DSL Modem/Router Interface Pinouts and Status LED Descriptions

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Introduction

This document describes the port pinouts and LED statuses for specific Cisco digital subscriber line (DSL) devices.

Note: The terms "port pinouts" and "connector pinouts" are used interchangeably. In this document, pinouts are named "port pinouts."

If you experience problems with the DSL connection on these devices, verify these :

- The DSL cable between the Network Interface Device (NID)/wall jack/splitter and the Cisco DSL customer premises equipment (CPE) modem/router is the correct type.
- The correct NID is being used. If the NID is installed by a Telco, the Telco must verify its functionality.
- DSL Status LEDs show proper operation.

Note: Not all DSL CPE modem/router products use the same DSL interface port pinouts.

Prerequisites

Requirements

There are no specific requirements for this document.

Components Used

This document is not restricted to specific software and hardware versions.

Conventions

For more information on document conventions, refer to the Cisco Technical Tips Conventions.

Cisco 605

The Asymmetric Digital Subscriber Line (ADSL) port uses an RJ−11 connector.

ADSL Port Pinouts

Pin	Signal
3	Ring
4	Tip

Rear Panel LEDs

LED	Function	Description
LNK	ADSL Link	On when a link is established on the ADSL port. Blinks when a connection is established.
ACT	ADSL Activity	On when the ADSL port transmits or receives data.

Cisco 626

The ADSL port on a Cisco 626 uses an RJ−11 connector. It is labeled "WALL" on the rear panel.

ADSL Port Pinouts

Pin	Signal
3	Ring
4	Tip

Note: Pins 1, 2, 5, and 6 are not used.

WAN LNK LED

If the WAN LNK light does not turn on when you power up the modem:

1. Wait approximately fifteen seconds.
2. If the light does not turn on, check all cabling and connections.
3. If the light still does not turn on, turn off the power and then turn it on again.
4. If the LED is not on, call your service representative.

If the PWR/ALARM light appears red:

1. Turn off the power and then turn it on again.
2. If the LED still appears red, call your service representative.

Note: In certain circumstances in which the Cisco 626 operates correctly, the WAN LNK light appears off when the PWR/ALARM light is on. For example, this condition occurs when there is no data traffic across the WAN LNK for a period of time. During subsequent requests for data, the WAN LNK light starts to blink. This indicates that the ADSL connection sequence has begun.

Why the WAN LNK LED Turns Off

If the WAN LNK LED blinks continuously, the Cisco 626 never trains with the Cisco 6100/6200 digital subscriber line access multiplexer (DSLAM). There are several reasons why this occurs:

- The ADSL line is not connected to the Cisco 626.
- No available ATU−Cs with which the Cisco 626 trains up.
- The ADSL circuit is too long.
- Excessive noise on the ADSL circuit.

If the WAN LNK LED turns off after the Cisco 626 has been transferring data, the Cisco 626 or the 6100/6200 has the SESSION timeout set. If the timeout is set, the Cisco 626 WAN LNK LED turns off after that time period whether or not it is idle.

Cisco 627

The ADSL line port on a Cisco 627 uses a standard RJ−11 6−pin modular jack.

ADSL Port Pinouts

Pin	Signal
3	Ring
4	Tip

Note: Pins 1, 2, 5, and 6 are not used.

WAN LNK LED

If the WAN LNK light does not turn on when you power up the modem:

1. Wait approximately fifteen seconds.
2. If the light does not turn on, check all cabling and connections.
3. If the light still does not turn on, turn off the power and then turn it on again.
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Cisco 633

xDSL Port Pinouts

On the Cisco 633 an RJ−11 connector provides an xDSL connection to external media through a standard RJ−11 6−pin modular jack.

Pin	Description
3	XDSL_Tip
4	XDSL_Ring

Note: Pins 1, 2, 5, and 6 are not used.

LED Descriptions

		Description
Power	Green	On when power is present. Off when power is not present
Alarm	Red	On when the unit is not fully functional
SERLNK	Green	On when the serial port has valid link. Off otherwise
SERACT	Yellow	Blinks when the serial port receives or transmits data
WAN LNK	Green	On when the xDSL port has a valid link. Blinks during training. Off otherwise
WAN ACT	Yellow	Blinks when the xDSL port receives or transmits data

Cisco 673

On the Cisco 673 the symmetric digital subscriber line (SDSL) port uses an RJ−11 connector.

SDSL Port Pinouts

Pin	Signal
3	Ring
4	Tip

Note: Pins 1, 2, 5, and 6 are not used.

If the WAN LNK LED does not turn on when you power up the modem:

1. Wait approximately fifteen seconds.
2. Check all cabling and connections.
3. Turn off the power and then turn it on again.
4. If the LED is still not on, call your service representative.

If the PWR/ALARM LED appears red:

1. Turn off the power and then turn it on again.
2. If the LED still appears red, call your service representative.

Note: In certain circumstances in which the Cisco 673 operates correctly, the WAN LNK light appears off when the PWR/ALARM light is on. For example, this condition occurs when there is no data traffic across the WAN LNK for a period of time. During subsequent requests for data, the WAN LNK light starts to blink. This indicates that the SDSL connection sequence has begun.

Cisco 675 and 675e

The ADSL port on the Cisco 675/675e uses an RJ−11 connector.

ADSL Port Pinouts

Pin	Signal
3	Ring
4	Tip

Note: Pins 1, 2, 5, and 6 are not used.

If the WAN LNK light does not turn on when you power up the modem:

1. Wait approximately fifteen seconds.
2. If the light does not turn on, check all cabling and connections.
3. If the light still does not turn on, turn off the power and then turn it on again.
4. If the LED is not on, call your service representative.

If the PWR/ALARM light appears red:

1. Turn off the power and then turn it on again.
2. If the LED still appears red, call your service representative.

Note: In certain circumstances in which the Cisco 675/675e operates correctly, the WAN LNK light appears off when the PWR/ALARM light is on. For example, this condition occurs when there is no data traffic across the WAN LNK for a period of time. During subsequent requests for data, the WAN LNK light starts to blink. This indicates that the ADSL connection sequence has begun.

LED Descriptions for the Cisco 675 and 675e

LED	Function	Description
WAN LNK	WAN Link	Blinks during ADSL line training activities. When the light blinks several times and then stops, the central office equipment is unavailable. On when a link has been established on the WAN port. When the light is on, the Cisco 675 is connected and trained.

WAN−ACT	WAN Activity	Blinks when the WAN port transmits or receives data
LAN LNK	(Ethernet) LAN Link	On when a link has been established on the Ethernet port
LAN−ACT	(Ethernet) LAN Activity	Blinks when there is activity on the Ethernet port
PWR/ALARM	Power Light	Green when the Cisco 675 is on and works correctly. Red when the Cisco 675 is on but there is a problem or alarm that needs to be resolved

Cisco 676

The ADSL port on the Cisco 676 uses an RJ−11 connector.

ADSL Port Pinouts

Pin	Signal
3	Ring
4	Tip

Note: Pins 1, 2, 5, and 6 are not used.

WAN Link and Powerup Issues

During normal operation the ALARM LED blinks once after the unit is turned on. If the LED continues to blink or stays on, call your service representative.

The WAN LNK LED is on and blinks while the modem trains up to the network. When you power up the modem and the modem operates correctly, the WAN LNK LED remains on.

If theWAN LNK LED does not stay on or does not light at all after 45 seconds:

1. Check all cabling and connections.
2. Turn off the power and then turn it on again.
3. If the LED is still not on, call your service representative.

Note: In certain circumstances in which the Cisco 676 operates correctly, the WAN LNK LED appears off when the PWR/ALARM LED is on. For example, this condition occurs when there is no data traffic across the WAN LNK for a period of time. During subsequent requests for data, the WAN LNK LED starts to blink. This indicates that the ADSL connection sequence has begun.

If the WAN LNK LED blinks continuously and stays on, the Cisco 676 never connects to the service provider equipment. Your Cisco 676 configuration may not be compatible with the service provider's server configuration. Follow these steps:

1. Remove power from the Cisco 676 ADSL Router by removing the power cord from the router's rear panel.

2. Reconnect the power cord.
3. If the router still does not connect to the service provider, call the service provider to help you correct your configuration.

If the WAN LNK LED turns off after the Cisco 676 has been transferring data, the Cisco 676 or the service provider's server has a timeout set. Call the service provider with the length of time you remain connected before the Cisco 676 disconnects from the Internet (as accurate a length of time as possible).

If the WAN LNK LED stays on for approximately four seconds and then turns off and remains off, a user authentication failure has occurred. Either the Cisco 676 or the service provider's server contains incorrect user authentication information. Call your service provider with the amount of time that passed before the WAN LNK LED turned off.

Cisco 677

xDSL Port Pinouts

Pin	Description
3	XDSL_Tip
4	XDSL_Ring

Note: Pins 1, 2, 5, and 6 are not used.

LED Descriptions

Function	LED Color	Description
Power	Green	On when power is present. Off when power is not present
Alarm	Red	On when the unit is not fully functional.
LAN LNK	Green	On when the serial port has valid link. Off otherwise.
LAN ACT	Yellow	Blinking when the serial port receives or transmits data.
WAN LNK	Green	On when the xDSL port has valid link. Blinking during training. Off otherwise.
WAN ACT	Yellow	Blinking when the xDSL port receives or transmits data.

Cisco 678

The ADSL port uses an RJ−11 connector.

ADSL Port Pinouts

Pin	Signal

3	Ring
4	Tip

Note: Pins 1, 2, 5, and 6 are not used.

WAN Link and Powerup Issues

This is the normal sequence of events when you power up the router:

1. The ALARM light comes on within five seconds, flashes for half a second, then goes off.
2. Between one and ten seconds after the ALARM light goes off, the WAN LNK light starts to blink. This indicates that the router attempts to establish communication with the service provider modem in the central office.
3. After communication is established, the WAN LNK light remains on.

Under normal conditions, the ALARM light is off within six seconds of powering up the router, and within one minute the WAN LNK light is on.

If the router does not establish communication with the service provider modem, the WAN LNK light goes off. The router waits ten seconds. The WAN LNK light starts to blink when the router tries again to establish communication.

If the WAN LNK light continues to blink after attempts to establish communication, turn off the power and then turn it on. If the WAN LNK light still does not become solid within one minute, call your service representative.

If the ALARM light flashes RED or lights RED and stays on, call your service representative.

Note: With the POWER light on, the WAN LNK light appears off under certain circumstances, even though the Cisco 678 operates correctly. This condition occurs, for instance, if there is no data traffic across the WAN LNK for two minutes or more. In this case, the PPP session times out. and the WAN LNK light goes off. During subsequent requests for data across the link, the WAN LNK light starts to blink. This indicates that the ADSL connection sequence has started.

Cisco 802 IDSL and 804 IDSL

If your wall jack has an RJ−11 connector, attach the RJ−45−to−RJ−11 adapter cable to the red cable. Connect the RJ−11 connector to the IDSL wall jack.

IDSL RJ−45 Port Pinouts

Pin	Function
4	IDSL (Tip)
5	IDSL (Ring)

Note: Pins 1, 2, 3, 6, 7,and 8 are not used.

Power/Link	LEDs To Check	Normal Patterns
Power	OK	On

To hub, server, PC, or workstation	Cisco 802 IDSL back panel: LINK LED Cisco 804 IDSL front panel: ETHERNET 1, 2, 3, and 4 LEDs	On
To IDSL network using IDSL port	NT1, LINE, CH1, or CH2	On (CH1 or CH2 on only when the router has an active data connection. With a 64 kbps connection, only CH1 is on. With a 128 or 144 kbps connection, CH1 and CH2 are on.)

Cisco 827

xDSL Port Pinouts

The RJ−11 connector provides xDSL connection to external media through a standard RJ−11 6−pin modular jack.

Pin	Description
3	XDSL_Tip
4	XDSL_Ring

Note: Pins 1, 2, 5, and 6 are not used.

Cisco 827−4V LED Descriptions

LED	Color	Function
OK LED	Green	On when power is supplied to the router and when the router completes the self−test procedure and begins to operate.
PHONE 1, 2, 3, 4	Green	On when basic telephone service is in use. Blinks during call setup or during a ring. Off when onhook.
ADSL CD	Green	On when the ADSL device is connected. Blinks when the connection has a problem.
ADSL RXD	Green	Blinks when an ADSL port receives data.
ADSL TXD	Green	Blinks when an ADSL port sends data.

ETHERNET 1	Green	On when an Ethernet device is connected. Blinks when the connection has a problem.
ETHERNET RXD	Green	Blinks when an Ethernet port receives a packet.
ETHERNET TXD	Green	Blinks when an Ethernet port sends a packet.

Cisco 827 LED Descriptions

LED	Color	Function
OK LED	Green	On when power is supplied to the router and when the router completes the self−test procedure and begins to operate.
ADSL CD	Green	On when the ADSL device is physically connected. Blinks when the connection has a problem.
ADSL RXD	Green	Blinks when an ADSL port receives data.
ADSL TXD	Green	Blinks when an ADSL port sends data.
ETHERNET 1	Green	On when Ethernet device is connected. Blinks when the connection has a problem.
ETHERNET RXD	Green	Blinks when an Ethernet port receives a packet.
ETHERNET TXD	Green	Blinks when an Ethernet port sends a packet.

Cisco 828

xDSL Port Pinouts

The RJ−11 connector provides xDSL connection to external media through a standard RJ−11 6−pin modular jack.

Pin	Description
3	XDSL_Tip
4	XDSL_Ring

Note: Pins 1, 2, 5, and 6 are not used.

LED Descriptions

LED	Color	Function

OK LED	Green	On when power is supplied to the router and when the router completes the self−test procedure and begins to operate.
G.SHDSL CD	Green	On when the G.SHDSL device is physically connected Blinks when the connection has a problem.
G.SHDSL RXD	Green	Blinks when an G.SHDSL port receives data.
G.SHDSL TXD	Green	Blinks when an G.SHDSL port sends data.
ETHERNET 1, 2, 3, 4	Green	On when an Ethernet device is connected Blinks when the connection has a problem.
ETHERNET RXD	Green	Blinks when an Ethernet port receives a packet.
ETHERNET TXD	Green	Blinks when an Ethernet port sends a packet.

Cisco SOHO77

xDSL Port Pinouts

The RJ−11 connector provides xDSL connection to external media through a standard RJ−11 6−pin modular jacks.

Pin	Description
3	XDSL_Tip
4	XDSL_Ring

Note: Pins 1, 2, 5, and 6 are not used.

LED Descriptions

LED	Color	Function
OK LED	Green	On when power is supplied to the router and when the router completes the self−test procedure and begins to operate.
ADSL CD	Green	On when the ADSL device is physically connected. Blinks when the connection has a problem.
ADSL RXD	Green	Blinks when an ADSL port receives data.
ADSL TXD	Green	Blinks when an ADSL port sends data.

ETHERNET 1	Green	On when Ethernet device is connected. Blinks when the connection has a problem.
ETHERNET RXD	Green	Blinks when an Ethernet port receives a packet.
ETHERNET TXD	Green	Blinks when an Ethernet port sends a packet.

Cisco SOHO78

xDSL Port Pinouts

The RJ−11 connector provides xDSL connection to external media through a standard RJ−11 6−pin modular jacks.

Pin	Description
3	XDSL_Tip
4	XDSL_Ring

Note: Pins 1, 2, 5, and 6 are not used.

LED Descriptions

LED	Color	Function
OK LED	Green	On when power is supplied to the router and when the router completes the self−test procedure and begins to operate.
G.SHDSL CD	Green	On when the G.SHDSL device is physically connected. Blinks when the connection has a problem.
G.SHDSL RXD	Green	Blinks when a G.SHDSL port receives data.
G.SHDSL TXD	Green	Blinks when a G.SHDSL port sends data.
ETHERNET 1, 2, 3, 4	Green	On when an Ethernet device is connected Blinks when the connection has a problem.
ETHERNET RXD	Green	Blinks when an Ethernet port receives a packet.
ETHERNET TXD	Green	Blinks when an Ethernet port sends a packet.

Cisco 1401

ATM−25 Cable

The green RJ−45−to−RJ−45 ATM−25 cable connects the Cisco 1401 through a DSL modem to the ADSL line. This cable must be Category 3, 4, or 5 unshielded twisted−pair (UTP).

ATM−25 Cable Pinouts

Pin	Signal
1	RD+
2	RD−
7	TD+
8	TD−

Note: Pins 3, 4, 5, and 6 are not used.

If you want to connect the ATM−25 port to the ATM port on another router, supply an RJ−45−to−RJ−45 crossover cable.

ATM Loopback Plug

An ATM loopback plug is used when a loopback test on the Cisco 1401 is performed.

ATM Loopback Plug Pinouts

Pin	Signal		Pin	Signal
1	RD +	< −−− >	7	TD +
2	RD −	< −−− >	8	TD −

Note: Pins 3, 4, 5, and 6 are not used.

Front−Panel LED Descriptions

Function	LED Color	Description
System		
PWR	Green	On when DC power is supplied to the router.
OK	Green	On when the router has successfully booted up and the software is functional Blinks during the power−on self−test (POST).
Ethernet		
ACT	Green	Blinks when there is network activity on the Ethernet LAN.

COLL	Yellow	Blinks when there are network (packet) collisions on the Ethernet LAN.
WAN		
CARRIER	Green	On when the router has synchronized with the equipment connected to the ATM−25 port (Cisco 1401 Router) or the ADSL equipment at the service provider office (Cisco 1417 Router).
ACT	Green	Blinks when data is sent to or received from the ATM−25 port (Cisco 1401 Router) or the ADSL port (Cisco 1417 Router).
LP	Yellow	On when the ATM−25 port (Cisco 1401 Router) or the ADSL port (Cisco 1417 Router) is in loopback mode.

Cisco 1417

ADSL Cable

The purple RJ−11−to−RJ−11 ADSL cable connects the Cisco 1417 to the ADSL line. This cable must be Category 3, 4, or 5 UTP. The cable that ships with the router is Category 5.

ADSL Cable Pinouts

Pin		Pin
2	<−−−>	2
3	<−−−>	3
4	<−−−>	4
5	<−−−>	5

Note: Pins 1 and 6 are not used. Pins 2 and 5 are used for data.

POTS Crossover Cable

The purple (with a blue stripe) RJ−11−to−RJ−11 POTS crossover cable connects the Cisco 1417 to POTS splitters that use pins 3 and 4 for data. This cable is ordered from Cisco. (The Cisco 1417 uses pins 2 and 5 for data.)

If you provide your own cable, it must be Category 3, 4, or 5 UTP.

POTS Crossover Cable Pinouts

Pin		Pin
2	<−−−>	3
3	<−−−>	2

4	<−−−>	5
5	<−−−>	4

Note: Pins 1 and 6 are not used.

Front−Panel LED Descriptions

Function	LED Color	Description
System		
PWR	Green	On when DC power is supplied to the router.
OK	Green	On when the router has successfully booted up and the software is functional Blinks during the power−on self−test (POST).
Ethernet		
ACT	Green	Blinks when there is network activity on the Ethernet LAN.
COLL	Yellow	Blinks when there are network (packet) collisions on the Ethernet LAN.
WAN		
CARRIER	Green	On when the router has synchronized with the equipment connected to the ATM−25 port (Cisco 1401 Router) or the ADSL equipment at the service provider office (Cisco 1417 Router).
ACT	Green	Blinks when data is sent to or received from the ATM−25 port (Cisco 1401 Router) or the ADSL port (Cisco 1417 Router).
LP	Yellow	On when the ATM−25 port (Cisco 1401 Router) or the ADSL port (Cisco 1417 Router) is in loopback mode.

Cisco WIC−1 ADSL

Wiring

The RJ−11 connector provides xDSL connection to external media through standard RJ−11 6−pin modular jacks.

Pin	Description
3	XDSL_Tip
4	XDSL_Ring

LED Descriptions

LED	Description
CD (carrier detect)	Green when trained
LP (loopback)	Yellow during loopback
OK	Green when ok

Connect the ADSL WAN Interface Card to the Network

To connect the ADSL WAN Interface Card (WIC) to the network, use the standard lavender RJ−11 cable that comes with your card.

Note: If you connect a Cisco router with an ADSL card to an RJ−11 wall jack that has the ADSL pair wired for pins 2 and 5, use the lavender crossover cable with the blue stripe. The crossover cable can be ordered as a spare part.

These steps describe how to connect the WIC with the help of the standard lavender RJ−11 cable. However, it also applies to connecting the WIC with the lavender crossover cable with the blue stripe.

1. Confirm that router is turned off.
2. Connect one end of the RJ−11 cable to the ADSL port on the card.
3. Connect the other end of the cable to the RJ−11 wall jack at your site.
4. Enter the **no shut** command in the router configuration.

   You must configure the ADSL card in the router to the *no shutdown* state to connect the card to the network.
5. Verify that the CD LED goes on.This indicates that the card is connected to the network.

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