Configuring a Forwarding Scale Profile Policy

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Forwarding Scale Profiles Overview

Cisco ACI and APIC allow you to configure different Forwarding Scale Profiles to suit your topology and deployment use cases. This section describes all Forwarding Scale Profiles and their purpose. Keep in mind, specific profiles may be unavailable in earlier releases or restricted to specific hardware platforms. For detailed information on hardware support and scalability numbers of each profile, see the release-specific chapters.

- **Dual Stack** — The default profile for all new supported switches that allows both IPv4 and IPv6 configurations.

- **High Dual Stack** — Provides increased IPv4, IPv6, and policy scale numbers compared to the default Dual Stack profile. This profile supports different scalability limits based on the specific switch platforms.

- **High LPM** — Provides scalability similar to the Dual Stack profile, but for deployments that require higher scale for longest prefix match (LPM) and lower policy scale.

- **High Policy** — This profile is similar to the Dual Stack profile but with higher policy scale. This profile has specific hardware requirements.

- **IPv4 Scale** — This profile is designed for IPv4-only deployments and allows you to configure higher IPv4 scale where no IPv6 configurations are needed.

- **High IPv4 EP Scale** — This profile is recommended to be used only for the ACI border leaf (BL) switches in Multi-Domain (ACI-SDA) Integration. It provides enhanced IPv4 EP and LPM scales specifically for these BLs and has specific hardware requirements.

- **Multicast Heavy** — This profile provides an enhanced multicast scale and has specific hardware requirements.

Supported Platforms

This section provides forwarding scale profiles hardware support information for Release 3.2(x).
Guidelines and Limitations

- When downgrading to a release that does not support one or more switches in your current fabric, keep the following in mind:
  - If you downgrade your fabric to a release where one or more of your current switches are not supported, those switches will become inactive in the fabric.
  - If you later upgrade the fabric to a release where the switch is supported again, the APIC will not regain complete details about the switch. In this case, you will need to explicitly remove the switch from the APIC and then re-add it to the fabric.
- When downgrading to a release that does not support one or more of your current forwarding scale profiles, the default forwarding scale profile will be configured on the switch. You must reduce the configurations on the switch to fit the default profile before the upgrade.
- Because the IPv4 Scale forwarding scale profile does not support IPv6 configurations, you must remove all IPv6 configurations from the switches that need to be configured with the IPv4 Scale profile.
- Before switching between forwarding scale profiles, the configurations on the switch must be reduced appropriately and thoroughly verified so that scale parameters of the target profile are not exceeded. For example, for switch models with EX at the end of the switch name, because the High Dual Stack profile has reduced scale support for contract policies, you must reduce the contracts scale accordingly before deploying that profile.
- Before migrating to minimal tenant multicast scale leaf profiles, such as High Dual Stack, we recommend that you first disable Layer 2 IGMP snooping, Layer 3 IGMP, and PIM-related configurations to prevent having a stale multicast state in your hardware.
- Applying a forwarding scale profile to a node requires a manual reload of that node. Any unsupported switches are ignored.
- VPCs associated with different forwarding scale profile settings are not supported. You must configure the VPC members with the same profile settings.
- With the default deny model in Cisco ACI, the configured tenant or VRFs have implicit rules that consume several TCAM entries for each VRF. With an increase in the number of VRFs configured on a single switch, these TCAM entries that are used per VRF also count toward the overall policy TCAM usage.
- Beginning with Release 4.1(1), the policy count updates that are reported by the leaf switches to the Cisco APIC through the MO `actrlRuleHit5min` is set to 0 for the High Dual Stack profile for all platforms.
• Beginning with Release 4.2(1), the policy count updates that are reported by the leaf switches to the Cisco APIC through the MO `actrlRuleHit5min` is set to 0 for the High Policy profile on the Cisco Nexus 93180YC-FX switch.

• Beginning with Release 4.2(2), the policy count updates that are reported by the leaf switches to the Cisco APIC through the MO `actrlRuleHit5min` is set to 0 for the High Policy profile on the Cisco Nexus 93600CD-GX switch.

• Beginning with Release 4.2(3), the policy count updates that are reported by the leaf switches to the Cisco APIC through the MO `actrlRuleHit5min` is set to 0 for the High Policy profile on the Cisco Nexus 9364C-GX switch.

• If you need to clear the configurations on the switch, we recommend using the `setup-clean-config.sh -k` command. The command will clear all configurations on the switch, except the forwarding scale profile and port profile configurations.

## Configuring Forwarding Scale Profiles Using REST API

The Forwarding Scale Profile policy provides different scalability options. For more information on the scalability options, see the Forwarding Scale Profile Policy Overview section in the chapter for your Cisco APIC release.

This section explains how to configure forwarding scale profiles using REST API.

### Before you begin

- Read through and follow the Guidelines and Limitations, on page 2 section.
- Ensure that your switches support the profile you want to configure. For the list of supported switches, see the release-specific section.
- Changing the scale profile for individual members of a VPC is not allowed. If members of the same VPC are associated with different leaf profiles, then a new leaf profile should be created with both members and the scale profile applied to it.

### Procedure

#### Step 1

To apply a forwarding scale profile policy with IPv4 scaling, send a post with XML similar to the following example:

```xml
<polUni>
  <infraInfra>
    <topoctrlFwdScaleProfilePol name="sampleFwdScaleProf" profType="ipv4"/>
    <infraAccNodePGrp name="sampleNodePolGrp">
      <infraRsTopoctrlFwdScaleProfPol
        tnTopoctrlFwdScaleProfilePolName="sampleFwdScaleProf"/>
    </infraAccNodePGrp>
    <infraNodeP name="nodeProf_101">
      <infraLeafS name="leafS_101" type="range">
        <infraNodeBlk name="test" from="101" to="101"/>
        <infraRsAccNodePGrp tDn="uni/infra/functprof/acccnodepgrp-sampleNodePolGrp"/>
      </infraLeafS>
    </infraNodeP>
  </infraInfra>
</polUni>
```
Step 2  Manually reload the switch after the forwarding scale profile policy is applied for the changes to take effect.