NewNet Distributed7™
Release Notes

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PERFORMANCE SPECIFICATIONS

NewNet Communication Technologies, LLC reserves all the rights to change the equipment performance specifications stated herein at any time without notice. For OEM components, NewNet Communication Technologies, LLC relies on the specifications supplied by the OEM vendors.

General

Distributed7 (D7) is an open-architecture, real-time, scalable, reliable, and high-performance telecommunications application-development platform from NewNet Communication Technologies, LLC that provides a rapid development and deployment environment for telecommunications service providers. D7 delivers value-added application components on open-architecture computer platforms, and integrates industry-standard boards into computers with standard backplanes.

The D7 platform is a collection of telecommunications software building blocks configuring SS7 (i.e., MTP, SCCP, TCAP, ISUP, GSM MAP, GSM-A, and IS-41D). The building blocks are implemented on industry-standard, open-architecture platforms and the Unix operating system. The platform frequently takes advantage of Unix streams to provide modularity, performance, and a truly layered software architecture.

Using a fast packet switch software backplane implemented in Unix streams, D7 software provides Inter-process Communications (IPC) and extended timer facilities essential for telecommunications applications. D7 services are available to applications through dynamic binding and a series of Applications Programming Interface (API) library calls. Consistent with its object-oriented architecture and rapid, simple application development philosophy, D7 supports protocol-related communications and IPC on the same application interface. D7 provides a distributed solution in which links can be load-shared across multiple platforms for increased performance and reliability.

Distributed7 (D7) 1.9.7 has been tested on the following hardware platforms:

Make	Model	Processor	OS	Bus	Board PCI-X	Board PCIe
Sun	Netra T2xx series	UltraSPARC T2	Solaris 10	PCI-X PCIe	HDC3-PCI	HDCII-LPe HDC3-LPe
	Fire Vxxx series			PCI-X		
	Netra T5xx series			PCI-X PCIe		
	Netra 20	UltraSPARC III		PCI		
	Netra X4150	Intel Xeon	Solaris 10 CentOS 5.2 CentOS 6.3 Redhat 6.3	PCIe		
	Netra X4250			PCI-X PCIe		
HP	Proliant DL380 G7	Intel Xeon	Solaris 10 CentOS 6.3 Redhat 6.3	PCI-X PCIe		
	Proliant ML110 G6					
In case your server type is not listed above, please contact NewNet CT support.						

D7 1.9.7 development environment:

Operating System	Architecture	Mode	Development Environment
Solaris	Sparc	32-bit	SC5.8, SC5.9, GC3.1, GC3.3, GC3.4
		64-bit	SC5.9
		SC5.8: Sun Sparc Visual Workshop 11 SC5.9: Sun Sparc Visual Workshop 12 GC3.1: Gnu Sparc C/C++ Compiler 3.4.2 GC3.3: Gnu Sparc C/C++ Compiler 3.3.2 GC3.4: Gnu Sparc C/C++ Compiler 3.1	
	x86	32-bit	SC5.8, SC5.9, GC3.3
		64-bit	SC5.9
		SC5.8: Sun x86 Visual Workshop 11 SC5.9: Sun x86 Visual Workshop 12 GC3.1: Gnu x86 C/C++ Compiler 3.3.2	
Linux RedHat 5	x86	32-bit/64-bit	(GCC) 4.1.2 20071124 (Red Hat 4.1.2-42)
Linux RedHat 6	x86	32-bit/64-bit	(GCC) 4.4.6 20120305 (Red Hat 4.4.6-4)

***Important**: Since all critical internal data--including Heartbeat, synchronization, and SS7/Sigtran messages--are exchanged between the hosts of a distributed cluster in Distributed7 via dedicated dual Ethernet links, it is imperative that **identical** interface boards, drivers, and speed be used for these Ethernet connections. Ethernet connections/drivers of different types and/or speeds may cause problems, as all the internal messages through those Ethernet links are sent, for high-availability reasons, in parallel, and must be processed at the peer(s) without delay.*

***Note**: Distributed7 supports Solaris10 in both 32-bit mode and 64-bit mode on x86 architecture and 64-bit mode only on Sparc architecture.*

Distributed7 1.9.7 is guaranteed on:

- On Sparc systems, Solaris 10 with kernel patch level 127127-11
- On X86 systems, Solaris 10 with kernel patch level 127128-11/139556-08
- Red Hat Enterprise Linux AS release 6.3 kernel 2.6.32-279.el6.x86_64

Consult TAC for updated patch levels for all operating systems.

D7 1.9.7 supports the following signaling link hardware:

Supported Signaling Link Hardware

Ordering Part Number	Board Type	RoHS	PCI-X
HAX35PCGEN	PCI334A	No	Yes
HAX35PCGEN-R	PCI334A	Yes	Yes
HAX36PCGEN	PCI334A	No	Yes
HAX36PCGEN-R	PCI334A	Yes	Yes
HAX50PCGEN	ARTIC2000	No	Yes
HAX50PCGEN-R	ARTIC2000	Yes	Yes
HAX71PCGEN	PMC8260	No	Yes
HAX71PCGEN-R	PMC8260	Yes	Yes
HAX80PCGEN	PMC4539	No	Yes
HAX80PCGEN-R	PMC4539	Yes	Yes
HAX90PCGEN-Rxx	HDCII-LPe	Yes	No
HAX91PCGEN-Rxx	HDC3-LPe	Yes	No
HAX95PCGEN-Rxx	HDC3-PCIe	Yes	Yes

***Note**: In this release ADAX HDC ss7 cards are not supported yet. Only Sigtran network connectivity is supported*

The following table contains PCI board specifications:

PCI Boards and Dimensions

NewNet Part Number	Board Type	PCI Voltage	PCI Compliance	Bus Length and Speed	Dimensions/Notes
HAX35PCGEN HAX35PCGEN-R	pci334a	3.3/5V	2.2	32 bit, 33/66 MHz	Length: 15.5 cm (6.1") Width: 10.5 cm (4.1") (short-slot compliant) Standard height / Short length sync card
HAX36PCGEN HAX36PCGEN-R	pci334a	3.3/5V	2.2	32 bit, 33/66 MHz	Length: 15.5 cm (6.1") Width: 10.5 cm (4.1") (short-slot compliant) Standard height / Short length sync card
HAX50PCGEN HAX50PCGEN-R	artic2000	3.3V/5V	2.2	32/64 bit, up to 66MHz	Long PCI form factor: Length: 31.2 cm (12.83") Width: 10.668 cm (4.2") Depth: 1.715 cm (.675") Standard height / Long length card
HAX71PCGEN HAX71PCGEN-R	pmc8260	3.3V/5V	2.2	32/64 bit, 33MHz	Length: 174 mm (6.85", 17.4 cm) Width: 107 mm (4.2", 10.7 cm) Standard height / Short length card
HAX80PCGEN HAX80PCGEN-R	pmc4539	3.3V/5V	2.1	32 bit, 33 MHz	Standard PCI slot 7.85" x 4.2" without the PCI face plate Standard height / Short length card
HAX90PCGEN-Rxx	HDCII-LPe	3.3V	One-lane PCIe card	32/64 bit, 2GHz	6.89 cm x 16.77 cm
HAX91PCGEN-Rxx	HDC3-LPe	3.3V	One-lane PCIe card	32/64 bit, 2GHz	6.89 cm x 16.77 cm
HAX95PCGEN-Rxx	HDC3-PCIe	3.3V	2.3	32/64 bit, 2GHz	11.11 cm x 16.77 cm

***Note**: Obsolete signaling link hardware is not included in the above table.*

The following table lists the minimum requirements for Solaris/x86 D7 cluster hosts:

System Requirements for Solaris/x86

Solaris/x86 D7 Cluster-host Requirements
800 mHZ processor or higher
512 MB RAM or higher
1 GB available disk space
Server chassis capable of providing required PCI-x/PCIe slots meeting signaling hardware plug-in size requirements (see the PCI Boards and Dimensions table above)

General Features

- Distributed SS7 application development in a multi-host environment
- Supports both simplex and distributed configuration

Supported SS7 Standards

- ITU (White Book 1993) MTP, SCCP, ISUP, and TCAP
- ITU (1997) MTP, SCCP, ISUP, and TCAP
- ANSI (1992) MTP, SCCP, ISUP, and TCAP
- ANSI (1996) MTP, SCCP, ISUP, and TCAP
- ANSI Bellcore (1991) MTP, SCCP, ISUP, and TCAP
- ETSI (1997) MTP, SCCP, ISUP, and TCAP

***Note**: The Japanese Standard is not supported. However, J1 (Japanese T1) is supported as a network interface.*

Supported Network Interfaces

V.35, RS422/449, E1, T1, and J1 network interfaces

Supported Multi-host Configuration for High Availability

- Two front end (FE), two-front-end/two-back-end (BE), four FE, and four-FE/four-BE host configuration on MTP, SCCP, ISUP, and TCAP
- Dual LAN capability
- Private and/or public LAN capability
- In-service software upgrade
- Multiple instances of SCCP subsystems on the same or on different hosts
- Multiple instances of gateway process in distributed mode

Supported Capacities

- Up to four (4) High Speed Links (HSL) per HDC3 board
  - Sparc Solaris HDC3-LPe: up to 124 Low Speed Links (LSL) / 4 HSL
  - X86 Solaris HDC3-LPe: up to 124 LSL / 4 HSL
  - Linux HDC3-LPe: up to 124 LSL / 4 HSL
- Up to four (4) HSL per HDCII board
  - Sparc Solaris HDCII-LPe: up to 124 LSL / 4 HSL
  - X86 Solaris HDCII-LPe: up to 124 LSL / 4 HSL
  - Linux HDCII-LPe: up to 124 LSL / 4 HSL
- Up to four (4) High Speed Links (HSL) per PMC4539F board
- Up to eight (8) signaling points
- Up to 511 SS7 links per signaling point
- Up to 64 SS7 links per E1/T1 SS7 controller card
- Up to 2048 route sets per signaling point
- Up to 16 routes per route set
- Up to 255 local SCCP SSNs per signaling point
- Up to 255 SCCP subsystems per remote SCCP node
- Up to 8192 remote SCCP nodes per signaling point
- Up to 262144 simultaneous open TCAP dialogues, per TCAP user, per host
- Up to 16 different TCAP (or raw TCAP) applications per host
- Up to 63 instances of given SCCP subsystem on a given host
- Up to 8192 x 32 = 262144 total ISUP CICs per SP with E1 trunks
- Up to 8192 x 24 = 196608 total ISUP CICs per SP with T1 trunks
- Up to 64K ISUP CICs per destination
- Up to 128 destinations per SP in ISUP

Supported SS7 Stack Configuration

- Hybrid SS7 stack
- Multiple SS7 signaling points running concurrently can be configured to ANSI or ITU on the same hardware
- SS7 variant delivered in a single release with run-time selection of ANSI and ITU stack
- HSL and LSL can be configured on the same HDC3 or HDCII card concurrently

Application Development (API)

- JAIN (Java APIs for the Integrated Network) TCAP Specification, Version 1.1
- JAIN (Java APIs for the Integrated Network) ISUP API (JSR 17 JAIN ISUP Specification Proposed Final Draft dated 30 Nov, 2001)
- Multiple instances of a registered process
- Active/standby mode of registered process
- Enhanced event management that allows subscribing to platform events for asynchronous notification
- MTP/SCCP/ISUP/TCAP APIs

- Full IS41-D API Library (TIA/EIA IS41D, "Cellular Radiotelecommunications Intersystem Operations", Dec. 1997)

***Note**: IS41-D supports IS41C (TIA/EIA IS41C PN2991, Dec 1995) as a subset.*

- Full GSM Mobile Application Part Interface (MAPI) Specifications (GSM 09.02 version 4.5.0, Oct., 1993)
- GSM 09.02 version 7.3.0 (1998)
- GSM A-Interface version 5.3.0 (July, 1996)
- Passive monitoring of SS7 links at application layer

Node Management

- Supports GUI, i.e., AccessMOB, AccessMonitor and AccessStatus, for local and remote host SS7 configuration and status display
- Supports Man Machine Language (MML)
- Supports multiple configuration database

New Features

Enhancements for D7 1.9.0

- D7 performance improvements on CentOS/RedHat 6.3
  - Red Hat Enterprise Linux 6.3, kernel 2.6.32-279.el6.x86_64
  - CentOS release 6.3, kernel 2.6.32-279.el6.x86_64

Enhancements for D7 1.8.1

- Linux operating system support
  - Red Hat Enterprise Linux 6.3, kernel 2.6.32-279.el6.x86_64
  - CentOS release 6.3, kernel 2.6.32-279.el6.x86_64

Enhancements for D7 1.8.0

- Linux operating system support (Simplex only)
  - Red Hat Enterprise Linux 6.3, kernel 2.6.32-279.el6.x86_64
  - CentOS release 6.3, kernel 2.6.32-279.el6.x86_64

Enhancements for D7 1.7.5

- Sending and handling of UDTS and XUDTS messages
- ipv6 support on Linux
- JAIN new feature setopa/setdp

Enhancements for D7 1.7.4

- Red Hat Enterprise Linux AS release 5.5 kernel 2.6.18.194.el5 ADAX card support added.

Enhancements for D7 1.7.2

- Red Hat Enterprise Linux AS release 5.5 kernel 2.6.18.194.el5 (ADAX cards are not supported in the 1.7.2 release for RH5.5)
- Fast configuration with large isup databases. Eliminated the need to add and delete ISUPCCT MO. This MO is automatically created and removed with the ISUPCGRP MO operations.
- DSMD enhancement to handle locking/unlocking and segment synchronization events in parallel.
- ISUP feature support on Linux platforms.

Enhancements for D7 1.7.1

- Configurable reserved pc's : ability to change the reserved point codes of D7
- get_all operation for some MO's in D7 oam library: OAM API enhancement for GET_ALL. Related MO's are : link, linkstat, lset, lsetstat, rtset, route and isuppcct

Enhancements for D7 1.7.0

- IPv6 support
- SG/SGC OAM API

Enhancements for D7 1.6.2

- None. Maintenance release

Enhancements for D7 1.6.1

- None. Maintenance release

Enhancements for D7 1.6.0

- Linux operating system support
  - Red Hat Enterprise Linux AS release 4 (Nahant Update 6) kernel 2.6.9-67.ELsmp
  - CentOS release 5.2 (Final) kernel 2.6.18-92.1.10.el5
- Linux fast stream support (CRSnn17042)

Enhancements for D7 1.5.8

- None. Maintenance release

Enhancements for D7 1.5.7

- M3UA statistics (CRSnn17125)

M3UA statistics are now kept and displayed by the NewNet Sigtran stack. The sigtran statistics should be used under the sgc_adm user.

m3uastats sample output

<117 sgcadm@sunfirev440-1: ~ > m3uastats -d all

ASSOCID	ORIGPID	DESTPID	UPTIME	TXDATA	RXDATA	TXOCTET
0	sunfirev440-1	sunfirev440-1	594	120000	60004	11040000
1	sunfirev440-1	mystic	594	40000	17504	3680000
2	sunfirev440-1	mig	594	20000	10000	1840000
3	sunfirev440-1	engfx	594	20000	10000	1840000
4	sunfirev440-1	capecod	594	40000	22500	3680000

RXOCTET	TXERR	RXERR	TXDAUD	RXDAVA	RXDUNA	RXDUPU
5520128	0	0	0	2	2	0
1610128	0	0	0	2	2	0
920000	0	0	0	0	0	0
920000	0	0	0	0	0	0
2070000	0	0	0	0	0	0

RXDRST
0
0
0
0
0

M3uastats sample output (continued)

<115 sgcadm@sunfirev440-2: ~ > m3uastats -d all

ASSOCID	ORIGPID	DESTPID	UPTIME	TXDATA	RXDATA	TXOCTET
0	sunfirev440-2	sunfirev440-2	593	120000	60004	11040000
1	sunfirev440-2	mystic	593	40000	22504	3680000
2	sunfirev440-2	mig	593	20000	10000	1840000
3	sunfirev440-2	engfx	593	20000	10000	1840000
4	sunfirev440-2	capecod	593	40000	17500	3680000

RXOCTET	TXERR	RXERR	TXDAUD	RXDAVA	RXDUNA	RXDUPU
5520128	0	0	0	2	2	0
2070128	0	0	0	2	2	0
920000	0	0	0	0	0	0
920000	0	0	0	0	0	0
1610000	0	0	0	0	0	0

RXDRST
0
0
0
0
0

Enhancements for D7 1.5.6

- None. Maintenance release

Enhancements for D7 1.5.5

- None. Maintenance release

Enhancements for D7 1.5.4

- None. Maintenance release

Enhancements for D7 1.5.3

- HDC3 board support for Solaris Sparc and Solaris x86 platforms (CRSnn17083). Note that HDCII and HDC3 boards can be run on the same system

Enhancements for D7 1.5.2

- HDCII-LPe driver updates for the HDCII-LPe board
- HDC QCX Configuration Tools

Enhancements for D7 1.5.1

- HDCII-LPe board support for LSL on x86/Sparc platform.
- HDCII-LPe board support for HSL on x86/Sparc platform.

Enhancements for D7 1.5.0

- Support for Solaris 10 for X86 (64-bit kernel only) (CRSnn16181)
- TCAP adopt revovery policy implementation (CRSnn16181)
- Provide 64-bit API libraries (CRSnn16637)

Enhancements for D7 1.4.0

- TCAP abort recovery policy implementation (CRSnn16293)
- Implementation of the Active Monitoring feature to tap into MTP messages (CRSnn16266)
- Database architecture improvements. The history facility has been removed; instructions for using emacs for history functionality have been added (see the History Facility section in the *Distributed7 User Manual* (CRSnn16135)
- Support for forte11 C/C++ compiler set (CRSnn15970)
- Increased the number of TCAP user registrations from 16 to 64 subsystems (CRSnn15718)
- Realtime ISUP tracing support (CRSnn15709)
- Solaris 10 support for D7 device drivers (CRSnn15565)
- Two new 3GPP2 TIA/EIA-41-D based network enhancements for CDMA Packet Data Service (C-PDS) (CRSnn15552)
- High Speed Link support for PMC4539F board (CRSnn15337)
- Increased dialogue ID capacity from 64K to 256K (CRSnn15245)
- Increased link capacity from 256 to 512 (CRSnn15244)
- AccessSNMP command line syntax change supports -h hostname option (CRSnn15180)

Enhancements for D7 1.3.1

- CompactPCI hot-swap support (CRSnn14686)
- CGPA can be sent on GT routing if the address contains a global title—applies to Redknee variant (CRSnn14671)
- Transaction receiver can change OPA for ITU97 (CRSnn14614)
- “Operator ID” optional parameter added to ISUP Spain variant (CRSnn14577)
- Support for large TCAP messages (CRSnn14544)
- Support for AIX 5.1.0 and 5.2.0 operating systems
- Support for 32/64-bit AIX kernel

Enhancements for D7 1.3.0

- The following Change Requests (CRs) are included as enhancements for D7 release 1.3.0:
- Ability to intercept MTPL3 user part messages (CRSnn14428)

Operational/Programming Impacts

The following items summarize information or changes in this release that impact the operation or programming interface of Distributed7. See the referenced CR in the *Resolved CRs* section for additional detail.

Release 1.7.2

- Initial ISUP start-up could take long time if large number of ISUP circuits were configured. This was due to having all circuits being added one by one to the ISUP configuration. This unnecessary implementation has been removed and ISUP circuits are all added automatically once the ISUP circuit group is added. So the ADD-ISUPCCT:; and DELETE-ISUPCCT:; MML commands are removed completely and all the ISUP circuits are added and removed together with the ADD-ISUPCGRP:; and DELETE-ISUPCGRP:; MML operations. MOD-ISUPCCT:; command is still supported as usual in the previous releases.

Release 1.7.1

- None

Release 1.7.0

- none

Release 1.6.2

- none

Release 1.6.1

- none

Release 1.6.0

- none

Release 1.5.8

- none

Release 1.5.7

- none

Release 1.5.6

- none

Release 1.5.5

- none

Release 1.5.4

- none

Release 1.5.3

- A function has been implemented to establish the missing link between the SGP and AS tables during the add-sgcsgp operation (CRSnn17066).

Release 1.5.2

- Support for the addition of third-party tools (CRSnn17071).

Release 1.5.1

- none

Release 1.5.0

- TCAP adopt recovery policy has been made functional with this release. Note, however, that turning on TCAP redundancy negatively impacts the performance of the D7 cluster. The number of transactions processed is proportional to (linear with) CPU usage, and D7's transaction processing power is cut in half when any kind of transaction recovery is deployed (CRSnn16181).
- Support concurrent capability and ss7 route. The managed-object operations for RTSET are changed, see 9.4.4 in the *Distributed7 User Manual* (CRSnn16838). The structure definition of oam_rtset has also changed.
- "ebs_setrelase utility copies the Distributed7 License from the old release to the new release. Due to licensing changes implemented in the 1.5.0 release, the license file copied from earlier releases will not help Distributed7 to start up properly. The following error will be returned:

  "LIC_ERROR: SPM: corrupted license key file"

  So if the D7 version is being upgraded from a pre-1.5.0 release, the license file obtained from TAC for the 1.5.0 release has to be copied to the ***$EBSHOME/access/etc*** directory as license.dat after the ebs_setrelease utility is executed.

Release 1.4.0

- TCAP abort recovery policy—TCAP abort policy has been made functional with the 1.4.0 beta release. When a TCAP user selects this policy, all the transactions owned by that particular transaction will be ABORTed by another TCAP instance when the owner instance fails. Note, however, that turning on TCAP redundancy negatively impacts the performance of the D7 cluster. The number of transactions processed is proportional to (linear with) CPU usage, and D7's transaction processing power is cut in half when any kind of transaction recovery is deployed (CRSnn16293)
- Database architecture improvements. The history facility has been removed; instructions for using emacs for history functionality have been added (see the History Facility section in the *Distributed7 User Manual* (CRSnn16135)
- The return type of three functions (mtp_pc2network, mtp_pc2cluster, mtp_pc2member) has been changed from byte_t to int, and will now return -1 when there is a failure. Also changed is the head file (CRSnn15599)
- AccessSNMP command line syntax change supports -h hostname option (CRSnn15180)

Release 1.3.1.12

- none

Release 1.3.1.11

- none

Release 1.3.1.10

- none

Release 1.3.1.9

- The variant field in the SCCP managed object must be set to “O2” to use that variant (CRSnn15434)
- Status setting of TCAP listener added to JainTcapProviderImpl class as an add-on to JAIN APIs (CRSnn15325)

Release 1.3.1.8

- none

Release 1.3.1.7

- none

Release 1.3.1.6

- Unable to install sbus drivers with D7 1.3.1.5 (CRSnn15171)

Release 1.3.1.5

- Error decoding InsertSubscriberData (CRSnn15121)
- Error decoding Update Location V2 and V3 (CRSnn15117)

Release 1.3.1.4

- none

Release 1.3.1.3

- none

Release 1.3.1.2

- D7 API throws invalid error for UPDATE_GPRS_LOCATION (CRSnn15026)
- D7 API invalid error for SEND_ROUTING_INFO_FOR_GPRS (CRSnn15025)
- D7 GSMMAP API generates invalid error value for PURGE_MS (CRSnn15024)
- MB_PurgeMS_res.H header file updated incorrectly (CRSnn15013)
- Two problems with class BearerServiceCode (CRSnn14925)

Release 1.3.1.1

- GSMMAP class RoutingInfoForSM_Res missing parameter (CRSnn14937)
- Two GSMMAP messages in the D7 API header document missing (CRSnn14914)

Release 1.3.1

- D7 sends incorrect contents in the redirect count parameter (CRSnn14871)
- Cluster MTP_PAUSE and RESUME primitive handling (CRSnn14854)

Release 1.3.1 beta

- Reset response returns invalid message in IDLE state (CRSnn14717)
- Linkage problem with both IS41D and GSMMAP libraries (CRSnn14716)
- PM test program receives message, but does not print it fully (CRSnn14697)
- CompactPCI hot-swap support (CRSnn14686)
- PC-indication suppression and routing change for global title (CRSnn14671)
- Unpack problem with non-BCD MIN (CR14638)
- ISUPD terminates with signal 11 (CRSnn14632)
- Transaction receiver can change OPA for ITU97 (CRSnn14614)
- Exclusiveness violation for network-exclusive regs (14519)
- Add optional parameter, Operator ID, to ISUP Spain variant (14517)

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- TCAP parameter data includes extra two bytes of tag and length (CRSnn14336)
- Support for up to 63 local instances of a TC user (CRSnn14283)
- Multiple secondary GTENTRY support (CRSnn14280)
- Passive Monitoring API (CRSnn14025)
- Multiple configuration database support (CRSnn14220)
- Support for multiple call control instances for a particular isupd instance (CRSnn14384)

Incompatibilities

- none

HDC QCX Configuration Tools

- Associated with the drivers for the HDC boards are configuration tools for testing the status of the installed boards. Stored in the ***$EBSHOME/access/bin*** directory, the three (3) files are:
  - qcx_conf: configuration utility
  - qcx_config.newnet: default configuration file
  - qcxtest: test utility

Configuration Utility

The qcx_confutility is used for diagnostic purposes to query each configured board for alarm and status information. A cursory examination of **qcx_conf** (with user entry in color), yields the following command line options:

```
capecod{root}160: ./qcx_conf
./qcx_conf: no arguments specified. Use -h for help
capecod{root}161: ./qcx_conf -h
HDC ANC-QCX Configuration Program './qcx_conf
-d Enables debug mode
-f <file> Specifies an alternate configuration file
-h Prints this information (no execution)
-E nRead and clear error counts on trunk n
-L nSet local loopback on trunk n
-R nSet remote loopback on trunk n
-l n:YZSend peer loopback command 0xYZ on trunk n
-N nTurn off loopback and alarms on trunk n
-B nSend Blue alarm on trunk n
-G n Send G.704 RAI alarm on trunk n(E1 only)
-Y nSend Yellow alarm on trunk n
-q modeSet QCX trunking to Mode mode
-rConfigures ANC-QCX per specified qcx_conf.X file
-s Shows link status and alarms
-v Shows ANC product version information
-D Dumps all QCX registers, all other flags are ignored.
```

For arguments which require a port number, the universal port identifier 'A' will perform the command on All ports. When **qcx_conf** is invoked with the -s option to return trunk status,

information on all trunks is returned as in the following example (note the use of 'A' associated with the E option to Read and Clear error counts on all trunks):

```
capecod{root}162: ./qcx_conf -s -E A -f
$EBSHOME/access/bin/qcx_conf.newnet
./qcx_conf: Trunk 0 status is LOS
./qcx_conf: Trunk 1 status is LOS
./qcx_conf: Trunk 2 status is SYN
./qcx_conf: Trunk 3 status is SYN
./qcx_conf: Trunk 0 BPV/CRC/SLIPS/FBITS 00000 00000 00000 00000
./qcx_conf: Trunk 1 BPV/CRC/SLIPS/FBITS 00000 00000 00000 00000
./qcx_conf: Trunk 2 BPV/CRC/SLIPS/FBITS 00000 00000 01483 00000
./qcx_conf: Trunk 3 BPV/CRC/SLIPS/FBITS 00000 00000 00000 00000
```

The following strings are returned to indicate alarm conditions for E1 trunks:

Returned String	E1 Alarm Condition
SYN	In synchronization…functioning correctly.
LOS	Loss of signal from trunk.
BLU	Blue alarm - data of all ones is being received.
FRS	Loss of frame synchronization.
RMA	Remote alarm indication.

The following strings are returned to indicate alarm conditions for T1 trunks:

Returned String	E1 Alarm Condition
SYN	In synchronization…functioning correctly.
LOS	Loss of signal from trunk.
BLU	Blue alarm - data of all ones is being received.
FRS	Loss of frame synchronization.
YEL	Pattens of eight zeroes and eight ones received in Facilities Data Link for ESF. For D4. 0 in bit 2 of every DS0 (optional).

Default Configuration File

The QCX Configuration file specifies the board device and trunk associated with each board instance.

This file also controls Trunk Type configuration, with separate E1/T1 configuation options and Master clocking. The NewNet configuration file, **qcx_config.newnet**, contains the following information (note the one uncommented line below indicating a single board, **hdcx 0**):

```
########
#
#       @(#)qcx_conf.0.hdc      1.3 delta 08/05/13
#
```



```
########
#
# See the HDC QCX Hardware User's Guide for details regarding
# configuration settings in this file
#
# the device line specifies the board device and trunk
# for the board to be configured.
#
#     device name    trunk
#     -----------    -----
#     /dev/hdcx         0    (1st HDC/HDCII/HDC3 board)
#     /dev/hdcx         4    (2nd HDC/HDCII/HDC3 board)
#     /dev/hdcx         8    (3rd HDC/HDCII/HDC3 board)
#     /dev/hdcx        12    (4th HDC/HDCII/HDC3 board)
#
device /dev/hdcx 0
#
# trunk configuration:
# syntax: trunk <n> [parameters]
# where <n> is the trunk number and [parameters] can be:
# All trunk types:
# =========
# ACS - Automatic clock switching.
# ICLK - Independent transmit clocking. (firmware v1.11 or later only)
# HIGHIMP - High Impedance Mode. (firmware v1.11 or later only)
# AAF - Automatic Alarm on Failure.
#
# T1 trunks
# =========
# D4 - T1 D4 framing.
# ESF - T1/J1 ESF framing.
# B8ZS - T1/J1 B8ZS line encoding
# AMI - T1/J1 AMI line encoding
# YAN - Yellow alarm notification
#
# E1 trunks
# =========
# CRC4 - E1 CRC4 framing
# NOCRC4 - E1 with no CRC4 checking
# HDB3 - E1 HDB3 line encoding
```



```
# AMI - E1 AMI line encoding
#trunk 0 ACS
#trunk 1 ACS
#trunk 2 ACS
#trunk 3 ACS
# These lines will set options for ports 0B-3B on HDC3 boards
# they are ignored on HDC/HDCII boards
#trunk 0B ACS
#trunk 1B ACS
#trunk 2B ACS
#trunk 3B ACS
# Trunk type:
# syntax: TRUNK_TYPE <T1|E1|J1>
#TRUNK_TYPE E1
# master clocking setup: uncomment to use the on-board clock timing source.
# This overrides any ACS or ICLK settings above.
# MASTER 0
```


Test Utility

Finally, when invoked from the command line, the Test Utility provides a prompt of the same name (qcxtest); entering "help" yields a menu of available testing options. See a screen capture below.

```
       capecod{root}163: ./qcxtest
qcxtest - Version 1.0, (c) Copyright 2005, Adax Inc.
Type "help" to view available commands


qcxtest> help
Available commands:
 alarm       debug       errors      exit        help
loopback    mode        normal      peerloop    put
quit        status      timer       version

Type "help <command>" for specific syntax
qcxtest> errors 0
Trunk error stats 0 [0:0] bpv = 0, crc = 0, slip = 0, align = 0
Trunk error stats 1 [0:1] bpv = 0, crc = 0, slip = 0, align = 0
Trunk error stats 2 [0:2] bpv = 0, crc = 0, slip = 161, align = 0
Trunk error stats 3 [0:3] bpv = 0, crc = 0, slip = 0, align = 0
Trunk error stats 4 [0:4] bpv = 0, crc = 0, slip = 0, align = 0
Trunk error stats 5 [0:5] bpv = 0, crc = 0, slip = 0, align = 0
Trunk error stats 6 [0:6] bpv = 0, crc = 0, slip = 0, align = 0
Trunk error stats 7 [0:7] bpv = 0, crc = 0, slip = 0, align = 0
qcxtest>
qcxtest> status 0
Trunk status 0 [0:0] Loss of signal (E1-HDB3)
Trunk status 1 [0:1] Loss of signal (E1-HDB3)
Trunk status 2 [0:2] Synchronized (E1-HDB3)
Trunk status 3 [0:3] Synchronized (E1-HDB3)
Trunk status 4 [0:4] Loss of signal (E1-HDB3)
Trunk status 5 [0:5] Loss of signal (E1-HDB3)
Trunk status 6 [0:6] Synchronized (E1-HDB3)
Trunk status 7 [0:7] Synchronized (E1-HDB3)
qcxtest>
qcxtest> exit
capecod (root) 164:
```

Note: The HDC configuration tools have been added to support diagnostic testing. A properly configured qcx_config.newnet file, maintained to reflect the characteristics of the system, is imperative for effective use of the underlying test tools

HDC3 Monitor Option

Invoking the -m option on the HDC3 card enables real-time tracing of SS7 messages, a feature lacking on the HDCII card. The HDC3 card also has four physical spans, whereas the HDCII card has only two.

Invoke the hdctest utility to use the monitor option on the HDC3 card. Activation of the monitor option is on a per-link basis, and up to eight links may be monitored at a time. The following example is for monitoring timeslot 1. An additional hdctest session would be needed to monitor another timeslot.

Note: Use the *rtkill* command to end the real-time tracing.

The timeslot bitmasks are as follows:

bitmask - timeslot
0x1 = 2
0x2 = 2
0x4 = 3
0x8 = 4
0x10 = 5
0x20 = 6
0x40 = 7
0x80 = 8

A cursory examination of **hdctest** (with user entry in color), yields the following command line options:

```
capecod{root}258: ./hdctest -p 0 -d hdcx -b 0x1 -m
HDLC/TMA Monitor Port OK.  Bound to bitmask 0x1 successfully.
No data available yet.
type '?' for on-line help and commands
->rthread
Rx: TOD: 23:36:04.987931: REL: +69.666 038 sec: KERN: 4 203.364 902
sec:
Dumping block size 4:
0000:  ff ff 01 00
Tx: TOD: 23:36:04.988309: REL: +69.666 044 sec: KERN: 4 203.364 908
sec:
***** Repeated 767 Times *****
Dumping block size 4:
0000:  ff ff 01 03
Tx: TOD: 23:36:04.988721: REL: +69.666 049 sec: KERN: 4 203.364 913
sec:
Dumping block size 4:
0000:  ff ff 01 00
Rx: TOD: 23:36:04.989098: REL: +69.666 055 sec: KERN: 4 203.364 919
sec:
Dumping block size 4:
0000:  ff ff 01 00
Tx: TOD: 23:36:04.989474: REL: +69.666 061 sec: KERN: 4 203.364 925
sec:
Dumping block size 4:
0000:  ff ff 01 01
Tx: TOD: 23:36:04.989850: REL: +69.666 066 sec: KERN: 4 203.364 930
sec:
Dumping block size 4:
0000:  ff ff 01 00
Rx: TOD: 23:36:04.990290: REL: +69.666 072 sec: KERN: 4 203.364 936
sec:
Dumping block size 4:
0000:  ff ff 01 00
Tx: TOD: 23:36:04.990669: REL: +69.666 077 sec: KERN: 4 203.364 941
sec:
***** Repeated 1081 Times *****
Dumping block size 4:
0000:  ff ff 01 01
Tx: TOD: 23:36:04.991084: REL: +69.666 083 sec: KERN: 4 203.364 947
sec:
Dumping block size 4:
0000:  ff ff 01 03
```


Documentation

Provided with the software is the *Distributed7* manual set:

- **User Manual**—contains an overview of the software and an explanation of software operations and utilities provided.
- **Installation and Maintenance Manual**—provides instructions to install and maintain the *Distributed7* software.
- **Application Development Manual**—provides detailed information to develop applications for the *Distributed7* software.
- **API Reference Manual**—contains explanations of all the API functions.
- **IS41-D Manual**—provides the functionality to encode and decode *Mobile Application Part*
- **GSM MAP Interface Manual**—provides the functionality to encode and decode *Mobile Application Part* messages
- **GSM A-Interface Manual**—defines the necessary signaling protocols to support cellular call processing between an MSC and a BSS.

Updates to the Manuals

The following descriptions identify additional information that is currently not documented in the product manual.

- Updates for GSMMAP Interface Manual are below.

Additions for the GSMMAP Interface Manual are listed below.

InfoForMO_SMS_Arg

```
SYNOPSIS

#include       <gsmmap/MAP_Complex.H>
#include       <gsmmap/AddressString.H>

class   InfoForMO_SMS_Arg:public MAP_Complex
{
    public:
       AddressString         serviceCentreAddress;

      InfoForMO_SMS_Arg(MAP_Parameter * cont = NULL, const char *name = "",
                                  int opt = 1, int tag = -1);

      virtual void clear();

      virtual int pack(byte_t * &param);
      virtual int unpack(byte_t * &param);
};

DESCRIPTION
This class consists of the following functions:
•InfoForMO_SMS_Arg (): standard constructor
•clear(): clears the internal set field of the serviceCentreAddress parameter. After executing the set
and pack operations and sending the message, the same operation variable can be used by calling the
clear() function.
•pack (): packs the parameter InfoForMO_SMS_Arg in the parameters section of the component type.
•unpack(): unpacks the parameter InfoForMO_SMS_Arg from the parameters section of the component type.
```

InfoForMO_SMS_Res

```
SYNOPSIS
```



```
#include       <gsmmap/MAP_Complex.H>
#include       <gsmmap/ISDN_AddressString.H>

class   InfoForMO_SMS_Res:public MAP_Complex
{
    public:
      ISDN_AddressString      msisdn;

      InfoForMO_SMS_Res(MAP_Parameter * cont = NULL, const char *name = "",
                                  int opt = 1, int tag = -1);

      virtual void clear();

      virtual int pack(byte_t * &param);
      virtual int unpack(byte_t * &param);
};
DESCRIPTION
This class consists of the following functions:
•InfoForMO_SMS_Res (): standard constructor
•clear(): clears the internal set field of the msisdn parameter. After executing the set and pack
operations and sending the message, the same operation variable can be used by calling the clear()
function.
•pack (): packs the parameter InfoForMO_SMS_Res in the parameters section of the component type.
•unpack(): unpacks the parameter InfoForMO_SMS_Res from the parameters section of the component type.
```

SM_SendInfoForMO_SMS_arg

```
SYNOPSIS
#include       <gsmmap/MAP_Invoke.H>
#include       <gsmmap/InfoForMO_SMS_Arg.H>

class SM_SendInfoForMO_SMS_arg : public MAP_Invoke {
public:
  InfoForMO_SMS_Arg          infoForMO_SMS_Arg;

  SM_SendInfoForMO_SMS_arg();

  virtual void clear();

  virtual int pack(tcmcomp_t * cmp);
  virtual int unpack(tcmcomp_t * cmp);
};
DESCRIPTION
This class consists of the following functions:
•SM_SendInfoForMO_SMS_arg(): standard constructor
•clear(): clears the internal set field of the infoForMO_SMS_Arg parameter. After executing the set
and pack operations and sending the message, the same operation variable can be used by calling the
clear() function.
•pack (): packs the parameter SM_SendInfoForMO_SMS_arg in the parameters section of the component
type.
•unpack(): unpacks the parameter SM_SendInfoForMO_SMS_arg from the parameters section of the component
type.

For a complete list of inherited public functions, refer to the descriptions of MAP_Invoke on page 5-9
and MAP_Component on page 5-5.
This service is used between the MSC and the VLR. The service is invoked by the MSC which has to
handle a mobile originated short message request to request the subscriber related information from
the VLR. The complete listing of mandatory and optional information elements in infoForMO_SMS_Arg is
explained in the parameter InfoForMO_SMS_Arg.
```

SM_SendInfoForMO_SMS_err

```
SYNOPSIS

#include       <gsmmap/MAP_Err.H>
#include       <gsmmap/TeleserviceNotProvisioned.H>
#include       <gsmmap/CallBarred.H>
#include       <gsmmap/UnexpectedDataValue.H>
#include       <gsmmap/DataMissing.H>
```



```
class SM_SendInfoForMO_SMS_err : public MAP_Err {
public:
        TeleserviceNotProvisioned     teleserviceNotProvisioned;
        CallBarred                    callBarred;
         UnexpectedDataValue          unexpectedDataValue;
         DataMissing                  dataMissing;

         SM_SendInfoForMO_SMS_err();

         virtual int pack(tcmcomp_t * cmp);
         virtual int unpack(tcmcomp_t * cmp);
};
```

DESCRIPTION
This class consists of the following functions:

•SM_SendInfoForMO_SMS_err(): standard constructor
•pack (): packs the parameter SM_SendInfoForMO_SMS_err in the parameters section of the component type.
•unpack(): unpacks the parameter SM_SendInfoForMO_SMS_err from the parameters section of the component type.

The MAP User can use get_ErrorVal() from the parent class to retrieve the incoming error value. See the parent class MAP_Err on page 5-6 for a complete list of inherited functions.

SM_SendInfoForMO_SMS_res

SYNOPSIS

```
#include       <gsmmap/MAP_Result.H>
#include       <gsmmap/InfoForMO_SMS_Res.H>

class SM_SendInfoForMO_SMS_res : public MAP_Result {
public:
  InfoForMO_SMS_Res          infoForMO_SMS_Res;

  SM_SendInfoForMO_SMS_res();

  virtual void clear();

  virtual int pack(tcmcomp_t * cmp);
  virtual int unpack(tcmcomp_t * cmp);
};
```

DESCRIPTION
This class consists of the following functions:

•SM_SendInfoForMO_SMS_res(): standard constructor
•clear(): clears the internal set field of the infoForMO_SMS_res parameter. After executing the set and pack operations and sending the message, the same operation variable can be used by calling the clear() function.
•pack (): packs the parameter SM_SendInfoForMO_SMS_res in the parameters section of the component type.
•unpack(): unpacks the parameter SM_SendInfoForMO_SMS_res from the parameters section of the component type.

For a complete list of inherited public functions, refer to the descriptions of MAP_Result on page 5-12 and MAP_Component on page 5-5.
This service is used between the MSC and the VLR. The service is invoked by the MSC which has to handle a mobile originated short message request to request the subscriber related information from the VLR. The complete listing of mandatory and optional information elements in infoForMO_SMS_Res is explained in the parameter InfoForMO_SMS_Res.

InfoForMT_SMS_Arg

SYNOPSIS

```
#include       <gsmmap/MAP_Complex.H>
#include       <gsmmap/SM_RP_DA.H>

class   InfoForMT_SMS_Arg:public MAP_Complex
{
    public:
```



```
      SM_RP_DA                sm_RP_DA;

      InfoForMT_SMS_Arg(MAP_Parameter * cont = NULL, const char *name = "",
                                int opt = 1, int tag = -1);

      virtual void clear();

      virtual int pack(byte_t * &param);
      virtual int unpack(byte_t * &param);
};
```

DESCRIPTION
This class consists of the following functions:

•InfoForMT_SMS_Arg (): standard constructor
•clear(): clears the internal set field of the sm_RP_DA parameter. After executing the set and pack operations and sending the message, the same operation variable can be used by calling the clear() function.
•pack (): packs the parameter InfoForMT_SMS_Arg in the parameters section of the component type.
•unpack(): unpacks the parameter InfoForMT_SMS_Arg from the parameters section of the component type.

InfoForMT_SMS_Res

SYNOPSIS

```
#include       <gsmmap/MAP_Complex.H>
#include       <gsmmap/ISDN_AddressString.H>

class   InfoForMT_SMS_Res:public MAP_Complex
{
    public:
      ISDN_AddressString      msisdn;

      InfoForMT_SMS_Res(MAP_Parameter * cont = NULL, const char *name = "",
                                int opt = 1, int tag = -1);

      virtual void clear();

      virtual int pack(byte_t * &param);
      virtual int unpack(byte_t * &param);
};
```

DESCRIPTION
This class consists of the following functions:

•InfoForMT_SMS_ Res (): standard constructor
•clear(): clears the internal set field of the msisdn parameter. After executing the set and pack operations and sending the message, the same operation variable can be used by calling the clear() function.
•pack (): packs the parameter InfoForMT_SMS_ Res in the parameters section of the component type.
•unpack(): unpacks the parameter InfoForMT_SMS_ Res from the parameters section of the component type.

SM_SendInfoForMT_SMS_arg

SYNOPSIS

```
#include       <gsmmap/MAP_Invoke.H>
#include       <gsmmap/InfoForMT_SMS_Arg.H>

class SM_SendInfoForMT_SMS_arg : public MAP_Invoke {
public:
  InfoForMT_SMS_Arg          infoForMT_SMS_Arg;

  SM_SendInfoForMT_SMS_arg();

  virtual void clear();

  int pack(tcmcomp_t * cmp);
  int unpack(tcmcomp_t * cmp);
};
```

DESCRIPTION
This class consists of the following functions:
•SM_SendInfoForMT_SMS_arg (): standard constructor
•clear(): clears the internal set field of the infoForMT_SMS_Arg parameter. After executing the set

and pack operations and sending the message, the same operation variable can be used by calling the clear() function.
•pack (): packs the parameter SM_SendInfoForMT_SMS_arg in the parameters section of the component type.
•unpack(): unpacks the parameter SM_SendInfoForMT_SMS_arg from the parameters section of the component type.

For a complete list of inherited public functions, refer to the descriptions of MAP_Invoke on page 5-9 and MAP_Component on page 5-5.
This service is used between the MSC and the VLR. The service is invoked by the MSC receiving a mobile terminated short message to request subscriber related information from the VLR. The complete listing of mandatory and optional information elements in infoForMT_SMS_Arg is explained in the parameter InfoForMT_SMS_Arg.

SM_SendInfoForMT_SMS_err

```
SYNOPSIS
#include       <gsmmap/MAP_Err.H>
#include       <gsmmap/UnknownSubscriber.H>
#include       <gsmmap/UnidentifiedSubscriber.H>
#include       <gsmmap/AbsentSubscriber.H>
#include       <gsmmap/UnexpectedDataValue.H>
#include       <gsmmap/DataMissing.H>
#include       <gsmmap/IllegalSubscriber.H>
#include       <gsmmap/IllegalEquipment.H>
#include       <gsmmap/SubscriberBusyForMT_SMS.H>
#include       <gsmmap/SystemFailure.H>

class SM_SendInfoForMT_SMS_err : public MAP_Err {
public:
        UnknownSubscriber      unknownSubscriber;
        UnidentifiedSubscriber unidentifiedSubscriber;
        AbsentSubscriber       absentSubscriber;
         UnexpectedDataValue   unexpectedDataValue;
         DataMissing           dataMissing;
        IllegalSubscriber      illegalSubscriber;
        IllegalEquipment       illegalEquipment;
        SubscriberBusyForMT_SMS       subscriberBusyForMT_SMS;
         SystemFailure         systemFailure;

         SM_SendInfoForMT_SMS_err();

         virtual int pack(tcmcomp_t * cmp);
         virtual int unpack(tcmcomp_t * cmp);
};
DESCRIPTION
This class consists of the following functions:

•SM_SendInfoForMT_SMS_err (): standard constructor
•pack (): packs the parameter SM_SendInfoForMT_SMS_err in the parameters section of the component type.
•unpack(): unpacks the parameter SM_SendInfoForMT_SMS_err from the parameters section of the component type.

The MAP User can use get_ErrorVal() from the parent class to retrieve the incoming error value. See the parent class MAP_Err on page 5-6 for a complete list of inherited functions.
```

SM_SendInfoForMT_SMS_res

```
SYNOPSIS
#include       <gsmmap/MAP_Result.H>
#include       <gsmmap/InfoForMT_SMS_Res.H>

class SM_SendInfoForMT_SMS_res : public MAP_Result {
public:
  InfoForMT_SMS_Res          infoForMT_SMS_Res;

  SM_SendInfoForMT_SMS_res();

  virtual void clear();

  virtual int pack(tcmcomp_t * cmp);
```



```
  virtual int unpack(tcmcomp_t * cmp);
};
DESCRIPTION
This class consists of the following functions:

•SM_SendInfoForMT_SMS_res (): standard constructor
•clear(): clears the internal set field of the infoForMT_SMS_Res parameter. After executing the set
and pack operations and sending the message, the same operation variable can be used by calling the
clear() function.
•pack (): packs the parameter SM_SendInfoForMT_SMS_res in the parameters section of the component
type.
•unpack(): unpacks the parameter SM_SendInfoForMT_SMS_res from the parameters section of the component
type.

For a complete list of inherited public functions, refer to the descriptions of MAP_Result on page 5-
12 and MAP_Component on page 5-5.

This service is used between the MSC and the VLR. The service is invoked by the MSC receiving a mobile
terminated short message to request subscriber related information from the VLR. The complete listing
of mandatory and optional information elements in infoForMT_SMS_Res is explained in the parameter
InfoForMT_SMS_Res.
```

SM_DeliveryNotIntended

```
SYNOPSIS
#include       <gsmmap/MAP_Enumerated.H>

class SM_DeliveryNotIntended : public MAP_Enumerated {
public:
  enum {  onlyIMSIRequested    = 0,
          onlyMCCMNCRequested  = 1
  };
  SM_DeliveryNotIntended(MAP_Parameter *parent,
                    const char * name, int opt, int tag= -1);
  void set(int e_val);
  int get();
  virtual int unpack(byte_t * &param);
};
DESCRIPTION
This class consists of the following functions:
•set(): sets the octet string.
•get(): retrieves the octet string in the class.
•unpack(): unpacks the number parameters present from the parameter section of the message.
```

Updates for the GSMMAP Interface Manual are listed below (marked by red).

RoutingInfoForSM_Arg

```
SYNOPSIS
#include<gsmmap/MAP_Complex.H>
#include<gsmmap/ISDN_AddressString.H>
#include<gsmmap/MAP_Boolean.H>
#include<gsmmap/AddressString.H>
#include<gsmmap/TeleserviceCode.H>
#include<gsmmap/Invoke_TCS.H>
#include<gsmmap/ExtensionContainer.H>
#include<gsmmap/MAP_Null.H>
#include<gsmmap/SM_RP_MTI.H>
#include<gsmmap/SM_RP_SMEA.H>
class RoutingInfoForSM_Arg : public MAP_Complex {
public:
ISDN_AddressString msisdn;
MAP_Boolean sm_RP_PRI;
AddressString serviceCentreAddress;
TeleserviceCode teleservice; // optional,absent in version > 1
Invoke_TCS invoke_TCS; // optional, version 1 & 2
ExtensionContainer extensionContainer; // optional Version 2+
MAP_Null gprsSupportIndicator; // optional Version 2+
SM_RP_MTI sm_RP_MTI; // optional Version 2+
SM_RP_SMEA sm_RP_SMEA; // optional Version 2+
```



```
SM_DeliveryNotIntended    sm_DeliveryNotIntended; // optional Version 2+

RoutingInfoForSM_Arg(MAP_Parameter * cont, const char * name,
int opt, int tag = -1);
virtual void clear();
virtual int pack(byte_t * &param);
virtual int unpack(byte_t * &param);
};
```

ReportSM_DeliveryStatusArg

```
SYNOPSIS
#include<gsmmap/MAP_Complex.H>
#include<gsmmap/ISDN_AddressString.H>
#include<gsmmap/AddressString.H>
#include<gsmmap/SM_DeliveryOutcome.H>
#include<gsmmap/AbsentSubscriberDiagnosticSM.H>
#include<gsmmap/ExtensionContainer.H>
#include<gsmmap/MAP_Null.H>
#include<gsmmap/SM_DeliveryOutcome.H>
class ReportSM_DeliveryStatusArg : public MAP_Complex {
public:
ISDN_AddressString msisdn;
AddressString serviceCentreAddress;
SM_DeliveryOutcome sm_DeliveryOutcome; // optional,absent in version 1
AbsentSubscriberDiagnosticSM absentSubscriberDiagnosticSM; // optional Version 2+
ExtensionContainer extensionContainer; // optional Version 2+
MAP_Null gprsSupportIndicator; // optional Version 2+
MAP_Null deliveryOutcomeIndicator; // optional Version 2+
SM_DeliveryOutcome additionalSM_DeliveryOutcome; // optional Version 2+
AbsentSubscriberDiagnosticSM additionalAbsentSubscriberDiagnosticSM; // optional Version 2+
  MAP_Null                  ipSMGWIndicator; // optional Version 2+
  SM_DeliveryOutcome        ipSMGWSMdeliveryOutcome; // optional Version 2+
  AbsentSubscriberDiagnosticSM  ipSMGWabsentSubscriberDiagnosticSM; // optional Version 2+

ReportSM_DeliveryStatusArg(MAP_Parameter * cont, const char * name,
int opt, int tag = -1);
virtual void clear();
virtual int pack(byte_t * &param);
virtual int unpack(byte_t * &param);
};
```


Known Problems

The following is a list of known problems in this software release:

CR Number	Description	Remarks
CRSnn17590	System freeze under load during Distributed Operation	On Linux RH7.3 platform with 3.10.0-514.26.1.el7.x86_64 kernel the D7 hosts could freeze under high load during the distributed operation

Installation Notes

This section provides special notes related to particular platforms. The *Distributed7 Installation Manual* must be consulted for detailed instructions of the installation.

Caution: Operating System Problems Observed
Customers running Distributed7 and any kernel-resident program that requires large symbol space, such as Veritas software, on releases of Solaris prior to Solaris 7 experienced a hang during system boot, i.e., in the modload program. The reason for the hang is that the symbol table is full. This is because the default kernel space is for 0x100000 symbols.

However, users can increase the size limit of the symbols table by adding a kernel parameter to the `/etc/system` file. The workaround is as follows:

1. Log in as root.
2. **cd /etc**
3. Use a text editor to add **set kobj_map_space_len = 0x200000** to the **/etc/system** file.
4. Reboot.

This must be done before installing the Distributed7 software.

Important: Due to significant changes in the sizes of the kernel data structures to support increased number of concurrent instances per process as well as increased number concurrent tcap dialogue identifiers, it is not possible to live upgrade a 1.0.x, 1.1.x, or 1.2.x cluster to 1.3.0 using the procedures described in this section: Upgrades from 1.0.x, 1.1.x, or 1.2.x to 1.3.0 clusters must be performed after stopping Distributed7 software on all hosts within the cluster. However, live upgrade is still possible between 1.3.0 and 1.3.0.x series of Distributed7 releases.

Important: If the Distributed7 release requires replacement of a previous AccessMANAGER release (e.g., AccessMANAGER 3.5.x or 4.1.0.x), then all existing AccessMANAGER software components must be removed before installation, and the system must be rebooted.

Important: To run the Distributed7 software, you need a license keyfile. To obtain the keyfile, contact TAC and provide the following information:
a) Serial number from the label on the installation tape
b) Host IDs of your machines

Important: After you have installed Distributed7 and used it either in simplex (standalone) or distributed mode, you can reconfigure it by running the script **$EBSHOME/access/install/ebs_config**.

Important: The warning message **bd.off not symbolically linked to /dev/term/b** is an OS-related message and does not affect the operation of the Distributed7 software.

For All Platforms

Important: Check with the equipment manufacturer to ensure you have the latest operating system patches.

Upgrading Distributed7

What follows is a procedure to upgrade Distributed7 from version 1.4.0.x to version 1.9.7. This upgrade procedure is in addition to the installation procedures described in the *Distributed7 Installation and Maintenance Manual* and in the Installation Notes section of these release notes.

Important: With earlier releases (1.4.0.0 to 1.4.0.5) database preservation is required. For releases prior to 1.4.0., upgrade to 1.4.0 first. If 1.4.0.6 or 1.4.0.7 is already installed, then skip the database preservation section and go directly to the 1.9.7 installation section.

Prior to performing the software upgrade, the existing database must be saved in text format.

Preserve the Database Prior to Installing D7 1.9.7

Note: Perform the following two steps ONLY if starting with 1.4.0.5 or an earlier release of D7 1.4.0. If starting with D7 1.4.0.6 or 1.4.0.7, the database preservation procedure is NOT needed, and you should go directly to the "Install D7 1.9.7" section that follows the database preservation section.

1. Perform db2txt on the existing D7 release, and it will generate the text files for each of the configuration layers. This operation can be performed regardless of the D7 running state.

cd $EBSHOME

db2text 162

2. Verify the output:

   1s -1 162

```
total 72
-rw-rw-rw-   1 root     system        1606 15 Dec 10:15 mml_alarm.txt
-rw-rw-rw-   1 root     system        2007 15 Dec 10:15 mml_isup_0.txt
-rw-rw-rw-   1 root     system          73 15 Dec 10:15 mml_mmi.txt
-rw-rw-rw-   1 root     system         130 15 Dec 10:15 mml_mml_0.txt
-rw-rw-rw-   1 root     system        1715 15 Dec 10:15 mml_mtp_0.txt
-rw-rw-rw-   1 root     system         180 15 Dec 10:15 mml_network.txt
-rw-rw-rw-   1 root     system         333 15 Dec 10:15 mml_sccp_0.txt
-rw-------   1 root     system        5075 16 May 10:15 mml_spm.txt
```

Install D7 1.9.7

Prior to performing the installation of the D7 software, review the Installation Notes section of these release notes.

1. Install the D7 software, following the procedure given in the *Distributed7 Installation and Maintenance Manual*.

   Once the new version of the software is installed, in order to activate D7 1.9.7, follow the procedure given in Section 3.4.6 of the *Distributed7 Installation and Maintenance Manual*.

Note: *Be sure to answer "**n**" when the following question appears:*

"Do you wish to convert from 1.4.0.7 [y/n]?".

2. Execute:

   ebs_setrelease 1.9.7

The following is displayed:

```
Unloading TCMOD module ...
TCMOD module is now unloaded.
Unloading RTCMOD module ...
RTCMOD module is now unloaded.

.
.
.

Installing pmc8260 module ...
Installing artic8260 module ...
Running device configuration manager ...
1.7.1 database is empty.
Do you wish to convert from 1.4.0.7 [y/n]? n
```

3. Type: **n**
4. Start up D7 1.9.7:

   $EBSHOME/access.1.9.7 # ebs_start
5. Change directory to ***$EBSHOME/174*** and configure ntwk and spm:

   $EBSHOME/174 # mml -f mml_network.txt 0

   $EBSHOME/174 # mml -f mml_spm.txt 0
6. Start upmd and configure MTP L3:

   $EBSHOME/174 # mml -f mml_mtp_0.txt 0
7. Start scmd and configure SCCP (if applicable):

   $EBSHOME/174 # mml -f mml_sccp_0.txt 0

Start isupd and configure ISUP (if applicable):

$EBSHOME/174 # mml -f mml_isup_0.txt 0

Start user applications.

Distributed7 is upgraded.

Upgrading SG/SGC

What follows is a procedure to upgrade SG/SGC from versions prior to 1.6.0 to version 1.9.7.
This upgrade procedure is in addition to the installation procedures described in the SG/SGC Installation and Maintenance Manual and in the Installation Notes section of these release notes.

Before executing the SG/SGC upgrade script, follow the procedures below.
Get backup of the current update_rel script then replace it with the one from SG/SGC 1.9.7.

```
cd $SGHOME/sg/install
mv update_rel update_rel.bak
cp <install-dir>/sg.1.9.7/install/update_rel .
```

Run the upgrade script,

```
sg_setrelease 1.9.1

cd $SGCHOME/install
mv update_rel update_rel.bak
cp <install-dir>/sgc.1.9.7/install/update_rel .
```

Run upgrade script,

```
sgc_setrelease 1.9.7
```


Resolved CRs

Release 1.9.7

CRSnn17600 Jain Tcap increases InvokeId for different dialogues

Detailed Description Jain Tcap InvokeId was incremented globally instead of for provided Dialogue Id and this was causing possible InvokeId clashes

Solution InvokeId function is updated to handle id increment based on provided Dialogue Id

Programming Impacts None
Operational Impacts None
Documentation Impacts None
MML Help Text Impact None
MO and DB File Impact None

CRSnn17599 Develop an ebs_tune script to disable KASLR on RedHat kernels above 7.5

Detailed Description KASLR feature conflicts with the LFS implementation and needs to be disabled for stable operation of LFS

Solution ebs_tune script is updated to automatically diable KASLR on Redhat kernels above 7.5

Programming Impacts None
Operational Impacts None
Documentation Impacts None
MML Help Text Impact None
MO and DB File Impact None

CRSnn17596 oam library temporary registration could fail if process id reaches to 6 digits

Detailed Description oam library registration uses process id with a fixed variable size.

Solution Process id is truncated to 5 digits if id reaches to 6 digits

Programming Impacts None
Operational Impacts None
Documentation Impacts None
MML Help Text Impact None
MO and DB File Impact None

CRSnn17595 TCAP driver could fail verifying the dialog portion of the incoming messages

Detailed Description TCAP driver could fail verifying the dialog porition of the incoming messages. Optional information in the message was tried to be parsed causing access failure

Solution Additional check conditions are placed to prevent unintended parsing / access causing the failure mode

Programming Impacts None

Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17594 TCAP cannot allocate more than 28K dialogs in the Linux Kernel

Detailed Description	TCAP driver cannot allocate more than 28K dialogs in the Linux Kernel
Solution	Kmem allocation flag parameter is updated to allow caller sleep for memory, preventing immediate NULL return if memory is not available. This allows larger number of dialog for TCAP to allocate in the Linux Kernel
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17589 hat_collect enhancements

Detailed Description	hat_collect script is required to collect more system and Distributed7 Product releated information, in a more structured way to improve customer support processes
Solution	hat_collect script is improved with additional commands and comments
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17589 Solaris 11 support for ADAX cards

Detailed Description	ADAX drivers is required to support Solaris 11 systems using x86 and Sparc architecture
Solution	ADAX drivers are updated for Solaris systems to support Solaris 11
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

Release 1.9.6

CRSnn17582 ebs_stop should be executed if the command is "stop"

Detailed Description	In the K00ebs_stop scripts the ebs_stop was executed for all types of commands. But it should

	be executed only if the commend is “stop”
Solution	The command check is added to the K00ebs_stop scripts.
Programming Impacts	None.
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17581 Permanent blockage in D7 mux queues under extreme load

Detailed Description	Under high load permanent blockage in upm queues was being observed in one of the field deployments on Solaris 10 systems.
Solution	This problem was not observed in any other deployment nor on NewNet lab systems even with extremely high load. However an additional queue enabling mechanism is implemented as a theoretical fix to prevent this situation in the field.
Programming Impacts	None.
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

Release 1.9.5

CRSnn17565 Wrong Tag in SS_SubscriptionOption

Detailed Description	The cliRestrictionOption in SS_SubscriptionOption was populated incorrect in the GSMMAP API
Solution	The cliRestrictionOption in SS_SubscriptionOption populated correctly in the GSMMAP API
Programming Impacts	The application must link with the GSMMAP API in this release to be able to benefit from this fix.
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17570 parsing INTERROGATE_SS return result fixed

Detailed Description	Mandatory and optional parameter check in the ForwardingFeatureList was missing.
Solution	Mandatory and optional parameter check in the ForwardingFeatureList is added in the GSMMAP API.
Programming Impacts	The application must link with the GSMMAP API in this release to be able to benefit from this fix.
Operational Impacts	None

Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17573 Alignment problem of the pci registers fixed

Detailed Description	Native D7 SS7 boards could not beinitialized on RH6 platforms.
Solution	It was detected that the pci registers were not aligned properly for the Linux RH6 releases. This problem is addressed in the native ss7 board drivers.
Programming Impacts	None.
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17574 encode error fix for error component

Detailed Description	Encoding of SM_MT_ForwardSM_err and SM_MO_ForwardSM_err components in the GSMMAP API was not correct.
Solution	Encoding of SM_MT_ForwardSM_err and SM_MO_ForwardSM_err components in the GSMMAP API is corrected.
Programming Impacts	The application must link with the GSMMAP API in this release to be able to benefit from this fix.
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17576 the qsize is updated for both the q and qnext

Detailed Description	The spm kernel library was updating the size of only the next STREAMS queues when an IOCTL is issued.
Solution	The spm kernel library is changed to update the size of both the STREAMS queue and the next queue when the IOCTL is issued.
Programming Impacts	None.
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

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CRSnn17543 MAP application crash fixed in MAP_OctetString

Detailed Description	Customer application crashes with heap corruption.
Solution	MAP_OctetString class is fixed to include null checks before array deletion.

Programming Impacts	None.
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17544 MAP unpack error for V2

Detailed Description	Customer application gets incorrect unpack errors for version 2 messages.
Solution	Unpack conditions are fixed for messages upgraded to V3.

Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17547 SCCP crash with timers

Detailed Description	Customer node crashes during SCCP timer stop process.
Solution	Prevent crash by resetting callback function.

Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17549 SCCP DB corruption for GT entries

Detailed Description	SCCP DB is corrupted with GT configuration, error received in MML while adding GT entries.
Solution	Bug fix in SCCP DB functionality to prevent corruption.

Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17550 SCCP crash on customer node under traffic

Detailed Description	SCCP bug causes crash on Solaris x86 nodes.
Solution	Bug fix in SCCP driver to prevent OS crash in the SCCP driver.

Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None

MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17551 SCCP crash on customer node while stack shutdown

Detailed Description	SCCP bug causes crash on Solaris x86 nodes during stack shutdown.
Solution	Shutdown semaphore fixed to prevent crash.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17552 OpCode exclusion from MAP Result

Detailed Description	Customer needs to be able to exclude OPCODE in the MAP Result message.
Solution	MAP_Result.set_no_opcode method defined to enable exclusion of opcode from result messages.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17554 SPM crash during ioctl processing

Detailed Description	Customer node crashes during ioctl processing in the SPM driver.
Solution	Validate the IPC key before referencing it inside the IOCT flow.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17553 Inaccurate MTP state in the SCCP driver

Detailed Description	SCCP driver sees the destination in Accessible state even if the adjacent SP is restarting.
Solution	Fix the SCCP driver so the destination state is taken as Inaccessible in this scenario.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None

MO and DB File Impact	None

CRSnn17555 Memory leak in Adax driver

Detailed Description	Customer node experiences memory leak by D7.
Solution	Fix in the Adax multiplexor to prevent the identified leak.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17558 Lost TFA problem

Detailed Description	Customer node has inaccurate destination states at MTP3.
Solution	MTP3 state machine corrected in order not to lose TFA's.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17559 MAP API fix to remove extra bytes in UCS2 encoding

Detailed Description	Customer application packs an additional zero byte with UCS2 encoding.
Solution	Fix the UCS2 packing.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17560 GW API fixed for monitor mode

Detailed Description	GW API had a bug that prevents receiving the messages correctly in Monitor mode.
Solution	UPM driver fixed to have the monitor mode work correctly.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17562 Enable absentSubscriberSM in MT_FSM

Detailed Description	Customer application gets error when absentSubscriberSM is packed.
Solution	MAP API has been fixed to make absentSubscriberSM available in MT_FSM error.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17563 Max length for USSD string is incorrect with 7 bit encoding

Detailed Description	Customer application cannot pack more than 160 chars with 7 bit encoding.
Solution	MAP API has been fixed to enable 182 chars for 7 bit encoding.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

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CRSnn17534 Slimmed-down InsertSubscriberData Invoke

Detailed Description	InsertSubscriberData Invoke with all message parameters as per 3GPP TS 29.002 V12.0.0 is using 45MB of memory, which is too much.
Solution	New Slimmed-down version of InsertSubscriberData Invoke called InsertSubscriberDataLite is introduced with reduced memory usage containing a subset of the original parameters.
Programming Impacts	None. New MAP type has been introduced, existing types have no changes.
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17538 Solaris x86 crash in mutex call

Detailed Description	D7 crashes intermittently on Solaris x86 platforms inside Solaris OS mutex call.
Solution	According to Oracle support, crash happens due to the fact that the mutex is not aligned at 8 byte boundary. Problematic mutex has been modified such that the alignment is on 8 byte boundary.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17451 APN encoding bug with labels without a dot

Detailed Description APN encoding bug in the GSMMAP library has a bug for labels without a dot.

Solution Encoding function has been fixed to handle labels without dots.

Programming Impacts None

Operational Impacts None

Documentation Impacts None

MML Help Text Impact None

MO and DB File Impact None

CRSnn17536 ADAXM multiplexor discard level value handling

Detailed Description ADAXM multiplexor increases the discard level even though the onset value is zero. Non-operational bug causes extra logs in some scenarios.

Solution Bug fixed.

Programming Impacts None

Operational Impacts None

Documentation Impacts None

MML Help Text Impact None

MO and DB File Impact None

CRSnn17520 MAP Multi version support

Detailed Description Support multiple MAP versions simultaneously on the same MAP application. Needed because some peer nodes require MAP operations with v2 whereas some require with v3.

Solution Provide a setMsgMapVersion(MAP_Version) function in the MAP messages of the API. Example:void MB_InsertSubscriberData_arg:: setMsgMapVersion(MAP_Version version). MAP user will need to call this function with the version value needed for this operation before performing pack/unpack operations.

If this function is not called, the global MAP version will be effective, and hence the API will also be backward compatible.

Programming Impacts None. New functionality added as described above, but it is backwards compatible.

Operational Impacts None

Documentation Impacts None

MML Help Text Impact None

MO and DB File Impact None

CRSnn17540 GRSA bug applying for 8 cic range

Detailed Description GRS acknowledgment messages are applied to 8 cic's even if the range is for fewer number of cic's.

Solution Bug in ANSI ISUP layer has been fixed to respect the range.

Programming Impacts None

Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17541 MAP_OctetString null termination bug

Detailed Description	When setting authentication quintuplet values (AuthenticationQuintuplet: rand, xres, ck, ik, and autn) D7 replaces the first byte with 0x00. This is because MAP_OctetString::get(int & len, byte_t * octstr) sets the last octet to 0x0. However, this is incorrect and the get function does not need to return null terminated strings.
Solution	MAP_OctetString::get(int & len, byte_t * octstr) should only copy the contained octet string into the octstr argument.
Programming Impacts	MAP_OctetString::get(int & len, byte_t * octstr) no longer null terminates the given argument named octstr.
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

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CRSnn17501 Invalid mlogs in SCCP CO operation

Detailed Description	Incorrect argument causes invalid mlogs in SCCP CO operation such as: Wrong cmn_bcopy_onmp usage: 0xffff880468e2b800-0xffff880468e2b880,start:0xffff8806a0982405 size:132
Solution	Fix implemented in the SCCP driver to prevent the mlog.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17503 Deadlock in D7 kernel log function

Detailed Description	Sometimes deadlock is encountered on Linux platforms in case the kernel log function calls the streams bcanput function via the KDB library, which in turn may call the kernel log function.
Solution	Kernel log function has been improved to avoid using the KDB library.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17507 Kernel memory leak in SCCP CO operation

Detailed Description	SCCP driver leaks memory during IT message handling.
Solution	Kernel memory leak has been identified and resolved.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17510 UPM driver hang issue on Linux

Detailed Description	Linux host intermittently hangs during stack shutdown.
Solution	Bug in the UPM driver that causes streams framework to sleep with a lock held has been fixed.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17511 stathist MML output problem

Detailed Description	d-stathist command shows negative values.
Solution	Bug in the statd daemon has been fixed to handle overflow of signed integers in the printf placeholders.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17513 Isupd lock/unlock race

Detailed Description	ISUPD fails to unlock DSM segments intermittently.
Solution	Race window in ISUPD has been fixed that may result in incorrect lock-id usage during dsm_unlock operations.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17514 High CPU usage of alarmd

Detailed Description	Alarmd daemon intermittently starts using 100% CPU.
Solution	Bug in alarmd daemon that results in stack corruption and high CPU usage during unrecognized alarm handling has been fixed.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17515 Forced shutdown on Standalone

Detailed Description	Netd daemon causes forced shutdown on Linux when Ethernet interfaces are down even if the node operates in standalone mode.
Solution	Netd now only generates a single log if the Ethernet interfaces are down or fail. Forced shutdown is not initiated in case of standalone mode.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17517 UPM Mux sync problem on start-up

Detailed Description	UPM Mux states don’t get synced successfully during start-up causing MTP3 getting stuck on the D7 node that starts later.
Solution	Race window in UPM driver has been eliminated.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17518 UPM message accumulation

Detailed Description	UPM queue accumulates messages during start-up when there are SS7 boards configured on other D7 nodes.
Solution	Bug has been fixed so the queues are cleared.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17519 ISUPD daemon infinite loop

Detailed Description	ISUPD daemon goes into infinite loop intermittently during ISUP Accept Trunk handling.
Solution	Bug has been fixed to correct the argument passed to DSM API.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17522 SCCP driver crash during GT translation

Detailed Description	Bug in SCCP driver causing OS crash.
Solution	Bug has been removed which is hit only when there are multiple GT entries and one of them is inaccessible.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17525 Octet string tag is removed for incoming messages

Detailed Description	Some customer applications with TCAP has problems handling L_TC_C_PARAM_OCT_STR_TAG in the incoming messages.
Solution	Incoming messages no more carry the tag L_TC_C_PARAM_OCT_STR_TAG in the parameters section. The tag will be L_TC_C_PARAM_NO_TAG instead with full TLV included. Outgoing messages can still have L_TC_C_PARAM_OCT_STR_TAG.
Programming Impacts	No need to handle L_TC_C_PARAM_OCT_STR_TAG in the incoming messages.
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17521 Unknown parameter handling in the GSMMAP API

Detailed Description	GSMMAP API should skip an unknown parameter instead of throwing an error.
Solution	All message fields will be unpacked and in case of mismatched/unknown tags in sequence, length of the unknown tags will be skipped till message length is exhausted.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17528 Sstoff value in db2text output is invalid

Detailed Description	Db2text output has OFF/ON values for SSTOFF parameter of SUBSYS MO.
Solution	Db2text output has been corrected to have NO/YES values for SSTOFF.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17530 Increase MLog and Alarmlog sizes

Detailed Description	MLog directory and Alarmlog files fill up too soon and information is lost frequently.
Solution	Default MLog directory size has been increased from 8MB to 200MB. The default number of alarm log files is increased to 80 and each file can have 2MB size by default. Previously it was 512KB and number of files could be 10. If these defaults are too high, they can modified by changing the apmconfig file (mlogd -m 200000; alarmd -n 100 -m 2048).
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17531 JAIN Memory leak

Detailed Description	JAIN API leaks memory in various message handling scenarios.
Solution	Complete code review has been done in the JAIN API to clear JNI memory leaks.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17532 SCMD global startup failure in distributed mode

Detailed Description	SCMD daemon intermittently fails to start as global when both cluster nodes start almost at the same time. This leads to the other node taking over as global. However, the SCCP DB is not loaded by either the first global node or the second node that takes over. As a result, SCCP DB comes up empty.
Solution	Fix in the UPMD daemon in order not to keep the SCMD daemon wait too long and fail during startup.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17536 ADAXM multiplexor congestion abatement problem

Detailed Description	ADAXM multiplexor fails to start the congestion abatement process on congested links if the congestion abatement value is zero for the congestion level.
Solution	Fix the bug in the abatement condition.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

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CRSnn17451 GSMMAP v12 Support

Detailed Description	Support required for 3GPP TS 29.002 V12.0.0 (2013-03).
Solution	Implemented in the GSMMAP API as VERSION_3.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17464 msisdn tag value fix in ussd-arg

Detailed Description	Not possible to set the msisdn field.
Solution	Tag value is added to fix the problem.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17469 crash due to adaxm bug

Detailed Description	Crash on linux platforms is caused by Adaxm multiplexor.
Solution	IOCTL loops are exited during shutdown to prevent crash.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17474 gw register retry mechanism fixed

Detailed Description	Sometims ASPAC is not sent for an SP when the stack is restarted.
Solution	UPM driver race causes the SGC registeration attempt to be lost. GW registeration retry mechanism is fixed to prevent the failure.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17470 fix sigtran destination states during startup

Detailed Description	Inconsistency between rtset and sgcdpc states. RTSET shows ACC, where the destination is inaccessible and SGCDPC shows also INACC. The initial state of the destination has a problem.
Solution	UPM bug causes DPC state to be accessible when the DPC is added when adjacent SP restart process is ongoing internally in the driver.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None

CRSnn17475 out of sequence omap report alarm

Detailed Description	Spurious OMAP report when subsystem is closed gets invalid sequence id.
Solution	Bug in the SCCP driver is fixed to assign correct sequence id.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None

CRSnn17476 fix tcm_list p and s

Detailed Description	tcm_list –p and –s shows incorrect output when one of the multiple local subsystems goes down.
Solution	Bug in the TCAP driver is fixed to show correct data.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None

CRSnn17483 fix delete rtset problem

Detailed Description	SGCDPC related rtset’s can’t be deleted due to a bug.
Solution	Bug in the UPMD daemon is fixed.

Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None

CRSnn17478 fix for InsertSubscriberData unpack error

Detailed Description	Unpack error when general_dataCDA is received, since BearerServiceCode enum field was not updated in the old MAP version.
Solution	In BearerServiceCode, enum field is updated with general_dataCDA, general_dataCDS, general_padAccessCA, general_dataPDS field.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None

CRSnn17481 hat_collect from all nodes

Detailed Description	APMD heartbeat loss for a process causes hat_collect and core dump. But hat_collect should be dumped on all cluster nodes.
Solution	All nodes hat_collect dump from APMD has been implemented.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None

CRSnn17484 wait if api request times out (mtp init)

Detailed Description	MTP library causes too many retries when UPMD fails the API init call.
Solution	Put some sleep between the retries so as not to block UPMD and cause heartbeat failure.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None

CRSnn17485 kernel thread list on linux

Detailed Description	hat_collect script should dump kernel threads on linux too.
Solution	On Linux, hat_collect now accepts the ‘all’ option to dump kernel threads.
Programming Impacts	None

Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None

CRSnn17435 Improve GT translation failure logs

Detailed Description	Too many logs are generated in case of unavailable destination.
Solution	Logging has been improved.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None

CRSnn17487 Crash with UPM driver

Detailed Description	There's a bug in the UPM driver that causes null pointer dereference during controlled rerouting process with active buffer.
Solution	Crash prevented by correcting the tcrc process.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None

CRSnn17436 HDC driver upgrade

Detailed Description	New GA release is available by ADAX.
Solution	Upgraded to 1.71 GA.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None

CRSnn17488 Linux crash during shutdown

Detailed Description	Field node experienced crash during stack shutdown.
Solution	Context switching inside the service procedure causes crash during the close of the stream. This is now prevented by fixing the SPM driver.
Programming Impacts	None
Operational Impacts	None

Documentation Impacts	None
MML Help Text Impact	None

CRSnn17486 All optional fields allowed for ISD

Detailed Description	Unpack error for BcsmCamelTDPData fields, since this fields was not defined as per old MAP version.
Solution	VERSION_3 check is removed from all ISD optional parameters. So that message from other versions can also pack/unpack additional optional fields.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None

CRSnn17489 upmd respawn failure

Detailed Description	When upmd's of a cluster are restarted at the same time, sometimes on one of the nodes it cannot start due to error 575.
Solution	Race in the UPM driver has been fixed.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None

CRSnn17492 MO timeout for display timeslot

Detailed Description	MO timeout is experienced with d-timeslot:; in a two host cluster, where one node does not see this error and displays timeslots correctly.
Solution	SPMD bug has been corrected.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None

CRSnn17494 JVM crash

Detailed Description	Empty gt address info notice indication causes jvm crash.
Solution	JAIN TCAP bug corrected.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None

CRSnn17497 ISUPD core dump

Detailed Description	ISUPD dumps core during startup.
Solution	ISUPD global registration race causes DSM data synchronization problem, which in turn causes ISUPD crash. Race has been corrected.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None

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CRSnn17315 Linux performance improvements

Detailed Description	Performance of D7 to be improved on Linux platforms.
Solution	Performance of D7 has been significantly improved on CentOS/RedHat 6.3 platforms.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17465 Kernel memory leak with Adax boards

Detailed Description	Kernel memory leak has been observed.
Solution	Root cause identified in the ADAXM multiplexor and fix provided.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17463 Loadshare setting not checked for sequenced messages

Detailed Description	There's a bug in our SCCP driver, which causes loadsharing even if loadsharing is OFF.
Solution	SCCP driver sequenced message flow is fixed so the loadsharing setting for GT routed messages is respected.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17315 typo corrected for dsm library

Detailed Description	There is a bug that creates an invalid symbolic link during package generation (regarding libdsm.so, which is not used).
Solution	Problem is fixed.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17462 dkmd cannot be killed by apmd

Detailed Description	In case DKMD daemon fails to respond to heartbeat, APMD cannot kill it due to kernel threads.
Solution	Problem is fixed.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17461 Intermittent MML errors

Detailed Description	Following MML error is observed: MAJOR cannot get handle to mmlconf.DB. Not consistently reproduced on customer's system.
Solution	Possible root cause identified and fixed.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17457 Error in setting the orig address

Detailed Description	Error occurs in case application attempts to set ORIG ADDRESS in the outbound message.
Solution	Problem has been fixed.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17458 Adjacent DPC deletion fails

Detailed Description	Non-adjacent sgcdpc's are deleted correctly as the route/rtset are removed automatically. The problem comes with the adjacent ones, where the rtset is not removed automatically, so the only way to remove these dpcs is by deleting the database and restarting D7.
Solution	Problem has been fixed.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17459 LFS syslog error message

Detailed Description	On Linux platforms following syslog appears (putp_fast: swerr() at src/kernel/strsched.c +2732).
Solution	The non-operational problem causing this log has been fixed.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17454 TCAP API return arguments initialized

Detailed Description	TCAP functions need to have the input arguments that are filled in to be initialized to zero.
Solution	This is now done in the API (tcm_getcomp, tcm_getdlgp, tcm_rcv).
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17453 Support for ACS on Adax boards

Detailed Description	Automatic clock selection mode is needed to support all spans accepting clock.
Solution	Feature implemented, span value to be set ALL.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17452 SCCP CO Bug

Detailed Description	Connection oriented processes have a bug when the SSN's are on the same point code.
Solution	CO procedures are fixed for common PC.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

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CRSnn17436 RHEL6.x support

Detailed Description	D7 to be supported on RHEL6.x platforms.
Solution	Distributed operation support has been implemented.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

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CRSnn17436 RHEL6.x support

Detailed Description	D7 to be supported on RHEL6.x platforms.
Solution	D7 has been ported to RHEL6.x. Distributed operation has stability issues to be resolved in the next release.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17433 USSD fix for w char

Detailed Description	GSMMAP API creates invalid message when 'w' character is included.
Solution	Bug in the GSMMAP API has been fixed.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17438 octet string tag for tcap

Detailed Description TCAP API does not accept octet string tag.
Solution Octet string tag support has been added to the TCAP API.

Programming Impacts None
Operational Impacts None
Documentation Impacts None
MML Help Text Impact None
MO and DB File Impact None

CRSnn17393 IS41D race condition fix improved

Detailed Description IS41D length check needs improvement for an unhandled case.
Solution Fix for the race condition has been improved for deep class hierarchies.

Programming Impacts None
Operational Impacts None
Documentation Impacts None
MML Help Text Impact None
MO and DB File Impact None

CRSnn17440 gsmmap packed length handling

Detailed Description GSMMAP API throws packet length errors in MT operation.
Solution Race condition has been fixed.

Programming Impacts None
Operational Impacts None
Documentation Impacts None
MML Help Text Impact None
MO and DB File Impact None

CRSnn17445 fix line mode settings for Adax

Detailed Description	D4/AMI settings are incorrectly given to the board.
Solution	Fix the settings for D4/AMI mode.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17446 Restricted D7 package Changes

Detailed Description	D7 will support restricted packages for non-root operation.
Solution	Support for non-root operation with no setuid has been implemented.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17449 UCS2 support GSMMAP-USSD

Detailed Description	UCS2 support is needed in GSMMAP API.
Solution	UCS2 support has been added to the GSMMAP API.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17436 ADAX Upgrade 1.71

Detailed Description	ADAX drivers needs update.
Solution	ADAX drivers has been upgraded to 1.71.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17450 null byte in LMSI

Detailed Description	LMSI should support adding NULL bytes.
Solution	Support for adding NULL bytes to LMSI has been added.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

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CRSnn17423 SGCDPC deletion problem

Detailed Description	SGCDPC objects could not be deleted from the SGC database when ADJ=1.
Solution	Bug in the MTP database handling of SGCDPC objects have been fixed.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17425 Alias PC problem

Detailed Description	Alias PC handling bug caused not setting the OPC in the routing label correctly.
Solution	Bug in the MTP driver has been fixed.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17426 GSMMAP tag fix for VLR capability

Detailed Description	GSMMAP API throws error when supportedCamelPhases is set.
Solution	Tag bug in the VLR_Capability parameter has been fixed.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17427 License error with IS41D and GSMMAP API's

Detailed Description	Intermittent “invalid feature” error is thrown by the IS41D and GSMMAP API’s.
Solution	Hypothetical fix provided for the problem (not reproducible in the lab).
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17429 Logd caused OS crash

Detailed Description	Logd daemon caused a crash under heavy load.
Solution	Race condition in the SPM driver has been fixed.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17430 GSMMAP missing error codes

Detailed Description	There are missing error code definitions in the GSMMAP API such as “MAP_Err::absentSubscriberSM”.
Solution	Missing error code definitions have been added.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17431 SS7 links down after STP maintenance

Detailed Description	D7 does not bring up the links towards the STP once the links go down after STP maintenance.
Solution	Bug found and fixed in the UPM driver, which causes internal state corruption that leads to not activating the links back.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17433 GSMMAP API improvements

Detailed Description	USSD DataCodingScheme Tag; USSD 7-bit Default alphabet; Missing parameters added for InsertSubscriberDataRes component; laiFixedLen and cellIdFixedLength encoding;

requestedDomain parameter support for PSI.

Solution Above mentioned fixes and improvements have been implemented in the GSMMAP API.

Programming Impacts None
Operational Impacts None
Documentation Impacts None
MML Help Text Impact None
MO and DB File Impact None

CRSnn17434 SCCP fix for Linux

Detailed Description OS crash observed after running second SP on Linux platforms.
Solution Bug found and fixed the crash.

Programming Impacts None
Operational Impacts None
Documentation Impacts None
MML Help Text Impact None
MO and DB File Impact None

CRSnn17435 GT Translation failure logging improvements

Detailed Description D7 does not log the GT translation failures for some scenarios.
Solution Logging has been improved.

Programming Impacts None
Operational Impacts None
Documentation Impacts None
MML Help Text Impact None
MO and DB File Impact None

CRSnn17437 High CPU usage by netd on Linux

Detailed Description NETD daemon uses high CPU and does not establish cluster connections.
Solution Bug found and fixed in the NETD process.

Programming Impacts None
Operational Impacts None
Documentation Impacts None
MML Help Text Impact None
MO and DB File Impact None

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CRSnn17390 NETD deadlock

Detailed Description NETD process falls into deadlock due to performing simultaneous TLI operations on the same file descriptor without proper locking.

Solution	Locking mechanisms have been introduced to prevent the deadlock.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17393 IS41D messages failing intermittently

Detailed Description	IS41D messages fail intermittently with error code EPARTTOOLONG.
Solution	IS41D API has been fixed in terms of thread safety regarding the pack operations.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17394 tcm_getcomp failure with unset errno

Detailed Description	If there is a transaction with the last 18 bits of the local transaction id are all zero and if a unidirectional tcap message is received from the network, then tcm_getcomp() would fail with errno unset.
Solution	TCAP driver has been fixed to prevent this error.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17395 tcm_getcomp problem with indefinite length

Detailed Description	TCAP API includes the EOC bytes in the length of the parameters portion if the parameters portion is encoded with indefinite length.
Solution	TCAP API has been fixed to prevent this error.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17396 Dialogue ID not released in error conditions with JAIN API

Detailed Description	TCAP dialogues are not released if the dialogue portion of an incoming BEGIN message is invalid.

Solution	Fix implemented such that the JAIN API automatically releases the dialogue ID in case the incoming BEGIN message is invalid.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17399 OS Panic in TCAP driver

Detailed Description	Transaction table stays null and causes a crash in the TCAP driver.
Solution	TCAP driver has been fixed such that errors in the application registration process on top of the TCAP multiplexor are handled correctly.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17400 Congestion mlog for Adax boards

Detailed Description	Congestion situations should be better logged
Solution	New mlog added to the ADAXM multiplexor to log the transmit congestion events.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17401 PC added to CDPA for XUDT

Detailed Description	PC is added to the CDPA for incoming XUDT messages, which breaks GT routing.
Solution	SCCP driver has been fixed to prevent this error.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17405 Calling party category problem

Detailed Description	JAIN API cannot process the Calling Party Category parameter correctly.
Solution	JAIN ISUP API has been fixed to handle this parameter correctly.
Programming Impacts	None

Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17406 Statd deadlock

Detailed Description	STATD daemon falls into a deadlock situation due to not releasing mutexes correctly.
Solution	STATD daemon has been fixed such that mutexes are utilized correctly.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17407 Nature of Number Correction

Detailed Description	IS41D API has incorrect values for NATIONAL and INTERNATIONAL regarding the NatureOfNumber parameter.
Solution	The enumeration that defines NATIONAL and INTERNATIONAL has been fixed in the IS41D API.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17411 Include ADAX tools in D7 release

Detailed Description	ADAX HDC tools should be included in the D7 release for easier debugging.
Solution	ADAX HDC original package is included in the D7 packages.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17412 Missing GSMMAP header

Detailed Description	Two GSMMAP header files are missing the header file named MAP.H.
Solution	Header files have been corrected for compilation.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None

MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17413 OS Panic due to UPM and DRA drivers

Detailed Description	Race condition in the DKM multiplexor and a bug in the UPM driver causes OS panic.
Solution	Race condition in the DKM multiplexor has been corrected to prevent synchronization faults among cluster nodes and the UPM bug has also been cleared.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17414 db2text fails to dump Sigtran configurations

Detailed Description	db2text tool fails to dump Sigtran configurations in 1.7.5.
Solution	Bug has been cleared to make db2text work for Sigtran.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17415 MML display-linestat fails with Adax configurations

Detailed Description	SPMD daemon has a bug which leads to running out of file descriptors.
Solution	Bug has been cleared to in the SPMD daemon.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17416 OS Panic in the UPM driver

Detailed Description	UPM driver causes OS panic due to a race condition in processing outgoing messages and closing of UPM queues.
Solution	Race condition has been cleared with appropriate use of locking mechanisms.
Programming Impacts	None
Operational Impacts	None

Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17419 Race condition during TCAP endpoint close

Detailed Description	TCAP application closes its endpoint during the processing of a shutdown event from D7 and dumps core due to an outgoing message.
Solution	Race condition between TCAP endpoint closing process and message sending has been fixed.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17421 oam_isupcct calls fail when get_first and get_next commands are used

Detailed Description	OAM API is not functioning properly due to the change in handling ISUP circuits in the ISUPD process.
Solution	GET-FIRST and GET-NEXT operations are fixed regarding the ISUPCCT objects.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17422 ADAX driver upgrade to 1.69

Detailed Description	ADAX driver needs upgrade.
Solution	ADAX driver has been upgraded to the latest version.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

Release 1.7.5

CRSnn17241 GSM MAP API improvements

Detailed Description	GSM MAP sample api could not get compiled due to the missing SM_DeliveryNotIntended.H header file in the D7 release
Solution	The D7 packaging is updated to incorporate the missing SM_DeliveryNotIntended.H header file under the $EBSHOME/access/include/gsmmap directory.

Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17281 ADAX Driver update to 1.66

Detailed Description	ADAX has issued new HDC driver version 1.66 for Solaris SPARC and X86 architectures.
Solution	The mew ADAX drivers are added to the D7 release for Solaris SPARC and X86 architectures.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17315 Isupd deadlock during dsm unrule

Detailed Description	Isupd process could get into deadlock during the dsm unrule operation at the time of the execution of HA tests.
Solution	The isupd code has been changed to avoid the deadlock during the dsm unrule operation.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17315 Let D7 install if the major linux kernel version matches

Detailed Description	RedHat guarantees kernel version compatibility in system ABI's and kernel ABI's for all RedHat 5.X distributions. So there is no need for exact kernel version match for D7 drivers to install and operate on RedHat 5.X distributions.
Solution	The exact kernel version check in D7 ebs_modinstall release has been loosed to check only the first 3 digits. For RedHat 5.X release the ebs_modinstall release will resume installation as long as the target platform is 2.6.18 release.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17356 Sending and handling of UDTS and XUDTS messages

Detailed Description	Customer request to send UDTS and XUDTS messages through the Distributed7 sccp interface.
Solution	A new API has been introduced to send UDTS and XUDTS messages has been implemented in the SCCP api. The prototype of this new function can be found in the sccp_api_proto.h header file and is given below:

extern int sccp_NoticeReq(int, N_NoticeReq_t *);

The definition of the N_NoticeReq_t is given in the sccp_prim.h header file and is as follows:

```
typedef       struct N_NoticeReq_s {
    word_t  datasize;
    byte_t  usr_data[L_MAXDATA];
    cpa_t   called_address;
    cpa_t   calling_address;
    word_t  reason_for_return;
} N_NoticeReq_t;
```

The usage of this new SCCP api can be found in the sccp sample program also.

Programming Impacts None
Operational Impacts None
Documentation Impacts None
MML Help Text Impact None
MO and DB File Impact None

CRSnn17358 Omapd hang issue

Detailed Description Omapd process could remain in the hang state could not be terminated by the apmd time to time.
Solution The omapd process could retreive the errno incorrectly at the time of some failure conditions. And this was causing it to remain in the hang state. The omapd process is compiled with the REENTRANT flag to retreive the errno correctly. Also some additional mlog statements are introduced to log the event of the failure.
Programming Impacts None
Operational Impacts None
Documentation Impacts None
MML Help Text Impact None
MO and DB File Impact None

CRSnn17365 Mlogd core dump fixed

Detailed Description Mlogd process could core dump time to time in the field
Solution The reason of the core dump was identified in the D7 APM library. The D7 APM library is fixed to avoid the core dump condition.
Programming Impacts None
Operational Impacts None
Documentation Impacts None
MML Help Text Impact None
MO and DB File Impact None

CRSnn17366 Ipv6 support on Linux

Detailed Description	Ipv6 support is requested for Linux Platforms
Solution	The Ipv6 support has been implemented for Linux platforms also. The MO configuration for IPv6 is the same as the Solaris platforms.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17367 Apmd and hat_collect improvements

Detailed Description	Apmd process enhancement request to get hat_collect output also at the time of process heartbeat failure detection.
Solution	Apmd process has been enhanced to retreive the hat_collect upon detecting the failure of one of the system process. There is no change in the core imager retrieval of the failed process with this enhancement. The core image of the failed process will still be retrieved with this enhancement.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17375 ISUP API core dump

Detailed Description	64bit ISUP API core dumps on Solaris SPARC architecture
Solution	ISUP API has been fixed to handle the 64 bit pointers correctly in 64bit solutions.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17377 JAIN new feature setopa/setdpa

Detailed Description	Request to set originating party address and destination party address through JAIN TCAP API
Solution	A new set of methods has been implemented to support the requested functionality. setOriginatingAddress and getOriginatingAddress methods are implemented in the scope of the JainTcapProviderImpl class.

```
public int setOriginatingAddress(int dialogueId, SccpUserAddress originatingAddress) {
    return setOriginatingAddress(regIdx, dialogueId,
        AddressConverter.getRouteIndicator(originatingAddress),
        AddressConverter.getNationalUse(originatingAddress),
        AddressConverter.getZone(originatingAddress),
        AddressConverter.getCluster(originatingAddress),
        AddressConverter.getMember(originatingAddress),
        AddressConverter.getSSN(originatingAddress),
```

```
                AddressConverter.getGTIndicator(originatingAddress),
                AddressConverter.getAddressInfo(originatingAddress),
                AddressConverter.getEncodingScheme(originatingAddress),
                AddressConverter.getNatureOfAddr(originatingAddress),
                AddressConverter.getNumPlan(originatingAddress),
                AddressConverter.getTranslationType(originatingAddress),
                AddressConverter.getOddIndicator(originatingAddress));
        }

        public int setDestinationAddress(int dialogueId, SccpUserAddress destinationAddress) {
            return setDestinationAddress(regIdx, dialogueId,
                AddressConverter.getRouteIndicator(destinationAddress),
                AddressConverter.getNationalUse(destinationAddress),
                AddressConverter.getZone(destinationAddress),
                AddressConverter.getCluster(destinationAddress),
                AddressConverter.getMember(destinationAddress),
                AddressConverter.getSSN(destinationAddress),
                AddressConverter.getGTIndicator(destinationAddress),
                AddressConverter.getAddressInfo(destinationAddress),
                AddressConverter.getEncodingScheme(destinationAddress),
                AddressConverter.getNatureOfAddr(destinationAddress),
                AddressConverter.getNumPlan(destinationAddress),
                AddressConverter.getTranslationType(destinationAddress),
                AddressConverter.getOddIndicator(destinationAddress));
        }
```

Programming Impacts None
Operational Impacts None
Documentation Impacts None
MML Help Text Impact None
MO and DB File Impact None

CRSnn17378 HMDT OPC event

Detailed Description When alias point code is used together with cluster or network routing in ANSI invalid HMDT OPC event alarms could be observed.

Solution D7 mtp3 hmdt implementation is fixed to handle this condition correctly.

Programming Impacts None
Operational Impacts None
Documentation Impacts None
MML Help Text Impact None
MO and DB File Impact None

CRSnn17382 UPM timer issue

Detailed Description The timers to guard the exception nodes created in the upm driver to handle cluster and network routing are not managed properly.

Solution This issue does not have a major impact however it generates some false logs unnecessarily. The upm driver is fixed to maintain the timers guarding the exception nodes properly.

Programming Impacts None

Operational Impacts None

Documentation Impacts None

MML Help Text Impact None

MO and DB File Impact None

CRSnn17385 Panic during the xudt processing

Detailed Description D7 host panics with corrupted stack trace frequently in the field.

Solution In the crash images the stack trace does not reveal any info on where the crash might have happened. The location of the crash has been broadly identified through the list of the active threads at the time of the crash. The crash seems to happen during the processing of incoming connectionless message.

In the crash files the suspicious connectionless message which causes the OS panic has been located. On all the crash scenarios the suspected message was an XUDT and the last 3 octets of sccp called party address was overlapping with the first three octets of the calling party address.

It has been identified that this corruption in the called and calling party addresses, happened during the GT translation of the incoming XUDT message.

The bug in the GT translation, is located if the incoming message was an XUDT and the GT translates to DPC, SSN and a new GT. Under this condition, the GT translation logic handles all UDT/UDS and XUDT and XUDS messages as if they are UDT/UDS format while locating the address indicator octet of the incoming message.

So under this condition the hop counter of the XUDT message was treated as the called party address pointer and the address indicator is located using the hop counter as the offset.

Due to this bug in the GT translation logic the maintenance of the called and calling party offsets may not be maintained properly and the message content will get corrupted.

For this corruption to happen the following 4 conditions should be met:

1) Incoming message should be an XUDT
2) The called party address of the incoming XUDT message should be a GT and PC should not be present in the called party address field.
3) The GT of the incoming message should be translated to a DPC, SSN and a new GT locally by D7.
4) When the value of the hop counter is used as the called party index the located address indicator field should be decoded as if PC is present.

When all these 4 conditions are met it will cause the message content to get corrupted. However, in order to hit to the stack corruption which causes the OS panic there should be a large value written to the size of the calling party address field after the corruption happens.

When a large value is written as the size of the calling party address after the corruption, it will cause the stack of the kernel thread to be corrupted as well during the later processing of the

XUDT message and will yield to an OS panic.

The GT translation logic for GT's which are translated to DPC, SSN and new GT has been fixed to handle the XUDT and XUDS messages properly to avoid the stack corruption.

Programming Impacts None
Operational Impacts None
Documentation Impacts None
MML Help Text Impact None
MO and DB File Impact None

CRSnn17386 Kernel Memory Leak due to XUDT messages

Detailed Description Live kernel image is obtained from the field system to invesigate the memory leak condition.
From the kernel image it was identified that there were around 8.5M STREAMS message blocks allocated. We have picked some samples among these message blocks and checked for their sanity. The sanity of the message blocks and the associated data blocks were all good.
It was observed that all the leaked message blocks were the first segment of the SCCP XUDT messages.
In the code review it was identified that during the reassembly of received segmented messages at the SCCP driver only the last segment message is freed but the other segment messages are not freed.
This bug was identified to be the reason of the Kernel Memory Leak.

Solution In the code review it was identified that during the reassembly of received segmented messages at the SCCP driver only the last segment message is freed but the other segment messages are not freed.
This bug was identified to be the reason of the Kernel Memory Leak.
The SCCP driver re-assembly logic is fixed to release all segment messages including the first segment, middle segments and the last segment.

Programming Impacts None
Operational Impacts None
Documentation Impacts None
MML Help Text Impact None
MO and DB File Impact None

CRSnn17386 Netd disconnect failure

Detailed Description Time to time the t_snddis() system could fail when called .
Solution Netd will retry the t_snddis() in case of failure and a mlog will be printed to capture the failure event.
Programming Impacts None
Operational Impacts None
Documentation Impacts None
MML Help Text Impact None
MO and DB File Impact None

CRSnn17388 ADAX LSL L2 timer issue

Detailed Description	D7 sets the L2 timer values to HSL defaults even when the link is added as an LSL on ADAX boards.
Solution	D7 logic has been enhanced to set the L2 timer values correctly for both LSL's and HSL's defined on ADAX boards.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

Release 1.7.4

CRSnn17315 Linux Improvements

Detailed Description	Following additional Linux improvements were implemented on top of the 1.7.2 and 1.7.3 releases.
Solution	- mlogd deadlock condition fixed. - isupd worker threads are forced to join to the main thread during the process termination to avoid the core dumps due to DSM clean-up while worker threads are active. - DKM deadlock condition when the host with the global dkmd is powered down is fixed by improving the isupd takeover actions. -adaxm initialization issue after spmd is killed with sigkill is fixed. -ADAX board support is included for the RedHat 5.5 platforms.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

Release 1.7.3

CRSnn17315 Linux Improvements

Detailed Description	Following additional Linux improvements were implemented on top of the 1.7.2 release.
Solution	- isupd blocking during the HA tests is fixed. - CFN and CQM messages are added for the Chile ISUP variant. - db2date core dump is fixed
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17344 SGC SNMP problems

Detailed Description Missing SNMP functionalities were identified in SGC component.

Solution The missing functionality is added.

Programming Impacts None

Operational Impacts None

Documentation Impacts None

MML Help Text Impact None

MO and DB File Impact None

Release 1.7.2

CRSnn17315 Linux Improvements

Detailed Description Some of the ISUP and DSM functionalities were not ported to Linux OS completely in the scope of the 1.6.0 release. Also TCAP and SCCP performance was significantly poor on Linux platforms compared to Solaris OS on the exact same hardware.

Solution -The reason of the poor TCAP and SCCP performance was the frequent context switching and high rate of cache misses on Linux due to different scheduling and locking mechanisms in the kernel. This issue has been resolved by implementing a perimeter concept in the DRA framework to minimize the context switching's and cache misses. With this approach the TCAP and SCCP performance has been improved more than two times on Linux platforms.

- ISUP functionality was incomplete on Linux platforms in prior releases.
The missing functionality is completed and distributed ISUP operation is supported.

- Initial ISUP start-up could take long time if large number of ISUP circuits were configured. This was due to having all circuits being added one by one to the ISUP configuration. This unnecessary implementation has been removed and ISUP circuits are all added automatically once the ISUP circuit group is added. So the ADD-ISUPCCT:; and DELETE-ISUPCCT:; MML commands are removed completely and all the ISUP circuits are added and removed together with the ADD-ISUPCGRP:; and DELETE-ISUPCGRP:; MML operations. MOD-ISUPCCT:; command is still supported as usual in the previous releases.

- handling of the COT message in the ISUP-CC interface is corrected.

- redirecting info and redirecting parameters are supported for the Chile variant also.

- GRA message was sometimes not sent by the ISUP layer if there are some calls in progress in the range under some race conditions. This issue has been fixed in the ISUP layer

-i_trace functionality was not working for Linux platforms. i_trace utility is fixed to control the tracing functionality of ISUP circuits.

-If one of RSC, BLO, UBL, CGB or CGU messages were received when the CC was not registered it was causing the ISUP state machine corruption. This issue has been fixed in ISUP layer by preventing state machine corruption in case CC is missing for the circuit.

- DSMD was handling all the requests sequentially. This was causing some of the DSM services to get blocked when there are large number of segment synchronizations in progress. This blocking could yield other critical issues if it takes long time and ISUP traffic running at the same time. So DSMD is enhanced to service locking/unlocking and segment synchronization requests in parallel without blocking each other.

- DKM multiplexor could dismantle itself even is DKM users around if the DKMD process is killed with the SIGKILL signal. The DKM multiplexor is enhanced to wait for all DKM users before dismantling itself.

- The Linux OS crash in NIMOD module is fixed. This was a rare condition which was observed a couple of times in the test systems due to the corrupted message received from the Ethernet interfaces.

	- The configuration database upgrade procedure in Linux in ebs_setrelease operation is fixed. - The congestion handling mechanism in UPM – Gateway interface is corrected. Without this fix a blocking could happen in the UPM queue and could yield blocking in the SS7 traffic. -Red Hat 5.5 OS with 2.6.18-194.el5 kernel is support starts with this release on 64 bit X86 architecture. The ADAX ss7 cards will not be available in this release on RH 5.5 platforms. The ADAX card support will start with upcoming supports on RH 5.5.
Programming Impacts	None
Operational Impacts	Initial ISUP start-up could take long time if large number of ISUP circuits were configured. This was due to having all circuits being added one by one to the ISUP configuration. This unnecessary implementation has been removed and ISUP circuits are all added automatically once the ISUP circuit group is added. So the ADD-ISUPCCT:; and DELETE-ISUPCCT:; MML commands are removed completely and all the ISUP circuits are added and removed together with the ADD-ISUPCGRP:; and DELETE-ISUPCGRP:; MML operations. MOD-ISUPCCT:; command is still supported as usual in the previous releases.
Documentation Impacts	References to ADD-ISUPCCT:; and DELETE-ISUPCCT:; managed object operations needs to be removed from the user documentation.
MML Help Text Impact	ADD-ISUPCCT:; and DELETE-ISUPCCT:; managed object operations are not supported anymore. Isup circuits are added and removed with the ISUPCGRP operation automatically.
MO and DB File Impact	“isupcct” Database will not be maintained under the $EBSHOME/access/RUN*/DBfiles directory anymore.

CRSnn17222 TCAP Transaction Id validity check

Detailed Description	OS crash in TCAP driver
Solution	Analysis shows that an invalid transaction identifier is received from the TCAP application. Necessary checks have been implemented in the TCAP driver to identify invalid transaction identifiers and discard the messages.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17336 SCCP XUDT problem

Detailed Description	XUDT’s are sent with the same segmentation local reference.
Solution	Bug fixed in the algorithm that generates the segmentation local reference numbers.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17337 RTSET/SGCDPC problem

Detailed Description	Destination accessibility state cannot be recovered in the cluster after D7 shutdown on a host.
Solution	Improve the ASPD and UPM driver shutdown process such that the race window in the UPM state machine is reduced during D7 shutdown.
Programming Impacts	None

Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

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CRSnn17285 Configurable reserved pc's

Detailed Description	Customer needs to be able to add DPC=2 in their MTP database.
Solution	Make the reserved PC's of D7 configurable by introducing 2 new options to upmd (-l for the local reserved PC which is 1 by default, and -r for the remote reserved PC which is 2 by default).
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	Yes
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17286

Detailed Description	Crash in the nimod driver caused by invalid memory access due to missing check for the stream number.
Solution	Add the missing stream number check in the driver to prevent the crash.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17287 Problem in decoding SRISM response

Detailed Description	Issue 1) . The code for packing and unpacking SRISM response was not compatible with older version 1 and 2. Issue 2). In SRISM response code, enhancement done for map version 2+ was not compliant to standard.
Solution	Changed the code for SRISM response to make it standard compliant.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17288 Error code byte alignment issue(x86)

Detailed Description In case of Error Operation, Jain TCAP decodes the error code value as 0 if the length of the error code is 1. Also in case of error code length 4, the value of the error code which goes on network is the reverse of the actual error code. The same is the case with operation code as well.

Solution Fixed the byte alignment for the error code and operation code while sending and receiving in the Jain TCAP.

Programming Impacts None

Operational Impacts None

Documentation Impacts None

MML Help Text Impact None

MO and DB File Impact None

CRSnn17289 Adax board instance changes after reboot

Detailed Description Adax board instance changes after reboot.

Solution Remove path_to_inst modifications done in ebs_modremove script to prevent this problem

Programming Impacts None

Operational Impacts None

Documentation Impacts None

MML Help Text Impact None

MO and DB File Impact None

CRSnn17304 Snmpwalk problem

Detailed Description Generic error coming from dsms, while doing snmpwalk at some oid

Solution Fixed two files in snmp_i and one in smsc for this issue

Programming Impacts None

Operational Impacts None

Documentation Impacts None

MML Help Text Impact None

MO and DB File Impact None

CRSnn17307 xudt issue: sccp issues with GT loadsharing

Detailed Description XUDT messages incorrectly handled in the SCCP driver.

Solution Fixed the bug in SCCP driver so that incoming XUDT's can be responded correctly with GT Routing.

Programming Impacts None

Operational Impacts None

Documentation Impacts None

MML Help Text Impact None

MO and DB File Impact None

CRSnn17309 get_all operation for some mo's in oam: OAM API enhancement for GET_ALL

Detailed Description GET_ALL functionality in OAM library for the following MO's is requested by the customer: link, linkstat, lset, lsetstat, rtset, route, isuppcct

Solution Implement the new functionality as requested.

Programming Impacts None
Operational Impacts None
Documentation Impacts None
MML Help Text Impact None
MO and DB File Impact None

CRSnn17312 SCCP ANSI variant not sending IN-Service indication

Detailed Description If peer node takes more than 3 seconds for recovery after it becomes unavailable on D7 side, user application which is on top of D7 never gets the IN-Service indication for the peer subsystem in case of ANSI MTP and SCCP.

Solution MTP restart happens after 3 seconds and SCCP locally marks the peer subsystem allowed without sending any indication to user. This has been fixed
Programming Impacts None
Operational Impacts None
Documentation Impacts None
MML Help Text Impact None
MO and DB File Impact None

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CRSnn17223 adaxm driver crashes after hdc connection is unlinked

Detailed Description If adaxm driver receives a message from the upper connection after the bottom connections are removed it will cause a crash.
Solution Bottom connections will be checked before the downstream messages are processed.

Programming Impacts None
Operational Impacts None
Documentation Impacts None
MML Help Text Impact None
MO and DB File Impact None

CRSnn17222 Problem connecting with Siemens SG

Detailed Description Problem arises when the SGC sends a DAUD message with the affected SPC point code. D7/SGC needs a DAVA message to be received in order to set the SPC point code as "accessible", but the Siemens SG does not send either a DAVA or a DUNA message. According to Siemens, the DAUD message is only needed for remote SPC, i.e. SS7 point codes that are beyond the SG.

Solution The RFC 4666 in section 3.4.3 says:

The DAUD message MAY be sent from the ASP to the SGP to audit the availability/congestion state of SS7 routes from the SG to one or more affected destinations.

Consequently D7/SGC should not need a DAVA message to be received from the SG as it´s and adjacent point code. From our point of view, the SPC of the adjacent Signaling Gateway should be treated as accessible by the SGC, as soon as the SG is available from an M3UA pint of view.

The required modifications are:

1. New field for SGCDPC MO to indicate an adjacent PC; hence modifications for OAM tables and functions to accommodate this change.

2. Modifications in our M3UA library to alter the PC activation logic.

3. Modifications in db2date and db2text to accommodate the new field.

Programming Impacts None

Operational Impacts None

Documentation Impacts None

MML Help Text Impact None

MO and DB File Impact None

CRSnn17216 Transaction Id cannot be retrieved from the XUDTS message

Detailed Description Transaction Id cannot be retrieved from the XUDTS message.

Solution XUDTS messages are converted to the UDTS format in the SCCP driver.

Programming Impacts None

Operational Impacts None

Documentation Impacts None

MML Help Text Impact None

MO and DB File Impact None

CRSnn17205 Adax driver update to 1.57

Detailed Description Adax board drivers need to be updated. Old ones don't work properly in some cases.

Solution Old drivers have been replaced with the new ones

Programming Impacts None

Operational Impacts None

Documentation Impacts None

MML Help Text Impact None

MO and DB File Impact None

CRSnn17204 DSMS modifications

Detailed Description Minor modifications for DSMS product.

Solution The requested modifications will be reviewed and incorporated to the D7 codebase.

Programming Impacts None

Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17202 db2date compatibility problem

Detailed Description	Db2date compatibility is broken in version 1.5.9. 1.5.9 and later versions are compatible with each other, similarly previous versions are compatible with each other.
Solution	SG/SGC record size change is being handled to run db2date/db2text properly.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

Release 1.6.2

CRSnn17183 Support all 8 spans on Adax HDC boards

Detailed Description	Only the first 4 spans of the Adax hdc3 boards can be used with the D7 software. D7 adax driver should be enhanced to utilize all the spans on the hdc3 cards.
Solution	adaxm driver will be enhanced to utilize all the available spans on the hdc3 cards. It will also support hdc2 and hdc3 cards together on the same hardwareplatform.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

Release 1.6.1

CRSnn17201 D7 cannot detect the LAN became UP

Detailed Description	D7 cannot detect the LAN became UP
Solution	Due to host-to-network conversion, etmod doesn't get the M_DATA messages across the lan; SAP value is reversed (x86). Use htons where necessary to use the correct ethertype value.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17196 Incorrect l2cs output for in-service time

Detailed Description	In-service time is incorrect for pmc4539 and adax boards.
Solution	Problem is one of the fields of the port info structure is not initialized to current-time during board initialization; it is initialized to 0 instead. Previous state of all the links are kept and in-service time is updated accordingly, if the link state changes from another state to in service or in service to another state.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17194 Allow multiple SGPs with same IP address and different ports

Detailed Description	Allow the addition of multiple SGCSGPs sharing the same IP address, but using different ports.
Solution	This capability was already there, but was being prevented by a previous fix, which has now been rectified.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17192 8 byte TX/RX counter improvement

Detailed Description	TX/RX counters are implemented with 4 bytes which truncates soon under high traffic.
Solution	TX/RX counters are implemented with 8 bytes in both l2tool and mml
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17191 Allow invoke component after another component with same invokeId

Detailed Description	It is required that D7 TCAP API allows to put an Invoke component if another component with same invoke-id has been put before.
Solution	Remove the protection which prevents adding an Invoke component if another component with same invoke-id has been put before. Make sure there are not side effects.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17187 GT title translation could cause memory corruption

Detailed Description	If the called party address needs to be expanded during the global title translation it could cause kernel memory corruption at the data block cache. Blindly copying data on the streams message blocks might cause the memory in the next buffer to be overwritten if the copy size if miscalculated.
Solution	A new macro has been introduced in the D7 SCCP and TCAP drivers to run boundary checks on the streams message block before the memory copy operation. If any of the boundary checks would fail this is reported in the mlogs and the necessary corrective action will be taken.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17186 Problem with dis-linestat in Adax boards

Detailed Description	The dis-linestat operation returns with timeout on Adax boards.
Solution	The Adax API (anc_command) is used to get this information.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17184 D7 1.6.0 version information is incorrect

Detailed Description	The D7 version information is being shown as "v1.5.0" in the 1.6.0 release during D7 start up.
Solution	The version information now appears correctly, as "v1.6.0".
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17181 Crashes due to invalid tc_tbl_ptr access

Detailed Description	Invalid tc_tbl_ptr in the tcap driver is causing crashes.
Solution	Now, tc_tbl_ptr accesses are checked in the tcap driver, including macros, and there is a null check before the access is introduced.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none
MML Help Text Impact	none
MO and DB File Impact	none

CRSnn17149 Enhancement for apmd heartbeat-failure handling

Detailed Description	APMD kills a process (e.g., upmd, scmd) when there is a heartbeat failure, but there is no information as to why heartbeat failed.
Solution	The core of the target process to be killed is dumped, and hat_collect is run to retrieve information about the kernel threads.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none
MML Help Text Impact	none
MO and DB File Impact	none

CRSnn17148 Null pointer dereference in omap_report

Detailed Description	The spm_inet_host function returns null, which causes crash.
Solution	The return value of the spm_inet_host function is checked, and null dereferencing is avoided.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none
MML Help Text Impact	none
MO and DB File Impact	none

CRSnn17147 Race condition in abort and adopt recovery policies

Detailed Description	Race condition occurs in adopt and abort recovery policies under high traffic due to tr_tbl_ptr deletion problem.
Solution	DKM_NOWAIT options have been changed, with DKM_WAIT in the tcap_free_tr_tbl function for abort and adopt policies, to be ensure that tr_tbl_ptr deletion is finished before the remaining host tries to access it.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none
MML Help Text Impact	none
MO and DB File Impact	none

Release 1.6.0

CRSnn17144 Lack of debugging info after APMD kills process

Detailed Description APMD kills a process after a heartbeat issue, and there is not enough information to debug the problem in the mlogs.

Solution APMD will dump the core of the target process before killing it, so there will be more information available about the problem for debugging purposes.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

MML Help Text Impact none

MO and DB File Impact none

CRSnn17143 Alignment problem on x86 (dkm mutex)

Detailed Description Four-byte aligned mutexes cause crashes at DKM layer. The first parameter passed to the mutex_owner_running function is a valid address and the content is correct, but it is 4-byte aligned in each crash, and it should be 8-byte aligned.

Solution The passed parameter is a member of a struct and its alignment has been changed to fit 8-byte alignment.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

MML Help Text Impact none

MO and DB File Impact none

CRSnn17142 Linux fast stream support

Detailed Description Linux fast stream support

Solution D7 1.6.0 supports the following two linux versions on 64-bit X86 platforms:

- Red Hat Enterprise Linux AS release 4 (Nahant Update 6) kernel 2.6.9-67.ELsmp
- CentOS release 5.2 (Final) kernel 2.6.18-92.1.10.el5

D7 1.6.0 uses Linux Fast Streams version 0.9.2.x, which is maintained by NewNet CT LLC. The Linux Fast Streams RPMS should be obtained through NewNet, and should be installed on the platform before D7 installation.

Programming Impacts None

Operational Impacts None

Documentation Impacts None

MML Help Text Impact None

MO and DB File Impact None

Release 1.5.8

CRSnn17141 Buffer overrun prevention mechanism

Detailed Description	A memory move operation on a message block could exceed the data block boundaries if the size of the memory is miscalculated for some reason. This would yield corruption in the kernel memory and will cause other instability and operating system panics.
Solution	In order to determine and prevent this memory overrun conditions a new macro is used in D7 sccp and tcap drivers. This macro will check the boundary of the target address against the data block limits and takes corrective action if needed. If a corrective action is taken by the macro it is also reported in the mlogs in one of the following two formats. "Copy beyond mblk limits: 0x%p-0x%p, start:0x%p size:%d newsize:%d" "Wrong cmn_bcopy_onmp usage: 0x%p-0x%p, start:0x%p size:%d" If one of these mlogs is observed on the system it must be reported to NewNet TAC.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17140 OS crash due to invalid tc_tbl_ptr

Detailed Description	A TCAP-related OS crash occurred. The reason for the crash is a NULL pointer dereference in TCAP. The tc_tbl_ptr for the physdev of the received message is used even if it is null.
Solution	The tc_tbl_ptr is checked, and the message is discarded if it is null.
Programming Impacts	None
Operational Impacts	None
Documentation Impacts	None
MML Help Text Impact	None
MO and DB File Impact	None

CRSnn17138 Race condition in SCCP driver

Detailed Description	Race in SCCP driver--message received during subsystem close.
Solution	Use DRA locking to protect against the crash.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none
MML Help Text Impact	none
MO and DB File Impact	none

CRSnn17137 API initialization problem

Detailed Description	The D7 API is not initializing the dialogue type in the L_TC_CMP_MSG that is sent to the application.
Solution	The necessary corrections have been made in the TCAP API.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none
MML Help Text Impact	none
MO and DB File Impact	none

CRSnn17135 D7 fails to establish connection in dual-LAN configuration

Detailed Description	The following three problems have been identified in the cluster operation of D7: 1) When there is a permanent link establishment failure on an ethernet interface, it could prevent links on other ethernet interfaces from being established. 2) TCP/IP links could be taken out of service with heartbeat failure under high load. 3) Forced shutdown could be initiated due to TCP/IP congestion during routing changes with large mtp databases.
Solution	1) netd has been changed to process connection establisments in parallel to prevent one permanent establishment failure from blocking other link establishments. 2) The spm driver now checks the whole upstream belonging to a TCP/IP link before declaring heartbeat failure. 3) The nimod queue size has been tripled to prevent bursts from causing TCP/IP congestion, and nimod congestion-detection criteria have been enhanced.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none
MML Help Text Impact	none
MO and DB File Impact	none

CRSnn17134 XUDT load-sharing problem

Detailed Description	Traffic is generated by the Traffic Generator (TG, SPC: 7-31-7) towards the IN System (SPC: 0-64-0). When the IN system responds, XUDT messages are created, based on the size of the response messages. There are two routes defined on the IN system towards the TG. However, the XUDT messages are not load-shared between the two routes. For example; for response messages A and B, D7 (IN system) creates XUDT messages A1, A2, and B1, B2. So, normally, A1 and A2 should be sent over route-1, and B1 and B2 should be sent over route-2 by means of load sharing. But when XUDTs are created, all of these XUDT messages always follow the same route--they are not load-shared. However, if the message size is not big enough to create XUDT messages, then the UDT messages are load-shared correctly between the routes.
Solution	The SCCP flow for XUDT messages has been fixed.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none
MML Help Text Impact	none
MO and DB File Impact	none

CRSnn17133 Invalid dlgid values in TCAP API

Detailed Description	When cm_snd is called with dlgid -1, the customer application core dumps or a tr_id=0 scenario occurs in the tcap driver.
Solution	Fixed by rejecting invalid dlgid values in the tcap api.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none
MML Help Text Impact	none
MO and DB File Impact	none

CRSnn17131 MML binary remote-start problem

Detailed Description	Starting the mml binary remotely with a file argument fails withs the following error: [root@oblomov /]# rsh 192.168.43.46 "/opt/D7/access/bin/mml -f/export/home/orcun/MML_SH/commmands.txt 0" Man Machine Language User Interface - Version v1.5.0 Copyright (c) 1991-2004, SS8 Networks, Inc. All Rights Reserved <ERROR>:: Input source ambiguous The mml binary checks the parameters to see if a file is specified or not. If so, it reads the file for the commands. It also checks if the terminal is available from the execution platform to see if a redirection from a file is made. In case of a remote execution like rsh or ssh, there is no terminal available; therefore the mml executable thinks that a redirection from a file is given even if a "-f" parameter was supplied. Since it cannot find any redirected file in such a case, it fails with the "input source ambigious" error.
Solution	The check is corrected to include the case where the "-f" is provided.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none
MML Help Text Impact	none
MO and DB File Impact	none

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CRSnn17125 Sigtran statistics

Detailed Description M3UA statistics are to be kept and displayed by the NewNet Sigtran stack.

Solution Statistics data are accumulated by SGC, and displayed/cleared/exported by a utility program, named 'm3uastats,' located in the bin directory of SGC. The m3uastats -h command shows how to use the utility.

Examples of m3uastats usage:

>> m3uastats -d all: display all statistics data

>> m3uastats -d sum: display cumulative data (sum of data for all associations)

>> m3uastats -d 20003: display data for association 20003

>> m3uastats -c all: clear all data

>> m3uastats -c 2: clear data for association 2

>> m3uastats -e: export data to csv file and clear all data

Exporting to a csv file can be triggered automatically by SGC. This can happen either because the periodic csv export functionality is enabled or because a roll-over event (value exceeded the limit) occurred for a parameter. Periodically exporting to a csv file can be enabled by configuring the timer named oam_m3_stats_tmr in the aspd.conf file. It is by default commented out (value in milliseconds). This functionality can be enabled by modifying the aspd.conf file.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

MML Help Text Impact none

MO and DB File Impact non

CRSnn17121 apm_getstate misbehaves on x86

Detailed Description

The sms team has reported that the apm_getstate utility does not behave as it should on x86 machines. The apm_getstate utility on a x86 platform is as follows:

bash-3.00$ apm_getstate

cannot relay request to apmd - No such process [3]

where the output of the same command on a sparc platform with same configuration is:

bash-3.00$ apm_getstate

apmd run state on hasmsc ---> ACTV

Solution

The "no such process" message is generated because the apm_getstate utility cannot find the relevant process to check the state. The process is searched using its name, which is a 4-byte "string". These four bytes are treated as a "double word," not as a string, as in some of the source code. But in the apm_extfunc.C file, the memory area of this field is treated as a string, and the basic memory-copy operation is used to retrieve it. However, when that area is treated as a "double word" on an x86 platform, the bytes were reversed. This has been fixed.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

MML Help Text Impact none

MO and DB File Impact none

CRSnn17100 API call tcx_get_par_id() works incorrectly

Detailed Description

The api function tcx_get_par_id() (a part of the TCAPEXT library) is not performing as expected. It returns -1 on valid parameter IDs. In addition, it returns 0xDFDF47 instead of 0xDF47 (the true parameter ID).

Solution

The tcx_get_par_id() function reads the value byte by byte, and checks if this is an extended type parameter ID. The check was missing a pointer increment. This has been fixed.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

MML Help Text Impact none

MO and DB File Impact none

CRSnn17092 System crashes when using third-party SCCP layer

Detailed Description	The customer reported four crashes for the 1.4.0.7 release from the live nodes where a third-party SCCP layer is used on top of UPM. The core files indicate that the system crashes in the sccp_alias_handler() fucntion, which should not be called if the native SCCP layer is not used.
Solution	In the sscp_alias_handler() function, the SCCP_BOT queue is checkjed for the given sp, and if the queue is null, ie., there is no such SP connection on SCCP, the function returns immediately.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none
MML Help Text Impact	none
MO and DB File Impact	none

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CRSnn17120 TCAP crash during load test

Detailed Description	An invalid pointer access is causing the crashes.The pointer is a transaction table pointer. This pointer is determined by using the tr.id, host id, and dialogue id values. The transaction id is extracted from the message sent to the TCAP, and in the crash the tr_id value is found to be 0 in the message. In such a case, all the dialog id and host id values are calculated as 0, because the calculation includes an an operation with the tr.id value. When all these values are 0, the tr. table pointer cannot be calculated correctly.
Solution	If the values are all zero, the message is discarded.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none
MML Help Text Impact	none
MO and DB File Impact	none

CRSnn17118 The timers on the UPM queues cause crashes when they are closed

Detailed Description	The customer reported two crashes, on x86 and sparc platforms, which have different test scenarios. The common point in these crashes was the queue service handler trying to service a closed queue. This handler is set by the UPM driver.
Solution	The timers are set on the upm queue service routines for triggering the queues to be serviced again. This is unnecessary in Solaris 10.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none
MML Help Text Impact	none
MO and DB File Impact	none

CRSnn17117 Indefinite-length messages causes memory corruption

Detailed Description Customer reported several crashes during tests in their labs. The core file reveals that there is memory corruption in the kernel, but the crashes happen at random places. The corrupted message is passed to other stacks (eg. SPM, TCP, etc.), and when the memory is read, the corruption causes a crash. The memory corruption is caused by the TCAP layer, which parses the indefinite-length messages and converts these messages to long-length form. The memory corruption is introduced during this conversion.

Solution The culprit, an unnecessary increment in the b_wptr field of the mblk_t structure, has been removed.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

MML Help Text Impact none

MO and DB File Impact none

CRSnn17116 The tcm_list command hangs and consumes system resources

Detailed Description The customer uses a script to gather information about the TCAP layer. This script periodically runs the tcm_list command. Sometimes, when the tcm_list is called, it hangs and consumes a lot of system resources.

Solution The tcm_list command allocates some memory, and sends it to the TCAP layer for it to fill up with statistics information. TCAP checks the size of this memory, and decides if it is enough, depending on the amount of data to be reported. If it is not enough, an ENOMEM error is returned to the tcm_list process, which tries to allocate more memory, simply by doubling the size. The problem occurs because of this doubling scheme. The TCAP decision condition checks if there is anything to report, and if not, it returns ENOMEM instead of ENOTHINGLIST. So the tcm_list allocates double memory, and sends the request again. The same error code is returned, and this process causes more memory to be allocated, until system is out of memory. This situation has been fixed, so that ENOMEM is no longer returned when ENOTHINGLIST is called for.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

MML Help Text Impact none

MO and DB File Impact none

CRSnn17115 OAM message-handling problem

Detailed Description	Due to a race condition over an SPM file descriptor, the spm message, which is responsible for the connection audit mechanism, is received in a wrong context (and is thus ignored) causing the connection audit mechanism to stop.
Solution	Any spm message received in the wrong context is put in a queue, and processed afterwards in the correct context.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none
MML Help Text Impact	none
MO and DB File Impact	none

CRSnn17108 Uneven M3UA traffic

Detailed Description	When a D7-SG/SGC cluster of hosts generates traffic in load-sharing mode, upmds distribute the traffic among four aspds. However, when an aspd process receives traffic from the upmds with a destination that it doesn't see as available, it sends the messages to another aspd which sees the destination as available. These messages are forwarded to the first aspd process found in the list which has the destination available.
Solution	The forwarding of the messages is now done in round-robin fashion, instead of towards the first aspd process in the list.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none
MML Help Text Impact	none
MO and DB File Impact	none

CRSnn17107 IP address wrong for x86

Detailed Description	The IP address is read incorrectly from the trap.conf file on x86 platforms due to an ENDIAN problem.
Solution	The ENDIAN problem has been resolved..
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none
MML Help Text Impact	none
MO and DB File Impact	none

CRSnn17106 M3UA timers (aspm and aspt)

Detailed Description	T(ack) timers (as defined in RFC 3332) should be provided, and they should be configurable (with a default of 2 seconds) in the NNCT M3UA stack.
Solution	ASPM and ASPT timers have been enabled in M3UA, and they are configurable by means of the ASPD.conf and SGPD.conf files.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none
MML Help Text Impact	none
MO and DB File Impact	none

CRSnn17105 ASPID field to be included in mod-sgcsgp command

Detailed Description	There is a problem while loading db2text output to mml. The SGSGC stack returns an error for MOD-SGCSGP operations when the ASPID field is not included in the command.
Solution	The db2text tool now provides an ASPID field for the mod-sgcsgp command.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none
MML Help Text Impact	none
MO and DB File Impact	none

CRSnn17088 Support for GCC.3.4.2 libraries in D7

Detailed Description	Some customers have requested support for GCC3.4.2-compiled API libraries.
Solution	The compilation and packing scripts have been changed accordingly.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none
MML Help Text Impact	none
MO and DB File Impact	none

Release 1.5.5

CRSnn17103 ddi_peek() calls unsupported by Solaris 10 on x86 platforms

Detailed Description	Board drivers fail to attach on the x86 platforms with the latest Solaris 10 patches.
Solution	Board drivers now attach on the x86 platforms with the latest Solaris 10 patches.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none
MML Help Text Impact	none
MO and DB File Impact	none

CRSnn17102 Bug in snmp agent which affects x86 releases

Detailed Description	There is an unnecessary network byte order conversion in the snmp agent.
Solution	Fixed by removing the network byte order conversion.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none
MML Help Text Impact	none
MO and DB File Impact	none

CRSnn17101 The statd process fails on T5440 platforms

Detailed Description	The statd process uses the DKM library, which has not been tested intensively on the user space. It uses a special way to utilize the available CPUs on a platform. First it gets the number of CPUs from the system and acts accordingly. However, the function for this is designed to be used on platforms with fewer than 20 CPUs. The limiting literals must be changed, and a clever check implemented to use the kernel threads appropriately.
Solution	Fixed.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none
MML Help Text Impact	none
MO and DB File Impact	none

CRSnn17099 Issue with indefinite length format when used recursively

Detailed Description	The TCAP driver and TCAP library assumes that several fields in the dialog portion of a message have "short form" length representation. However, it is stated in the recommendation that every field may use short, long, or indefinite length form in the length representation.
Solution	The related source code in the TCAP driver and library is fixed to be able to handle any representation type in the length field.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none
MML Help Text Impact	none
MO and DB File Impact	none

CRSnn17096 D7 1.5.x cannot handle TC_UNI messages

Detailed Description	The major change from 1.4.x releases to the 1.5.x releases is in the get_a.c and get_c.c files in the TCAP API. In these files the comp_tbl pointer is acquired directly in 1.4.x releases where a special function is used in the 1.5.x releases. The problem is in the this specific function, which returns a null because the owner cannot be identified for the given dialog id, which is 0 for the TC_UNI type messages. Since the owner of the transaction cannot be verified a "Permission Denied" error is generated.
Solution	Fixed.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none
MML Help Text Impact	none
MO and DB File Impact	none

Release 1.5.4

CRSnn17093 TCAP cannot handle messages of indefinite length

Detailed Description	After some major modifications in the KDB library to the memory copy and move functions, the TCAP library cannot handle indefinite length messages in all the releases after 1.5.1. In particular, the introduced memory functions mishandle overlapped memory operations, corrupting the message buffer.
Solution	The functions causing the problem have been replaced with fixed ones that can handle memory operations on overlapping regions.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none
MML Help Text Impact	none
MO and DB File Impact	none

CRSnn17091 D7 JAINTCAP crash

Detailed Description	When registering to the D7 Tcap layer with tcm_open, the client application requests a number of buffers to be used for temporary component storage purposes. In the Sicap crash case, the client application requests an unreasonably big memory for buffers. Since the buffer size is written to an integer, it overflows and the operating system allocates a memory much smaller than the requested size. Then when D7 tries to use these buffers, assuming that the OS has granted the requested memory, it goes outside the memory allocated by the OS, and the process crashes.
Solution	Check overflow conditions during buffer allocation. In tcm_open we've added a check for an overflow condition during memory allocation, and if an overflow is detected (or the operating system is not able to allocate the requested memory), the tcm_open call returns an ENORES (errno 288 - Not enough resources) error. This failure is propagated to the the Java application as an exception when the addJainTcapListener method of the JainTcapProviderImpl class is invoked during registration.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none
MML Help Text Impact	none
MO and DB File Impact	none

Release 1.5.3

CRSnn17090 JainTcap malfunction

Detailed Description	On an x86 system running D7 1.5.2, when the JainTcap application was registered, and the scmd demon was afterwards killed, the JainTcap instance registered to the sccp was still alive, even if the scmd demon did not appear in ebs_ps list.
Solution	In case the sccp deamon is killed, the shutdown handler in the C library is called within the jain message receive thread, and when the shutdown handler calls the function to stop the jain thread from the same thread, it blocks. Also JainProvider does not check shutdown events received before calling the tcap deregistration function, which causes cylclic shutdown calls. The shutdown handler has been changed to not call the stop_polling_thread, and the JainProvider implementation has been changed to not invoke tcap deregistration when a deregistration event has already received from the native C side.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none
MML Help Text Impact	none
MO and DB File Impact	none

CRSnn17087 apm string inversion problem on Solaris x86

Detailed Description	The apm_ps process displays the state of the D7 stack by sending a request to the apmd stack over SPM, and parsing the returned data. The four-character state string is stored in a dword_t type variable. The conversion from dword_t to character string works fine for Sparc platforms, but is revex86 platforms because of the endianness.
Solution	The conversion mechanism has been updated to handle both Sparc and x86 cases.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none
MML Help Text Impact	none
MO and DB File Impact	none

CRSnn17084 getcfg displays incorrect information for pmc4539 cards on SF V245

Detailed Description

On a Sun-Fire V245 platform with a pmc4539 board installed on it, when the getcfg script is run, the output is as follows:

```
manager@mocor2dfes1: manager > getcfg
Driver     Board Type  Instance  Slot   Slot Info
---------  ----------  --------  -----  ----------------------
/export/amgr/access/bin/getcfg[184]: 16#0/pci@2: bad number
```

Solution

The getcfg script works on the device paths, and these paths are strictly dependent on platform type.

The platform-specific information is parsed in the getcfg script, and the appropriate information printed out to the console, based on information obtained from SUN for the SF V245 platform.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

MML Help Text Impact none

MO and DB File Impact none

CRSnn17083 D7 to support Adax HDC3 PCIe cards

Detailed Description D7 is to support Adax HDC3 cards, as well as the Adax HDCII cards, on Solaris Sparc and Solaris X86 releases.

Solution D7 now supports HDC3 cards. Installation, driver, and firmware changes have been implemented in the D7 1.5.3 release.

Programming Impacts No programming changes are required to use HDC3 cards.

Operational Impacts No major operational impact. The getcfg command will identify the HDC3 and HDCII cards and corresponding instance numbers correctly.

Documentation Impacts Adax HDC3 cards are listed as supported cards on Solaris sparc and X86 platforms.

MML Help Text Impact none

MO and DB File Impact none

CRSnn17082 sgcdpc pointcodes set to 0-0-0 after upgrade

Detailed Description	Corruption was observed in the ASP database after the ASP was configured and restarted, when the SGPs are unreachable. Some point codes were set to 0-0-0 in the sgcdpc table, and records were corrupted in the sgcastfc table.
Solution	The problem is caused by memory corruption due to invalid association addresses in SCTP timers. Reallocation (to accomodate the growth) of the sctp association table invalidates all the association addresses passed to the timers previously started, and connection timeout resets the old memory which is now allocated for dpc/astfc tables. All SCTP timer functions have been changed to operate on association ID, not association address.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none
MML Help Text Impact	none
MO and DB File Impact	none

CRSnn17078 OS crash during load test

Detailed Description	An OS crash occurred during load tests. D7 received a TCAP message before tcm_open call returned for a TCAP application.
Solution	Null-pointer access is prevented by checking the presence of a TCAP application before trying to process a received TCAP message.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none
MML Help Text Impact	none
MO and DB File Impact	none

CRSnn17063 The etmod cannot detect the cable problems on nxge interfaces

Detailed Description	The customer was testing the beahviour of the D7 stack when there is a network cable fault. In order to simulate this, they unplugged the network cable. Although the kernel posted a log to the /dev/log device (i.e., to the ETMOD) the system could not detect this network fault, and did not issue a forced shutdown. When a manual "ifconfig nxge0 down" command was used by the customer, the system detected the malfunction and issued a forced shutdown. This case occured only on the systems with nxge and e1000g interfaces. The system detects the cable failures using the log messages sent by the kernel to the /dev/log device. The ETMOD registers to this device and waits for these messages. ETMOD parses the string and looks for some specific strings to detect the failure. ETMOD successfuly detects the hme and bge interfaces, but fails for the nxge and e1000g. The reason for this is that the warning text messages for the hme and bge interfaces are the same, and contain the string "link down," which is detected by the ETMOD. However the warning texts for the nxge and e1000g are different. These messages must be added to the searched strings list. Moreover, the warning messages must be parsed to detect which nxge interface is down.
Solution	The additional strings have been added to the set of files checked. In addititon, the kstat utility is employed to detect the nxge interface changes.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none
MML Help Text Impact	none
MO and DB File Impact	none

Release 1.5.2

CRSnn17079 modify alarmd to send snmp traps

Detailed Description	The alarmd binary delivered in D7 releases does not send SNMP traps by default. The procedure for the customer to achieve this is to modify the sample code provided in the sample directory of D7 releases and build a new alarmd binary.
Solution	The alarmd binary has been modified to send SNMP traps for D7 alarms.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none
MML Help Text Impact	none
MO and DB File Impact	none

CRSnn17076 jain dereg method hung

Detailed Description	Jain Tcap hangs during application deregistration. Customer's pstack trace indicates a deadlock between the user (initiating the de-register request) and Jain worker threads when trying to exit. Code reading revealed a potential dedalock situation related to how the Jain worker thread was stopped and how the user thread waited for the worker to exit.
Solution	Existing mechanism depends on the thr_kill & thr_join calls to stop the thread and wait for its exit, but there is a potential race condition which will result in a dead-lock if the worker thread is signalled during a certain part of the code. The solution is to replace the kill & join mechanism with sema_trywait, sleep on the user thread, and use the timeout mechanism of spm_rcv to wake the worker thread periodically.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none
MML Help Text Impact	none
MO and DB File Impact	none

CRSnn17075 operation code has wrong byte order for x86

Detailed Description	Operation code parameter for Jain/Tcap messages has the wrong byte order for x86 architecture.
Solution	Fix the appropriate places in the code so that the byte order is correct for machines with different architectures.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none
MML Help Text Impact	none
MO and DB File Impact	none

CRSnn17074 Crash while adding link to HDCII-LPe board

Detailed Description A system crash occurred when attempting to add a link to an HDCII-LPe board.

Solution The problem was caused by an incomplete configuration. Before adding any links, the ports must be switched to the available timeslots. During this switching, the internal data structures of the HDCII-LPe driver are initialized. When an add-link command is issued before switching any ports to the timeslots, the uninitialized data in the HDCII-LPe drivers causes a system crash. A mechanism to avoid adding any links before switching the ports to the timeslots has been added to the upmd process.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

MML Help Text Impact none

MO and DB File Impact none

CRSnn17071 HDCII-LPe crash because of old drivers, additional utility files

Detailed Description The new batch of HDCII-LPe boards causes a system crash when they are added using the mml utility. In addition the old boards that work with the old drivers require utilities for MTP-L1 and L2 statistics.

Solution New software drivers were requested from the vendor, and they are added to the packages. For the statistics, the utilities from the vendor are included in the package.

Programming Impacts none

Operational Impacts Yes. Third-party tools are required for MTP-L1 and L2 statistics.

Documentation Impacts Yes. The usage of the hdctest, qcx_conf and qcxtest utilities must be included in the documentation.

MML Help Text Impact none

MO and DB File Impact none

CRSnn17070 SnmpTrapOID OID value is updated

Detailed Description The current Object Identifier 1.3.6.1.6.3.1.1.5.0 is not compliant to SNMPv2, so that the customer applications cannot receive D7 alarms.

Solution The Object Identifier for the SnmpTrapOID is set to 1.3.6.1.6.3.1.1.4.1.0.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

MML Help Text Impact none

MO and DB File Impact none

CRSnn17069 ASTFC state changes after host restart

Detailed Description	The origpid field has been added to the ASTFC record.
Solution	The db2text/db2date tool needs to be updated since SG/SGC ASTFC record has changed. AS/IPAS record change with CRSnn17043 should be incorporated as well. Impact on db2text/db2date tool.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	Yes. ASTFC MO has changed.
MML Help Text Impact	Yes. ASTFC MO has changed.
MO and DB File Impact	Yes. ASTFC MO has changed.

CRSnn17068 Update for Netra T2000 and pmc4539 unloading

Detailed Description	On the Netra T2000 systems, the signature of the pmc4539 board is different and the getcfg function is not adapted for this change. In addition, adding a second pmc4539 board to a system via the mml is not possible.
Solution	The getcfg script is changed to reflect the string change for the Netra T2000 platforms. The second part of the problem is because of the ebs_modunload script which unloads the iph_wan_ module (a driver from the vendor). The ebs_modunload is changed so that it does not unload this module.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none
MML Help Text Impact	none
MO and DB File Impact	none

CRSnn17067 SCTP association shutdown / restart problem

Detailed Description	If the same IP address is configured twice by accident via add-sgcsgp (or add-sgcipsp), different managed objects are created with the same IP, causing the SCTP association to fail later with error "Address already in use".
Solution	SGCSGP and SGPIPSP managed-object IP addresses are checked against the existing database to prohibit adding the same IP address twice.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none
MML Help Text Impact	none
MO and DB File Impact	none

CRSnn17066 Invalid routing context encountered in ASP active messages

Detailed Description	If the SGP managed object is added (or deleted, or re-added) after the AS managed object is created, traffic status (via sgcastfc) cannot be activated.
Solution	The code didn't build the necessary link between the AS and the SGP tables if the SGP managed object was added (or deleted or re-added) after the AS managed object was created. The RCID list index in the AS record, along with the AS indexes in the SGP table, were not being updated; so the corresponding ASTFC was not activated.
Programming Impacts	A function has been implemented to establish the missing link between the SGP and AS tables during the add-sgcsgp operation.
Operational Impacts	none
Documentation Impacts	none
MML Help Text Impact	none
MO and DB File Impact	none

CRSnn17063 The etmod cannot detect the cable problems on e1000g and nxge interfaces

Detailed Description	The etmod module checks the messages from the kernel to detect any failures in the network interfaces. However, each network interface has different strings for reporting the problem, and the set of strings checked by etmod does not include the strings for e1000g and nxge interfaces. Moreover, the nxge interface does not display any instance number in the problem string. Instead it displays an address info, and it has to be mapped to an instance number.
Solution	The new string is added to the set of strings. To be able to handle the nxge interface problems, the kstat api is employed. The address information is mapped to the instance information using kstat utility, and when a problem is reported from the nxge interface, the address information is checked with the stored address information, and the matching interface is flagged as down.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none
MML Help Text Impact	none
MO and DB File Impact	none

Release 1.5.1 GA

CRSnn16991 dsmd congestion problem

Detailed Description The problem occurs (dsmd congestion, burst of re-synch requests and mlogs) when a dsm sync message is lost in the middle of the sync process of D7 hosts.

When an out of order message arrives at the local host as a DSM_VERIFY message, the local host sends a DSM_REJECT message to the remote host. And if this is a large memory segment to synchronize, there are a lot of DSM_VERIFY messages following the lost message, and they will all be out of order. So for each and every one of these out of order messages a DSM_REJECT message will be sent. And when a DSM_REJECT message is received at the remote end, it sends a DSM_REVERT message in response. When a DSM_REVERT message is received at the local host, it will issue another sync request. This is the cause of the "re-sync request burst" we observe.

Solution The solution is not to issue another sync request when a DSM_REVERT message is received because there is a guard timer ready to protect against incomplete sync operations.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

MML Help Text Impact none

MO and DB File Impact none

CRSnn17034 Panic registering ebs_apidemo

Detailed Description Core dump when using ebs_apidemo to register with SCCP.

Solution spmbind_t.genuse field should be initialized to -1. Also, driver side (sccp) is made robust to handle uninitialized spmbind_t.genuse field.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

MML Help Text Impact none

MO and DB File Impact none

CRSnn17047 support HSL over pmc4539 on Solaris X86

Detailed Description The interphase pmc4539 boards were not supported on Solaris X86 platforms in 1.5.0 release.

Solution The interphase pmc4539 board interface is ported to solaris x86 platforms.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

MML Help Text Impact none

MO and DB File Impact none

CRSnn17048 HMDT Spare bits alarms

Detailed Description	When MTP layer is configured in ANSI INTERNATIONAL mode it should allow the priority bits to be set in the SIO octet.
Solution	MTP layer is changed to allow multiple priority level messages in ANSI International mode.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none
MML Help Text Impact	none
MO and DB File Impact	none

CRSnn17053 Integrate HDCII-LP PCIe cards to D7

Detailed Description	Use HDCII-LP cards to support PCIe bus architecture for SS7 interface.
Solution	HDCII-LP card is integrated to Distributed7 for the Solaris Sparc and solaris X86 platforms. Host with PCIe interface can use the HDCII-LPe cards for SS7 connectivity. HDCII-LPe cards can be used either for E1 or T1 connections. Both HSL and LSL links can be defined on the HDCII-LPe cards.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	Yes. Refer to the D7 1.5.1 User Manual.
MML Help Text Impact	Yes. Already incorporated in the release.
MO and DB File Impact	Yes. Already incorporated in the release.

CRSnn17056 tcap_c_get_len caused a crash

Detailed Description	tcap_c_get_len function reaches invalied address if an incomplete (invalid) mesage is received.
Solution	Prevent invalid memory access by checking the wptr of the mblk structure.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none
MML Help Text Impact	none
MO and DB File Impact	none

CRSnn17057 tcm_list operation caused system crash

Detailed Description	During the shutdown process of the TCAP applications and the tcmd daemon, while waiting for distributed locks, the system blocks for a while. When the hat_collect script is run, this scripts calls the tcm_list process, which requests transaction lists from the TCAP mux. However, since the TCAP mux is in a shutdown state, the transaction tables are in an invalid state. The IOCTL request issued by the tcm_list process tries to copy the transaction table data from the kernel memory to the user memory space. During this operation the TCAP_CLOSED array is not checked before determining the size of the data to be copied. Therefore the system crashes during the memory copy operation due to invalid pointers.
Solution	The calculation of the data size to be copied is changed. The check for TCAP_CLOSED flags is introduced into the size calculation process and then a (size == 0) is also included in the checks before the memory copy operation. Hence, when the TCAP is in a shutdown state and the TCAP_CLOSED flags are updated, the TCAP driver will not try to copy the invalid transaction tables, and the system won't crash because of the invalid pointers which are not yet updated.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none
MML Help Text Impact	none
MO and DB File Impact	none

CRSnn17062 Error in Jain TCAP with empty RESULTREQ

Detailed Description	An exception is thrown while sending a ReturnResult message without operation code and parameters.
Solution	JAIN TCAP library is enhanced to conform with the specifications (Q773) which suggest that a ReturnResult message can be built without the operation code and parameters.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none
MML Help Text Impact	none
MO and DB File Impact	none

Release 1.5.0 GA

CRSnn16977 SCMD drops all messages when traces are activated

Detailed Description scmd seems to dump all the outgoing messages when the traces are activated.

Solution Replace KDB_DUPMSG with DKM_COPYMSG in cmn_log_msg to make sure that the data will be put into tcap queue after sent to logd process.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn16973 Unbalanced link utilization with GT loadsharing

Detailed Description Some of the ss7 links can not be utilized if GT loadsharing is used.

Solution The tcap library and sccp driver is fixed to address this issue.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn16972 Issues identified in the D7/SG/SGC 1.5.0 tests

Detailed Description Two problems, one is something wrong with converting the database files of sg/sgc into text, the other is that mml help for SGC doesn't work.

Solution Fix 2 bugs for db2text issue, and correct the format problem of SGC_help.text to make mml recognise the SGC help.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn16960 display-ss7board" shows something incorrect

Detailed Description If deleting the previously added HSL and then adding the board again, the "display-ss7board" shows something incorrect in the hostname field.

Solution Fixed a bug of array bound exceeded when deleting a HSL board without configuring ss7 links.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn16952 snmp_i process keeps crashing every 5 minutes

Detailed Description	In asn_parse_int function .we don't check the pointer validity.
Solution	Add the validation of the pointer.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none

CRSnn16838 Support concurrent ss7 link and capability route

Detailed Description	Support concurrent capability and ss7 route.
Solution	Remove the CAPABILITY attribute from RTYPE in RTSET mo. Present the capability inroute mo defination in order to achinve both ss7 and ip link routes to the same rtset.
Programming Impacts	Yes, the API oam_rtset() for RTSET mo is changed.
Operational Impacts	Yes, the mo operations for RTSET are changed.
Documentation Impacts	Yes, D7 API and user manual are changed for the RTSET MO change.

CRSnn16637 Support 64bits API libraries for D7

Detailed Description	Compile 64bits API libraries in D7.
Solution	Decide the directory structure of 64bits libraries and binaries and mofify build and package scripts to generate all the relating 64bits libraries and binaries.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none

CRSnn16480 spmd often crashes when adding the HSL board

Detailed Description	Unable to add the HSL board to sunfirev440-1. D7 terminates the "spmd" then restarts it.
Solution	Fix an array boundary exceeded bug resulting into "spmd" crash.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none

CRSnn16438 qtimers are not stopped when queue is closed

Detailed Description A module is forgetting to stop a timer started with qtimeout when the queue is closing. The left-behind timer kicks in after the queue has been invalidated and causes a crash.

Solution The timers are now started with timeout instead of qtimeout.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn16419 isup thread handling needs to be signal-safe

Detailed Description Synchronezation problem exists when starting isupd if a setup has more than 3 hosts.

Solution Block all the signals when add or delete messages from isupd message list.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn16408 quntimeout call hangs during strclose

Detailed Description When D7 is stopped, sometimes processes hang, and a kernel analysis shows various kernel threads waiting on a mutex to stop q timers. The mutex in question is being held by another thread, which is waiting on a qtimeout call.

Solution D7 drivers were fixed to address this deadlock issue.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn16370 Transaction ID with 0 value is generated in tcap sometimes

Detailed Description Since the value 0 is used as a non-existent/invalid transaction ID throughout the TCAP software, this results in the dropping of some of the client's transactions.

Solution The TCAP transaction-ID construction mechanism has been modified to not generate 0-valued transaction IDs.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn16369 Add dpc status audit for isupd

Detailed Description	When dpc status indication messages including M_MTP_STATUS_indication, M_MTP_PAUSE_indication and M_MTP_RESUME_indication are lost, dpc status in upm will be inconsistent with that in isupd.
Solution	An audit has been implemented to synchronize ISUPD node states with MTP destination nodes on a periodic basis.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none

CRSnn16314 Solaris 10 related changes

Detailed Description	Support for Solaris 10, and fix the problems resulted from the difference between Solaris 10 and previous version.
Solution	Remove some system parameter setting in ebs_tune skipped by Solaris 10 and later OS versions, and fix a problem due to the change of system API strerror().
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none

CRSnn16293 Support Abort Policy on TCAP

Detailed Description	Implement tcap abort policy. When one instance dies, tcap driver can: 1) send abort to the remote peer. 2) send abort information to TC_USER.
Solution	Implemented tcap abort policy.
Programming Impacts	Yes
Operational Impacts	none
Documentation Impacts	Yes

CRSnn16181 Support for x86 platform

Detailed Description	D7 code must be ported to the Solaris 10 x86 platform.
Solution	Support for i386-compatible processors using the Solaris 10 (X86) OS (using 64-bit kernel architectures) has been incorporated in D7.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	Yes

Release 1.5.0 beta

CRSnn16952 snmp_i process keeps crashing every 5 minutes

Detailed Description	In asn_parse_int function, we don't check the pointer validity.
Solution	Added validation for the pointer.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none

CRSnn16951 OS crash with 1.4.0.7+ patches

Detailed Description	In kdb_freemsg function, the mp pointer is not verified.
Solution	Checked the mp pointer.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none

CRSnn16860 Messages seem to be swallowed by SCCP daemon

Detailed Description	If the D7 operator attempts to define an already configured GTENTRY once more it will cause corruption in the distributed kernel resident data of the sccp driver. Due to this corruption, some of the GT translations fail and will not be routed properly by the sccp driver.
Solution	sccp driver and daemon process are fixed to be resillient against such configuration mistakes.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none

CRSnn16838 Support concurrent ss7 link and capability route.

Detailed Description	Support concurrent capability and ss7 route.
Solution	Removed the CAPABILITY attribute from RTYPE in RTSET mo. Present the capability information in route mo definition in order to achieve both ss7 and iplink routes to the same rtset.
Programming Impacts	The mo operations for RTSET are changed.
Operational Impacts	none
Documentation Impacts	none

CRSnn16637 Support 64 bits API libraries

Detailed Description Compile 64bits API libraries in D7.

Solution Decide the directory structure of 64bits libraries and binaries and modify build and package script to generate all the relating 64bits libraries and binaries.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn16480 spmd crashes when adding the HSL board

Detailed Description Unable to add the HSL board to sunfirev440-1. D7 terminates the "spmd" then restarts it.

Solution Fix an array. Boundary exceeded bug resulting into "spmd" crash.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn16438 qtimers are not stopped when queue is closed

Detailed Description A module is forgetting to stop a timer started with qtimeout when the queue is closing. The left-behind timer kicks in after the queue has been invalidated and causes a crash.

Solution The timers are now started with timeout instead of qtimeout.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn16419 isup thread handling needs to be signal safe

Detailed Description Synchronization problem exists when starting isupd if a setup has more than 3 hosts.

Solution Block all the signals when adding or deleting messages from isupd message list.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn16370 D7 transaction-ID construction mechanism results in 0-valued transaction IDs

Detailed Description Since the value 0 is used as a non-existent/invalid transaction ID throughout the TCAP software, this results in the dropping of some of the client's transactions.

Solution The TCAP transaction-ID construction mechanism has been modified to not generate 0-valued transaction IDs.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn16369 DPC status in UPM inconsistent with that in ISUPD

Detailed Description When DPC status indication messages--including the M_MTP_STATUS_indication, M_MTP_PAUSE_indication, and M_MTP_RESUME_indication--are lost, DPC status in UPM will be inconsistent with that in ISUPD.

Solution An audit has been implemented to synchronize ISUPD node states with MTP destination nodes on a periodic basis.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn16314 Support for Solaris 10 for X86 (64-bit kernel only)

Detailed Description Support for i386 compatible processors using the Solaris 10 (X86) OS. This support shall be provided for 64 bit kernel architectures only.

Solution TCAP adopt revovery policy implemented and provided 64bits API libraries.

Programming Impacts Support concurrent capability and ss7 route. The mo operations for RTSET are changed. Besides, the structure definition of oam_rtset_t in function oam_rtset has been changed.

Operational Impacts TCAP adopt recovery policy has been made functional. Note, however, that turning on TCAP redundancy negatively impacts the performance of the D7 cluster. The number of transactions processed is proportional to (linear with) CPU usage, and D7's transaction processing power is cut in half when any kind of transaction recovery is deployed.

Documentation Impacts The mo operations for RTSET are changed, see 9.4.4 in the Distributed7 User Manual.

CRSnn16293 Support abort policy in TCAP

Detailed Description TCAP abort policy to be implemented.

Solution A TCAP abort policy for both outgoing and incoming traffic on TCAP has been implemented in D7. When one instance dies, the TCAP driver can 1) send an abort to the remote peer, 2) send abort information to TC_USER.

Programming Impacts none

Operational Impacts Turning on TCAP redundancy negatively impacts the performance of the D7 cluster. The number of transactions processed is proportional to (linear with) CPU usage, and D7's transaction processing power is cut in half when any kind of transaction recovery is deployed.

Documentation Impacts none

CRSnn16181 Support for Solaris 10 x86

Detailed Description D7 code must be ported to the Solaris 10 x86 platform.

Solution Support for i386-compatible processors using the Solaris 10 (X86) OS (using 64-bit kernel architectures) has been incorporated in D7.

Programming Impacts none

Operational Impacts none

Documentation Impacts Updated Table 2-7 in the D7 User Manual.

Release 1.4.0.8

CRSnn16412 When using ebs_stop, the system will randomly crash.

Detailed Description When we run ebs_stop in Distributed configuration,the system will be crashed randomly. This problem is most likely observed with multiple signaling point configurations.

Solution upmd driver is fixed to perform graceful shutdown.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn16453 dsm causes stack overflow due to recursive function call.

Detailed Description The histeric oscilation of a remote dsmd process between "blocked" and "okay" states could cause several recursive calls of the local dsmd process event handler. If this oscillation exceeds a certain limit in a short period of time, it could yield a stack overflow, and the dsmd process could core dump.

Solution The remote dsmd states will be recorded in the dsmd process and recursive function calls will be eliminated safely when the remote dsmd process switches between blocked and okay states.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn16463 dkm_list -l causes kernel memory corruption

Detailed Description If more then 2147483648 (80000000 hex) dkm locks are acquired on any one host, the dkm lock id gets corrupted. And this will cause failure at lock release and will cause leftover locks that prevents the further execution of D7 kernel threads to process messages. Service outage is observed. Also, If there are more then 110 dkm locks, executing the "dkm_list" utility with the "-l" command line option will cause kernel memory corruption.

Solution dkm driver is fixed to address both of the issues identified.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn16556 Issuing tcm_list after the stack is stopped causes a crash

Detailed Description Issuing tcm_list once the stack is stopped causes a system crash.

Solution Fixed so that the tcm_list will return a system down error if the D7 stack is down.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn16639 Links have to be manually activated after stop/restart of D7

Detailed Description The ss7 links residing on a host has to be manually activated after Distributed7 software is restarted on that host.

Solution upmd process is fixed to activate the ss7 links of the restarted Distributed7 host

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn16645 Problems encountered during HA tests

Detailed Description

1) If sccp driver is opened and closed frequently by multiple threads during the D7 shutdown, it may cause a crash.

2) If multiple tcap applications register simultaneously for the same subsystem, they may be assigned to the same instance number.

3) If a large number of application processes exist, the shutdown event may not reach all of the processes after ebs_stop/apm_stop, and stack shutdown may not be completed.

4) tcap driver could cause a crash during shutdown if multiple tcap application instances exist.

5) "tcm_list -t" could cause a crash if tcap application registration is in progress.

6) Terminating the sccp daemon simultaneously for the same sp on multiple hosts could cause a crash.

7) tcap library is modified to check the existance of upmd scmd and tcmd processes in the tcm_open() function if L_TC_TPRO_SCCP option is used and the address type is L_SS7OBJ.

Solution

1) The open routine of the sccp driver is changed to disable the open requests while the shutdown is in progress.

2) tcap driver is corrected to prevent the the assignment of the same instance number to different processes under race condition.

3) spm, upm, tcap and sccp drivers are fixed to propagate the shutdown event notification to the registered tcap users and D7 processes successfully. However, if there are too many user applications around (more then 200), shutdown still could not be completed. Please check CRSnn16726 for this known problem.

4) tcap driver is fixed to address this issue.

5) tcap driver is fixed to address this issue.

6) sccp driver is fixed to handle simultaneous termination gracefully.

7) The tcm_open() call is modified to check the existence of the related upmd, scmd and tcmd if

- tcap application registers as L_SS7OBJ ss7 object.
- the transport protocol is selected as L_TC_TPRO_SCCP sccp.
- If any of the upmd, scmd and tcmd processes does not exist at the time of the tcm_open() call it will return -1 with errno set to ESRCH.

Programming Impacts

none

Operational Impacts

none

Documentation Impacts

The tcm_open() call is modified to check the existence of the related upmd, scmd and tcmd if:

1) tcap application registers as L_SS7OBJ ss7 object.

2) the transport protocol is selected as L_TC_TPRO_SCCP sccp.

If any of the upmd, scmd and tcmd processes does not exist at the time of the tcm_open() call it will return -1 with errno set to ESRCH.

CRSnn16695 db2text missing comma in alias MO

Detailed Description	The text generated by db2text has a missing comma for alias MO
Solution	db2text utility is fixed to create the text file correctly for the alias MO.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none

Release 1.4.0.7

CRSnn16439 iph_wan_ driver crash

Detailed Description	Invoking modunload causes the iph_wan_ driver to crash.
Solution	Fixed.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none

CRSnn16432 Host information not converted upon upgrade

Detailed Description	Upgrade procedure fails to convert host information.
Solution	Fixed.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none

CRSnn16431 Loadsharing problem

Detailed Description	Loadsharing problem reported at Argentinian customer.
Solution	Fixed.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none

CRSnn16415 Move SCCP driver initialization code to _init

Detailed Description	SCCP driver initialization code is to be moved to _init to enable remote TCAP operation.
Solution	Done.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none

CRSnn16405 Remote app exiting causes tcap crash

Detailed Description Terminating a TCAP application on one of the hosts could yield a crash on any one of the hosts in the D7 cluster. This rare condition can happen under load when multiple TCAP instances are running simultaneously. Linked-list access in the dkm_get() operation initiated by the TCAP driver causes a crash due to a race condition in dkm.

Solution The linked-list access during the dkm_get() operation is now protected by the record mutex to prevent this race condition.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn16374 Modify ebs_tune script for Solaris 10

Detailed Description The ebs_tune script seems to write an illegal stack size for Solaris 10 in the /etc/system file. The script tries to set lwp_default_stksize=16384; but the minimum for Solaris 10 is 24576.

Solution The ebs_tune script has been changed to set the proper stack size.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn16366 DSM congestion with large ISUP DB

Detailed Description With large isup database, DSM gets congested. DSM initialization can cause congestion due to the burst of synchronization messages if there are several large (~2MB) DSM segments.

Solution The synchronization burst is controlled to avoid congestion under such conditions.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn16350 APM heartbeat failure because of netd freeze condition

Detailed Description A netd freeze condition has been observed on aix systems. When the freeze condition is detected by the apmd (process manager), the netd process is killed by apmd. The stack trace shows that the SIGALRM handler of the netd process could cause a deadlock if the SIGALRM signal is cached while the netd process is executing an aix system call. This problem could be observed more frequently if there are some unestablished connections and netd-related managed object requests are executed frequently (e.g., dis-host:; dis-tcpcon:; etc).

Solution The SIGALRM signal has been blocked at certain parts of the netd code in order to avoid the deadlock condition.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn16320 Memory shortage causes message block in SPM driver with dual LAN

Detailed Description The SPM spm driver can block the processing of a queue in case of temporary memory resource unavailability in dual lan configurations.

Solution The SPM spm driver has been fixed to not block message processing of its queues in case of temporary memory resource outage under congestion.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn16312 D7 internal improvements

Detailed Description Some minor issues were identified in the apm module.

Solution D7 has undergone minor internal improvements to address these issues.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn16302 No FE response at BE in 2FE-BE scene of TCAP

Detailed Description Response from FE does not arrive at BE in 2FE-BE scene of TCAP.

Solution TCAP driver has been fixed.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn16296 Under congestion, SCCP driver prints “unmarked message” log

Detailed Description Under congestion, the SCCP driver tries to release a message block that has already been submitted to a streams queue. The D7 kdb framework detects this condition, prints the below-mentioned mlog, and prevents the release of the message that is under use.

SCCP driver prints the following log under congestion:

sccpmain.c 473 INFO kdb_freemsg: unmarked message 0x1b717800

Solution The D7 driver has been fixed to not release the message block that has been submitted to a queue under congestion.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn16295 ISUPD DSM lock

Detailed Description Unlocked DSM regions are left during ISUPD traffic.

Solution ISUPD has been fixed to unlock the locked DSM regions.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn16293 Support abort policy in TCAP

Detailed Description Abort policy is to be supported in TCAP.

Solution Done.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn16292 Reg appl causes system panic when stack not running

Detailed Description Opening the MTP driver interface through the customer's application while D7 is not running causes a system panic on some Solaris 10 platforms.

Solution Core stack functionality is checked in the open routine of the MTP driver to avoid a system panic.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn16289 When the UPM driver accesses the freed memory location, it causes a panic

Detailed Description When the UPM driver accesses the freed memory location, it causes a panic.

Solution The message was not initialized before using it. The logic has been changed, and the message size checked.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn16271 SIPO followed by COO causes link state corruption

Detailed Description SIPO followed by COO causes link state corruption

Solution TCOC will be enhanced not to corrupt link states when COO comes after a SIPO condition.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn16269 Artic driver causes system crash if AIX kernel debug is on

Detailed Description The Artic driver causes a system crash if kernel memory debugging is turned on. The crash is caused by the D7 Artic card driver (ss7 card artic8260). It crashes in the i_clear() kernel call.

Solution The lock acquired before i_clear() call is invalid, so it has been removed.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn16266 Active Monitoring feature implementation

Detailed Description Implement an Active Monitoring capability.

Solution The gw_register function has been enhanced by the addition of an Active Monitoring feature, which provides the ability to tap into MTP messages.

Programming Impacts Yes, see Section 8.2.13 gw_register in the API Reference Manual.

Operational Impacts none

Documentation Impacts Updated Section 8.2.13 gw_register in the API Reference Manual to account for the addition of the Monitor mode.

CRSnn16260 When upgrading, dis-linkstat generates an “index invalid” error

Detailed Description The problem was encountered during the database migration of an upgrade. After erasing the database and starting over with a new configuration, the problem went away.

Solution Fixed.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn16257 When receiving unequipped cic msg, isupd exits

Detailed Description When using INET to send a message that uses unequipped CIC, isupd performs a core dump. If sending messages larger than 15, isupd exits.

Solution The bug has been fixed.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

Release 1.4.0.6

CRSnn16242 "CNFG library error" when doing dis-link

Detailed Description After configuring 64 links to two separate destinations, doing "dis-link" will show a "CNFG library error".

Solution It was found that this problem could occur when a large number of ISUP and MTP managed objects are configured. Both isupd and upmd have been fixed to display large managed object configurations properly.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn16222 D7 generates UCIC alarm when circuit is NO-IND and LR-BLK

Detailed Description If a circuit is in the NO-IND state and if MNTCSTATUS is in the LR-BLK state, then the response to the RLC from the network is a UCIC from the D7 stack. Once we get in to this situation, any message generated either from the D7 stack or from the network for that particular CIC is always responded to with a UCIC message from the D7 ISUP layer. The only way to overcome the problem is to send a GRS. However, if the status of a circuit is in the NO-IND state and MNTCSTATUS is in either L-BLK or R-BLK, then the UCIC alarm is not generated.

Solution The D7 isupd process has been corrected to handle the scenario mentioned above without sending a UCIC message back to the network.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn16211 Case 2106-175153 failure to propagate CGU message

Detailed Description Some CICs in the SS7 cluster fail to initialize correctly when the trunks are first put into service. For some reason, most of the CICs in trunks 1 and 3 remain in a remote blocked (R-BLK) state. The switch sends a CGU (Circuit Group Unblock) to each of the three trunks, but a trace shows that only the CGU to the second trunk is received and acted upon.

Solution Fixed. If the problem occurs, we can send a GRS message to reset the CIC status.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn16209 Invoking third AccessGUI results in UPMD/isupd terminations

Detailed Description Invoking a third AccessGUI on a four-host cluster results in the termination of UPMD on all hosts.

Solution The D7 upmd process has been fixed to support one AccessStatus GUI for each signaling point on each host of the D7 cluster.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn16187 db2text populates Alias parameter if single LAN configured

Detailed Description If a single LAN is defined, and db2text is executed to dump the 1.3.1 database into text format, then the ALIAS parameter in the add-host managed object gets populated with the same value as the RMTHOST parameter. The problem does not occur in a dual-LAN configuration.

Solution If the ALIAS parameter is the same as the RMTHOST parameter, then the ALIAS parameter will not be output while dumping the database to text format by the db2text utility.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn16180 TCP/IP failure detection does not work on some AIX systems

Detailed Description On some AIX platforms, netd cannot detect network interface failure even if it is started with the -n command line option.

Solution The netd utility has been tuned to properly process different entstat outputs.

Programming Impacts none

Operational Impacts none

Documentation Impacts None

CRSnn16176 No N_NOTICE indications delivered to user for UDTS messages received

Detailed Description If a UDTS message is received by the links of the other host in the cluster, no N_NOTICE indication is sent to the user.

Solution The TCAP driver lower read put routine has been corrected to process N_NOTICE_indication messages received from the remote hosts.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn16146 SNMP v1 route table problem in D7 1.4.0.5

Detailed Description The SNMP v1 route table is not working, for its key was changed in D7 1.4.0.5 from rRtset+rLset to rRtset+rPrio.

Solution The SNMP v1 route table key has been fixed.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn16141 ebs_ps, ebs_qinfo, ebs_qstat fail with Not Owner

Detailed Description Distributed7 utilities, such as ebs_ps, ebs_qinfo, and ebs_qstat, exhibit a Not Owner failure.

Solution AIX systems could not allocate large memory blocks used in the COPYOUT message as part of ebs_xxx utilities. A workaround has been implemented for AIX in the D7 framework to overcome this problem.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn16138 getcfg displays wrong slot with multiple HSL boards installed

Detailed Description The different /dev/iph_wan_ structure of the HSL boards cause the displayed slot information to be incorrect.

Solution A new slot computation has been added to account for the HSL boards.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn16135 Database architecture improvements and removal of MML command line history

Detailed Description The D7 database has been improved, based on internal design considerations. The MML command line history capability has been removed.

Solution The MML history facility has been removed; alternative history facility functionality via emacs is covered in the D7 user manual

Programming Impacts none

Operational Impacts The history facility has been removed. Instructions for using emacs for history facility functionality have been added.

Documentation Impacts The *Distributed7 User Manual* has been updated:

Section 3.1 Chapter Overview: removed reference to GNU facility.

Removed Section 6.4.4 Using the MMI/MML History Buffer.

Section 6.4.6 History Facility: emacs history facility replaces GNU history facility.

Section 7.2.13 mml: removed out-of-date entries under Files.

Section 7.2.14 mmi: removed out-of-date entries under Files.

Section 9.2.2 Rules for Command Line Syntax: removed reference to defunct History command from line 5.

Table 9-3 ISUP Configuration Managed Objects: removed histbuf row under MMLCONF.

Removed Section 9.7.6 Configuration: removed histbuf parameter.

Removed Section 9.7.10 History.

CRSnn16126 ECO sent instead of XCO message with HSL links

Detailed Description The following three issues have been identified in the High Speed Link implementation of D7.

1) Links become permanently unavailable under load, and L2 and L3 states become inconsistent under host congestion.

2) An Extended Changeover message cannot be sent during a changeover procedure. Instead, D7 sends Emergency Changeover.

3) Emergency alignment procedures cannot be invoked on HSL links.

Solution 1) The HSL interface has been redesigned so that if an HSL link failure is observed due to host congestion, it can be recovered by deactivating and activating the HSL link.

2) An Extended Changeover message can be sent during a changeover procedure.

3) Emergency alignment procedures can now be invoked with HSL links.

Programming Impacts none

Operational Impacts If an HSL link failure is observed due to host congestion, it can be recovered by deactivating and activating the HSL link.

Documentation Impacts none

CRSnn16111 SCCP connection-oriented issues

Detailed Description Several stability and performance issues were observed in connection-oriented services of the sccp layer under load.

Solution The performance bottleneck of connection-oriented sccp was due to the high number of connection state synchronizations by the dra/dkm frameworks during the establishment and teardown of the connections. Most of these dra/dkm synchronizations were found to be redundant. So these redundant synchronization attempts have been reduced in the sccp operation to improve performance in a distributed environment.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn15907 Link license should be per signaling point

Detailed Description Currently, if you are licensed for four links and if you have a multiple signaling point license, then you get four links per SP. For example: if you have a four-link, three-SP license, then you get a total of 12 links (4x3). But it should a total of only four links, regardless of the number of SPs you are licensed for.

Solution Fixed.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

Release 1.4.0.5

CRSnn16064 SNMP V2 revised to accept request from UDP source port

Detailed Description D7 SNMP V2 agent should accept requests from any of the UDP ports. Previously, the SNMP manager had to use a designated port defined in D7 SNMP configuration files.

Solution D7 SNMP agent process is modified to accept requests from any of the UDP ports.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn16043 display-connection mml causes OS crash

Detailed Description When running around 100 cps (connections per second), issuing the SCCP MML command "DISPLAY-CONNECTION" causes a system crash.

Solution Fixed.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn16033 D7 host crash caused by kill upmd test scenario

Detailed Description A kill-upmd high-availability scenario under TCAP traffic using the 1.4.0.4 release causes the host to crash. The problem does not occur on a simplex host.

Solution Fixed.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn16032 tcm_apidemo core dump under high traffic

Detailed Description During testing of the 1.4.0.3 and 1.4.0.4 releases, we ran into a repeatable problem: when sendingvery high traffic (traffic volume about 150% of bandwidth) from a simplex host, the tcm_apidemocore-dumps every time.

Solution Fixed.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

Links do not come up automatically upon restart

CRSnn16029 D7 does not encode TC_result correctly with JAIN TCAP

Detailed Description	The TCAP message TC_Result is not coded properly in the TCAP library. This causes the same problem in the JAIN TCAP library
Solution	Fixed.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none

CRSnn16028 — Component length calculated by D7 is two bytes longer in 1.4.0.4

Detailed Description

Component length as calculated by D7 in release 1.4.0.4 seems to be longer than expected, by two bytes.

Solution

Fixed.

Programming Impacts

1. NULL Parameters of TC-RESULT-L /TC-RESULT-NL Primitive in TCAP JAIN:

1.1Null parameter (no Parameter Tag , no Parameter length)

TC-User must explicitly call the following two statements to initialize Parameters.

Parameters parameters = new Parameters (Parameters.PARAMETERTYPE_SINGLE,null);

resultReqEvent.setParameters (parameters);

1.2 Sequence Tag and zero length

TC-User should explicitly call the following two statements to initialize Parameters.

Parameters parameters = new Parameters (Parameters.PARAMETERTYPE_SEQUENCE,null);

resultReqEvent.setParameters (parameters);

1.3 Set Tag and zero length

TC-User must explicitly call the following two statements to set Parameters.

Parameters parameters = new Parameters (Parameters.PARAMETERTYPE_SET,null);

resultReqEvent.setParameters (parameters);

2. NULL Operation of TC-RESULT-L /TC-RESULT-NL Primitive

2.1 JAIN PART

TC-User should NOT call the resultReqEvent.setOperation (operation) function to set Operation. Instead, he should explicitly call the following four statements to initialize Operation and Parameters.

Operation operation = new Operation (-1,operationCode);

Parameters parameters = new Parameters (Parameters.PARAMETERTYPE_SINGLE,null);

resultReqEvent.setOperation (operation);

resultReqEvent.setParameters (parameters);

2.2 C/C++ PART

TC-User should explicitly set result.opr.type equals L_TC_C_NO_OP_CODE (0x00); refer to the following:

tcmcomp_t comp;

comp.ccomp.c.result.opr.type = L_TC_C_NO_OP_CODE;

3. Global Operation Codes

In our tcap lib global portion max length is L_TC_C_GLB_ERR_INFO_LEN (256 bytes), hence the Global Operation Codes length should not more than TC_C_GLB_ERR_INFO_LEN (256 bytes).

Operational Impacts

none

Documentation Impacts

none

CRSnn16026 D7 never sends SIE, but always sends SIN, with HSL cards

Detailed Description	With high-speed-link cards, D7 sends SIN (Normal) when it should send SIE (Emergency).
Solution	Fixed problem with HSL and Emergency alignment (SIE) message during link activation/deactivation.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none

CRSnn16010 dkm audit race condition fixed

Detailed Description	Blocked dkm service record caused blocked mtp operation, inducing both nodes to fail.
Solution	Race condition in dkm framework has been fixed.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none

CRSnn16009 apm_stop crash problem

Detailed Description	In a distributed environment, with 80 processes registered on the platform, if we issue an apm_stop in either of the hosts, the host crashes. The problem sometimes occurs with as few as 40 processes registered.
Solution	DKM framework has been enhanced to support concurrent lock and unlock attempts.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none

CRSnn15978 Application crash due to SEGV in tcm_rcv

Detailed Description	When the retrieved dialogue ID (from the transaction) is corrupted, it will cause a segmentation violation, since this dialogue ID is used to access the local transaction/component table.
Solution	Fixed.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none

CRSnn15976 tcm_list -t process stalls

Detailed Description When the D7 stack has no TC-user registered, running "tcm_list -t" returns "cannot allocate memory - errno = 11".

Solution Fixed.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn15970 Replace Forte 6 compiler with Forte 11 compiler

Detailed Description There are two problems in GSMMAP using SC6.0 library: gsmmap throws an exception, and there is a gsmmap memory leak.

Solution The Sun Forte 6 compiler, which was used to build the SC6.0 library, does not handle static variables correctly. So a set of forte11 libraries has been added in the 1.4.0.5 release.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn15952 HSL links become permanently unavailable under load

Detailed Description Under host congestion the HSL links could become unavailable and the sessions between the HSL links and the D7 software could be closed by the HSL driver. The D7 software cannot recover from this state if the HSL sessions are closed by the HSL driver.

Solution The D7 software has been corrected to properly handle session closures initiated by the HSL driver.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn15936 Alias point code not migrated during upgrade

Detailed Description Alias Point Code configuration is not migrated during upgrade, nor when doing db2text.

Solution Fixed.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn15910 Problem with DPC value using JAIN ISUP

Detailed Description Configure isupnodes x-y-z, and register JAINISUP, then, for y>=16, the following error appears from JAINISUP: ERROR:isup configuration is not available() errno 342.

Solution Fixed.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn15550 Possible memory leak in JAIN TCAP GT-related code

Detailed Description When an incoming message is routed on GT, the JNI code creates GlobalTitle objects to pass to JainProvide. But the local reference to these objects, which was automatically created together with the object, is not deleted by the JNI side. This results in the object always having one local reference and never being garbage-collected.

Solution The local references to GlobalTitle objects are deleted after the object is passed to the provider.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

Release 1.4.0.4

CRSnn15881 Traffic being lost during load and redundancy tests

Detailed Description User part messages cannot be routed on the non-global upmd in distributed operation after an E1 cable is disconnected. The following alarm is observed:

ALARM $840217 HOST: stp-02 SP: 0 LVL: Minor

MTP-L3: HMRT MSU discarded, LS buffer overflow [dpc=0x20202 msg=0x130].

Solution The upm driver has been fixed to handle link-related operations correctly in distributed mode.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn15873 Routing failure in ITU with combined linksets

Detailed Description When combined linksets are defined in ITU, the mtp layer fails to route messages over the combined linkset, and HMRT generates an alarm.

Solution The HMRT module has been corrected to handle message routing over combined linksets.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn15869 SIGTERM and SIGKILL signals to scmd/upmd cause traffic loss

Detailed Description When more then one instance of the same subsystem exists on each host in distributed sccp operation, killing scmd or upmd may cause continuous message loss. The following alarm is generated continuously:

ALARM $830703 HOST: lab4-dat LVL: Minor

SPM: Cannot route message to its destination [msg=0x302 size=252].

Solution The tcap driver has been fixed to handle the scmd termination case properly in distributed operation.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn15868 E1BASIC is incorrectly mapped to MULTIFRAMING

Detailed Description The HSL board for E1 operates only in CRC4 multiframe mode. No matter how mml is set (to E1CRC4, E1FEBE, or E1BASIC), all are mapped to E1CRC4.

Solution Support has been added for double-frame, which is mapped to E1BASIC.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn15867 Issues with GLOBAL registration for alarmd, isupd, upmd, and scmd

Detailed Description When the host with global D7 processes dies on a distributed D7 cluster with more than two hosts, the globalization attempt of D7 processes on other hosts may fail occasionally due to the race condition in host failure detection.

Solution Before making a global registration attempt the D7 processes wait for additional time in order to have all the process tables synced after a host failure.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn15858 D7 tcaplib treats optional OPERATION as mandatory

Detailed Description In the D7 TCAP library, the optional parameter OPERATION is treated as mandatory, and the customer's application fails when it cannot find a value for it.

Solution The OPERATION parameter has been changed to optional as per TCAP spec Q.771.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn15856 State mismatch between pmc4539 and iph_wan device driver

Detailed Description After receiving the MGR_STACK_TRAFFIC_ON primitive from the iph card, if for some reason the ss7 link fails on the network side, we receive MGR_STACK_TRAFFIC_OFF first and the MGR_STACK_UNLINKED primitives. However, we have observed in the field that the link can also be taken out of service directly by MGR_STACK_UNLINKED after MGR_STACK_TRAFFIC_ON is received.

Solution The necessary state machine fix has been implemented.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn15852 HA problems in DRA and DKM during TCAP operation

Detailed Description Five different problems were identified in the D7 kernel memory distribution framework:

1) None of the dkm users or dra users handles DKM_E_AGAIN failure properly under load.

2) Pending DKM lock remains after failover if all the dkm queues are blocked at the time of failure.

3) The dkmd process exits when there are active kernel dkm users.

4) dramod fails to unload if a dkm segment is deleted by dkm.

5) If more then 32 tcap users are registered for the same subsystem, the tcap driver causes kernel memory corruption.

Solution All five of the identified problems have been fixed in the dkm, dramod, and tcap components.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn15836 Case 2105-173093 TCAP alarm 95050a

Detailed Description The alarm below is triggered, and we are no longer able to communicate with the network.

Mon Oct 17 16:43:36 2005

ALARM $95050a HOST: lovejoy SP:1 LVL:Major

TCAP: Unexpected RESPONSE state [dev=1 dlgid=9]

Solution tcapsndfunc_a.c has been modified by the addition of two lines for processing:

L_TR_STATE_QWOP_RCVD and L_TR_STATE_QWOP_SEND message respectively.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn15828 Incorrect coding of ErrorCode in Return Error message in JainTCA

Detailed Description The error code for this return error component should contain one byte, but it has a length of four bytes.

The error code for the LOCAL type is always four bytes. When the length is less than four bytes, it is filled with garbage data, so the receiving side gets an incorrect error code.

Solution When the length is less than four bytes, least needed bytes are used, zero (0) bytes being allowed. A length greater than four bytes is truncated to the first four bytes, including protection from buff overflow.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn15821 isupd exits after failover

Detailed Description Call control termination could cause isupd to core dump.

Solution isupd has been fixed to handle call control terminations properly.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn15815 Error 19 when using tcm_list, tcm_stat, and tcm_tune

Detailed Description Error 19 is reported when using tcm_list, tcm_stat, or tcm_tune on D7 1.4.0.3.

Solution Fixed.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn15809 Issue with JAIN TCAP component with parameter length = 0

Detailed Description Jain TCAP testing suggests a bug regarding components with parameter length zero (0).

Solution Changed receiver code so that the receiver decodes messages properly.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn15808 Issue with ProviderRoamingNumber messages in VLR

Detailed Description	D7 supports supportedCamelPhases only for phase 1, even though it has been claimed to support phase 1 and phase 2. Customer needs to support up to phase 3.
Solution	Defined phase 3 in head file and source code, and also changed encoding tag, to provide support for SupportCamelPhases for phase 3.
Programming Impacts	Phase 3 supported.
Operational Impacts	Phase 3 supported.
Documentation Impacts	GSMMAP API manual, Section 5.4.435 SupportedCamelPhases: added "phase3 = 0x00200000 // bit 2", and changed value for SupportedCamelPhasesLength from "1" to "3".

CRSnn15748 Remote TCAP application fails on Solaris 9 and 10

Detailed Description	Due to STREAMS optimization in Solaris 9, remote tcap operation fails on Solaris 9 and 10 platforms.
Solution	Remote tcap implementation is modified to perform on Solaris 9 and 10, as well as the previous Solaris releases.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none

CRSnn15499 JainTcap--DialogueResponse (AARE-apdu) issues

Detailed Description	When the tcap application does not support a particular ApplicationContextName, it should respond with AARE-apdu with abortReason having the value of 2 (application-context-name-not-supported), but it responded with ABRT-apdu. Also, sending TcapAbort with AARE-apdu to D7 gave an error.
Solution	Jain2D7Tcap.c is changed to fix two issues: 1. AARE-apdu is used if the abort reason is application-context not supported, otherwise ABRT-apdu is used. 2. The invalid dialogue tag exception when the abort type is RESPONSE has been fixed.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none

CRSnn14751 copyout and copyin calls should be removed

Detailed Description Starting with the 2.8 version of the Solaris OS, Sun has deprecated the kernel-user space memory copy functions (copyin(), copyout()). D7 makes heavy use of these functions. Thus these functions should be replaced with M_COPYIN/M_COPYOUT streams messages.

Solution Necessary code changes are implemented to replace the use of copyin()/copyout() functions with a mechanism using M_COPYIN/M_COPYOUT streams messages.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

Release 1.4.0.3

CRSnn15728 D7 TCAP remote binding problem

Detailed Description Customer cannot bind remotely on TCAP.

Solution Fixed.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn15724 D-isupnode shows dpc as accessible even before links are up

Detailed Description When starting an SP with isup, even if the links are not available the status shown for the destination isup nodes is ACCESSIBLE. This error does not occur once the links are available. If the link or route becomes unavailable, the status shown for the isup node is Inaccessible. It seems that the default value for the status of the isup node when starting the SP is Accessible, when it should be Inaccessible.

Solution Fixed.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn15722 Global isupd fails to synchronize data for MML initiated command

Detailed Description Given that hosta has even trunk groups registered and hostb has odd trunk groups registered, which host has the global isupd? Assume it is hosta. If an MML command is issued on hostb for a trunk group on hostb, the MML command is processed by the global isupd on hosta. But once the request is processed, hosta fails to synchronize data with hostb.

Solution Fixed.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn15718 Enlarge the TCAP subsystem registration from 16 to 64

Detailed Description	The maximum number of current TCAP subsystem registrations is to be increased from 16 to 64.
Solution	Fixed.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	Updated Section 4.4.1.2 Concurrence Support and Restrictions in the D7 user manual.

CRSnn15716 SCCP crash upon copymsg() failure

Detailed Description	The crash occurs at the SCCP driver during load, in particular, upon copymsg() failure.
Solution	Fixed.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none

CRSnn15714 upm crash due to allocb() failures

Detailed Description	The upm crash with the 1.3.0.9 release was happening due to allocb() failures that could be observed under load. The D7 mtp driver (upm), however, does not have protection implemented against allocb() failures.
Solution	Fixed.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none

CRSnn15710 Add cic field to ISUPCCT managed object

Detailed Description	The cic value of a circuit is to be added as a read-only argument of ISUPCCT managed object so that cic information may be found through MML.
Solution	Fixed.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	Added cic column to Table 9-23 in Section 9.6.1.

CRSnn15709 Add realtime tracing functionality in ISUP

Detailed Description Realtime tracing functionality is needed for debugging field issues with ISUP.

Solution Added tracing functionality with the following features:

1) Tracing can be activated or deactivated during run time.

2) Tracing can be activated or deactivated per circuit.

3) Tracing can display the message flow between MTP and ISUP, between ISUP state machines, and between ISUP and Call Control.

4) Tracing can display the states of affected internal ISUP modules.

5) Tracing can dump the current state of all state machines of a specific ISUP circuit when requested.

7) Traces have time stamps to debug ISUP timer-related problems.

8) Tracing does not have significant impact upon ISUP performance.

Programming Impacts none

Operational Impacts none

Documentation Impacts Added Section 8.7.1 i_trace to user manual.

CRSnn15673 CQR from D7 does not provide the status of all the circuits

Detailed Description When there is a CQM from the network with range=23, D7 responds with a CQR that reflects the states of only the first two circuits.

Solution Added to isupd a check for ANSI 96 so that the correct range is extracted from the ANSI 96 format CQM.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn15664 ISUP_STOP primitive does not clear all internal machine states

Detailed Description When a CGU is received from the remote node, the CGU is discarded, an alarm is logged, and the MGBR state machine does not go to the idle state, but remains in the MGBR_WAIT4UBLR state.

Solution Fixed by modifying two ITU PROTOCOL files.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn15412 getcfg does not display correct info on Sun Blade with Artic cards

Detailed Description	Running the getcfg command on a Sunblade100 with an Artic2000 card displays the incorrect slot number and boardType.
Solution	Code for the getcfg command has been rewritten.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	Updated Section 8.2.35 getcfg in the D7 user manual.

CRSnn15180 D7 picks up internal host IP address instead of OSN IP address

Detailed Description	This enhancement enables the D7 SNMP to use any valid hostname/D7 hostname/nodename to be packed in the SNMP packet.
Solution	D7 has been enhanced to accept the -h hostname option.
Programming Impacts	none
Operational Impacts	The AccessSNMP command line syntax change enables the user to choose the -h hostname option.
Documentation Impacts	Added the -h option to Section 7.2.4 AccessSNMP in the D7 user manual.

CRSnn14751 Copyout and copyin calls should be removed

Detailed Description	Use of the copyin/copyout calls is to be limited to AIX platforms. Solaris is to use normal streams ioctl error reporting.
Solution	Removed copyin/copyout calls from Solaris version of D7.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none

Release 1.4.0.2

CRSnn15637 D7 fails to detect network disconnect with bge/ce interfaces

Detailed Description	D7 fails to detect network disconnect condition when bge or ce network interfaces are used.
Solution	ETMOD is changed to handle cable disconnect messages that can be generated from bge and ce interfaces.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none

CRSnn15633 Issue with GT failover for protocol class 1 messages

Detailed Description When protocol class 1 messages were used, GT translations were not failover in case of the unavailability of the primary GT; and loadsharing was not working for connectionless/sequenced/loadshared primitives.

Solution SCCP GT translation logic is corrected to implement GT failover/rollback and GT loadsharing for protocol class 1 messages.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn15626 Issue with GT translation when the defined partial GTX is modified

Detailed Description If a partial GT translation is modified to a full translation at run time, it does not become effective, even though mml displays correctly.

Solution SCCP managed object handling is corrected to update GT translation modifications correctly.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn15625 D7 generates HMDT OPC event alarm, even though rtset is defined

Detailed Description A false alarm is generated by Distributed7 when a signalling_route_set_congestion_test (h1h0=0x13) message is received from a node which was defined as part of a cluster (though the outcome would be the same, since the protocol requires us to discard this message anyway [reference:T1.111.4 paragraph 13.9.6]).

Solution Distributed7 discards this message silently if the node is defined as part of a cluster as proposed by the specifications.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn15619 If autostart enabled, 4539 driver fails to attach upon reboot

Detailed Description A bug in Distributed7 installation scripts (ebs_modinstall and ebs_setrelease) caused the pmc4539 device driver to be removed after system reboot. The error is “spmd: pmc4539 board software failed to download”.

Solution Distributed7 installation scripts have been corrected.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn15616 OS crashed while doing ebs_stop

Detailed Description	If ebs_stop is issued on a multi-processor system while sccp is running, the operating system may crash.
Solution	The DRA module is corrected to correctly handle race conditions that could occur during system shutdown.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none

CRSnn15599 Conflict in return value from point code conversion function

Detailed Description	When the point code contains value 255, the returned error code 0xff is the same as the returned value, thus we cannot tell if it's a failure or not.
Solution	The return type of three functions (mtp_pc2network, mtp_pc2cluster, mtp_pc2member) has been changed from byte_t to int, and will now return -1 when there is a failure. Also changed is the head file.
Programming Impacts	Return type for these three functions has been changed to int. The customer's application needs to address the change accordingly.
Operational Impacts	The customer will now receive -1 when any of these three functions fails.
Documentation Impacts	In the API manual Section 7.3.13 mtp_pc2cluster(), Section 7.3.14 mtp_pc2member(), and Section 7.3.15 mtp_pc2network() have been updated to reflect the change of return type from byte_t to int, and the change of return value from 0xff to -1.

Release 1.4.0.1

CRSnn15606 SCCP corrupting the CDPA if SSN is included and RI=routeonGT

Detailed Description	D7 corrupts the CDPA field of the SCCP message while performing GT translation if the received CDPA has only GT in it.
Solution	D7 GT translation is corrected.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none

CRSnn15605 TCAP api generating error 289 - no more free buffers

Detailed Description The customer application is not running in the expected transaction scenario; in the current field deployment, the remote end fails to send the TC_RESPONSE primitive to end a dialog. So, the customer application depends on the invoke timers to terminate open dialogs. However, the TCAP driver is filtering invoke timer expirations for certain states of the transactions. Due to this filtering mechanism, some of the timer expiration messages are not reaching the customer application, causing dialogs to be left open indefinitely, and resources allocated to these open dialogs are not being released. After a certain number of transactions, the TCAP API returns error 289—no more free buffers.

Solution The invoke timer filtering mechanism is found to be unnecessary, so has been disabled.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn15602 D7 should be able to use the SSN in CDPA for translation

Detailed Description D7 was not letting partial translation of a GT to a dpc only. It was enforcing translation of a GT to dpc+ssn.

Solution The restriction has been removed. If a GT is translated to a dpc only, the ssn in the cpda field of the incoming message is used for routing.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn15596 tcm_open returns error 62 - timer expired in 1.3.1.12

Detailed Description The DRA segment mutex lock ID has to be invalidated before the dkm_unlock call since other users might lock the segment mutex during dkm_unlock, and invalidating the ID after unlock might cause invalidation of a valid ID for a lock acquired by another user.

Solution The lock ID is invalidated before the dkm_unlock operation.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

Release 1.4.0

CRSnn15565 Solaris 10 support for D7 device drivers

Detailed Description Distributed7 device drivers fail to install on Solaris 10 platforms.

Solution All dependencies on identity entry points have been removed to make the D7 device drivers work on all Solaris platforms (6, 7, 8, 9, and 10).

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn15561 During live upgrade, db2text converts PMC8260 to wrong board

Detailed Description	During a live upgrade, db2text converts PMC8260 to PMC4539, and ARTIC8260 to PMC8260.
Solution	The enum definition for pmc8260 in D7 1.3.x was the same as for pmc4539 in D7 1.4.0. So the enum definition has been changed for the board in spm_modefs.h and oam.h. And spm_db2text.c and mtp_db2text.c have been modified to make the board order consistent with the include file.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none

CRSnn15559 Connection messages are not load-shared among links

Detailed Description	SCCP does not arbitrate the sls value for connection messages. Hence only one link is used for all connections.
Solution	A different SLS value is assigned to each created connection record.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none

CRSnn15555 Message cannot be routed to remote SPs through adjacent STP

Detailed Description	The message can not be routed to the remote SPs through adjacent STP even these SPs are accessible in MML display. The problem was caused by the overwriting of the selected link number in the HMRT module.
Solution	The HMRT routing logic is corrected to fix this problem.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none

CRSnn15552 CDPS-FA and QoSPRI parameters to be included in IS41-D

Detailed Description Added two new 3GPP2 TIA/EIA-41-D based network enhancements for CDMA Packet Data Service (C-PDS).

Solution Added a CPDS-FA to the CallingFeatureIndicator class, and created a new class, QualityOfServicePriority, which is used in the regnot class. The new class, QoSPRI, is not defined in TIA41D, so a tag value in IS41D_int.H has been assigned to it.

Programming Impacts Customer must have the new header files.

Operational Impacts none

Documentation Impacts Updated the IS41-D MAP Interface Reference Manual:

Section 4.4.75 RegistrationNotification_RETURN_RESULT: added QualityOfServicePriority to Synopsis.

Section 4.5.20 CallingFeaturesIndicator: added "void set" and "int get" sections to Synopsis, and updated Description.

Added Section 4.5.110 QualityOfServicePriority.

CRSnn15550 Possible memory leak in the GT-related code of JAIN TCAP

Detailed Description When an incoming message was routed on GT, the JNI code created GlobalTitle objects to pass to JainProvide. But the local reference to these objects, which was automatically created together with the object, was not deleted by the JNI side. This resulted in the object always having one local reference and never being garbage-collected.

Solution The local reference of GlobalTitle objects are deleted after the object is passed to the provider.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn15538 tcm_open() returns errno=62 because of a deadlock condition

Detailed Description Tcmd polls and ioctls the same endpoint, and a close call can be issued when the poll is active, causing a deadlock.

Solution The SIGPOLL handler and endpoint polling have been removed.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn15499 JAIN TCAP - DialogueResponse (AARE-apdu) issues

Detailed Description JAIN TCAP always sends ABRT-apdu when the response set to ABORT, and the abort reason is ignored when the receiving side sees that the abort type is ABORT. Also, when the incoming abort type is RESP, an exception is thrown.

Solution Jain2D7Tcap.c has been changed to fix the two issues.

1. AARE-apdu is used if the abort reason is “application context not supported”, otherwise ABRT-apdu is used.

2. The invalid dialogue tag exception that occurred when the abort type was RESPONSE has been fixed.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn15450 Stack corruption on isupd during timer expiration

Detailed Description ISUP timer expiration causes isupd to core dump due to mishandling of timer expiration messages in isupd.

Solution Timer handling is corrected in isupd.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn15245 Increase D7 dialogue ID capacity from 64K to 256K

Detailed Description Some customers require more than 64K concurrent transactions

Solution Modified TCAP layer for 256K concurrent transactions.

Programming Impacts none

Operational Impacts none

Documentation Impacts Updated Table 2.6 in the D7 User Manual.

CRSnn15244 Increase D7 link capacity from 256 to 512

Detailed Description The link capacity per signalling point is to be increased from 256 to 512.

Solution Increased the hard limit in the head file from 256 to 512.

Programming Impacts none

Operational Impacts none

Documentation Impacts Updated Table 2.6 in the D7 User Manual.

CRSnn15337 InterPhase HSL PMC4539F board support

Detailed Description D7 is to provide support for up to four High Speed Links (HSL) per PMC4539F board.

Solution HSL support, by means of InterPhase's PMC4539F board, has been implemented in D7. A pseudo-driver has been developed to act between the PMC4539F board and the D7 system, and the board firmware provides MTP2 HSL support. D7 supports up to four HSLs per PMC4539F board.

Programming Impacts none

Operational Impacts none

Documentation Impacts D7 User Manual: Table 3-2 SPM Branch Managed Object Descriptions: for ss7board, boardnm, added "/pmc4539" to Set Values column; for line, boardnm, added "/pmc4539" to Set Values column; for line, line_typ, in Set Values column, "E1HSL/T1HSL/J1HSL/E1LSL/T1LSL/J1LSL" replaces "E1/T1/J1"; for port, boardnm, added "/pmc4539" to Set Values column; for port, baud, added "/1544000/2048000" to Set Values column; for linestat, boardnm, added "/pmc4539", to Set Values column; for linehist, boardnm, added "/pmc4539" to Set Values column. Glossary: revised first paragraph, and added entries for HSL and LSL.

D7 Installation Manual: Section 2.1 Chapter Overview: added PMC4539 to list; Table 2-2 MTBF Ratings: added row for PMC4539F; added Section 2.3.10 PMC4539 Board (PMC4539F); added Section 2.7.6 PMC4539 Configuration.

Release 1.3.1.12

CRSnn15559 Connection messages are not load-shared among links

Detailed Description SCCP does not arbitrate the sls value for connection messages. Hence only one link is used for all connections.

Solution A different SLS value is assigned to each created connection record.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn15552 CDPS-FA & QoSPRI parameters need to be included in IS41D

Detailed Description Two new 3GPP2 TIA/EIA-41-D Based network Enhancements for CDMA Packet Data Service (C-PDS) required for Phase 1 (N.S0029-0_v1).

Solution Added a CPDS-FA to the CallingFeatureIndicator class, and created a new class, QualityOfServicePriority, which is used in the regnot class. The new class, QoSPRI, is not defined in TIA41D, so a tag value in IS41D_int.H has been assigned to it.

Programming Impacts Customer must have the new header files.

Operational Impacts none

Documentation Impacts Updated the IS41-D MAP Interface Reference Manual:

Section 4.4.75 RegistrationNotification_RETURN_RESULT: added QualityOfServicePriority to Synopsis.

Section 4.5.20 CallingFeaturesIndicator: added "void set" and "int get" sections to Synopsis, and updated Description.

Added Section 4.5.110 QualityOfServicePriority.

CRSnn15550 Possible memory leak in the GT-related code of JAIN TCAP

Detailed Description When an incoming message was routed on GT, the JNI code created GlobalTitle objects to pass to JainProvide. But the local reference to these objects, which was automatically created together with the object, was not deleted by the JNI side. This resulted in the object always having one local reference and never being garbage-collected.

Solution The local reference of GlobalTitle objects are deleted after the object is passed to the provider.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn15538 tcm_open() returns errno=62 because of a deadlock condition

Detailed Description Tcmd polls and ioctls the same endpoint, and a close call can be issued when the poll is active, causing a deadlock.

Solution The SIGPOLL handler and endpoint polling have been removed.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn15499 JainTcap - DialogueResponse (AARE-apdu) issues

Detailed Description JAIN tcap always sends ABRT-apdu when response set to ABORT, and the abort reason is ignored when the receiving side sees that the abort type is ABORT. Also, when the incoming abort type is RESP, an exception is thrown.

Solution Jain2D7Tcap.c has been changed to fix the two issues.

1. AARE-apdu is used if the abort reason is “application context not supported”, otherwise ABRT-apdu is used.

2. The invalid dialogue tag exception that occurred when the abort type was RESPONSE has been fixed.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

Release 1.3.1.11

CRSnn15533 MML displays presence of CC, even after CC is killed

Detailed Description When all call controls die at the same time, isupd fails to clear the registration information correctly.

Solution The isupd call control termination control logic has been corrected.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

Release 1.3.1.10

CRSnn15523 tcm_open fails with error 62 (time-out)

Detailed Description The subsystem registration/deregistration code deadlocks.

Solution Deadlock condition has been removed.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn15498 Jain TCAP does not show notice indication

Detailed Description When a UDTS is received or generated by the SCCP daemon, a notice indication is not received by the Jain TCAP application.

Solution Notice indications coming from the SCCP layer are passed to the Jain user.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn15450 Stack corruption on isupd during timer expiration

Detailed Description Isup timer expiration causes isupd to core dump due to the mishandling of timer expiration messages in isupd.

Solution The isupd timer handling has been corrected.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn15301 DSMD overwrites local isup data during HA tests

Detailed Description When the global dsmd is changed, the dsm segments on all hosts are resynchronized through the new global dsmd, and the local isup data on the dsm segments is overwritten.

Solution The dsmd process is changed to not synchronize its dsm segments upon a dsmd globalization change. Unnecessary dsm segment synchronization is avoided, and isup local data is not overwritten.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

Release 1.3.1.9

CRSnn15434 Option to remove ProtocolVersion from dialogue portion

Detailed Description O2 requested the optional protocol_version information to be excluded from the dialogue portion for outgoing TCAP messages.

Solution Implemented a variant for O2 to provide the requested functionality.

Programming Impacts none

Operational Impacts The variant field in the SCCP managed object must be set to “O2” to use this variant.

Documentation Impacts none

CRSnn15422 Change CgPA of first Continue message in Jain TCAP

Detailed Description In a Begin-Continue-End scenario, the customer would like to alter the CallingPartyAddress of GT in the Continue message.

Solution CgPA has been changed to give the desired result.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn15426 Segmentation violation in D7 TCAP library

Detailed Description The problem is caused by a wrongly formatted message received from the network--the parameter size in the component exceeds the size of the component, causing a segmentation violation in the D7 TCAP library.

Solution Fixed.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn15397 System panic due to null pointer in TCAP module

Detailed Description The value of the transaction table stays NULL and—depending on user options—if the dkm lock is skipped, causes a system crash when the tuple is accessed.

Solution The value of the transaction table pointer checked against NULL prior to data access.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn15395 ISUPD encountered deadlocked situation

Detailed Description	D7 crashed due to a deadlock condition in ISUPD.
Solution	Fixed.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none

CRSnn15384 GSMMAP Library rejects valid SS-Code 0x9a and 0x9b

Detailed Description	Using the D7 GSMMAP library to encode GSMMAP components, encoding of Supplementary Services Activation rejects SS-Code 0x9a and 0x9b as out of range.
Solution	Fixed.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none

CRSnn15381 Error 317 when trying to send User Service Info with layer 1

Detailed Description	The problem occurs when trying to send an IAM message containing the optional parameter User Service Information containing the optional parameter User information Layer 1 Protocol.
Solution	Fixed.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none

CRSnn15377 UnidirectionalReqEvent object does not have a dialogue ID

Detailed Description	The UnidirectionalReqEvent object message type does not have a dialogue ID. The Jain TCAP provider is to be fixed.
Solution	In com.ss8.jain.protocol.ss7.tcap.JainTcapProviderImpl.java, modified sendUnidirectionalReqEvent() so that a Dialogue ID is no longer required.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none

CRSnn15369 DATABASE_QUERY does not work when CIC is unequipped

Detailed Description	When a DATABASE_QUERY with unequipped CIC is sent from CC to the ISUP stack, the ISUP stack responds with UCIC, instead of CQR.
Solution	Fixed by modifying the a_dspc.c and a_cqr.c.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none

CRSnn15366 SCCP fails to become global

Detailed Description	SCCP sometimes fails to become global when the global instance terminates. The event detection works fine, but the failing host is reselected during global selection.
Solution	Fixed.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none

CRSnn15325 Status setting busy/available to be added to Jain TCAP

Detailed Description	Status setting of Tcap listener to be added to the JainTcapProviderImpl class as an add-on to Jain APIs.
Solution	Listener status (busy/available) can now be changed through the JainTcapProviderImpl class.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	D7 API Reference Manual: added Section 10.3.4 TCAP Java Additional Functionality.

Release 1.3.1.8

CRSnn15365 TCAP library fails when the returned reason (UDTS) is undefined

Detailed Description	tcm_rcv should not fail when the return cause in a received notice_indication is not a spec (itu) defined value.
Solution	Now, tcm_rcv (on tcm_apidemo) parses the notice indication correctly.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none

CRSnn15343 Transactions left open due to congestion handling

Detailed Description When BEGIN messages were thrown away due to user congestion, transactions were left open.

Solution Transaction is terminated when a BEGIN message is discarded.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn15338 Problem when D7 is started from /etc/inittab

Detailed Description Using automatic start, the platform will not start from /etc/inittab.

Solution Modified the apmd process so that when D7 is started from /etc/inittab, the apmd process does not have stdin, stdout, and stderr descriptors open.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn15295 Isolation of D7 hosts due to processor outage

Detailed Description When the system freezes due to processor outage, heartbeat is lost and exclusiveness violations occur after the system freeze disappears.

Solution If a freeze is detected, spmlrsrv issues a local shutdown.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

Release 1.3.1.7

CRSnn15254 Killing upmd or isupd dies cause may cause system crash

Detailed Description DRA crash during safe write if the sync operation fails.

Solution If the sync call fails, DRA checks for race conditions (segment/framework availability) prior to unlock during safe write.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn15242 TFC from nonadjacent STP is discarded

Detailed Description	A TFC from a nonadjacent STP is discarded by the D7 software if the originating STP is not defined in the D7 database.
Solution	TFCs are processed by D7 regardless of the originating STP as long as the affected point code is defined in the D7 database.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none

CRSnn15229 Race condition during dkm_lock when checking service records

Detailed Description	During dkm user-space benchmarking it was observed that under certain race conditions, the dkm_locate_serv_rec routine ends up with the pointer of an already de-allocated service record.
Solution	Fixed.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none

CRSnn15223 DEST record not found alarm after an exception node is created

Detailed Description	Based on the MTP protocol, each exception node created by the MTP layer is guarded by an audit timer. If the exception node is not used for one hour by the user parts, then it is cleared by this audit timer. Sometimes an exception node is created and then deleted as the exception node is set to the allowed state again. In such a case, the audit timer has to be stopped. Unfortunately, due to a bug in the MTP code, when the exception node goes into the allowed state, this audit timer cannot be stopped. So when the timer expires, the exception node cannot be found and the "MTP-L3: SNM DEST record not found" alarm is generated. Since the exception node is already deleted, this alarm can safely be discarded. The "MTP-L3: SNM LSET record not found" alarm is generated with a similar cause. The lset information used to reach the exception node is not initialized correctly when the audit timer is populated. These alarms have no major operational impact.
Solution	Fixed a bug in the MTP code in order to stop the audit timer when the exception node is deleted.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	None

Release 1.3.1.6

CRSnn15189 Error 4104 while decoding InsertSubscriberData

Detailed Description	When receiving a MAP version 2 InsertSubscriberData message, the following error message is received: "Error 4104. insertSubscriberDataArg.provisionedSS Specified parameter length for SS_InfoListE(0x78) is not equal to read SS_InfoListE elements(0x59).
Solution	Fixed the bug in BasicServiceGroupList.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none

CRSnn15186 Links do not come up automatically upon restart

Detailed Description When the D7 stack that resides on the non-global upmd is shut down and restarted, the links on that host may not come into service automatically. In such a case the following is observed in the mlogs:

10/17/01 16:53:22 upmd0@lab4-dat 1386 mo_link.c 1630 MAJOR cannot add link - id=2 slc=0 status=633

Solution The problem was due to an accounting problem of the licensed links on the system versus actually configured links. The licensing issue has been corrected to fix this problem.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn15184 Error 4105 while encoding UpdateLocationArg V1 & V2

Detailed Description The optional parameter lacks a check of their data availability.

Solution Added a flag check for the optional parameter, extensionContainer and vlr_Capability.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn15176 sccptest should be able to populate GT as cgpa

Detailed Description sccptest should be able to configure a GT as the calling party address.

Solution sccptest can now configure a GT as the calling party address.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn15175 In ANSI 96, CBD not sent when first link in lset is INSERVI

Detailed Description In ANSI 96, if all the links in the linkset are brought down, the COO messages are sent to divert the traffic onto the available linkset. But when the first link in the linkset, which was previously down, is brought into service, the D7 stack does not seem to generate the CBD message; thus traffic cannot be restored onto the now available linkset. Instead the CBDs seem to be sent only after the second link in the linkset comes into service.

Solution ANSI 96 changeback implementation is fixed to handle this case correctly.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn15171 Unable to install sbus drivers with D7 1.3.1.5

Detailed Description sbs334 driver installation fails in 1.3.1.4 and 1.3.1.5 releases.

Solution This problem was introduced during the support of little endien hosts in the 1.3.1.4 release, and only effects the sbus systems. The problem is corrected by defining and initializing the missing variables to support the little endien hosts.

Programming Impacts none

Operational Impacts The sbs334 and sbs370 boards cannot be used in the 1.3.1.4 and 1.3.1.5 releases.

Documentation Impacts none

CRSnn15170 New ARTIC board (QuadFALC 2.1) support

Detailed Description Radisys's ARTIC pmc board is replacing the Framer chip QuadFALC 1.3 with QuadFALC 2.1. There are differences between the two chips, and the D7 software needs to be enhanced to support the changes.

Solution The D7 update includes the board mtpl2.artic8260.abs file and the passive monitoring software pm.artic8260.abs.MTP level 2, and the PM software for the boards is updated to use the new QuadFALC 2.1 framer initialization, especially the 8 gcm registers. Also, the version register value was read out to check the version of the chip, so that it will initialize accordingly for both the 1.3 chip and 2.1 chip. One code support both chips. Note that the old code supports only the QuadFALC 1.3 chip board; the new code supports both the old and new versions of the ARTIC board.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn15165 DRA maximum prefix find operation problem

Detailed Description The DRA maximum prefix find operation does not work for matches with the exact size as the minimum-prefix-match parameter defined during segment creation.

Solution Problem fixed, but the CR is not yet closed in this patch release.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn15069 Congestion-handling umbrella CR

Detailed Description Improvements are required in the congestion-handling mechanisms of the D7 kernel components. This CR is a continuation of CRSnn14566, which was opened for Lucent in the 1.2.0 release.

Solution Problem fixed, but the CR is not yet closed in this patch release.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14920 DKM user space APIs to replace DSM

Detailed Description DKM user space support APIs are to be implemented in order to replace DSM, and have all D7 components work on the same distributed memory framework.

Solution DKM user space library has been developed.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14900 Problems with JAIN TCAP GT handling

Detailed Description With the following code, an SccpUserAddress is confirmed to contain PC, GT and SSN. However, when this SccpUserAddress is given as the destination address of a BeginReqEvent, only the PC and SSN are sent.

```
SubSystemAddress ssa = new SubSystemAddress (
  new SignalingPointCode (1, 10, 1), (short)101
 );
GlobalTitle gt = new GTIndicator0010 ((byte)1, new byte[] {1,2,3});
SccpUserAddress sua = new SccpUserAddress ( ssa );
sua.setGlobalTitle (gt);
System.out.println ("sua = " + sua);
```

There is also another problem: the supplied JAIN TCAP sample prints an exception error - java.lang.NegativeArraySizeException for incoming messages.

If tcm_apidemo is running instead of the JAIN TCAP sample, the message is correctly received.

Solution GT-addressed transactions are now sent and received properly.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

Release 1.3.1.5

CRSnn15163 DRA users should shut down in case of async DRA errors

Detailed Description DRA users should shut down in case of async DRA errors.

Solution Problem fixed, but the CR is not yet closed in this patch release.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn15149 TCAP load-shared/sequencing does not work with XUDT messages

Detailed Description XUDT messages are always sequenced on one sls value per subsystem. The TCAP load-shared/sequenced delivery does not work when TCAP messages need to be segmented.

Solution SCCP does not modify the sls value when load-shared/sequenced delivery is selected.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn15146 TCAP notice indications are not delivered correctly

Detailed Description When SCCP receives a UDTS from the network and sends it to TCAP as a notice-indication, TCAP delivers the message to all instances instead of delivering to the sender instance.

Solution Sender instance is extracted from the message (if possible) to deliver notice indications. Extraction is not possible for messages that do not have the originating transaction ID.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn15144 Lucent application drops messages due to incorrect timestamp

Detailed Description Lucent application drops messages because the D7 timestamp is not in accordance with the system time.

Solution Message timestamping does not use the LBOLT parameter, as it can overflow.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn15135 IPMP D7 problems

Detailed Description

When D7 is used with IPMP (netd -i flag) IPMP is expected to take care of network failures and perform a failover to prevent D7 host to be isolated. When a network interface is killed under load, failover cannot be performed soon enough to prevent D7 to loose heartbeat and D7 hosts run in isolated mode (both become masters).

One solution to the problem is to use IPMP test interfaces to configure D7 and run D7 normally (no -i and -d flags with netd). Unfortunately test interfaces have to be part of the same subnet and D7 does not work well with interfaces on the same subnet.

The first set of changes for this CR makes D7 physically refresh (disable/enable) the interface after a network failure has been detected. But since there is now way we can establish two streams when connected to the same subnet (through test interfaces) next step should isolate D7 network configuration (IPwise) from LAN failure detection such that IPMP and D7 LAN detection can be used together.

Solution

Problem fixed, but the CR is not yet closed in this patch release.

Programming Impacts

none

Operational Impacts

none

Documentation Impacts

none

CRSnn15121 Error decoding InsertSubscriberData

Detailed Description

During some tests for a Vodafone deployment on the GSMMAP libraries an error was discovered when decoding the InsertSubscriberData message in map version 2+.

There are two problems reported in this case:

1) Failure to process correct encoded odb_Data, especially the "Number of unused bit" field

2) Unable to decode O_CSI

Solution

1) There was a bug in the ODB_GeneralData.H file. As you can see from the sample data the customer provided, in the odb_GeneralData we printed up to bit 13; in fact it should be bit 14. Because our code had thought it uses bit 0 - bit 13, so there are 2 bits not used, thus it always make the initial octet with value 2. (see ITU-T Rec. X.690 section 8.6 see encoding of bitstring value as reference). By changing the ODB_GeneralDataLength from 14 to 15., the software encodes and decodes correctly for the odb_Data structure.

2) The o_BcsmCamelTDPDataList under O_CSI is a mandatory field; the data the customer provided shows that the entire BcsmCamelTDPDataList is empty.

Programming Impacts

Yes.

Operational Impacts

none

Documentation Impacts

GSMMAP.

CRSnn15120 Deadlock between scmd, upmd re:upmd, dkmd, netd death

Detailed Description When dkmd or upmd dies, scmd terminates together with upmd. And apmd may detect the death of one or another first, depending on the process scheduling system load etc. If the scmd death is detected first, a deadlock ensues, since scmd does not send an acknowledgment unless the full initialization is performed (including upmd communication) and apmd does not start upmd until it receives an acknowledgment from scmd. The reason for moving the acknowledgment to the end of scmd initialization is not known. As an interim solution scmd should send an acknowledgment to apmd if it fails to communicate with upmd after a few seconds.

Solution Now scmd sends an acknowledgment after it fails to communicate with upmd for a few seconds.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn15117 Error decoding Update Location V2 and V3

Detailed Description The code is in the version 2 format, not version 3. The UpdateLocationRes header file and source code must be changed to adopt the version 2+ format.

Solution Modified Update Location Res header file and source file to correctly support V2 and V3:

1. hlr-Number works for version 1 and version 2+

2. extensibleUpdateLocationRes works for version 2 only

3. extensionContainer works for version 2+ only

Programming Impacts Yes.

Operational Impacts none

Documentation Impacts Yes.

Release 1.3.1.4

CRSnn15097 GT managed object cannot be defined if all parameters remain the same except NUMPLAN

Detailed Description This is the error received in this situation:

MML_TH>add-gt:gt=new,gtie=4,natofaddr=4,trtype=0,numplan=1,loadshare=OFF, addrinfo=44;

<SUCCESS>

MML_TH>add-gt:gt=new,gtie=4,natofaddr=4,trtype=0,numplan=7,loadshare=OFF, addrinfo=44;

<ERROR>:: GT already defined

The numbering plans are different, so these two entries probably should be allowed.

Solution When adding a GT, the NUMPLAN parameter is checked as part of the uniqueness of the managed object.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn15096 pci334a card support

Detailed Description The pci334 card will go end-of-life soon, and the replacement pci334a card must be supported.

Solution 1. Used pci334a ROM code from C7
2. Changed pci334 driver to support pci334a
3. Changed getcfg and ebs_modinstall script

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn15095 A new variant to perform GT xlation, even for PC and SS routing

Detailed Description Redknee requires GT translation to be performed for incoming messages that include a GT, even if the message is routed on PC and SSN.

Solution Redknee requested that incoming GT translation should always be performed if a GT is included in the called party address of an incoming message. So, a new SCCP variant (REDKNEE_GT) has been introduced that covers the old REDKNEE variant plus the newly-requested behaviour—db2text has been updated for the new variant value.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn15091 SIGALRM during SPM event processing causes DSMD freeze

Detailed Description If a SIGALRM is received during SPM event processing, DSMD freezes.

Solution SIGALRM is blocked during SPM event processing.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn15089 Error decoding AnyTimeInterrogation

Detailed Description As the CHOICE "subscriberIdentify" has a Context Identifier (in this case [0]), it is necessary that the tag "a0" be included inside the message.

Solution Modified SubscriberIdentity.C to have tag pack and unpack capability, and fixed AnyTimeInterrogationArg.C so that gsmSCF_Address has tag of 3 instead of 2.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn15074 Error decoding PurgeMS

Detailed Description During some tests for a Vodafone deployment on the D7 1.3.1.2 gsmmap libraries an error occurred when decoding the PurgeMS message in map version 2+. Apparently the message is correctly codified, but the D7 map library is not decoding it correctly.

Solution Changed PurgeMS_Arg header file to have it encode the tag 0xa3. Changed PurgeMS_Arg source file unpack function to support the tag.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

Release 1.3.1.3

CRSnn15066 Heartbeat lost due to TCP/IP congestion

Detailed Description Due to heavy TCP/IP traffic (e.g., during isupd load testing) heartbeat is lost, although the TCP/IP connection is still active.

Solution Because D7 uses the same TCP/IP connection for user messages and system messages, it is possible that system messages might get delayed when there is user-traffic congestion (i.e., mtp level traffic due to remote links, etc.). This leads to loss of heartbeat, when heartbeat messages are delayed due to such congestion conditions. The heartbeat mechanism has been changed such that if any traffic (not necessarily heartbeat) is received from the remote hosts within the heartbeat sanity interval, that host is marked as OK from a heartbeat point of view, and TCP/IP communication is not dropped due to the delaying of heartbeat messages under congestion.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn15065 Hot-swap support for iNAV3000 carrier board

Detailed Description The D7 1.3.1.2 pmc8260 driver does not support the hot-swap function for the new iNAV3000 carrier board. The driver needs to be enhanced for following:

1) Enable support for iNAV3000 instead of just the MFIO-120

2) When the board is suspended, turn on the hot-swap blue LED on the board

3) When the board is resumed, turn off the hot-swap blue LED on the board

Solution D7 enhanced to support the iNAV3000 carrier board for hot-swap blue LED and registers.

Programming Impacts none

Operational Impacts none

Documentation Impacts Sections 6.14 CompactPCI Hot-swap and 9.4.6 SS7BOARD in the D7 User Manual.

CRSnn15059 Artic2000 carrier card—support for new version

Detailed Description The old ROM version for the supported ARTIC8260 is 1.09. The ARTIC8260 driver needs to be updated to support the new ROM version, which is 1.12.

Solution The ARTIC8260 driver has been updated to support the new ROM version.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn15053 Deactivated link is put in service if the node is restarted

Detailed Description In a distributed configuration, if a link is deactivated, then the Distributed7 core processes running on the host of the deactivated link are restarted; the link comes into service again.

Solution The upm driver has been corrected to start up links according to the latest management states when Distributed7 core processes are started on a new host.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

Release 1.3.1.2

CRSnn15040 GSMMAP error definition incompatible with GSMMAP 9.02 v7.3.0

Detailed Description Of 57 GSMMAP error definition files, more than half have an incompatibility problem with GSMMAP spec 9.02 v7.3.0. A few samples are CRs 15024, 15025, and 15026.

Solution Corrected inconsistent error definition files to accord with GSMMAP specifications.

Programming Impacts Yes.

Operational Impacts Yes.

Documentation Impacts GSM MAP User Manual.

CRSnn15031 Early termination of DKMD causes TCAP mux to crash

Detailed Description Early termination of DKMD (prior to the TCAP mux) causes TCAP mux to crash.

Solution The removed wait user termination mechanism in dkmd has been re-enabled. This change was made for Telefonica kill dkdm tests, the problem being dkmd not detecting mux termination properly. To solve the problem, either tcap needs to be able to cope with no dkm services during termination or the mux termination detection mechanism needs to be corrected.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn15027 D7 API throws errors on empty optional parameters SM RP UI

Detailed Description	When unpacked, the MT_ForwardSM_Res, 2 optional parameters are treated as non-optional.
Solution	The parameters are set to optional before unpacking.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none

CRSnn15026 D7 API throws invalid error for UPDATE_GPRS_LOCATION

Detailed Description	Error definition in GP_UpdateGprsLocation_err.H is incorrect.
Solution	Error definition corrected according to GSMMAP 09.02 v7.3.0.
Programming Impacts	Yes.
Operational Impacts	Yes.
Documentation Impacts	GSMMAP User Manual.

CRSnn15025 D7 API invalid error for SEND_ROUTING_INFO_FOR_GPRS

Detailed Description	Error definition in GP_SendRoutingInfoForGprs_err.H is incorrect.
Solution	Error definition corrected according to GSMMAP 09.02 v7.3.0.
Programming Impacts	Yes.
Operational Impacts	Yes.
Documentation Impacts	GSMMAP User Manual.

CRSnn15024 D7 GSMMAP API generates invalid error value for PURGE_MS

Detailed Description	Error definition in MB_PurgeMS_err.H is incorrect.
Solution	Error definition corrected according to GSMMAP 09.02 v7.3.0.
Programming Impacts	Yes.
Operational Impacts	Yes.
Documentation Impacts	GSMMAP User Manual.

CRSnn15013 MB_PurgeMS_res.H header file updated incorrectly

Detailed Description	PurgeMS_Res should be member of MB_PurgeMS_res.
Solution	Added PurgeMS_Res to MB_PurgeMS_res header file and enhanced source code of MB_PurgeMS_res.C to enable pack and unpack functions for the additional body part.
Programming Impacts	Yes.
Operational Impacts	Yes.
Documentation Impacts	GSMMAP User Manual.

CRSnn15007 Incorrect behavior when setting GT/SSN routing bit

Detailed Description Routing type for GT translated messages changed to RouteOnPCSSN, if the translation resulted in a PC-SSN pair. This is not the requested behaviour by some customers.

Solution A flag, XLATE_ROUTE, has been introduced to the SCCP managed object. Possible values are PC_SSN, GT_ALL, GT_INCOMING.

PC_SSN: changes routing to <route on PCSSN> if GT translates to a PC/SSN pair.

GT_INCOMING: keeps the routing for incoming <route on GT> messages.

GT_ALL: keeps the routing for both incoming and outgoing <route on GT> messages.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14999 Maintenance application registry display corrupted

Detailed Description The following three problems are addressed in this CR:

1) Maintenance application registry display gets corrupted after the trunks are transferred to a new call control upon original call control failure.

2) Call control registered to ISUP which is on top of the global upm multiplexer receives two of these ISUP_SP_OUTOFSERVICE and ISUP_SP_INSERVICE messages when the event happens.

3) If multiple call controls are registered to an ISUP instance, only one of these call controls receive these ISUP_SP_OUTOFSERVICE and ISUP_SP_INSERVICE messages.

Solution Distributed7 ISUP has been corrected to handle all three scenarios.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14925 Two problems with class BearerServiceCode

Detailed Description Added GPRS with value 70 (0x46) in the BearerServiceCode class. (This is not required by spec, but done as a favor to the customer.)

Solution Add GPRS definition in BearerServiceCode.

Programming Impacts Yes.

Operational Impacts Yes.

Documentation Impacts GSMMAP User Manual.

Release 1.3.1.1

CRSnn15009 GT load-sharing should be disabled for sequenced messages

Detailed Description	GT load-sharing cannot be enabled for sequenced delivery, since sequenced messages are delivered to the same address every time.
Solution	Fixed.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none

CRSnn15008 EOC 2 definite coding uses long encoding all the time

Detailed Description	D7 translates all the EOC coded elements to long definite encoding. This causes some of the elements which are shorter than 127 octets to be long-encoded as well, which creates problems in the field.
Solution	Indefinite -o-definite encoding translation is not performed for the parameters section of TCAP messages. Hence, the inside of the user parameter is left as indefinitely encoded.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none

CRSnn15001 netd does not call t_rcvdis if T_DISCONNECT is received

Detailed Description	t_rcvdis should be called when the error number from t_look is T_DISCONNECT.
Solution	Fixed.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none

CRSnn15000 Once-action in apmconfig does not work

Detailed Description	The daemons configured as action=once in apmconfig should not be re-activated, even if they fail.
Solution	Fixed.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none

CRSnn14994 D7 host crash caused by DKM audit timer while doing ebs_stop

Detailed Description Some dangling DKM audit timers were left after the DKM_BOT queue was invalidated.

Solution QTIMEOUT calls are replaced by TIMEOUT calls, and all timer handlers check the validity of DKM_BOT at the beginning.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14993 D7 crash while doing ebs_stop

Detailed Description Congestion cleanup timer expires after the congested queue closes.

Solution cmn_service_queue checks on a given queue address to prevent timer expiry after requestor mux closes.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14937 GSMMAP class RoutingInfoForSM_Res missing parameter

Detailed Description Parameters are missing from the LocationInfoWithLMSI structure: extensionContainer, gprsNodeIndicator, and additionalNumber. Also, the name of the first parameter should be networkNodeNumber.

Solution Added the missing parameters and included pack and unpack for them.

Programming Impacts Yes.

Operational Impacts Yes.

Documentation Impacts GSM MAP User Manual.

CRSnn14914 Two GSMMAP messages in the D7 API header document missing

Detailed Description	Two entire classes are missing. We need to create 10 new header files and 10 source code files, because these two missed files are service classes, not parameter classes.
Solution	Added: two Arg header files two Res header files two err header files two arg parameter files two res parameter files Also added 10 source code files, corresponding to the above, which contain the necessary operations, such as pack, unpack, clear, etc.
Programming Impacts	Added two new services.
Operational Impacts	Added two new services.
Documentation Impacts	GSM MAP User Manual.

Release 1.3.1

CRSnn14984 Missing alarm 840338 in the documentation

Detailed Description	Also, severity of alarm 840327 should be Minor.
Solution	Fixed.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	Table 4-3 UPM Alarm Group: corrected severity of alarm 840327 to Minor, and added alarm 840338.

CRSnn14965 Enterprise ID change from ebs to SS8

Detailed Description	Enterprise ID change from EBS to SS8.
Solution	Changed "ebs" to "ss8" in mib_tmplt.v1 and mib_tmplt.v2.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	Changed “ebs” to “ss8” in Figure 6-2 in the D7 user manual.

CRSnn14951 ISUP high-availability problems

Detailed Description Three problems were identified in ISUP HA tests.

1) Incorrect call control registry remains after kill -9 isupd.

2) CRSnn14523 failed.

3) spm_rcv call hangs during isup HA tests.

Solution Fixed.

Programming Impacts none

Operational Impacts If an application depends on isup high availability, it is recommended to upgrade to this patch level.

Documentation Impacts none

CRSnn14945 Sequenced delivery fails with GT in calling party address

Detailed Description Sequenced delivery caused problems when GT was populated as cgpa, because SLS value was retrieved from the ssn number in the calling party address.

Solution SSN value is populated in the sccp header portion of the ipcsmsg.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14944 XUDT messages with GT addressing do not work

Detailed Description XUDT messages with GT in cgpa did not work, because ssn value (to find sls) was retrieved from the ssn field in cgpa.

Solution SSN value is retrieved from the sccp header of IPC message.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14938 DSMD hangs during HA tests under load

Detailed Description It is observed that dsmd process hangs and does not retrieve its messages from its streams queue on SPM in high-availability load tests. This problem exists for release 1.3.0.2 through 1.3.0.13—in those releases ISUP call processing may hang or behave erratically.

Solution dsmd is designed to be single-threaded since it calls the sigprocmask() function call several times under load to block and unblock SIGALRM and SIGPOLL signals. Starting as of 1.3.0.2 release it is linked with the posix thread library unnecessarily. This causes the process to create several threads during run time. Under extreme load conditions the SIGPOLL signal is delivered to some other thread instead of the main thread. So our registered SIGPOLL signal handler is not invoked and the messages are left in the streams queue. The dsmd process will not be linked with the posix thread library to correct this problem.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14933 MAP_Dialogue class abnormality

Detailed Description

Several problems in MAP_dialogue class.

Solution

1. .isSet() function not provided

MAP_DialoguePar.C is the parent for all parameter class in MAP_Dialogue, thus it should have a similar function .isSet as in MAP_Parameter. So MAP_Dialogue header file and source code are modified for this enhancement.

2. MAP_AC .get was not able to retrieve value. A code change in the unpack function in MAP_AC fixed this.

3. .isSet() function returns 2 instead of 0 or 1.

Our manual stated .isSet() always returns 0 or 1. In fact, the source code shows it returned only 0 or 2. Fixed in MAP_Parameter and MAP_DialoguePar.

4. .isSet() function returned 0 when member had data, for the flags were not updated in the unpack function in this class. Fixed.

Programming Impacts

none

Operational Impacts

none

Documentation Impacts

GSM-MAP Interface Manual: revised Section 5.3.7 MAP_DialoguePar, Section 5.4.182 IMEI, Section 5.4.188 InsertSubscriberDataArg, Section 5.4.355 RestoreDataArg, Section 5.4.401 SS_Data, and Section 5.4.473 UpdateLocationArg; added Section 5.4.402 SS_DataE; added Section 5.4.410 SS_InfoE, Section 5.4.411 SS_InfoList, and Section 5.4.412 SS_InfoListE.

CRSnn14931 Wrong sequence length in return-result component

Detailed Description When the parameter length is longer than 127 bytes, the sequence length in the return-result component is coded incorrectly.

Solution Length coding corrected to work for elements longer then 127 octets.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14922 Jain TCAP application terminates prematurely

Detailed Description When a remote node shuts down, all the Jain TCAP applications terminate.

Solution Method calls corrected and Java strings garbage collected on native side.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14916 GSMMAP missing parameters (SS_RegisterSS_res and arg)

Detailed Description The defaultPriority is missed in both RegisterSS_arg and RegisterSS_res, and missed in eraseSS, activateSS, and deactivateSS. Also note that the defaultPriority in registerSS_res is under ss-data, and ss-data under insertSubscriberData is different, which contains extensionContainer but does not contain defaultPriority.

Solution Added a new ss-dataE structure to be used by insertSubscriberData only, and added the missing defaultPriority to ss-data to be used by registerSS, eraseSS, activateSS, and deactivateSS.

Programming Impacts none

Operational Impacts none

Documentation Impacts GSM MAP Interface Manual: revised Section 5.4.401 SS_Data.

CRSnn14913 GSMMAP MB_RestoreData_arg class missing parameter

Detailed Description D7 class 'MB_RestoreData_arg' does not include the “Supported CAMEL Phases” parameter.

Solution Added the missing promontory.

Programming Impacts none

Operational Impacts none

Documentation Impacts GSM MAP Interface Manual: revised Section 5.4.355 RestoreDataArg.

CRSnn14912 GSMMAP MB_InsertSubscriberData_arg class - missing parameter

Detailed Description D7 class 'MB_InsertSubscriberData_arg' doesn't include the following parameters:

- Forwarding Information List
- Call Barring Information List
- CUG Information List
- eMLPP subscription data

Solution Made two new classes, SS_InfoE and SS_InfoListE, which compare to SS_Info and SS_InfoList, only added emlpp_Info parameter. Then let InsertSubscriberDataArg uses SS_InfoListE and SS_InfoListE uses SS_InfoE. The pack and unpack function in these two classes are updated for the new parameter emlpp_Info.

Programming Impacts none

Operational Impacts none

Documentation Impacts GSM-MAP Interface Manual: added Section 5.4.410 SS_InfoE, Section 5.4.411 SS_InfoList, and Section 5.4.412 SS_InfoListE.

CRSnn14910 IMEI SV not supported

Detailed Description IMEI support for SVN is missing. In particular, the D7 class, IMEI, does not include the “SVN” (Software Version Number) parameter. According to GSM 02.16 version 7.2.0, SV should be included in the composition of IMEI as follows: TAC(6 digit) - FAC(2 digit) - SNR(6 digit) - SVN(2 digit).

Solution IMEI has been enhanced to include the parameter, SVN.

Programming Impacts none

Operational Impacts none

Documentation Impacts GSM MAP Interface Manual: revised Section 5.4.182 IMEI.

CRSnn14909 disp-l2cs shows bogus data

Detailed Description The MML command display-l2cs shows bogus data for the links which are on an unavailable host.

Solution "0" is displayed for the unavailable host links.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14908 msgpullup must be followed by freemsg to prevent memory leak

Detailed Description A serious memory leak (due to unfreed streams msg blocks) has been observed while running the first aix alpha release overnight.

Solution Root cause of the memory leak has been traced to unfreed streams msg blocks after a successful msgpullup operation. since msgpullup generates a copy of the original msg and operates on it, a freemsg call on the original msg must be performed explicitly after msgpullup returns success.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14907 SCCP address-handling incorrect

Detailed Description The unions in the address type cpa_t were causing problems, because they were not filled in correctly.

Solution cpa1_t, cpa2_t and cpa3_t structures made one type.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14905 MB_UpdateLocation_arg does not include conditional parameter

Detailed Description UpdateLocationArg is missing two optional parameters, extensionContainer and VLR_Capability.

Solution Modified the header file to include the missing parameters, and enhanced the source code to include the clear, pack, and unpack functions for the missing parameters.

Programming Impacts none

Operational Impacts none

Documentation Impacts Revised Section 5.4.473 UpdateLocationArg.

CRSnn14904 Too many main function definitions in libdbms.a library

Detailed Description The libdbms.a archive provided as part of first aix alpha release contain a few main function definitions; therefore, attempts to link this library to other source files with the main routine fail.

Solution Main function definitions in libdbms.a are intended for test programs and should not be included in the final build of the library. Corresponding source files should either be not included in the archive or compiled with the -DTEST compile-time flag.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14903 ebs_modunload attempt while stack is running creates problem

Detailed Description If an ebs_modunload attempt is made while the d7 stack is running, dramod will remove all resources and this will trigger misbehavior at upper layers of the d7 stack.

Solution When a CFG_TERM request is received, dramod must remove its resources only if it's successful in unloading the module itself. Otherwise, no action should be taken.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14902 Failure to create SCCP managed objects on second host at startup

Detailed Description In a two-host aix configuration, occasionally attempts to start up the sccp layer on the 2nd host (i.e., while sccp is up and running on the other host) will fail. Further analysis of the problem indicated cfg_sndcreatemo() call failures being at the root cause of the problem.

Solution In cfg_sndcreatemo() function, we must explicitly initialize the contents of the reply msg to be send before calling ods_reply. Failure to do so may cause spm_snd attempts issued from within ods_reply to fail due to unacceptably large msg sizes.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14900 Problems with JAIN TCAP GT handling

Detailed Description Gt addressed transactions were not sent/received properly.

Solution Fixed.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14892 Missing parameters in "SS_UnstructuredSS_Request_arg" class

Detailed Description The missing parameter for class SS_UnstructuredSS_Request_arg traces to USSD_Arg class, which has two missing parameters: alertingPattern and msisdn.

Solution These two have been added to the header file of USSD_Arg.H, and the correspondent pack and unpack function, and the clear function has been updated in the source code of USSD_Arg.C.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14883 Traffic restored early on changeback

Detailed Description During sequence controlled changeback, traffic is restored before CBA is received from the remote end. This problem was introduced in the 1.3.0.11 release.

Solution The D7 MTP behaviour has been corrected to restore traffic after the CBA is received from the remote node during sequence controlled changeback.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14881 SSTs are not processed when the affected pc is alias pc

Detailed Description SCCP does not process the SSTs received when the affected point code in the SST message is the alias point code.

Solution User part alias point code handling in Distributed 7 is corrected.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14876 ISUP db corruption on 2FE after kill -9 isupd and restart

Detailed Description Kill -9 isupd and restart isupd on distributed host will have a very high chance to get into trouble; i.e., the first started isupd will get its database corrupted (create ISUPNODE failed), proved by mml command showing an corrupted isupnode and empty isupcgrp database etc. The second started isupd will fail to start, and keep on printing "database sync in progress ..." after ebs_stop on FE1/FE2, db2text will show database is fine.

Solution This problem was introduced in the 1.2.0 release due to a change in the cnfg library. the isupd process has been modified to accommodate the changes in the cnfg library.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14871 D7 sends incorrect contents in the redirect count parameter

Detailed Description The length of the redirect count parameter was changed after the itu 88 spec. In the itu 88 spec it could either be 1 or 2 octets. In later specs it was changed to be 2 octets fixed. The ISUP api was not changed to accommodate this change in the specs.

Solution Itu parameter handler for redirect count parameter is corrected.

Programming Impacts If the call control application populates the redirect count in the outgoing isup primitives, it should upgrade to this patch level.

Operational Impacts If the call control application populates the redirect count in the outgoing isup primitives, it should upgrade to this patch level.

Documentation Impacts none

CRSnn14856 Add node-based configurable CFN response to unknown message

Detailed Description Make CFN sending a configurable option.

Solution Added one more parameter, CFNOFF, to the ISUPNODE managed object. This new parameter can be modified to ON or OFF.

Programming Impacts none

Operational Impacts none

Documentation Impacts Updated Section 9.6.3 of the D7 user manual.

CRSnn14855 D7 does not format CQM correctly per ANSI 96 spec

Detailed Description In ANSI 96, CQM can have an optional parameter. However, even though D7 is configured as ANSI 96, the CQM built through ISUP API still has the ANSI 92 format, and the message cannot be recognized by ANSI 96 network.

Solution The parameter table is updated when ANSI 96 is configured. The change has been made in ISUP API.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14854 Cluster MTP_PAUSE and RESUME primitive handling

Detailed Description A cluster node can also be defined as a member node in the mtp database. And this node can have a secondary route defined to itself. If the route to the cluster becomes unavailable, the whole cluster will be inaccessible, but this node will be accessible through its secondary route. On the other hand, a TFP for a cluster member x, will bring node x to the inaccessible state only. If a TCP and a TCA is received from the network the whole cluster will be inaccessible first, and all the nodes other then x will become accessible. Node x should become accessible only after a TFA. So user parts should check the state of each node in the cluster with the mtp_dest_stat() api upon receiving MTP_PAUSE or MTP_RESUME primitives for clusters.

Solution MTP user parts have been modified to check the states of each node in the cluster with the mtp_dest_stat() api upon receiving MTP_PAUSE or MTP_RESUME primitives for clusters.

Programming Impacts none

Operational Impacts If cluster routes are defined in the MTP database the patch containing this CR fix should be used.

Documentation Impacts none

CRSnn14837 D7 does not reply to CGU containing unequip-cic in its range

Detailed Description When a CGU that contains unequipped cic in its range (inexplicit), D7 is unable to respond with CGU, instead, it generates an alarm, ALARM $89010a HOST: unknown SP: 0 LVL: Minor ISUP: Invalid parameter format [mod=40 msg=0x18 state=0x16]. The proper behaviour is to send CGUA as response, and UCIC for each of those unequipped CICs (optional).

Solution The problem was fixed together with CR 14834.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14836 D7 replies UCIC when incoming CVR has unequip-CIC in routing label

Detailed Description In response to a CQM which contains unequipped CIC in the routing label (explicit), D7 sends UCIC instead of CQR.

Solution For an incoming message, a special check has been added to let CQM get processed in the CQR module regardless of its CIC value. In the CQR module, the process has been enhanced to handle this special CQM.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14833 D7 does not work properly in response to CGB with zero range

Detailed Description ISUP does not process a CGB with zero range properly.

Solution In receipt ofa CGB with zero range, the whole group of circuits is blocked.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14817 Length of IAF digits > 15 for IS41D

Detailed Description

Here is the list of IS41D parameters that require support for up to at least 32 digits (the specs for IS41D specify that the length of all these digits is between 0 and "at least" 15):

- SMS_OriginalDestinationAddress
- SMS_OriginalOriginatingAddress
- SMS_DestinationAddress
- SMS_OriginatingAddress

Solution

The changes made for IS41-D in this CR are analogous to the changes made for IS41-C in CR 14739.

Programming Impacts

none

Operational Impacts

none

Documentation Impacts

Revised IS41-D MAP Interface Reference Manual:

Section 4.5.137 SMS_DestinationAddress: for setBCD(), under Description, changed the maximum length for digits to 127. Section 4.5.140 SMS_OriginalDestinationAddress: for setBCD(), under Description, changed the maximum length for digits to 127. Section 4.5.142 SMS_OriginalOriginatingAddress: for setBCD(), under Description, changed the maximum length for digits to 127. Section 4.5.144 SMS_OriginatingAddress: for setBCD(), under Description, changed the maximum length for digits to 127.

CRSnn14816 Incorrect component length cannot be detected

Detailed Description

Error in short parameter code.

Solution

Fixed.

Programming Impacts

none

Operational Impacts

none

Documentation Impacts

none

CRSnn14815 Artic8260 may cause system crash if BAR has 0x0000 value

Detailed Description

Tundra Powerspan, the PCI bridge chip of artic8260 boards, does not support a base address of 0x00000, although the value is a valid address according to PCI specifications. The device will not respond to PCI transactions when this value is assigned to Base Address Register.

Solution

Device driver will not attach the instance, if the instance has a 0x0 BAR value.

Programming Impacts

none

Operational Impacts

none

Documentation Impacts

none

CRSnn14806 Unable to register ebs_oldapidemo using 1.3.0.8 release

Detailed Description Old registration function checked the existence of an FD before the FD array was initialized.

Solution Fixed.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14796 Link set emergency restart is needed when all links are down

Detailed Description SC3100 does not initiate emergency link restart procedures when all links in a link set goes down.

Solution If the "emergency" option for a link set is set, and all links in that link set become unavailable, then MTPL3 starts emergency alignment for all links. If there is at least one link available in the link set, then normal alignment procedures are initiated.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14794 D7 generates message type 32 after deactivate/activating a linkset

Detailed Description The definition of the circular route set test message was incorrect in D7. The correct definition should be 0x13, the same as the signalling route set congestion test message.

Solution The definition of the circular route set test message is corrected.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14793 Telcordia certification MTP3 issues

Detailed Description The Telcordia certificate test for MTP3 ran from 8/25/2003 to 9/5/2003, for a total of 156 cases: 90 passed, 54 failed, and 12 could not be run, 10 because of issues, and 2 because of optional implementation. Total issues discovered were 34, including 2 info, 21 minor, 9 major, 2 critical.

Solution Distributed7 MTP has been changed to correct these problems.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14791 SNMP sends out an empty text trap for alarm repeat=0,1

Detailed Description Alarm suppress-on-repeat settings should not affect the SNMP traps and customer alarm events.

Solution Fixed.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14783 PMC8260 drivers can not attach on SUN CP2040 CPU boards

Detailed Description MC8260 device driver fails to attach on a SUN CP2040-based host system.

Solution The PMC8260 device driver-attach routine has been modified to support a PCI register space size of 128K.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14772 Error in SCCP when translating one GT to another one

Detailed Description Numbering plan of global titles always used as 0.

Solution Numbering-plan-related bug fixed.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14751 Copyout and copyin calls should be removed

Detailed Description Starting with Solaris 2.8, copyin and copyout should not be used with streams drivers.

Solution Fixed.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14747 System freeze at SPM multiplexer

Detailed Description Under congestion situations, a system freeze occurs in the spmlwsrv() routine.

Solution The streams queue enabling order has been corrected to avoid the system freeze.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14746 Temporary link congestion triggers high cpu utilization

Detailed Description Temporary link congestions under heavy load cause indefinite high cpu utilization and system slowdown, in some cases, due to a race condition in the hmrt module.

Solution MTP HMRT module has been corrected to handle such race conditions correctly.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14745 PowerQUICC II-based boards stop running after MCC_BSY event

Detailed Description The ARTIC8260 rarely hangs when more than 48 links are configured on it, but it may not recover after MCC BUSY events.

Solution The interrupt handler was trying to restart the receivers after an MCC_BSY event. But this behavior has been removed, since receivers won't stop under the BSY condition.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14744 Some links fail to align after restarting the dual-host

Detailed Description In 1.3.1 Beta, after restarting a dual host, some links on that host may not be restarted.

Solution The UPMD process has been updated to work in sync with the UPM kernel records.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14739 Length of IA5 digits should be greater than 15

Detailed Description

D7 enhanced to allow up to 127 digits in the CallingPartyNumberString1&2, CallingPartyNumberDigits1&2. Also enhanced the is41d_apidemo sample to test the enhancement by adding a new FEATURE REQUEST message.

There are four IS 41C parameters for CallerID we are interested in:

CallingPartyNumberString1

CallingPartyNumberString2

CallingPartyNumberDigit1

CallingPartyNumberDigit2

IS41C specifies that the length of all these digits is between 0 and "at least" 15.

Solution

In fact, it's not related to IA5 or BCD. It's simply that the customer (Aeris) wants to allow the CallingPartyNumberString1 & 2, CallingPartyNumberDigits1 & 2 to support about 100 bytes. We added support for 127 bytes, however, the customer needs to be aware that the whole message still can not exceed the TCAP length limitation—for the time being, it's defined as 248 bytes.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14737 Event notification delivered to closing user queues

Detailed Description Queue status is not updated upon queue closure.

Solution Queue (devq_t) status updated to NONE when queue is closed. Eventnotification checks status during event delivery.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14729 SCMD fails when application registers/deregisters under load

Detailed Description Dramod fails to check current users waiting to lock record private part when deleting a record. Users hung forever after private record semaphore was deleted.

Solution Dramod checks pending lock requests on the record prior to deletion, and posts the semaphore and delays deletion if users are waiting to lock the record. Waiting users are failed with an error code of e_dra_nonexist after they get hold of the record semaphore.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14726 D7 does not route message after receiving two TFPs and a TFR

Detailed Description If two TFA messages regarding the same point code are received within T6 period (800 ms), then MTP states get corrupted. After the corruption occurs, unexpected behaviour can be observed in D7 routing—the destination may stay in the accessible state even after TFPs or messages could not be routed to the destination, even after TFAs.

Solution The processing of two consecutive TFA messages regarding the same point code has been corrected, and MTP states do not get corrupted in such cases.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14725 D7 sends SST with right SSN, but pc=0-0-0 with ATT protocol

Detailed Description When PCIND is set, ssp/ssa messages are populated incorrectly.

Solution Fixed.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14723 SNMP v1 sends trap which is ebs iso enterprise accessMANAGER

Detailed Description When the D7 SNMP agent generates a trap, it uses a fixed value, 1.3.6.1.4.1.1056.1 (accessMANAGER), in the enterprise field of a trap PDU. However, the trap severity definition accWarning, accMinor, accMajor, accCritical, accFatal were added in D7 1.2.1 by CRSnn14218 to enable HP openview to automatically load the severity configuration. D7 should use the ebs definition, which is 1.3.6.1.4.1.1056.

Solution Replaced the value "ebs" with "accessMANAGER" in the 5 trap severity definition.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14717 Reset response returns invalid message in IDLE state

Detailed Description

When an ISUP_RESET primitive with RLC message is sent back as a response for an incoming ISUP_RESET primitive with RSC message in IDLE state, an ISUP_ERROR_INVMSG primitive is returned back to call control.

Solution

The ISUP CPCI module was corrected to process the reset message correctly in the idle state. The behaviour change in the idle state is explained in the operational impacts section.

Programming Impacts

Call control should respond to ISUP_RESET primitives received in the idle state.

Operational Impacts

Documentation Impacts

none

CRSnn14716 Linkage problem with both IS41D and GSMMAP libraries

Detailed Description

There are two classes that have same name in the IS41D and GSMMAP library; they must be changed.

Solution

In IS41D, changed CancellationType to IS41D_CancellationType, and ServiceIndicator to IS41D_ServiceIndicator. In GSMMAP, changed CancellationType to MAP_CancellationType, and ServiceIndicator to MAP_ServiceIndicator.

Programming Impacts

Backward compatibility is impacted by the implementation of CRSnn14716 to allow applications to link with both IS41D and GSMMAP. A modification of existing code is necessary only if the customer applications originally used CancellationType or ServiceIndicator from IS41D or GSMMAP. The modifications required are name changes from CancellationType to IS41D_CancellationType for IS41D, and to MAP_CancellationType for GSMMAP. Analogous changes apply to ServiceIndicator.

Operational Impacts

none

Documentation Impacts

Revised the IS41-D Interface Reference Manual and the GSMMAP Interface Manual.

IS41-D Interface Reference Manual

Section 4.4.72 RegistrationCancellation_INVOKE: in synopsis changed "CancellationType cancellationType;" to "IS41D_CancellationType cancellationType;".

Section 4.4.90 SMSDeliveryPointToPoint_INVOKE: changed "ServiceIndicator serviceIndicator;" to "IS41D_ServiceIndicator serviceIndicator;".

Section 4.5.21 CallingPartyNumberDigits1: changed the maximum length for digits from 15 to 127 (CRSnn14739).

Section 4.5.22 CallingPartyNumberDigits2: changed the maximum length for digits from 15 to 127 (CRSnn14739).

Section 4.5.23 CallingPartyNumberString1: added "with a maximum value of 127" after "The length of digits is in len" (CRSnn14739).

Section 4.5.24 CallingPartyNumberString2Section 4.5.23 CallingPartyNumberString1: added "with a maximum value of 127" after "The length of digits is in len" (CRSnn14739).

Section 4.5.78 IS41D_CancellationType: changed all instances of "CancellationType" to "IS41D_CancellationType".

Section 4.5.80 IS41D_OctetString: changed value of MAX_OCTET_STRING_LEN from 248 to 132 (CRSnn14739).

Section 4.5.82 IS41D_ServiceIndicator: changed all instances of "ServiceIndicator" to "IS41D_ServiceIndicator".

GSMMAP Interface Manual

Section 5.4.43 CCBS_Data: changed the two instances of "ServiceIndicator" to "MAP_ServiceIndicator".

Section 5.4.74 CancelLocationArg: changed the two instances of "CancellationType" to MAP_CancellationType".

Section 5.4.236 MAP_CancellationType: changed each instance of "CancellationType" to "MAP_CancellationType".

Section 5.4.250 MAP_ServiceIndicator: changed each instance of "ServiceIndicator" to "MAP_ServiceIndicator".

CRSnn14714 D7 does not route message if addrinfo in GT has hex digits

Detailed Description When there is hex number in the GT address, such as 49a345, D7 SCCP can not translate it even if the "49a" gtentry is configured.

Solution An error in the conversion between ascii (abcdef, ADCDEF) to hex in storing GT records has been corrected.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14708 If ssn not included, problem with routing on GT for ANSI96

Detailed Description Using sccptest to set called party address "Route on GT, GT included, PC included, SSN not included", message cannot be sent out.

Solution The cpa1 field in cpa_t structure was not being populated when setting the called party address "Route on GT, GT included, PC included, SSN not included". This has been corrected in the sccptest.c sample code.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14707 RLOS occurs on pmc8260 rev1.3 boards in T1 mode

Detailed Description Framers detect a high rate of RLOS (Receive Loss of Sync) condition when Force-PMC8260 v1.3 board is running in T1 mode. This failure prevents SS7 links to become in-service.

Solution Programming the RLPS equalization RAM of the Comet4351 framer timing is critical due to a bug in the COMET4351 framer chip. The increase in the processor speed from v1.2 to v1.3 causes incorrect initialization of this RAM. The problem has been fixed by implementing the workaround given in "COMET device errata issue 7".

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14702 D7 does not loadshare equally across all links in CCITT

Detailed Description With the current algorithm, D7 selects the linkset and link for a message depending on the combination of DPC and SLS. The original intention was to distribute the traffic more evenly, but obviously is not working as expected.

Solution Load-sharing algorithm corrected.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14701 Error in MAP message CancelLocation

Detailed Description The program CancelLocationArg tag was not coded based on the spec. It should use tag 0xa3 instead of 0x30. So the head file should be changed to reflect the special tag and the unpack function in the source code need to be changed to work with the additional 2 octets in the tag.

Solution Header file CancelLocationArg.H modified to use tag 3 instead of -1. CancelLocationArg.C modified in the unpack method to take care of the special implicit sequence tag 0xa3 + length.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14698 apm semaphore operations fail

Detailed Description apm_start failed due to uninitialized semaphores.

Solution System V semaphores are initialized upon allocation.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14697 PM test program receives message but does not print it fully

Detailed Description Passive Monitor sample test program cannot print captured messages completely.

Solution pm_transfer_ind_t structure has been updated to include captured MSU size, so that Passive Monitor applications can use this field to get actual message size.

Programming Impacts The data structure of the MSU Transfer Indication has been changed as follows:

```
typedef struct {
unsigned char  portid;
unsigned char  userid;  /* user part number */
unsigned short length;  /* MSU size in bytes, includes bsn+fsn+li+sio */
unsigned int   time;    /* time MSU read    (in milliseconds) */
pm_msu_t       msu;     /* SS7 Message Signal Unit */
} pm_transfer_ind_t;
```

Operational Impacts none

Documentation Impacts The pm_notify(3p) function in the Passive Monitor API Manual has been updated.

CRSnn14696 Changeback failure

Detailed Description	If MTP does not get changeback acknowledgement for its one of its changeback declarations, then it will not initiate any new changeback declarations for the later changeover/changebacks, since it waits for the changeback acknowledgement of the previous declaration.
Solution	MTP has been corrected to clear its states when both T4 and T5 timers have expired during the changeback operation. So MTP will initiate a changeback declaration after each changeover/changeback, even if the acknowledgement for the previous changeback was not received.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none

CRSnn14695 Enhance the gsmmap_apidemo program

Detailed Description	The maptest tool should have some MAP_Dialogue class use.
Solution	Done.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	Revised Section 5.3.7 MAP_DialoguePar in the GSM MAP Interface Manual.

CRSnn14694 Using function getInvokdeId always results in return value 0

Detailed Description	Global variable invokeid was not initialized for incoming message.
Solution	Fixed.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none

CRSnn14693 Error in the gsmmap library

Detailed Description	The sequence tag was not initialized.
Solution	Inserted the missing initialization in the UpdateLocationRes.C
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none

CRSnn14692 Error in MAP message Provide Roaming number

Detailed Description	Bug due to forced unpack without checking data availability.
Solution	Added check to ExternalSignalInfo.C.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none

CRSnn14691 Error in the MAP message InsertSubscriberData

Detailed Description There are problems using the MB_InsertSubscriberData_arg class that belongs to the D7 MAP classes.

Solution Put additional check for data availability. Also found three more parameters used in the MB_InsertSubscriberData_arg with the same problem, so fixed them all using the same method.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14690 Tcap driver blocked semaphores

Detailed Description The D7 1.0.5.8 application is complaining about no more dialogue id's available. This is where things go wrong: application processes are killed by signal 6, probably to recover from the situation. Because of this, apmd loses heartbeat to upmd0 and also the gateway. So, they had to do a switchover to the other side.

Solution Fixed.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14687 race conditions in the dkm driver

Detailed Description DKM should not process messages in the upper write entry point if DKM_ERR is set (that is, if one of the worker queues has been closed).

Solution Fixed.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14686 CompactPCI hot-swap support

Detailed Description Hot-swap support for PMC8260 and ARTIC8260 CompactCI boards.

Solution Device drivers have been improved to support hot-swap operation on PMC8260 and ARTIC8260 boards.

Programming Impacts none

Operational Impacts The SS7BOARD managed object is affected: the CONF attribute of the MOD-SS7BOARD command can take new arguments (see the help text file or the D7 user manual).

Documentation Impacts Added Section 6.14 CompactPCI Hot-swap to the D7 user manual.

CRSnn14685 mlogd fails to clear the mlog file

Detailed Description	mlogd failed to clear log files when they grew beyond the specified limit.
Solution	Shell-based file-handling commands replaced by Unix C library calls.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none

CRSnn14684 System crash when dkmd is killed with UP 5 registered

Detailed Description	When dkmd terminates, upmd waits for isup to deregister; meanwhile dkmd is respawned.
Solution	Upmd does not wait for isup if termination reason is dkmd/netd failure.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none

CRSnn14671 PC-indication suppression and routing change for global title

Detailed Description	Need the ability to suppress the PC indication and change routing to RouteOnGt for the calling party address if it contains a global title.
Solution	Optionally, the cgpa can be sent on GT routing if the address contains a global title.
Programming Impacts	none
Operational Impacts	None—applies to Redknee variant only.
Documentation Impacts	The D7 user manual has been revised: in Section 9.4.6 two values, "suspend" and "resume", have been added to the conf parameter of the SS7BOARD managed object; and in Section 9.5.5 the value "Redknee" has been added to the protocol parameter of the SCCP command.

CRSnn14657 When there are multiple isupnodes, isup data gets corrupted

Detailed Description	When multiple isupnodes are defined on a distributed configuration, the internal message routing information gets corrupted for some of the nodes. So the incoming isup messages from the network are routed to the default isupd, which is the local isupd, instead of the correct isupd, which is ready to process the message. If the default isupd is not ready for processing, the incoming message generates an alarm or applies a reset based on the type of the message and state of the circuit.
Solution	The corruption on the internal routing tables was due to the misuse of the dkm framework in the isup module. The isup module has been corrected to use the dkm framework correctly.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none

CRSnn14656 Race conditions between DRMOD and DKM during shutdown

Detailed Description	DRA should check DKM operation state before accessing DKM data.
Solution	Fixed.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none

CRSnn14643 get() method in IS41D return inconsistent values

Detailed Description	The get method in other classes will return 1 when the isGet() is non-zero, but in the class of IS41D_Null, it just returns isGet(), which will have a value either 0 or 2.
Solution	Changed the get() method in IS41D_Null.C to make it return 1 when the isGet() is non-zero.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none

CRSnn14638 Unpack problem with non-BCD MIN

Detailed Description	Add new method IS41D_Class.IS41D_Init to set variant to GENERIC or AERIS. If GENERIC, no change, if AERIS, allow any data in MIN. Accordingly, add unpack_rawdata in MIN to allow unpack for AERIS, and print in hex format.
Solution	Fixed: is41d_apidemo.C IS41D_Class.H MobileIdentificationNumber.H IS41D_Class.C MobileIdentificationNumber.C
Programming Impacts	New IS41D_Init. New variant GENERIC, AERIS.
Operational Impacts	AERIS customers who wish to use the non-BCD MIN feature need to call the IS41D_Init to set the variant to AERIS.
Documentation Impacts	IS41-D MAP 1997 Interface Reference Manual: Section 3.3 IS41D_GetOpCode: changed IS41C to IS41D (CR14638). Section 4.5.89 MobileIdentificationNumber: added "int IS41D_Init(IS41D_Variant variant);" to synopsis. Added bullet for IS41D_Init() to description (CR14638).

CRSnn14634 gw_send_to_gateway crashes

Detailed Description gw_send_to_gateway function crashes due to invalid number of gw instances found.

Solution Fixed.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14632 ISUPD terminates with signal 11

Detailed Description During maintenance group blocking and unblocking operations, sometimes isupd terminates with signal 11 in itu configuration. Core analysis showed that problem occurs when the blocking (or unblocking) request covers two voice spans and the status bit of the first circuit of the second span is not set.

Solution 1) status field processing of isup layer is corrected to handle maintenance group messages

2) all the modules performing operation over status field are reviewed for similar problems. A similar problem is found in processing ANSI group block, unblock message processing and corrected

3) isupd is changed not to catch SIGSEGV and SIGBUS signals, so that we will have core dumps if similar problems happen in the field

Programming Impacts none

Operational Impacts The customer will no longer see the alarm stating that isupd has terminated abnormally with SIGSEGV or SIGBUS signals. If a similar problem occurs, then the core file will be generated for further analysis.

Documentation Impacts The following alarm has been removed from table 4-8 in the installation manual.

Alarm no. Severity Type Message

-------- -------- ----- -------

8901d3 Critical EVENT ISUP: Abnormal termination via UNIX signal.

CRSnn14626 DSMD cannot cope with message loss during startup

Detailed Description If DSMD loses messages during startup, it never starts running.

Solution D7 congestion handling corrected to distinguish between user and system messages.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14622 TX fails when MPC8260-based boards detect MCC GUN event

Detailed Description On PowerQUICC II based boards, MCC transmitters stop when a global underrun event is detected. Since GUN is a global event, all channels are effected and must be reinitialized. The recovery part in artic8260 and pmc8260 hdlc interrupt handlers corrupts SIRAM entries which causes all MCC channel activities to be stopped.

Solution TSA SIRAM entries are reinitialized, and only the active channel entries in SIRAM are reactivated.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14621 APMD fails to catch termination of child processes

Detailed Description APMD cannot catch deaths of child processes if they happen at the same time

Solution Execute the process table for each child-process death, and check the proc file to see if the child has become a zombie.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14614 Transaction receiver can change OPA for ITU97

Detailed Description TC user can use the TC_C_CONTINUE_CONFIRM< primitive to change own address info in the transaction. This primitive can only be used as the first continue after receiving a TC_C_BEGIN indication.

Solution Feature implemented.

Programming Impacts Client application has to use the new primitive to change the OPA when responding to a BEGIN.

Operational Impacts none

Documentation Impacts API Manual

Section 10.2.24: added line, "L_TC_C_CONTINUE_CONFIRM - Continue to Confirm a New Dialogue (CCITT)", and for all with CCITT (three instances) replaced "conversation" with "dialogue".

Application Development Manual

Table 5-4: added "Continue (confirmation)" column.

Section 5.3.6.2: added one line, "L_TC_C_CONTINUE_CONFIRM - confirm dialogue".

CRSnn14592 TC application termination effects other TC apps with different SSN

Detailed Description Upon TC application termination, transaction table should be detached only for the failing physical device (SSN).

Solution Fixed.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14588 Bug in open() close() calls in raw TCAP library

Detailed Description Although the data type of TCR_USRDATA members is tcr_usrdata_t, memset(), the function was called with tc_usrdata_t type when initializing TCR_USRDATA; this can cause unexpected results.

Solution Fixed.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14576 Spain variant INR message does not work

Detailed Description The CPCI module has a logic error in processing the INR message when the variant is Spain.

Solution Fixed.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14574 Race conditions in the DKM driver while stopping D7

Detailed Description Race conditions experienced in DKM driver when trying to stop the three D7 nodes in a cluster, which, in turn, leads to a crash.

Solution In closing, DKM_ERR is set and tasklists are destroyed prior to deletion of service, user, and main records.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14571 TCAP blocks timeout messages in certain states

Detailed Description TCAP permits timeout messages only for init_sent transaction state.

Solution Check removed.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14566 UPM driver causes message traffic to be blocked

Detailed Description spmlrsrv was becoming a bottleneck since it carries all host to host traffic.

Solution Congestion-handling implemented.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14563 Problem in routing of messages when sequence control is turned on

Detailed Description There is a problem in routing messages if the calling party does not include SSN and sequence control is turned on.

Solution Fixed

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14556 Unable to send abort dialogue portion in abort transaction

Detailed Description When one tries to send the abort dialogue portion within the abort transaction, tcm_snd() returns error 301(unexisting dlg portion).

Solution Related bug fixed.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14554 When own pc is also defined to be a part of a network

Detailed Description When a network (or a cluster) rtset is defined, such that own pc is a part of that network (or cluster), the accessibility status of the rtset also affects the state of the local subsystems.

Solution When performing management actions on the network and cluster SNSPs, SCCP checks a member against own pc before performing the action.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14548 ISUP layer exits if GRS is sent with range out-of-bound

Detailed Description When the range of incoming GRS contains circuits in the next trunk group, and the next trunk group is not provisioned, the AccessISUP process exits due to a segment error.

Solution An additional check has been added and the l gic for such a scenario is corrected to send UCIC for all CICs not provisioned.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14544 Support for large TCAP messages

Detailed Description TCAP should be using the segmentation facility provided by sccp. SCCP segmentation facility needs to be implemented as a kernel service.

Solution Enhanced the D7 software to support a parameter size larger than 248 bytes in the TCAP layer. See CRSnn05559.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14523 Problem with CC reg and reassignment of trunk ownership

Detailed Description CC hard registration does not work on CCs registered to the same host.

Solution Fixed.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14520 ISUPD hangs during startup

Detailed Description ISUPD hangs during startup due to a blocked UPM kernel thread; The UPM driver entered a mutex prior to issuing DKM calls.

Solution DKM calls now made outside the mutex.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14519 Exclusiveness violation for network-exclusive regs

Detailed Description When multiple spm_bind()s are issued from different processes on different hosts, or on the same host, the bind request can be granted when the registration type is network-exclusive.

Solution Fixed.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14517 Add optional parameter, Operator ID, to ISUP Spain variant

Detailed Description An optional parameter, Operator ID, is to be added to the ISUP Spain variant.

Solution For the Spain variant, a new optional parameter, "Operator Identity" (0xFB), for the IAM message has been added into the API, so the parameter can be coded and decoded by applications.

Programming Impacts Yes, for the Spain variant only.

Operational Impacts none

Documentation Impacts Two changes made to the D7 Application Development Manual. Table 6.5, added "ISUP_PMT_OPID(0xFB)" for the Spain variant. Appendix A, added section A.22.2.5 Operator Identity (ISUP_PMT_OPID)—Operator Identity is an optional 2-octet parameter accessible via the OperatorIdent field of the parameter "union". The parameter code is 0xFB.

CRSnn14512 See CRSnn14284—SNMP message-size problem in D7

Detailed Description Calculation of SNMP trap pdu size is incorrect.

Solution Initialize slen before calling snmp_auth_build.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14510 Postinstall/preremove scripts require a little bit more work

Detailed Description Additional work is needed to package aix releases of d7 in the form of sol-like installable software packages (i.e., packages that can be installed, manipulated, removed using the pkgadd, pkginfo, pkgrm utilities.

Solution All packaging scripts have now been updated. The aix d7 release is now available in the form of installable software packages.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14509 OAM library and/or oamtest doesn't work properly

Detailed Description OAM api library doesn't work reliably under aix. Contents of enum fields cannot be retrieved and/or modified properly using the oamtest sample program.

Solution Root cause of the problem has been traced to the -qenum=small compile-time option used during c/c++ compilation under aix. this option results in enum size to vary, depending on the values/range each enum can assume. All such occurrences have been changed to -qenum=4, which instructs the size of enum fields to be fixed at 4 bytes, regardless of its range.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14506 Cannot compile jain api libraries, due to missing jdk piece

Detailed Description Cannot compile jain isup/tcap libraries under AIX OS, due to non-existent header file <thread.h>.

Solution The AIX OS enlists this header file under <nsl/thread.h>; therefore, after we made appropriate modifications in our header files, we could compile jain isup/tcap shared libraries and construct jar files without any problems.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14505 Cannot link gui programs, due to tcl/tk library problems

Detailed Description The tcl/tk libraries under /sources/drc/compile/aix directory need to be upgraded to a recent version of them since one cannot successfully compile/link d7 gui programs (e.g., access monitor, access status) under aix otherwise.

Solution Rebuilt/upgraded tcl/tk libraries from version 7.6 to 8.4.3.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14502 OAM library deadlocks when interrupted

Detailed Description OAM library calls deadlock when interrupted in an spm library call and the interrupt handler calls makes another spm library call.

Solution The oam_library disables signals when functioning.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14494 Q.782—Test Number 4.1 ---> CBD never sent upon link recovery

Detailed Description MTP Level 3 Test spec Q.782 Testcases 4.1, 4.4, and 4.5 fail --->D7 mtp level 3 never sends out CBD (Changeback Declaration) upon recovery of a link within a multiple-member linkset.

Solution Fixed logic error for M_ls_changeback_declaration case in HMRT module.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14483 IP header not filled correctly when sending ethernet frames

Detailed Description Ethernet driver transmits IP type frames without filling in the IP header.

Solution Transmitted frame type changed to a D7-specific type.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14474 Postinstall script installs device drivers for unused boards

Detailed Description Solaris package installation script tries to install drivers for MC68360-based SS7 boards, even if there is no such board on the system.

Solution Package installation script has been modified to detect the existence of the board.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14355 ISUP performance improvements in distributed mode

Detailed Description When used in distributed mode, ISUP performance degrades significantly with the addition of each host, due mostly to the amount of dsm data sync operations performed by ISUP.

Solution Fixed.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14383 VBRD needs to be updated for 1.3.0 release enhancements

Detailed Description

To be done:

SPMD to allow user to add VBRD as a PM board.

VBRD port MO handling not working.

Baudrate attribute in VBRD port MO is ignored.

MML hangs during display of port instances.

Solution

Fixed:

SPMD returns error when user tries to add VBRD as a PM board.

VBRD port MO handling corrected.

Baudrate attribute in VBRD port MO is not ignored and used in periodic status calculations.

MML hang during display of port instances has been fixed.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn14201 DSM enhancements re: scalability/performance

Detailed Description

Enhancements:

+ capability to acquire dsm segments on selected hosts so that we do not allocate unnecessary resources [that never get used] on all hosts

+ support for low-cost rd-only operations that do not require involvement by dsmd daemon

+ support for low-cost not-so-exclusive wr operations that do not require involvement by dsmd daemon under normal conditions

+ support for highly-efficient delayed wr operations

+ re-arrangement of linked-list structures maintained by dsmd for faster and more-efficient access

+ multi-threaded dsmd daemon implementation

+ support for run-time measurement and statistics collection/retrieval similar to that of dkm/dra frameworks

Solution Implemented.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn17217 SG/SGC OAM API Implementation

Detailed Description	OAM API is implemented as a library for SG and SGC including sample code and makefile.
Solution	Implemented.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none

CRSnn17240 Correleation ID for ISUP API Spain Variant

Detailed Description	Correlation ID is supported in ISUP API Spain variant.
Solution	Implemented.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none

CRSnn17241 GSM MAP API improvement

Detailed Description	GSM MAP API improvements done for SEND-ROUTING-INFO-FOR-SM, MAP-REPORT-SM-DELIVERY-STATUS messages for phase 2+.
Solution	Implemented.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none

CRSnn17225 Sigtran IPv6 support

Detailed Description	1. IPv6 is supported for Sigtran connectivity. 2. Operation as an IPv4 node is supported for backward compatibility. In this mode D7 SGSGC will behave exactly the same as before IPv6 support. IPv6 infrastructure will not be used and therefore connectivity with IPv6 nodes will not be possible. 3. Different IPv6 address formats are supported: IPv6 long format, IPv6 short format and IPv4 Mapped IPv6 format. 4. When configured as an IPv6 node, connectivity with IPv4 nodes is not possible. 5. Hybrid stack mode is supported. In other words, D7 SGSGC can be configured as an IPv6 node with both an IPv6 address and an IPv4 address (IPv4 Mapped IPv6) to be included in the endpoint so that both IPv6 and IPv4 networks are utilized. In other words, both IPv4 and IPv6 links (mixed) can be used in a multihomed SCTP association.
Solution	Implemented.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none

CRSnn17279 db2text not generating conf files for SGC

Detailed Description db2text not generating conf files for sgc when both sg and sgc are running. Also it is not printing all the remote asps for command ADD-SGAS.

Solution Implemented.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn17283 Unrecognized params in Jain ISUP

Detailed Description When an IAM is received with the below parameters, the message is discarded. The message should not be discarded even if the parameter is unknown to Jain ISUP.

- Network Management Control
- Collect Call Requested
- Hop Counter

Solution Implemented.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn17282 Jain ISUP odd/even indicator issue

Detailed Description Problem while setting odd/even indicator to odd using Jain ISUP

Solution Implemented.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn17273 ebs_qstat -r problem

Detailed Description ebs_qstat -r doesn't reset statistics.

Solution Implemented.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn17272 dkm_list -q option fix

Detailed Description	dkm driver is sending the whole structure data (dkmusr_t) to the user space process dkm_list and dkm_list is decoding the same data assuming that only 40 bytes (initial 40 bytes of dkmusr_t structure) has been sent by the dkm driver.
Solution	Implemented.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none

CRSnn17271 ebs_modunload failure when statd is running

Detailed Description	When statd is run ebs_modunload gives error with DKM, SPM busy.
Solution	Implemented.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none

CRSnn17269 Race condition in mtp level congestion

Detailed Description	When upmd is killed under mtp level congestion, system crashes.
Solution	Implemented.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none

CRSnn17267 Jain ISUP MTP Resume Issue

Detailed Description	Jain ISUP layer throws exception when MTP Resume is received from ISUP layer.
Solution	Implemented.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none

CRSnn17264 Isup process restarted with GRS

Detailed Description	ISUP process restarting when receiving a GRS message from the peer using Jain ISUP.
Solution	Implemented.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none

CRSnn17263 GCC 3.4.6 support for x86 libraries

Detailed Description	GCC 3.4 support is added by compiling libraries with GCC 3.4.6.
Solution	Implemented.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none

CRSnn17260 Error with UserToUserInformation

Detailed Description	Problem with UserToUserInformation parameter. The message is created in an incorrect format.
Solution	Implemented.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none

CRSnn17259 Stat API problem in stat_get_val_by_index

Detailed Description	Statistics can not be updated in DSMS which uses stat API
Solution	Implemented.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none

CRSnn17247 JAIN ISUP bug fixes

Detailed Description	1. Problem with CGB/CGBA messages. These messages cannot be sent/received with Jain ISUP. 2. Error with Transit Network Selection optional parameter. They get an exception if this parameter is included in IAM. 3. Error with User-to-user Indicator parameter on Jain ISUP. They get an exception when this parameter is included.
Solution	Implemented.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none

CRSnn17242 dkm_list segmentation fault problem

Detailed Description	dkm_list command causes segmentation fault in some cases
Solution	Implemented.
Programming Impacts	none
Operational Impacts	none
Documentation Impacts	none

CRSnn17238 logd process displaying incorrect number of bytes

Detailed Description Incorrect number of bytes is displayed by the logd process.

Solution Implemented.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn17227 CDPA/CGPA update in L_TC_C_CONTINUE messages

Detailed Description CDPA and CGPA fields are not updated in L_TC_C_CONTINUE messages

Solution Implemented.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn17224 Wrong macro usage warnings

Detailed Description A new macro was introduced in the 1.6.1 release to protect the kernel memory corruption during the memory copy operations on the streams message blocks which cause some mlogs are being printed. These are only warnings about the misuse of the macro and the operation should resume successfully.

Solution Implemented.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn17205 Adax driver update to 1.57

Detailed Description Adax board drivers need to be updated. Old ones don't work properly in some cases.

Solution Implemented.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

CRSnn17120 Tcap crash during load test

Detailed Description The reason for the crashes are determined as the invalid pointer access. The pointer is a transaction table pointer. This pointer is determined by using the tr. id, host id and dialogue id values. The transaction ID is extracted from the message sent to the TCAP and in the crash the tr_id value is found to be 0 in the message. In such a case alld the dialog id and host id values are calculated as 0 because the calculation includes an and operation with the tr. id value. When all these values are 0, the tr. table pointer cannot be calculated correctly.

Solution Implemented.

Programming Impacts none

Operational Impacts none

Documentation Impacts none

