

This contribution is an initial, incomplete proposal for an informative annex. It is part of the proposed changes of comment #17 against draft IEEE 802.1AS-2025-REV d0.2.

The intention is to illustrate the ideas of the comment and collect feedback on whether such an appendix is deemed useful and work should be invested to create it.

Annex (informative)

Compatibility for Ethernet (FDE) between versions of this Standard

This annex contains information on required settings, selection of options, and further information that may prove to be helpful for situations where devices supporting different versions of this standard are connected in a system. For such a system to work, certain settings on the newer devices may be required, the proposed default values may result in malfunctions. Support for interoperability must not be confused with support for plug-and-play.

The intention of this annex is to guide users of this standard with respect to required settings to achieve backwards compatibility / interoperability between different versions of this standard, and the limitations resulting thereof. While it is obvious that features introduced with a specific version of this standard cannot be supported by legacy devices, there are situations where mixed systems may still function. As an example, Hot-Standby introduced with IEEE 802.1ASdm can use PTP relays that do not support this feature under certain circumstances, e.g., if there is no clock target on those PTP relays.

Table 1 lists the main properties / limitations of the different amendments and revisions of the standard.

Thereafter, recommended settings for devices implementing a certain revision of this standard to legacy devices implementing an earlier revision of this standard with the default values defined for those revisions are provided.

Table 1: Main properties relevant for Interoperability

	Domains / Instances	Propagation delay message exchange	gPtpCapable Signaling	Sync Tree establishment	Announce Messages	Other
AS-2011	Only domain 0	Transport specific (sdoId = 0x100)	not transmitted, ignored on receipt	Must be BTCA	Required	
AS-2020	Only domain 0	Transport specific (sdoId = 0x100), if portDS.delayMechanism = P2P for domain 0	always transmitted	Must be BTCA	Required	
		CMLDS (sdoId = 0x200), if portDS.delayMechanism = COMMON_P2P for domain 0	always transmitted, required on receipt if peer uses CMLDS	Must be BTCA	Required	
	Multiple instances / domains	CMLDS (sdoId = 0x200) if a domain other than domain 0 is enabled on a physical port (FDE), irrespective of settings for the PTP port of domain 0. Only CMLDS messages are exchanged	Always transmitted and must be received for the domainNumbers of all enabled instances on a port to become asCapable on a specific port for an instance	Must be BTCA for domain 0, configurable for all other domains (system-wide consistency / functionality is a system engineering task)	Required	

	Domains / Instances	Propagation delay message exchange	gPtpCapable Signaling	Sync Tree establishment	Announce Messages	Other
ASdm- 2024	Same as AS-2020	Same as AS-2020.	Can be disabled	Domain 0 can now also use external port configuration	Required	Signaling messages may carry one or both interval request TLVs, or the gPtpCapable TLV. AS-2011, 2020 only allow a single TLV. (To be verified: As this in ASdm or in Corr1? New optional feature: DRIFT_TRACKING TLV New, optional feature: HSB New, optional feature: disable transmission of gptpCapable messages
AS-2025						
ASds-2026						
Ased-2026						
ASeb-202x					Optional	
AS-2025- REV						

Compatibility IEEE 802.1AS-2020 to legacy devices supporting IEEE 802.1AS-2011



Table 2: Parameter settings for a device implementing IEEE 802.1AS-2020 to be interoperable with a device supporting IEEE 802.1AS-2011 in default setting

Remark for reviewers (to be removed): It is not the intention in this appendix to list all perturbations of settings that may achieve compatibility. Rather, basis are the default parameter values of the older version of this standard.

Note 1: Most of the settings listed in the following table are related to the one port where the legacy device is connected. Other ports of the device may have different port-specific settings. As an example, a device connected to a network of AS-2020 capable stations may have a legacy station connected to one of its ports. The settings listed in the following are for that port only. As an example, the device may support several instances towards the AS-2020 devices. On the port with the legacy device, only the instance with domainNumber 0 must be enabled with the listed parameter settings.

DataSet.ManagedObject (AS-2020)	Value
defaultDS.domainNumber	0 (only this domain must be active)
defaultDS.externalPortConfigurationEnabled	FALSE, unless device B is an end device with a single PTP port where the PTP port status will never change (GM or not GM capable)
portDS.delayMechanism	0x02 (P2P)
portDS.initialLogAnnounceInterval	0 (=default)
portDS.mgtSettableLogAnnounceInterval	0 (=default)
portDS.initialLogSyncInterval	0 (different from default)
portDS.mgtSettableLogSyncInterval	0 (different from default)
portDS.initialLogPdelayReqInterval	0 (=default)
portDS.mgtSettableLogPdelayInterval	0 (=default)
<to be completed>	

Remark for reviewers (to be removed): Should only deviations from default settings be listed?

Compatibility IEEE 802.1AS-2025 to legacy devices supporting IEEE 802.1AS-2011



Table 3: Parameter settings a device implementing IEEE 802.1AS-2025 to be interoperable with a device supporting IEEE 802.1AS-2011 in default settings

DataSet.ManagedObject (AS-2025)	Value
defaultDS.domainNumber	0
defaultDS.externalPortConfigurationEnabled	FALSE, unless device B is an end device with a single PTP port where the PTP port status will never change (GM or not GM capable)
portDS.delayMechanism	2 (P2P)
portDS.initialLogAnnounceInterval	0 (=default)
portDS.mgtSettableLogAnnounceInterval	0 (=default)
portDS.initialLogSyncInterval	0 (different from default)
portDS.mgtSettableLogSyncInterval	0 (different from default)
portDS.initialLogPdelayReqInterval	0 (=default)
portDS.mgtSettableLogPdelayInterval	0 (=default)
portDS.gPtpCapableStateMachinesEnabled	1 or 0 (some legacy devices may misinterpret this signaling message)

Further settings	
Transmission of interval setting request information	only transmit one TLV per signaling message

Compatibility IEEE 802.1AS-2025 to legacy devices supporting IEEE 802.1AS-2020



Table 4: Parameter settings a device implementing IEEE 802.1AS-2025 to be interoperable with a device supporting IEEE 802.1AS-2020

DataSet.ManagedObject (AS-2025)	Value
defaultDS.domainNumber	0 – 255, multiple domains possible on the same physical port (one PTP port per instance)
defaultDS.externalPortConfigurationEnabled	FALSE for the instance with domainNumber 0, consistent else
portDS.delayMechanism	There is no default value defined in AS-2020 for domain 0. If CMLDS is used on domain 0, gPtpCapable State Machines must not be disabled for domain 0.
<to be completed>	