



Release Notes for Cisco 8110 Broadband Network Termination Unit for Cisco Software Release 5.1c

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Introduction

The Cisco 8110 Broadband Network Termination Unit is a multiservice IP+ATM CPE device which enables service providers worldwide to cost effectively offer carrier class managed services to enterprise customers with high bandwidth needs and stringent service level agreements. The Cisco 8110 is optimized to enable a wide range of services including IP, ATM, Private Line, Voice and Video services over a single high-speed access link.

Determining the Software Version

There are two methods of determining the 8110 Software Version:

- From booting up the system while the 8110 is switched off.
- From the system menu while logged in to the 8110.

Determining the Software Version by booting up the System

In order to determine the Software Version, the system needs to be booted up. Following the boot up, the system will perform a series of self tests. The Software Version is displayed at the end of the tests just before the Login prompt as shown in *figure 1*.

Figure 1 Software Version 5.1c self test following boot up example

```
Self Test...
test serial passed
test PPI passed
test Timer passed..
.
.
.
..Warm Start Self Tests - OK
Version v5.1c
Login :
```

Determining the Software Version from the 8110 System Menu

To determine the Software Version of the 8110 Broadband Network Termination Unit, from the Configuration Menu type the **SHOW** command and press RETURN.

The **SHOW** command is used to display the global configuration information for this particular Cisco 8110 System as shown in Figure 1. The display includes: EPROM version, Operational software version, Cisco 8110 Address. At the prompt, type the command and press RETURN. The following screen is displayed:

Figure 2 Global Configuration Information

```
EPROM version   : 1.6 1998/02/19 13:53:33
Created on      : Tue Feb 24 07:34:23 IST 1998
Software version : v5.1c
Created on      : Sun Dec 3 13:47:58 IST 2000
XILINX QLAN version : Sun Mar 8 13:50:33 IST 1998
```

Kernel version : WIND version 2.4
OS version : 5.2
MAC Address : 00:20:70:06:03:62

Upgrading to a New Software Release

Software download procedure

This section assume you are familiar with the software release already installed, and download procedure in particular.

Upgrading from version 3.3g3

1. Verify that version 3.3g3 is loaded into Flash A, If not please download version 3.3g3 first.
2. type "op init" to initialize the configuration NVRAM.
3. Set the download configuration (file, server access)
4. Type the command " configuration boot from B" (Change boot parameter to run from Flash B)
5. Type "op load" which result in version 5.1c loaded into Flash A

Upgrading from version 4.1c

1. Download version 3.3g3.
2. type "op init" to initialize the configuration NVRAM.
3. Set the download configuration (file, server access)
4. Type the command " configuration boot from B" (Change boot parameter to run from Flash B)
5. Type "op load" which result in version 5.1c loaded into Flash A

Hardware Supported

Broadband Network Termination Units

Cisco Software Release Version 5.1c supports the following Broadband Network Termination Unit products:

- Cisco 8110 Broadband Network Termination Unit
- Fast Ethernet ports

Line Interface Modules (LIMs)

Table 1 Line Interface Modules (LIMs) and Power Supply sources supported by Cisco Software Release Version 5.1c

LIM Model	Revision
LIM-155MM	A0
LIM-155MM-SH	A0
LIM-155SM-I	A0
LIM-155SM-I-SH	A0
LIM-T3-BNC	A0
LIM-T3-BNC-SH	A0
LIM-E3-BNC	A0
LIM-E3-BNC-SH	A0
LIM-E3-1.6/5.6	A0
LIM-E3-1.6/5.6-SH	A0
LIM-E1T1	A0
LIM-E1T1-SH	A0
CSM-4E1T1	A0
8110-PS-110	A0
8110-PS-220	A0
8110-PS-DC	A0

Version 5.1c Feature List

Timing scheme including External Timing Source

The Cisco 8110 will automatically switch between clock sources when a loss is detected on a specific interface. Cisco 8110 can use timing sources recovered from any one of the LIMs, external or internal clock. This recovered timing signal is used to generate the transmission clock.

SLIP in non compressed mode

Serial Line Internet Protocol (SLIP). Cisco 8110 permits remote access over a modem using the SLIP.

IP Index fixed

PING

Cisco 8110 enables Packet InterNet Groper (PING), ICMP echo message and its reply to enable test reach ability of a network device.

Log and history files

FTP access to history files

1000 VCs, 128 of them with history and configuration Flash record.

Enable maintenance administration, can be used together with management application for Service Level Agreement Management (SLAM) and billing.

Script download support

Configuration upload (via FTP)

Script Function is used download or upload a script files using FTP protocol. Script files generated while uploading script are ASCII files that represent the command lines required setting the device to the state before uploading.

Software download

Software download via Ethernet or ATM interfaces, uses FTP or TFTP protocols.

PVC bridging

PVC Bridging allows packets to be switched among PVCs. This feature is intended to support star topology in which all Cisco 8110s share one PVC with a central Cisco 8110. It is the responsibility of this central Cisco 8110 to perform the PVC bridging and therefore the network requires fewer PVCs. This results in a simpler and more economical network.

SVC

Switched Virtual Connection - A dynamically signaled logical end-to-end connection between two end-points in a network, established as needed by the end-user device.

PSVC

Enables to create switched VCs and to maintain the connection open as long as it has not been closed by the user. From the user point of view it behaves as a permanent connection with auto recovery upon VC fault in the network.

Translation of VCs from port to port.

Allows to translate the ATM cell header (change VPI/VCI) when switching a cell from port to port

Two Network ports.

Two User ports support

APS

Cisco 8110 has three LIM slots, It is possible to set mode of operation to two Network ports (In this mode each connection is assigned its Network port), two User ports (in this mode all connection are assigned to a single network port). Cisco 8110 can also operate in Automatic Protection switching (APS) enabling high availability scheme.

APVCs.

The capability to configure in one user command up to 1000 consecutive Ethernet Bridged VCsEncapsulation with its associated VCs.

PCR and CDV computation for CSM connections

Enable the network manager to easily view the provisioned connection QoS parameters in order to properly configure CSM CBR feature.

HyPerView support

Cisco 8110 support Cisco 8100 EMS Management Software Application, a Client/Server architecture for Unix/NT platform. The Cisco 8100 EMS Features configuration, fault, performance and security management of the installed network devices. Based on HPOV, with Stand Alone and Web browser application.

SNMP Agent

Management through Ethernet

IP routing table for manager

Up to four management PVCs

Extended Trap support

Cisco 8110 can be used either as a fully remote management unit which uses in-band SNMP management through VCs, or a local out-band-management unit using a serial port. The manager can control the Cisco 8110, configure all the parameters, import usage parameters into billing application, read the status, performance and inventory information and perform preventive maintenance operations. Several password-protected levels of access are provided. Management can be established through Ethernet or ATM interfaces.

Enable override of already existing admin user.

Maintenance support

- LIM alarms, maintenance, Performance Monitoring and Facility states
- GFC non-zero indication
- SSM Handling
- Section and Path TIM handling for STM-1/OC-3
- ATM OA&M
- Defect location support
- Defect type support
- Loop back ID verification option
- PM and CC Activation and deactivation cells
- Automatic PM Block
- UPC
- External alarms support
- Battery Alarm
- History for Ethernet and AAL5.
- Redundancy Power supply support and maintenance.

Cisco 8110 supports maintenance intensively. All maintenance indications are available locally by means of a serial channel or directly to the remote management. It includes alarms, performance monitoring, facility states, defects, loop back and more. External alarms are also supported to ease maintenance.

LIM supported

- LIM OC-3/STM-1 MM and SM with and without Shaper option (supports APS)
- LIM E3 G.832/G.751 support with Shaper option
- LIM DS3 with Shaper option

- LIM E1/T1 with shaper support
- CSM CES DS1/E1 Support
 - DS1 CES in SF/ESF and UDT/SDT Modes
 - E1 CES with/without CRC/MF and UDT/SDT

Three LIM slots supported

- Slot 1 – always user port, all possible LIMs
- Slot 2 – always network port, all LIMs beside CSM possible. When in APS mode, only LIMs that support APS possible
- Slot 3 – In two user mode, all possible LIMs
- Slot 3 – In two Network port, all LIMs beside CSM possible.
- Slot 3 – In APS mode, only LIMs that support APS possible.

Shaping option

- Hierarchical shaping
- Shaper buffers fill level display
- Group Shaping
- Capability to configure threshold 0-100% to discard CLP1 in case shaping buffer is full.
- Default fixed priority for network is class 1. Default class for CSM connection is 0.

Cisco 8110 ATM LIMs has the option for Shaper. The shaper provides a mechanism for determining priorities between different classes of traffic. For example, class 0 can be defined to match CBR traffic and class 1 to VBR traffic. If the user defines class 0 with the highest priority, it will protect CBR traffic from unwanted discards due to bursty traffic on a LIM.

The 'group shaping' feature allows handling mixed types of traffic on the same VP. If for example the CES port is inactive all the bandwidth of the VP may be used for other, lower priority VCs.

When creating a virtual path, options may be used in combination with the required parameters for that path. Traffic shaping parameters define the negotiated traffic shape of a connection. The traffic shape refers to the load balancing of a network, i.e. configures the data flows to maximize the efficiency of the network. A Shaper can be assigned to egress or ingress path.

Version 5.1c Optional Features

1. Cisco 8110 LIC - FE - Transparent LAN License for Ethernet/Fast Ethernet for the Cisco 8110

The Ethernet interface is either used as an Ethernet to ATM uplink or as Ethernet access to Management. The Ethernet supports auto negotiation 10/100 baseTx standards. There is no forwarding between the ports. The Ethernet interfaces support the relay layer of the IEEE 802.1 MAC Layer Bridge. Ethernet packets are bridged over ATM using RFC 1483, LLC for Bridging encapsulation. The bridge learns MAC addresses and forwards the required MAC addresses. Using Traffic Shaping, Per-Class-Queuing and Performance Monitoring, each LAN interconnection is assigned with required QoS and the performance of each connection is constantly monitored and measured End-to-End. Early Packet Discard mechanism yield an excellent goodput on the Ethernet uplink VCs.

**Note**

Cisco 8110 LIC - FE - Transparent LAN License for Ethernet/Fast Ethernet for the Cisco 8110 can be ordered through Cisco.com

MIBs

The SNMP Cisco 8110 MIB is being provided with the delivery of Release 5.1c of the Cisco 8110 software on CCO. The MIB is in standard ASN.1 format and is located in the same directory within CCO. These files may be compiled with most standards-based MIB compilers. The following files are required:

Unchanged MIBs

- ATOMV1.MIB
- BRIDGE.MIB
- CES.MIB
- DS0.MIB
- DS0BUNDLE.MIB
- DSX1.MIB
- DSX3.MIB
- ETHER.MIB
- HYNEX-APS.MIB
- HYNEX-CES.MIB
- HYNEX-COMMON.MIB
- HYNEX-DSX1.MIB
- HYNEX-DSX3.MIB
- HYNEX-ETHER.MIB
- HYNEX-FEATURES.MIB
- HYNEX-LIM.MIB
- HYNEX-PRIVATE.MIB
- HYNEX-SHAPER.MIB
- HYNEX-SONET.MIB
- MIB2.MIB
- MIB2IFE.MIB
- MODULES.MIB
- SONNET.MIB

- SWC.MIB
- TIME.MIB

Limitations and Restrictions

- Traffic interruption while inserting or extracting LIM (Bug id: CSCds82824)

When inserting / extracting LIM, it causes short period traffic interruption for the non-related traffic.

- There is no workaround to this problem.

- Partial fill range limited to 33-47 (Bug id: CSCds74233),

Partial fill range for UDT mode, is 33-47, it should be 24-47.

- There is no workaround to this problem. It will be fixed in the next release.

- Activating CSM causes cell loss for ATM traffic (Bug id: CSCds72383)

Activating CSM causes (due to the self test) other non-related traffic to loss cells.

- There is no workaround to this problem.

Important Notes

Deployment of the 8110 system involves a configuration and installation process. Please refer to the User Manual (78-11666-01) for guidance. Updating software version from older version should be done according to the software download procedure. Updating not according to the procedure will result in unexpected behavior.

Obtaining Documentation

The following sections provide sources for obtaining documentation from Cisco Systems.

World Wide Web

You can access the most current Cisco documentation on the World Wide Web at the following sites:

- <http://www.cisco.com>
- <http://www-china.cisco.com>
- <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 and may be more current than printed documentation. The CD-ROM package is available as a single unit or as an annual subscription.

Ordering Documentation

Cisco documentation is available in the following ways:

- Registered Cisco Direct Customers can order Cisco Product documentation from the Networking Products MarketPlace:
http://www.cisco.com/cgi-bin/order/order_root.pl
- Registered Cisco.com users can order the Documentation CD-ROM through the online Subscription Store:
<http://www.cisco.com/go/subscription>
- Nonregistered Cisco.com users can order documentation through a local account representative by calling Cisco corporate headquarters (California, USA) at 408 526-7208 or, in North America, by calling 800 553-NETS(6387).

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

To submit your comments by mail, use the response card behind the front cover of your document, or write to the following address:

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

We appreciate your comments.

Obtaining Technical Assistance

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Cisco.com

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Customers and partners can self-register on [Cisco.com](http://www.cisco.com) to obtain additional personalized information and services. Registered users can order products, check on the status of an order, access technical support, and view benefits specific to their relationships with Cisco.

To access [Cisco.com](http://www.cisco.com), go to the following website:

<http://www.cisco.com>

Technical Assistance Center

The Cisco TAC website is available to all customers who need technical assistance with a Cisco product or technology that is under warranty or covered by a maintenance contract.

Contacting TAC by Using the Cisco TAC Website

If you have a priority level 3 (P3) or priority level 4 (P4) problem, contact TAC by going to the TAC website:

<http://www.cisco.com/tac>

P3 and P4 level problems are defined as follows:

- P3—Your network performance is degraded. Network functionality is noticeably impaired, but most business operations continue.
- P4—You need information or assistance on Cisco product capabilities, product installation, or basic product configuration.

In each of the above cases, use the Cisco TAC website to quickly find answers to your questions.

To register for Cisco.com, go to the following website:

<http://www.cisco.com/register/>

If you cannot resolve your technical issue by using the TAC online resources, Cisco.com registered users can open a case online by using the TAC Case Open tool at the following website:

<http://www.cisco.com/tac/caseopen>

Contacting TAC by Telephone

If you have a priority level 1 (P1) or priority level 2 (P2) problem, contact TAC by telephone and immediately open a case. To obtain a directory of toll-free numbers for your country, go to the following website:

<http://www.cisco.com/warp/public/687/Directory/DirTAC.shtml>

P1 and P2 level problems are defined as follows:

- P1—Your production network is down, causing a critical impact to business operations if service is not restored quickly. No workaround is available.
- P2—Your production network is severely degraded, affecting significant aspects of your business operations. No workaround is available.

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