

Multicast Configuration with Cisco 65xx Switches

Date:	July 12, 2004	Originator:	Matt Jerger
Software Versions:	All	Approvers:	John Kelly Gary Bliss
Hardware Revisions:	PTE1xx, PTX1xx	Status:	Approved
Product Type:	NetLink Wireless Telephones	Revision:	A
Access Level:	General		

Problem

Intermittently the NetLink Wireless Telephones will stop registering to the NetLink Gateway or will not register to the NetLink Gateway upon a new install.

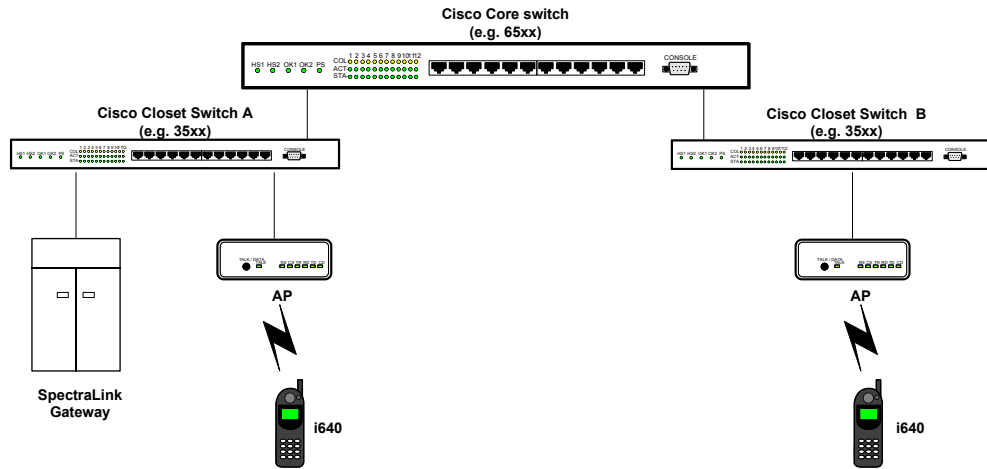
Description

When the Access Point that the Wireless Telephones are associating with are on the same closet switch (e.g. Cisco 35xx switch) as the NetLink Gateways, there does not appear to be any problems.

The problem arises if the Wireless Telephone is associated with an AP that is on a different switch than the Gateway (separated by a Cisco 65xx switch). The Cisco 65xx switch does not know how to route multicast traffic from SRP phones (which is sending a multicast packet as part of the registration process) to NetLink Gateways. See Figure 1.1

By resetting the power on the NetLink Gateway, the phone will then start to work properly again.

i640 (SRP) Multicast Configuration using Cisco 65XX switches as a core switch



Resolution

By changing some of the configurations in the Cisco switches, this problem can be avoided.

Required configuration for Cisco 65XX core switches:

Ensure the *IGMP Querier is enabled* (it is not on by default), which will periodically query (every 60 seconds) all multicast group members on the specified voice VLAN. As long as one member (gateway) remains in the group and responds to queries sent by the 65XX, the group will be maintained and the periodic queries will continue. This will ensure that multicast packets continue to be forwarded from phones to gateways, even when there may be conditions which clear the group membership list, such as Cisco 65XX switch reboots. See “enabling the IGMP Querier” on the following page for specific syntax and commands.

When the Cisco 65XX sends out the periodic queries, SpectraLink gateways will respond with a Membership Report Message. Not all gateways will respond because the gateways employ an IGMP specified technique to reduce the total number of reports transmitted to avoid many concurrent reports. Each gateway has a delay timer when responding to queries, and after the first gateway responds with a membership report message, all other host or gateways know this and will not respond to the query. See Diagram 2 for message flow details in a Querier enabled scenario.

Recommended configuration for Cisco closet switches (e.g. 35XX series):

It is recommended that Cisco closet switches such as the 35XX switch be configured with *IGMP snooping enabled* (which is a default). This is more efficient than having IGMP Snooping disabled, and reduces multicast network traffic by only forwarding multicast packets and IGMP queries to ports who have hosts (like gateways) that have sent membership report messages, effectively joining the multicast group.

Enabling the IGMP Querier on Cisco 65XX switches

Use the IGMP querier to support IGMP snooping within a VLAN where PIM and IGMP are not configured because the multicast traffic does not need to be routed.

To enable the IGMP querier in a VLAN running in native mode , perform this task:

- Step 1** Switch(config)# interface vlan vlan_ID (Specify the voice VLAN interface.)
- Step 2** Switch(config-if)# [no] ip igmp snooping querier Enable the IGMP querier. (Use the no keyword to disable the IGMP querier.)
- Step 3** Switch(config-if)# end Exit configuration mode.
- Step 4** Switch# end Exit configuration mode.

To enable the IGMP querier in a VLAN running in hybrid mode , perform this task:

- Step 1** Switch(config)# interface vlan vlan_ID (Specify the voice VLAN interface.)
- Step 2** Switch(config-if)# [no] set igmp querier <vlan> qi 60 Enable the IGMP querier. (Use the no keyword to disable the IGMP querier.)
- Step 3** Switch(config-if)# end Exit configuration mode.
- Step 4** Switch# end Exit configuration mode

Additional Information

More Details on IGMP snooping Querier

- IGMP snooping querier should be used to support IGMP snooping in a VLAN where PIM and IGMP are not configured because the multicast traffic does not need to be routed.
- In a network with IP multicast routing, the IP multicast router acts as the IGMP querier. If the IP-multicast traffic in a VLAN needs to be Layer 2 switched only, an IP-multicast router is not required, but without an IP-multicast router on a VLAN, you must configure another switch as the IGMP querier so that it can send queries.
- When IGMP snooping querier is enabled, the IGMP snooping querier sends out periodic IGMP queries that trigger IGMP report messages from the switch that



wants to receive IP multicast traffic. IGMP snooping listens to these IGMP reports to establish appropriate forwarding.

- You can enable the IGMP snooping querier on all the Catalyst 6500 series switches in the VLAN, but for each VLAN that is connected to switches that use IGMP to report interest in IP multicast traffic, you must set at least one switch as the IGMP snooping querier.
- You can use Cisco IOS commands to configure the Catalyst 6500 series switches to generate such IGMP queries on a VLAN regardless of whether or not IP multicast routing is enabled.

IGMP Querier - Enabled on Cisco 65XX

