CSCdi09053]
- When an invalid ER PDU is received, we should just discard it, without sending an ER PDU in response. [CSCdi09139]
- When redistributing ISO-IGRP routes into IS-IS, there are cases where some routes don't get redistributed. This occurs when the number of ISO-IGRP prefix routes causes more than one IS-IS Level 2 LSP to be generated. The routes that overflow the first LSP do not get generated. [CSCdi09144]
- CLNS fast switching over a serial interface with HDLC encapsulation falls back to slow switching. [CSCdi09172]
- There are situations where IS-IS will delete the wrong link in an LSP. This results in either duplicate entries or corrupt LSPs. [CSCdi09466]

VINES

- VINES redirect messages were ignored. This patch also fixes some minor problems generating redirect messages. [CSCdi09088]
- A Cisco router may occasionally send an ICP error message with an error code of zero. Receipt of this message can cause a Banyan server to drop some or all communications links passing through the Cisco. [CSCdi09175]
- If a station is removed from an interface that uses one type of encapsulation and is added to another interface that uses a different encapsulation before the neighbor entry expires, communication to the station will never be re-established. [CSCdi09294]
- There is a condition where some serverless networks will have extreme difficulty logging into any server. This is caused by a packet sent by the router not being understood by a VINES server. The workaround to this problem is to shorten the name of the Cisco router to be 15 characters or less. [CSCdi09372]
- When a client is initially powered on and the first login attempt results in a forced password change, the user will not be able to change their password, and will not be able to log in. The workaround is to have another user login and logout at that client, and the affected user will be able to login and change their password. [CSCdi09467]

XNS/Novell IPX/Apollo Domain

- In certain topologies, fast-switch looping of (Novell) multicast packets can occur when received on an interface which is active, but not configured for Novell. This is now corrected. [CSCdi08722]
- A race condition in the **show novell cache** command can cause the router to reload. [CSCdi09163]
- Certain Novell packets may be received and processed by the local interface when they have been sent by a misconfigured Client, Server, or Router. For example, a SAP Get Nearest File Server packet sent on network 0xA1 from a host whose network number has been misconfigured as 0xA2. These misconfigured packets should be ignored and counted as bad packets, in the Show Novell Traffic display the packets pitched counter should be incremented when we receive one of these packets. [CSCdi09178]

9.0(3) Caveats/9.0(4) Modifications

This section describes possibly unexpected behavior by release 9.0(3). Unless otherwise noted, these caveats apply to all 9.0 releases up to and including 9.0(3). For additional caveats applicable to release 9.0(3), please see the caveats sections for newer 9.0 releases. The caveats for newer releases precede this section.

All the caveats listed in this section are resolved in release 9.0(4).

AppleTalk

- An error in the AppleTalk fast switching functionality results in invalid AppleTalk packets being generated in the case of a packet being received on a ciscoBus FDDI interface running extended AppleTalk and being destined for a nonextended Ethernet MEC interface. It can be worked around by disabling the AppleTalk route cache on either the MEC Ethernet interface or the FDDI interface. [CSCdi08211]
- When the **appletalk permit-partial-zones** command is enabled, the **appletalk distribute-list** *access-list* out and **appletalk getzonelist-filter** *access-list* commands unexpectedly permit all networks and zones in RTMP updates and GetZoneList replies when used with access-lists that contain no zone information (i.e. network number restrictions/permissions only). [CSCdi08819]

DECnet

- DECnet address translation fails on IGS platform routers in the cases where both interfaces are not fast switched and one of the interfaces is capable of being fast switched. The workaround is to configure both interfaces for DECnet fast switching. Since this is not possible for all interfaces and encapsulations, such as Token Ring, X.25, and Frame Relay interfaces, some configurations cannot support ATG on IGS platform routers. [CSCdi07652]
- A packet going from one DECnet host to another on the same LAN should not be subject to access control checks. Making these packets go through the access control check serves no useful purpose since end systems can easily discover that they are on the same LAN and bypass the router altogether. This makes any access control set-up useless for such packets. Also, the result of this is that two end systems on the same LAN cannot talk to each other if they end up using the router to “discover” each other for the first time. [CSCdi08121]
- The router was not ignoring IV hellos sent by a router running V (Cisco or DEC). This created problems when a DEC V router was adjacent to a Cisco router, because the router was accepting the DEC IV hellos while the DEC router was rejecting our IV hellos. The result was a half-baked IV adjacency. Bug 7393 added code to ignore IV hellos from a V router when we were running OSI, IV and had conversion turned on. This fixed the original problem, but it resulted in an interesting side effect: we were now refusing IV hellos from Cisco routers as well and this caused a DECnet IV network to get partitioned when there were Cisco routers running with IV, OSI and conversion on. [CSCdi08164]
- When a DECnet extended access list is configured with a destination address, the code ignores the destination/mask info in the ACL. If a match was found in the connect part of the ACE, it would return TRUE i.e grant access, regardless of the destination/mask info. For example,

  ```
  access-list 300 permit 1.400 0.0 1.999 0.0 eq any
  ```

  should allow ONLY packets from 1.400 to 1.999 to go through. The observed behavior was all packets would go through, regardless of destination. The fix is to just check that the source address/mask (and destination/mask, if applicable) specified in the access list matches the corresponding values in the in-coming packet. [CSCdi08760]

- For DECnet access lists, the destination address/mask is ignored, regardless of what is in the connect part of the access list. If the connect part of the access list matches, access is granted, regardless of the destination address/mask. [CSCdi08818]

EXEC and Configuration Parser

- Any attempt to query an unimplemented SNMP MIB variable will cause the system to return the snmpEnableAuthenTraps variable. The correct behavior is to indicate that the variable requested is not available. [CSCdi04806]
- The **show process memory** command can be inaccurate due to incorrect accounting of deallocated memory. [CSCdi07586]
- The **debug ?** command does not show serial options if only serial interface type is HSSI. [CSCdi07674]
- sysLocation is read-only. As a workaround, the location can be set with the **snmp-server location** configuration command. [CSCdi07909]
- The router may experience a software error when the command **show memory free** is executed, and the command must pause for output at any time in displaying the results of the command. The workaround is to ensure that the output does not pause by using the command **terminal length 0** before issuing the **show memory free** command. [CSCdi08368]
- Entering multiple **logging buffered** commands without an intervening **no logging buffered** command can cause meaningless output to be included in the output of the **show logging** command. [CSCdi08459]

IBM Connectivity

- Router issues a %SYS-2-INTSCHED message and traceback when operating with **debug rif** enabled. The behavior has been present in all versions of the code supporting process-level bridging. After the command has been issued, the router may begin to display the message. The length of time depends upon how much traffic is presented to the router. Higher levels of traffic cause the problem to appear sooner. Once the condition has been triggered, the router continually sends error message and traceback information. The impact is a potential performance for process level activities. The workaround is to not use the **debug rif** command. The behavior has been present in all versions of the router supporting REF caching. [CSCdi06634]
- If the ring-group parameter for the **sdllc traddr configuration command** is configured before defining the ring-group (by issuing the **source-bridge ring-group** configuration command) it could cause the router to crash. Now, the **sdllc traddr** command will not be accepted, if the ring-group parameter specified is not already defined by the **source-bridge ring-group** command. [CSCdi07317]
- Repeated disconnections of the router could cause the router to hang. This was especially seen with LAN Network Manager sessions. The problem was that multiple LLC2 control blocks would get allocated pointing to the same session. [CSCdi08350]

Interfaces and Bridging

- TCP/IP ARP replies are sometimes bridged when both transparent bridging and IP routing are enabled. The conditions under which this occurs are not yet fully understood. [CSCdi05156]
- When doing pure bridging some forms of communication with the router/bridge using IP wouldn't work correctly. [CSCdi06687]
- Multicast FDDI packets that did not have a UI (0x03) control field would not get bridged at all. [CSCdi07107]
- In a pure bridged environment (i.e. IP is being bridged rather than routed), under different topologies other nodes would sometimes not be able to communicate directly to the Cisco router. This includes SNMP and Telnet traffic. This makes the router effectively unmanageable. [CSCdi07417]
- In a bridged environment there were a number of bugs that would cause various failures. This included not garbage collecting bridge table entries at the proper time as well as some corner cases in the Spanning Tree transitions. [CSCdi07532]
- A bridge configured with **no bridge acquire** will continue to flood and forward packets for other than statically configured MAC addresses. In some cases, bridge filters may be used instead to achieve the desired pattern of traffic containment. [CSCdi07934]
- Regarding Multibus timeouts and RESETFAIL errors, the linkage between the following system versions and the SBEMON and STRMON Token Ring firmware versions:

FIRMWARE	SYSTEM 8.3	SYSTEM 9.0	SYSTEM 9.1
SBEMON 3.2	8.3(5.14)	9.0(3.1)	9.1(1.4)
STRMON 1.2	N/A	9.0(3)	9.1(1.4)

  It is the firmware that is linked to the system versions and will cause a crash if earlier systems are used. [CSCdi08087]
- When the system is bridging IP, ARPs originated by the system cause an error message to be generated. This behavior is seen only with packets originated by the system and impacts the use of IP for management of a bridge with a frame relay interface. [CSCdi08293]
- When reconfiguring the priority on an interface used for transparent bridging, we delay reconfiguring the port until we receive the following BPDU message. This can cause a significant delay in the convergence of the spanning tree. This caveat is present in all previous releases. The port is now reconfigured as soon as the configuration command is executed. [CSCdi08296]
- Under certain circumstances a pure IP bridge (**no ip routing**) would not be able to communicate with other IP hosts in the presence of topology changes. [CSCdi08349]
- When use process PCM and dual-homing connection, if the user issues a **cmt disconnect** command to a standby port the CUP utilization will go very high. Fixed in 9.1(1.5) 9.0(3.2) 8.3(6.1). [CSCdi08427]

- When an IP packet with IP options is received on a fast-switching interface, the system sometimes fails to decrement the IP TTL before forwarding the packet. This is most noticeable when a **traceroute** program is being used with source-routing options, and causes the system to sometimes fail to show up as an intermediate hop in the **traceroute** output. [CSCdi08699]
- The RIF structures are now initialized before use. It is possible that a previous use of a RIF structure had entries which could affect operations when the RIF entry is used a second time for a different purpose. This has caused problems of pings being unsuccessful, unable to reach SRB hosts, etc. Initializing an entry will clear out all previous usage and start afresh. [CSCdi08790]
- MCI/SCI will become unusable when the MTU is 4 Kbytes or above because there is only one buffer for the receive side. We recommend that MTU should be less than 4.5 Kbytes. [CSCdi08842]

IP Host-Mode Services

- If an interface is shut down and assigned an IP address, then the router should ignore that interface when trying to determine if it is on the same subnet as various other IP addresses. This affects various calculations, notably BGP NEXT_HOP calculations. [CSCdi05356]
- If the subnet mask is changed after a system has been operational, the new subnet mask will not be reflected in the IP routing table. A workaround is to reload the system after changing the subnet mask. [CSCdi05915]
- While routing IP, if two ARP style interfaces have the same IP address and one of those interfaces is shut down, the wrong MAC address could get entered into the ARP table. The workaround is to remove the duplicate IP address from the shutdown interface with the **no ip address** interface subcommand. [CSCdi07036]
- TCP connections can exhibit long pauses in data delivery if the router is attempting to send data faster than the foreign host can use that data. This happens most often in cases of protocol translation, sdlc tunneling, remote source route bridging, and X.25 switching. TCP connections can exhibit long pauses in data delivery if the Cisco is attempting to send data faster than the foreign host can use that data. This happens most often in cases of protocol translation, SDLC tunneling, remote source route bridging, and X.25 switching. [CSCdi07964]
- The system does not properly process RARP response packets received where these packets are responses for requests not initiated by the system. The system allows such packets to remain in the input queue, resulting in two user visible problems. First, the network interface input queue can fill up with RARP response packets, causing all subsequent packets destined for the system to be dropped. Second, the system fails to bridge these RARP response packets. The correct behavior is to bridge such packets in the case where the system is configured to bridge RARP packets, otherwise to ignore these packets. [CSCdi08651]
- The **distribute-list** command sometimes makes access list changes even when a parsing error is detected and an error message is printed. The software continues processing this command even though an error has been detected. Because of this aspect of the implementation, the system will treat a **distribute-list** command which specifies a nonexistent interface as if no interface has been specified, thus

unexpectedly applying the access list to all interfaces. If the user receives parser errors in response to their **distribute-list** configuration commands, it is recommended that they verify that the system has not wrongly interpreted their commands by examining the distribute-list commands reported by **write terminal**. [CSCdi08668]

IP Routing

- In certain obscure circumstances and configurations, internal BGP paths which are not yet synchronized can be preferred over external BGP paths. This can cause instability in both BGP and in the IGP. [CSCdi08113]
- When a subnet is known via OSPF and is redistributed into some other protocols (for example, BGP or another OSPF) and the route to the subnet is removed, the other protocol may remove that entire network from its routing table. [CSCdi08129]
- Static IP routes can fail to be removed from the routing table when an unnumbered interface goes down. This can result in host or network routes pointing to a down interface to continue to be advertised via routing protocols. When the interface goes down, the router should remove the static route from the routing table for as long as the interface remains down. Until fixed, static IP routes should not be used with unnumbered interfaces. [CSCdi08180]
- In a very large networks, it is possible for fragmentation to occur on OSPF packets. This can cause problems with routers that do not do proper reassembly. [CSCdi08210]
- Duplicate AS path regular expressions are not ignored with the consequence that they will show up more than once in the list if a box is configured with the same set of ACLs more than once. [CSCdi08228]
- If IS-IS is not configured to redistribute static routes but is configured to redistribute ISO-IGRP routes, in some cases the ISO-IGRP routes are not propagated. [CSCdi08231]
- Whenever inconsistent metrics are assigned to router interface, it is possible to run into this bug. The result of this bug is that the route entries in IP routing table will sometimes drop the interface or will have wrong interface. The workaround is to have consistent metrics in the network. [CSCdi08297]
- When a routes boots from ROM, it ignores OSPF configuration in NVRAM. After booting, issue the command **config mem**. [CSCdi08409]
- If a summary LSA is regenerated within 5 seconds, the flooding of the LSA may not happen resulting in inconsistent database. The fix will be available in a future release. [CSCdi08463]
- When a link is flapping continuously, it is possible to run SPF calculations after each topology change resulting in locking the router. [CSCdi08600]
- If an unnumbered interface is shut down, it is periodically removed from the IP routing table. This causes unnecessary routing table activity and can introduce other detrimental side effects. This problem was introduced in 9.1(1.3) and 9.0(3.1). [CSCdi08715]

ISO CLNS

- The **no clns enable** command does not check to see whether or not a dynamic protocol is active on an interface before disabling CLNS on the interface. [CSCdi07413]
- The MTU of CLNS is always set to be three less than the IP MTU on the same interface. This works for Ethernet/802.3, but is incorrect for other media. This bug could cause CLNS to attempt to generate fragments larger than can be reasonably sent on an interface, resulting in packet loss, although this is unlikely to happen in practice. [CSCdi07875]
- The **show clns route** command will display unused next-hop addresses when one of the equal-cost routes goes down. [CSCdi08262]
- If the **isis metric** *value* interface subcommand is entered and the IS-IS process is not created (no previous **router isis** command), the system may crash. [CSCdi08434]
- If a Cisco router is an IS-IS designated router on a multiaccess network, it will transmit LSP entries in CSNP packets with a negative lifetime. This is only a problem if a receiver uses the lifetime information, and Cisco routers do not. This was found while doing interoperability testing with IBM's IS-IS implementation. [CSCdi08435]
- The encapsulation type for CLNS is sometimes displayed incorrectly when a **show clns interface** command is entered. This has a cosmetic defect only. [CSCdi08467]
- CLNS fast switching does not properly fragment packets. Packets received on FDDI that are larger than 1497 octets will not be forwarded properly over serial and 802.3 interfaces. This isn't typically a problem, since CLNS packets are seldom this large. The workaround is to disable CLNS fast switching on the FDDI interface (**no clns route-cache**). [CSCdi08494]
- If the CLNS **trace** facility is used to trace a path that goes through another Cisco router on the same LAN, the second of the three trace packets may not work. This has no operational impact, other than causing a three second delay in the execution of the trace. [CSCdi08653]
- CLNP packets received by a router with a lifetime field of zero will be forwarded (with a lifetime of 255) if slow-switched. This has no operational impact whatever unless a host is emitting packets with a lifetime of zero. [CSCdi08654]
- This problem only occurs when you run an ISO-IGRP routing process where you enable level-2 only routing for all interfaces for the processes routing domain. For example:

  ```
  router iso-igrp 39
  net 39.0001.0000.0c00.ffff.00
  int e 0
  clns router iso-igrp 39 level 2
  int e 1
  clns router iso-igrp 39 level 2
  ```

  ISO-IGRP routes are created, ISO-IGRP adjacencies are not. routes may not go away. [CSCdi08745]

- If you enter:

  ```
  no router iso-igrp 39
  ```

  all prefix routes created by this process will not be removed from the CLNS prefix routing table. A workaround is to do a **clear clns routes**. Also, if you enter:

  ```
  router iso-igrp 39 distance 90
  ```

  prefix routes that are created by this process are not assigned a distance of 90. A workaround is to do a **clear clns routes**. The next updates received will build routes with a distance of 90. [CSCdi08755]

VINES

- A recent VINES bug is causing VINES clients to send broadcast StreetTalk packets. Because the Cisco router floods streettalk broadcasts, this can cause congestion in wide area links. The change to the router code is to only flood StreetTalk broadcasts sent from a server. [CSCdi08277]
- If a VINES SPP packet is addressed directly to a router, it will discard the packet twice producing a “Buffer in list” error message. This error is very unlikely, and is also harmless. [CSCdi08362]

Wide-Area Networking

- Once enabled, disabling X.25 routing with the **no x25 routing** command does not disable X.25 call forwarding. [CSCdi06840]

XNS/Novell IPX/Apollo Domain

- The **ping** command will display incorrect round trip times for 32, 33, or 34 byte Novell IPX or XNS packets. Use larger sizes when sending IPX or XNS echoes from the router to obtain more accurate round trip times. [CSCdi07529]
- On media other than 802.x, **show xns int** will display the wrong encapsulation type, if the default encapsulation has been changed. For example, on an SMDS interface show XNS interface will display: “XNS encapsulation is HDLC”. We should only display XNS encapsulation types for 802.x media. [CSCdi07929]
- When a Cisco unit has a large number of the same type of interface **show novell cache** or **show XNS cache** will display the interface limited to nine characters which allows only Ethernet1 to be displayed when it is in fact Ethernet11. The initial 9.1 release changed this to ten characters which corrects Ethernet names, but Token Ring will have a similar problem unless the length is eleven characters. [CSCdi08236]
- When a Cisco router generates a XNS error response packet it is sent out with a source address equal to the original source of the packet which caused the error response. The source address should be that of the router itself. [CSCdi08377]

9.0(2) Caveats/9.0(3) Modifications

This section describes possibly unexpected behavior by release 9.0(2). Unless otherwise noted, these caveats apply to all 9.0 releases up to and including 9.0(2). For additional caveats applicable to release 9.0(2), please see the caveats sections for newer 9.0 releases. The caveats for newer releases precede this section.

All the caveats listed in this section are resolved in release 9.0(3).

AppleTalk

- Sites with AppleTalk networks that are incorrectly configured would experience a gradual loss of available free memory in the router. This problem would be exacerbated by the existence of a nonextended (that is, Phase I) route in a fully extended AppleTalk internet. A fully extended internet is one which does not meet the Phase I to Phase II transition criteria which are: no cable may be configured with more than one zone name, and no cable may have a wide cable range, e.g. 100-101, as opposed to the compatibility cable range of 100-100. Sites that experience a high amount of AppleTalk route instability (which can be determined with the configuration command **appletalk event-logging**) may find that the router loses memory at a faster rate. In situations where a large number of routes are lost at the same time, the resulting loss of free memory may occur quickly. [CSCdi05619]
- In 8.3(3), and 9.0(1), a nonextended interface can become operational in spite of the fact that an adjacent and active neighbor has a different configuration. Although the interface becomes operational, connectivity through any routes controlled by that neighbor is lost. [CSCdi05642]
- Due to a logic error in the IPTalk functionality of AppleTalk, packets sent to a UNIX host running CAP (Columbia AppleTalk Package) would be receive a double encapsulation of 6 bytes of AppleTalk LLAP information instead of 3 bytes. This would cause the packets to be rejected by CAP or if they were accepted, to be rejected by the CAP applications such as AUFS and lwsrv. [CSCdi05850]
- The AppleTalk executive command **show appletalk neighbor** *net.node* will not show neighbor entries which are associated with an interface which has either lost line protocol or has been administratively shut down. These neighbor entries will be seen in the list of neighbors produced by the **show appletalk neighbors** command without any argument, but cannot be specified in the detailed **show appletalk neighbor** *net.node* version of the same command. [CSCdi06089]
- A spurious “couldn’t register” traceback message may occasionally be seen on an interface that is being enabled for AppleTalk support if the interface resets at the same time the support is being started. This traceback message is harmless and can be ignored. [CSCdi06171]
- The AppleTalk nbptest facility does not correctly represent 8-bit characters in output resulting from the use of 8-bit characters in NBP entity names or zone names. As this is a diagnostic facility, there is no impact upon routing functionality. [CSCdi06266]

- The AppleTalk **show appletalk zones** command may show zones which are pending for deletion. The AppleTalk implementation will not free unused zone names from the zone list immediately; users executing the **show appletalk zones** command may indeed see zone names without a corresponding network number. [CSCdi06269]
- If an AppleTalk IPTalk interface was configured to use a UDP port other than the default (768), the configuration command **appletalk iptalk-baseport** was not written to NVRAM or the configuration file. A workaround for routers which boot their configurations from a TFTP server would be to manually edit the configuration file to add the command **appletalk iptalk-baseport** *n* to the configuration file after the interface configurations. [CSCdi06297]
- When the global configuration command **appletalk ipatalk-baseport** would be used to change the default IPtalk base UDP port, there was no way to restore the default setting with a **no appletalk iptalk-baseport** command. A workaround to this error would be to use the command **appletalk iptalk-baseport 768**. [CSCdi06901]
- Once the router has been up for more than 24 and one-half days, clearing, resetting or reconfiguring an AppleTalk interface will cause the interface in question to attaint a status of “Restart port pending” which will not change, no matter how the interface is configured or cleared. Also, Times that are expressed as an interval of time, particularly in the output of the command **show appletalk neighbor**, show neighbor “up times” of “never” after the router has been up for 24.5 days or longer. The only workaround is to reload the router every three weeks. [CSCdi06929]
- The **show appletalk** command does not accept the “talk” portion of the keyword **appletalk**. This is not a serious problem, as it is easily worked around by using the keyword **apple** in exec commands. [CSCdi06988]
- When the **debug apple-arp** and **debug apple-error** commands were enabled and the ARP cache ager was activated (for example, as a result of the four-hour timer expiring) the router would hang when the AppleTalk cache invalidation code would attempt to print out an informational message that the AppleTalk cache was being cleared. The workaround to this problem is to use the **debug apple-arp** command to debug specific problems and to not leave it enabled any longer than necessary. [CSCdi07102]
- When **debug apple-nbp was enabled**, useful information about the processing of NBP Lookups and Replies was not generated. [CSCdi07172]
- AppleTalk implementations on some other vendors equipment can generate incorrectly addressed packets that could cause Cisco routers to retransmit the packet out the same interface from which it was received. This unexpected behavior can only occur on wide extended-cable configurations (those interfaces that are configured with a cable-range that does not have the same starting and ending network number.) [CSCdi07345]

- Loading interface-specific MacIP configuration commands across the network causes MacIP to fail when both of the following conditions are met: the interface is already configured for AppleTalk and the configuration file read from the network also contains the same configuration commands that reenable AppleTalk on that interface. The workaround is to either not load in MacIP commands across the network, by saving the commands locally in NVRAM on the router or to not specify the interface-specific AppleTalk commands in the host configuration file being read across the network. [CSCdi07353]
- When a router is configured with an AppleTalk zone name that begins or ends with a special 8-bit graphics character, NBP lookup queries made to this zone in the router will cause the router to reload. The workaround is to not configure zone names that begin or end in 8-bit characters. A crash can also occur when a NBP search is performed with graphics characters at the beginning or end of the type field. For example, a server with a trademark symbol at the end of the server-type name will cause the router to crash if it is installed on a zone connected to the router. The workaround is to move the server to a zone not assigned to the router, so that lookups requests for this type of service will not be directed at the router. [CSCdi07672]

DECnet

- Under some conditions the **show decnet route** command may cause the router to reload. [CSCdi05272]
- The default max address value in DECnet was defined to be 255, instead of 1023. This means that if the router was not explicitly configured to accept node numbers larger than 255, it would not talk to any DECnet host whose node number was greater than 255. The workaround was to just set the max address value to 1023. The fix is to set the default to the maximum value (1023), so that no explicit configuration is necessary. [CSCdi05380]
- When DECnet Phase IV to Phase V conversion is enabled, but DECnet Phase IV routing is not enabled on an interface on which both Phase IV DECnet hellos and Phase V/CLNP ESHs are being received from the same DECnet node, no working DECnet adjacency is formed with that node. The node in question will appear in the DECnet routing table alternately as a Phase IV and a Phase V neighbor, but no traffic will be exchanged with it. This may be worked around by making sure to enable Phase IV DECnet routing on all interfaces on which Phase IV hellos may be received. [CSCdi05885]
- For systems running releases before 9.0(2.1), a memory leak occurs when an OSI route lookup fails and DECnet conversion is enabled in the router. [CSCdi06837]
- A Cisco router running DECnet IV with conversion enabled does not ignore Phase IV hellos sent from a Phase V router. As such, the router will try to set up a Phase IV adjacency with the Phase V router, while the Phase V router ignores the Phase IV hellos that the Cisco router sends. In effect, this causes the adjacency to be one-way, and will show up in the Cisco routers DECnet IV routing table as initializing. [CSCdi07393]

- When a router is configured to perform DECnet conversion and IS-IS is the routing protocol enabled, OSI adjacencies created by DECnet IV are not inserted in IS-IS LSPs. This causes loss of connectivity of Phase IV end-systems through IS-IS clouds. [CSCdi07850]
- DECnet Phase IV end-systems do not get propagated through an IS-IS routing domain. [CSCdi07938]

EXEC and Configuration Parser

- The router does not change the source address it uses for syslog messages after the address is no longer valid. The correct behavior is for a new address to be selected. A workaround is to reload the router after a reconfiguration that has invalidated the address the router was using to source syslog messages. [CSCdi04906]
- Attempting a LAT connection to a line configured with an extended access list (access list of 100 or greater) will cause an error message to be generated and the connection to fail. [CSCdi05928]
- The **setup** command does not allow CLNS station IDs containing a zero to be entered if an ID other than the default was desired. Possible workarounds include using the default station ID supplied, or using a station ID that does not contain a zero. [CSCdi06665]
- On the 8.3, 9.0, and 9.1 releases, the Ethernet and serial interfaces on the IGS use larger buffers than is required if a Token Ring is configured in the system. This wastes shared (buffer) memory. On the 9.1 release, the Cisco 4000 also uses larger buffers than is required if a Token Ring Network Interface Module (NIM) is configured in the system. This problem will be fixed in a future release. [CSCdi07369]
- OSPF may stop working after 49 days. The work around is to unconfigure, then reconfigure, OSPF. [CSCdi07671]
- When the system is configured for ANSI Annex D LMI on a frame relay interface and the user writes the configuration to non-volatile memory, the system generates an unneeded command defining the LMI DLCI. When the nonvolatile memory is read, the system complains about the unneeded command. There is no impact on system operation. [CSCdi07735]
- Configuring a location string longer than 69 characters can cause the system to reload. After configuring, the system prints out a message saying that the system was configured from and gives the location. If the location is greater than 69 characters in length, it can cause a system reload. The correct behavior would be to truncate the location string and will be implemented in a future release. [CSCdi07834]

IBM Connectivity

- The **show interface serial** command displays the hardware mac address of the token ring board instead of the virtual mac address. The correct behavior is for the address configured with the command **sdllc traddr** to be displayed. [CSCdi06061]
- The **srb output-address-list** *list* command is mistakenly applied to the source MAC address and not to the destination MAC address. [CSCdi06347]

- It is possible for a RIF entry to be updated by a received frame at the same time it is being used to generate a frame. In this case there is a possibility that a frame with a circular RIF will be generated. [CSCdi06673]
- When responding to LLC XID request frames, the router responds with an XID response which is truncated by three bytes. The behavior is present in all versions of the router which support LLC. Most LLC implementations will still interoperate with the router truncating the frame response, and the impact is a minimal amount of extra traffic to establish an LLC2 connection. Once the connection is made, there is no impact at all. The truncated XID response frame is rejected by the originator who is requesting a connection. The frame rejection (FRMR frame) causes the router to trigger a connection request frame (SABME frame) and the connection continues as specified by normal LLC2 protocols. The router should respond with XID of correct length. [CSCdi06733]
- When a source-route bridge uses a locally administered MAC address, LAN Manager 1.3 and LAN Network Manager 1.0 require that bridge to respond to a TEST frame with a RIF field even when both the bridge and the LAN Manager station are on the same ring. Cisco routers do not respond in this manner. As such, the LAN manager station closes its adaptor when attempting to link to a Cisco source-route bridge. Users can use the universally administered MAC addresses on the Cisco routers to work around this problem. [CSCdi07598]
- IBM OS/2 2.0 generates an incorrect response to received SABME frames with the Poll bit set to zero. OS/2 responds with a UA frame with the Poll bit set to one. The LLC2 standard requires that an outstanding SABME be acknowledged by a UA frame which has its Final bit set to the state of the Poll bit of the SABME, therefore, the LLC2 component in the Cisco router ignores the acknowledgment and the connection is never made. Therefore, attempts to link to the LAN Network Manager component of the Cisco router with LAN Manager or LAN Network Manager running under OS/2 2.0 will fail, and it will be impossible to manage or monitor the IBM features of the router from an OS/2 2.0-based management platform. Two workarounds exist. The first is to manage the router with management software running under older versions of OS/2 2.0, or to manage the router with NetCentral or some other management agent other than OS/2 2.0, that does not exhibit this bug in LLC2 behavior. In a future release, the Cisco router will send a SABME with Poll bit set to one when requesting a connection to IBM Network Management SAPs so the response, which has the Final bit set in any case, will be acknowledged, and the bug in OS/2 2.0 will be avoided. [CSCdi07429] [CSCdi08704]

Interfaces and Bridging

- Shutting down interfaces that are members of a bridge group and are in a forwarding state, and then bringing them back up may result in forwarding loops in the spanning tree. These loops will manifest themselves in saturated traffic levels on the interfaces and excessive CPU utilization. Systems in this situation typically must be reloaded to recover normal operation. [CSCdi05010]
- ES-IS and IS-IS do not use ISO 10589 multicast addresses for 802.5. [CSCdi05093]
- The router will reload if the interface subcommand bandwidth is set to zero. [CSCdi05964]

- **test interfaces** command is not working. [CSCdi05977]
- In early versions of the bridging software IEEE BPDUs weren't always well formed. That is TCN BPDUs would not get transmitted properly (like not at all). [CSCdi05981]
- Router has problems netbooting when there are multiple paths to the remote tftp server. [CSCdi06088]
- When bridging is enabled, SNAP encapsulated packets will be bridged even when the relevant routing protocols are enabled. Bridge filters may be used to constrain the propagation of this traffic by SAP, but no solution is available for receiving or routing these packets. [CSCdi06109]
- The router software decrements the reset counter after some internally generated interface resets, e.g. after the **mac-address** command has been issued. There is no check to see if the reset counter is zero before decrementing it, thus it is possible to decrement the counter to a negative value. Because the value is always displayed as an unsigned positive number, it shows up as a number near 4294967295. [CSCdi06490]
- It is possible for the router to reload in the **show controller token** command. This can only happen if a CSC-R16 or CSC-R16M token ring card is in the reset state. [CSCdi06681]
- In a spanning-tree environment for bridging some transitions from forwarding to blocking would not work correctly. This could result in inconsistent spanning-tree state with possible network outages resulting. [CSCdi06689]
- If an SMT frame comes in on the FDDI the wrong thing happened and we would lose buffers. [CSCdi07080]
- Bridged packets received on an FDDI interface are flooded in FDDI-encapsulated form onto Frame Relay links in the bridge group. As a result, MAC addresses across the FDDI are not learned across the FR link. This is a problem only for bridge groups of more than two interfaces. [CSCdi07130]
- In a bridge environment ARP entries can be heard for a given node on either a FDDI or an Ethernet. If the node is on FDDI we should keep it there but due to a bug we will hear it on Ethernet later and force it to change which causes communications to not take place. [CSCdi07139]
- When configured to encapsulate vines packets with a snap header, the router currently uses the header AAAA.0300.0000.0BAD. This fix changes the code to use the proper header of AAAA.0300.0000.80C4. [CSCdi07196]
- Bridged packets flooded from a FDDI interface will have their trailing byte corrupted when the packet length is 3 bytes more than any multiple of 4. [CSCdi07401]
- When routing IP in conjunction with transparent bridging, 802.3 SNAP encapsulated IP will be bridged rather than routed. [CSCdi07495]
- When there is a single fiber break or the neighbor station sends constant halt line state(HLS), system CPU utilization will reach 100%. [CSCdi07682]

- When the Cisco router receives a IEEE 802.2 TEST and XID frame that contains both a RIF field which indicates that the frame should traverse the Cisco router and a destination address that indicates the frame should terminate at the Cisco router, the Cisco router chooses to terminate the frame and reply to it, if needed. This is not in compliance with a strict definition of source-route bridging. [CSCdi07722]

IP Host-Mode Services

- For the IGS platform, IP crc errors may occur when packets are sent using tcp header compression over a serial line. [CSCdi04783]
- UDP echo requests are only responded to correctly for the first request received. Subsequent responses will be sent to the initial requesting address regardless of who issues the request. The correct behavior is for the response to be sent to the address making the request. [CSCdi05721]
- The **service tcp-keepalive** command only applies to terminal ports and VTYs. [CSCdi05905]
- UDP port filtering is only done on packets arriving with a media broadcast indication. Consequently, the UDP port filtering mechanism **ip forward protocol udp** is ignored when receiving packets from non broadcast media such as X.25 and some frame relay networks. [CSCdi06001]
- Issuing the command **show ip route** may cause a reload to occur. [CSCdi06011]
- In some cases we are sending tftp ACK responses after an out of order packet has been received by a client while netbooting. If the server is busy, this is quite a possible event. Sending a second ACK response causes the client and server to get into an argument over what packet to send, and in many topologies it will fail. Common cases look like: [CSCdi06319]

  ```
  !!!!!!.O.........[timeout]
  !!!!!!OOOOOOOOO!OOOOOOOOOO!OOOOOOOOOO!OOOO....[timeout]
  !!!!!!.!O...... [timeout]
  ```

- The **show traffic** command will display certain fields as negative numbers once the values wrap into the sign bit. [CSCdi06979]
- The configuration command **no ip routing** only deletes the first of the defined static routes from the configuration, when in fact all of them should be deleted. [CSCdi07190]
- A race condition in the **show ip cache** command can cause the router to reload. This caveat cannot be completely fixed in 8.2 and 8.3. [CSCdi07900]

IP Routing

- For area border routers, connected to the backbone only by a virtual link, the **show ip ospf** will indicate an area count one greater than expected and the record for the backbone will appear twice. [CSCdi04917]

- When multiple ASBRs in a network generate functionally equivalent AS external advertisements, then the router advertisement with the higher OSPF router ID is used. If the LSA with the higher ID router is MAXAGED due to loss of route, the correct behavior is for the lower ID router to regenerate the LSA if it has the route. This regeneration does not work if only some of the routes are lost and not all. [CSCdi05681]
- Executing the command **show ip ospf database** may cause a system reload to occur. [CSCdi05692]
- If a system is running OSPF, and two of its interfaces are connected to the same physical subnet, it will attempt to form an adjacency with itself, resulting in excessive network traffic and CPU loading. [CSCdi05898]
- If routers utilizing secondary addresses are inconsistent about the primary address, routing updates are not generated correctly. [CSCdi05942]
- When OSPF is configured to redistribute RIP routes and default with RIP metric received, OSPF default route metric does not change with RIP default route metric. [CSCdi06010]
- RIP, HELLO, and IGRP advertisements being broadcast on unnumbered serial links will not advertise the major network number of the associated numbered interface. [CSCdi06205]
- CSCdi05488 caused the router to not send complete RIP updates to explicitly configured RIP neighbors. [CSCdi06285]
- If split horizon is disabled and the interface is numbered, the router should not accept IGRP, RIP, or HELLO routing updates from other hosts on that interface but not on the subnets configured on that interface. [CSCdi06885]
- An exceedingly rare race condition with IGRP can cause the router to reload. IGRP must simultaneously learn a new route while the routing table is being cleared. [CSCdi07276]
- If BGP is configured with the **no synchronization** command, and a route is learned via internal BGP from a BGP peer which is not adjacent, BGP may subsequently advertise the route with a sub-optimal next hop. In this case, the next hop will point to the BGP speaker itself which will forward traffic correctly. This caveat only affects forwarding efficiency. This caveat was introduced in 9.0(2). [CSCdi07531]
- After a topology change occurs, OSPF waits for 8 seconds before running SPF on the database in order to protect the router from link flapping. This delay is not absolutely necessary. [CSCdi07562]
- When there are multiple External LSAs for the default route (0.0.0.0) in OSPF domain, there is a possibility for the default route to disappear from the IP routing table. There is no workaround. [CSCdi07576]
- In very rare circumstances, EGP can cause a router to reload if another process attempts to clear the IP routing table while an EGP update is being processed. [CSCdi07587]

- When an IP address used as the OSPF router id is removed from the router and used in a different router, there is the possibility of two OSPF routers using same router id, thereby causing an inconsistent OSPF database. The workaround is to remove the OSPF configuration and reenter it when changing OSPF router ids. [CSCdi07602]
- If a router is configured for BGP and no BGP neighbors are active, either because they are not configured or because their BGP connections have not been established, then excessive memory utilization will occur. The workaround is to configure at least one BGP peer and to insure that it becomes active. This caveat was introduced in 9.0(2). [CSCdi07626]
- In obscure circumstances which are not fully understood, a problem with a TCP connection underlying a BGP connection may cause the router to reload. [CSCdi07637]
- If extended access lists are used on an MCI, SCI or ciscoBus interface, the IP route cache is enabled, and also the established keyword is used, it can be improperly evaluated. This can permit packets which should be filtered and exclude packets which should be permitted. This behavior was first introduced in 8.2. [CSCdi07901]

ISO CLNS

- If IS-IS is configured on an interface and an ISH is received, an IIH is sent. This results in an increased frequency of sending IIHs. The correct behavior is for an IIH to be sent only when establishing new adjacencies or adjacencies in Init state. [CSCdi05098]
- Issuing the command **clear clns route** may cause a system reload to occur. [CSCdi05343]
- A system reload may occur if DECnet conversion is enabled, two ISO-IGRP processes are redistributing each others routes and the system receives a DECnet packet that it cannot route. [CSCdi05883]
- DECnet Phase IV to Phase V conversion does not work when two ISO-IGRP processes are redistributing each others routes. [CSCdi06087]
- When running CLNS, a router would send out IS hellos even when there was no NET configured for the interface. The fix is to check that there is an NET configured before sending out the IS hellos. [CSCdi06104]
- Forwarding a converted DECnet Phase IV packet causes a DECnet Phase V redirect. For example, a CLNS packet is received on an interface, it is converted to a DECnet Phase IV packet which is then sent back out the interface, and an ES-IS redirect PDU is erroneously sent. [CSCdi06121]
- When an NSAP address with length of 0 is present in a CLNS packet, the fast switching routines corrupt memory and causes the system to reload. [CSCdi06370]
- When a CLNS area is deleted, the process associated with the areas domain is deleted, even if other areas exist in the domain. In effect, this will leave orphan areas. [CSCdi06666]

- If you are running pre 9.0(2.1), there may be buffer loss problems when running CLNS over Frame Relay. [CSCdi07183]
- This problem applies only when doing ISO-IGRP inter-domain routing over links that split horizon is not performed. This includes X.25 PDNs, Frame Relay and SMDS networks. Prefix route advertisements will count to infinity over these networks when a prefix goes unreachable. Prefix route advertisements will count to infinity over networks when a prefix goes unreachable, when doing ISO-IGRP inter-domain routing over links where split horizon is not performed. This includes X.25, Frame Relay and SMDS networks. [CSCdi07379]
- If there exists any IS-IS routers in a network that originates LSPs with an LSP number of non-zero, the destinations in that LSP will not be inserted into the routing table. The only workaround is for LSPID's of the form **xxxx.xxxx.xxxx.yy-zz**, **zz** must be **00**. [CSCdi07491]
- If an ISO-IGRP route exists where a valid next-hop is used but there is no adjacency entry for the next-hop, the system may reload. This situation is very rare. [CSCdi07502]
- The router may crash in very rare circumstances. If a single LSP exists in the AVL tree and it is deleted, it may dereference a NULL pointer. The router may reload in very rare circumstances if a single LSP exists in the Cisco routers database and it is deleted. [CSCdi07683]
- The **show clns routes** command can, under some circumstances, cause the router to reload. [CSCdi07710]
- If CLNS is configured on an interface by either the **clns enable** or **clns router iso-igrp** commands, and IS-IS is not configured on the interface, received IS-IS packets will consume packets and not return buffers to the system. [CSCdi07758]
- If an IS-IS link resides in a non-zero LSP number, it will be displayed as appearing in LSP number 0 as well. This creates the illusion that it is advertised more than once. This causes no problems with connectivity. [CSCdi07827]
- The system may reload when the last IS-IS LSP is deleted from the link state database. This may happen when you are deconfiguring IS-IS from the system. [CSCdi07846]
- A DECnet created adjacency in the OSI adjacency database will have a data-link address that is multicast. This results in multicast packets transmitted for each packet sent to the host. [CSCdi07939]

VINES

- Server discovery broadcasts received on interfaces configured with **vines serverless** are always forwarded to the nearest server listed in the routing table. The nearness of the server in question is calculated from the routers point of view, rather than from the point of view of the client. This behavior may cause overloading of the "nearest" server while other servers are left underutilized. The resolutions is that when a server discovery broadcasts is forwarded onto the network containing the nearest server, it will be forwarded as a MAC layer broadcast. This means that all servers on that physical network will see and respond to this frame, instead of one single server. There is also a change to the output of **show vines route** so you can easily see which VINES server is considered the nearest VINES server. The new output is:

```
4 routes, next update 77 seconds Codes: R - RTP derived, C - connected, S -
static
RN Net 0027AF9A [2] via 0027AF9A:1, 10 sec, 0 uses, Ethernet0 C Net 30004355
is this routers network, 0 uses R Net 002ABFAA [2] via 002ABFAA:1, 10 sec,
0 uses, Ethernet0 R Net 3000FB06 [1] via 3000FB06:1, 8 sec, 0 uses, Fddi0
```

where the letter N indicates that this server is the nearest server, and it is on the local network. The letter n is used to indicate that this server is considered the nearest server, but it is not on the local network. [CSCdi02868]

- It is possible, but not probable, that you can crash the router while running the command **show vines route**. If you issue this command and let the display sit at the --More-- prompt until the last route displayed expires from the routing table, the router will crash when you hit the space bar to continue. [CSCdi05330]
- When a server is moved from one physical cable segment to another, and both cable segments are connected to a router, the router must expire the neighbor entry for the old cable before it can learn a new entry for the new cable. During this period, as it receives routing updates on the new interface, it continues to process them even though they do not match the current neighbor entry for the server. [CSCdi06994]
- Provide the ability to disable split horizon of VINES routing updates. This is needed to build a VINES networks over a nonbroadcast media, such as Frame Relay, when there is not complete connectivity between all nodes in the network. [CSCdi07034]
- When operating in serverless mode, some customers need the ability to flood a received broadcast to all other interfaces instead of choosing the best interface and sending the frame. This bug fix adds this capability and the supporting code so it may be configured. [CSCdi07599]

Wide-Area Networking

- When a switch is reconfigured to use a different DLCI to reach the same end address, the router doesn't flush the "deleted" map entry and attempt to learn a new mapping. [CSCdi03757]
- TCP header compression over X.25 does not work in the initial release of 9.0(1). [CSCdi03839]
- An interface input queue may fill up and not recover if an X.25 provider in the RNR state receives and discards an I Frame and then violates the LAPB protocol by exiting from the RNR state with an RR instead of an REJ frame. The symptom is that the serial interface pauses indefinitely and ceases transmission. [CSCdi05957]
- The X.25 PAD code will return a list of ALL X.3 parameters if we received an x.29 "read request" message with more than one parameter requested. This is improper, and will cause some X.25 implementations to clear the connection. The X.25 PAD code will return a list of ALL X.3 parameters if we received an x.29 "read request" message with more than one parameter requested. This is improper, and will cause some X.25 implementations to clear the connection. [CSCdi06432]

- The error message and traceback:

  ```
  %X25-3-INTIMEQ Interface [chars], LCN [dec] already in timer queue,
  new time [dec]
  ```

  is used as a diagnostic aid; although an unexpected condition was detected and reported, the operation of the router and the X.25 protocol are not affected. If this message is produced, contact Cisco Systems; include the text and traceback of this message as well as the information from the **show version** command. [CSCdi07238]
- If a virtual circuit is established in order to forward a packet, the packet may not be forwarded immediately on receipt of the CALL CONFIRM. [CSCdi07560]
- The system does not reset the sequence counters used for the LMI keepalive information element when the LMI type is changed. This behavior occurs if the LMI type is changed (from Cisco to ANSI Annex D or vice versa) after the system has been in operation for some period of time. This behavior has no impact on operation but does not conform to the detail of the specification. [CSCdi07649]

XNS/Novell IPX/Apollo Domain

- Correct usage of Novell/XNS/Apollo transportControl (hop count) field, read/increment only hop count bits, discard packet when 16th router reached (hop count equals 15, not 16), preserve reserved bits as packet transits router, minimize impact on Novell fast switching code when reserved bits are 0 (the normal case). [CSCdi06340]
- XNS broadcasts may leak through XNS access-lists when an **xns helper** or **xns flood broadcast** is configured. [CSCdi06750]
- Novell RIP updates were sometimes sent with more than the maximum of 50 routes in a single packet. Always enforce a limit of 50 networks in any single Novell RIP packet. [CSCdi06999]

9.0(1) Caveats/9.0(2) Modifications

This section describes possibly unexpected behavior by release 9.0(1). Unless otherwise noted, these caveats apply to all 9.0 releases up to and including 9.0(1). For additional caveats applicable to release 9.0(1), please see the caveats sections for newer 9.0 releases. The caveats for newer releases precede this section.

All the caveats listed in this section are resolved in release 9.0(2).

AppleTalk

- When the system replies to AppleTalk ZIP GetNetInfo and GetLocalZones requests which originated on networks other than the network about which they request information (that is, requests which have been routed from distant networks), the router sets the source DDP address in the reply incorrectly, using a broadcast address. Furthermore, when a request is addressed to one of the systems interfaces, but received on a different interface, the information returned is taken from the receiving interface instead of from the interface to which the request is originated. In addition, the address of the receiving interface is always used as the DDP-layer source address of the reply packet; correct behavior would be to use the address to which the request was originally sent. This behavior has no impact on ordinary AppleTalk applications, but may confuse some network management software. [CSCdi04809]
- Serious errors reported by the AppleTalk code are not logged to the console or to any syslog server, regardless of the configured logging levels. [CSCdi04812]
- If AppleTalk IPTalk is enabled, then disabled, a block of system memory will be “lost” and rendered unusable until the system is rebooted. The block involved is not large, and the behavior rarely if ever has operational impact. [CSCdi04821]
- For AppleTalk networks with macip service enabled, macip traffic will not be forwarded through the router. This problem will only affect those networks where the macip packets must traverse the router acting as a macip server to reach another macip server. [CSCdi04909]
- IPtalk does not work. [CSCdi04932]
- When an AppleTalk ARP reply is received on a Token Ring interface, the sanity check that prevents entering multicast MAC addresses into the ARP table is done incorrectly; the least-significant bit of the first octet of the address is checked instead of the most-significant. This may result in the system accepting invalid AppleTalk ARP replies, or, usually more seriously, in its ignoring valid ones. This can be worked around by reconfiguring other nodes to use Token Ring MAC addresses which do not have the least significant bits set in their first octets. [CSCdi05137]
- This problem will prevent Cisco routers from properly interoperating with other AppleTalk implementations on FDDI media which do implement the March 8, 1991 Preliminary Proposal. [CSCdi05298] [CSCdi05464]
- This bugs would affect the ability of a nonextended AppleTalk interface in discovery mode to start when there is only a Shiva FastPath on the cable to perform the function of seed router. If there is already some other router than a Shiva FastPath on the cable, the interface will start routing as expected. [CSCdi05437]
- When a router running a software release supporting FDDITalk, that is, 9.0(2), is on the same FDDI ring as a router running a pre-FDDItalk release, the AppleTalk protocol will be restarted on the FDDI interface every time a pre-FDDItalk RTMP broadcast is heard on the ring. The workaround is to upgrade all routers running AppleTalk on the FDDI ring to 9.0(2) or do not upgrade any of the routers. [CSCdi06129]

DECnet

- DECnet Phase IV NCP commands directed to a DECnet Phase IV router across a DECnet Phase V backbone do not pass through the DECnet Phase V backbone correctly. This means that NCP commands can not be executed across a DECnet Phase V backbone. When fixed reachability will still be limited to routers no more than one hop away. [CSCdi04755]
- If the DECnet Phase IV to Phase V conversion prefix greater than 11 octets is configured then the router may reload. [CSCdi05376]
- The split horizon rule is applied to DECnet Phase IV routing updates sent on Frame Relay interfaces; no information on routes learned through a Frame Relay interface is included in outgoing updates transmitted through that interface. If each of two remote routers is connected by a PVC to the local router, but no PVC connects the remote routers themselves, the two remote routers will be unable to communicate with one another via the local router. This problem may be avoided by providing full-mesh PVC connectivity among all the routers on a Frame Relay network. [CSCdi05827]

EXEC and Configuration Parser

- When setup is used to configure a router, the **router igrp** command is removed from the configuration file on reload. The workaround is to modify the configuration file by hand and add back the missing command. [CSCdi04641]
- The **appletalk event-logging** is not removed from the configuration when AppleTalk routing is removed. Attempts to remove it after AppleTalk routing has been removed will fail because no AppleTalk commands can be executed when AppleTalk routing is not running. The workaround is to turn off AppleTalk event logging before disabling AppleTalk routing. [CSCdi04793]
- Setting the SNMP tsMsgIntervaltim variable to zero prevents any issuance of the message. The correct behavior is for the message to be issued at intervals decided by the system itself. [CSCdi04860]
- Setup does not exit automatically when modem disconnect is detected. At this point the user must type control c to exit from setup. [CSCdi04940]
- CLNS hosts do not increment the line count correctly in the **show host** display. Consequently, the command does not respect the **term length n** settings. [CSCdi05083]
- The protocol translation option of the IGS router software fails to properly initialize the allowed transport outputs to include X.25 PAD service. This will result in messages of the form “% pad connections not permitted from this terminal” when a user attempts to create a PAD connection. Outgoing PAD connections configured via **translate** commands will operate correctly. A workaround is to configure the virtual terminals on the IGS to explicitly include the PAD capability by using the command **transport output lat pad telnet**. [CSCdi05115]
- On very heavily loaded systems, the CPU utilization percentages given by the **show process**, and **show cpu** commands, and the interface utilization percentages given by the **show interface** command, may fail to decay properly, or may be displayed as impossible values. [CSCdi05168]

- Any “authenticated” extended TACACS request will change the users access class (if the field is set in the packet, the TACACS server supplied leaves it 0 for everything except login and slip address). This should only happen for responses to login requests. [CSCdi05175]
- Enabling debugging for the OSPF protocol may result in a loss of neighbors. This is caused by the logging process running at too high a priority. Note, logging messages may now be delayed due to this change in behavior. [CSCdi05202]
- The command **show flash** is not currently supported on terminal servers and protocol translators. The command **show flash** is not currently supported on communication servers and protocol translators. [CSCdi05506]
- If a user connected via TELNET to a router leaves the **show process** display at the --more-- prompt, and the virtual terminal session idle timer expires, a system reload may occur. [CSCdi05633]
- Under unusual circumstance when an SNMP packet is received some memory will be lost, over time this could use up all system memory. Two things must be true for this to happen; a bad community name is in the snmp request resulting in an authentication trap, and the snmp request must have over 14 variables in it. [CSCdi06309]

IBM Connectivity

- When a LAN Manager query is received for a nonexistent station attached to a virtual ring results in the issuance of “SYS-2-SHARE” error messages. This behavior has no operational impact other than the issuance of the messages. [CSCdi04342]
- Older IBM documentation used the values 516, 1470, 2052, 4472, 8144, 11454, and 17800 as the possible largest frame values for token ring. The current IBM documentation uses the values 516, 1500, 2052, 4472, 8144, 11407, and 17800. The 9.0 software was changed to reflect these new values. However this makes it incompatible with 8.X releases since the 9.0 sw running with 8.X configurations will drop remote-peer configuration commands when largest frame sizes were configured as either 1470 or 11454 bytes. To workaround this problem change the 8.X configuration when using 9.0 software for remote peer commands to the new values if 1470 or 11454 were previously used as largest frame sizes. [CSCdi05036]
- LAN Network Manager will not work with the 9.0(1) software release when the router is more than two hops away from the machine running LAN Network Manager. Therefore, the PC running LAN Network Manager should be located on a ring that is directly attached to a Cisco router. [CSCdi05073] [CSCdi05105]
- Path costs for spanning-tree protocol not recomputed when enabling DEC spanning tree protocol. A potential side-effect of this is that interfaces configured for bridging after the **bridge n proto dec** command has been issued may have different path costs than those configured before the command. [CSCdi05251]
- Running LAN Manager with the older Netronix Token Ring card, if ring beaconing occurs the router may reload. [CSCdi05258]

- If an LLC2 session is lost by the router sending a disconnect frame in an SDLLC LLC2/SDLC pair, the SDLLC state will not be reset to “disconnect”. Therefore, the background task that tries to reestablish sessions for SDLLC sessions that use the **sdllc partner** command will never attempt to try the reestablishment, as the SDLLC state was still “connect.” Effectively, that makes SDLLC useless for that link until the router is reloaded. To determine if the router is exhibiting this incorrect behavior, exam the output of **show interface** command for the SDLLC interface. It will show an SDLC state of “disconnect” but an SDLLC state of “connect” for the affected SDLC address. To clear this state the router must be reloaded. [CSCdi05335]
- Under certain conditions on the Token Ring interface (generally high traffic or noisy media), a message similar to:

  ```
  %TR-3-RESETFAIL: Unit 0, reset failed, error code 00007F32.
  -Traceback= 97F84 97CFA 970A2 96FBE 9C5E8 12766 37F8 1D1E
  ```

  may appear, indicating that the Token Ring interface was unable to reset itself. [CSCdi05644]
- A system reload will occur if a LAN Manager workstation attempts to link to a router containing a single token ring port. [CSCdi05699]
- LNM passwords must be exactly eight characters in length. The correct behavior would allow for the password to be six to eight characters in length. [CSCdi05892]
- On routers with no FDDI interfaces and no SBE16 Token Ring interfaces, bridging of maximum size packets will corrupt a couple of bytes of heap memory. This corruption will cause the show memory command to display less free memory than expected and terminate prematurely with SMASHED BLOCK error messages. [CSCdi06229]
- During process-level bridging, the nonflood bridge forwarding code does not check to make sure that it does not output a packet on the interface upon which it arrived. The behavior has been present in all versions of the router supporting process-level bridging. Normal transparent bridging does not notice this, as it runs fast switched and the check is correctly applied in the fast switching code. However, bridging that runs at the process level (SR/TLB, bridging with Priority Output, and bridging over X.25 or Frame Relay) runs into this problem. Symptoms of this problem are seen in packets that are duplicated on the receiving interface. The correct behavior is that packets should not be retransmitted on receiving interface. The impact is on certain protocols that are sensitive to packet duplication and that may not function properly. Process-level bridging performance will degrade. [CSCdi06609]

Interfaces and Bridging

- If the **frame relay map** command is issued before the **encapsulation frame relay** command, then no action is taken. This is the correct behavior. So although no action is taken no error message is generated. Not generating an error message in this case was incorrect, an error message is now generated. [CSCdi04576]
- Very high average output rates can result in overflows in the computation of the five-minute data rates in the **show interface** display. This manifests itself as the appearance of nonsensically large values. [CSCdi04665]

- Older HP probe clients (notably old versions of OfficeShare) require support for the "where is gateway" packet. This feature is not supported. [CSCdi04667]
- Packets received over the UltraNet interface that are within seven bytes of maximum size will be incorrectly counted as giants. [CSCdi04817]
- No ARP cache entry is made for the systems own IP address on an Ultranet interface. This results in the system being unable to "talk to itself" using IP over that interface. [CSCdi04828]
- When an IP packet with options and a time-to-live field of one is received on a fast-switching interface, the packet is erroneously treated as having an IP header checksum error. This is most noticeable when a **traceroute** program is being used with source-routing options. [CSCdi04830]
- An UltraNet interface configured for bridging accepts its own broadcasts. This can cause the bridging table to become corrupted. [CSCdi04954]
- The router allows Bridging Circuit Groups to be configured on interfaces supporting Frame Relay and X.25. This functionality is not supported for Frame Relay and X.25. The correct behavior is for the router to not allow Bridging Circuit Groups to be configured on interfaces supporting Frame Relay and X.25. [CSCdi04998]
- The **dialer fast-idle** command ignores parameters. [CSCdi05002]
- With a CSC/4 processor with an ethernet MCI, keepalives wont bring back an ethernet interface that is down (transceiver cable disconnect, cable unterminated, and so on). For an Ethernet with keepalives enabled, a keepalive packet is sent every keepalive interval. In this scenario, if a user were to disconnect the transceiver cable to the ethernet and three keepalives were sent but not received then "line protocol" would go down and the interface would be unusable, as expected. If the user was to then reconnect the transceiver cable, the correct behavior would be for the keepalives to bring the interface back up within the keepalive period. This does not happen with the CSC/4 processor. The interface will remain down despite attempts to lengthen the keepalive period, generate more keepalives, or attempt to clear the ethernet interface with the **clear interface** command. The workaround is to toggle the keepalives for that particular ethernet interface using the **no keepalive** followed by the **keepalive n**. Note: The only action above that is REQUIRED for the interface to come back up is to turn off keepalives. Turning them back on is optional but doing this will correctly turn off "line protocol" if the line goes down in the future. [CSCdi05172]
- Under some circumstances, primarily involving a non-zero hold queue on an ethernet interface, the use of the HP probe feature may cause the router to lose memory. [CSCdi05186]
- Specifying **ring-speed 4** actually results in **ring-speed 16** and vice versa. [CSCdi05224]
- Initiating a LAT translation session with transparent bridging enabled will cause a system reload to occur. [CSCdi05229]
- When issuing the command **show interface token 0** the bia is displayed as 0000.0000.0000. The correct behavior is for the actual burned in address of the board to be displayed. [CSCdi05404]

- When under high loads the CSC-2R may enter the “initializing” state. If initialization is delayed because of excessive input load, the system may eventually time out and shut down its interface to the ring. This will result in an interface reset. [CSCdi05446]
- ARP requests generated on FDDI by systems which are bridging IP are sent using the common FDDI SNAP encapsulation. Other systems on the FDDI ring will not bridge these packets onto Ethernets which may be connected to them, and ARP table entries will therefore never be learned for systems on those Ethernets. The correct behavior is to use the Ethernet-over-FDDI encapsulated bridging format for ARP packets generated on FDDI by units bridging IP. [CSCdi05482]
- Using local SRB under heavy load may cause SETFUNFAIL errors and a high rate of resets for both the CSC-2R and CSC-R16 Token Ring interfaces. [CSCdi05499]
- The **sdlc-largest-frame** command for sdllc is written incorrectly in nv ram. This results in a parser error when an attempt is made to execute the command. The work-around is to enter the command manually each time the router is reload. Please note that this only applies if the value for sdlc-largest-frame has been changed from the default. [CSCdi05655]

IP Host-Mode Services

- If a router is configured with a unnumbered serial interface and the serial interface is down, the corresponding numbered interface will not respond to IP pings. [CSCdi04236]
- Under some obscure conditions (TCP connection receives a RST packet while the connection is closing and we are waiting for data to go to the terminal) TCP does not release all buffers. Eventually this causes the interface input queue to fill up. The router must be reloaded in order to clear up this condition. This problem is not so serious because the condition occurs infrequently. [CSCdi04957]
- The success rate for the **ping** command may incorrectly report a low success if ping is run for a very long time. The counter containing the successful ping count overflows. [CSCdi05163]
- Under rare circumstances, it is believed to be possible for a proxy ARP reply to be processed incorrectly, resulting in incorrect entries in the ARP table. These entries will give valid MAC addresses for incorrect IP addresses. This behavior has never actually been observed in the field, and should occur only when the interface on which the original proxy ARP reply is received undergoes an up-to-down state transition immediately after the packet arrives. [CSCdi05169]

IP Routing

- ICMP Information requests do not cause entries to be made in the ARP table. Instead an ARP request is broadcast before sending the ICMP reply. This can cause problems with devices that need to learn the subnet portion of their IP address from the ICMP Reply. [CSCdi04328]

- For the OSPF protocol if a **redistribute ospf n metric n** command is issued. Then there is no way to remove that command. If a **no redistribute ospf** command followed by a **redistribute ospf n** is issued then all parameters are restored to their default values, not just the ones configured. [CSCdi04393]
- If an IP address is removed from an interface using the **no ip address**, all routes using that interface are deleted from the IP routing table. This is sometimes unnecessary when there is an additional path to the target. [CSCdi04396]
- When IP traffic is being fast switched on an IGS, and IP accounting is enabled, it is possible for system reloads to occur. This can be worked around by disabling either IP accounting or IP fast switching. [CSCdi04467]
- If RIP is run across an unnumbered link, and the associated numbered interface has a non-default broadcast address, then the RIP updates on the unnumbered links will have an incorrect checksum generated. The workaround is to use the default broadcast address on the associated numbered interface. [CSCdi04838]
- In environments with very large BGP updates (as in NSFnet regional networks, which pass data for the entire IP net), it is possible for the BGP process to consume all the buffers in the system, and still be unable to continue because of insufficient additional buffers being available. This is manifested as a stoppage of all process-level network activity. [CSCdi04872]
- Attempts to create IP static interface routes through interfaces which do not have IP addresses assigned will fail. [CSCdi04898]
- If two interfaces have the same IP address and one of them is shut down, the other interface will not respond to an IP ping. [CSCdi04913]
- For the OSPF protocol, a administrative distance change on a routing process does not affect existing routes. [CSCdi04920]
- If any of the following IP-only specific router subcommands are issued then the CLNS/IS-IS data structures become corrupted. **default-information, default-metric, distribute-list, metric, neighbor area, network, offset-list, passive-interface, timers, variance** This causes a system reload when if any if the following CLNS/IS-IS command sequences are later issued: **router isis timers, basic** or **router iso-igrp, variance**. [CSCdi04936]
- If a network broadcast address and a default subnet are configured, the router will erroneously route a network broadcast to the default subnet. This can lead to routing table instabilities. A workaround is to specify the broadcast address of 255.255.255.255. [CSCdi05052]
- The **no ip routing** command does not stop IP routing processes. [CSCdi05157]
- If IP accounting is disabled or if the IP accounting database is cleared or checkpointed while a **show ip accounting** [**checkpoint**] command is being issued, a system reload may occur. [CSCdi05159]
- The way EGP handled routes are aged out is incorrect in the case where the router drops the route and the neighbor stays up. The incorrect behavior is to use a multiple of invalid time. The correct behavior is to subtract invalid time from flush time and use that value as a multiple to age the routes. [CSCdi05170]

- When using the **no neighbor** command to delete configured neighbors on non-broadcast multi-access networks such as X.25 for OSPF protocol the following error message is generated and no action is taken, OSPF: no interface specified. Work around is to remove the ospf process and recreate it. [CSCdi05291]
- An IP accounting filter disables fast switching for packets that do not match the filter. [CSCdi05299]
- For the OSPF protocol, given that the designated router for a particular net has been disabled, the backup router is then promoted to designated router. This is correct behavior. However no backup router is selected to replace the backup router promoted to router. Although this behavior is incorrect, impact is minor resulting in slight increased traffic. [CSCdi05309]
- If the command **no ip split-horizon** is enabled on an interface with secondary addresses, RIP updates are only issued for those secondary addresses on a different major network number from the primary. The correct behavior is for a RIP update to be sent out for each secondary address. [CSCdi05448]
- When the **ospf neighbor** command issued with a local interface address, this causes a poll to be sent to itself. [CSCdi05586]
- When an igrp route is overwritten with OSPF route, the old igrp route redistributed into OSPF domain is not flushed. [CSCdi05605]
- Configuring **ip route 0.0.0.0 null 0** will result in the route showing up multiple times in the routing table. [CSCdi05754]
- No IP flash routing updates are sent (with any routing protocol) when an interface is administratively shut down. This may result in connected routers being slow to react to the loss of the newly shut-down path. [CSCdi05794]
- After a system has been operational for 24 days, the IGRP, RIP, HELLO and CHAOS routing processes will stop sending updates. The cessation will occur if the routing process has been running the entire time the system has been operational or if the process was manually started any time after system start up. There is a workaround for IGRP. Assuming the user is not using non-default values for the IGRP timers, simply use the following router subcommand:

  timers basic 90 270 280 630 1

  The only value that helps the workaround case is setting the fifth parameter equal to one. The other values do not affect the problem and should be set according to the users wishes. The above example is the normal case. A workaround does not exist for RIP, HELLO and CHAOS. [CSCdi06310]

ISO CLNS

- When a router running ISO IS-IS and supporting level 1 routing is reconfigured to support only level 2 routing, it does not send notification that its level 1 links are no longer available, nor does it explicitly resign as level 1 designated router on subnets for which it has been elected such. [CSCdi04171]

- CLNS prefix routes which are advertised more than four hops away may not be retained in the routing table. Also, convergence for prefix routes is very slow: when they go away, it may take a long time for them to be removed; when they come back, it may take a long time for them to be re-learned. [CSCdi04753]
- ES-IS intermediate system hellos are sent on every CLNS interface, even when router (or the interface in question) is configured only for level 2 operation. [CSCdi04866]
- CLNS dynamic routing protocols used over SMDS networks do not properly capture the SMDS source addresses from which updates were received. This makes it impossible to use dynamic routing protocols for CLNS over SMDS. This may be worked around by the use of static routing. [CSCdi04891]
- After the **no router isis** command is issued, the **show timers** displays two sets of timers. [CSCdi04892]
- If the next hop router specified for a static route goes down, ISO-IGRP incorrectly sends out a flash update with a non-infinity metric for that static route. [CSCdi04927]
- For the IS-IS protocol, the prefix route selector is not included when selecting a NET to delete. This may result in some NETs being incorrectly removed from the routing table. [CSCdi04934]
- For the IS-IS protocol, the retransmission timer over serial lines is incorrectly set to 5000 seconds rather than 5. This causes unreliable delivery of IS-IS Link State Packets over serial links for the first 5000 seconds after the link is configured to run IS-IS. This may result in serious problems such as routing loops. [CSCdi04943]
- The IS-IS protocol will incorrectly advertise serial link adjacencies created by the ISO-IGRP or ES-IS protocol. This can produce unpredictable routing behavior. [CSCdi04944]
- Static neighbors are not added to ISO-IGRP level-1 routing table if they are entered before ISO-IGRP is enabled on an interface. [CSCdi04976]
- When more than one adjacency with the same system id exists in the adjacency database, and one of these adjacencies is deleted, the associated link in the LSP is not deleted. [CSCdi05067]
- The **show clns route** command may cause the router to reload. [CSCdi05111]
- If ISO IS-IS is used in environments with large numbers of link states (on the order of 50 or more), system reloads or other unexpected behavior may occur. [CSCdi05151]
- ISO-IGRP flash update storms occur when there are parallel adjacencies on interfaces with different ISO-IGRP metrics. The storm occurs for prefix routes only. A workaround is to make the metrics the same on the interfaces. This is accomplished by setting the bandwidth and the delay to be the same on each interface involved. [CSCdi05235]
- The **no redistribute static** command does not work for ISO-IGRP. [CSCdi05284]
- The **show clns redirect** command may cause the router to pause indefinitely. [CSCdi05367]

- In configurations that deploy DECnet IV to V conversion where the OSI backbone runs IS-IS, the DECnet Phase IV created adjacencies in the CLNS adjacency database are not inserted in the fast-switching cache. This causes slow switching to occur for these systems. [CSCdi05477]
- ES-IS supplies NET in RD PDU for redirects to end-systems. The correct behavior is for this to occur only if redirecting the node to an intermediate-system. [CSCdi05674]

Wide-Area Networking

- When an X.25 PAD connection receives an "indication of break" packet, that indication is not forwarded into the data stream of any possible outgoing connection. [CSCdi04908]
- AppleTalk phase I fails to route over serial links configured for SMDS encapsulation. [CSCdi04914]
- The **show interface** and **show X25 vc** commands did not indicate when the window at packet level (X.25) and/or frame level(lapb) was closed. The **show interface** and **show x25 vc** commands have been modified to display this message "Window is closed" For the **show x25 vc** command the above message indicates the VC is packet is level flow controlled and the window is closed. For the **show interface** command the above message indicates the interface is frame level flow controlled and the window is closed. [CSCdi04981]
- With X.25 TCP enabled, if data continues to be sent to a TCP connection in the CLOSEWAIT state after the X.25 connection has been removed, then the router may reload. [CSCdi05031]
- Attempting to issue a **clear x25-vc** command to remove idle X.25 SVCs may cause the router to reload. [CSCdi05037]
- Issuing the command **no dialer fast-idle** incorrectly resets the **dialer idle-timeout** instead of the **dialer fast-idle timeout**. [CSCdi05041]
- The OUI fields of outgoing SMDS packets may contain "random" data. This may interfere with communication with nodes that do very strict packet checking. The correct behavior is to zero these fields. [CSCdi05119]
- X.25 virtual circuits over which no data have ever been sent are not closed when the configured idle time has passed. If any traffic whatsoever is sent over a virtual circuit, the idle timer will be applied thereafter. [CSCdi05123]
- When a frame relay interface transitions from up to down and vice versa, the system variables are updated but no SNMP trap is generated. This is incorrect behavior. The correct behavior is to generate the SNMP trap. [CSCdi05198]
- The **no x25 facility throughput** command does not work. There is no way to remove this facility. [CSCdi05217]
- If more than one X25 facility is configured, and the **x25 rpoa wan** command is one of those facilities, then disabling the rpoa facility may cause the router to reload. [CSCdi05219]

- When configured for ANSI ANNEX D frame relay, the router incorrectly uses dlci 1023. This causes the line protocol to be declared down. The correct behavior is to use dlci 0. The workaround is to disable keepalives on a particular interface. [CSCdi05280]
- If more than 22 parameter/value pairs are entered in an **x29 profile** command, memory will become corrupted, leading to a possible system failure. [CSCdi05307]
- Additional calls cannot be made if all available VCs are open and the first VC is busy even if the remaining VCs are idle. The correct behavior is to check all VCs and not just the first one on the list. [CSCdi05374]
- The frame relay encapsulation code doesn't correctly check the status of a DLCI. The result is that packets can be sent on a DLCI which the frame relay switch has indicated as deleted via the LMI messages. This problem shows up if a router is misconfigured such that a mismatch exists between the routers DLCI and those defined in the frame relay switch. The workaround is to configure the router with the correct DLCIs. [CSCdi05481]
- There are instances where the frame relay initialization does not clear the loopback flag. An interface will incorrectly report that it is in loopback if the interface is in loopback mode with HDLC encapsulation, then reconfigured for frame relay encapsulation without shutting down the interface. The workaround is to administratively shut the interface and then reinitialize it. [CSCdi05483]
- On the IGS platform only, transparent bridging over Frame Relay does not work. [CSCdi05664]
- If two **no dialer** commands are issued in a row, there is a high probability that the router may reload. [CSCdi05594]

XNS/Novell IPX/Apollo Domain

- XNS routes that have been filtered out by **xns output-network-filter** are still being advertised with a hop count of 16 (inaccessible). The correct behavior is for these networks not to be included in the routing update. [CSCdi03844]
- If a Novell packet is corrupted such that the checksum field is not 0xFFFF then it possible for the router to reload. This occurs infrequently as packets corrupted in this manner are fairly rare. [CSCdi04921]
- When a change in the XNS, Novell IPX, or Apollo Domain routing table triggers a flash routing update, information about the networks whose status has not changed is included, while information about the networks whose status has changed is omitted. This is exactly opposite the correct behavior. Because information about routing changes is not propagated correctly in flash updates, routing convergence may be slower than would otherwise be expected. In addition, in large networks with many unstable links, flash update traffic may consume enough bandwidth and/or router CPU resources to have strong adverse effects on network performance. [CSCdi04959]
- XNS ping packets with a data size of 32 bytes may produce incorrect round trip times. The numbers will be unreasonably large. [CSCdi04984]

- The command **show novell route net** will display the entire novell routing table for novell network numbers greater than 0x7fffffff. [CSCdi05048]
- When an interface is shut down, only the connected route to that network is removed from the routing table. All other Novell routes that were learned via that interface remain until they are timed out. [CSCdi05087]
- When an interface is shutdown, the Novell static routes associated with that interface will age out of the routing table. The correct behavior if for static routes not to age out. [CSCdi05090]
- When Novell routing is disabled on an interface, the Novell routes learned via that interface are not deleted from the table. These routes must time out for 3 minutes. The correct behavior is for the routes to be flushed from the table when Novell routing is disabled. [CSCdi05144]
- For the Novell protocol, the router is too restrictive when deciding which packets to forward in a mixed media environment. If a packet is sourced from a station on a Token Ring with the address 0100.xxxx.xxxx that the packet will not make it past the second router in the path to the destination. The reason is that while 0100 is not multicast on TR, when the packet then is sent on an Ethernet to another router, it becomes sourced from a multicast address and is thrown away. The same would hold true for a source address of 8000.xxxx.xxxx on ethernet arriving at a router via a Token Ring interface. [CSCdi05177]
- Novell SAP advertisements between parallel routers may loop when a server/service is down, until the hop count reaches 16 on all routers in parallel. The SAP loop may not subside until 3 routers * 60 seconds (SAP interval) * 16 hop or 48 Minutes for three routers in parallel. [CSCdi05359]
- When the router misses a SAP update, it marks the entry as poisoned but if a subsequent SAP update is received, the router never removes it from the poisoned state so the SAP entry will always time out, even if only one update was missed. This problem has always existed but another patch added recently (CSCdi05359) has now exacerbated this previously unnoticed bug. [CSCdi06315]

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This document is to be used in conjunction with the *Router Products Configuration and Reference* publication.