Precision Time Protocol (PTP) Node Identification

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With the expansion of IP network use in the professional video industry, Precision Time Protocol (PTP) also known as IEEE 1588 is becoming the standard for timing video signals throughout the facility. The Society of Motion Picture and Television Engineers (SMPTE) also embraced PTP with the release of SMPTE ST 2059 standards. While PTP is convenient for an IP network, how does one know that all of the PTP nodes are present? Is the grandmaster present and communicating? If multiple grandmasters are present which one is being utilized? The IPQ1000 can help with these questions.

The Tresent Technologies© IPQ1000 is capable of scanning the entire network and reporting all PTP devices that are communicating on the network. The first display lists the grandmaster information including: presence, PTP ID, IP address, MAC address, as well as the offset and path delay to the IPQ1000. The second display lists all PTP nodes on the network with node specific information such as: PTP ID, IP address, MAC address, master capabilities, and the version of PTP that is running on the device.

IEEE 1588

SMPTE ST 2059

Figure 1 IPQ1000 PTP display

Precision Time Protocol (PTP)

This list can be extensive if you are working on a complex network, so filters are provided to sort between slave devices and master devices.

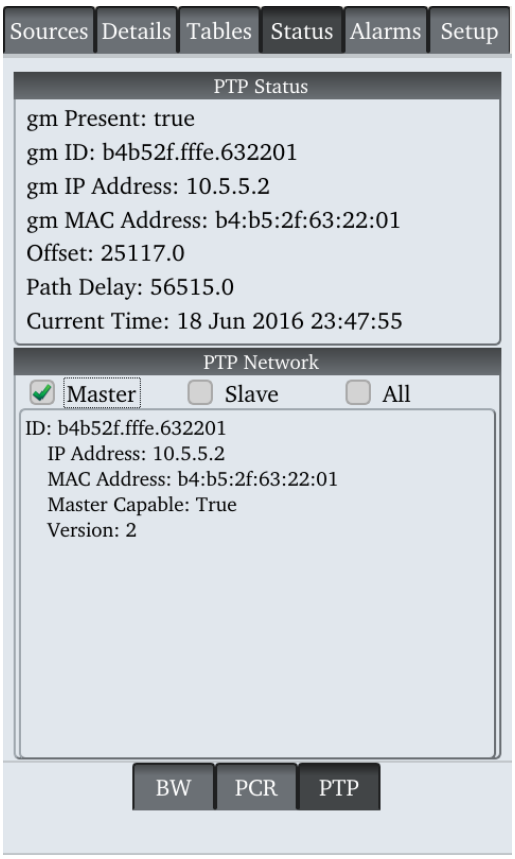

Figure 2 IPQ1000 PTP Display with Master filter

When "Master" is selected, only devices capable of being a master are displayed. There can be multiple devices that are capable of being a master on a single network for redundancy, but only one can be grandmaster at any given time.

Likewise, when "Slave" is selected only slave devices are listed. These devices are nodes that are synchronizing to the PTP grandmaster and cannot be master devices themselves.

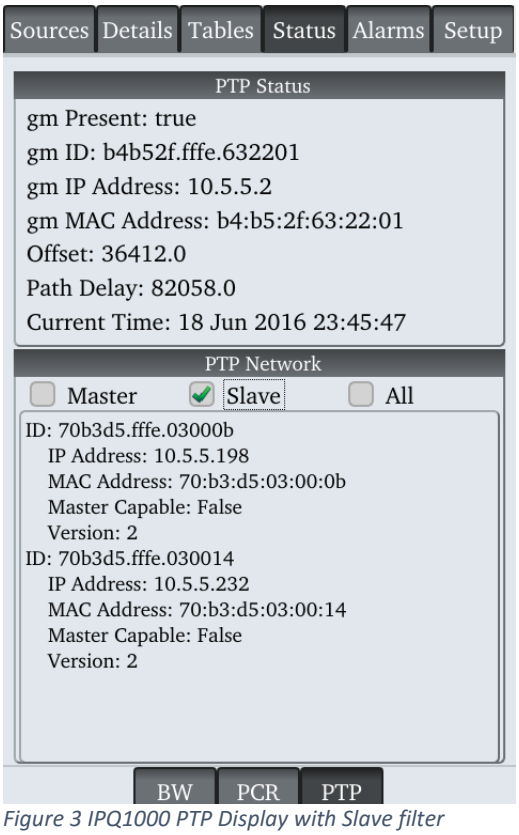

Figure 3 IPQ1000 PTP Display with Slave filter