



Configuring UDLD

This chapter describes how to configure the UniDirectional Link Detection (UDLD) and Unidirectional Ethernet on the Catalyst 4500 series switch. It also provides guidelines, procedures, and configuration examples.

This chapter includes the following major sections:

- [Overview of UDLD, page 20-1](#)
- [Default UDLD Configuration, page 20-2](#)
- [Configuring UDLD on the Switch, page 20-2](#)



Note

For complete syntax and usage information for the switch commands used in this chapter, refer to the *Catalyst 4500 Series Switch Cisco IOS Command Reference* and related publications at <http://www.cisco.com/univercd/cc/td/doc/product/software/ios122/122cgcr/index.htm>.

Overview of UDLD

UDLD allows devices connected through fiber-optic or copper Ethernet cables (for example, Category 5 cabling) to monitor the physical configuration of the cables and detect when a unidirectional link exists. A unidirectional link occurs whenever traffic transmitted by the local device over a link is received by the neighbor but traffic transmitted from the neighbor is not received by the local device. When a unidirectional link is detected, UDLD shuts down the affected interface and alerts the user. Unidirectional links can cause a variety of problems, including spanning tree topology loops.

UDLD is a Layer 2 protocol that works with the Layer 1 mechanisms to determine the physical status of a link. At Layer 1, autonegotiation takes care of physical signaling and fault detection. UDLD performs tasks that autonegotiation cannot perform, such as detecting the identities of neighbors and shutting down misconnected interfaces. When you enable both autonegotiation and UDLD, Layer 1 and Layer 2 detections work together to prevent physical and logical unidirectional connections and the malfunctioning of other protocols.

If one of the fiber strands in a pair is disconnected, as long as autonegotiation is active, the link does not stay up. In this case, the logical link is undetermined, and UDLD does not take any action. If both fibers are working normally from a Layer 1 perspective, then UDLD at Layer 2 determines whether or not those fibers are connected correctly and whether or not traffic is flowing bidirectionally between the right neighbors. This check cannot be performed by autonegotiation because autonegotiation operates at Layer 1.

The switch periodically transmits UDLD packets to neighbor devices on interfaces with UDLD enabled. If the packets are echoed back within a specific time frame and they are lacking a specific acknowledgment (echo), the link is flagged as unidirectional and the interface is shut down. Devices on both ends of the link must support UDLD in order for the protocol to successfully identify and disable unidirectional links.

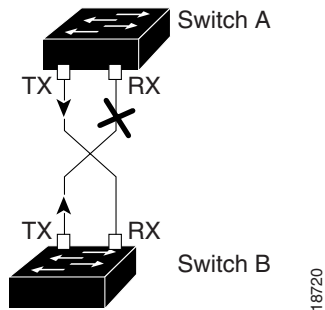


Note

By default, UDLD is locally disabled on copper interfaces to avoid sending unnecessary control traffic on this type of media, since it is often used for access interfaces.

Figure 20-1 shows an example of a unidirectional link condition. Switch B successfully receives traffic from Switch A on the interface. However, Switch A does not receive traffic from Switch B on the same interface. UDLD detects the problem and disables the interface.

Figure 20-1 Unidirectional Link



Default UDLD Configuration

Table 20-1 shows the UDLD default configuration.

Table 20-1 UDLD Default Configuration

Feature	Default Status
UDLD global enable state	Globally disabled
UDLD per-interface enable state for fiber-optic media	Enabled on all Ethernet fiber-optic interfaces
UDLD per-interface enable state for twisted-pair (copper) media	Disabled on all Ethernet 10/100 and 1000BaseTX interfaces

Configuring UDLD on the Switch

The following sections describe how to configure UDLD:

- [Enabling UDLD Globally, page 20-3](#)
- [Enabling UDLD on Individual Interfaces, page 20-3](#)
- [Disabling UDLD on Non-Fiber-Optic Interfaces, page 20-3](#)
- [Disabling UDLD on Fiber-Optic Interfaces, page 20-4](#)
- [Resetting Disabled Interfaces, page 20-4](#)

Enabling UDLD Globally

To enable UDLD globally on all fiber-optic interfaces on the switch, perform this task:

Command	Purpose
Switch(config)# [no] udld enable	<p>Enables UDLD globally on fiber-optic interfaces on the switch.</p> <p>Use the no keyword to globally disable UDLD on fiber-optic interfaces.</p> <p>Note This command configures only fiber-optic interfaces. An individual interface configuration overrides the setting of this command.</p>

Enabling UDLD on Individual Interfaces

To enable UDLD on individual interfaces, perform this task:

	Command	Purpose
Step 1	Switch(config-if)# udld enable	Enables UDLD on a specific interface. On a fiber-optic interface, this command overrides the udld enable global configuration command setting.
Step 2	Switch# show udld interface	Verifies the configuration.

Disabling UDLD on Non-Fiber-Optic Interfaces

To disable UDLD on individual non-fiber-optic interfaces, perform this task:

	Command	Purpose
Step 1	Switch(config-if)# no udld enable	<p>Disables UDLD on a non-fiber-optic interface.</p> <p>Note On fiber-optic interfaces, the no udld enable command reverts the interface configuration to the udld enable global configuration command setting.</p>
Step 2	Switch# show udld interface	Verifies the configuration.

Disabling UDLD on Fiber-Optic Interfaces

To disable UDLD on individual fiber-optic interfaces, perform this task:

	Command	Purpose
Step 1	Switch(config-if)# udld disable	Disables UDLD on a fiber-optic interface. Note This command is not supported on nonfiber-optic interfaces. Use the no keyword to revert to the udld enable global configuration command setting.
Step 2	Switch# show udld interface	Verifies the configuration.

Resetting Disabled Interfaces

To reset all interfaces that have been shut down by UDLD, perform this task:

	Command	Purpose
	Switch# udld reset	Resets all interfaces that have been shut down by UDLD.