Release Notes for Cisco IOS Release 12.0(5)DA for Cisco 6000 Family DSLAMs with NI-2

November 8, 1999

These release notes describe features and caveats in Cisco IOS Release 12.0(5)DA1 for the Cisco 6260 and Cisco 6130 digital subscriber line (DSL) access multiplexers (DSLAMs).

For pointers to more information about the Cisco 6260, the Cisco 6130, and their software, refer to the "Related Documentation" section on page 12. To learn more about caveats, visit Cisco's web site—see the "Cisco Connection Online" section on page 13 for details. Information about electronic documentation can be found in both the "Cisco Connection Online" section on page 13 and in the "Documentation CD-ROM" section on page 13.

Contents

This document discusses the following topics:

System Requirements

Cisco IOS Release 12.0(5)DA1 runs on these DSLAM systems:

Cisco 6260

Cisco 6130 with second-generation network interface (NI-2) module and Cisco 6130-specific system I/O card

Cisco IOS Release 12.0(5)DA runs on all Cisco 6260 systems.

New and Changed Information

This section describes new features.

CISCO SYSTEMS

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Cisco IOS Release 12.0(5)DA1 runs on both the Cisco 6260 and the new Cisco 6130. The Cisco 6130 is described in the section "New Features in Release 12.0(5)DA1." For a description of the Cisco 6260, see the "New Features in Release 12.0(5)DA" section on page 4.

New Features in Release 12.0(5)DA1

The Cisco 6130 is a multiservice DSLAM designed for markets in North America and for worldwide multitenant dwelling unit (MDU) service provider markets. The Cisco 6130 is a NEBS-compliant platform that supports up to 128 discrete multitone (DMT) T1.413-1998 Issue 2-compliant modems per chassis; up to 13 Cisco 6130 chassis can be linked together through the use of advanced, fair-service subtending. (Higher port concentrations are planned for future releases.) OC-3c trunk/subtending interfaces are available immediately, and DS-3 interfaces will be available shortly. The Cisco 6130 also includes optional support for analog voice telephony (POTS, or plain old telephone service) through a companion POTS splitter available from Siecor or RSX. The Cisco 6130 runs the widely deployed Cisco IOS software.

Availability and Compliance

The Cisco 6130 is designed for 23-inch deployments requiring NEBS compliance and compatibility with international telephone network requirements. Cisco technical and customer service support teams ensure the highest level of customer care and service support available.

Advanced Services ATM Architecture

The Cisco 6130 internal design is based on a high-performance ATM switching architecture that includes more than 1 million cells of buffering, support for multiple ATM quality of service (QoS) levels, and a variety of ATM traffic management and shaping capabilities.

Scalability with Fair-Service Subtending

The Cisco 6130 supports subtending of up to 13 shelves (chassis) of user traffic all concentrated onto a single network WAN interface port. A variety of WAN and subtending interface port configurations are available, allowing for flexible service architecture design and optimized cost. The Cisco 6130 subtending architecture provides fair and prioritized access to network bandwidth for all subscriber traffic, ensuring sustained throughput and performance for all users.

Standards-Compliant ADSL Support

The Cisco 6130 supports a four-port DMT T1.413-1998 Issue 2-compliant line card and up to 128 ports per shelf. Other DSL line card options are planned for the future.

Switched Virtual Circuits (SVCs)

Support for ITU and ATM Forum UNI 3.0, 3.1, and 4.0 SVCs provides end-user applications with real-time access to bandwidth and QoS. Support for Private Network Node Interface (PNNI) call routing and Call Admission Control (CAC) is also included.

Soft PVC Provisioning

ATM signaling can be used for automated provisioning of ATM virtual circuits. This capability, also referred to as soft PVCs, greatly reduces the time and cost of manual, node-by-node PVC provisioning.

Life-line POTS Splitter Support

Optional support for voice telephone service (POTS) is available through use of POTS splitter equipment available from a third party (Siecor or RSX). This POTS splitter solution is optimized for international copper access networks and is designed to ensure that basic telephone service is always available, a feature known as life-line POTS. The Siecor product is the ADSL POTS splitter rack-mount shelf, central office version. These are the Siecor part numbers:

Shelf with 16 modules: COSG128S4R012

Shelf only: COSF00S2R007

Module only: COSP00S40000

These cable kits for the POTS splitter are available from both Siecor/RSX and from Cisco. The Cisco part numbers are provided:

Cisco one-to-one cable kit: CAB-61-014

Cisco three-to-three cable kit: CAB-DSLAM128-MDF

Use these contacts to get more product information on this POTS solution:

In the United States, contact Siecor at 828-327-5000 or www.siecor.com.

Outside the United States, contact RSX in Germany at +49 (0)1805-202620 or www.rsx.de.

Network Management Support

The Cisco DSL Manager (CDM) provides comprehensive Cisco 6130 element management and operations support based on standard Simple Network Management Protocol (SNMP) technology. Additionally, if you use standards-based network management interfaces and protocols, the CDM can be directly integrated with other Cisco or customer-provided operations management systems for delivery of integrated, end-to-end service management solutions.

New Features in Release 12.0(5)DA

Cisco IOS Release 12.0(5)DA runs on the Cisco 6260. The Cisco 6260 is a multiservice DSLAM designed for markets in Asia/Pacific, Europe, the Middle East, Africa, South/Central America, and Mexico, and for customers including post, telephone and telegraph agencies (PTTs) and competitive local exchange carriers (CLECs). The Cisco 6260 is also designed for worldwide multitenant dwelling unit (MDU) service provider markets, including those in North America. The Cisco 6260 is an ETSI-compliant platform that supports up to 120 discrete multitone (DMT) T1.413-1998 Issue 2-compliant modems per chassis; up to 13 Cisco 6260 chassis can be linked together through the use of advanced, fair-service subtending. (Higher port concentrations are planned for future releases.) The Cisco 6260 also includes optional support for analog voice telephony (POTS) through a companion POTS splitter available from Siecor or RSX. The Cisco 6260 runs the widely deployed Cisco IOS software.

Global Availability and Compliance

The Cisco 6260 is designed for worldwide markets requiring ETSI compliance and compatibility with international telephone network requirements. Cisco technical and customer service support teams are regionally deployed around the world to ensure the highest level of customer care and service support available.

ETS-300 Mechanical Design

The Cisco 6260 is designed for ETS-300 and/or 19-inch deployments. Interface cabling and wiring are 100 percent front-access, making the product ideal for the back-to-back or flush-to-wall installations often found in MDU environments.

Advanced Services ATM Architecture

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Scalability with Fair-service Subtending

The Cisco 6260 supports subtending of up to 13 shelves (chassis) of user traffic all concentrated onto a single network WAN interface port. A variety of WAN and subtending interface port configurations are available, allowing for flexible service architecture design and optimized cost. The Cisco 6260 subtending architecture provides fair and prioritized access to network bandwidth for all subscriber traffic, ensuring sustained throughput and performance for all users.

Standards-compliant ADSL Support

The Cisco 6260 supports a four-port DMT T1.413-1998 Issue 2-compliant line card and up to 120 ports per shelf. Other DSL line card options are planned for the future.

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Support for ITU and ATM Forum UNI 3.0, 3.1, and 4.0 SVCs provides end-user applications with real-time access to bandwidth and QoS. Support for PNNI call routing and Call Admission Control (CAC) is also included.

Soft PVC Provisioning

ATM signaling can be used for automated provisioning of ATM virtual circuits. This capability, also referred to as soft PVCs, greatly reduces the time and cost of manual, node-by-node PVC provisioning.

Life-line POTS Splitter Support

Optional support for voice telephone service (POTS) is available through the use of POTS splitter equipment available from a third party (Siecor or RSX). The recommended POTS splitter solution is optimized for international copper access networks and is designed to ensure that basic telephone service is always available, a feature known as life-line POTS. These are the Siecor part numbers:

ADSL splitter shelf: COSH000S11R016

Cable assembly for splitter: COSKOC160000

Octal card for splitter (up to 15 per shelf): COSP00S110000

Use these contacts to get more product information on this POTS solution:

In the United States, contact Siecor at 828-327-5000 or www.siecor.com.

Outside the United States, contact RSX in Germany at +49 (0)1805-202620 or www.rsx.de.

Network Management Support

The Cisco DSL Manager (CDM) provides comprehensive Cisco 6260 element management and operations support based on standard Simple Network Management Protocol (SNMP) technology. Additionally, if you use standards-based network management interfaces and protocols, the CDM can be directly integrated with other Cisco or customer-provided operations management systems for delivery of integrated, end-to-end service management solutions.

Limitations and Restrictions

Cisco IOS Release 12.0(5)DA1

The following restrictions apply to this release:

Cisco IOS Release 12.0(5)DA1 runs only on this hardware:

Cisco 6260

Cisco 6130 with NI-2 and Cisco 6130-specific system I/O cards

The VP tunneling feature cannot be used in conjunction with VCs outside of VP tunnels.

Cisco IOS Release 12.0(5)DA

The following restrictions apply to this release:

Cisco IOS Release 12.0(5)DA runs only on Cisco 6260 hardware.

The VP tunneling feature cannot be used in conjunction with VCs outside of VP tunnels.

This release does not support the minimum cell rate parameter.

Important Notes

DS-3 Availability

DS-3 hardware for the Cisco 6260 and Cisco 6130 is not yet orderable. It will be available in calendar year 2000.

Console Logging

Turn console logging off if you plan to reboot the DSLAM. Turn console logging back on after the system comes up. (Console logging is turned on by default.) Use the global configuration commands no logging console (to turn the feature off) and logging console (to turn it on).

If console logging is on when the system reboots, the large volume of console messages consumes CPU time. As a result, the system comes back up more slowly and line cards might reload repeatedly, causing further delays.

Caveats

This section describes unexpected behavior in the system. A tracking number, if one exists, is provided in square brackets at the end of each description. Please refer to the tracking number if you communicate with Cisco about any of these issues.

Open Caveats – Release 12.0(5)DA1

SMB-CRC Errors

Periodically, the system generates a serial management bus cyclic redundancy check (SMBCRC) error message such as this:

%NI2-5-LC_NOTICE:Slot[15] SMBCRC (1 days, 3 hours, 37 minutes, 6 seconds)

These messages are informational only and do not affect performance. [CSCdp00996]

Problems with CLI Commands

When you execute the shutdown command for a port, the port goes out of service, but Cisco IOS still lists the port's administrative status as UP. [CSCdp17666]

The alarms command disables minor DMT alarms on subscriber ports, as it should, but it does not clear existing alarms. [CSCdp25790]

The clear counter command does not consistently return all counter values to zero. [CSCdm92046]

MIB Problems

The dmtCodewordSize object does not allow a setting of automatic, as the CLI does. [CSCdp19413]

The MIB and in some cases the CLI allow you to set invalid VPI values. Legal values are 0 to 31. However, values up to 255 are accepted by the MIB and by certain CLI commands, including atm soft-vp. [CSCdp03335, CSCdp21747]

Problems Affecting Management Systems

These problems affect SNMP-based management systems, including the Cisco DSL Manager (CDM). You can work around these problems by using the CLI.

No error message is generated when you try to delete a DMT profile that is in use. [CSCdp03232]

The MIB defines the ifAlias (subscriber ID) object as a 64-character field. SNMP truncates the field at 20 characters. [CSCdp18533]

You cannot set or change the subtend node ID using SNMP.

Workaround: Use the CLI command subtend-id node# to set or change the subtend ID. [CSCdm93577]

Default ATM traffic descriptors cannot be deleted. When you attempt to delete them through the MIB, the MIB incorrectly indicates that the deletion is successful. [CSCdm89206]

Cisco 6130 Fan LEDs

In the Cisco 6130, the fan LEDs on the NI-2 card are not used. Fan status is indicated by the fan LEDs on the fan tray. [CSCdm92642]

Only CBR Tunnels Are Allowed

The system incorrectly allows you to create VBR-RT and VBR-NRT tunnels. In fact the system can handle only CBR tunnels, and tunnels created as VBR-RT or VBR-NRT behave like CBR tunnels. [CSCdp21731]

Training Problems

DMT lines do not train to upstream bit rates that are multiples of 128 kbps. This applies to both standard training and quick training modes, but only in the upstream direction. If a line is configured with a maximum upstream bit rate that is a multiple of 128 kbps, the best upstream bit rate to which the line can train is 32 kbps less than the configured value.

Workaround: If you want to guarantee service at a minimum upstream bit rate that is a multiple of 128 kbps (for example, 512 kbps or 128 kbps), you can configure the line for 32 kbps above the contracted upstream bit rate (assuming the network can withstand this additional 32 kbps of bandwidth). [CSCdm66087]

DMT lines sometimes train at 8096 kbps (downstream), although the maximum configurable bit rate is 8032 kbps. This occurs with Cisco 676 CPEs and might also occur with other vendors' Issue 1 equipment. [CSCdm66998]

DMT ports sometimes attempt to train (port LEDs blink) when no CPE is connected at the far end of the subscriber loop. This occurs when a neighboring port that is connected to CPE is training on a very short loop (less than 1000 feet). [CSCdm85326]

There may be no benefit in lowering configured end-to-end signal-to-noise ratio (SNR) margins below certain effective minimum values. Although the system allows margins to be configured below these effective minimums, the resulting bit rates and actual end-to-end margins might be the same as those realized when the margins are configured at the effective minimum values.

The effective minimum values depend upon

Training mode (standard or quick)

Bit rates to which the line trains

Whether interleaving is used

For the standard training mode, the effective minimum end-to-end margin is 1 to 3 dB. For the quick training mode, the effective minimum end-to-end margin is 4 to 6 dB. The effective margins might be better (that is, at the lower ends of the specified ranges) if interleaving is turned off and/or the bit rates fall between 6 Mbps and 3 Mbps. [CSCdm89068]

Trellis Coding Can Cause Errors

We recommend that trellis coding not be enabled in this release. (Trellis coding is disabled by default.)

Although trellis coding works reliably on most loops and most trains, it does not always work reliably. For some trains on some loops, enabling trellis coding causes continuous errored seconds, as well as corrupted data in the upstream direction. There is no way to predict the circumstances under which this happens. This will be fixed in a later release. [CSCdm73343]

Some Combinations of Framing Mode and Bit Rate Cause Data Corruption

Under certain combinations of upstream bit rate and overhead framing mode, no valid data flows upstream. When the line trains at these combinations, data going upstream is corrupted. Avoid these data rate and framing mode combinations:

Upstream Bit RateOverhead Framing Mode

32 kbpsMode 1

64 kbpsMode 2

96 kbpsMode 3

Workaround: To avoid this data corruption problem, use these combinations of settings for the lower data rates:

Upstream Bit RateOverhead Framing Mode

32 kbpsMode 3

64 kbpsMode 1

96 kbpsMode 1

[CSCdm66085]

4DMT Line Card Reloads Current Code

If the 4DMT line card boot register is set for the card to reload application code, it reloads when the system reboots even if the load image is the same as the code already loaded on the card. (The reload takes about 2 minutes.) This problem occurs only when the system is rebooted; it does not occur when the line card is installed in a chassis. The card should reload only if the version of the load image is different from the version for the code already loaded. [CSCdm64615]

Bitswap Command Not Functional

The dmt bitswap margin command has no effect in this release. Bit swapping is always disabled. [CSCdm80069]

Decreasing Interleaving Delay Increases Errored Seconds

When the DLSAM is connected to a Cisco 676 or any other CPE that is based on ADI's AD20MSP910 chipset (which was designed to support the older Issue 1 version of the T1.413 ADSL standard), you might experience higher than normal numbers of errored seconds, corrected superframes, and uncorrected superframes. This can occur when the interleaving delay is configured at values less than the maximum (16 msec). The errors can occur in both the upstream and downstream directions. This problem might be more apparent with short loop lengths (for example, those less than 4000 feet).

Workarounds: Do either of the following to eliminate the problem:

Use the dmt interleaving-delay command to increase the interleaving delay to 16 msec.

Use the dmt bitrate command to lower the maximum bit rates (both upstream and downstream, if necessary) to something lower than the bit rate at which the errors were observed. [CSCdm82076]

Symbols per Codeword Value Is Not Reported Correctly

When a port is set to use quick training mode, its symbols per codeword value is sometimes reported as “?” (a question mark). This value is displayed when you enter the show dsl int atm command. [CSCdm91877]

Check Bytes Are Not Reported Correctly

The value you configure for the check bytes parameter might not be properly reported by the system. An incorrect check bytes value equal to half of the configured value is reported when the port is set to use standard training mode and the downstream data rate is greater than 7 Mbps. Only the downstream path is affected. The actual ratio of user data to check bytes matches the configuration. [CSCdm90741]

Interleaving Delay Is Not Reported Correctly

When a line that is configured for quick-train training mode trains to a downstream bit rate of 8 Mbps or higher, the actual interleaving delay might be reported incorrectly. (The interleaving delay appears in the display for the command show dsl int atm slot/port.) When this problem occurs, the reported interleaving delay is one-half of the value that is actually in effect. [CSCdp14712]

Open Caveats – Release 12.0(5)DA

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Squeeze Command Causes Ports to Retrain

The squeeze command, which defragments the flash memory, is CPU intensive. It causes the NI-2 card to lose contact with some line cards, which causes ports on those cards to retrain.

Workaround: Use the squeeze command only during maintenance. [CSCdp02339]

Resolved Caveats – Release 12.0(5)DA1

The problem listed in Table 1 is fixed in Cisco IOS Release 12.0(5)DA1.

Problem Resolved in Release 12.0(5)DA1

Caveat NumberDescription

CSCdp02339The squeeze command causes subscriber ports to retrain.

Related Documentation

These documents contain information that might be useful to Cisco 6260 users:

Configuration Guide for Cisco 6000 Family DSLAMs with NI-2

Command Reference for Cisco 6000 Family DSLAMs with NI-2

Cisco 6260 Hardware Installation and Troubleshooting Guide

NI-2 Card Installation and Configuration for the Cisco 6260

ATUC-1-4DMT Card Installation and Configuration for the Cisco 6260

I/O Interface Module Installation and Configuration for the Cisco 6260

Cisco 6260 PEM and Fan Tray Installation and Replacement

These documents contain information that might be useful to Cisco 6130 users:

Cisco 6100 Series DSLAM with NI-2 User Guide

Cisco 6100 Series DSLAM with NI-2 ATUC-1-4DMT Module Installation and Configuration

Cisco 6130 with NI-2 DSLAM System I/O Card Installation and Configuration

Cisco 6100 Series DLSAM NI-2 Module Installation and Configuration

In these ATM software manuals, look for information pertaining to the LightStream 1010, which uses the same software base as the Cisco 6000 Family DSLAMs:

ATM Switch Router Software Configuration Guide

ATM Switch Router Command Reference Guide

Guide to ATM Technology

Cisco Connection Online

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

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

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

You can access CCO in the following ways:

WWW: http://www.cisco.com

WWW: http://www-europe.cisco.com

WWW: http://www-china.cisco.com

Telnet: cco.cisco.com

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

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

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

Documentation CD-ROM

Cisco documentation and additional literature are available in a CD-ROM package, which ships with your product. The Documentation CD-ROM, a member of the Cisco Connection Family, is updated monthly. Therefore, it might be more current than printed documentation. To order additional copies of the Documentation CD-ROM, contact your local sales representative or call customer service. The CD-ROM package is available as a single package or through an annual subscription. You can also access Cisco documentation on the World Wide Web at http://www.cisco.com, http://www-china.cisco.com, or http://www-europe.cisco.com.

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