

# Configuring DLSw

## Gather required

Configuring DLSw requires that you have the following pieces of information.

- \* The internal IP Address of both DLSw routers, and the IP address of each port used to maintain the TCP connection between them. You only need this information if you are defining DLSw neighbors statically, rather than using the group functionality.
- \* The interface numbers assigned to the Token-ring and SDLC devices, and that are used for the TCP connection.
- \* The MAC addresses of the Token-ring and representative SDLC devices, and SDLC device station addresses.
- \* The segment number of the Source Route Bridge device.

## 1. Configure Adaptive Source Route Bridging:

Enter the **protocol asrt** command at the `Config>` prompt to enter the ASRT configuration module.

Enter the **enable bridge** command to enable bridging on the router. Each bridge connecting two segments must have a unique bridge address.

Enter the **add port** command to add a bridge port. The display prompts you for an interface number and a port number.

### For token-ring interfaces:

Enter the **disable transparent** command to disable transparent bridging. Then, enter the **enable source routing** command to turn on source routing for the bridge **port**.

### For Ethernet interfaces:

Enter the **enable transparent** command to enable transparent bridging on the bridge

### To configure the router for parallel bridging and DLSw:

Create a protocol filter against the Service Access Point (SAP) you intend DLSw to use. To create a SAP filter, issue this command at the `ASRT config>` prompt:

```
ASRT config>add protocol-filter dsap 4
```



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### 2. Configure IP:

Enter the IP configuration process by issuing the **protocol ip** command at the `Config>`

Note: These steps assume that the IP interface and addresses have not been configured.

Use the **add address** command to assign the IP addresses to the interfaces.  
uses these interfaces to connect to DLSw neighbors.

Enter either the **enable rip** or **enable ospf** command if you want to enable dynamic routing.  
If you use RIP, set the IP address equal to the physical address of the IP port. If you use  
OSPF, make these addresses be

You must enable multicast OSPF to set up DLSw groups.

### 3. Configure SDLC interfaces:

At the `Config>` prompt, use the **set data-link SDLC** command to configure the data-link  
type for the selected serial interface. You will be prompted for an interface number.

Use the **network** command at the `Config>` prompt to enter the SDLC configuration  
process. The display prompts you for an interface number.

Set the encoding (NRZ/NRZI), and duplex (full/half) to match the attached device's  
configuration.

Optionally, **add station(s)** to explicitly define SDLC station(s) at the network level.

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### 4. Configure

At the `Config>` prompt, enter the **protocol dls** command. This brings you to the `DLSw config>` prompt.

Enable DLSw to run in the router using the **enable dls** command.

If Token Ring, use the **set srb** command to designate an SRB (Source Route Bridging) segment number for the DLS router. This segment must be unique within the bridging cloud.

If Token Ring, the **SRB** segment number should be the same for all DLSw routers, and unique in the source route bridge

Enter an **Open SAP** command for each of the DLC interfaces that switch DLSw traffic on LLC (SNA or NB), but not for SDLC

Enter the **add tcp** command to add the internal IP address of the DLSw neighbor. This is the address to which the router connects via

To use the DLSw group functionality, enter the **join-group** and specify membership in a group. Group functionality enables DLSw routers to locate and establish TCP connections with one another dynamically. A DLSw router can only participate in a group if its neighbor router is a Digital platform running DLSw. If one DLSw router is configured for a group, OSPF and MOSPF must be enabled on all DLSw routers in the group.

Use **add sdlc** to add a link station to the configuration on an SDLC serial interface.

When you are finished configuring the router, restart it as described on the back of this card to load the new configuration.

## DLSw Configuration Commands

This section summarizes the DLSw configuration commands. Enter these commands at the DLSw `config>` prompt. The back of this card tells you how to display this prompt. Enter ? to list available commands or their options.

### **add**

#### sdlc link station

Adds SDLC information specifically for adding an SDLC link station to the configuration. *Link* and *station* are values.

#### tcp neighbor ip address

Adds the IP address of the DLSw neighbor to which the TCP is connected. The two ways are: a manual configuration of the IP neighboring addresses or a multicast DLSw that uses multicast OSPF.

### **close-sap**

#### close-sap

Disables switching for the specified SAP by the DLSw protocol.

### **delete**

#### sdlc link station

Removes the specified SDLC link station from the list of stations that DLSw connects to when the router restarts.

#### tcp neighbor ip address

Removes the IP address of the DLSw neighbor.

### **disable**

#### auto-tcp-reconnect

Disables automatic TCP station reestablishment. This means TCP sessions are not established until DLSw needs them.

#### dlsbw

Disables DLSw switching in the router.

#### llc disconnect on tcp connection loss

Prevents the router from terminating an LLC connection upon the loss of the TCP connection.

#### sdlc link station

Disables DLSw connections to the specified SDLC link station. This terminates all existing connections.

## DLSw Configuration Commands (*continued*)

### **enable**

**auto-tcp-reconnect**

Causes DLSw to attempt to reestablish TCP sessions in the event of session failure.

**dlsb**

Enables DLSw switching in the router.

**llc disconnect on tcp connection loss**

Enables the router to terminate an LLC connection upon the loss of the TCP connection.

**sdlc link station**

Enables DLSw connections to the specified SDLC link station that was previously configured with the **add sdc link station** command.

### **join-group**

**join-group**

Enables DLSw neighbors to dynamically locate each other. The three types of group are: Client, Server, and Peer-to-peer. Used only when the multicast OSPF partner discovery scheme is used.

### **leave-group**

**leave-group group#**

Removes the router from any specified (group#) DLSw groups that were configured with the **join group** command. Used only when the multicast OSPF partner discovery scheme is used.

### **list**

**dls global information**

Displays the configuration information that was configured with the **enable** and **set** commands.

**groups**

Displays the DLSw groups to which the router belongs.

**llc2 sap parameters**

Displays the LLC2 parameters.

**open llc2 saps**

Displays all open SAPs and their associated interfaces.

**tcp neighbors**

Displays all DLSw neighbors with which the router has an active TCP connection.

**sdlc link stations**

Displays the SDLC link station information that was configured with the **add sdc link station** command.

## DLSw Configuration Commands *(continued)*

### **open-sap**

Enables the DLSw protocol to switch data for the specified SAP.

### **set**

#### cache

Specifies the size of the MAC address-to-IP address mapping cache.

#### llc2 tunable parameters

Configures specific LLC2 attributes for a specific SAP.

#### maximum dlsb sessions

Sets the maximum number of DLSw sessions (DLSw circuits) that the DLSw protocol can support. The actual maximum is limited by available memory.

#### memory

Specifies the total amount of memory allocated to DLSw, and the total amount of memory to be allotted to each DLSw session.

#### srb segment

Sets the Source Routing Bridge (SRB) segment number in the Routing Information Field (RIF).

#### timers

Sets the DLSw protocol timers.

### **exit**

Returns to the previous prompt level.

## DLSw Monitoring Commands

Enter these commands after the `DLSw>` prompt under GWCON. The last page of this card explains how to display this prompt. To list the DLSw console commands and their options, enter a `?` after the `DLSw>` prompt. Changes you make with the monitoring commands do not affect the DLSw SRAM configuration.

### **add**

`sdlc link station`

Adds an SDLC link station.

`tcp neighbor ip address`

Adds the IP address of the DLSw neighbor.

### **close-sap**

Disables switching for the specified SAP by the DLSw protocol without affecting the DLSw configuration stored in static configuration memory.

### **delete**

`dlsw session`

Removes a currently active session.

`sdlc link station`

Closes the currently active SDLC link without affecting the SDLC link station configuration information.

`tcp neighbor ip address`

Removes the IP address of the DLSw neighbor.

### **disable**

`auto-TCP-reconnect`

Disables automatic TCP station reestablishment. This means TCP sessions are not established until DLSw needs them.

`dlsw`

Disables DLSw switching in the router.

`sdlc link station`

Prevents DLSw connections to the specified SDLC link station.

`llc disconnect on tcp connection loss`

Prevents the router from terminating an LLC connection upon the loss of the TCP connection.

## DLSw Monitoring Commands (*continued*)

### **enable**

auto-TCP-reconnect

Causes DLSw to attempt to reestablish TCP sessions in the event of session failure.

dlsbw

Disables DLSw switching in the router.

llc disconnect on tcp connection loss

Allows the router to terminate an LLC connection upon the loss of the TCP connection.

sdlc link station

Dynamically enables DLSw connections to the specified SDLC link station.

### **join-group**

Allows DLSw neighbors to dynamically locate each other. The three types of group are: Client, Server, and Peer-to-peer.

### **leave-group**

Removes the router from the specified DLSw group.

### **list**

dlsbw global, sessions, cache

Displays information that pertains to the protocol.

groups

Displays the DLSw groups to which the router belongs.

llc2 open SAPs, SAP parameters, sessions

Displays information that pertains to LLC2.

sdlc sessions, link config

Displays SDLC information for sessions and link configuration.

tcp session, config

Displays TCP information for sessions and configuration.

### **open-sap**

Dynamically enables the DLSw protocol to switch data for the specified SAP.



## DLSw Monitoring Commands (*continued*)

### **set**

#### llc2 parameters

Dynamically configures specific LLC2 attributes for a specific SAP.

#### maximum dlsb sessions

Dynamically sets the maximum number of DLSw sessions that the DLSw protocol can support. The actual maximum is limited by available memory.

#### memory

Dynamically specifies the total amount of memory allocated to DLSw, and the total amount of memory to be allotted to each DLSw session.

#### timers

Dynamically sets the DLSw protocol timers.

### **exit**

Returns to the previous prompt level.

## Configuring the Router

Enter configuration commands at the `Config>` prompt. To enter DLSw configuration commands, display the `DLSw config>` prompt as shown:

```
*talk 6
Gateway user configuration
Config>protocol dls
DLSw config>
```

If the `Config>` prompt does not appear, press **RETURN** again.

To return to the \* prompt, press **CTRL-P**.

## Restarting the Router

When you are done configuring the router, restart it to load the new configuration. Enter **restart** at the \* prompt and respond yes to the following prompt:

```
Are you sure you want to restart the gateway? (Yes or No): yes
```

When the new configuration is finished loading, the terminal displays the \* prompt.

## Monitoring the Router

Enter monitoring commands at the `GWCON` prompt (+). To enter DLSw monitoring commands, display the `DLSw>` prompt as shown:

```
*talk 5

CGW Operator Console
+protocol dls
DLSw>
```

To return to the \* prompt, press **CTRL-P**.

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