



1-Port ADSL WAN Interface Card for Cisco 2600 Series and Cisco 3600 Series Routers

Feature History

Release	Modification
12.1(3)XJ	This feature was introduced on Cisco 1700 series routers.
12.1(5)YB	This feature was introduced on Cisco 2600 series and Cisco 3600 series routers.
12.2(2)T	This feature was integrated into Cisco IOS Release 12.2(2)T on Cisco 1700 series routers.
12.2(4)T	Support for this feature was integrated into Cisco IOS Release 12.2(4)T on Cisco 2600 series and Cisco 3600 series routers.

This document describes the 1-port Asymmetric Digital Subscriber Line (ADSL) WAN Interface Card (WIC) (WIC-1ADSL) feature for Cisco 2600 series and Cisco 3600 series routers in Cisco IOS Release 12.2(4)T. It describes the benefits of the new feature, supported platforms, configuration, related documents, and provides command reference information.

This document includes the following sections:

- [Feature Overview, page 2](#)
- [Supported Platforms, page 4](#)
- [Supported Standards, MIBs, and RFCs, page 4](#)
- [Prerequisites, page 4](#)
- [Configuration Tasks, page 5](#)
- [Configuration Examples, page 7](#)
- [Command Reference, page 12](#)
- [Glossary, page 21](#)

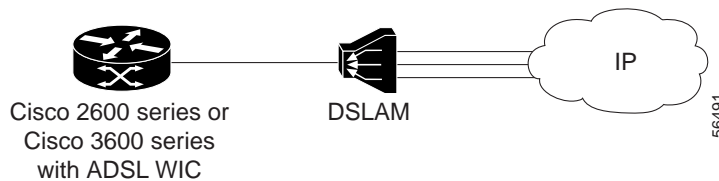
Feature Overview

The ADSL WAN interface card is a 1-port WAN interface card (WIC) for the Cisco 2600 series and Cisco 3600 series routers. The card provides asymmetric digital subscriber line (ADSL) high-speed digital data transfer between a single customer premises equipment (CPE) subscriber and the central office.

The ADSL WIC is compatible with the Alcatel Digital Subscriber Loop Access Multiplexer (DSLAM) and the Cisco 6130, Cisco 6160, and Cisco 6260 DSLAMs with Flexi-line cards. It supports Asynchronous Transfer Mode (ATM) Adaptation Layer 2 (AAL2) and AAL5 for the Cisco 2600 series and Cisco 3600 series platforms for both voice and data service.

The general topology is shown in [Figure 1](#).

Figure 1 General Topology for ADSL WIC



Note

ADSL is a last-mile access technology, which has an asymmetrical data rate running over a single copper wire pair.

Benefits

- Enables business class broadband service with voice integration, scalable performance, flexibility, and security.
- Aggregates both ADSL and other transport options into a single box.
- Provides both POTS and ADSL high-speed digital data transmissions between the customer premises equipment (CPE) and the central office (CO).
- Supports ITU G.992.1 (or G.DMT, which specifies full-rate ADSL).
- Supports and complies with ANSI T1.413 issue 2, and ITU G.992.1 (G.DMT for full-rate ADSL).
- Supports ATM AAL2 and AAL5 services on the Cisco 2600 series and Cisco 3600 series platforms.
- Supports applications (including VoATM voice), ATM class of service (variable bit rate-nonreal time [VBR-NRT], variable bit rate-real time [VBR-rt], and unspecified bit rate [UBR]) and up to 23 virtual circuits on a WIC.
- Provides ATM traffic management to enable service providers to manage their core ATM network infrastructures.

Restrictions

- The ADSL WAN interface card does not support dual latency. When the ADSL link is intended to support both voice and data traffic simultaneously, the link should be configured for either all fast-path data or all interleave data with an interleave depth of zero to insure that latency is minimized. In addition, the total supported data rate must be reduced to adjust for the reduced coding gain, which is usually present with high-latency traffic.
- The ADSL WAN interface card does not support available bit rate (ABR) class of service (CoS).
- For the Cisco 2600 series routers, the ADSL WAN interface card should be inserted only into on-board WIC slots or 2W network modules. This card does not function properly in older network modules.
- For the Cisco 3600 series routers, the ADSL WAN interface card should be inserted only into on-board WIC slots or 2W, 1FE2W, 2FE2W, or 1FE1R2W network modules. This card does not function properly in older network modules.
- When using AAL2, analog voice is not supported. Voice calls should come through a digital voice card, such as the NM-HDV.
- VoATM is supported in both AAL2 and AAL5 modes on the Cisco 2600 series and Cisco 3600 series.
- VoATM AAL2 and AAL5 are supported only if voice and data use separate permanent virtual circuits (PVCs).
- VoATM AAL2 supports digital voice (T1/E1) only, while VoATM AAL5 supports both analog and digital voice.
- VoIP is not supported unless the ADSL WIC carries only voice traffic (with no data). The QoS features necessary for VoIP and data sharing the same PVC, or different PVCs on the same interface, are not supported yet. These features include LLQ, LFI, and tx-ring tuning.

Related Documents

For more information about voice configuration, see the following Cisco IOS Release 12.2 guides:

- *Cisco IOS Voice, Video, and Fax Configuration Guide*, Release 12.2
- *Cisco IOS Voice, Video, and Fax Command Reference*, Release 12.2

The following configuration guides describe the configuration of IP and ATM:

- For more information about configuring IP, see the *Cisco IOS IP Configuration Guide*, Release 12.2.
- For more information about configuring ATM, see “Configuring ATM” in the *Wide-Area Networking Configuration Guide*, Release 12.2.

The following online feature documentation and installation guides describe the configuration and installation of hardware components:

- For information about installing Cisco 2600 series hardware, see the documents listed at the following URL:

http://www.cisco.com/univercd/cc/td/doc/product/access/acs_mod/cis2600/index.htm

- For information about installing Cisco 3600 series hardware, see the documents listed at the following URL:

http://www.cisco.com/univercd/cc/td/doc/product/access/acs_mod/cis3600/index.htm

Supported Platforms

This feature is supported on the following platforms:

- Cisco 2600 series
- Cisco 3600 series

Determining Platform Support Through Feature Navigator

Cisco IOS software is packaged in feature sets that support specific platforms. To get updated information regarding platform support for this feature, access Feature Navigator. Feature Navigator dynamically updates the list of supported platforms as new platform support is added for the feature.

Feature Navigator is a web-based tool that enables you to quickly determine which Cisco IOS software images support a specific set of features and which features are supported in a specific Cisco IOS image.

To access Feature Navigator, you must have an account on Cisco.com. If you have forgotten or lost your account information, send a blank e-mail to cco-locksmith@cisco.com. An automatic check will verify that your e-mail address is registered with Cisco.com. If the check is successful, account details with a new random password will be e-mailed to you. Qualified users can establish an account on Cisco.com by following the directions at <http://www.cisco.com/register>.

Feature Navigator is updated regularly when major Cisco IOS software releases and technology releases occur. For the most current information, go to the Feature Navigator home page at the following URL:

<http://www.cisco.com/go/fn>

Supported Standards, MIBs, and RFCs

Standards

- Supports ITU-T G.991.2 (SHDSL).
- Supports ADSL features ANSI T1.413 issue 2.
- Supports ITU 992.1 (G.DMT).

MIBs

- No new or modified MIBs are supported by this feature.

To obtain lists of supported MIBs by platform and Cisco IOS release, and to download MIB modules, go to the Cisco MIB website on Cisco.com at the following URL:

<http://www.cisco.com/public/sw-center/netmgmt/cmtk/mibs.shtml>

RFCs

- No new or modified RFCs are supported by this feature.

Prerequisites

A 1-Port ADSL WIC must be installed in the router to match the DSL service to be configured.

Configuration Tasks

See the following sections for configuration tasks for this feature. Each task in the list is identified as either required or optional:


- [Configuring the ADSL Port on the ADSL WAN Interface Card](#) (required)
- [Verifying ATM Configuration](#) (optional)

Features used on the ADSL WAN interface card must also be configured on the DSLAM. See the documentation for the specific DSLAM for information about configuring features.

Configuring the ADSL Port on the ADSL WAN Interface Card

To configure an ADSL port on the ADSL WAN interface card, complete the following steps:

Command	Purpose
Step 1 Router> configure terminal	Enters global configuration mode.
Step 2 Router(config)# interface atm slot/port	Enters ATM configuration mode for the ATM interface in the specified slot and port.
Step 3 Router(config-if)# ip address IP-address	Assigns an IP address to the ADSL ATM interface.
Step 4 Router(config-if)# pvc [name] vpi/vci	Enters atm-virtual-circuit (interface-atm-vc) configuration mode, and configures a new ATM PVC by assigning a name (optional) and virtual path identifier (VPI)/virtual channel identifier (VCI) numbers. The default traffic shaping is UBR; the default encapsulation is AAL5+LLC/SNAP.
Step 5 Router(config-if-vc)# protocol ip IP-address	(Optional) Enables IP connectivity and create a point-to-point IP address for the virtual circuit (VC).
Step 6 Router(config-if-vc)# vbr-rt peak-rate average-rate burst	(Optional) Configures the PVC for real-time variable bit rate (VBR) traffic shaping. <ul style="list-style-type: none"> • <i>Peak rate</i>—Peak information rate (PIR) • <i>Average rate</i>—Average information rate (AIR) • <i>Burst</i>—Burst size in cells
Step 7 Router(config-if-vc)# encapsulation {aal2 aal5ciscoPPP aal5mux aal5nlpid aal5snap}	(Optional) Configures the ATM adaptation layer (AAL) and encapsulation type. <ul style="list-style-type: none"> • <i>aal2</i>—AAL2 • <i>aal5ciscoPPP</i>—Cisco PPP over AAL5 • <i>aal5mux</i>—AAL5+MUX • <i>aal5nlpid</i>—AAL5+NLPID • <i>aal5snap</i>—AAL5+LLC/SNAP (the default)
Step 8 Router(config-if-vc)# exit	Exits from interface-atm-vc configuration mode.

Command	Purpose
Step 9 Router(config-if)# dsl operating-mode {ansi-dmt auto itu-dmt splitterless}	Configures the ADSL interface to operate in a specified mode: <ul style="list-style-type: none"> • <i>ansi-dmt</i>—ANSI full rate mode per T1.413 (ITU G.DMT Issue 1) • <i>auto</i>—Automatic detection mode • <i>itu-dmt</i>—ITU full rate mode (ITU G.DMT Issue 1) • <i>splitterless</i>—G.lite mode per ITU G.992.2 <div style="border: 1px solid black; padding: 5px; margin-top: 10px;">  <p>Caution This command is for testing or lab environments only. Using a configuration other than the default configuration for the DSL operating mode can lead to unpredictable behavior on the ADSL line.</p> </div>
Step 10 Router(config-if)# no shutdown	Activates the ATM interface.
Step 11 Router(config-if)# exit	Exits from ATM interface configuration mode.
Step 12 Router(config-if)# exit	Exits from ATM interface configuration mode.
Step 13 Router(config)# exit	Exits from global configuration mode.
Step 14 Router# show interface atm 1/0	Verifies the ATM interface configuration.

Verifying ATM Configuration

Use the following commands to verify configuration:

- To verify current configuration and to view the status for all controllers, use the **show running-config** command.
- To view ATM controller statistics, use the **show controllers atm slot/port** command.
- To verify the PVC status, use the **show atm vc** command. Make sure that active PVCs are up.
- To help identify ATM related events as they are generated, use the **debug atm events** command.
- To indicate what interfaces are having trouble, use the **debug atm errors** command.
- To identify an entry for the ATM interface you configured and to show an entry for the ATM slot/port you configured, use the **show ip route** command.
- To display the configured list of ATM static maps to remote hosts on an ATM network, use the **show atm map** command.
- To view the status of ATM interface, use the **show interface atm slot/port** command. Make sure that ATM slot/port and line protocol is up, as shown in the following example:

```
Router# show interface atm1/0
ATM1/0 is up, line protocol is up
  Hardware is DSL/SAR (with Alcatel ADSL Module)
  MTU 4470 bytes, sub MTU 4470, BW 800 Kbit, DLY 2560 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ATM, loopback not set
  Keepalive not supported
  Encapsulation(s):AAL5 AAL2, PVC mode
  24 maximum active VCs, 256 VCs per VP, 2 current VCCs
  VC idle disconnect time:300 seconds
```

```

Last input never, output 00:00:01, output hang never
Last clearing of "show interface" counters 03:16:00
Queueing strategy:fifo
Output queue 0/40, 0 drops; input queue 0/75, 0 drops
30 second input rate 0 bits/sec, 0 packets/sec
30 second output rate 0 bits/sec, 0 packets/sec
2527 packets input, 57116 bytes, 0 no buffer
Received 0 broadcasts, 0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
10798 packets output, 892801 bytes, 0 underruns
0 output errors, 0 collisions, 0 interface resets
0 output buffer failures, 0 output buffers swapped out

```

```

Router# show atm vc
          VCD /
Interface Name      VPI  VCI  Type  Encaps  SC   Peak  Avg/Min  Burst  Sts
          /         /
1/0.3     2          9   36   PVC   MUX     UBR    800             UP
1/0.2     1          9   37   PVC   SNAP    UBR    800             UP

```

```

Router# show controllers atm 1/0
Interface ATM1/0 is up
  Hardware is DSLSAR (with Alcatel ADSL Module)
IDB:      62586758 Instance:6258E054 reg_dslsar:3C810000 wic_regs:3C810080
PHY Inst:62588490 Ser0Inst:62573074 Ser1Inst: 6257CBD8 us_bwidth:800
Slot:     1      Unit:     1      Subunit:  0      pkt Size:4496
VCperVP:256   max_vp:  256   max_vc:   65536   total vc:2
rct_size:65536 vpicbit:16   connTblVCI:8   vpi_bits:8
vpvc_sel:3    enabled:  0    throttled:0

```

```

WIC      Register  Value      Notes
-----
FPGA Dev ID (LB) 0x44      'D'
FPGA Dev ID (UB) 0x53      'S'
FPGA Revision    0x99
WIC Config Reg   0x45      WIC / VIC select = WIC;
                                   CTRLR addr bit 8 = 1;
                                   OK LED on;
                                   LOOPBACK LED off;
                                   CD LED on;
WIC Config Reg2  0x07      Gen bus error on bad ADSL access
Int 0 Enable Reg 0x03      ADSL normal interrupt enabled
                                   ADSL error interrupt enabled

```

Configuration Examples

This section provides the following configuration examples:

- [VoATM over AAL2 on the ATM Interface Example](#)
- [VoATM over AAL5 on the ATM Interface Example](#)

VoATM over AAL2 on the ATM Interface Example

The following example shows a Cisco 2600 series router configured for VoATM over AAL2 on the ATM interface with an ADSL card:

```

Router#
version 12.2
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname host1
!
memory-size iomem 10
voice-card 1
!
ip subnet-zero
ip host host2 225.255.255.224
!
no mgcp timer receive-rtcp
call rsvp-sync
!
!
controller T1 1/0
  framing esf
  linecode b8zs
  ds0-group 0 timeslots 1 type e&m-wink-start
  ds0-group 1 timeslots 2 type e&m-wink-start
  .
  .
  .
ds0-group 23 timeslots 24 type e&m-wink-start
!
controller T1 1/1
  framing esf
  linecode b8zs
!
interface Ethernet0/0
  ip address 1.6.46.119 255.255.255.224
  half-duplex
  no cdp enable
!
interface Serial0/0
  no ip address
  shutdown
!
interface ATM0/1
  ip address 10.1.1.1 255.0.0.0
  load-interval 30
  atm vc-per-vp 256
  no atm ilmi-keepalive
  pvc 10/100
    vbr-rt 672 672 512
    encapsulation aal2
  !
  pvc 10/200
    protocol ip 10.1.1.2 broadcast
    encapsulation aal5snap
  !
  dsl operating-mode ansi-dmt
  no fair-queue
!
interface Ethernet0/1

```

```
no ip address
shutdown
!
ip classless
ip route 223.255.254.254 255.255.255.224 Ethernet0/0
no ip http server
!
!
snmp-server engineID local 000000090200003080477F20
snmp-server manager
!
voice-port 1/0:0
local-alerting
timeouts wait-release 3
connection trunk 3001
!
voice-port 1/0:1
local-alerting
timeouts wait-release 3
connection trunk 3002
.
.
.
voice-port 1/0:23
local-alerting
timeouts wait-release 3
connection trunk 3024
shutdown
!
dial-peer cor custom
!
dial-peer voice 3001 voatm
destination-pattern 3001
called-number 4001
session protocol aal2-trunk
session target ATM0/1 pvc 10/100 31
codec aal2-profile ITUT 1 g711ulaw
no vad
!
dial-peer voice 3002 voatm
destination-pattern 3002
called-number 4002
session protocol aal2-trunk
session target ATM0/1 pvc 10/100 32
codec aal2-profile custom 100 g726r32
no vad
!
dial-peer voice 3003 voatm
destination-pattern 3003
called-number 4003
session protocol aal2-trunk
session target ATM0/1 pvc 10/100 33
codec aal2-profile ITUT 7 g729abr8
no vad
.
.
.
dial-peer voice 3024 voatm
destination-pattern 3024
called-number 3024
session protocol aal2-trunk
session target ATM0/1 pvc 10/100 54
codec aal2-profile ITUT 7 g729abr8
no vad
```

```

!
dial-peer voice 1 pots
 destination-pattern 4001
 port 1/0:0
!
dial-peer voice 2 pots
 destination-pattern 4002
 port 1/0:1
.
.
.
dial-peer voice 24 pots
 destination-pattern 4024
 port 1/0:23
!
line con 0
 exec-timeout 0 0
 transport input none
line aux 0
line vty 0 4
 login
!
no scheduler allocate
end

```

VoATM over AAL5 on the ATM Interface Example

The following example shows a Cisco 2600 series router configured for VoATM over AAL5 on the ATM interface with an ADSL card.

```

Router#
version 12.2
no service single-slot-reload-enable
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname u2621
!
no logging buffered
no logging buffered
logging rate-limit console 10 except errors
!
memory-size iomem 15
voice-card 1
!
ip subnet-zero
!
no ip finger
no ip domain-lookup
!
no mgcp timer receive-rtcp
call rsvp-sync
!
controller T1 1/0
 framing esf
 linecode b8zs
 ds0-group 0 timeslots 1-24 type e&m-wink-start
!
controller T1 1/1
!
!

```

```
interface ATM0/0
 ip address 12.0.0.1 255.255.255.224
 load-interval 30
 atm vc-per-vp 256
 no atm ilmi-keepalive
 dsl operating-mode auto
 no fair-queue
!
!
interface FastEthernet0/0
 ip address 1.7.73.1 255.255.255.224
 duplex auto
 speed auto
!
!
interface FastEthernet0/1
 ip address 192.168.2.1 255.255.255.224
 load-interval 30
 duplex auto
 speed auto
!
ip classless
ip route 223.255.254.0 255.255.255.224 FastEthernet0/0
no ip http server
!
!
snmp-server engineID local 0000000902000002163DB260
snmp-server packetsize 4096
snmp-server manager
!
voice-port 1/0:0
!
dial-peer cor custom
!
!
dial-peer voice 5 pots
 destination-pattern 777...
 port 1/0:0
 prefix 777
!
!
dial-peer voice 100 voatm
 destination-pattern 888...
 session target atm0/0 pvc 0/72
!
!
line con 0
 exec-timeout 0 0
 transport input none
line aux 0
line vty 0 4
 login
!
end
```

Command Reference

This section documents modified commands for configuring the ADSL WAN Interface Card feature. All other commands used to configure the ADSL WAN Interface Card feature are documented in the Cisco IOS Release 12.2 command reference publications.

- [dsl operating-mode \(ADSL\)](#)
- [show diag](#)
- [show dsl interface atm](#)

dsl operating-mode (ADSL)



Caution

This command is for testing or lab environments only. Using a configuration other than the default configuration for the DSL operating mode can lead to unpredictable behavior on the ADSL line.

To modify the operating mode of the digital subscriber line for an ATM interface, use the **dsl operating-mode** command in interface mode. To disable, use the **no** form of the **dsl operating-mode** command.

```
dsl operating-mode { auto | ansi-dmt | itu-dmt | splitterless }
```

```
no dsl operating-mode { auto | ansi-dmt | itu-dmt | splitterless }
```

Syntax Description	Command Elements	Description
	auto	Configures the ADSL line after auto-negotiating with the DSLAM located at the central office.
	ansi-dmt	Configures the ADSL line to train in the ANSI T1.413 Issue 2 mode.
	itu-dmt	Configures the ADSL line to train in the G.992.1 mode.
	splitterless	Configures the ADSL line to train in the G.lite mode.

Defaults

The default operating mode is **auto**.

Command Modes

Interface

Command History

Release	Modification
12.1(3)XJ	The command dsl operating-mode was introduced on the Cisco 1700 series routers.
12.1(5)YB	This command was integrated on the Cisco 2600 series and Cisco 3600 series routers.
12.2(4)T	This command was integrated into Cisco IOS Release 12.2(4)T.

Usage Guidelines

This configuration command applies to a specific ATM interface. The interface to which it applies must be specified before using the command.

This command is only supported when the 1-Port ADSL WAN Interface Card is installed.

■ dsl operating-mode (ADSL)

Examples

```

Router# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)# interface atm 0/0
Router(config-if)# dsl operating-mode auto
Router(config-if)# end
Router#

```

Related Commands

Command	Description
show diag	Specifies detailed diagnostic options for displaying the memory on an ADSL-WIC and the ADSL line training log.
show dsl interface atm	Shows all of the ADSL-specific information for a specified ATM interface.

show diag

To specify detailed diagnostic options for displaying the memory on an ADSL-WIC and the ADSL line training log, use the **show diag** command in EXEC mode.

show diag *wic-slot-num* {*mem start_address end_address* | *log*}

Syntax Description	Command Elements	Description
	<i>wic-slot-num</i>	WIC slot number 0 or 1.
	<i>mem start_address end_address</i>	Displays the contents of ADSL-WIC memory.
	<i>log</i>	Displays the ADSL line training log.

Command Modes EXEC

Command History	Release	Modification
	12.1(3)XJ	The <i>wic-slot-num</i> argument was added on Cisco 1700 series routers, for use with ADSL.
	12.1(5)YB	This command was modified on the Cisco 2600 series and Cisco 3600 series routers.
	12.2(4)T	This command was integrated into Cisco IOS Release 12.2(4)T.

The following examples show the use of the **show diag** *wic-slot-num* command on Cisco 1700 series routers.

```
Router# show diag wic-slot-num
Slot 0:
C2621 2FE Mainboard Port adapter, 4 ports
Port adapter is analyzed
Port adapter insertion time unknown
EEPROM contents at hardware discovery:
Hardware Revision      :1.2
PCB Serial Number     :JAB041709PU (3653006624)
Part Number           :73-3200-07
RMA History            :00
RMA Number            :0-0-0-0
Board Revision        :B0
Deviation Number      :0-22418
EEPROM format version 4
EEPROM contents (hex):
 0x00:04 FF 40 00 A2 41 01 02 C1 18 4A 41 42 30 34 31
 0x10:37 30 39 50 55 20 28 33 36 35 33 30 30 36 36 32
 0x20:34 29 82 49 0C 80 07 04 00 81 00 00 00 00 42 42
 0x30:30 80 00 00 57 92 FF FF FF FF FF FF FF FF FF FF
 0x40:FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
 0x50:FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
 0x60:FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
 0x70:FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF

WIC Slot 0:
DSL SAR (ADSL)
```

show diag

```

Hardware Revision      :1.0
Part Number           :73-4771-05
Board Revision        :A0
Deviation Number      :0-0
Fab Version           :02
PCB Serial Number     :JAB0437
IDPROM FIELD FORMAT  ERROR, index 0x22
EEPROM format version 4
EEPROM contents (hex):
 0x00:04 FF 40 00 2E 41 01 00 82 49 12 A3 05 42 41 30
 0x10:80 00 00 00 00 02 02 C1 8B 4A 41 42 30 34 33 37
 0x20:00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
 0x30:00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
 0x40:00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
 0x50:00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
 0x60:00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
 0x70:00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

```

```

WIC Slot 1:
DSL SAR (ADSL)

```

```

Hardware Revision      :1.0
Part Number           :73-4771-05
Board Revision        :A0
Deviation Number      :0-0
Fab Version           :02
PCB Serial Number     :JAB0437
IDPROM FIELD FORMAT  ERROR, index 0x22
EEPROM format version 4
EEPROM contents (hex):
 0x00:04 FF 40 00 2E 41 01 00 82 49 12 A3 05 42 41 30
 0x10:80 00 00 00 00 02 02 C1 8B 4A 41 42 30 34 33 37
 0x20:00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
 0x30:00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
 0x40:00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
 0x50:00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
 0x60:00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
 0x70:00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

```

Slot 1:

```

High Density Voice Port adapter
Port adapter is analyzed
Port adapter insertion time unknown
EEPROM contents at hardware discovery:
Hardware Revision      :1.0
Top Assy. Part Number  :800-03567-01
Board Revision        :A0
Deviation Number      :0-0
Fab Version           :02
PCB Serial Number     :JAB033500T5
RMA Test History      :00
RMA Number            :0-0-0-0
RMA History           :00
EEPROM format version 4
EEPROM contents (hex):
 0x00:04 FF 40 00 CC 41 01 00 C0 46 03 20 00 0D EF 01
 0x10:42 41 30 80 00 00 00 02 02 C1 8B 4A 41 42 30
 0x20:33 33 35 30 30 54 35 03 00 81 00 00 00 04 00
 0x30:FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
 0x40:FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
 0x50:FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
 0x60:FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
 0x70:FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF

```

```

VIC Slot 0:
T1 (2 Port) Multi-Flex Trunk (Drop&Insert) WAN Daughter Card
Hardware revision 1.0          Board revision B0
Serial number 17216762        Part number 800-04614-01
Test history 0x0              RMA number 00-00-00
Connector type PCI
EEPROM format version 1
EEPROM contents (hex):
0x20:01 24 01 00 01 06 B4 FA 50 12 06 01 00 00 00 00
0x30:58 00 00 00 99 11 15 00 FF FF FF FF FF FF FF FF

HDV firmware:Compiled Wed 04-Oct-00 19:39 by mani
HDV memory size 524280 heap free 211849

```

Field	Description
Hardware Revision	Hardware revision number
PCB Serial Number	Serial number of printed circuit board
Part Number	Part number of the router
RMA History	Return Materials Authorization history
RMA Number	Return Materials Authorization number
Board Revision	Revision number of the board
Deviation Number	Deviation number of the board

Related Commands

Command	Description
dsl operating-mode (ADSL)	Modify the operating mode of the digital subscriber line for an ATM interface.
show dsl interface atm	Show all of the ADSL-specific information for a specified ATM interface.

show dsl interface atm

To show the ADSL-specific information for a specified ATM interface, use the **show dsl interface atm** command in EXEC mode.

show dsl interface atm *slot/port*

Syntax Description	Command Elements	Description
	<i>slot/port</i>	Chooses the slot and port number to be connected.

Defaults None

Command Modes EXEC

Command History	Release	Modification
	12.1(3)XJ	The command show dsl interface atm was introduced on the Cisco 1700 series routers.
	12.1(5)YB	This command was integrated into the Cisco 2600 series and Cisco 3600 series routers.
	12.2(4)T	This command was integrated into Cisco IOS Release 12.2(4)T.

Usage Guidelines The output from this command appears the same as the output from the command **show controller atm 0 | b chipset** on the Cisco 1400 series routers.

Examples This command shows all the ADSL specific information for the ATM interface requested.

```
Router# show dsl interface atm0/1
Alcatel 20150 chipset information
                ATU-R (DS)                        ATU-C (US)
Modem Status:   Showtime (DMTDSL_SHOWTIME)
DSL Mode:       ITU G.992.1 (G.DMT)
ITU STD NUM:    0x01                               0x1
Vendor ID:      'ALCB'                             'ALCB'
Vendor Specific: 0x0000                             0x0000
Vendor Country: 0x00                                0x0F
Capacity Used:  85%                                 98%
Noise Margin:   13.5 dB                             7.0 dB
Output Power:   9.5 dBm                             12.0 dBm
Attenuation:    1.5 dB                              3.5 dB
Defect Status:  None                                None
Last Fail Code: None
Selftest Result: 0x00
Subfunction:    0x15
Interrupts:     5940 (0 spurious)
PHY Access Err: 0
Activations:    1
```

SW Version: 3.670
 FW Version: 0x1A04

	Interleave	Fast	Interleave	Fast
Speed (kbps):	0	8128	0	864
Reed-Solomon EC:	0	0	0	0
CRC Errors:	0	0	0	7
Header Errors:	0	0	0	2
Bit Errors:	0	0		
BER Valid sec:	0	0		
BER Invalid sec:	0	0		

DMT Bits Per Bin
 00: 0 0 0 0 0 0 0 7 6 7 9 A B C C C
 10: C C C C C C B B B B A 9 A 9 0 0
 20: 0 0 0 0 0 0 2 2 3 4 4 5 6 6 7 7
 30: 7 8 8 8 9 9 9 A A A A A B B B
 40: B B B B B B B B B B A B B B
 50: B B B B B B B B B B 2 B B B
 60: B B B B B B B B B B B B B B
 70: B B B B B B B B B B B B B B
 80: B B B B B B B B B B B B B B
 90: B B B B B B B B B B B B B B
 A0: B B B B B B B B B B B B B B
 B0: B B B B B B B B B B A B A A
 C0: A A A A A A A A A A A A A A
 D0: A A A A A A A A A A 9 9 9 9
 E0: 9 9 9 9 9 9 9 9 9 9 8 8 8 8
 F0: 8 8 8 8 8 7 7 7 6 6 5 5 4 4

Field	Description
Modem Status	Status of the modem
DSL Mode	StandardDSL
ITU STD NUM	Standard number for the ITU.
Vendor ID	Vendor identification code
Vendor Specific	Indicates if this router is specified for a vendor.
Vendor Country	Code for the country where the vendor is located.
Capacity Used	Percentage of the capacity
Noise Margin	Noise margin in decibels
Output Power	Power output in decibels
Attenuation	Attenuation of the signal in decibels
Defect Status	Status of defects
Last Fail Code	Last failure code that was logged
Selftest Result	Results of the self test
Subfunction	Code for the subfunction running
Interrupts	Code for interrupts used
PHY Access Err	Number of physical access errors.
Activations	Number of activations of the router.

```
show dsl interface atm
```

Field	Description
SW Version	Software version number
FW Version	Firmware version number

Related Commands

Command	Description
show diag	Specifies detailed diagnostic options for displaying the memory on an ADSL-WIC and the ADSL line training log.

Glossary

ABR—available bit rate.

ADSL—asymmetric digital subscriber line (ADSL) available through several telecommunications carriers to accommodate the need for increased bandwidth for Internet access and telecommuting applications.

ATM—Asynchronous Transfer Mode. International standard for cell relay in which multiple service types (such as voice, video, or data) are conveyed in fixed-length (53-byte) cells. Fixed-length cells allow cell processing to occur in hardware, thereby reducing transit delays. ATM is designed to take advantage of high-speed transmission media such as E3, SONET, and T3.

CLI—command line interface.

CO—central office, or local exchange (local switch), which terminates individual local telephone subscriber lines for switching, and connects to the public network. Known as a class 5 switch office. For example, 5ESS by Lucent and DMS 100 by Nortel.

CPE—customer premise equipment, including devices such as channel service units (CSUs)/data service units (DSUs), modems, and ISDN terminal adapters, required to provide an electromagnetic termination for wide-area network circuits before connecting to the router or access server. This equipment was historically provided by the telephone company, but is now typically provided by the customer in North American markets.

DSL—digital subscriber line available through several telecommunications carriers to accommodate the need for increased bandwidth for Internet access and telecommuting applications.

FXO—foreign exchange office. A FXO interface connects to a central office.

FXS—foreign exchange station: A FXS interface connects directly to a standard telephone, supplying ring voltage, dial tone, etc.

G.SHDSL—multirate symmetrical high-speed digital subscriber line.

PVC—permanent virtual circuit.

