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Release Notes for Cisco 6200 for Cisco IOS Release 11.3(1)DA1

June 17, 1998

These release notes discuss features and caveats for the Cisco 6200 advanced digital subscriber loop access multiplexer (DSLAM) supported in Cisco IOS Release 11.3(1)DA1.

For more detailed information about the features in these release notes, refer to the “Related Documentation” section on page 6. For more information about caveats, see the “Cisco Connection Online” section on page 10.

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Cisco 6200 DSLAM

The Cisco 6200 DSLAM is a central-office grade multiplexer that supports up to 80 ADSL ports (more in future releases). The Cisco 6200 DSLAM sends and receives subscriber data (often Internet service) over existing copper telephone lines, concentrating all traffic onto a single high-speed trunk for transport to the Internet or the enterprise intranet. The Cisco 6200 DSLAM is supported by Cisco IOS software.

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Interfaces Supported on the Cisco 6200 DSLAM

These interfaces are supported on the Cisco 6200 DSLAM under Cisco IOS Release 11.3(1)DA1:

- Unshielded twisted pair (UTP) Telco interfaces (50-pin Champ connectors) for subscriber traffic
- Dual-SC SONET STS-3c ATM interface for network traffic (155 Mbps)—single mode or multimode
- Ethernet (10BaseT) interface for network management traffic

Features for Cisco IOS Release 11.3(1)DA1

The Cisco 6200 DSLAM is a central-office-grade multiplexer that supports up to 80 CAP RADSL ports. The Cisco 6200 sends and receives subscriber data (often Internet service) over existing copper telephone lines, concentrating all traffic onto a single high-speed trunk for transport to the Internet or the enterprise intranet.

The following features are supported by the Cisco 6200 DSLAM in Cisco IOS Release 11.3(1)DA1.

Cisco IOS Software

The Cisco 6200 DSLAM runs Cisco's industry-leading IOS software. Cisco IOS software's command line interface (CLI) provides tools for managing the DSLAM. CLI commands support the following functions:

- Configure interfaces and system-wide parameters as needed or in advance
- Monitor status and traffic flow for each interface
- Display, investigate and turn off critical, major, and minor alarms
- Store software image and configuration data on a local PCMCIA Flash card or on a remote server, and reload from these sources if necessary
- Isolate and address problems

Note The Cisco 6200 DSLAM is a layer 2 DSL multiplexer. Although it runs Cisco IOS software, it does not perform layer 3 routing.

Graphical Management Tool

To configure and manage the Cisco 6200 DSLAM, Cisco provides the Cisco 6200 Manager software application, an SNMP-based graphical user interface that runs under Window NT. The Manager can be used in place of or in addition to the command-line management tools provided by Cisco IOS software.

ATM Circuits Require No Configuration

On the Cisco 6200 DSLAM, ATM permanent virtual channels (PVCs) are statically defined; you do not configure them. Enabling a port enables all associated PVCs.

Management Processor Card (MPC)

The MPC performs management and storage task for the Cisco 6200 DSLAM. It supports:

- The Cisco IOS command line interface (CLI) for configuration and monitoring
- An SNMP agent for communicating between the DSLAM and the Cisco 6200 Manager software
- Alarm contacts and environmental monitoring of key system resources
- Line card configuration and fault polling
- Nonvolatile storage of configurations
- Two PCMCIA Flash card slots for storage of software images and configuration data

1-Port Network Trunk Cards (NTCs)

The STS-3c/OC-3c network trunk cards (NTCs), available in both single-mode and multimode versions, concentrate the data traffic from all Cisco 6200 subscriber ports onto a single high-speed trunk to an ATM network. The interface operates at 155 Mbps.

8-port Subscriber Line Card (SLC)

Each subscriber line card (SLC) provides eight subscriber ports that support DSL access with rate-adaptive carrierless amplitude modulation/phase modulation (RADSL/CAP) modems. The CAP SLC transports data at speeds up to 7 Mbps downstream and receives up to 1 Mbps upstream. The Cisco 6200 DSLAM supports up to 10 SLCs.

Caveats for Cisco IOS Release 11.3(1)DA1

This section describes possibly unexpected behavior by Release 11.3(1)DA1.

Line Quality Testing

- The line quality test (an option with the **linetest** command) failed when the line was overloaded with traffic in the upstream direction. This does not happen if the traffic rate is less than or equal to the xDSL line rate. [CSCdk03274]
- When the line quality test is run simultaneously on two or more ports of an SLC, it may give invalid results. Workaround: At any given time, run the line quality test on no more than one port per card. [CSCdk03276]
- Do not reboot the Cisco 6200 during a line quality test. If the system is rebooted, the DSL port on which the test was run never comes back up. Workaround: Re-enter the command to run the test, then enter **linetest dsl slot/port abort**. [CSCdk08158]
- If you run the CAP hardware test (**linetest dsl slot/port caphardware duration 3 berr 10**) on a card that has gone down very recently (within 15 seconds or so), no error message is displayed. [CSCdk08345]
- Firmware release 1.4.1 for the Cisco 675 (NetSpeed 204) supports line quality testing on the Cisco 6200. Earlier versions of Cisco 675 firmware do not.

Verifying Line Quality

Run this procedure to verify the quality of a line.

- (a) Use these commands to enable the port you want to test; *slot/port* specifies the card's slot number and the port number:

```
config terminal
int dsl slot/port
no shut
exit
exit
```

- (b) To determine the rate at which the modems trained, enter the following command:

```
show dsl interface dsl slot/port
```

Note If the port's operational status is "Down," the modems haven't trained yet—wait a few seconds and enter the command again.

- (c) In the resulting display, locate the actual bit rates (downstream and upstream) and record them.

- (d) Reconfigure the port for the rates you recorded. Use these commands:

```
config terminal
int dsl slot/port
dsl bitrate downstream bitrate_value upstream bitrate_value
exit
exit
```

The port retrains at the new bit rates.

- (e) Enter this command to run the line test, where *minutes* is the number of minutes you want the test to run (1 to 60; at least 20 minutes is recommended):

```
linetest dsl slot/port linequality duration minutes
```

- (f) Wait for the line test to complete, then enter this command to display the results:

```
show dsl interface dsl slot/port
```

- (g) If the test fails, repeat steps (d) through (f), choosing the next lowest available bit rate. (Enter **dsl bitrate downstream ?** and **dsl bitrate downstream new_bitrate_value upstream ?** to display lists of bit rates.)

Loopback Testing

- When an ATM port is in loopback mode, ignore the output/transmit counters displayed by the commands **show int atm 1/0** and **show dsl atm1/0**. [CSCdk12919]
- When you put an ATM port in loopback mode, cells received on the ATM port are sent to the internal H-bus as well as being looped to the transmit port. This could cause data flooding problems downstream.
- When you put a DSL port (on the SLC card) into loopback mode, the traffic associated with that port gets looped back from the ATM port as well as from the DSL port. As a result, the ARP table on the upstream might need to be cleared. [CSCdk15261]

Signal-to-Noise Ratio Margins

- The Cisco 675 modem (NetSpeed 204) defaults to a NO_CHANGE_MARGIN configuration. This maximizes the downstream line rate for a given loop length. It does not guarantee a 10^{-7} error rate over a line that is subjected to impairments such as cross talk, POTS signaling, and impulse or background noise.

Note ANSI T1.413-1995 section 15 recommends a minimum performance margin of 6 dB for lines that are subject to the above impairments.

If a port experiences excessive bit errors or fails to stay trained, set the downstream data rate to the next lowest line rate. This forces the Cisco 675 to train at a higher margin, and improves noise immunity in the downstream direction. For example, if you observe downstream errors at a bit rate of 7168 kbps, change the bit rate to 6272 kbps, as shown in this example:

```
int dsl slot/port
dsl bitrate downstream 6272 upstream 1088
```

Typically, this type of line-rate reduction increases the downstream margin by approximately 3.0 dB to 6.0 dB. Enter this command to display margin values:

```
show dsl int dsl slot/port
```

As a result of this problem, test ports running over 11k loops retrain sporadically. [CSCdk13842]

- In the output of the command **show dsl interface dsl**, incorrect values are displayed for margins. [CSCdk14841]
- Modems train poorly while the phone on the line is ringing. [CSCdk02256]

Configuring for Optimal Line Throughput

The Cisco 6200 does not perform traffic policing. If the upstream switch does not perform traffic shaping, extremely bursty traffic might cause buffers to overflow. As a result, in some cases, packets are dropped and throughput degrades for no apparent reason. Workaround: Set burst sizes to match the Cisco 6200's per-port cell buffer size of 504 cells (26,712 bytes). [CSCdk09616]

IP Routing Interferes with Communication Among Cards

The Cisco 6200 DSLAM is designed to function as an IP host, not as an IP router. When IP routing is enabled on the MPC, the MPC cannot communicate with the trunk and line cards. Do not turn on IP routing.

Unexpected Cell Counts

When you enter the command **show dsl interface dsl slot/port**, "Statistics" counts appear at the end of the resulting display. Sometimes the "VPI, VCI (0, 33) cells" values exceed the "Total cells" values. These values are read from different registers, and the registers are not read simultaneously. [CSCdk03285]

Two SONET Alarms Misclassified

PRFI and LRFI should be critical alarms, not major alarms. [CSCdk14272]

Avoid Consecutive MIB Reboots

After approximately seven reboots initiated from the MIB, the Cisco 6200 falls into a boot loop. [CSCdk15025]

IP Name Server Halts System

The Cisco 6200 system reboots when using the IP name server to resolve a host name (for a Telnet connection, for example). Workaround: Use IP addresses instead of host names. [CSCdk13888]

Related Documentation

Use these release notes in conjunction with the documents listed in this section.

The related Cisco IOS software documents mentioned below are available through CCO on the Web and on the Documentation CD-ROM; see “Online Navigation for Cisco IOS Software Documentation” for location details.

Cisco 6200 Documentation

The following Cisco 6200 documents are available:

- *Cisco 6200 User Guide*
- *Cisco 6200 FRU Replacement and Safety Warnings*
- *User Guide for the Cisco 6200 Manager*

The Cisco 6200 documentation can be found on CCO.

Cisco IOS Software Documentation

The Cisco 6200 documentation contains all the information on Cisco IOS software that is necessary to configure and manage the Cisco 6200. Cisco does not expect that users of the Cisco 6200 will need to refer to the Cisco IOS software documentation set. However, if you want more information about Cisco IOS commands, refer to the Cisco IOS software documentation set, which is described in this section.

The Cisco IOS software documentation is divided into nine modules and two master indexes. There are also four supporting documents.

Documentation Modules

Each module consists of two books: a configuration guide and a corresponding command reference. Chapters in a configuration guide describe protocols, configuration tasks, and Cisco IOS software functionality and contain comprehensive configuration examples. Chapters in a command reference provide complete command syntax information. Each configuration guide can be used in conjunction with its corresponding command reference.

Master Indexes

Two master indexes provide indexing information for the Cisco IOS software documentation set: an index for the configuration guides and an index for the command references. In addition, individual books contain a book-specific index.

Note The most up-to-date Cisco IOS documentation can be found on the latest Documentation on the Web (CCO) and CD-ROM. These electronic documents contain updates and modifications made after the paper documents were printed. See the “Online Navigation for Cisco IOS Software Documentation” section for more details.

The Cisco IOS documentation set consists of the following books and chapter topics:

Books	Chapter Topics
<ul style="list-style-type: none">• <i>Configuration Fundamentals Configuration Guide</i>• <i>Configuration Fundamentals Command Reference</i>	Configuration Fundamentals Overview Cisco IOS User Interfaces File Management Interface Configuration System Management
<ul style="list-style-type: none">• <i>Network Protocols Configuration Guide, Part 1</i>• <i>Network Protocols Command Reference, Part 1</i>	IP Addressing IP Services IP Routing Protocols
<ul style="list-style-type: none">• <i>Network Protocols Configuration Guide, Part 2</i>• <i>Network Protocols Command Reference, Part 2</i>	AppleTalk Novell IPX
<ul style="list-style-type: none">• <i>Network Protocols Configuration Guide, Part 3</i>• <i>Network Protocols Command Reference, Part 3</i>	Apollo Domain Banyan VINES DECnet ISO CLNS XNS
<ul style="list-style-type: none">• <i>Wide-Area Networking Configuration Guide</i>• <i>Wide-Area Networking Command Reference</i>	ATM Frame Relay SMDS X.25 and LAPB
<ul style="list-style-type: none">• <i>Security Configuration Guide</i>• <i>Security Command Reference</i>	AAA Security Services Security Server Protocols Traffic Filtering Network Data Encryption Passwords and Privileges Neighbor Router Authentication IP Security Options
<ul style="list-style-type: none">• <i>Dial Solutions Configuration Guide</i>• <i>Dial Solutions Command Reference</i>	Dial Business Solutions and Examples Dial-In Port Setup DDR and Dial Backup Remote Node and Terminal Service Cost-Control and Large-Scale Dial Solutions VPDN

Books	Chapter Topics
<ul style="list-style-type: none"> • <i>Cisco IOS Switching Services Configuration Guide</i> • <i>Cisco IOS Switching Services Command Reference</i> 	Switching Paths for IP Networks Fast Switching Autonomous Switching NetFlow Switching Optimum Switching Virtual LAN (VLAN) Switching and Routing Inter-Switch Link Protocol Encapsulation IEEE 802.10 Encapsulation LAN Emulation
<ul style="list-style-type: none"> • <i>Bridging and IBM Networking Configuration Guide</i> • <i>Bridging and IBM Networking Command Reference</i> 	Transparent Bridging Source-Route Bridging Remote Source-Route Bridging DLSw+ STUN and BSTUN LLC2 and SDLC IBM Network Media Translation DSPU and SNA Service Point SNA Frame Relay Access Support APPN NCIA Client/Server Topologies IBM Channel Attach
<ul style="list-style-type: none"> • <i>Cisco IOS Software Command Summary</i> • <i>Dial Solutions Quick Configuration Guide</i> • <i>System Error Messages</i> • <i>Debug Command Reference</i> 	

Note The *Cisco Management Information Base (MIB) User Quick Reference* publication is no longer being published. For the latest list of MIBs supported by Cisco, see the *Cisco Network Management Toolkit* on Cisco Connection Online (CCO). On CCO, go to **Software and Support: select Software Center**, and click *Network Management Products*. Next, select *Cisco Network Management Toolkit* and click *Cisco MIBs*.

Online Navigation for Cisco IOS Software Documentation

You can access the Cisco IOS software electronic documents either on the Cisco Documentation CD-ROM or at Cisco Connection Online (CCO) on the World Wide Web:

- On the Documentation CD-ROM, go to *Cisco Product Documentation*, select *Cisco IOS Software Configuration*, and then select *Cisco IOS Release 11.3*.
- On CCO, go to *Software & Support*, scroll down and select *Documentation*. Next, select *Documentation*, click *Cisco IOS Software Configuration*, and then click *Cisco IOS Release 11.3*.

The following are some of the Cisco IOS Release 11.3 documents:

- Configuration Guides, Command References
- Feature descriptions
- Product-Specific Release Notes
- Cisco IOS Software Caveats

For Product Bulletins on CCO, the path is as follows from *Cisco Connection Online*:

Products and Ordering: More Information: Product Bulletins. In the *Software* area, under *Cisco IOS 11.3*, click *Cisco IOS Software Release 11.3 Upgrade Paths*.

Online Navigation Enhancements

New online navigation enhancements for Release 11.3 include:

- Online hot-linked master indexes for configuration guide and command reference documentation sets.

On the Documentation CD-ROM or CCO, go to *Cisco IOS Release 11.3* and select **Cisco IOS Release 11.3 Configuration Guides: Command References**. Then select **Configuration Guide Master Index** or **Command Reference Master Index**. To access documentation related to an index entry, click on the page number following the entry.

- Online hot-linked list of features that are new since Release 11.2.

On CCO or the Documentation CD-ROM, go to **Cisco IOS Release 11.3** and select **Cisco IOS Release 11.3 Configuration Guides: Command References**. Next, select *Cisco IOS 11.3 New Features*.

To access configuration documentation for a feature, do one of the following:

- Click the page number following the feature name. This takes you to the location where the feature is documented.
- Using your browser's search function, search on one or more keywords from the feature name. This brings the feature documentation to your screen.

For additional information about the Documentation on CCO and CD-ROM, refer to the sections "Cisco Connection Online" and "Documentation CD-ROM" at the end of these release notes.

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.

Note 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.

For the latest information on caveats and known problems, follow these steps to consult CCO:

- Step 1** Connect to CCO as directed in the section above.
- Step 2** On the CCO home page, click LOGIN, which appears in green in the menu bar at the top of the page, and log into CCO. (If you are not a registered CCO user, follow the instructions to register so that you can log in.)
- Step 3** After you log in, click Software & Support on the CCO home page.
- Step 4** On the Software & Support page, click Technical Tools.
- Step 5** On the Technical Tools page, click Bug Toolkit II. (Bug Toolkit II is not visible on the Technical Tools page unless you log in to CCO as directed in Step 2.)
- Step 6** Use one of the tools to get up-to-date bug information. For example, click Search for Bug by ID Number, then enter a bug ID, such as CSCdk09616, when prompted. For instructions on using the bug tools, go to the bottom of the Bug Toolkit II page and click Help—How to Use the Bug Toolkit.

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 as 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>.

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

This document is to be used in conjunction with the *Cisco 6200 User Guide*.

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