

# **Cisco – Configuring Frame Relay Switching**

# Table of Contents

<b><u>Configuring Frame Relay Switching</u></b> .....	<b>1</b>
<u>Introduction</u> .....	1
<u>Before You Begin</u> .....	1
<u>Conventions</u> .....	1
<u>Prerequisites</u> .....	1
<u>Components Used</u> .....	1
<u>Configure</u> .....	2
<u>Network Diagram</u> .....	2
<u>Configurations</u> .....	2
<u>Verify</u> .....	5
<u>Spicey</u> .....	5
<u>Prasit</u> .....	6
<u>Aton</u> .....	6
<u>Troubleshoot</u> .....	6
<u>Related Information</u> .....	6

# Configuring Frame Relay Switching

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## Introduction

### Before You Begin

- Conventions
- Prerequisites
- Components Used

### Configure

- Network Diagram
- Configurations

### Verify

- Spicey
- Prasit
- Aton

### Troubleshoot

### Related Information

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## Introduction

Frame Relay switching is a means of switching packets based on the data-link connection identifier (DLCI). We can look on this as the Frame Relay equivalent of a Media Access Control (MAC) address. You perform switching by configuring your Cisco router or access server into a Frame Relay network. There are two parts to a Frame Relay network:

- Frame Relay data terminal equipment (DTE) – the router or access server.
- Frame Relay data circuit-terminating equipment (DCE) switch.

**Note:** In Cisco IOS Software release 12.1(2)T and later, the **frame route** command has been replaced by the **connect** command.

## Before You Begin

### Conventions

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

### Prerequisites

There are no specific prerequisites for this document.

### Components Used

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

The information presented in this document was created from devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If you are working in a live network, ensure that you understand the potential impact of any command before using it.

# Configure

In this section, you are presented with the information to configure the features described in this document.

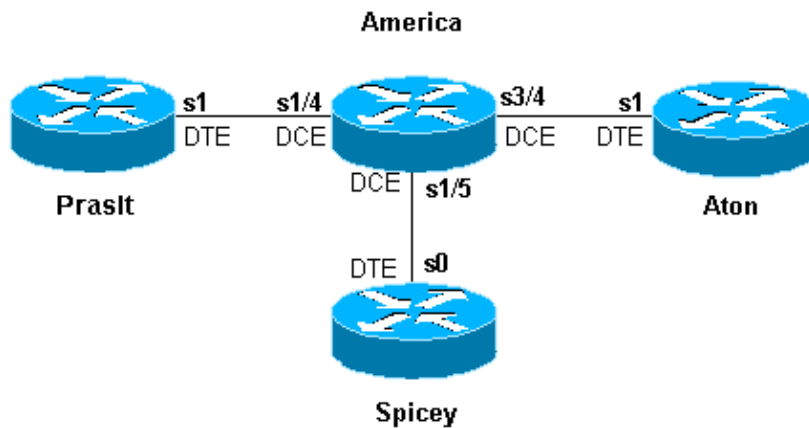
Let's look at a sample configuration. In the configuration below, we are using the router America as a Frame Relay switch. We are using Spicey as a hub router and Prasit and Aton as spoke routers. We have connected them as follows:

- Prasit serial 1 (s1) DTE is connected to America serial 1/4 (s1/4) DCE.
- Spicey serial 0 (s0) DCE is connected to America serial 1/5 (s1/5) DTE.
- Aton serial 1 (s1) DTE is connected to America serial 3/4 (s3/4) DCE.

**Note:** To find additional information on the commands used in this document, use the Command Lookup Tool ( registered customers only ) .

## Network Diagram

This document is based on the following configuration:



## Configurations

- Spicey
- Prasit
- Aton
- America

```
Spicey
-----
Spicey#show running-config
Building configuration...

!
version 12.1
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname Spicey
!
```

```

!
!
interface Ethernet0
 ip address 124.124.124.1 255.255.255.0
!
interface Serial0
 ip address 3.1.3.1 255.255.255.0
 encapsulation frame-relay
 frame-relay interface-dlci 130
 frame-relay interface-dlci 140
!
!
router rip
 network 3.0.0.0
 network 124.0.0.0
!
line con 0
!
exec-timeout 0 0
 transport input none
 line aux 0
 line vty 0 4
 login
!
end

```

### Prasit

```

Prasit#show running-config
Building configuration...
Current configuration : 1499 bytes
!
 version 12.1
 service timestamps debug datetime msec
 service timestamps log datetime msec
 no service password-encryption
!
hostname Prasit
!
!
!
interface Ethernet0
 ip address 123.123.123.1 255.255.255.0
!
interface Serial1
 ip address 3.1.3.2 255.255.255.0
 encapsulation frame-relay
 frame-relay interface-dlci 150
!
!
router rip
 network 3.0.0.0
 network 123.0.0.0
!
!
line con 0
 exec-timeout 0 0
 transport input none
 line aux 0
 line vty 0 4
 login
!
end

```

## Aton

```
Aton#show running-config
Building configuration...
Current configuration:
!
version 12.0
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname Aton
!
!
!
interface Ethernet0
 ip address 122.122.122.1 255.255.255.0
!
interface Serial1
 ip address 3.1.3.3 255.255.255.0
 encapsulation frame-relay
 frame-relay interface-dlci 160
!
router rip
 network 3.0.0.0
 network 122.0.0.0
!
!
line con 0
 exec-timeout 0 0
 transport input none
line aux 0
line vty 0 4
 login
!
end
```

## America

```
america#show running-config
Building configuration...
Current configuration:
!
!
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname america
!
frame-relay switching
!
!
interface Serial1/4
 description *** static DCE connection to s1 Prasit
 no ip address
 encapsulation frame-relay
 clockrate 2000000
 frame-relay intf-type dce
 frame-relay route 150 interface Serial1/5 140
!
interface Serial1/5
 description *** static DCE connection to s0 spicy
```

```

no ip address
encapsulation frame-relay
bandwidth 1000000
tx-queue-limit 100
frame-relay intf-type dce
frame-relay route 130 interface Serial3/4 160
frame-relay route 140 interface Serial1/4 150
transmitter-delay 10
!
interface Serial3/4
description *** static DCE connection to s1 Aton
encapsulation frame-relay
no ip mroute-cache
clockrate 2000000
frame-relay intf-type dce
frame-relay route 160 interface Serial1/5 130
!

```

## Verify

This section provides information you can use to confirm your configuration is working properly.

Certain **show** commands are supported by the Output Interpreter Tool ( registered customers only ) , which allows you to view an analysis of **show** command output.

- **show frame-relay map**
- **show frame-relay pvc**

## Spicey

Spicey#**show frame-relay map**

```

Serial0 (up): ip 3.1.3.2 dlci 140(0x8C,0x20C0), dynamic,
              broadcast,, status defined, active
Serial0 (up): ip 3.1.3.3 dlci 130(0x82,0x2020), dynamic,
              broadcast,, status defined, active

```

Spicey#**show frame-relay pvc**

PVC Statistics for interface Serial0 (Frame Relay DTE)

	Active	Inactive	Deleted	Static
Local	2	0	0	0
Switched	0	0	0	0
Unused	0	0	0	0

DLCI = 130, DLCI USAGE = LOCAL, PVC STATUS = ACTIVE, INTERFACE = Serial0

```

input pkts 32                output pkts 40                in bytes 3370
out bytes 3928               dropped pkts 0                in FECN pkts 0
in BECN pkts 0              out FECN pkts 0              out BECN pkts 0
in DE pkts 0                 out DE pkts 0
out bcast pkts 30           out bcast bytes 2888
pvc create time 00:15:46, last time pvc status changed 00:10:42

```

DLCI = 140, DLCI USAGE = LOCAL, PVC STATUS = ACTIVE, INTERFACE = Serial0

```

input pkts 282                output pkts 291                in bytes 25070
out bytes 27876              dropped pkts 0                in FECN pkts 0
in BECN pkts 0              out FECN pkts 0              out BECN pkts 0
in DE pkts 0                 out DE pkts 0
out bcast pkts 223          out bcast bytes 20884

```

pvc create time 02:28:36, last time pvc status changed 02:25:14

## Prasit

```
Prasit#show frame-relay map
```

```
Serial1 (up): ip 3.1.3.1 dlci 150(0x96,0x2460), dynamic,  
              broadcast,, status defined, active
```

```
Prasit#show frame-relay pvc
```

```
PVC Statistics for interface Serial1 (Frame Relay DTE)
```

	Active	Inactive	Deleted	Static
Local	1	0	0	0
Switched	0	0	0	0
Unused	0	0	0	0

```
DLCI = 150, DLCI USAGE = LOCAL, PVC STATUS = ACTIVE, INTERFACE = Serial1  
input pkts 311          output pkts 233          in bytes 28562  
out bytes 22648        dropped pkts 0          in FECN pkts 0  
in BECN pkts 0        out FECN pkts 0        out BECN pkts 0  
in DE pkts 0          out DE pkts 0  
out bcast pkts 162    out bcast bytes 15748  
pvc create time 02:31:39, last time pvc status changed 02:25:14
```

## Aton

```
Aton#show frame-relay map
```

```
Serial1 (up): ip 3.1.3.1 dlci 160(0xA0,0x2800), dynamic, broadcast, status defined, active
```

```
Aton#show frame-relay pvc
```

```
PVC Statistics for interface Serial1 (Frame Relay DTE)
```

	Active	Inactive	Deleted	Static
Local	1	0	0	0
Switched	0	0	0	0
Unused	0	0	0	0

```
DLCI = 160, DLCI USAGE = LOCAL, PVC STATUS = ACTIVE, INTERFACE = Serial  
input pkts 35          output pkts 32          in bytes 3758  
out bytes 3366        dropped pkts 0          in FECN pkt 0  
in BECN pkts 0        out FECN pkts 0        out BECN pkts 0  
in DE pkts 0          out DE pkts 0  
out bcast pkts 27    out bcast bytes 2846  
pvc create time 00:10:53, last time pvc status changed 00:10:53
```

## Troubleshoot

There is currently no specific troubleshooting information available for this configuration.

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## Related Information

- [More Information on Frame Relay Commands](#)
  - [More Information on Configuring Frame Relay](#)
  - [Comprehensive Guide to Configuring and Troubleshooting Frame Relay](#)
  - [Frame Relay Technology Support Pages](#)
  - [Technical Support – Cisco Systems](#)
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