Release Notes for Cisco Service Control Application Suite for Broadband (SCAS BB) 2.0.5

Dec 9, 2004

Cisco Release Service Control Management Suite for Broadband (SCAS BB) 2.0.5

Supports: SCAS BB 2.0.5, SCAS BB 2.0.4, SCAS BB 2.0.3, SCAS BB 2.0.2, SCAS BB 2.0.1

OL-7014-01

These release notes for the Cisco SCAS BB describe the enhancements provided in Cisco Release 2.0.5. These release notes are updated as needed.

For a list of the software caveats that apply to Cisco Release SCAS BB 2.0.5 see Caveats – SCAS BB Release 2.0.5

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Contents

Introduction

Cisco is proud to release version 2.0.5 of its SCAS BB solution. Release 2.0.5 of the SCAS BB solution represents a significant improvement over the current release of Cisco's Service Control products for wireline service providers.

This document outlines the new features and enhancements to the SCAS BB solution, states known problems and last minute notifications. For additional information, please refer to the main product documentation.

This document is updated for maintenance release 2.0.5

New and Changed Information

New Functionality in Release 2.0.5

This section explains the following new Features and Protocols for Maintenance release 2.0.5:

- Support for P2P applications

  – **Error! Reference source not found.**

  – **Error! Reference source not found.**

The maximum number of subscribers allowed in SCAS BB Release 2.0.5 is 40,000. The maximum number of flows is 350,000.

SCAS BB 2.0.5 should be used with the following components:

- SCOS   1.5.10

- SCMS-SM   1.5.10

- Data Collector   2.1.0 (2.0.1 is also supported)

Support for P2P applications

This version adds support for new peer to peer applications' signatures as below:

- Update of L7-pattern for Winny version 2.724

- Support for the new share P2P protocol (assigned PROTOCOL_ID is 27)

Both Winny & Share are common protocols in Japan and it is recommended that all SCAS BB customers in this market upgrade to this release

New Functionality in Release 2.0.4

Release 2.0.4 includes a number of improvements and resolved caveats. For more information see Resolved Caveats - Release *2.0.4*.

The maximum number of subscribers allowed in SCAS BB Release 2.0.3, using SCE 1010, is 40,000. The maximum number of flows is 350,000.

Release 2.0.4 was updated to be used with SCOS 1.5.10.

New Functionality in Release 2.0.3

Release 2.0.3 includes the following new feature:

- Support for Skype v0.96

SCAS BB Release 2.0.3, using SCE 1010, allows a maximum of 40,000 subscribers. The maximum number of flows is 350,000.

SCAS BB 2.0.3 is to be used with SCOS 1.5.9

Support for Skype v0.96

Release 2.0.3 was updated to support Skype 0.96 to classify traffic of the application.

The maximum number of subscribers allowed in SCAS BB Release 2.0.3, using SCE 1010, is 40,000. The maximum number of flows is 350,000.

SCAS BB 2.0.3 is to be used with SCOS 1.5.9.

New Functionality in Release 2.0.2

Release 2.0.2 includes the following new feature:

- Enhanced support for Skype

The maximum number of subscribers allowed in SCAS BB Release 2.0.2, using SCE 1010, is 40,000. The maximum number of flows is 350,000.

SCAS BB 2.0.2 is to be used with SCOS 1.5.8

Enhanced support for Skype

Skype protocol was supported in SCAS BB 2.0.1. Some cases of misclassifications were fixed in this enhanced support release.

New Functionality in Release 2.0.1

Maintenance release 2.0.1 resolves some issues identified in the field as well as address additional protocols.

Release 2.01 includes the following new features,

- "Native" support for the BitTorrent P2P protocol added
- "Native" support for Skype added
- Data Collector Topper Aggregator functions fully supported.

SCAS BB 2.0.1 removes the instrumentation features limiting the total subscriber count in the previous release.

The maximum number of subscribers allowed in SCAS BB Release 2.0.1, using SCE 1010, is 40,000. The maximum number of flows is 350,000.

SCAS BB 2.0.1 is to be used with SCOS 1.5.7

"Native" support for the BitTorrent P2P protocol added

"Native" support for Skype added

Support for both protocols existed in the 2.0.0 release through the dynamic P2P mechanism. Version 2.0.1 provides native support in the sense that both protocols are named in the user-interface, and can be assigned to any Service as required.

Data Collector Topper Aggregator functions fully supported.

As a result, please note the following:

- The default destination for NUR RDR changed from DB Adapter. To the Topper/Aggregator adapter (see the User Guide for details on the Topper/Aggregator operation).

  If you need to change this configuration, the DC's *queue.conf* file can be edited to change the adapter destination of RDR types.

- A configuration step has been added in this release as a necessary part of the installation process of the DC. After selecting your application in the DC (using the *select-app*), you need to configure it for the SE(s) time zone information.

  To configure the time zone:

Step 1. Run the command *~pcube/pump/bin/select-se-tz.sh --offset=N* where N is the difference in minutes between the location of the SE(s) and GMT. (N may be negative).

This configuration step allows the Reporter tool to display date/time information corrected for the SE's time zone

- **Warning**: The default configuration of the DC in this release allows 128MB of memory for the Topper/Aggregator adapter. This number is appropriate for installation with low (up to about 10000) number of subscribers.

When installing in sites where the number of subscribers is larger, edit the file *pump.conf,* and change the value of *highmem_flag* to allow more memory to the adapter.

Typically, a site with 30,000 subscribers will require about 256MB, and a site with 100,000 subscribers will require about 1000MB. If in doubt, set the value to 1000MB.

New Functionality in Release 2.0

New features of the SCAS BB 2.0 release are described in detail in the document titled: "SCAS BB 2.0 New Features & Capabilities" revision 1.6 dated from 10-July, 2003. The content of that document is not reiterated here and can be obtained by contacting Cisco support. The following are changes to the releases content *in addition to* this document:

- Added support for Monalito (P2P Protocol):
- Added support for Bittorrent (P2P Protocol)
- Release supports 32 bandwidth-controllers per subscriber.

The maximum number of subscribers allowed in SCAS BB Release 2.0 is 38,000. The maximum number of flows is 350,000.

Note	The 2.0 release has been restricted to 38,000 subscribers for its initial deployment cycle. 40,000 will be supported in the maintenance release 2.0.1.

Added support for Monalito (P2P Protocol):

Support for a new P2P protocol was added: "Monalito".

Added support for Bittorrent (P2P Protocol)

Bittorrent support was added. Note that Bittorrent has been added as a dynamic signature protocol. This means that the API / User-Interface do not have an entry for this protocol, rather it is classified as part of the "Dynamic P2P" protocol.

Release supports 32 bandwidth-controllers per subscriber.

Up to 32 different bandwidth controllers can be created in each package and assigned to an individual subscriber.

Caveats

Caveats – SCAS BB Release 2.0.5

Traffic Analysis & Control Issues

This section explains the following caveats applying to SCAS BB 2.0.5's traffic analysis and control issues.

- Winny classification

- Resolution limitation on quota breach detection

- BW reports might contain spikes after periods of DoS attacks in the network

Winny classification

Number n/a

Due to the nature of the Winny protocol, in rare cases certain flows generated by the application may not be classified as Winny (but as GENERIC_TCP). This should be noted when performing lab tests of Winny classification, as certain flows may not respond to the administered Winny policy. However, as the percentage of these flows is low, when performing control of Winny on a large-scale SCAS BB 2.1.6 will successfully manage Winny traffic as a whole

Workaround: When performing lab testing, it should be noted that certain Winny transactions might be classified incorrectly.

Resolution limitation on quota breach detection

10470

The SCAS BB application performs per-session enforcement on fixed time intervals. This means that quota breach detection and the corresponding policy enforcement take place with this predefined accuracy (default is 30 seconds).

Workaround: This is the normal system behavior and provided here for clarification. When defining quota breach rules, expect up to 30 seconds (or the configured duration set in the ongoing-policy-check option) in which a subscriber may have exceeded his quota but the new enforcement does not take place.

BW reports might contain spikes after periods of DoS attacks in the network

10822

At periods during which a Denial-of-Service attack has been detected by the SE device, the bandwidth reports might show a "spike" in the Generic TCP traffic (that is, a significant increase in traffic) at the time when the attack subsided.

Workaround: When viewing bandwidth reports, keep in mind that spikes in TCP traffic could be a result of a denial-of-service attack.

Application Management, Configuration and User Interface

This section explains the following caveats found in SCAS BB 2.0.5's application management, configuration and user interface;

- Transactions not properly mapped to a service
- List selection is cleared when changing the protocol selection
- Connections to an SE platform consumes resources on the SE Device.
- Persistent storage of Service Configuration on the SE Platform might sometimes fail
- Excel removes commas, used to denote empty values at the end of a row, in a CSV files
- SCAS BB Console hangs during apply when SE is under high subscriber-login load

Transactions not properly mapped to a service

8391

Transactions might not be properly mapped to a service defined by the Generic TCP/UDP Protocol + IP address List, if a more specific service, defined by a Port-based Protocol + Initiating-side + the same IP address list, exists.

Consider the following scenario:

Service Configuration contains these 3 services:

(1) "Subscriber-Initiated Local Gaming" - Subscriber-initiated transactions using some port-based protocol to a "local servers" IP address list.

(2) "Both-Ways Local Generic TCP" - Generic TCP transactions to/from the same "local servers" IP address list.

(3) "Generic TCP" default service.

Network-initiated transactions that should have been classified as "Both-Ways Local Generic TCP" (2) will be classified as "Generic TCP" (3).

List selection is cleared when changing the protocol selection

10609

When defining a Service's transaction-mapping in the SCAS BB Console, the usual order of configuration is to first select a protocol, (optionally), then select an initiating side and finally (also optionally) select lists. When changing the protocol selection after lists have been selected, the lists selection is cleared.

Workaround: When changing the protocol of a transaction-mapping that has lists, re-configure the lists for this transaction mapping.

When using the SCAS BB API, make sure to properly close SE connections that are no longer needed and try to minimize number of concurrently open ones.

Connections to an SE platform consumes resources on the SE Device

10580

SCAS BB API can be used to automate Service Configuration tasks, such as opening a connection to an SE platform and applying a Service Configuration files. As each connection consumes resources on the SE device, it is necessary to properly close the connections opened during the process. Additionally, whenever possible, try to reuse a single connection instead of opening multiple ones

Workaround: When programming with SCAS BB API, refrain from creating multiple simultaneous connections to the same SE. Try to reuse an existing connection that you have already created. Always make sure to properly close the connection by calling the logout method.

Persistent storage of Service Configuration on the SE Platform might sometimes fail

10609

At rare circumstances, the persistent storage of Service Configuration on the SE Platform might fail, though the new configuration is applied. This means that after SE reboot, the configuration will be reset to its previous state. When this happens, the SCAS BB Console displays an error message in its message pane, prompting the user to apply the configuration again.

Workaround: If the SCAS BB Console displays an error message:

"ERROR: Persistent storage of the Service Configuration on the SE has failed", reapply the service configuration.

Excel removes commas, used to denote empty values at the end of a row, in a CSV files

10658

SCAS BB CSV files are made of rows of comma-separated values. When the values in the end of a row are empty, they are denoted with consecutive commas. Excel removes these consecutive commas at the end of a CSV row. This invalidates the file's format and the file content cannot be imported back to SCAS BB.

Workaround: Add the missing commas using a text editor, being sure that each row contains the same number of commas.

SCAS BB Console hangs during apply when SE is under high subscriber-login load

11214

When applying a service configuration through the SCAS BB Console to an SE that is experiencing a heavy load of subscriber-login events (above 25 events per second on a single SE), the SCAS BB Console may not respond.

Workaround: Try to apply when the login rate is lower.

SCAS BB Subscriber Management

This section explains caveats found in SCAS BB 2.0.5's Subscriber Management:

- SCAS BB 2.0 Subscriber CSV format is incompatible with the old smartNET 1.4.x format

SCAS BB 2.0 Subscriber CSV format is incompatible with the old smartNET 1.4.x format

10307

The following table displays the differences between the current CSV format and the old smartNET 1.4x format:

Table 1 Differences between the old and new CSV format

New SCAS BB 2.0 Subscriber CSV format:	Old smartNET 1.4.x Subscriber CSV format
No column headers in first row	First CSV row contained column headers
Column order of SM static subscribers CSV files: name, domain, mappings, packageId Column order of SE static subscribers CSV files: name, mappings, packageId	Column order was: name, description, domain, packageId, mapping-type, mapping

Workaround: Using a text editor or spreadsheet (such as Microsoft Excel), convert old smartNET 1.4.x Subscriber CSV files by performing the following steps:

Step 1. Remove the 'description' and 'mapping-type' columns.

Step 2. Switch between the 'mappings' and 'packageId' columns.

Step 3. If the file is intended to be used on the SE, remove the 'domain' column.

Step 4. Remove the first row with the column headers

Installation

This section explains the following caveat found in SCAS BB 2.0.5's Installation;

- "The RPC server is unavailable" error appears while installing SCAS BB clients

"The RPC server is unavailable" error appears while installing SCAS BB clients

10637

When launching the SCAS BB clients setup on a Windows PC, the following error message might appear: "The InstallShield Engine (iKernel.exe) could not launched - The RPC server is unavailable".

Workaround: In Windows, Click 'Start', click 'Run', type "net start rpcss" in the 'Open' box, and then click 'OK'. Test to see if this resolves the issue. If the issue still occurs, restart your PC and launch the setup again.

Data-Collection and Reporting

This section explains the following caveat found in SCAS BB 2.0.5's Data Collection and Reporting;

- Sybase installation always puts data on the 2nd disksybback.sh script needs a full path as argument

- Warning message in the output of the ./dbperiodic.py --load

- The script dc-install.sh does not check if the DC is running before startin.

- DC/Sybase: When 2 NIC are present, Sybase always listens on the primary one

- DC/Reporter: The Reporter doesn't enforce max number of open connections

- US English locale must be used

- Posix format for time zone not recommended

Sybase installation always puts data on the 2nd disk

9118

The Sybase installation script, installsyb.sh will always use the 2nd disk as a data repository, regardless of how many disks are available or where the system root is mounted.

Workaround: Before using this script to install Sybase, make sure that the second disk (usually c0t1) is not currently used in the system.

sybback.sh script needs a full path as argument

8810

When using the `-f` option of `sybback.sh` to specify a path where the backup is to be created, and the path is relative, the script might fail.

Workaround: When using this flag, specify the path in absolute form, for example use -f /tmp/somedir and not somedir.

Warning message in the output of the ./dbperiodic.py --load

9959

The following warning massage might appear when running the script `./dbperiodic.py --load:`

`warning - could not read existing crontab. proceeding anyway...`

Workaround: Nothing, this message is harmless.

The script dc-install.sh does not check if the DC is running before startin.

9978

When upgrading the Data Collector (installing over an existing one), if there is a DC running already, the script will not detect it and fail to complete the installation

Workaround: Before upgrading the DC, stop it by using the command: `~/pump/bin/pump stop`
.

DC/Sybase: When 2 NIC are present, Sybase always listens on the primary one

10789

When Sybase comes up it starts listening on one network interface (in addition to localhost). The interface chosen is the one associated with the current host name (as returned by the `hostname` command).

In other words, the default behavior is for Sybase to listen on the primary interface (called *eri0* on a Netra, and physically labeled as "*Net 0*" on the back of the machine). Therefore, connections from the Reporter must come via this interface.

Workaround: If you want to change this (not recommended), and have Sybase listen on another interface, you should change the local hostname to the name associated with the other interface.This name is usually found in the file */etc/hostname.eri1*. You will need to put this name in the */etc/nodename* file to make it the host name, and then reboot. To find out which interface Sybase is currently listening on, run the command:

```
netstat -a | grep 4100.*LISTEN
```

The output will consist of 2 lines, one for localhost and one for the host associated with the sought interface.

DC/Reporter: The Reporter doesn't enforce max number of open connections

10791

There is no enforcement in the Reporter on the maximum number of active connections (i.e. open report windows) the user can create. Therefore the following very rare scenario can occur:

If the number of possible connections is almost reached (while opening a lot of concurrent reports in the Reporter) and if the DC DB adapter happens to be restarting at this time, it may get connection refusals from the DB because there are not enough available connections.

Workaround: If there is an indication in the DC log about failures to connect to the database, and you have a Reporter open with many active windows, close the reporter and restart the DC. (Note, if the sudo package is installed on the DC, the DB Adapter will do this automatically by restarting the database).

US English locale must be used

Number n/a

For correct DC and Sybase operation, English locale must be used.

Workaround: The easiest way to set the locale is by putting the line

```
LANG=en_US
```

in the /etc/TIMEZONE configuration file (changes in this file need a reboot to take effect). Also, Solaris needs to have this locale installed. You can verify this by checking that the directory */usr/lib/locale/en_US* exists. If it does not, install the locale from the Solaris CD's.

Posix format for time zone not recommended

Number n/a

Setting the OS time zone as offset from GMT in POSIX format is not recommended and may lead to problems in future versions.

Workaround: It is best to set the time zone in the `/etc/TIMEZONE` configuration file by (supported) country name, for example:

`TZ=Japan`

You can verify that the country name is supported as a time zone setting by checking that it is listed in the directory `/usr/share/lib/zoneinfo`.

In case GMT offset must be used, please use the "zoneinfo" format by prepending a `:Etc/` prefix, for example:

`TZ=:Etc/GMT+5`

Reporter Tool

This section explains the following caveats found in SCAS BB 2.0.5's Reporter Tool:

Saved report templates may be unusable after Policy change

10735

When trying to generate a report from a saved query, after applying a new policy to the SE with new services, the report could fail with a database error.

Workaround: Modify the saved queries to ensure the service names used are those currently available

Duplicate names in Top Service Ports report

Number n/a

When generating the "Top Service Ports" report, only the port-number and the default associated protocol is displayed in the chart-view. This causes port numbers used by multiple protocols (such as port 80 used for HTTP & KazaA) to show the same legend in the chart (80(http) in this case).

Workaround: Switch from chart view to table view so the service name can be seen in addition to the name associated with the port.

A table always prints to default printer

5049

When printing a table, it is always printed on the default printer.

Workaround: From the menu choose Open: Start->Settings->Control Panel->Printers, Right-click on the printer icon you wish to print the table to and select "Set as Default Printer" in the popup menu.

"Help" button in the "Reports wizard" isn't functional

5282

Description: The Report Creation Wizard "Help" button does not work.

There are no known workarounds.

The 'Find' function in the Reporter table view isn't functional

8111

The documented 'Find' operation on a table view does not work.

There are no known workarounds.

Opening reporter with no templates:- no indication

9092

When the Reporter runs without templates installed, there is no indication of this, except for the Report generation wizard appearing with an empty templates box.

Workaround: Make sure you properly install the SCAS BB templates after installing the reporter. One way to verify the templates are installed is to use Window's "Add/Remove Programs" and looking for "Cisco SCAS BB templates"

A "reporter DB error" might pop up, when refreshing a report window

8015

In extremely rare circumstances, refreshing a report window will cause an error message to pop up.

Workaround: Close the wizard and then re-open it.

Printing a preview of a table (not a chart) makes the table invisible in the report

8106

When creating preview of a table from a chosen report, and then minimizing the print preview, the table itself becomes invisible in the report window where it was created.

Workaround: Maximize the "preview" window or activate the "print preview" again. Close the "preview" window by hitting the 'close' button. The table will become visible again.

A report cannot be closed while it is produced

8128

While the reporter queries the database in order to create the requested report, the report window cannot be closed, thus the creation of the report cannot be interrupted.

Workaround: If you must interrupt the query, close the Reporter application using the windows Task Manager, and then restart it.

Clicking "Report" button while a query is running might abort that query

8131

In extremely rare circumstances, when generating a report and in the meantime clicking the "Report" button to generate another report, an error pops up and the first report is not displayed.

There are no known workarounds.

Table values in the Reporter cannot be copied to the clipboard.

3116

When viewing a report in a table format, you cannot copy the table content to the clipboard as a whole.

Workaround: Export the contents of the table to a file, open this file in a text editor or a spreadsheet application, and copy the content from there. If you need to copy the contents of one cell, use CTRL-Insert.

Reporter sometime has in the SE IP line the word "SCAS BB"

10137

In some rare circumstances when starting the Reporter, the "SE IP" dialog box will contain the word "SCAS BB".

Workaround: Before logging in make sure the SE IP box contains an actual list of IP's by pressing the "…" button.

Cannot use single quote in subscriber names etc in the reporter

10287

The Reporter cannot use a single quote in queries involving arbitrary strings (for example, subscriber names). If such a string is used, an SQL error occurs.

Workaround: Do not use a single quote character in subscriber names, package names, etc.

Documentation Errors

This section explains the following caveats found in SCAS BB 2.0.5's Documentation:

The info string in blocking RDRs on SMTP / POP3 / NNTP is empty

10515, 10516, 10517

Description: The info string for SMTP, NNTP & POP3 is incorrectly documented to contain value in the layer-7 fields for the BLOCKING_RDR. This is not the case and the fields are reported empty (because blocking occurs prior to the information being sent).
It is important to note that transaction RDRs, on which many reports are based, convey the corresponding info strings correctly.

Limits exist on the number of list items and number of protocol ports in a Service Configuration

8358

Documentation does not accurately define list items maximum size:

Max number of list items: 10,000 items on an SCE 1010.

Max number of protocol ports: 5000 ports.

When applying a service configuration, which exceeds these limits, an error message is displayed.

Incorrect Licensing Documentation

n/a

The SCAS BB User Manual incorrectly documents a license for "capacity-control" and one for "tiered-control". This is incorrect: only the "tiered-control" license exists.

Resolved Caveats

Resolved Caveats - Release *2.0.5*

All the caveats in this section are resolved in SCAS BB Release 2.0.4

- 12868, 12899

  In rare occasions SMTP & RTSP traffic was mistakenly blocked by the solution.

- 12708

  Service Specific Post Breach was not activated when the total traffic rule was breached.

Resolved Caveats - Release *2.0.4*

The following caveats are resolved in SCAS BB Release 2.0.4:

- Number n/a

  Bug that caused HTTP redirection to not work with old HTTP clients/servers (HTTP version 1.0

- Number n/a

  Bug in SCAS BB Console resulted in incorrect service configuration when a Service was defined for generic TCP and a destination list

Resolved Caveats - Release *2.0.2*

All caveats in this section are resolved in SCAS BB Release 2.0.2

- Number n/a

  Skype signature updated to reflect application changes for version 0.95beta of the application

- 10974

  Negative metrics in Subscriber Usage RDR (NUR) and Real-time Subscriber Usage RDR (SUR)

- 10975

  Consecutive PQI upgrades leave files on SE file system

- 11034

  Wrong configuration of Transaction RDR relative weights

Resolved Caveats - Release *2.0.1*

All caveats in this section are resolved in SCAS BB Release 2.0.1

- 10838

  Subscriber counters wraparound: Fixed bug causing wrap-around in SUBSCRIBER RDRs caused when defining a Cisco subscriber as an aggregation of multiple users, and working with a long aggregation period (for example, monthly).

- 10815

  Fix bug resulting in inability to define a per-flow downstream rate limit without defining one for the upstream.

- 10857

  Fixed bug resulting in wrong values in SUBSCRIBER RDR when a subscriber logged-in and logged-out of network without generating a single network flow (as in lab/demo setups).

- 10830

  SCAS BB Console bug, which allows the user to remove a Global-Control that was in use by some subscriber BWC, causing apply operation to fail.

- 10492

  Bug in SCAS BB Console which treated a quota limit of 0 volume/sessions as an unlimited quota, instead of an illegal value.

Obtaining Technical Assistance

For all customers, partners, resellers, and distributors who hold valid Cisco service contracts, Cisco Technical Support provides 24-hour-a-day, award-winning technical assistance. The Cisco Technical Support Website on Cisco.com features extensive online support resources. In addition, Cisco Technical Assistance Center (TAC) engineers provide telephone support. If you do not hold a valid Cisco service contract, contact your reseller.

Cisco Technical Support Website

The Cisco Technical Support Website provides online documents and tools for troubleshooting and resolving technical issues with Cisco products and technologies. The website is available 24 hours a day, 365 days a year at this URL:

http://www.cisco.com/techsupport

Access to all tools on the Cisco Technical Support Website requires a Cisco.com user ID and password. If you have a valid service contract but do not have a user ID or password, you can register at this URL:

http://tools.cisco.com/RPF/register/register.do

Submitting a Service Request

Using the online TAC Service Request Tool is the fastest way to open S3 and S4 service requests. (S3 and S4 service requests are those in which your network is minimally impaired or for which you require product information.) After you describe your situation, the TAC Service Request Tool automatically provides recommended solutions. If your issue is not resolved using the recommended resources, your service request will be assigned to a Cisco TAC engineer. The TAC Service Request Tool is located at this URL:

http://www.cisco.com/techsupport/servicerequest

For S1 or S2 service requests or if you do not have Internet access, contact the Cisco TAC by telephone. (S1 or S2 service requests are those in which your production network is down or severely degraded.) Cisco TAC engineers are assigned immediately to S1 and S2 service requests to help keep your business operations running smoothly.

To open a service request by telephone, use one of the following numbers:

Asia-Pacific: +61 2 8446 7411 (Australia: 1 800 805 227)
EMEA: +32 2 704 55 55
USA: 1 800 553 2447

For a complete list of Cisco TAC contacts, go to this URL:

http://www.cisco.com/techsupport/contacts

Definitions of Service Request Severity

To ensure that all service requests are reported in a standard format, Cisco has established severity definitions.

Severity 1 (S1)—Your network is "down," or there is a critical impact to your business operations. You and Cisco will commit all necessary resources around the clock to resolve the situation.

Severity 2 (S2)—Operation of an existing network is severely degraded, or significant aspects of your business operation are negatively affected by inadequate performance of Cisco products. You and Cisco will commit full-time resources during normal business hours to resolve the situation.

Severity 3 (S3)—Operational performance of your network is impaired, but most business operations remain functional. You and Cisco will commit resources during normal business hours to restore service to satisfactory levels.

Severity 4 (S4)—You require information or assistance with Cisco product capabilities, installation, or configuration. There is little or no effect on your business operations.

Obtaining Additional Publications and Information

Information about Cisco products, technologies, and network solutions is available from various online and printed sources.

- Cisco Marketplace provides a variety of Cisco books, reference guides, and logo merchandise. Visit Cisco Marketplace, the company store, at this URL:

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

- The Cisco Product Catalog describes the networking products offered by Cisco Systems, as well as ordering and customer support services. Access the Cisco Product Catalog at this URL:

  http://cisco.com/univercd/cc/td/doc/pcat/

- Cisco Press publishes a wide range of general networking, training and certification titles. Both new and experienced users will benefit from these publications. For current Cisco Press titles and other information, go to Cisco Press at this URL:

  http://www.ciscopress.com

- Packet magazine is the Cisco Systems technical user magazine for maximizing Internet and networking investments. Each quarter, Packet delivers coverage of the latest industry trends, technology breakthroughs, and Cisco products and solutions, as well as network deployment and troubleshooting tips, configuration examples, customer case studies, certification and training information, and links to scores of in-depth online resources. You can access Packet magazine at this URL:

  http://www.cisco.com/packet

- iQ Magazine is the quarterly publication from Cisco Systems designed to help growing companies learn how they can use technology to increase revenue, streamline their business, and expand services. The publication identifies the challenges facing these companies and the technologies to help solve them, using real-world case studies and business strategies to help readers make sound technology investment decisions. You can access iQ Magazine at this URL:

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

- Internet Protocol Journal is a quarterly journal published by Cisco Systems for engineering professionals involved in designing, developing, and operating public and private internets and intranets. You can access the Internet Protocol Journal at this URL:

  http://www.cisco.com/ipj

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