



Q-SYS Networked Systems Technical Notes

Q-SYS TSC-7 Touch Screen Controller

Multicast filtering to prevent flooding of TSC-7

The TSC-7 Touch Screen Controller, a Q-SYS accessory for convenient control and utilization of a Q-SYS network, has a 100 Mbps Ethernet port and therefore can be susceptible to “flooding” if its communications with the core processor become overwhelmed by streaming audio data, such as AES67 traffic. This technical note describes using multicast filtering to prevent this.

Flooding the TSC-7 could cause it to go completely offline and even vanish from Q-SYS Configurator.

IGMP Snooping to filter multicast data

IGMP Snooping in a network switch allows it to peer into the headers of multicast data packets in order to assign nodes to multicast groups where applicable. The switch can then forward the multicast packets only to those nodes that they were meant for and therefore use network capacity much more efficiently. Since the TSC-7 handles no third-party streamed audio it has no need to receive non-Q-SYS multicast data, and therefore IGMP Snooping in the switch allows its network segment to carry only data pertinent to its functions.

IGMP Snooping also requires that an IGMP Querier is enabled on *one* switch in the LAN (some higher-level enterprise switches can arbitrate if more than one of them has an enabled querier). See the user documentation or the Q-SYS third-party setup guide for the network switch for instructions on setting up IGMP Snooping.

Access Control List (ACL) to filter multicast data

If it is not possible to implement IGMP Snooping, an ACL could be set up to filter traffic by matching it against a permit/deny policy, if the network switch supports doing so. Unlike IGMP Snooping, this is an inherently manual process and may require that you use Wireshark to capture and identify the non-Q-SYS multicast traffic.

There are two general levels of ACL:

- **Standard ACL**, which permits or denies the packet based only on its source IPv4 address.
- **Extended ACL**, which can use the source or destination IPv4 addresses as criteria, as well as a variety of IPv4 protocol options.

See the switch manufacturer’s admin documentation for instructions on setting up an IPv4 ACL.

NOTE: In addition to implementing IGMP snooping or an ACL, enabling flow control on each switch port that connects to a TSC-7 can further improve the touchscreen accessories’ network performance.

Resources

See the QSC document library for downloadable third party network switch setup guides at

<https://www.qsc.com/systems/products/q-sys-platform/resources/q-sys-networking-3rd-party-telephony-integration/qualified-q-lan-audiovideo-switches/>

The QSC document library has numerous other useful resources at <https://www.qsc.com/resources/document-library/>.