# Cisco Digital Service Access Node (DSAN) System Release 1.01.55 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 1.01.55.

### Purpose

This system release note is being provided for user support related to the installation and operation of System Release 1.01.55.

### 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:**

**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 targeted updates to:

- Update NAND flash driver in bootloader (v1.04) to support Rev E NAND flash.
- Update NAND flash driver in Linux kernel to support Rev E NAND flash.
- Add support for field upgrade of units containing Rev E NAND flash to use 4-bit hardware ECC.

## 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 1.01.55. 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 1.01.55.

| Module Application | Version Number |
|---|---|
| Calliope Boot Image | 1.04 |
| Calliope Application Image | 1.01.55 |

# 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.<br>■ Fixed software download bug.<br>■ Fixed RF input loss recovery issue.<br>■ Modified DDR memory refresh rate.<br>■ Added stale EMM alarm. |
| R1.01.17 | 1.1.D | 04/19/2010 | ■ Improved resistance to microphonics through BL12K loop bandwidth adjustment.<br>■ Added SCTE-127 guide pass-through support.<br>■ 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.<br>■ Implemented workaround for low power demod issue. |
| R1.01.24 | 1.1.D5 | 06/22/2010 | ■ Release to support MDU field trial.<br>■ Removal of Eng login. |
| R1.01.27 | 1.1.D6 | 07/21/2010 | ■ Implemented fix to ignore extended DOCSIS headers (V3) to present DSG data filtering.<br>■ Implemented fix to restore DSG data flows properly following DCD update. |
| R1.01.31 | 1.1.D8 | 10/15/2010 | ■ Improved eCM renaming performance.<br>■ Fixed DOCSIS connectivity loss issue.<br>■ Fixed EDCM table corruption. |

| Release | Ref # | Date | Details |
|---|---|---|---|
| R1.01.45 | 1.1.E | 01/18/2011 | ■ Added support for internal content re-encryption.<br>■ Resolved unexpected frozen video on a PowerKEY encrypted channel.<br>■ Added support for PAT/PMT table carried in multiple MPEG2-TS packet.<br>■ Resolved highly intermittent silent unit reboot.<br>■ Added support for TV guide pass-through on a PowerKEY encrypted channel.<br>■ Adjusted the runtime PSI packet monitoring interval.<br>■ Increased accuracy in reporting CA and SecureMicro status.<br>■ Improved the overall analog channel power flatness.<br>■ Added CLI/Telnet screen display VCT_ID in decimal.<br>■ Improved video quality on channels 96-99.<br>■ Resolved incorrect display of FEC start (RS Tot Blocks count) on a counter rollover.<br>■ Added support for new RF board Revision 5 hardware.<br>■ 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.<br>■ Added SI packet CRC-32 checksum verification.<br>■ Added detection and recovery mechanism triggered when the BL81K video processor goes into continuous PSI error state. |
| R1.01.55 | 1.1.E4 | | ■ Update NAND flash driver in bootloader (v1.04) to support Rev E NAND flash.<br>■ Update NAND flash driver in Linux kernel to support Rev E NAND flash.<br>■ Add support for field upgrade of units containing Rev E NAND flash to use 4-bit hardware ECC. |

# 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 | 201008240000Z | SA-DSAN-MIB.mib | 24Aug10 |
| DOCSIS MIB | 9908190000Z | DOCS-CABLE-DEVICE-MIB.mib | 17Aug09 |

# Resolved Software Items

The following table details software items that are resolved in DSAN system release 1.01.55.

| **Add support for new NAND flash revision with 4-bit ECC** | |
|---|---|
| Incident # | CSCuc2258 |
| Severity | Severe |
| Description | Units were found in the field with corruption of NAND flash and were unable to boot the application image. The boot problem was found to be due to uncorrectable bit errors encountered in the programmed image and ECC data. The failures were all found on units with an updated revision of the NAND flash. Software does not support the 4-bit error correction required by the new device. |
| Resolution | Update bootloader and Linux drivers to support new revision of Micron NAND flash MT29F2G08ABAEAWP. Drivers currently only support 1-bit error correction per 256 bytes of data. New part requires 4-bit error correction per 512 bytes of data. New part provides on-die 4-bit ECC algorithm in hardware. Bootloader must be modified to detect support for HW ECC and enable accordingly. Linux drivers must be modified to use on-die HW ECC if enabled or revert to 1-bit ECC for older NAND flash revision. Field upgrade of existing units with new NAND flash must also be considered and addressed. |

# Outstanding Software Items

The following table details software items that remain unresolved in DSAN system release 1.01.55.

| | |
|---|---|
| **Occasional missing characters in Closed Captions** | |
| Incident # | 655 |
| Severity | 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 MPEG2 User Data within the video PID stream. The BL81K ASIC requires the User Data to be an even number of bytes after the preceding picture header or sequence header start code. When odd byte alignment occurs, a character pair may be dropped from the Closed Captioning data. Testing with content shows a typical dropped character pair about once every 2-3 minutes. |
| **Missing SI data does not indicate an alarm** | |
| Incident # | 1101 |
| Severity | Minor |
| Description | When there is missing SI data but the cached data is available, no SNMP trap/alarm is indicated. In this case, the unit properly outputs video from cached data but does not present an alarm. |
| **SNMP triggered SW upgrade does not continue on loss of RF input or power cycle interruption** | |
| Incident # | 1102 |
| Severity | Minor |
| Description | The SNMP triggered SW upgrade does not continue, and may select the wrong file when there is a loss of RF input or a power cycle interruption during the SW upgrade. This issue only occurs if the interrupt occurs during the download. The eCM configuration driven SW upgrade has no issue.<br>Workaround solution: Use the eCM configuration based SW upgrade instead of the SNMP triggered SW upgrade. |
| **Intermittently false DAXI Loss of Sources alarm is triggered and cleared** | |
| Incident # | 1034 |
| Severity | Minor |

| | |
|---|---|
| Description | When the DAXI box is attached to the DSAN unit, the DSAN unit intermittently reports a false “DAXI Loss of Source” alarm even though there is no significant indication of actual input loss from the DAXI box. This false alarm is self-cleared shortly after the false alarming. |
| **DSAN SNMP agent does not reject the "set" request on an saDsanEventLogLevel MIB object with an invalid value** | |
| Incident # | 1096 |
| Severity | Cosmetic |
| Description | The saDsanEventLogLevel MIB object in the SA-DSAN-MIB defines three enumerations in its SYNTAX clause: terse(1), verbose (2) and debug(3). However, the DSAN SNMP agent accepts the "set" request on a saDsanEventLogLevel object with an invalid enumeration value, such as 4, instead of rejecting the "set" request. Setting the saDsanEventLogLevel object to a value 4 or above brings the DSAN event logging level to the “debug” log level. |

# 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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