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Policy Routing with Catalyst 3550 Series Switch Configuration Example

Document ID: 47900

Introduction

Prerequisites

- Requirements
- Components Used
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Introduction

This document provides a sample configuration for policy routing on Catalyst 3550 series switches. You must modify the Switch Database Management (SDM) template to enable the switch to support the 144-bit Layer 3 Ternary Content Addressable Memory (TCAM) before you can configure policy routing. Refer to Understand and Configure the Switching Database Manager on Catalyst 3550 Series Switches more information about SDM.

Note: The Catalyst 3550 has limitations on the **route-maps** commands you can use.

Prerequisites

Requirements

Before attempting this configuration, ensure that you are knowledgeable of these:

- Configuring Policy-Based Routing
- Unsupported Route Map Commands
- Overview of the Switching Database Manager

Components Used

The information in this document is based on these software and hardware versions:

- Cisco IOS® Software Release 12.1.19-EA1a
- Cisco Catalyst 3550

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, make sure that you understand the potential impact of any command.

Conventions

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

Configure

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

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

Before you can enable policy routing, you must configure one of these commands in the global configuration mode, and then the configuration must be written and the switch reloaded:

- **sdm prefer extended-match**
- **sdm prefer access extended-match**
- **sdm prefer routing extended-match**

```
CAT3550(config)# access-list 10 permit 20.20.20.0 0.0.0.255
CAT3550(config)# route-map pbr permit 10
CAT3550(config-route-map)# match ip address 10
CAT3550(config-route-map)# set ip next-hop 12.12.12.12

CAT3550(config)# int vlan 3
CAT3550(config-if)# ip policy route-map pbr
CAT3550(config-if)#
06:12:31: %L3TCAM-3-SIZE_CONFLICT: PBR requires enabling extended routing

CAT3550# show run int vlan 3
Building configuration...

Current configuration : 60 bytes
!
interface Vlan3
ip address 55.55.55.1 255.255.255.0

!--- Command not taken - you need to enable SDM.

end

CAT3550# conf t
Enter configuration commands, one per line. End with CNTL/Z.
CAT3550(config)# sdm prefer extended-match
Changes to the running SDM preferences have been stored, but cannot take effect
until the next reload.
Use 'show sdm prefer' to see what SDM preference is currently active.
CAT3550(config)# end

CAT3550# write
06:14:11: %SYS-5-CONFIG_I: Configured from console by console
Building configuration...
[OK]

ltd-1-2# reload
Proceed with reload? [confirm]
```

You should be aware of unsupported commands refer to Unsupported Route Map Commands if this configuration exists:

```

!
access-list 10 permit 20.20.20.0 0.0.0.255
route-map pbr permit 10
match ip address 10
set ip default next-hop 12.12.12.12
!

```

An error message is generated if you try to configure the policy route map on the interface:

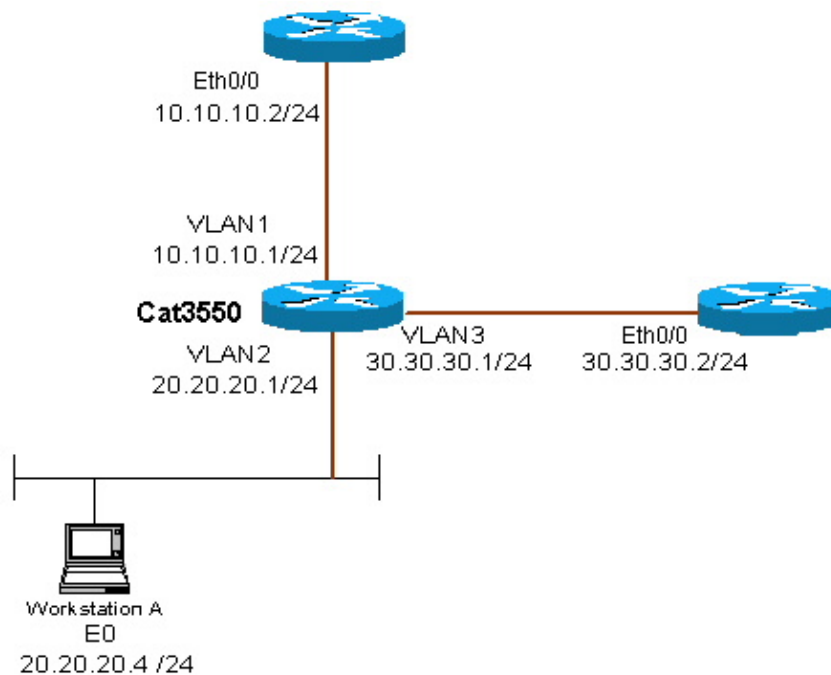
```

CAT3550(config)# int vlan 3
CAT3550(config-if)# ip policy route-map pbr
CAT3550(config-if)# end
CAT3550#
00:02:29: %PBR-3-UNSUPPORTED_RMAP: Route-map pbr not supported for Policy-Based Routing

```

Network Diagram

This document uses this network setup:



Configurations

This document uses this configuration:

- CAT3550

The configuration takes traffic source from 20.20.20.X (access-list 10) and sends it to 30.30.30.2 the configuration overrides the default gateway set to 10.10.10.2.

CAT3550 (Cisco Catalyst 3550)
<pre> CAT3550# show running-config Building configuration... . . ! </pre>

```

interface Vlan1
 ip address 10.10.10.1 255.255.255.0
!
interface Vlan2
 ip address 20.20.20.1 255.255.255.0
 ip policy route-map pbr
!
interface Vlan3
 ip address 30.30.30.1 255.255.255.0
!
ip route 0.0.0.0 0.0.0.0 10.10.10.2
ip classless
ip http server
!
!
access-list 10 permit 20.20.20.0 0.0.0.255
route-map pbr permit 10
 match ip address 10
 set ip next-hop 30.30.30.2
!
.
!
end

```

Verify

There is currently no verification procedure available for this configuration.

Troubleshoot

This section provides information you can use to troubleshoot your configuration.

Troubleshooting Commands

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

Note: Before issuing **debug** commands, refer to Important Information on Debug Commands.

- **debug ip policy** Shows packets that are 'policy routed' or 'policy rejected'. An example of the **debug ip policy** command output is:

```

*Dec 5 13:33:23.607: IP: s=20.20.20.3 (Vlan2), d=200.200.200.4, len 100, policy match
*Dec 5 13:33:23.607: IP: route map pbr, item 10, permit
*Dec 5 13:33:23.607: IP: s=20.20.20.3 (Vlan2), d=200.200.200.4 (Vlan3),len 100, policy r
*Dec 5 13:33:23.607: IP: Vlan2 to Vlan3 30.30.30.1
*Dec 5 13:33:23.707: IP: s=20.20.20.3 (Vlan2), d=200.200.200.4, len 100, policy match
*Dec 5 13:33:23.707: IP: route map pbr, item 10, permit
*Dec 5 13:33:23.707: IP: s=20.20.20.3 (Vlan2), d=200.200.200.4 (Vlan3),len 100, policy r
*Dec 5 13:33:23.707: IP: Vlan2 to Vlan3 30.30.30.1
*Dec 5 13:33:23.847: IP: s=20.20.20.3 (Vlan2), d=200.200.200.4, len 100, policy match
*Dec 5 13:33:23.847: IP: route map pbr, item 10, permit

```

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Cisco – Policy Routing with Catalyst 3550 Series Switch Configuration Example

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NetPro Discussion Forums – Featured Conversations for RP
Service Providers: MPLS
Virtual Private Networks: Services
Virtual Private Networks: Security

Related Information

- [IP Routed Protocols Support Page](#)
- [IP Routing Support Page](#)
- [Technical Support – Cisco Systems](#)

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