IEEE Standards Interpretation for IEEE Std 1588™-2002 IEEE Standard for a Precision Clock Synchronization Protocol for Networked Measurement and Control System

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Interpretation Request #1
Clause Nos.: 6.2.2.2, Annex D.3, and D.3.1

In the PTP spec Annex D.3.1, it defines the UDP port numbers for messages as follows:

Event port = 319 (Sync, Delay_Req) General port = 320 (Follow-up, Delay_Resp or Management message)

Are the ports for the listeners to bind (udp recvfrom port)? If that's the case, does it mean that the slave has to open two sockets to listen, one for event (e.g. Sync) messages and the other for other (e.g. Follow-up) messages? The spec only suggests having separate sockets for multicast and unicast messages (e.g. Sync req).

Interpretation Response #2
Clause 6.2.2.2 specifies that all non-management messages shall be communicated via multicast communication. Management message may also use point-to-point communication. Thus a device must listen for all types of messages, management and non-management, as multicast communications. The devices may in addition accept management messages as a point-to-point communication. If the device knows that a target device will accept a point-to-point management message it may send it as point-to-point otherwise it must use multicast. Note that management messages are one of the types of messages communicated over GeneralPorts (the other types being Follow_Up and Delay_Resp messages).

Annex D.3 and D.3.1 specifies how this is to work in normal Ethernet implementations. All messages shall be UDP (clause D.3). Clause D.3.1 specifies that each domain shall use one of the defined Ethernet multicast addresses and that EventPorts shall use port number 319 and GeneralPorts port number 320.

Exactly how the above is implemented may vary with the operating system. In most operating systems this will require two sockets, one for the EventPort and one for the GeneralPort.

Most implementations will not make use of the additional option of unicast messages for management messages as allowed by clause 6.2.2.2. If they do an additional socket will need to be provided for this purpose.