Cisco Digital Service Access Node (DSAN) System Release 1.01.58 Release Note

Overview

Introduction

This system release supports the Cisco Digital Service Access Node (DSAN). This document describes features and lists the resolved and outstanding items with System Release 1.01.58.

Purpose

This system release note is being provided for user support related to the installation and operation of System Release 1.01.58.

Audience

This document is intended for qualified and skilled personnel who configure the system. These personnel should understand basic network configuration, RF, and network monitoring operations.

Qualified Personnel

Only appropriately qualified and skilled service personnel should attempt to install, operate, maintain, and service this product.

> ⚠ **WARNING:**
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> **Allow only qualified and skilled personnel to install, operate, maintain, and service this product. Otherwise, personal injury or equipment damage may occur.**

Related Publications

You may find the following publications useful as you implement the procedures in this document.

- *Cisco DSAN System Installation and Operation Guide*, part number 78-4032302-01

In This Document

Release Purpose

This system release includes updates primarily intended to support and address the following issues:

- Need for support for internal content re-encryption
- Occasional BL81K DMA channel corruption when content re-encryption is enabled
- Loss of video on certain SI table changes during runtime
- Intermittent false DAXI Loss of Sources alarm trigger and clear
- Need for DSAN SNMP agent to reject the SET request on a saDsanEventLogLevel MIB object with an invalid value
- Spurious "Lid Opened" alarm on a system bootup when a lid is closed
- Need for DSAN SNMP agent to respond to the SNMP GET request on individual saDsanSession table entries
- Occasional missing characters in Closed Captions
- Mismatch of DHCP option 43 and SNMP MIB sysDescr information
- Upconverter self-test failure log when the system is in the middle of upconverter calibration process
- Missing alarm indication when there is missing SI data.
- Need for CRC-32 Checksum verification mechanism in SI and EAS parser
- Need for logging the DSAN HW serial number, HW version, and SW version into the event log at system startup
- Need for the Audio Level Control (ALC) to be provisionable via a host configuration file
- Need for disabling the special EAS force-tune implementation
- Need for support of EAT/EOM type EAS message when the details channel is in the configured channel map
- Need for removal of SCTE-127 support
- Need for diagnostic page to report EAS status and history

Hardware

This system release is supported on hardware that has Revision 5 and later digital boards and Revision 3 and later RF boards. These units are most easily identified by their housings, which are white enamel painted.

This system release is **not** supported on the following units, which previously shipped with Revision 4 digital boards.

Assembly Serial Number	eCM MAC Address	eMDTA MAC Address
DSBBBBBCX	0023BEBBAE45	0023BEBBAE44
DSBBBBBDH	0023BEBBAAB1	0023BEBBAAB0
DSBBBBBFK	0023BE9E1611	0023BE9E1610
DSBBBBBDC	0023BEBBB241	0023BEBBB240
DSBBBBBFS	0023BEA1C60F	0023BEA1C60E
DSBBBBBFT	0023BEA1C4B1	0023BEA1C4B0
DSBBBBBDJ	0023BEBBAAB7	0023BEBBAAB6
DSBBBBBCS	0023BEBBBEE3	0023BEBBBEE2
DSBBBBBCZ	0023BEBBAE4F	0023BEBBAE4E
DSBBBBBBZ	0023BE9954BF	0023BE9954BE
DSBBBBBDF	0023BEBBBEB3	0023BEBBBEB2
DSBBBBBDD	0023BEBBB245	0023BEBBB244
DSBBBBBDB	0023BEBBB237	0023BEBBB236
DSBBBBBCT	0023BEBBAA95	0023BEBBAA94
DSBBBBBFC	0023BE9E1411	0023BE9E1410

Software

The system release is numbered as 1.01.58. A system release is a bundling of software components into a single monolithic image that is downloaded into the device via DOCSIS. Each component has an independent revision number, but the software bundle is managed as a single system release.

System Release Detailed Hierarchy

The following table details the software images that roll up into System Release 1.01.58.

Module Application	Version Number
Calliope Boot Image	1.04
Calliope Application Image	1.01.58
Embedded Cable Modem	10.10.85x

System Release History

The following table summarizes the DSAN system release history.

Release	Ref #	Date	Details
R1.01.12	1.1.C	03/30/2010	▪ Improved behavior in response to SI data changes. ▪ Fixed software download bug. ▪ Fixed RF input loss recovery issue. ▪ Modified DDR memory refresh rate. ▪ Added stale EMM alarm.
R1.01.17	1.1.D	04/19/2010	▪ Improved resistance to microphonics through BL12K loop bandwidth adjustment. ▪ Added SCTE-127 guide pass-through support. ▪ Reformatted flash partition to eliminate catastrophic memory corruption during AC power interrupts at -40°C.
R1.01.19	1.1.D+	05/18/2010	▪ Implemented Channel 32/64 video fix (Decoder/VSB remapped to eliminate spur).
R1.01.20	1.1.D++	05/27/2010	▪ Implemented 12C fix (open switch to tuner to remove traffic).
R1.01.21	1.1.D3	06/04/2010	▪ Adjusted BL12K loop bandwidth to balance microphonics and demodulation performance.
R1.01.23	1.1.D4	06/13/2010	▪ Release to support head end field trial. ▪ Implemented workaround for low power demod issue.
R1.01.24	1.1.D5	06/22/2010	▪ Release to support MDU field trial. ▪ Removed Eng login.
R1.01.27	1.1.D6	07/21/2010	▪ Implemented fix to ignore extended DOCSIS headers (V3) to present DSG data filtering. ▪ Implemented fix to restore DSG data flows properly following DCD update.
R1.01.31	1.1.D8	10/15/2010	▪ Improved eCM renaming performance. ▪ Fixed DOCSIS connectivity loss issue. ▪ Fixed EDCM table corruption.

Release	Ref #	Date	Details
R1.01.45	1.1.E	01/18/2011	■ Added support for internal content re-encryption. ■ Resolved unexpected frozen video on a PowerKEY encrypted channel. ■ Added support for PAT/PMT table carried in multiple MPEG2-TS packet. ■ Resolved highly intermittent silent unit reboot. ■ Added support for TV guide pass-through on a PowerKEY encrypted channel. ■ Adjusted the runtime PSI packet monitoring interval. ■ Increased accuracy in reporting CA and SecureMicro status. ■ Improved overall analog channel power flatness. ■ Added CLI/Telnet screen display VCT_ID in decimal. ■ Improved video quality on channels 96-99. ■ Resolved incorrect display of FEC start (RS Tot Blocks count) on a counter rollover. ■ Added support for new RF board Revision 5 hardware. ■ Initialized the system clock with the eCM time.
R1.01.49	1.1.E1	06/11/2011	■ Disabled support for internal content re-encryption.
R1.01.50	1.1.E2	09/16/2011	■ Changed the BL81K DDR2 memory clock timing to 192 MHz.
R1.01.54	1.1.E3	07/23/2012	■ Changed the SCTE-65 Parser to prevent dropped channels during SI microburst. ■ Added SI packet CRC-32 checksum verification. ■ Added detection and recovery mechanism triggered when the BL81K video processor goes into continuous PSI error state.
R1.01.55	1.1.E4		■ Updated NAND flash driver in bootloader (v1.04) to support Rev E NAND flash. ■ Updated NAND flash driver in Linux kernel to support Rev E NAND flash. ■ Added support for field upgrade of units containing Rev E NAND flash to use 4-bit hardware ECC.

Supporting Software and Files

Release	Ref #	Date	Details
R1.01.57		11/16/2012	■ Disabled pre-processing of Closed Caption data and SCTE127 data in FPGA. **Note:** Not a production release. Interim release to support Houston Market USA channel issue.

Release	Ref #	Date	Details
R1.01.58	1.1.E+	01/23/2013	■ Resolved the loss of video on certain SI table changes during runtime.
			■ Resolved the occasional BL81K DMA channel corruption when the content re-encryption is enabled.
			■ Resolved the intermittent false DAXI Loss of Sources alarm trigger and clear.
			■ Made DSAN SNMP agent reject the SET request on a saDsanEventLogLevel MIB object with an invalid value.
			■ Resolved the mismatch of DHCP option 43 and SNMP MIB sysDescr information.
			■ Resolved spurious "Lid Opened" alarm on a system bootup when a lid is closed.
			■ Made the DSAN SNMP agent respond to the SNMP GET request on individual saDsanSession table entries.
			■ Resolved the missing alarm indication when there is missing SI data.
			■ Added the CRC-32 Checksum verification mechanism in SI and EAS parser.
			■ Logged the DSAN HW serial number, HW version and SW version into the event log at system startup.
			■ Suppressed the upconverter self-test failure log when the system is in the middle of upconverter calibration process.
			■ Made the Audio Level Control (ALC) provisionable via a host configuration file.
			■ Disabled the special EAS force-tune implementation.
			■ Supported the EAT/EOM type EAS message when the details channel is in the configured channel map.
			■ Enabled support for internal content re-encryption.
			■ Resolved occasional missing characters in Closed Captions.
			■ Removed SCTE-127 support.
			■ Added diagnostic page to report EAS status and history.
			■ Updated Embedded Cable Modem software version to 10.10.85x.

Supporting Software and Files

The following table details software and support files associated with this release.

Software/Files	Release #	Filename(s)	Build Date
Proprietary MIBs	201111170000Z	SA-DSAN-MIB.mib	17 Nov 11
Proprietary Agent Capability MIB	201301070000Z	SA-DSAN-CAPABILITY.mib	07 Jan 13
DOCSIS MIB	9908190000Z	DOCS-CABLE-DEVICE-MIB.mib	19 Aug 99

The DSAN proprietary MIB (SA-DSAN-MIB) was updated to add support for the functionality listed below.

SA-DSAN-MIB Updates

■ Made single MIB to support multiple DSAN product lines.

■ Added Conformance statements.

The DSAN SNMP agent capabilities MIB (SA-DSAN-AGENT-CAPABILITIEY) was added to describe the supported MIB object group from DSAN System Release 1.01.58.

Software Changes

The following table details the software changes made in DSAN system release 1.01.58.

Support internal content re-encryption	
Incident #	CSCtq17062, CSCtq86648
Severity	3 (Moderate)
Description	Feature to re-encrypt content on internal busses in between the FPGA and BL81K ASIC. Only PowerKEY encrypted input services are protected internally.

Resolve the Loss of Video on certain SI Table change during runtime	
Incident #	CSCto77589, CSCto86412
Severity	4 (Minor)
Description	A change was made to the Calliope ASIC SI parser routine to resolve the loss of video when the virtual channel is moved from the upper channel number to the lower channel number in the SI table, and when the associated SI entry is removed from the SI table.

Resolve the intermittent false DAXI Loss of Sources alarm trigger and clear	
Incident #	1034 (CSCto78120, CSCtq27194)
Severity	4 (Minor)
Description	When DAXI box was attached to the DSAN unit, the DSAN unit intermittently reported the false "DAXI Loss of Source" alarm even though there was no significant indication of actual input loss from DAXI box. This false alarm was self cleared shortly after the false alarming. A change was made to in the Calliope ASIC application code to prevent the false alarm.

Make DSAN SNMP agent reject the set request on a saDsanEventLogLevel MIB object with an invalid value	
Incident #	1096 (CSCto78157, CSCtw61733)
Severity	4 (Minor)
Description	The saDsanEventLogLevel MIB object in the SA-DSAN-MIB defines three enumerations in its SYNTAX clause: terse(1), verbose(2) and debug(3). Though DSAN SNMP agent accepts the set request on a saDsanEventLogLevel object with the invalid enumeration value, such as 4, instead of rejecting a set request. Setting saDsanEventLogLevel object with the value 4 or above brings the DSAN event logging level to the debug log level. A change was made to the Calliope ASIC application code to reject the SNMP set request with the invalid (out of range) enumeration value. The fix was applicable for both saDsanEventLogLevel and saDsanSnmpMgrEnable tables.

Resolve spurious "Lid Opened" alarm on a system bootup when a lid is closed	
Incident #	CSCtr79243
Severity	4 (Minor)
Description	A change was made to the Calliope and DaVinci ASIC application code to read and report the state of tamper switch properly.

Make DSAN SNMP agent respond to both MIB walk and Get request on saDsanSession table entry	
Incident #	CSCts44762
Severity	4 (Minor)
Description	A change was made to the Calliope ASIC application code to respond reliably to the MIB walk and single GET request on saDsanSession table entries.

Occasional missing characters in Closed Captions	
Incident #	CSCtr86192
Severity	4 (Minor)
Description	Some content causes occasional missed characters in the Closed Captioning data. This issue has been confirmed by BroadLogic to be a known issue with the BL81K ASIC. SCTE-20 and SCTE-21 closed captions are carried in the MPEG2 User Data within the video PID stream. Testing with content shows a typical dropped character pair about once every 10 seconds when it occurs. Changes were made to the FPGA Closed Caption preprocessor module to improve closed captioning performance.

Resolve the mismatch of DHCP option 43 and SNMP MIB sysDescr information

Incident #	CSCtr33330
Severity	5 (Cosmetic)
Description	A change was made to the Calliope ASIC application code to:

- Synchronize software version number to display without minor build number from DHCP Option 43.
- Add "Cisco Systems, Inc." to eHost and eCM sysDescr SNMP MIB object.
- Remove _eHost suffix from a model number reported in eHost sysDescr to match DHCP option 43 and eCM sysDescr.

Suppress the upconverter self-test failure log when the system is in the middle of upconverter calibration process

Incident #	CSCtq89361
Severity	5 (Cosmetic)
Description	A code enhancement was made to the Calliope ASIC application code to suppress the upconverter self-test failure log when the system was in the middle of the upconverter calibration process.
	Reported the self-test failure only when a self-correction mechanism completely failed on the upconverter calibration.

Resolve the missing alarm indication when there is missing SI data

Incident #	CSCto77526
Severity	6 (New Feature)
Description	When SI data was missing but cached data was available, no SNMP trap/alarm was indicated. In this case, the unit properly output video (from cached data) but did not present an alarm.
	A change was made to the Calliope ASIC application code to send the SNMP trap and to set the alarm when SI data was missing but cached data was available at system startup.

Add CRC-32 Checksum verification mechanism in SI and EAS parser

Incident #	CSCto77563
Severity	6 (New Feature)
Description	A code enhancement was made to the Calliope ASIC application code to add the CRC-32 checksum verification mechanism in the SI and EAS parser for improving the error handling when the incoming packet was corrupted.

Log DSAN HW serial number, HW version and SW version into the event log at system startup	
Incident #	CSCtq89335
Severity	6 (New Feature)
Description	A code enhancement was made to the Calliope ASIC application code to log the DSAN HW serial number, HW version, and SW version into the DSAN event log file.

Make Audio Level Control (ALC) provisionable via a host configuration file	
Incident #	CSCtr83724
Severity	6 (New Feature)
Description	A change was made to the Calliope ASIC application code to read the ALC/DRC setting from the host configuration file to enable/disable ALC at system start up. New TLV entry was added to the host configuration file.

Disable the special EAS force-tune implementation	
Incident #	CSCts42659
Severity	6 (New Feature)
Description	A change was made to the Calliope and DaVinci ASIC application code to disable the EAS force-tune when the details channel was not in the currently configured channel map.

Support EAT/EOM type EAS message when the details channel is in the configured channel map	
Incident #	CSCtt37611
Severity	6 (New Feature)
Description	A change was made to the Calliope ASIC application code to support the EAT/EOM type EAS message where carried details channel is in one of the configured channel maps.

Remove SCTE-127 support	
Incident #	CSCua23871
Severity	6 (New Feature)
Description	A change was made to the Calliope ASIC application code to remove support for SCTE-127 channel configuration and reporting in the diagnostic pages and via SNMP.

Added diagnostic page to report EAS status and history	
Incident #	CSCud93899
Severity	6 (New Feature)
Description	A change was made to the Calliope ASIC application code to add a diagnostic page to report EAS event status as well as a history of recent EAS events.

Update Embedded Cable Modem Software version	
Incident #	CSCuf93787
Severity	6 (New Feature)
Description	Embedded Cable Modem Software version was updated to v10.10.85x. A code enhancement was made to the Embedded Cable Modem stat machine and state timers to establish two-way communication more reliably.

Outstanding Software Items

There are no known unresolved software items in DSAN system release 1.01.58.

For Information

If You Have Questions

If you have technical questions, call Cisco Services for assistance. Follow the menu options to speak with a service engineer.

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