



Configuring Long Distance

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Information About Long Distance

In case of congestion, the long distance ingress ports sends a pause frame to its peer to pause all data transmission on the link for a specified period of time in order to absorb the in-flight packets.

When a pause frame is generated from a switch, it takes time to reach the peer switch. Until the packet reaches to peers all the in-flight packets need to be buffered and should not be dropped.

If the distance between the switches is longer, time taken by a pause frame to reach the peer switch is more and the number of the in-flight packets becomes higher. All these in-flight packets need to be buffered and should not be dropped. To absorb the large numbers of in-flight packets, the buffer size needs to be larger.

The ingress buffer is governed by these two thresholds:

- Lower threshold—Pause: The lower threshold is to trigger the generation of pause packets. When the buffer reaches the pause threshold, pause frames are generated.
- High threshold—Stop: This threshold is to stop generating the pause frames. When the buffer reaches the stop threshold, the pause frames stop getting generated.

To absorb a large number of in-flight packets, the difference between the pause threshold and the stop threshold should to be more. The pause threshold should be lower and the stop threshold should be higher. If the difference between the pause and stop thresholds are higher, the number of in-flight packets are absorbed in ingress buffer. If the pause threshold is lower, a pause frame is generated even for small buffer utilization.

On Cisco MDS 9000 switches, there is only one queue, the 7e template and all buffers are allocated to this queue. The pause threshold and the stop threshold are marked at same level. With this limitation, it cannot handle the long distance functionality.

With introduction of the long distance feature for Cisco MDS 9000 Series, you can enable the long distance feature on certain ports where peer switches are at a longer distance.

Guidelines and Limitations for Long Distance

The long distance feature has the following guidelines:

- If you use the long-distance command, a pause frame is generated even for a small buffer utilization.
- We recommend that you enable the long distance feature only on those ports where this feature is required.
- The internal buffer is currently set at 33%.

Default Settings for Long-Distance

The following table lists the default setting for long-distance.

Parameter	Default
long-distance	Disabled

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- Step 1** Enter global configuration mode:
switch# **configure terminal**
- Step 2** Enter interface configuration mode:
switch(config)# **interface ethernet slot/ethernet**
- Step 3** Configure long distance:
switch(config-if)# **priority-flow-control long-distance**
- Step 4** Exit interface and global configuration modes:
switch(config-if)# **exit**
switch(config)# **exit**
- Step 5** (Optional) Verify the status of the long-distance feature:
switch# **show system internal eth-qos port-node ethernet slot/ethernet**
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Example: Configuring Long Distance

The following running configuration shows how to configure long distance. Replace the placeholders with relevant values for your setup.

```
configure terminal
interface <ethernet 1/2>
  priority-flow-control long-distance
exit
exit
```

