Release Notes for the Cisco 6100 Series System Release 3.0.0

February 22, 2000

These release notes describe features, limitations and restrictions, important notes, and resolved and open caveats for the Cisco 6100 Series digital subscriber line access multiplexer (DSLAM) for Release 3.0.0.

Contents

These release notes contain the following sections:

Introduction

The Cisco 6100 Series DSLAM is a central office (CO) grade multiplexer that offers cost effective, high-speed services to the residential, telecommuter, and business markets. The Cisco 6100 Series system is part of the Cisco leadership architecture that transcends the DSL service profitability barrier.

CISCO SYSTEMS

Corporate Headquarters: Cisco Systems, Inc., 170 West Tasman Drive, San Jose, CA 95134-1706 USA

78-10305-01

The Cisco 6100 Series DSLAM

- Supports a broad range of users by allowing differing modem pooling rates and varying degrees of subtending in a fully NEBS Level-3 compliant package.

- Offers Direct Connect configuration, which allows you to directly connect up to 128 subscribers using asymmetric digital subscriber line (ADSL) technology.

- Offers Direct Connect configuration, which allows you to directly connect up to 128 subscribers using symmetrical digital subscriber line (SDSL) technology.

- Offers Digital Off-Hook (DOH) configuration, which allows you to connect up to 400 subscribers using asymmetric digital subscriber line (ADSL) technology.

- Offers Cisco EZ-DSL no-truck-roll technology, which eliminates the need for basic telephone service splitters at the subscriber premises.

Module Software Versions for Release 3.0.0

The individual module software versions (and ROM versions, as applicable) that the System Part Number SF-6100-3.0.0 comprises, Release 3.0.0, follow:

Table 1 Software Versions for Release 3.0.0

Release 3.0.0 Component	Software Version
System controller module software	9651-001-40
Network interface module software	9601-001-34
DS3 STM[1] software	9601-005-13
CAP ATU-C module software	9101-001-29
DMT-2 ATU-C module main software	9101-003-08
DMT-2 ATU-C module DSP[2] software	5385-579-97
STU-C module software	9101-008-04
Flexi DMT module software	9101-005-08
Flexi CAP module software	9101-004-10
LIM[3] controller module software	9651-002-12
RDF[4]	6000-300-34A

1. STM = subtending host module
2. DSP = digital signal processor
3. LIM = line interface module
4. RDF = release definition file

Release 3.0.0 of ViewRunner fully supports the feature set of Cisco 6100 Series System Release 3.0.0. To determine the Cisco 6100 Series module software versions, use the ViewRunner management software.

Note To upgrade from version 2.x.x to version 3.x.x of the Cisco 6100 node software, you must use ViewRunner version 3.0.0 software.

Hardware and Software Compatibility

This section details the compatibility of the following Cisco 6100 Series system elements:

- ViewRunner Management and Cisco 6100 Series Software Compatibility, page 3
- Cisco 6100 Series Chassis and Configuration Compatibility, page 4
- Cisco 6100 Series Module and Configuration Compatibility, page 4

ViewRunner Management and Cisco 6100 Series Software Compatibility

Table 2 summarizes the compatibility among Cisco 6100 Series system and ViewRunner management software releases.

Table 2   ViewRunner Management Software and Cisco 6100 Series System Release Compatibility

	Cisco 6100 Series System Release[1,2]					
	3.0.0	2.4.1	2.4.0	2.3.x	2.2.1/2.2.5	2.2.0
ViewRunner for Windows Release						
3.0.0	Yes	Yes	Yes	Yes	Yes	Yes
2.4.1	No	Yes	Yes	No	No	No
2.4.0	No	No	Yes	No	No	No
2.3.5	No	No	No	Yes[3]	Yes	Yes
2.3.0	No	No	No	No	Yes[3]	Yes
2.2.1	No	No	No	No	Yes	Yes
2.2.0	No	No	No	No	No	Yes
ViewRunner for HP OpenView Release						
3.0.0	Yes	Yes	Yes	Yes	Yes	Yes
2.4.1	No	Yes	Yes	Yes	Yes	Yes
2.4.0	No	No	Yes	Yes	Yes	Yes
2.3.5	No	No	No	Yes[3]	Yes	Yes
2.3.0	No	No	No	No	Yes[3]	Yes
2.2.0	No	No	No	No	No	Yes

1. The Cisco 6130 chassis feature support is present in Release 2.4.0 or later.

2. Systems with a Cisco 6100 installed must connect to the network through a POTS splitter. Therefore, a Cisco 6100 cannot support a Direct Connect without a POTS splitter configuration.

3. The most recent feature compatibility matrix (FCM) file may be required. ViewRunner will detect and display a warning if a newer FCM is required.

Note   Cisco recommends upgrading the ViewRunner management software as new releases become available.

Cisco 6100 Series Chassis and Configuration Compatibility

There are two different chassis available with the Cisco 6100 Series system:

- Cisco 6130—Supports Release 2.4.0 and later
- Cisco 6100—Supports Release 3.0.0 and earlier

Table 3 shows the configurations in which each of the chassis can be used.

Table 3   Cisco 6100 Series System Chassis and Configuration Compatibility

Chassis	Direct Connect with a POTS Splitter Configuration		Direct Connect Without a POTS Splitter Configuration	DOH Configuration
	With a Cisco 6120	With a Siecor POTS Splitter[1]		
Cisco 6130[2]	Yes	Yes	Yes	No
Cisco 6100[3]	Yes	Yes	No	Yes

1. The Siecor ADSL POTS Splitter Rack-Mount Shelf is compatible with the Cisco 6100 and Cisco 6130 chassis. The Siecor POTS splitter provides secondary lightning protection from tip to ring. However, secondary lightning protection is not provided from tip to ground or ring to ground.

2. The Cisco 6130 chassis feature support is present in Release 2.4.0 or later.

3. Systems with a Cisco 6100 installed must connect to the network through a POTS splitter (Cisco 6120 or Siecor POTS splitter). Therefore, a Cisco 6100 cannot support a Direct Connect without a POTS splitter configuration.

Cisco 6100 Series Module and Configuration Compatibility

Following are the four types of Cisco 6100/6130 modules:

- Dual-port CAP ATU-C
- Dual-port DMT-2 ATU-C
- Quad-port flexi ATU-C
- Quad-port STU-C

Table 4 shows the configurations where the Cisco 6100/6130 modules can operate.

Table 4   Cisco 6100 Series Module and Configuration Compatibility

Module	Direct Connect with a POTS Splitter Configuration		Direct Connect Without a POTS Splitter Configuration		DOH Configuration[1]		Siecor POTS Splitter[2]
	Cisco 6130	Cisco 6100	Cisco 6130	Cisco 6100	Cisco 6130	Cisco 6100	
Dual-port CAP ATU-C	No	Yes	No	No	No	Yes	Yes
Dual-port DMT-2 ATU-C[3,4]	Yes	Yes	Yes	No	No	No	Yes
Quad-port flexi ATU-C[5]	Yes	Yes	Yes	No	No	No	Yes
Quad-port STU-C[6,7]	No	No	Yes	No	No	No	No

1. The DOH configuration feature is not supported in Release 2.4.x with a Cisco 6100 or a Cisco 6130.

2. The Siecor ADSL POTS splitter is compatible with a Cisco 6100 or a Cisco 6130 in a Direct Connect with a POTS splitter configuration.

3. The DMT-2 ATU-C module feature support is not available for the Cisco 6100 chassis prior to Release 2.4.1.

4. If you install DMT-2 ATU-C modules in the Cisco 6100/6130, you must install all DMT POTS modules in the POTS splitter chassis.

5. The flexi ATU-C module feature support is present in Release 3.0.0 or later.

6. Symmetrical digital subscriber line (SDSL) does not support POTS.

7. The STU-C module feature support is present in Release 2.4.1 or later.

Table 5 shows interoperability between a variety of modules and Cisco's customer premises equipment (CPE).

Table 5   Cisco 6100 Series Module and CPE Compatibility

Module	Recommended CPE	Alternative CPE works with limitations
Quad-port flexi (CAP)	• Cisco 678 CBOS 2.3.0 • Cisco 675 CBOS 2.3.0 • Cisco 675 CBOS 2.2.0 (no 17 kilobaud/68 kilobaud) • Cisco 675 CBOS 2.1.0 (no 17 kilobaud/68 kilobaud) • Cisco 675 CBOS 2.0.1 (no 17 kilobaud/68 kilobaud)	Cisco 605 PCI 210 Production
Quad-port flexi (DMT)	Cisco 678 CBOS 2.3.0	None
Quad-port flexi (DMT G.lite)	Cisco 678 CBOS 2.3.0	None

Table 5   Cisco 6100 Series Module and CPE Compatibility (continued)

Module	Recommended CPE	Alternative CPE works with limitations
Dual-port CAP	• Cisco 678 CBOS 2.3.0 • Cisco 675 CBOS 2.3.0 • Cisco 675 CBOS 2.2.0 (no 17 kilobaud/68 kilobaud) • Cisco 675 CBOS 2.1.0 (no 17 kilobaud/68 kilobaud) • Cisco 675 CBOS 2.0.1 (no 17 kilobaud/68 kilobaud)	Cisco 605 PCI 210 Production
Dual-port DMT (ADI)	Cisco 677	Cisco 627
Dual-port DMT G.lite (ADI)	Not Supported	None
Quad-port STU-C	Cisco 673 (Ethernet to DSL)	Cisco 633 (Frame Relay to DSL)

New Features

This section describes the new Cisco 6100 Series module hardware and software features for the Cisco 6100 Series system release 3.0.0. The features apply to both the Cisco 6100 and Cisco 6130.

This section includes

- New Cisco 6100 Series Software Features, page 6
- New Cisco 6100 Series Hardware Features, page 12

Note For a description of new ViewRunner software features, see the *Release Notes for ViewRunner for Window*s and the *Release Notes for ViewRunner for HP OpenView.*

New Cisco 6100 Series Software Features

The following software modifications have been made for the Cisco 6100 Series node software for Release 3.0.0:

- Support for a quad-port flexi (CAP/DMT) ATU-C module
- Support for module intermixing
- Support for the Globespan 3.2 firmware
- Support for Reed-Solomon coding for CAP
- Support for setting the ATU-R power level
- Support for test bus capability for Direct Connect system configurations
- Performance management enhancements for ATM, DS3, and OC-3
- In-band channel performance enhancements

- Software upgrade enhancements

- Dual-port DMT-2 ATU-C module software upgrade enhancements

Note Release 3.0.0 merges all of the features and functionality of Releases 2.4.x, 2.3.x, and 2.2.5 in addition to the features described in the following sections.

Support for Quad-Port Flexi ATU-C Module

The Cisco 6100 Series system quad-port flexi ATU-C module resides in the Cisco 6100/6130 chassis and is designed for use in one of the following configurations:

- Direct Connect with a POTS splitter—Provisions one modem directly and is physically connected to one specific subscriber line through the POTS splitter.

- Direct Connect without a POTS splitter—Provisions one modem directly and is physically connected to one specific subscriber line through the main distribution frame (MDF) connections.

Note The quad-port flexi ATU-C module is for use in Direct Connect systems only.

The quad-port flexi ATU-C module provides similar functionality as the existing dual-port CAP and the dual-port DMT-2 ATU-C modules and conforms to either CAP, DMT-2, or G.lite line encoding on all four ports.

The quad-port flexi ATU-C module

- Contains four ADSL modem connections

- Converts ADSL modulation from the line into digital data streams to and from the network interface module

- Negotiates the line rate with the CPE when it trains and bases the rate on line quality and distance

If provisioned, the quad-port flexi ATU-C module rate adapts to the maximum bit rate that is negotiable on the line. The maximum bit rate settings are provisioned in the ViewRunner management software. See the ViewRunner release notes for information on provisioning quad-port flexi ATU-C modules.

The Cisco 6100/6130 chassis can include up to 32 quad-port flexi ATU-C modules for a total of 128 ADSL modems. One Cisco 6100 Series system can serve up to 128 subscribers if a fully populated Cisco 6100/6130 is used.

Support for Module Intermixing

The Cisco 6100 and Cisco 6130 chassis support module intermixing. SDSL modules cannot be intermixed with other module types within the same chassis half. Table 6 details the module intermixing configurations in a Cisco 6100 or Cisco 6130 chassis (left half is slots 1 to 8 and 21 to 28; right half is slots 13 to 20 and 31 to 38).

Note You can only intermix the flexi CAP and flexi DMT-2 ATU-C modules in the same chassis half.

Table 6   Cisco 6100/6130 Module Intermixing

Module Combination (in different chassis halves)	Cisco 6100 Chassis	Cisco 6130 Chassis
Dual-port DMT-2 ATU-C and quad-port STU-C	Not supported	Supported
Dual-port DMT-2 ATU-C and dual-port CAP ATU-C	Not supported	Not supported
Dual-port CAP ATU-C and quad-port flexi ATU-C (DMT mode)	Not supported	Not supported
Dual-port CAP ATU-C and quad-port flexi ATU-C (CAP mode)	Not supported	Not supported
Dual-port DMT-2 and quad-port flexi ATU-C (DMT mode)	Not supported	Not supported
Dual-port DMT-2 and quad-port flexi ATU-C (CAP mode)	Not supported	Not supported
Dual-port CAP ATU-C and quad-port STU-C	Not supported	Not supported
Quad-port flexi ATU-C (CAP mode) and quad-port flexi ATU-C (DMT mode)	Supported	Supported
Quad-port flexi ATU-C (CAP mode) and quad-port STU-C	Not supported	Supported
Quad-port flexi ATU-C (DMT mode) and quad-port STU-C	Not supported	Supported

Support of New Globespan 3.2 Firmware

This feature supports the Globspan 3.2 firmware release, which provides

- Two new upstream baud rates per subscriber (68 kilobaud and 17 kilobaud).
- Spectral compatibility (intermixing) between DMT and CAP modems when used in the same chassis half.
- New line rates per subscriber corresponding to the new baud rates. Use the ViewRunner software to view line rates.

CAP ATU-C and Flexi ATU-C (CAP Line Code) Baud Rates

In addition to the existing upstream 136 kilobaud rate, Release 3.0.0 also supports an upstream 17 kilobaud rate and an upstream 68 kilobaud rate. You can independently enable or disable the new baud rates.

The following list contains the valid Upstream/Downstream pairs within the available rates:

- An upstream rate of 17 kilobaud is valid only with a downstream rate of 136 kilobaud.
- An upstream rate of 68 kilobaud is valid only with a downstream rate of 136 kilobaud or a downstream rate of 340 kilobaud.
- All other combinations are valid.

Table 7 and Table 8 show the upstream and downstream baud rates and their corresponding bit rates for the CAP and flexi ATU-C modules.

Table 7   CAP/Flexi ATU-C (CAP Line Code) Upstream Baud Rates and Corresponding Bit Rates

Module	Upstream Baud Rate	Upstream Bit Rate (kbps)
CAP/flexi ATU-C (CAP line code)	136 kilobaud	1088, 952, 816, 680, 544, 408, 272 91
	68 kilobaud	544, 476, 408, 340, 272, 204, 136, 46
	17 kilobaud	136, 119, 102, 85, 68, 51, 34, 12

Table 8   CAP/Flexi ATU-C (CAP Line Code) Downstream Baud Rates and Corresponding Bit Rates

Module	Downstream Baud Rate	Downstream Bit Rate (kbps)
CAP/flexi ATU-C (CAP line code)	952 kilobaud	7168, 6272, 4480, 2688
	680 kilobaud	5120, 4480, 3200, 1920
	340 kilobaud	2560, 2240, 1920, 1600, 1280, 960, 640
	136 kilobaud—RS[1] enabled	1024, 896, 768, 640, 512, 384, 256
	136 kilobaud—RS disabled	1088, 952, 816, 680, 544, 408, 272

1. Reed-Solomon coding—long/short interleave

The following information applies to Table 7 and Table 8:

- Enabling 17 kilobaud upstream and 68 kilobaud upstream rates are not mutually exclusive.
- The valid upstream rates are the union of the common rates (136 kilobaud upstream) and the bit rates corresponding to the new bauds (17 kilobaud upstream and 68 kilobaud upstream).
- If a given upstream rate appears in more than one selected baud rate list, the higher baud rate applies.

The following margin settings apply for the CAP/flexi ATU-C module:

- Local/downstream margin—0 dB through 12 dB (ViewRunner default is 3 dB)
- Remote/upstream margin—0 dB through 12 dB (ViewRunner default is 6 dB)

Dual-Port DMT-2 ATU-C Line Rates

Table 9 shows the upstream and downstream bit rates for the DMT-2 ATU-C module.

> **Note**   Only the quad-port flexi DMT-2 ATU-C module supports the G.lite line coding technology. G.lite is always disabled on the dual-port DMT-2 ATU-C module.

Table 9   DMT-2 ATU-C Upstream and Downstream Bit Rates

Module	Upstream Bit Rate (kbps)	Downstream Bit Rate (kbps)
DMT-2 ATU-C	[32 – 864] @ 32 kbps increments	[32 – 8032] @ 32 kbps increments

Quad-Port Flexi DMT-2 ATU-C (G.lite) Line Rates

Table 10 shows the upstream and downstream bit rates for the flexi DMT-2 ATU-C module.

Table 10   Flexi ATU-C (DMT-2 Line Code) Upstream and Downstream Bit Rates

Module	G.lite Enabled/Disabled	Upstream Bit Rate (kbps)	Downstream Bit Rate (kbps)
Flexi ATU-C (DMT-2 line code)	Disabled	[32 – 864] @ 32 kbps increments	[32 – 8032] @ 32 kbps increments
	Enabled	[32 – 512] @ 32 kbps increments	[64 – 1536] @ 32 kbps increments

The following margin settings apply for the DMT-2 ATU-C modules:

- Local/downstream margin—0 dB through 15 dB (ViewRunner default is 6 dB)
- Remote/upstream margin—0 dB through 15 dB (ViewRunner default is 6 dB)

Support for Reed-Solomon Coding

This feature allows you to enable or disable Reed-Solomon coding capability for CAP on a per-subscriber basis. Reed-Solomon coding provides error correction and, starting with Release 3.0.0, you can enable and disable this functionality based on the type of application you are running.

Note   Enabling Reed-Solomon reduces effective bandwidth marginally.

Support for ATU-R Power-Level Setting

This feature allows you to set and provision the power level of the ATU-R on a per subscriber basis. This feature helps the system avoid cross talk when a bridge tap is close to the ATU-R device.

Note   This feature is supported only in dual-port CAP and quad-port flexi (CAP) ATU-C modules because DMT standards do not support ATU-R level settings.

Support for Test Bus Mode

Using ViewRunner software, test bus mode allows you to test the analog line without changing the Cisco 6100 Series cabling configuration.

Note   For use in Direct Connect configurations only and supported by dual-port CAP ATU-C, dual-port DMT-2 ATU-C, and quad-port STU-C modules only. Also, in dual-port CAP configurations, the test bus accesses the modem instead of the analog line.

Performance Management Enhancements

New performance management capabilities allow you to view time-stamped Cisco 6100 series network port statistics with ViewRunner software. This data includes

- Ingress and egress cell counters for all the virtual channels (VCs) of a subscriber or transit subscriber

- OC-3 port cell statistics and errors
  - Receive (Rx) cell count
  - Transmit (Tx) cell count
  - Header control errors
  - Section bit interleave parity
  - Line far-end block error
  - Line bit interleave parity
  - Path far-end block error
  - Path bit interleave parity

- DS3 port cell statistics and errors
  - Receive cell count
  - Transmit cell count
  - Header control errors
  - Section bit interleave parity
  - PLCP far-end block error
  - PLCP frame error
  - DS3 frame error
  - DS3 parity error
  - DS3c parity error
  - DS3 far-end block error
  - Bipolar violations

In-band Channel Performance Enhancements

This feature improves throughput for the in-band channel by up to 250 percent.

Software Upgrade Enhancements

The software upgrade feature supports the following enhancements:

- Image compression allows a larger number of images to be stored in the flash. If the releases (sets of images) are stored in the system at one time, the active release can be toggled back and forth without requiring a TFTP.

- The system will not activate the new set of images (releases) until the whole set has been successfully stored into the flash. This offers more robust implementation with better error handling for TFTP and network failures.

Dual-Port DMT DSP Software Upgrade Enhancements

This feature allows you to upgrade the digital signal processor (DSP) code via the system controller module, like the ATU-C module.

New Cisco 6100 Series Hardware Features

Release 3.0.0 brings support for a new Cisco 6100/6130 module—the Cisco 6100 Series quad-port flexi ATU-C. "Flexi" refers to support for both DMT-2 modulation (ANSI T1.413 Issue 2) and CAP modulation. The module is designed for ADSL over POTS through a POTS splitter or for a direct connection to the customer loop. Loop characteristics will determine the actual data rates.

A fan tray is required when you are using either of the following chassis:

* Cisco 6130 chassis
* Cisco 6100 chassis with dual-port DMT-2 ATU-C or quad-port flexi ATU-C modules

A major alarm event occurs when a fan tray is not present. If you are installing more than one chassis, a fan tray must be installed under each chassis. For more information about the fan tray, refer to the *Cisco 6130 with NI-1 Direct Connect Installation Guide* or the *Cisco 6100 with NI-1 Direct Connect Installation Guide*.

Note For use in Direct Connect configuration only.

For more information on installing and using the quad-port flexi ATU-C module, see the *Quad-Port Flexi ATU-C Module FRU Installation and Replacement Notes.*

Limitations and Restrictions

The following limitations and restrictions apply to Release 3.0.0:

* The upgrade from two ports to four ports requires a recabling action. Therefore the user must bring down the system temporarily.
* You must install a thermal guard and a fan tray in a Cisco 6100 when using flexi DMT-2 ATU-C modules.
* If you convert from a DOH configuration to a Direct Connect configuration in Release 3.0.0, you should make sure that your CPE timer settings (Session and Idle) are set properly. You might need to upgrade older CPE to a later version for CO and CPE timers to be compatible.
* You can only deactivate the Reed-Solomon error correction functionality in the downstream direction.
* You cannot use the in-band channel feature to upgrade images for released versions 2.4.x and 2.2.x. However, you can use Ethernet to upgrade these images.
* Table 11 compares several of the features for the dual-port CAP ATU-C module and the quad-port flexi CAP ATU-C module and provides caveats, if any, to the module functionality.

Table 11   Feature Comparison and Caveats—Dual-Port CAP ATU-C and Quad-Port Flexi CAP ATU-C Modules

Feature	Dual-Port CAP ATU-C Module	Quad-Port Flexi CAP ATU-C Module
Line Rate	Supported	Supported with caveat: Rarely CPE retrains at 952 instead of 1088 kbps upstream. (CSCdp85772)
Margin	Caveat: At unusually large margins, (greater than nine), the actual margin is less than provisioned. (CSCdp84274)	Caveat: At unusually large margins, (greater than nine), the actual margin is less than provisioned. (CSCdp84274)
PSD[1]	Supported	Supported
Reed-Solomon	Supported	Supported
136 kilobaud downstream	Supported	Supported
17 kilobaud and 68 kilobaud upstream	Supported	Supported

1. PSD = power spectral density

- Table 12 compares several of the features for the dual-port DMT-2ATU-C module and quad-port flexi DMT-2 ATU-C module and provides caveats, if any, to the module functionality.

Table 12   Feature Comparison and Caveats—Dual-port DMT-2 ATU-C and Quad-port Flexi DMT-2 ATU-C Modules

Feature	Dual- Port DMT-2 ATU-C Module	Quad-Port Flexi DMT-2 ATU-C Module
Line Rate	Supported with caveat: Cannot train upstream @ 128, 256, 512, 640, 768 kbps (CSCdm59472 and CSCdm81817)	Supported
Margin	Supported with caveat: Cannot set margin below 6. (CSCdm43638)	Supported
PSD	Supported with caveat: Always use default setting of –40 dbm/Hz. (CSCdm36644) If you select the –46 dbm/Hz or the–49 dbm/Hz setting, the module uses the default setting of –40 dbm/Hz. (CSCdm69047)	Supported with caveat: All settings are mapped to full power (except –49 dbm/Hz) and will automatically attenuate down to a lower power when necessary.
Overhead Framing	Supported. See below for the following settings: 0—Full, Asyncronous 1—Full, Syncronous 2—Reduced, Separate 3—Reduced, Merged	Supported with caveat: 3—Reduced, Merged Modes 0, 1, and 2 are not supported at this time. (CSCdp39444)

Table 12   Feature Comparison and Caveats—Dual-port DMT-2 ATU-C and Quad-port Flexi DMT-2 ATU-C Modules (continued)

Feature	Dual- Port DMT-2 ATU-C Module	Quad-Port Flexi DMT-2 ATU-C Module
Training Mode	Supported with caveat: Standard only (CSCdm36621)	Supported with caveat: Standard only (CSCdp53139)
Interleaved Delay	Supported with caveat: 0, 250, 500, 1 K, 2 K, 4 K, 8 K microseconds work, all other settings equal maximum. (CSCdm76074)	Supported with the following settings: 250, 500, 1 K, 2 K, 4 K, 8 K, 16 K, 32 K, 64 K microseconds.
FEC[1] Redundancy	Not supported (CSCdm23668)	Supported with the following settings: 0, 2, 4 ,6, 8, 12, 14, 16 bytes
Trellis Code	Supported with caveat: Trellis enabled causes data problems. (CSCdm69068)	Supported with caveat: Enable Trellis for rates over 7.6 Mbps (CSCdp67298)
Bit Swapping	Not supported (CSCdm77285)	Not supported (CSCdp39437)
Latency Path	Supported with caveat: Fast = Interleaved at 0 Delay. (CSCdp27472)	Supported

1. FEC = forward error correction

Important Notes

The following notes are important for Release 3.0.0:

- The Cisco 6100 Series system is Year 2000 compliant. The following URL supplies up-to-date information on Y2K compliance:
  http://www.cisco.com/warp/public/cc/cisco/mkt/gen/2000/prodlit/cptbl_ov.htm

- NI-1 module architecture supports up to two ports per *x*TU-C module. The NI-1 module contains 64 switch ports that are communicating through a serial downstream or upstream channel with a bandwidth of approximately 8 Mbps downstream and 3 Mbps upstream. Release 3.0.0 introduces a quad-port module to the Cisco 6100 and Cisco 6130 CO DSL product line. As a result, two *x*TU-C module ports must share one switch port and its resources (such as buffer space). In the quad-port module implementation, ports 1 and 3 of the *x*TU-C module share one switch port, and ports 2 and 4 share another switch port.

✎
Note   For more information on NI-1 architecture, please contact your Cisco marketing representative.

The issues and implications of the current NI-1 module architecture are as follows:

- Head-of-queue blocking—There are two cases where head-of-queue blocking may occur with the NI-1 and the quad-port module. Both cases are in the downstream direction.

    - The first case of head-of-queue blocking occurs because two ports on the quad-port module share one NI-1 switch port egress cell buffer space. Therefore, a cell destined for port 1 on the module can deny access to a cell destined for port 3 when a cell in the NI-1 for port 1 is ahead of a cell for port 3.

    - The second case of head-of-queue blocking occurs because two ports on the quad-port module share the serial downstream channel. Thus, when one of the two first in, first out (FIFOs) for the two ports of the line card becomes full, the line card shuts down the serial channel for both ports of the pair.

        These cases can be aggravated when the two ports that are sharing one NI-1 switch port have disparate actual trained downstream rates. Congestion occurs because it takes longer to drain the cells for the port with the lower trained rate.

- Fairness—Issues of fairness can arise when users who share NI-1 switch port resources have disparate traffic utilization rates. Because the users share the same buffer space on the NI-1 (assuming that they are both on the same priority queue), the user with the higher utilization can occupy more buffer space on the NI-1, possibly preventing the other user from buffer space.

A resolution to the previously mentioned issues is to apply traffic shaping at the ATM switch upstream from the NI-1 such that the peak cell rate for any VPI/VCI that is destined to a quad-port module never exceeds the actual trained line rate. This does not prevent head-of-queue blocking, but it can prevent cells from being dropped at the NI-1 because of congestion.

Open Caveats as of Release 3.0.0

The following sections contain two important tables:

Caveats Opened Since Release 3.0.0

The caveats described in Table 13 relate to the feature set of Release 3.0.0 and are currently open.

Table 13   Caveats Opened Since Release 3.0.0

DDTS Entry	Description
CSCdp12216	Flexi CAP port 1 & 3, 2 & 4 pairing loss of packets.
	Impact: In NI-1 systems, each card is allocated two 9.1 Mbps data streams by the network interface. When quad-port cards are used, one network interface data stream is shared by ports 1 and 3 and the other is shared by ports 2 and 4. This means that the aggregate downstream rate of two ports that are sharing a network interface data stream cannot exceed 9.1 Mbps without data loss in the network interface.
	Workaround: None.
CSCdp36370	Flexi module retrains on all four ports simultaneously.
	In early runs of EDT, the card exhibits this behavior, but it cannot be reproduced after voltage and temperature margining was controlled properly.
	Impact: The line card will automatically retrain when this event happens. If this occurs, it interrupts data traffic only during retrain time, which is approximately ten seconds. All errors are recoverable through layer 3.
	Workaround: None.
CSCdp37068	Flexi cards (both CAP & DMT) occassionally download their images twice before they can come up.
	Impact: Very minimal. This does not cause any problems, other than taking twice the amount of time that it normally takes to download an image.
	Workaround: None. Wait until the flexi card comes up after the second download.
CSCdp39437	Bit swapping for the flexi DMT ATU-C module is not supported in this release of the GlobeSpan firmware.
	Impact: Selecting bit swapping from the subscriber option menu will have no effect.
	Workaround: None.
CSCdp39444	Framing modes 0, 1, and 2 for the flexi DMT ATU-C module are not supported in this release of the GlobeSpan firmware.
	Impact: User will not see the effect of selecting the framing mode 0, 1 and 2.
	Workaround: Select mode 3 only.
CSCdp53139	The flexi DMT ATU-C module does not support Fast Train in G.lite mode.
	Impact: Fast retrain is not supported in the current GlobeSpan firmware. Selecting fast train from the subscriber options menu will have no effect.
	Workaround: None.

Table 13   Caveats Opened Since Release 3.0.0 (continued)

DDTS Entry	Description
CSCdp53238	Flexi DMT problems with 0 loop, 0 delay
	Impact: Running on loops under 1.8 kft with trellis or Reed-Solomon disabled can lead to data loss due to CRC errors and to dropped links.
	Workaround: To correct this behavior, enable trellis and Reed-Solomon at under 1.8 kft line lengths.
CSCdp57414	CAP cannot train upstream @ 1088 with margin = 6/6
	Investigation of this problem seems to indicate a difference in the CPE-transmit power depending on what version of CBOS/GSI image is running on the CPE.
	• With a Cisco 675 CPE running GSI version 3.0 for starlet, with wireline simulator set to 3 kft/26 gauge and the upstream margin at 6, the CPE transmit power is 11.3 dB. This version will train at 1088 upstream 100 percent of the time.
	• With a Cisco 675 CPE running GSI version 3.2 for starlet, with wireline simulator set to 3 kft/26 gauge and the upstream margin at 6, the CPE transmit power is 4.8 dB. This version will only train at 1088 upstream 40 percent of the time. The rest of the time it will train to 952 upstream.
	• With a Cisco 678 CPE running GSI version C23 for CAP on NOVA, with wireline simulator set to 3 kft/26 gauge and the upstream margin at 6, the CPE transmit power is 6.4 dB. This version will only train at 1088 upstream 40 percent of the time. The rest of the time it will train to 952 upstream.
	Impact: The line card still trains and is only dropping down one rate.
	Workaround: None.
CSCdp70154	Flexi has intermittant single-port retrains (CAP or DMT).
	Impact: When CPE devices train up against the flexi card, on some ports they may train twice in rapid succession before they stay trained.
	Workaround: No corrective action is necessary because the units automatically retrain and then stay trained. The user is given the impression that the line has taken longer than usual to train.
CSCdp78366	In the OC-3 network interface, if previously connected CPEs are powered off, the Tx and Rx cell counts as shown by ViewRunner or through the network interface keep incrementing.
	Impact: The cell counts shown might not indicate that of the actual traffic.
	Workaround: None.
CSCdp79172	TFTP failed after clearing NVRAM and Flash. Sometimes when the system controller is booting it displays an error message "TFTP: de_open failed for DEV_TFTP Error Code: 0x10060002". This message is displayed when the system controller does not get a response from the TFTP server (when there are problems in the network). However, the system controller would recover from the failure if the network becomes stable and the TFTP server is able to communicate with it.
	Impact: Because the system controller recovers from the failure, the TFTP succeeds in the next attempt. The impact is a slight delay while booting.
	Workaround: None.

Table 13   Caveats Opened Since Release 3.0.0 (continued)

DDTS Entry	Description
CSCdp80537	Minor alarms appear when the board is in normal condition after software upgrade.
	Minor alarms appear when the SDSL modules are in normal condition after changing the right chassis from CAP/DMT-2 to SDSL and upgrading to 3.0.0. This problem was observed when the 6100 system was upgraded using ViewRunner for HP OpenView, after clearing the 6100 system NVRAM and flash.
	Impact: Customers will not be able to deactivate the minor alarms.
	Workaround: None.
CSCdp81373	System controller is not up after pulling power off/on 6100 during TFTP upgrade. If power is switched off and the Ethernet connection is also pulled down when the system controller is doing a TFTP of images while upgrading, the system controller will not come up after the power is switched on.
	Impact: None. This is a stress-test case and not a real-world scenario.
	Workaround: System controller has to be rebooted from the system controller boot prompt.
CSCdp86453	Dual-port CAP & flexi CAP fail to train to a valid rate if provision invalid.
	2xCAP and flexi CAP fail to train to a valid rate when provisioned for an invalid upstream or downstream rate. Previous revisions when provisioned for an invalid rate, would use the closest valid rate for the provisioned rate.
	Impact: Because this problem only occurs if an invalid rate is provisioned and an invalid rate cannot be set from ViewRunner, the impact of this DDTS should be low.
	Workaround: Provision with valid rates.
CSCdp84274	Actual margins less than provisioned margins.
	If the line card is provisioned for an upstream or downstream margin of 10, 11, or 12 the actual upstream or downstream margin may be as low as 9. This defect will be fixed in the next release.
	Impact: The highest guaranteed provisioned upstream or downstream margin is 9 even though the line card is supposed to be able to provision up to 12. This affects both the flexi CAP and 2xCAP line card for Release 3.0.0.
	Workaround: None.
CSCdp84935	Occasionally a flexi CAP ATU-C module port may drop train 1 to 2 seconds after it has successfully trained. It seems to always retrain to the same rates on the second try.
	Impact: If the port drops train and then retrains, it could add 6–10 seconds to the total train time. The cause of this problem is still under investigation, so the solution/fix is still unknown.
	Workaround: None.
CSCdp85772	Intermittently, two (out of 112) flexi CAP ATU-C module ports do not train at 1088 after the system controller is reset.
	Impact: The flexi CAP ATU-C module trains at a lower rate than 1088.
	Workaround: None.

Table 13   Caveats Opened Since Release 3.0.0 (continued)

DDTS Entry	Description
CSCdp85795	Flexi line ports drop train during overnight traffic. With a DSLAM with 28 flexi CAP line cards installed, if all 112 ports are trained up and data is passed through all the ports throughout the night, 2 or more ports will drop train before morning. **Impact:** Because the ports will retrain to the correct rate again and the lost cells can be recovered with error handling, this is a low severity DDTS that will be investigated and fixed in the next release. **Workaround:** Error handling should automatically recover any lost cells when the port retrains.
CSCdp87713	Dual-port CAP line card showing actual downstream transmit PSD as –38 when provisioned for –49. The actual transmit PSD should be less than or equal to the provisioned transmit PSD mask. **Impact:** This is still being investigated but it looks like it is a reporting problem of the actual transmit PSD. The reported actual PSD might be incorrect sometimes when provisioned for very low power. **Workaround:** None.
CSCdp88314	Default Q priority in subscr PVC is voice instead of data. While creating a PVC for a subscriber without passing value for lrSubscrPvcQPriority, the default value assigned by the node software is QP1 instead of QP3 as mentioned in the MIB. This is seen only while using MIB browsers other than ViewRunner. **Impact:** None. Because Viewrunner always assigns the default value as qp3, the user is not affected by this. **Workaround:** Set the value for lrSubscrPvcQPriority to the correct queue priority while creating the PVC.

Table 13   Caveats Opened Since Release 3.0.0 (continued)

DDTS Entry	Description
CSCdp88713	Flexi DMT module trains to lower rate than provisioned when the interleaved delay is set to 250 microseconds.
	Configuring the interleave delay to be 250 microseconds decreases the maximum achievable upstream rate to 736–768 kbps (depending on other configuration options).
	Impact: If the subscriber is provisioned for an upstream rate above 736 and an interleave delay of 250 microseconds, the provisioned rate may not be achievable.
	Workaround: Select a higher value for the interleave delay.
CSCdp91694	Alarm severity levels for certain events are incorrect.
	The following alarms have incorrect severity levels:
	• DS3:102: PLCP loss of frame error detected—Minor (should be Critical)
	• OC3:60: Loss of frame condition—Info (should be Critical)
	• OC3:48: Loss of cell delineation—Info (should be Critical)
	• OC3:55: Auto protection switch byte is corrupted 3 of 12 bytes—Minor (should be Info)
	• OC3:54: Auto protection switch—Critical (should be Info)
	Impact: The user will see alarms with incorrect severity levels.
	Workaround: None.

Caveats Opened Prior to Release 3.0.0

The caveats listed in Table 14 were opened before development began on Release 3.0.0. and are still open as of Release 3.0.0.

Table 14   Caveats Opened Prior to Release 3.0.0 (Remain Open as of Release 3.0.0)

DDTS Entry	Description
CSCdk43651	LIM[1] Controller SMB failure over Temperature and Humidity.
	Impact: After a temperature transition from +50C at 10 percent humidity to +70C at 50 percent humidity, the LIM Controller will stop responding to the System Monitor on the system controller over the external SMB Bus.
	Workaround: There is no workaround for this problem.
CSCdk46493 CSCdk49143	When four VCs are sending data simultaneously and are configured on one port, the bandwidth is not distributed fairly.
	Impact: If four VCs are configured for one line port and sending data simultaneously, the bandwidth for some of the VCs is not distributed fairly among each of the VCs. Users on some of those VCs may not get their provisioned bandwidth.
	Workaround: There is no workaround. The network interface does not perform per-VC queuing.

Table 14   Caveats Opened Prior to Release 3.0.0 (Remain Open as of Release 3.0.0) (continued)

DDTS Entry	Description
CSCdk53830	The counter "Failed Trains due to nontimer enabled CPE" not visible while the system is in Direct Connect mode. **Impact:** If the system is in Direct Connect mode, you do not know how many times a line port failed to train because the CPE gear is not timer enabled. **Workaround:** There is no workaround.
CSCdk53848	Life Line not preserved when POTS splitter card is removed. **Impact:** When the POTS card is removed, phone service is lost. **Workaround:** Do not remove the POTS card.
CSCdk55611	If you specify a bad TFTP Server IP Address from the Boot ROM Menu Screen, the system controller will fail the download and will not run. **Impact:** The system controller will not load with the proper image if you specify a bad TFTP Server IP Address from the Boot ROM Menu Screen. **Workaround:** The user must specify the proper TFTP Server IP Address during downloads.
CSCdk92817	CLI passwd command accepts illegal passwords. The command line interface accepts function keys as legal password characters. **Impact:** In passwd command, enter "123<F1>" when prompted for new password and then "123" when prompted to Reenter passwd. You will receive an error message that "passwords don't match". **Workaround:** Do not enter function keys for password characters.
CSCdm01442	PVC idle cell count incorrect. **Impact:** The PVC idle cell count currently is a little off when determining if a subscriber is idle or not. **Workaround:** Customer can add a 2 percent cell buffer when setting the PVC idle mark value.
CSCdm03741	Inaccurate time stamp given in event log as to the time that the network interface module was inserted. **Impact:** Occurs very rarely after network interface power cycle. **Workaround:** None.
CSCdm08281	A random set of modems fails to attempt to train after power cycle. **Impact:** Occurs after power cycle of the system controller, or software download. Rate of occurrence is 1/4 of 1 percent. **Workaround:** Lock/Unlock the offending modem port. Alternatively, the module may be removed and reinserted.

Table 14   Caveats Opened Prior to Release 3.0.0 (Remain Open as of Release 3.0.0) (continued)

DDTS Entry	Description
CSCdm21026	Reseating OC-3 network interface generates a buffer overflow msg in VR4W. **Impact:** When a network interface is reseated in the chassis, a message is generated in the ViewRunner log indicating the following error: `Buffer overflow in the cell buffer on the subtend module` This occurs whenever a network interface is reseated. Even though the message refers to a subtend module, you do not need to be present for this message to appear. **Workaround:** None required. This is a spurious error message that does not affect operations in any way.
CSCdm23668	FEC Redundancy bytes has no effect. When a subscriber is configured for any of the FEC Redundancy bytes values under the DMT-2 modem parameters, there are no variation in the trained rate and error correction rate. **Impact:** None. **Workaround:** There is no workaround. This problem is due to a limitation with third-party hardware. There is currently no scheduled date from the vendor for resolution of the problem.
CSCdm25685	No support for G.dmt and G.lite. **Impact:** G.lite or G.dmt cannot be configured for dual-port DMT-2 cards. This is true for all conditions. **Workaround:** No workaround. G.lite and G.dmt are not supported in this release for dual-port DMT-2. They are scheduled to be part of a future release. This problem is due to a limitation with third-party hardware. There is currently no scheduled date from the vendor for resolution of the problem.
CSCdm36644	9000–9350 ft/–34 dBMHz, CPE cannot train. **Impact:** Setting a subscriber to a PSD setting other than the default value of –40 dB may cause unpredictable results. In particular, a setting of –34 dB will cause the subscriber to continually retrain. **Workaround:** Leave the subscriber PSD setting at the default of –40 dB. This problem is due to a limitation with third-party hardware. There is currently no scheduled date from the vendor for resolution of the problem.
CSCdm40771	Could not login to network interface debug mode after creating 1600 PVCs and 1. **Impact:** Cannot login to network interface debug mode after creating 1600 PVCs and 1500 transit subscribers. Occurs after creating greater than 1600 subscribers and 1100 transit subscribers. **Workaround:** None. Due to memory limitations, you cannot enter network interface debug mode after exceeding this number of subscribers and transit subscribers. The fix is scheduled to be incorporated in the next major release.

Table 14   Caveats Opened Prior to Release 3.0.0 (Remain Open as of Release 3.0.0) (continued)

DDTS Entry	Description
CSCdm41552	SDSL downstream traffic contention between odd and even ports.
	When odd ports (1 and 3) and even ports (2 and 4) are used concurrently, there is traffic contention between the ports of the same pair downstream, for example, between 1 and 3 or between 2 and 4. One of the ports may experience significant packet loss downstream. There is no contention for upstream traffic.
	Impact: The contention happens only for downstream traffic.
	Workaround: Shape the downstream traffic rate to the trained rate on a per-PVC basis on the router that is directly terminating the PVC on the upstream side of the network interface. For example, on a Cisco 7200 router that has the PVC to a network interface, enter the IOS command "ubr rate" under the PVC, where the rate is the trained rate for the SDSL port in kilobits per second.
CSCdm41964	DMT-2 line card FE Corrected Blocks don't match CPE.
	Impact: When corrected/uncorrected blocks are checked at the CO side then compared with similar statistics on the CPE side, the values may not necessarily match. Other statistics may also be out of sync. This can occur with any kind of connection.
	Workaround: None. There are slight differences in the manner in which the firmware reports statistics to the CO and the CPE side. The discrepancies are not severe enough to impact accurate reporting of general functionality. This problem is due to a limitation with third-party hardware. There is currently no scheduled date from the vendor for resolution of the problem.
CSCdm43638	DMT-2 fails to meet T1.413 loop midCSA 6-cannot set margin of 3.
	Impact: When running T1.413 MidCSA 6 loop, the required rate cannot be met. MidCSA 6 requires a margin setting of 3; however, there is no way to set the margin below 6. Although you can set the value below 6 in ViewRunner, the margin will remain at 6.
	Workaround: None. This problem is due to a limitation with third-party hardware. There is currently no scheduled date from the vendor for resolution of the problem.
CSCdm46110	DS3 subtending bandwidth is less than 40.7 Mbps.
	Impact: When a rate greater than 40.2 Mbps of traffic is sent through the DS3 subtend ports, traffic will be sent no faster than 40.2 Mbps. This occurs only when attempting to send traffic at a rate greater than 40.2 Mbps through the subtend ports.
	Workaround: None required. This change was need to keep cells from being lost due to the inability of the subtend ports to handle traffic greater than 40.2 Mbps.
CSCdm52542	DMT Downstream file transfer performance overly impacted by upstream rate.
	Impact: When the downstream rate is set much higher than the upstream rate—for example, 1544/96—the data transfer rates will likely not be as high as would be expected for downstream data transfers. This occurs when upstream rates are set very low relative to downstream rates, and particularly for file transfers that require acknowledgements, such as FTP.
	Workaround: Do not set very low upstream rates, such as below 256 K, when using high downstream rates.

Table 14   Caveats Opened Prior to Release 3.0.0 (Remain Open as of Release 3.0.0) (continued)

DDTS Entry	Description
CSCdm59472	DMT cannot train at 128 K increment for upstream. **Impact:** When a subscriber is configured for an upstream rate that is an increment of 128 K such as 128 K, 256 K, and so on, the trained rate will always be at least 32 K below the configured rate. This only occurs with upstream increments of 128 K. **Workaround:** There is no workaround to obtain an increment of 128 K. If a higher rate is desired, setting the next higher rate will allow this. For example, to get greater than 128 K, provision for 160 K, which will result in a 160 K trained rate.
CSCdm69047	DMT Setting PSD –43 = –52; –46 = –40; –49 = –40. **Impact:** Setting the PSD to –46 dB or –49 dB in ViewRunner results in the downstream PSD still being the default of –40 dB. This occurs only with DMT-2. **Workaround:** None. The inability to set PSD lower than –43 dB is due to a limitation with third-party hardware. There is currently no scheduled date from the vendor for resolution of the problem. Cisco strongly recommends that the default PSD of –40 dB be used.
CSCdm69068	DMT with trellis enable, CB/UB go down, but intermittent high ES[2] . **Impact:** Trellis coding enabled for a subscriber causes the connection to show up with a high ratio of corrected/uncorrected blocks and excessive ES counts. This occurs when trellis coding is enabled at both the CO and CPE so that trellis is then active for the connection. **Workaround:** Do not enable trellis for the subscriber. This problem is due to a limitation with third-party hardware. There is currently no scheduled date from the vendor for resolution of the problem.
CSCdm76074	DMT 16000, 32000 and 64000 interleave all equal maximum. **Impact:** Setting interleave for DMT-2 line cards to 16000, 32000 or 64000 all results in the maximum interleave setting being used. This will show up on the CPE output as interleave = 64. This occurs whenever any of these interleave settings are utilized. **Workaround:** None. This is the maximum interleave that currently can be obtained with DMT-2 in the Cisco 6130. This problem is due to a limitation with third-party hardware. There is currently no scheduled date from the vendor for resolution of the problem.
CSCdm77282	DMT-2 margins cannot be set lower than 6 dB. **Impact:** Setting margin for DMT-2 lower than 6 does not change the actual setting, which will still be 6 dB. This occurs with any DMT-2 margin setting less than 6 dB. **Workaround:** None. This problem is due to a limitation with third-party hardware. There is currently no scheduled date from the vendor for resolution of the problem.
CSCdm77285	Enabling DMT-2 Bit swapping has no effect. **Impact:** This occurs under all circumstances whenever bit swapping is set. **Workaround:** None. Bit swapping is not supported in the current release. This problem is due to a limitation with third-party hardware. There is currently no scheduled date from the vendor for resolution of the problem.

Table 14   Caveats Opened Prior to Release 3.0.0 (Remain Open as of Release 3.0.0) (continued)

DDTS Entry	Description
CSCdm81817	DMT-2 various mode, upstream rate combos cause high ES, CB. **Impact:** Excessively high corrected/uncorrected block ratios and ES counts are seen when the following combinations are provisioned for a subscriber: overhead framing mode-2, 64 kbps upstream; or overhead framing mode-3, 96 kbps upstream. The high error rates only occur with the overhead framing mode-2, 64 kbps upstream, or overhead framing mode-3, 96 kbps upstream combinations. **Workaround:** Do not provision a subscriber with either of these combinations of overhead framing mode and upstream rate. This problem is due to a limitation with third-party hardware. There is currently no scheduled date from the vendor for resolution of the problem.
CSCdm87044	ATU-C generates IPC to SMB Unable to allocate buffer! **Impact:** After training up 64 modems at 864/8032 and requesting "status x" from all 64 ATU-C channels (via serial ports), the following error occurs for all ATUCs: `2DMT2_0.1> IPCtoSMB:  Unable to allocate buffer!` This problem will also occur if • All 64 CPEs are in operational mode. • The subscibers are all ready to train at 864/8032; 3) The subscribers are unlocked simultaneously using CommandRunner. As the Cisco 6100 begins training units, the buffer error will occur. **Workaround:** None required for the status command via the serial port issue because this requires special connectors that are not available to customers. For the problem with issuing "unlock all" in CommandRunner, the workaround is to not unlock all of the line modules or subscribers at once. They should be unlocked in batches of less than 8 at a time.
CSCdp27472	2xDMT module does not support the fast path option. It has been set up not to break but it is still using the interleaver. The vendors firmware does not support the fast path at this time. It has been reproduced when implemented by running the interleaved path with a depth of 0. This simulates the fast path. **Impact:** There will be a slight delay. Less than running with an interleaver delay but more than running the fast path. **Workaround:** None.
CSCdp52726	SDSL overhead causes 16 K lower throughput. **Impact:** When SDSL is utilized, measured rates will be 16 K lower than the trained line rate. This only occurs with SDSL. **Workaround:** None. Because of the nature of SDSL, overhead causes the traffic rate to be 16 K lower than the trained line rate.

Table 14   Caveats Opened Prior to Release 3.0.0 (Remain Open as of Release 3.0.0) (continued)

DDTS Entry	Description
CSCdp74006	2xDMT2 won't train at 7680, 7744, 7808, 7872, 7936, and 8000. This is because the vendors firmware does not support the symbol rate (S) = 1/2. This is the symbol rate that is selected for these configurations. If the line is provisioned for a high bit rate and a high FEC redundancy byte count, then this can occur. The line will not train at the provisioned rate. It may be possible that the line will train higher than the provisioned rate. **Impact:** There is not an impact while attempting to pass data. The only impact is that the line will not train at the provisioned downstream bit rate. **Workaround:** None.
CSCdp74033	Wrong actual Upstream PSD Mask reported for dual-port DMT. The vendors firmware does not currently support remote reporting of the CPE PSD setting. The firmware simply reports a PSD setting of –82 dBMHz, which is the lowest possible value. **Impact:** There is no impact on traffic. This simply means that the CO (61xx) can not read the transmit PSD setting on the CPE device. This is simply a performance reporting problem. **Workaround:** In most configurations, it may be possible to telnet to the CPE and use its CLI to view the PSD setting.
CSCdp79941	Some STU-C modules lose packets during 12-hour traffic run. **Impact:** This is an ongoing problem that is occurring in the current 2.4.x release. The data loss is minimal and should be recoverable. This is being investigated and will be fixed in the next release. **Workaround:** None.
CSCdp79960	All 4 ports dropped train on STU-C module while there is no traffic. **Impact:** This is an ongoing problem that is also occurring in the current 2.4.x release. This is being investigated and will be fixed in the next release. **Workaround:** None.
CSCdp79976	Some Cisco 677s dropped train with the dual-port DMT line card during traffic. This has occurred occasionally on a Cisco 6100 loaded fully with 32 dual-port DMT-2 cards provisioned at 2560/864 kbps, some ports occasionally drop train when traffic is run for around 12 hours. **Impact:** Because the ports that drop the train retrain and come up immediately, the impact is minimal. **Workaround:** None. The problem has occurred only on a fully loaded Cisco 6100/6130 with 32 DMT-2 cards.
CSCdp80537	Minor alarms appear when the STU-C modules are in normal condition after changing the right chassis from CAP/DMT-2 to SDSL after upgrading to 3.0.0. This problem occurred only once in the lab when the 6100 system was upgraded using VROV, after clearing the 6100 system NVRAM and Flash. **Impact:** Customers will not be able to remove the minor alarms. **Workaround:** None.

Table 14 Caveats Opened Prior to Release 3.0.0 (Remain Open as of Release 3.0.0) (continued)

DDTS Entry	Description
CSCne01131	During a network interface reset, active OC-3 cell flow may cause network interface alarm and network interface shutdown on power-up. **Impact:** If the fiber is currently plugged in and active, during install or reset of the system, then the network interface may shut down. The following alarm in ViewRunner is provided to alert the user of this problem: **"ATM SWITCH POLLING RATE IS INADEQUATE, CELLS DROPPED."** **Workaround:** Disconnect fiber and restart network interface.
CSCne01854	Following a network interface reset, the following nonfatal events are seen in the event window: FC_SUBTEND_PORT_BUFFER_OVERFLOWINFO FC_SUBTEND_PORT_UTOPIA_ERRORINFO FC_SUBTEND_PORT_INGRESS_ERRORINFO FC_SUBTEND_PORT_INGRESS_2_ERRORINFO FC_SUBTEND_PORT_EGRESS_PARITYINFO **Impact:** No impact. Events are generated at start-up and are based on the start-up sequence of network interface and SHM. **Workaround:** Not required.
CSCne01901	Infrequently, in a single LIM chassis system, if you replace a LIM controller, this causes ViewRunner to display two LIM chassis. **Impact:** Displays a LIM chassis, which does not exist. **Workaround:** Delete second LIM chassis.
CSCne01912 CSCne01913	DS3 subtending port does not block data flow upon port or module lock. Unimplemented feature at this time. **Impact:** Cannot block data by unlocking subtend port. **Workaround:** To block the data, pull out the DS3 cable.
CSCne01970 CSCne02364	Fabric Control does not configure transit VPCs. **Impact:** No system impact; unimplemented feature. **Workaround:** Use VCCs only.
CSCne02176	When locked, Cisco 6100 modules still respond with alarms when pulled from chassis. **Impact:** No system impact; unimplemented feature. **Workaround:** Not required.
CSCne02362 CSCne02112	System control IP information becomes corrupted after save or after BOOTP is completed. **Impact:** Only an installation impact when you use the BOOTP capability. **Workaround:** Reenter the system controller IP address in the boot menu.

1. LIM = line interface module

2. ES = errored second

Resolved Caveats

The caveats listed in Table 15 are resolved as of Release 3.0.0.

Table 15   Resolved Caveats as of Release 3.0.0

DDTS ID	Description
CSCdk34684	CAP ATU-C margin can be lower than specified for 1024 k and 896 k.
CSCdk37403	This is a problem if a user is using an SNMP command line tool or MIB browser. This is not a problem when using ViewRunner. If the Cisco 6100 is sent an SNMP "row create" of a subscriber with the line port of the subscriber included in the set (lrSubscrRowStatus.1=createAndGo; lrSubscrLinePort.1=lrLpLPoolId.2.1.1), the set will fail.
CSCdk43208	Disconnecting tip/ring momentarily causes loss of upstream data.
CSCdk43651	LIM Controller SMB failure over Temperature and Humidity.
CSCdk47034	Concurrent network interface debug sessions may give incorrect output values.
CSCdk49649	In CLI for SendByte and RevcvByte the error codes are incorrect.
CSCdk51475	Network interface debug command DS3 status (ss all) will show unexpected m23 format.
CSCdk52588	Interrupted upgrade causes system controller to be orphaned.
CSCdk53806	Command Line Interface does not show "CPE NOT TIMER ENABLED" alarm text.
CSCdk55957	ATU-C does not give enough margin when trained to a c660.
CSCdk57362	If the system is in Direct Connect mode, the CPE TIMER alarm is not cleared after lock/unlock of the line port.
CSCdk57824	Downstream RS errors when adjacent modem channel hangs up.
CSCdk59039	This problem only occurs in a lab debug environment. If a user is sending debug messages and enters an invalid instance type in the message, the system controller can crash.
CSCdk60677	In the network interface module debug interface, the "dr" and "mr" cmds do not check for range.
CSCdk62129	Network interface CT: When Reset command is given, CT window hangs.
CSCdk67493	DS3 network interface is not sending PLCP yellow during PLCP OOF.
CSCdk71731	User input is not received by network interface correctly when done via cut-thru.
CSCdk72226	SHM and network interface images won't distribute if certain size.
CSCdk87539	In-Band management use Crashes Node to Probe. ISR Problem.
CSCdk90876	Network interface command pd all or dump causes the network interface to hang.
CSCdk91925	Network interface debug command help oc3 lists oc3 fac incorrectly.
CSCdk91973	Need to change CLI menu item #3 from Netspeed to Cisco.
CSCdk92026	No logout on system controller's CLI.
CSCdk92037	System controller CLI login accepts illegal user names.
CSCdk92051	Wrong Alarm description displayed.

Table 15   Resolved Caveats as of Release 3.0.0 (continued)

DDTS ID	Description
CSCdk92894	On system controller CLI, one hour logout does not work.
CSCdk92932	Network interface port 67 for in-band management is not displayed on network interface console.
CSCdk92940	Two problems with the initial ds3 FEAC implementation: 1. Coded entries in the FEAC RX register of the WAC-034 contain the middle 6 bits of the 8-bit FEAC word. The message definitions have to be changed to reflect this. 2. Loopback control consists of a burst of 10 loopback control messages followed by a burst of applicable channel messages. An interrupt will have to be enabled for processing FEAC.
CSCdk93293	Output of DS3/OC-3 command on network interface debug menu needs cleanup.
CSCdk93299	At network interface debug menu, a mistyped command will turn a setting off.
CSCdk93302	Loopback of the DS3 interface on the subtend module of the Cisco 6100 does not function.
CSCdm00073	Illegal dates accepted.
CSCdm00271	Only four CLI sessions allowed at one time.
CSCdm00653	Cisco 6100 DS3 Interface Reports FIFO FULL Locks Up.
CSCdm01464	Network interface command wipes out PVC cell count.
CSCdm02229	Network interface hidden debug menu is left exposed when CLI session closed.
CSCdm02803	The message relayed to the user informs the user of the lockout period in minutes. The time used is actually the session timer setting instead of the lockout timer.
CSCdm03580	Orphaned PVCs occur if system controller is reset right after a PVC is created.
CSCdm04568	EPD setting not saved across network interface resets.
CSCdm04577	Password for network interface hidden cmds menu visible in CT session terminal.
CSCdm04581	MCLI commands/responses echoed on all MCLI session terminals.
CSCdm05442	Software upgrades performed over the inband management channel take a long time to complete.
CSCdm06831	Output of DS3 parameters for network interface and SHM don't match.
CSCdm06833	SHM debug interface displays debug messages for alarms.
CSCdm11662	Port status messages appear on SHM debug menu.
CSCdm11912	Tx setting of OC-3 network interface acts opposite of expectation.
CSCdm12296	DS3 network interface debug menu does not allow ds3 tx on command.
CSCdm12740	VR reports incorrect value for ATU-C margin readings.
CSCdm13099	Y2K—Event occuring on 2/29/2000 is logged on 3/1/2000.
CSCdm13108	Over 1580 subscriber PVCs causes the network interface to continually reset.
CSCdm13350	MCLI I/O allocates memory of long-term storage region.
CSCdm19596	System controller locked up.
CSCdm20429	Some trained and active connections are not active in network interface.

Table 15   Resolved Caveats as of Release 3.0.0 (continued)

DDTS ID	Description
CSCdm20798	DMT-2 does not accurately report trained/not trained.
CSCdm20843	Network interface reports incorrect cell counts for the first request on an active VPI/VCI connection.
CSCdm24561	ATU-Cs constantly reset.
CSCdm25489	Chassis list (from cr) resets the system controller when LIM chassis is present.
CSCdm25689	System reset causes bad network interface state.
CSCdm25708	Walk of lrSlotTable for LIM chassis returns invalid lrSlotEntries.
CSCdm25731	Cannot pre provision a LIM chassis.
CSCdm25734	Chassis Alarms returns bad values.
CSCdm25847	Network interface constantly resets in Direct Connect system if modems are training.
CSCdm27013	64 active connections kills CPE in-band messaging.
CSCdm29272	Agent reports bad value error when adding LIM chassis.
CSCdm29330	lrNumTrapReceivers does not get updated when trap rcvr is added.
CSCdm29561	Postcard message generation from system controller's user interface does not send correct data.
CSCdm31114	Network interface DS3 does not throttle in the upstream direction.
CSCdm31593	The trained downstream rate is less than the 2.2.1 release in the range of 11000 ft to 15000 ft when provisioned with zero dB downstream margin.
CSCdm33193	Subtend port loses cell at full ds3 rate.
CSCdm36984	CLI command shows stat icp client should display clearer info.
CSCdm45054	Clearing of fan shelf alarm causes system reset.
CSCdm76638	Connection entries on network interface damaged.
CSCdm87985	ADI/Aware DSP Upload Can Corrupt ADI/Aware Flashes.
CSCne01497	Identical fault message text is provided when network interface DS3 C-bit parity detection is asserted and cleared.
CSCne01854	Following a network interface reset, the following nonfatal events are seen in the event window: FC_SUBTEND_PORT_BUFFER_OVERFLOWINFO FC_SUBTEND_PORT_UTOPIA_ERRORINFO FC_SUBTEND_PORT_INGRESS_ERRORINFO FC_SUBTEND_PORT_INGRESS_2_ERRORINFO FC_SUBTEND_PORT_EGRESS_PARITYINFO
CSCne01970 CSCne02364	Fabric Control will not configure transit VPCs.
CSCne02002	On the STM module, the RAI and OCD alarms do not clear when the alarm condition is corrected.

Table 15   Resolved Caveats as of Release 3.0.0 (continued)

DDTS ID	Description
CSCne02132	In alarms test, clearing AIS alarm gives PLCP OOF rather than RAI alarm.
CSCne02408	System controller and LC reset after modifying dip switches IDs to 14 and 15 from 1 and 2.

Related Documentation

The following sections list the CO and CPE publications that relate to the Cisco DSL product family.

CO Publications

A complete list of all released Cisco 6100 Series system with NI-1 related documentation is available on the World Wide Web at
http://www.cisco.com/univercd/cc/td/doc/product/dsl_prod/c6100/index.htm.

The following ViewRunner management software is used to provision and manage the Cisco 6100 Series system with NI-1. A complete list of all released ViewRunner documentation is available on the Word Wide Web.

- ViewRunner for Windows
  http://www.cisco.com/univercd/cc/td/doc/product/dsl_prod/vrmgtsw/vr4w/index.htm
- ViewRunner for HP OpenView
  http://www.cisco.com/univercd/cc/td/doc/product/dsl_prod/vrmgtsw/vr4ov/index.htm

CPE Publications

The Cisco CPE, also known as the Cisco 600 Series, is part of the Cisco end-to-end DSL product family. CPE comprises modems and routers at the customer site primarily used by home office and corporate LAN personnel. Most CPE uses the Cisco Broadband Operating System (CBOS) as its operating system. CBOS provides a comprehensive command set and web interface that allow you to configure your Cisco CPE modem or router.

A complete list of all released Cisco 600 Series documentation is available on the World Wide Web at http://www.cisco.com/univercd/cc/td/doc/product/dsl_prod/c600s/index.htm.

Obtaining Documentation

World Wide Web

You can access the most current Cisco documentation on the World Wide Web at http://www.cisco.com, http://www-china.cisco.com, or http://www-europe.cisco.com.

Documentation CD-ROM

Cisco documentation and additional literature are available in a CD-ROM package, which ships with your product. The Documentation CD-ROM is updated monthly. Therefore, it is probably more current than printed documentation. The CD-ROM package is available as a single unit or as an annual subscription.

Ordering Documentation

Registered CCO users can order the Documentation CD-ROM and other Cisco Product documentation through our online Subscription Services at http://www.cisco.com/cgi-bin/subcat/kaojump.cgi.

Nonregistered CCO users can order documentation through a local account representative by calling Cisco's corporate headquarters (California, USA) at 408 526-4000 or, in North America, call 800 553-NETS (6387).

Obtaining Technical Assistance

Cisco provides Cisco Connection Online (CCO) as a starting point for all technical assistance. Warranty or maintenance contract customers can use the Technical Assistance Center. All customers can submit technical feedback on Cisco documentation using the web, e-mail, a self-addressed stamped response card included in many printed docs, or by sending mail to Cisco.

Cisco Connection Online

Cisco continues to revolutionize how business is done on the Internet. Cisco Connection Online is the foundation of a suite of interactive, networked services that provides immediate, open access to Cisco information and resources at anytime, from anywhere in the world. This highly integrated Internet application is a powerful, easy-to-use tool for doing business with Cisco.

CCO's broad range of features and services helps customers and partners to streamline business processes and improve productivity. Through CCO, you will find information about Cisco and our networking solutions, services, and programs. In addition, you can resolve technical issues with online support services, download and test software packages, and order Cisco learning materials and merchandise. Valuable online skill assessment, training, and certification programs are also available.

Customers and partners can self-register on CCO to obtain additional personalized information and services. Registered users may order products, check on the status of an order and view benefits specific to their relationships with Cisco.

You can access CCO in the following ways:

- WWW: www.cisco.com

- Telnet: cco.cisco.com

- Modem using standard connection rates and the following terminal settings: VT100 emulation; 8 data bits; no parity; and 1 stop bit.

  - From North America, call 408 526-8070

  - From Europe, call 33 1 64 46 40 82

You can e-mail questions about using CCO to cco-team@cisco.com.

Technical Assistance Center

The Cisco Technical Assistance Center (TAC) is available to warranty or maintenance contract customers who need technical assistance with a Cisco product that is under warranty or covered by a maintenance contract.

To display the TAC web site that includes links to technical support information and software upgrades and for requesting TAC support, use www.cisco.com/techsupport.

To contact by e-mail, use one of the following:

Language	E-mail Address
English	tac@cisco.com
Hanzi (Chinese)	chinese-tac@cisco.com
Kanji (Japanese)	japan-tac@cisco.com
Hangul (Korean)	korea-tac@cisco.com
Spanish	tac@cisco.com
Thai	thai-tac@cisco.com

In North America, TAC can be reached at 800 553-2447 or 408 526-7209. For other telephone numbers and TAC e-mail addresses worldwide, consult the following web site: http://www.cisco.com/warp/public/687/Directory/DirTAC.shtml.

Documentation Feedback

If you are reading Cisco product documentation on the World Wide Web, you can submit technical comments electronically. Click **Feedback** in the toolbar and select **Documentation**. After you complete the form, click **Submit** to send it to Cisco.

You can e-mail your comments to bug-doc@cisco.com.

To submit your comments by mail, for your convenience many documents contain a response card behind the front cover. Otherwise, you can mail your comments to the following address:

Cisco Systems, Inc.
Document Resource Connection
170 West Tasman Drive
San Jose, CA 95134-9883

We appreciate and value your comments.

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

Access Registrar, AccessPath, Any to Any, AtmDirector, Browse with Me, CCDA, CCDE, CCDP, CCIE, CCNA, CCNP, CCSI, CD-PAC, the Cisco logo, Cisco Certified Internetwork Expert logo, *CiscoLink*, the Cisco Management Connection logo, the Cisco Net*Works* logo, the Cisco Powered Network logo, Cisco Systems Capital, the Cisco Systems Capital logo, Cisco Systems Networking Academy, the Cisco Systems Networking Academy logo, the Cisco Technologies logo, ConnectWay, Fast Step, FireRunner, Follow Me Browsing, FormShare, GigaStack, IGX, Intelligence in the Optical Core, Internet Quotient, IP/VC, Kernel Proxy, MGX, MultiPath Data, MultiPath Voice, Natural Network Viewer, NetSonar, Network Registrar, the Networkers logo, *Packet*, PIX, Point and Click Internetworking, Policy Builder, Precept, ScriptShare, Secure Script, ServiceWay, Shop with Me, SlideCast, SMARTnet, SVX, *The Cell*, TrafficDirector, TransPath, ViewRunner, Virtual Loop Carrier System, Virtual Service Node, Virtual Voice Line, VisionWay, VlanDirector, Voice LAN, WaRP, Wavelength Router, Wavelength Router Protocol, WebViewer, Workgroup Director, and Workgroup Stack are trademarks; Changing the Way We Work, Live, Play, and Learn, Empowering the Internet Generation, The Internet Economy, and The New Internet Economy are service marks; and ASIST, BPX, Catalyst, Cisco, Cisco IOS, the Cisco IOS logo, Cisco Systems, the Cisco Systems logo, the Cisco Systems Cisco Press logo, Enterprise/Solver, EtherChannel, EtherSwitch, FastHub, FastLink, FastPAD, FastSwitch, GeoTel, IOS, IP/TV, IPX, LightStream, LightSwitch, MICA, NetRanger, Post-Routing, Pre-Routing, Registrar, StrataView Plus, Stratm, TeleRouter, and VCO are registered trademarks of Cisco Systems, Inc. or its affiliates in the U.S. and certain other countries. All other trademarks mentioned in this document are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any of its resellers. (9912R)