Chapter 5: Dialer Profile(DDR)

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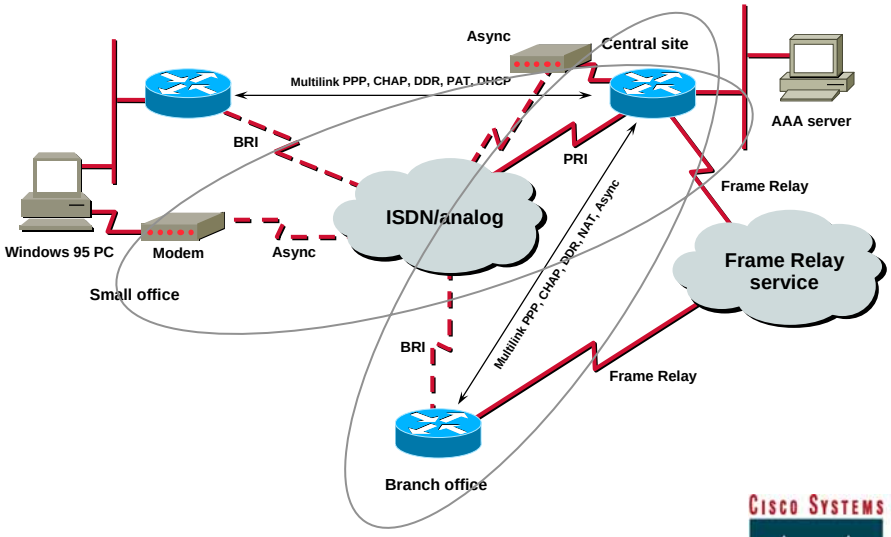
Objectives

Upon completion of this chapter, you will be able to perform the following tasks:

- Select appropriate dialup features for a given situation
- Configure rotary groups and dialer profiles in access servers
- Verify and troubleshoot rotary groups and dialer profiles

Chapter Activities



Legacy DDR

Legacy DDR

```
interface bri 0
 encapsulation ppp
 ip address 1.1.1.1
  255.255.255.0
 ppp authentication chap
 dialer map ip 1.1.1.2
   name RTB 5551112
 dialer map ip 1.1.1.3
   name RTC 5551113
```

BRI 0

```
interface bri 1
 encapsulation ppp
 ip address 2.2.2.1
  255.255.255.0
 ppp authentication pap
 compress stac
 dialer map ip 2.2.2.2
   name RTD 5552222
```

BRI 1

Using legacy DDR, each physical interface is locked in to a single

- Legacy DDR is powerful and comprehensive. It supports Frame Relay, the International Organization for Standardization Connectionless Network Service (ISO CLNS), the Link Access Procedure Balanced (LAPB) protocol, snapshot routing, and all routed protocols that are supported on Cisco routers.
- However, legacy DDR's limitations can adversely affect growth.

- The problem with this method is that legacy DDR locks a physical interface into one configuration. For example, DDR BRI0 can have only one Internet Protocol (IP) address, one encapsulation type, and one set of dialer timers.

Single Dialer Map w/ Legacy DDR

Using a Single Dialer Map with Legacy DDR

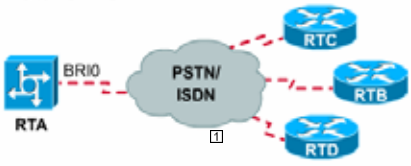

```
interface BRI0
 description connected to ntt 81012345678902
 ip address 7.1.1.7 255.255.255.0
 encapsulation ppp
 dialer idle-timeout 30
 dialer load-threshold 40 either
 dialer map ip 7.1.1.8 name RTB 81012345678901
 dialer-group 1
 ppp authentication pap
 ppp multilink
```

◆Legacy DDR configuration uses **dialer map** statements, which are convenient when one physical interface is responsible for calling one destination.

◆ As configured, the Basic Rate Interface (BRI) in Figure can only dial a host named RTB, and can only use Point-to-Point Protocol (PPP) with a **dialer idle-timeout** of 30 seconds when connected.

Legacy DDR w/ Multiple Destinations

Legacy DDR with Multiple Destinations

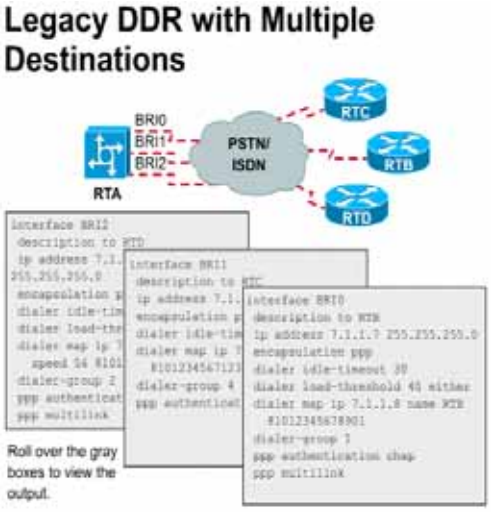



```
interface BRI0
 description connected to ntt 81012345678902
 ip address 7.1.1.7 255.255.255.0
 encapsulation ppp
 dialer idle-timeout 30
 dialer load-threshold 40 either
 dialer map ip 7.1.1.8 name RTB 81012345678901
 dialer map ip 7.1.1.9 name RTC 81012345671234
 dialer map ip 7.1.1.4 name RTD 81012345671122
 dialer-group 1
 ppp authentication pap
 ppp multilink
```

◆ The **dialer map** command can also be used if your router calls multiple destinations that all use the same communication parameters.

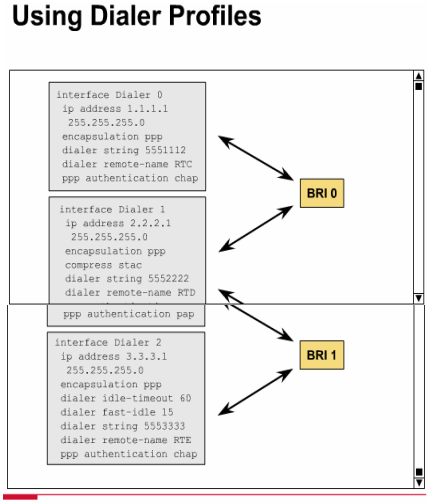
◆ Figure shows that three separate **dialer map** statements can be configured on the same interface. This means that each call must also use the other configured parameters, such as the dialer idle timer values and PPP authentication method.

Legacy DDR w/ Multiple Destinations



- On the other hand, what if your router is responsible for reaching three separate locations that use different communication parameters?
- Suppose that one location requires Password Authentication Protocol (PAP) authentication when another is doing Challenge Handshake Authentication Protocol (CHAP) authentication. One location might require an Integrated Services Digital Network (ISDN) speed of 56 kbps, whereas the other destinations communicate at 64 kbps.
- Figure shows that specific call parameters must be defined under three separate physical interfaces, each of them connected to a separate line.

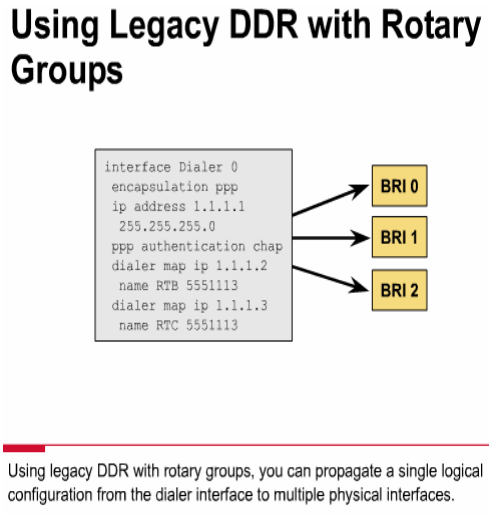
Using Dialer Profiles



Using DDR with dialer profiles, you can propagate logical configurations from multiple dialer interfaces to a physical interface, as needed.

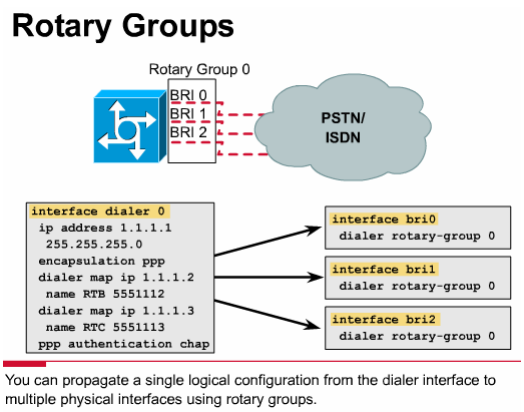
- A more efficient solution might be a mechanism in which physical interfaces are not locked in to permanent configurations.
- Instead, this mechanism assumes call parameters on an as-needed basis (Figure). When the call is finished, the same interface is freed of the previous configuration and is ready to service another calling destination. This method is called ***DDR with dialer profiles***, and is discussed in the section "Dialer Profiles," later in this chapter.

Using Legacy DDR w/ Rotary Groups

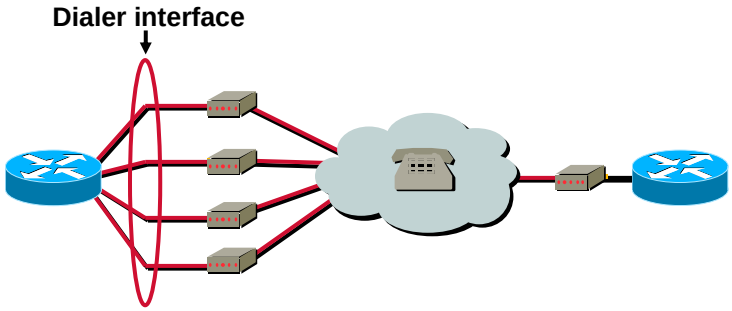


- What if you have multiple physical interfaces that all need to be configured with the exact same communication parameters?
- For example, you may have eight asynchronous interfaces that each will answer calls using the same IP address, same encapsulation, and same **dialer** configuration commands.
- The solution is to use dialer rotary groups (Figure).

Rotary Groups

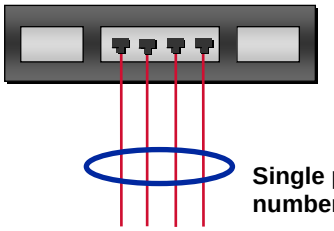


Dialer Rotary Groups



Multiple BRI Rotary Group

```
interface bri 0
    dialer rotary-group 1
interface bri 1
    dialer rotary-group 1
interface bri 2
    dialer rotary-group 1
interface bri 3
    dialer rotary-group 1
interface dialer 1
```



Single phone number

Rotary group 1

- Order one phone number with a rollover or hunt group

Dialer Rotary Group Commands

```
Router(config)#interface dialer group-number
```

- Defines a dialer rotary group

```
Router(config-if)#dialer rotary-group group-number
```

- Includes the specified physical interface in a dialer rotary group

Dialer Interface Configuration Commands

```
Router(config-if)#dialer in-band
```

- Enables DDR on an interface with modems only

```
Router(config-if)#dialer string dial-string
```

- Specifies the destination telephone number

```
Router(config-if)#dialer hold-queue number
```

- Creates a dialer hold queue of a specified size

Dialer Timer Control Commands

```
Router(config-if)#dialer idle-timeout seconds
```

- Sets line idle time

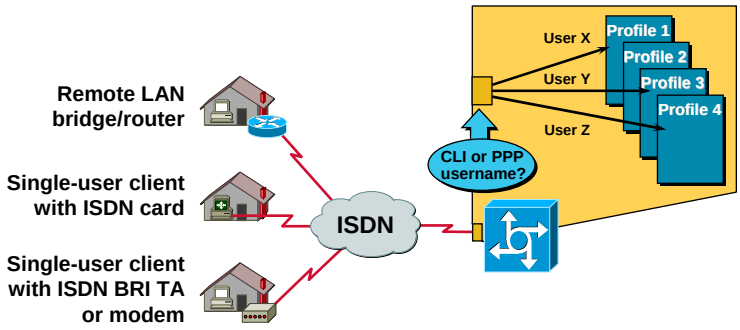
```
Router(config-if)#dialer fast-idle seconds
```

- Sets idle time for high-traffic lines

```
Router(config-if)#dialer wait-for-carrier-time seconds
```

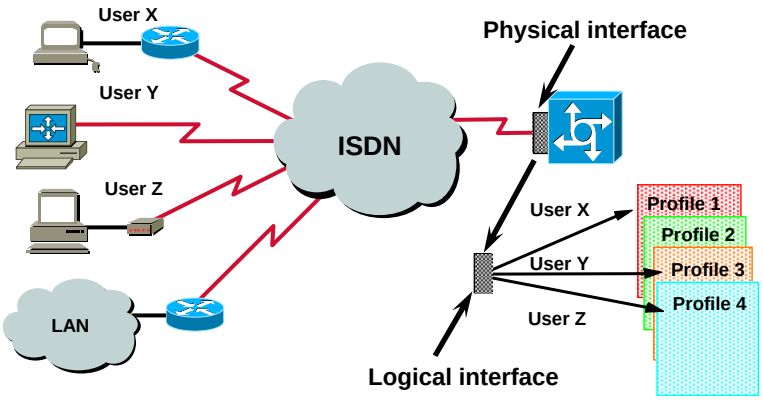
- Sets waiting time for carrier signal

Dialer Profiles

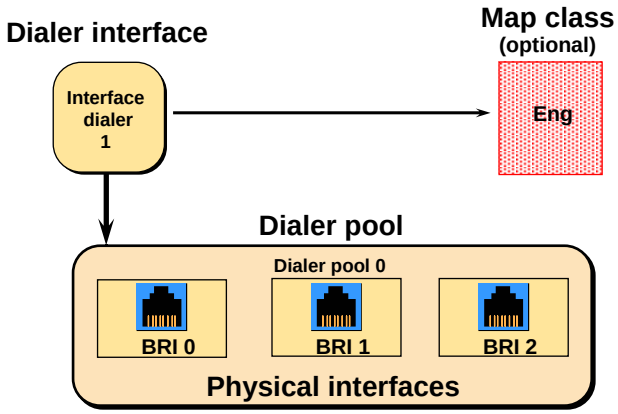


- **Enhance dial flexibility**

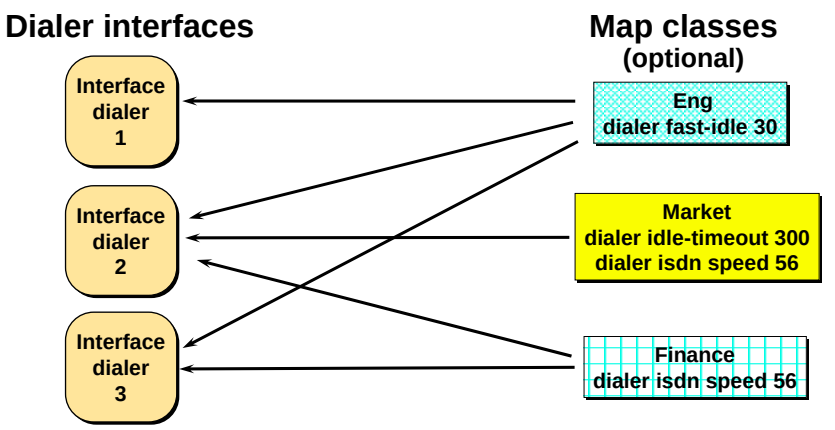
Dialer Profiles Overview



Dialer Profile Elements

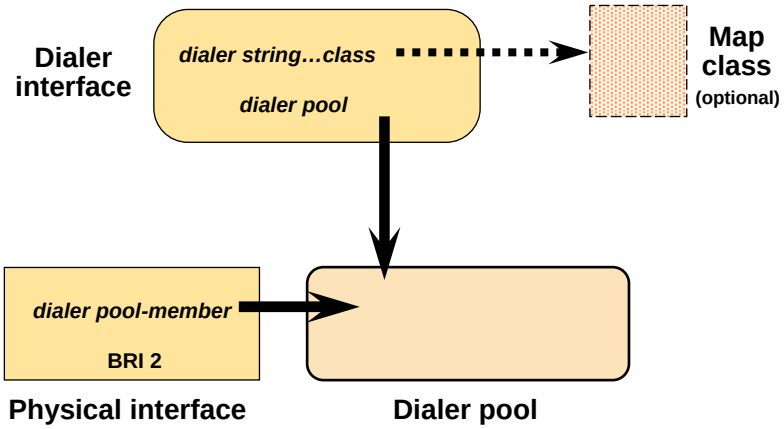


Dialer Map Classes

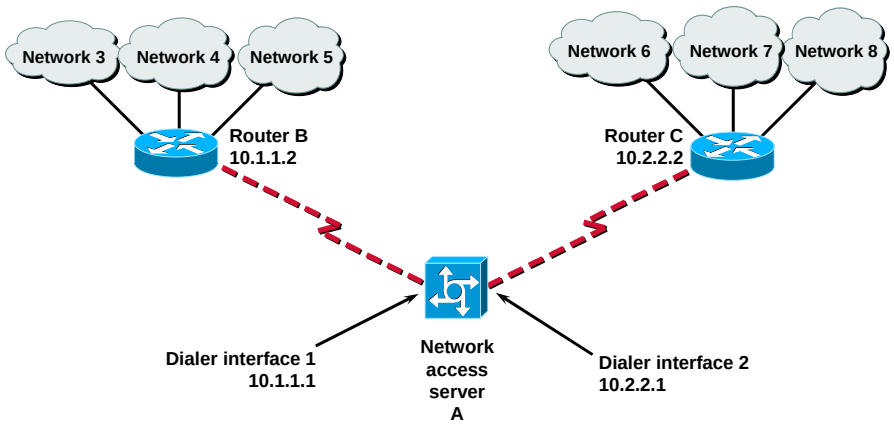


- Map classes supply configuration parameters to dialer interfaces

Dialer Profile Configuration Concepts and Commands



Typical Dialer Profiles Application



Configuring Dialer Interfaces

```
interface dialer1
ip address 10.1.1.1
255.255.255.0
encapsulation ppp
dialer remote-name Smalluser
dialer string 5554540
dialer pool 0
dialer-group 1
ppp authentication chap
ppp multilink
!
interface dialer2
ip address 10.2.2.1
255.255.255.0
encapsulation ppp
dialer remote-name Mediumuser
dialer string 5551234 class Eng
dialer load-threshold 50 either
dialer pool 1
dialer-group 2
ppp multilink
```

(cont.)

```
interface dialer3
ip address 10.3.3.1 255.255.255.0
encapsulation ppp
dialer remote-name Poweruser
dialer string 4155551234 class Eng
dialer hold-queue 10
dialer idle-timer 9999
dialer pool 2
dialer-group 3
ppp multilink
!
map-class dialer Eng
dialer isdn speed 56
```

Configuring Physical Interfaces

```
interface bri0
encapsulation ppp
dialer pool-member 0 priority 100
ppp authentication chap
ppp multilink
!
interface bri1
encapsulation ppp
dialer pool-member 1 priority 150
ppp authentication chap
ppp multilink
!
interface bri2
encapsulation ppp
dialer pool-member 0 priority 50
dialer pool-member 1 priority 50
dialer pool-member 2 priority 50
ppp authentication chap
ppp multilink
```

dialer pool 0
bri0 (priority 100)
bri2 (priority 50)

dialer pool 1
bri1 (priority 150)
bri2 (priority 50)

dialer pool 2
bri2 (priority 50)

Dialer Profiles Configuration Example

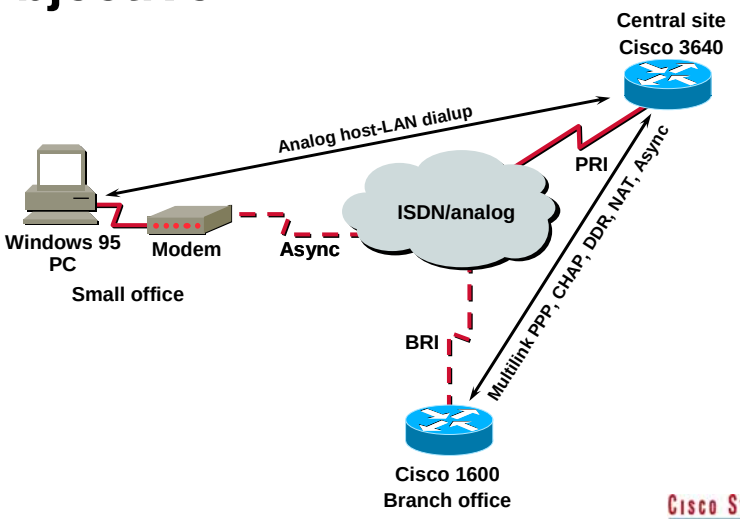
```
interface dialer0
ip unnumbered loopback0
encapsulation ppp
dialer remote-name Remote0
dialer pool 1
dialer string 5551212
dialer-group 0
ppp multilink
!
interface dialer1
ip unnumbered loopback0
encapsulation ppp
dialer remote-name Remote1
dialer pool 1
dialer string 5551234
dialer-group 1
ppp multilink
(cont.)
```

```
interface bri0
encapsulation ppp
dialer pool-member 1
ppp authentication chap
ppp multilink
!
interface serial0
ip unnumbered loopback0
backup interface dialer0
backup delay 5 10
!
interface serial1
ip unnumbered loopback0
backup interface dialer1
backup delay 5 10
```

Verifying Dialer Profiles Operation

```
NASX#show dialer interface bri0
BRI0 - dialer type = ISDN

Dial String     Successes       Failures        Last called     Last status
5553872               6              0              19 secs     Successful
0 incoming call(s) have been screened.
BRI0: B-Channel 1
Idle timer (120 secs), Fast idle timer (20 secs)
Wait for carrier (30 secs), Re-enable (15 secs)
Dialer state is data link layer up
Dial reason: ip (s=10.1.1.8, d=10.1.1.1)

Interface bound to profile Dialer0

Time until disconnect 102 secs
Current call connected 00:00:19
Connected to 5553872 (system1)


BRI0: B-Channel 2
Idle timer (120 secs), Fast idle timer (20 secs)
Wait for carrier (30 secs), Re-enable (15 secs)
Dialer state is idle
```


Laboratory Exercise: Visual Objective



Summary

After completing this chapter, you should be able to perform the following tasks:

- **Select appropriate dialup features for a given situation**
- **Configure rotary groups and dialer profiles in access servers**
- **Verify and troubleshoot rotary groups and dialer profiles**

Review Questions

- **How do dialer profiles simplify configurations?**
- **What features do map classes provide to dialer interfaces?**
- **Describe a network that might not benefit from dialer profiles.**

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