Cisco DPA 7630/7610 Voice Mail Gateway Version 1.3(1) Release Notes

August 14, 2002

These release notes are for use with the Cisco DPA 7630/7610 Voice Mail Gateways with software version 1.3(1). The DPA 7630/7610 integrates Definity and Meridian 1 PBX systems and Octel voice mail systems with Cisco CallManager systems.

These release notes provide the following information:

CISCO SYSTEMS

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Documentation Roadmap

Refer to the *Cisco DPA 7630/7610 Voice Mail Gateways Administration Guide* for details about installing and administering the DPA 7630/7610. This guide ships with the DPA 7630/7610 and is also available online at this location:

http://www.cisco.com/univercd/cc/td/doc/product/voice/c_access/7630adpt/dpa_v1_3/index.htm

New and Changed Information

The following topics describe new or changed features in version 1.3(1) of the DPA 7630/7610 software:

- Support for Unique Voice Mail Box Numbers, page 2
- Improvements in Fail-Over Support, page 3
- Improved Fax Support, page 4
- Support for Multiple Cisco CallManager Clusters, page 4

Support for Unique Voice Mail Box Numbers

Cisco CallManager 3.2 provides voice mail profiles that enable you to assign a user a different mail box number than the extension number. The DPA 7630/7610 now supports this feature.

So, if users have an extension that is a different number than their voice mail box on the Octel system, they can still access their voice mail using the pilot directory number.

For more details, refer to the *Cisco DPA 7630/7610 Voice Mail Gateways Administration Guide:*

http://www.cisco.com/univercd/cc/td/doc/product/voice/c_access/7630adpt/dpa_v1_3/admin_gd/7630plan.htm#33551

Improvements in Fail-Over Support

If you are using multiple DPA 7630/7610 systems in your network for redundancy, you can improve the system's response in a fail-over situation by disabling Octel ports if:

- Cisco CallManager goes down—Disables a DPA 7630/7610 Octel port when the connection to the corresponding DPA 7630/7610 port on Cisco CallManager

- PBX goes down—Disables a DPA 7630/7610 Octel port only when the corresponding PBX port is down. In simple mode, this command has no effect. In hybrid mode, the Octel port will be disabled when the DPA notices the corresponding PBX port is down.

- Either Cisco CallManager or the PBX go down—Disables a DPA 7630/7610 Octel port when either the connection to the PBX or to Cisco CallManager is lost.

- Both Cisco CallManager and the PBX go down—Disables a DPA 7630/7610 Octel port when both the connection to the PBX or to Cisco CallManager is lost.

The disable policy is designed to prevent the Octel system from assuming a port is up when there is not an active Cisco CallManager or PBX connection. Changing this policy can prevent the Octel system from attempting outgoing calls or setting MWIs.

For more details, refer to the *Cisco DPA 7630/7610 Voice Mail Gateways Administration Guide:*

- For the DPA 7630
  http://www.cisco.com/univercd/cc/td/doc/product/voice/c_access/7630adpt/dpa_v1_3/admin_gd/7630conf.htm#xtocid4

- For the DPA 7610
  http://www.cisco.com/univercd/cc/td/doc/product/voice/c_access/7630adpt/dpa_v1_3/admin_gd/7630conf.htm#xtocid10

Improved Fax Support

The DPA 7630/7610 supports Cisco fax relay. Cisco fax relay provides a more reliable method of transporting fax data over the IP network rather than sending the fax information as a voice call. However, the terminating device must also support Cisco fax relay.

By default, Cisco fax relay is enabled on the DPA 7630/7610. To disable Cisco fax relay choose **Configure** > **CallManager** > **Fax Relay** from the main menu.

For more details, refer to the *Cisco DPA 7630/7610 Voice Mail Gateways Administration Guide:*

http://www.cisco.com/univercd/cc/td/doc/product/voice/c_access/7630adpt/dpa_v1_3/admin_gd/7630conf.htm#xtocid17

Support for Multiple Cisco CallManager Clusters

If you are using Cisco CallManager clusters, MWI commands do not propagate across inter-cluster links. Because of this, the DPA 7630/7610 can set MWIs only for those extensions located on the same Cisco CallManager cluster as the DPA 7630/7610 itself. Therefore, to support multiple clusters, you need to add additional DPA 7630/7610 devices.

You can connect up to two DPA 7630/7610 systems to each other in a daisy-chain format. The specific configurations depend upon whether you are using these in simple or hybrid situations.

For more details, refer to the *Cisco DPA 7630/7610 Voice Mail Gateways Administration Guide:*

http://www.cisco.com/univercd/cc/td/doc/product/voice/c_access/7630adpt/dpa_v1_3/admin_gd/7630int.htm#xtocid21

Cisco CallManager Compatibility

Version 1.3(1) of the DPA software requires Cisco CallManager 3.1 or later. You cannot use Cisco CallManager 3.0 or previous releases with this software update.

Resolved Caveats

Table 1 includes the list of caveats that have been resolved with this software update, version 1.3(1).

Table 1   Resolved Caveats for DPA Software Version 1.3(1)

Bug ID	Summary
CSCdr87999	Fax messaging fails to work across a G.711 inter-cluster trunk.
CSCdu76589	Supervised transfers from Octel are dropped when unsuccessful.
CSCdv44104	Unsupervised transfers via gateways fail.
CSCdv65672	Cannot remove NTP address from network configuration.
CSCdw68540	DPA silence suppression is always on; ignores Cisco CallManager service parameter.
CSCdx01405	DPA negotiates G729 AnnexA.
CSCdx01846	Transfers fail in absence of progress or alerting.
CSCdx52833	DPA blasts Cisco CallManager with StationTimeDateReq delaying user dial tone.
CSCdx56819	DPA resets if Cisco CallManager resets all 30VIP phones at once.
CSCdx80543	DPA resets if Octel cable is removed.
CSCuk23785	The first MWI sent on a port is not read by the Meridian 1 PBX.
CSCuk27143	DPA sometimes crashes when losing connection to Cisco CallManager.
CSCuk27150	NTP does not work with some NTP servers.
CSCuk28241	Octel ports still ring after disconnect.
CSCuk28520	DPA hangs while unplugging port under stress conditions.
CSCuk29409	Caller ID lost across intercluster trunks.
CSCuk30582	Octel ports sometimes fail to reconnect properly.
CSCuk32009	Comfort-noise packet should be type 13 (decimal).
CSCuk33444	MWI ports lock up on Meridian 1 PBX under heavy use.

Open Caveats

Open caveats are unexpected behaviors or defects in the software releases for a product. Table 2 contains information on open caveats for the DPA 7630/7610.

If you have a Cisco.com account, you can search for known problems on the Cisco bug tracking system tool, called Bug Toolkit. To access Bug Toolkit do one of the following tasks using a web browser:

- Enter http://www.cisco.com/cgi-bin/Support/Bugtool/launch_bugtool.pl.

- Log in to Cisco.com and choose **Service & Support** > **Technical Support Help-Cisco TAC** > **Tool Index** > **Software Bug Toolkit**.

Table 2   DPA 7630/7610 Open Caveats

Bug ID	Summary	Explanation
CSCdt49634	When the DPA 7630/7610 and a Cisco Catalyst 6000 switch are both set to auto-negotiate, a duplex error displays on the switch.	If both the DPA 7630/7610 and the Ethernet switch to which it is attached are set to auto-negotiate Ethernet speed/duplex, then when the DPA 7630/7610 is restarted, the switch might report an Ethernet duplex mismatch. This occurs while the DPA is still auto-negotiating and is not indicative of a problem.
CSCdx53479	When using the Web Attendant feature in Cisco CallManager to set up a hunt group, ports sometimes ring indefinitely when called. This happens particularly when the DPA has recently been restarted, during the port testing stage.	Ports within a Web Attendant group do not support "forwarding when no answer." Therefore, the ports ring indefinitely if the Octel is unable to answer the call. Using the Web Attendant feature with the DPA is not supported. Instead, use a linear forwarding chain, as described in the *Cisco DPA 7630/7610 Voice Mail Gateways Administration Guide*: http://www.cisco.com/univercd/cc/td/doc/product/voice/c_access/7630adpt/dpa_v1_3/admin_gd/7630plan.htm#xtocid6.

Table 2   DPA 7630/7610 Open Caveats (continued)

Bug ID	Summary	Explanation
CSCuk31143	In some circumstances, the DPA 7610 does not integrate properly with 7 digit extensions (or longer) when connected to an Octel 200.	Direct calls are seen as being external and are assumed not to have mailboxes. Forwarded calls are directed to the correct mailbox, but the calling party ID will be lost if it is 7 or more digits long. This is caused by misconfiguration of the LSP table on the Octel 200. To fix this problem, contact your Octel supplier in order to get this configuration change made.
CSCdx48181	Faxes to an Octel 250 system, using fax pass through are not always received properly.	This might happen when leaving or sending a fax using an Octel 250 system via a DPA 7630/7610. Faxes are much more likely to succeed using Cisco Fax Relay. Ensure that the DPA has fax relay enabled. To enable it, from the main menu, choose **Configure** > **CallManager** > **Fax Relay**. Ensure that any gateways by which faxes are sent or received from the Octel 250 have fax relay enabled. Certain fax machines and gateways are more reliable than others so trying different faxes and gateways might increase the reliability of fax pass through.
CSCdx83586	Faxes to or from an Octel 200 system via a DPA are unreliable, with pages missing from faxes, and frequent failures.	This can happen on an Octel 200 system with a DPA 7610/7630, in both fax pass through and Cisco fax relay mode. Faxes are much more likely to succeed using Cisco Fax Relay. Ensure that the DPA has fax relay enabled. To enable it, from the main menu, choose **Configure** > **CallManager** > **Fax Relay**. Certain fax machines and gateways are more reliable than others so trying different faxes and gateways might increase the reliability of fax pass through.

Table 2   DPA 7630/7610 Open Caveats (continued)

Bug ID	Summary	Explanation
CSCdx91198	The menus on the DPA 7630/7610 are very slow to respond while the DPA is unable to connect to Cisco CallManager. When the connection to Cisco CallManager is resumed, the menus respond normally.	This might happen when the DPA 7630/7610 is unable to connect any of its ports to Cisco CallManager for any reason. The DPA responds more slowly if there is more than one Cisco CallManager in the cluster, or if more ports are trying to register. This happens because the DPA 7630/7610 attempts to register all of its ports with Cisco CallManager. This requires a lot of processing time and leaves less time to process the user interface. The DPA 7630/7610 should not be completely unusable while in this state if configuration changes are necessary. However, it might take a few seconds to respond to keystrokes.The DPA 7630/7610 recovers when all the ports are connected to the Cisco CallManager.
CSCdx91591	DPA 7630/7610 cannot register ports if DNS is down at time of startup.	If the DPA 7630/7610 is started and the ports try to register while the DNS servers are all unavailable or working incorrectly, the DPA 763076/10 might fail to register ports with Cisco CallManager. Ports that fail to register in this way will not be able to register at all until the DPA 7630/7610 is restarted. To resolve this problem, ensure the DNS server is working correctly, and restart the DPA 7630/7610.

Table 2   DPA 7630/7610 Open Caveats (continued)

Bug ID	Summary	Explanation
CSCdx92234	The DPA 7630/7610 takes several minutes to start using previously cached configuration when the "Use cached TFTP responses" option is enabled.	This can happen on any DPA 7630/7610, and will be significantly longer if there is more than one name in the TFTP server list.
		This affects version 1.3(1) and later of the DPA software. This is normal behavior, caused by the DPA 7630/7610 attempting to get its configuration from all the TFTP servers several times before resorting to cached configuration.
		The time can be reduced by removing invalid TFTP servers from the list of TFTP servers received by the DPA 7630/7610.
CSCuk36250	The DPA 7630 shows ports as being in the "off hook" state when they are actually ringing (and expected to be in the "call in" state)	This can happen on a DPA 7630 whenever a call is made to the DPA before it is answered by the Octel system.
		The "off hook" state is reported either when the ports are ringing because someone is calling the DPA or if the ports going off hook (to set an MWI or start an outcall). You can review the debug log to determine if the Octel is really off hook or is ringing.
		No workaround is required. This does not impact the functionality of the DPA 7630.

Known Issues

Table 3 contains information about known issues on the DPA 7630/7610 software. You might encouter some of these issues while using any version of the DPA 7630/7610 software; these are not specific to version 1.3(1). However, in these cases, the software is responding as expected, and an explanation is provided to help you understand the situation.

Table 3   DPA 7630/7610 Known Issues

Bug ID	Summary	Explanation
CSCdr83003	The FTP server does not require a username or a password.	The DPA 7630/7610 does not require user names and ships without a set or enabled password. Once you set a password, however, the DPA 7630/7610 requires that you use it.
		If you are able to access FTP without entering a password, then no password has been set. To set the password, complete the following procedure: From the main menu, select **Configure > Passwords**, select **Login password**, then enter the new password.
CSCdr83478	The console locks up and requires a power cycle to resume functioning.	In rare circumstances, a terminal program connected to the console port of the DPA 7630/7610 might lock up. The DPA 7630/7610 itself continues to function correctly.
		To work around the problem, restart the terminal program.
CSCdr88571	The Message Waiting Indicator (MWI) feature does not travel across an inter-cluster trunk.	MWI commands are not propagated across inter-cluster links. Therefore, the DPA 7630/7610 can set MWIs only for those extensions located in the same Cisco CallManager cluster as the DPA 7630/7610 itself.
CSCdr90825	Sending a file to the DPA 7630/7610 takes considerably longer than receiving the same file from the DPA 7630/7610.	This is expected behavior. It takes longer to write to the Flash-based filing system used by the DPA 7630/7610 than to read from it.
CSCdr93073	Only two simultaneous Telnet sessions are supported by the DPA 7630/7610 at any given time.	This is expected behavior. The DPA 7630/7610 does not accept more than two simultaneous Telnet sessions.

Table 3   DPA 7630/7610 Known Issues (continued)

Bug ID	Summary	Explanation
CSCdr93980	Attempting an unsupervised transfer from an Octel voice mail system to a non-existent or busy Cisco CallManager extension results in the caller being disconnected.	Do not allow extensions that do not have a "forward when busy" number assigned to them to be the target of unsupervised transfers. If this is unavoidable, all extensions should forward on busy to a device that is always be available, such as the DPA 7630/7610.
CSCds08331	Time stamps and delta times in the event log are out of order or expressed as negative numbers.	The DPA 7630/7610 maintains time by periodically synchronizing with a network time source (an NTP server) and by relying on its own internal timer between network updates. Because this internal timer can differ slightly from the NTP server's time source, a gradual divergence between the two clocks can occur, requiring adjustments upon the next synchronization. These adjustments can cause time stamps and delta times in the event log to appear out of order.
CSCds25389	Voice mail hunt groups containing more than 13 extensions can cause voice mail access to fail with an error tone.	By default, Cisco CallManager supports a maximum of 12 forwarding hops, leading to a maximum of 13 extensions in any one hunt group. To work around the problem, do one of the following steps: • Set the "ForwardMaximumHopCount" System Parameter in Cisco CallManager to more than 12. • Divide the DPA 7630/7610 into several hunt groups (possibly all in the same forwarding chain) to improve load balance.
CSCds25783	Transfers using the Octel system connect immediately if the caller presses phone keys while on hold.	Octel-supervised transfers connect immediately if keys are pressed while the call is on hold. This is expected behavior caused by operational differences between Definity and Meridian 1 PBX systems and the Cisco CallManager.

Table 3   DPA 7630/7610 Known Issues (continued)

Bug ID	Summary	Explanation
CSCds34595	When set to perform supervised transfers, an Octel 250 voice mail system sometimes inaccurately reports that an extension is busy.	The Octel system sometimes identifies as busy an extension that is actually unavailable. This occurs when the Octel system is set to perform supervised transfers to an extension, and when that extension is configured to forward all calls to voice mail. Under these circumstances, the Octel system cannot correctly identify why a call is forwarded to voice mail.
CSCds38975	Using the Cisco IP Phone 7960 in speakerphone mode at a high volume and in conjunction with the DPA 7630/7610 can cause some dual tone multi-frequency (DTMF) digits to be sent twice.	Some DTMF digits are sent both in-band (caused by acoustic coupling between the speaker and the microphone) and out-of-band. As a result, the Octel Voice Mail System receives the digit twice. To work around this problem, ensure that the Cisco IP Phone operates with a firmware version of P003D301 or later.
CSCds39732	MWIs (message waiting indicators) fail to turn off and the Octel 250 Voice Mail System disables its MWI ports.	For MWIs to function properly, the Message Waiting Timeout feature in menu 6.2 of the Octel system must be set to the "positive acknowledgement" setting. The "negative acknowledgement" setting directs the Octel system to interpret the lack of a confirmation tone as an error indication. The DPA 7630/7610 requires that the "positive acknowledgement" option be used. To work around this problem, set the Octel system's Message Waiting Timeout feature in menu 6.2 to "positive acknowledgement."

Table 3   DPA 7630/7610 Known Issues (continued)

Bug ID	Summary	Explanation
CSCds40475	Transfers from a Cisco IP Phone to a PBX phone via the DPA 7630/7610 are routed directly to voice mail.	The DPA 7630/7610 functions properly in a hybrid configuration only if the Cisco CallManager has a route plan that allows the Octel Voice Mail System to make calls to a PBX system via the Cisco CallManager. For example: - PBX directory numbers are 5XXX - Cisco CallManager route plan is 8.XXXXX In this case, you must create a route plan for the Cisco CallManager that accepts the PBX pattern of 5XXX and allows the DPA 7630/7610 to route the calls over the digital link.
CSCds59539	You cannot manually add a static route to the DPA 7630/7610.	The DPA 7630/7610 can receive Internet Control Message Protocol (ICMP) redirects from the gateway and update its routing tables accordingly.
CSCds73942	When resetting a DPA port from Cisco Call Manager, the port status screen on the DPA 7630/7610 does not always show the port being reset.	The port status screen is refreshed periodically. Sometimes, the port completes the reset cycle and comes back up in between the screen refresh.
CSCds76719	If the event log levels on the DPA 7630/7610 are set to "trace" for all ports, then functionality is impaired.	You should only enable trace if instructed to do so by a Cisco technical representative.
CSCds91358	On an Octel 250/350, the DPA 7630/7610 may cause the "loopback test" from the port test menu to fail, giving as the reason "NO AV A RESP."	This does not indicate an error with the Octel system. Regular port testing should be disabled on ports connected to a DPA 7630/7610 to avoid generating errors on the Octel.

Table 3   DPA 7630/7610 Known Issues (continued)

Bug ID	Summary	Explanation
CSCdt04499	Calls going through the DPA 7630/7610 immediately after a port has registered with Cisco CallManager might not be answered by the Octel system.	This is caused by Octel ports not being completely ready to accept incoming calls until some time after they are initialized. To work around this, do not make calls through the DPA 7630/7610 until all the ports on the DPA 7630/7610 have been initialized.
CSCdt12455	The Octel 200 appears to take a while to initialize its ports when connected to the DPA 7610.	The ports appear as initialized on the DPA port status screen, but using the "pstat" command on the Octel 200, the ports appear to be in "err" state. Calls made through the DPA 7610 while it is initializing might be unanswered by the voice mail system. To avoid this problem, allow more time for all the Octel ports to initialize before making calls through the DPA 7610.
CSCdt15035	The PBX ports on the DPA 7630/7610 appear disabled, but they are enabled in the Meridian 1 PBX.	The DPA 7630/7610 requires all ports connected to the Meridian 1 PBX to have key 6 configured as a MSB key. If they do not have this, the DPA 7630/7610 cannot determine that the PBX ports are active. Therefore, the ports appear to be disabled, and MWIs will not work on PBX phones. The DPA 7630/7610 requires the all of the following keys on ports connected to the PBX: • 06 MSB (Make Set Busy) • 13 MIK (Message Indication Key) • 14 MCK (Message Cancel Key)
CSCdt44142	The DPA 7630/7610 needs to be restarted after a change to the Ethernet speed or duplex setting.	This is as designed.

Table 3   DPA 7630/7610 Known Issues (continued)

Bug ID	Summary	Explanation
CSCdt45372	The DPA 7630/7610 might exhibit problems if the Ethernet interface is set to auto-negotiation and the switch is set to fixed speed or duplex, or vice-versa.	This is not a supported configuration. The DPA 7630/7610 requires that both connections are either configured to auto-negotiaton or set to the same combination of speed and duplex.
CSCdt49576	Reprogramming the boot loader while the DPA 7630/7610 is busy causes other activity on the DPA 7630/7610 to be suspended or stopped.	You should only update the boot loader when the DPA 7630/7610 is otherwise idle. ⚠️ **Caution** Only upgrade the boot loader if you are instructed to do so by a Cisco technical representative. If you encounter difficulties during this upgrade, such as a loss of power, the DPA 7630/7610 might not be able to start up.
CSCdt95805	7-digit extensions do not get integration with Octel 200 and the DPA 7630	Using mailboxes and extensions of 7 digits or more might cause the Octel system to fail to recognize the mailbox and thus be unable to integrate correctly. Extensions of 7 digits or more are not supported by the DPA 7630. If an installation requires extensions of this length, then you should consider alternative methods of integration.

Table 3   DPA 7630/7610 Known Issues (continued)

Bug ID	Summary	Explanation
CSCdu07314	Some ports on the DPA 7630 are off-hook after restart.	When connected to an Octel 200 system, some ports on the DPA 7630 might appear to be in the "off hook" state while the DPA 7630 is starting up. Ports also might not answer calls. The Octel 200 reports these ports to be in "NDT" state (via the pstat command).
		This behavior stops shortly after the DPA 7630 has started up and all the ports register successfully with Cisco CallManager. This occurs because the Octel system performs a self test on the ports as they become available. The Octel 200 goes off hook and checks for dial tone.
		However, this test might fail while the ports are registering with the Cisco CallManager. The Octel will then retry the test after two minutes, by which time the ports will have stabilized and the test will pass.
		Calls through the DPA 7630 should not be made until all the Octel 200's ports that are connected to the DPA have successfully come up, and are in "IDL" state (as reported by pstat).
CSCdu14733	During restart, a warning stating that the Cisco CallManager connection has gone down appears for some of the ports on the DPA 7630/7610.	This can be caused by several factors during the startup process. However, once all the ports have come up, the warnings should not re-occur.
		You can safely ignore these warnings during the startup process.

Table 3   DPA 7630/7610 Known Issues (continued)

Bug ID	Summary	Explanation
CSCuk23263	Pauses in Octel's MWI set/clear dial string can cause MWIs to fail on the DPA 7630.	Pauses in the Octel's message waiting indicator activation and deactivation dialing sequences can cause the DPA 7630 to fail to recognize MWI commands.
		This is caused by a timeout in the DPA 7630 while it waits for all of the digits in the MWI sequence to be sent. A long delay in the dialing sequence causes the DPA7630 to assume the command had been completed before the Octel dials the rest of the command, and the MWI command would be missed by the DPA 7630.
		In versions prior to 1.2(1), you can resolve this by removing any pauses from the dialing sequence specified in the configuration of the Octel.
		In version 1.2(1) and later, the DPA 7630 uses any pauses in the "Definity MWI ON pre-extension dial string" and "Definity MWI OFF pre-extension dial string" menu options from the **Configure > Octel/Definity integration** menu.
CSCuk23485	Resetting one of the DPA ports from Cisco CallManager causes the DPA 7630/7610 to give a warning that the port has lost its connection to Cisco CallManager.	This is expected behavior. Resetting a port causes the DPA 7630/7610 to immediately drop any calls on that port. The warning indicates a possible cause of terminated or lost voice mail calls.

Obtaining Documentation

These sections explain how to obtain documentation from Cisco Systems.

World Wide Web

You can access the most current Cisco documentation on the World Wide Web at this URL:

http://www.cisco.com

Translated documentation is available at this URL:

http://www.cisco.com/public/countries_languages.shtml

Documentation CD-ROM

Cisco documentation and additional literature are available in a Cisco Documentation CD-ROM package, which is shipped with your product. The Documentation CD-ROM is updated monthly and may be more current than printed documentation. The CD-ROM package is available as a single unit or through an annual subscription.

Ordering Documentation

You can order Cisco documentation in these ways:

- Registered Cisco.com users (Cisco direct customers) can order Cisco product documentation from the Networking Products MarketPlace:

  http://www.cisco.com/cgi-bin/order/order_root.pl

- Registered Cisco.com users can order the Documentation CD-ROM through the online Subscription Store:

  http://www.cisco.com/go/subscription

- Nonregistered Cisco.com users can order documentation through a local account representative by calling Cisco Systems Corporate Headquarters (California, U.S.A.) at 408 526-7208 or, elsewhere in North America, by calling 800 553-NETS (6387).

Documentation Feedback

You can submit comments electronically on Cisco.com. In the Cisco Documentation home page, click the **Fax** or **Email** option in the "Leave Feedback" section at the bottom of the page.

You can e-mail your comments to bug-doc@cisco.com.

You can submit your comments by mail by using the response card behind the front cover of your document or by writing to the following address:

Cisco Systems
Attn: Document Resource Connection
170 West Tasman Drive
San Jose, CA 95134-9883

We appreciate your comments.

Obtaining Technical Assistance

Cisco provides Cisco.com as a starting point for all technical assistance. Customers and partners can obtain online documentation, troubleshooting tips, and sample configurations from online tools by using the Cisco Technical Assistance Center (TAC) Web Site. Cisco.com registered users have complete access to the technical support resources on the Cisco TAC Web Site.

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- Streamline business processes and improve productivity
- Resolve technical issues with online support
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- Register for online skill assessment, training, and certification programs

If you want to obtain customized information and service, you can self-register on Cisco.com. To access Cisco.com, go to this URL:

http://www.cisco.com

Technical Assistance Center

The Cisco Technical Assistance Center (TAC) is available to all customers who need technical assistance with a Cisco product, technology, or solution. Two levels of support are available: the Cisco TAC Web Site and the Cisco TAC Escalation Center.

Cisco TAC inquiries are categorized according to the urgency of the issue:

- Priority level 4 (P4)—You need information or assistance concerning Cisco product capabilities, product installation, or basic product configuration.

- Priority level 3 (P3)—Your network performance is degraded. Network functionality is noticeably impaired, but most business operations continue.

- Priority level 2 (P2)—Your production network is severely degraded, affecting significant aspects of business operations. No workaround is available.

- Priority level 1 (P1)—Your production network is down, and a critical impact to business operations will occur if service is not restored quickly. No workaround is available.

The Cisco TAC resource that you choose is based on the priority of the problem and the conditions of service contracts, when applicable.

Cisco TAC Web Site

You can use the Cisco TAC Web Site to resolve P3 and P4 issues yourself, saving both cost and time. The site provides around-the-clock access to online tools, knowledge bases, and software. To access the Cisco TAC Web Site, go to this URL:

http://www.cisco.com/tac

All customers, partners, and resellers who have a valid Cisco service contract have complete access to the technical support resources on the Cisco TAC Web Site. The Cisco TAC Web Site requires a Cisco.com login ID and password. If you have a valid service contract but do not have a login ID or password, go to this URL to register:

http://www.cisco.com/register/

If you are a Cisco.com registered user, and you cannot resolve your technical issues by using the Cisco TAC Web Site, you can open a case online by using the TAC Case Open tool at this URL:

http://www.cisco.com/tac/caseopen

If you have Internet access, we recommend that you open P3 and P4 cases through the Cisco TAC Web Site.

Cisco TAC Escalation Center

The Cisco TAC Escalation Center addresses priority level 1 or priority level 2 issues. These classifications are assigned when severe network degradation significantly impacts business operations. When you contact the TAC Escalation Center with a P1 or P2 problem, a Cisco TAC engineer automatically opens a case.

To obtain a directory of toll-free Cisco TAC telephone numbers for your country, go to this URL:

http://www.cisco.com/warp/public/687/Directory/DirTAC.shtml

Before calling, please check with your network operations center to determine the level of Cisco support services to which your company is entitled: for example, SMARTnet, SMARTnet Onsite, or Network Supported Accounts (NSA). When you call the center, please have available your service agreement number and your product serial number.