Cisco VCO/4K ITU Integrated SS7 ISUP, V5.1(3), Release Notes

June 2000

These release notes describe new features and caveats in ITU Integrated SS7 ISUP system software release 5.1(3) for use with the Cisco VCO/4K switch and ITU Integrated SS7 system software. Use these release notes in conjunction with the *ITU Integrated SS7, V5.1, System Supplement*.

Contents

These release notes contain the following sections:

CISCO SYSTEMS

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System Requirements

This section provides a list of system requirements for running ITU Integrated SS7 system software. These requirements are categorized by hardware, firmware, and software. Contact Cisco Systems TAC (Technical Assistance Center) for any site-specific information.

Hardware Requirements

In addition to the Integrated SS7 system software, ITU Version 5.1(3) requires the following hardware:

- One of the following systems:
  - VCO/80
  - VCO/20 with an SS7 VME shelf
  - VCO/4K with an SS7 VME shelf
- A SPARC CPU5V card
- 32 MB RAM (2K Mode) or 64 MB RAM (**4K Mode and/or Multi-SP Mode**) available on the system

Firmware Requirements

There are no special firmware requirements for ITU V5.1(3). However, the firmware in the VCO must have the appropriate revision level required by the system software. For information, refer to the *Cisco VCO/4K System Software Version 5.x Release Notes*.

Software Requirements

ITU Version 5.1(3) requires the following software:

- VCO/4K System Software V5.x or higher
- Solaris Release V2.6
- AccessManager V3.5.4

New Integrated SS7 systems have Solaris V2.6 and AccessManager V3.5.4 installed at the factory.

New and Changed Information

New Features in ITU Integrated SS7 ISUP V5.1(3)

There are no new features for Cisco ITU Integrated SS7 system software in release V5.1(3).

Standards Supported by ITU Integrated SS7 ISUP V5.1(3)

This release supports the ITU standards listed in Table 1.

Table 1   ITU Standards Supported by V5.1(3)

SS7 Layer	Standard
MTP-2	Q.701-Q.703, 1992
MTP-3	Q.704-Q.707, 1992
ISUP	Q.761-Q.764, 1992

Note   *The country variants of Integrated SS7 ISUP, V5.1(3), may not support all specifications for the standards listed in Table 1. In some cases, additional messages are required. The differences for each supported country are described in* Appendix F *of the* ITU Integrated SS7, V5.1, System Supplement.

Installation Notes

Default ISUP Office Information Changed

The default value of the CRGOFF bit in the ISUP office information has changed. This may affect your current configuration files when you upgrade. Formerly, the bit default was 0 (OFF). Now, the bit default is 1 (ON). Please add the **MODIFY-ISUPOFFINFO** line to your ISUP configuration files if you need this value set to off.

Redundancy Configuration Changes for Upgrades

In redundant systems running ITU Version 5.1(2) and higher, you must make new modifications to your **AccessRd.cfg** file as follows:

Step 1 Log in as **root** to the Integrated SS7 system side A, **<hostname>a**.

Step 2 Enter the following command and press **Return**:

chmod 644 $EBSHOME/access/config/AccessRd.cfg

Step 3 Use the vi editor to open the file **$EBSHOME/access/config/AccessRd.cfg.**

   a. Check the following lines. The lines should read:

      MONITOR_OPTION   OFF

      CTS_CONFIGURATION   INVERTED

      HOST-A <Integrated SS7 system side A hostname>

      (i.e., HOST-A tsup6ss7a)

   b. If the lines do not match, modify them accordingly.

   c. Save the changes and close the file.

Step 4 Log on as **root** to the Integrated SS7 system side B, **<hostname>b**, and repeat Step 2 through Step 3.

   a. This time the lines in Step 3 should read:

      MONITOR_OPTION   OFF

      CTS_CONFIGURATION   INVERTED

      HOST-B <Integrated SS7 system side B hostname>

      (i.e., HOST-B tsup6ss7b)

Step 5 Check to make sure the SS7 Integrated Software version matches that on side A. Enter the following commands and press **Return** after each:

%cd $XNV

%version cktint

Step 6 To bring the Integrated SS7 system into operation, go to *Section 5* of the *ITU Integrated SS7, V5.1, System Supplement* and start the SS7 stack and Circuit Interworking software.

Limitations and Restrictions

Known Design Constraints

The following are design constraints which have been identified in ITU Integrated SS7 system software. Cisco Systems currently has no plans to address the following known design constraints.

CSCsf63489 (U611070001): CktInt Loses Info. When No Host Connected

CktInt does not maintain a socket connection dedicated to the VCO. If no host is connected, circuit state change information from the system is lost.

CSCsf73966 (U705050007): No Switchover When SS7 Is Stopped On Active Side

The system does not switch over automatically when one of the following conditions occur:

- If the Active CktInt and EBS stacks are stopped
- If CktInt hangs or dies
- If any EBS stack process dies and the MONITOR_OPTION is OFF (needs to be off to fix the problem where the Ethernet cable is detached and the system will flip flop sides).

Workaround

Set the All Host Link Failure Action, on the SDS System Host Configuration Screen, to Conditional Switchover. When the Conditional Switching option is selected, a major alarm is generated if all host links fail and a system switchover is initiated if the Standby controller is on-line (file sync. completed) and has active host links.

CSCsf74160 (U707160004): Associated Ports Are Lost After Switchover

CktInt associates ports as specified in the SS7 $49 Command and the association is maintained until call tear down. If the controlling port is a VCO port, and the associated port is an SS7 port, the two ports are associated until one or the other is released by the host. When one of the ports is released, CktInt automatically releases the other.

However, if the system switches over while the call is stable, CktInt, on what is now the Active side, has no knowledge of port association established prior to switchover. This is because the CktInt on side A does not communicate with CktInt on side B and vice versa. If the host attempts to release the call by its port association, the release will fail.

If the system switches over a second time, and the call is still stable, the CktInt module that established the port association is now on the Active side, and host can release the call by its port association.

Workaround

Do not use the port association option in host applications.

Important Notes

This section describes the special considerations you should be aware of while using ITU Integrated SS7, V5.1(3). This section provides explanations for the following areas:

- Commands and reports
- Debug flags
- EBS configuration
- Host considerations
- Redundancy
- System configuration

Commands and Reports

CktInt Requires $DA And $DB Reports

Do not suppress the $DA and $DB Reports in your SS7 application. These reports are required by CktInt for non-SS7 to SS7 calls and SS7 to non-SS7 calls because of the disconnect control byte. Cktint must see an on-hook.

Debug Flags

Turning on the debug flags may negatively impact performance.

> ✎
> **Note** Make sure all debug flags are turned off for production systems.

EBS Configuration

Routing Alarm Messages to the Console

To route alarm messages to the system console, complete the following steps:

Step 1 Start the MML utility by entering the following command and pressing **Return**:

    mml 0

Step 2 At the system prompt, enter the following command and press **Return**:

    MODIFY-ALARM-CONFIG:DISPLAY=ON;

Step 3 Exit the MML utility by entering the following command and pressing **Return**:

    EXIT:;

Configuration for a Combined Linkset with Two A-Links

In order for link inhibit/uninhibit to work properly in a combined linkset with two A-links, you must set up alternate routes in the **mtp mml** file, as shown in lines 6 and 7 below.

```
MODIFY-SP:NAME=HOME,SPC=3-8-3,NI=NATIONAL,TYPE=SEP;
ADD-LSET:LSET=LSET1,DPC=1-1-1,ACTIVE=1,LOADED=1,TYPE=ALINK,BR=56000;
ADD-LSET:LSET=LSET2,DPC=1-1-2,ACTIVE=1,LOADED=1,TYPE=ALINK,BR=56000;
ADD-LINK:LINK= LINK-0,LSET=LSET1,SLC=0,PORT=1,TYPE=DTE,PRIORITY=0;
ADD-LINK:LINK=LINK-0,LSET=LSET2,SLC=0,PORT=2,TYPE=DTE,PRIORITY=0;
ADD-ROUTE:RTSET=LSET1STP,LSET=LSET2,PRIORITY=1;
ADD-ROUTE:RTSET=LSET2STP,LSET=LSET1,PRIORITY=1;
ADD-CMBLSET:CMBLSET=CLSET12,LSET1=LSET1,LSET2=LSET2;
ADD-RTSET:RTSET=RSET12,DPC=2-2-2,ROUTE1=CLSET12;
MODIFY-LSET:LSET=LSET1,ADMINSTATE=ACTIVE;
MODIFY-LSET:LSET=LSET2,ADMINSTATE=ACTIVE;
EXIT:;
```

Host Considerations

Multiple Hosts Affect Call Handling

Additional TCP connections affect VCO call handling capacity. Optimal performance can be achieved with four or fewer simultaneously active TCP connections.

Redundancy

Host Connected to Both Sides

A host must be connected to both the active and standby sides of the SS7 system for reliable redundancy operation.

No Switchover When Ethernet Fails

If Ethernet fails, the system does not switch over.

Workaround

Add a routine to your host application that can detect when the Integrated SS7 system is unreachable and initiates a switchover.

ASCII Terminals On Redundant Systems

If you turn the Integrated SS7 console off, or power to the terminal is lost, the SPARC5V CPU may abort and return to the boot prompt.

It is possible to connect a single ASCII terminal to both side A and side B via an electronic A/B selector switch. However, the selector must be capable of providing surgeless, spikeless change-overs. If the selector switch does not have this feature, the SPARC5V CPU may abort and return to the boot prompt when a change-over occurs.

Calls During Switchover

Only stable (answered) calls are preserved by the system during a redundancy switchover.

Loss of Network or SS7 Selector Switch Links

The loss of network links does not cause a switchover. Also, the loss of SS7 selector switch links does not cause a switchover. If you are going to perform maintenance on any of the links, you must first switch the system over to the standby side.

SDS and VCO/80 Do Not Boot Without SPARC CPU Installed

An SDS or VCO/80 system configured for SS7 does not boot if one of the SPARC CPUs is removed from the Control Subrack. The NBC does not download, the NBC's LEDs stay illuminated, and the SDS/VCO system freezes.

Time Between Consecutive Switchovers

Depending on the number of SS7 circuits in your configuration, the SS7 system needs 10 to 30 seconds between two consecutive switchovers to avoid a mismatch in redundancy states of the VCO, cktint, and EBS.

System Configuration

GRPID and TRNKGRPID Numbering Per DPC

For each distant end DPC, if your Circuit Group IDs (GRPIDs) are numbered consecutively (i.e. 1, 2, 3, 4...), Cisco Systems recommends you also number your Trunk Group IDs (TRNKGRPIDs) consecutively (i.e. 50, 51, 52, 53...).

Choosing No Name Service

During system configuration, if you set the Name Service screen to "NONE" and press the **F2** key to continue, the sys-config program will generate an error message and gets into a loop.

Workaround

When running the system sys-config, the system expects any name service to be defined. When you set the Name Service screen option to "NONE," the system still tries to look for any service type and gets into a loop. To run with no name service, you need to create two empty files, as described below, and then rerun the sys-config program from the beginning.

Step 1 From the Name Server screen, mark the "NONE" field and press **F2** to continue.

Step 2 An error message containing a path and file name will be generated. Write down the path and file name.

Step 3 If using a UNIX/Solaris terminal, press **Stop** and then **a**. This will get the "OK" prompt.

If using a WYSE terminal, press **Cntrl** and then **Pause/Break** or **F5**. Pressing **Alt** and then **Pause/Break** or **F5** may also work. This will get the "OK" prompt.

Step 4 At the "OK" prompt, enter the following command and press **Return**:

    boot -s

This will bring up the system in single user mode. The following message appears:

    press cntrl-D or enter root password

Step 5 At the password prompt, enter the following root password and press **Return**:

    abc123

Step 6 Change the directory (**cd**) to **/etc** and create the files **nsswitch.conf** and **nsswitch.files**, or the file names you wrote down in Step 2 if they differ.

Basically, you are creating any files that the system was complaining about in the original error message.

To create the files with vi editor, enter the following command(s) and press **Return**:

    vi /etc/nsswitch.conf

    vi /etc/nsswitch.files

Step 7 Press the **Esc** key. Then, type **:wq** and press **Return**.

Step 8 Verify that the files now exist under directory **/etc**.

Step 9 Change the directory (**cd**) to **/usr/sbin**.

Step 10 Type **sys-unconfig** and press **Return** to un-configure the system and revert to a blank system.

Step 11 Type **reboot** and press **Return** to bring the system back in configuration mode (sys-config).

Step 12 Continue with the regular sys-config procedure. This time, when you set the Name Service option to "NONE," the system will allow you to configure the rest of the fields without any problem.

Caveats

This section contains open and resolved software caveats for this release of the ITU Integrated SS7 V5.1(3) system software. Caveats describe unexpected behavior or defects in the ITU Integrated SS7 system software or related hardware.

Complete the following steps to access detailed information on resolved and open caveats:

Step 1   Open an Internet browser application.

Step 2   Go to http://www.cisco.com

Step 3   Click on the site menu's Login hypertext.

The Username and Password Required dialog box is displayed.

Step 4   Enter your username and password.

> ✎
> **Note**   If you do not have a valid username and password contact your Cisco Systems representative or send e-mail to *cco-team*.

Step 5   Click the OK button.

A Cisco Systems Web page is displayed.

Step 6   Click on the Technical Assistance Center hypertext, which is located beneath the Service & Support section.

Step 7   Click on the Tools hypertext.

Step 8   Click on the Software Bug Toolkit hypertext.

Step 9   Click on Search for Bug by ID Number hypertext.

The Search for Bug by ID Number tool is displayed.

Step 10   Use the Search for Bug by ID Number search tool to find detailed information on caveats for the VCO/4K-related product.

Open Caveats - ITU Integrated SS7 ISUP V 5.1(3)

Cisco Systems, Inc. has identified and evaluated functional constraints in ITU Integrated SS7 V5.1(3) system software. **This section provides explanations and, where applicable, workarounds for** possible unexpected behavior by V5.1(3) system software.

CSCsf74269 (U708200008): Warmboot With Autostart Takes 20 Minutes

If autostart is configured and the system is warm booted, it will take at least 20 minutes for the SS7 software to start. This will ensure that the VCO is entirely operational before the SS7 software is started.

> ✎
> **Note**   Do not change this timer value unless you are instructed to do so by Cisco Systems Technical Support.

Workaround

You may disable the autostart feature. If disabled, the SS7 software must be manually started. To disable autostart, complete the following steps:

Step 1   Log in to the Integrated SS7 system as **root**.

Step 2   Enter the following command and press **Return**:

rm /etc/rc3.d/S85ss7

Step 3   Reboot the Sparc and autostart will be inactive.

CSCsf84706 (U803110006): Synchronization Failure

If EBS and cktint are brought down and back up on the standby side, sometimes the "tli" process does not sync up with the tli process on the active side and the following messages are repeatedly displayed:

srv_connect:: An event requires attention

Enabling connect timer ....

This impacts the redundancy operation of the system.

Workaround

Bring down the tli processes on both sides. Then, bring both tli processes back up.

To bring down the tli processes:

Step 1   Log in as **root** to the Standby side of the Integrated SS7 system.

Step 2   Type **px** and press **Return** to verify which active processes are running.

Step 3   Find the tli process I.D. number.

Step 4   Enter the following command and press **Return**:

kill -9 **<process I.D. #>**

Step 5   Log in as **root** to the Active side of the Integrated SS7 system, then repeat Step 1 through Step 4.

To bring both tli processes back up:

Step 1   Log in as **root** to the Active side of the Integrated SS7 system.

Step 2   Enter the following command and press **Return**:

tli &

Step 3   Log in as **root** to the Standby side of the Integrated SS7 system, then repeat Step 1 through Step 2.

Resolved Caveats - ITU Integrated SS7 ISUP V 5.1(3)

Table 2 list the caveats issued against the ITU Integrated SS7 system software that have been resolved in system software version 5.1(3).

Table 2   Resolved Caveats for Release 5.1(3)

DDTs Issue	Description
CSCdp38491	Cktint switches over when the country variant is set to Australia.
CSCdp54358	The AccessAlarm no longer cores when the stack is brought down.
CSCdp62668	When the Remote Operations (0x32) parameter was included in an outgoing message, the parameter was not processed properly by cktint. This caused an Invalid Parameter Type error. This issue has been fixed.
CSCdp68205	In an outgoing call, if a Call Progress (CPG) message is received from the network after receiving an Address Complete message (ACM), cktint now sends an $EA report to the host for the CPG message.
CSCdp82027	When an offhook $70 command gets rejected by the VCO with an NSB of 0x0F (Invalid Controlling Host), cktint generates a Release (REL) message to the network with "temporary failure" as the cause code. After this situation occurred, if the host generated an outgoing REL message on such a port with any cause value on subsequent calls, CktInt changed the value to "temporary failure" before sending them on to the network. Now, cktint leaves the appropriate cause value.
CSCdp83720	When the Original Called Number (0x28) parameter was included in an outgoing IAM message, cktint did not send the parameter properly to the network. This issue has been fixed.
CSCdr07239	The $C005 command from the host in extended mode was rejected by cktint with NSB 0E. This issue has been fixed.
CSCdr12786	When the host sent a $49 command to release a call with the switching bit set in byte offset 27 (extended mode), cktint cored while processing the command. The command is now properly processed.
CSCdr47312	When a $49 command with optional parameters for an ISUP message but without EOP was received from a host application, EBS did not automatically add this parameter when the message was sent to the network. This issue has been fixed.
CSCdr47526	When the Network Indicator was set to National Reserved in the mtp. mml file, and if the network sent an ISUP message on an undefined CIC, the stack did not send a UCIC message back to the network. This issue has been fixed.
CSCdr47536	If the Network Indicator was set to National Reserved in the mtp.mml file, and if a TFP message with spare bits set was received from the network, EBS did not handle the message properly. EBS now handles these messages properly.
CSCsf84912	A Generic Number (0xC0) parameter in the incoming Initial Address Message (IAM) message was not processed properly by cktint. This issue has been fixed.

Troubleshooting

Checksums

Table 3 lists valid software checksums and file sizes for the ITU V5.1(3) software.

Table 3   Cktint Version: ITU ISUP Version 5.1 FSR03

Filename	Checksum /usr/bin/sum	Size ls -l
cktint.cpio.Z	42334 5018	2569032
install_cktint.sh	14016 12	5655

Note   To get the version of cktint, run the following command in **$XNV**:
    % version cktint

Table 4 lists valid software checksums and file sizes for the AccessManager Version 3.5.4_16 software running on Solaris V2.6.

Table 4   EBS Version: 3.5.4_16

Filename	Checksum /usr/bin/sum	Size ls -l
ebs.cpio.Z	10237 14474	7410241
install_ebs.sh	15890 7	3523

Note   To get the version of EBS, run the following command in **$EBSHOME/access**:
    % more version.dat

Related Documentation

The following documents contain information that may be useful to ITU Integrated SS7 system software V5.1(3) users.

- *ITU Integrated SS7, V5.1, System Supplement*
- *Cisco VCO/4K System Software Version 5.x Release Notes*
- *Cisco VCO/4K Standard Programming Reference*
- *Cisco VCO/4K Extended Programming Reference*

Cisco Connection Online

Cisco Connection Online (CCO) is Cisco Systems' primary, real-time support channel. Maintenance customers and partners can self-register on CCO to obtain additional information and services.

Available 24 hours a day, 7 days a week, CCO provides a wealth of standard and value-added services to Cisco's customers and business partners. CCO services include product information, product documentation, software updates, release notes, technical tips, the Bug Navigator, configuration notes, brochures, descriptions of service offerings, and download access to public and authorized files.

CCO serves a wide variety of users through two interfaces that are updated and enhanced simultaneously: a character-based version and a multimedia version that resides on the World Wide Web (WWW). The character-based CCO supports Zmodem, Kermit, Xmodem, FTP, and Internet e-mail, and it is excellent for quick access to information over lower bandwidths. The WWW version of CCO provides richly formatted documents with photographs, figures, graphics, and video, as well as hyperlinks to related information.

You can access CCO in the following ways:

- WWW: http://www.cisco.com
- WWW: http://www-europe.cisco.com
- WWW: http://www-china.cisco.com
- Telnet: cco.cisco.com
- Modem: From North America, 408 526-8070; from Europe, 33 1 64 46 40 82. Use the following terminal settings: VT100 emulation; databits: 8; parity: none; stop bits: 1; and connection rates up to 28.8 kbps.

For a copy of CCO's Frequently Asked Questions (FAQ), contact cco-help@cisco.com. For additional information, contact cco-team@cisco.com.

Note   If you are a network administrator and need personal technical assistance with a Cisco product that is under warranty or covered by a maintenance contract, contact Cisco's Technical Assistance Center (TAC) at 800 553-2447, 408 526-7209, or tac@cisco.com. To obtain general information about Cisco Systems, Cisco products, or upgrades, contact 800 553-6387, 408 526-7208, or cs-rep@cisco.com.

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This document is to be used in conjunction with the documents listed in the "Related Documentation" section.

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