



# PfRv3 Probe Reduction

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This document provides information about the PfRv3 Probe Reduction feature that allows reducing traffic probe on channels that do not carrying any traffic.

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## Prerequisites for PfRv3 Probe Reduction

## Information About PfRv3 Probe Reduction

The PfRv3 Probe Reduction feature allows reducing traffic probe on channels that do not carry any traffic. Probing is used to compute important metrics such as reachability, one-way delay (OWD), jitter, and loss on channels that do not have user traffic. It helps PfRv3 algorithm to choose the best channel to use for a given traffic class.

A domain level parameter is defined to store the probing information. You need to store two sets of parameters; general monitor and quick monitor. In other words, one can specify the number of packets to be sent in a probe burst and the interval between such bursts.

Smart probe are of three types:

- **Active Channel Probe**—Active channel probe is sent out to measure network delay if no probe is sent out for past 10 seconds interval.
- **Unreachable Probe**—Unreachable probe is used to detect channel reachability when there is no traffic send out.
- **Burst Probe**—Burst probes are used to calculate delay, loss, jitter on a channel that is not carrying active user traffic.

# How to Configure PfRv3 Probe Reduction

## Configuring PfRv3 Probe Reduction

You can perform this task on a hub master or a border device.

### SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **domain default**
4. Do one of the following:
  - **master hub**
  - **border**
5. **advanced**
6. **smart-probes burst [quick] *number-of-packets* packets every *interval* seconds**

### DETAILED STEPS

#### Procedure

|               | Command or Action                                                                                                                                                                                                                | Purpose                                                                                                                                                                                                                                                           |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Step 1</b> | <b>enable</b><br><b>Example:</b><br>Device> enable                                                                                                                                                                               | Enables privileged EXEC mode.<br><ul style="list-style-type: none"> <li>• Enter your password if prompted.</li> </ul>                                                                                                                                             |
| <b>Step 2</b> | <b>configure terminal</b><br><b>Example:</b><br>Device# configure terminal                                                                                                                                                       | Enters global configuration mode.                                                                                                                                                                                                                                 |
| <b>Step 3</b> | <b>domain default</b><br><b>Example:</b><br>Device(config)# domain default                                                                                                                                                       | Enters domain configuration mode.                                                                                                                                                                                                                                 |
| <b>Step 4</b> | Do one of the following: <ul style="list-style-type: none"> <li>• <b>master hub</b></li> <li>• <b>border</b></li> </ul> <b>Example:</b><br>Device(config-domain)# master hub<br><b>Example:</b><br>Device(config-domain)# border | Configures the device as a master hub and enters master controller configuration mode.<br>Configures the device as the border and enters border configuration mode.<br><b>Note</b><br>If you select border configuration, it overwrites the master configuration. |

|        | Command or Action                                                                                                                                                                                                                                                                                                   | Purpose                                                                                                                                                                                                                                                                                    |
|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Step 5 | <b>advanced</b><br><b>Example:</b><br>Device(config-domain-mc)# advanced<br><b>Example:</b><br>Device(config-domain-br)# advanced                                                                                                                                                                                   | Enters advanced configuration mode.                                                                                                                                                                                                                                                        |
| Step 6 | <b>smart-probes burst [quick] <i>number-of-packets</i> packets every <i>interval</i> seconds</b><br><b>Example:</b><br>Device(config-domain-mc-advanced)# smart-probe burst 10 packets every 20 seconds<br><b>Example:</b><br>Device(config-domain-br-advanced)# smart-probe burst quick 10 packets every 1 seconds | Specifies the number of packets to be sent in a probe burst and the interval between the bursts. The default values are as follows: <ul style="list-style-type: none"> <li>• 1 packet every 1 second for default monitor</li> <li>• 20 packets every 1 second for quick monitor</li> </ul> |

## Verifying PfRv3 Probe Reduction

### SUMMARY STEPS

1. **show domain {default | *domain-name*} [vrf *vrf-name*] {master | border} status**

### DETAILED STEPS

#### Procedure

**show domain {default | *domain-name*} [vrf *vrf-name*] {master | border} status**

Use this command to verify the configuration.

#### Example:

```
Router# show domain default vrf green master status
```

```
Smart Probe Profile:
  General Monitor:
    Current Provision Level: Master Hub
    Master Hub:
      Packets per burst: 10
      Interval(secs): 20
  Quick Monitor:
    Current Provision Level: Master Hub
    Master Hub:
      Packets per burst: 10
      Interval(secs): 1
Smart Probe Inter-Packet Gap (ms) : 16
Smart Probe Timer Wheel Granularity (ms): 8
```

# Configuration Examples for PfRv3 Probe Reduction

## Example: PfRv3 Probe Reduction

```
domain default
master hub
advanced
  smart-probe burst 10 packets every 20 seconds
  smart-probe burst quick 10 packets every 1 seconds
```

## Additional References for PfRv3 Probe Reduction

### Related Documents

| Related Topic                          | Document Title                                                            |
|----------------------------------------|---------------------------------------------------------------------------|
| Performance Routing Version 3 commands | <a href="#">Cisco IOS Performance Routing Version 3 Command Reference</a> |