IEEE P802.1AS management object worksheet (for discussion purposes) Version 0.02, 2007-10-16

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Revsion History

Version	Date	By	Comments
0.01	9/27/2007	Alan K. Bartky	First version for comments
0.02	10/16/2007	Alan K. Bartky	Reformatted and edited based on suggestions from Monday 2007-10-15 phone meeting. Included comments/questions from David James and Geoff Garner and set initial prosed values for the new in/out/maybe and required fields based on those comments and my current thoughts.

Number Group	Meaning	1588 Section
A	ptpGlobal other objects	N/A
B	ptpPort other objects	N/A
C	OC/BC Default Data Set	8.2.1
D	OC/BC Current Data Set	8.2.2
E	OC/BC Parent Data Set	8.2.3
F	OC/BC Time Properties	8.2.4
G	Port Data Set	8.2.5
H	TC Default Data Set	8.3.2
I	TC Current Data Set	8.3.3
J	TC Port Data Set	8.3.4

Class	Meaning	Description
S	Static	Static as defined by 1588
D	Dynamic	Dynamic as defined by 1588
C	Configurable	Configurable as defined by 1588
O	Operational (ifTable inspired)	Operational status as per IETF MIBs
A	Administrative (ifTable inspired)	Administrative status as per IETF MIBs
P	Performance/Diagnostic statistic (ifTable inspired)	Read only statistics object

Decision	Meaning	Description
In	In	Object is proposed for inclusion in 802.1AS
Maybe	Maybe	Object is under discussion
Out	Out	Object is not proposed for inclusion in 802.1AS

Access	Meaning
RO	Read Only
RW	Read Write
NA	Not accessable (used for table indexes)

Acronyms:	Meaning
OC	Ordinary Clock
BC	Boundary Clock
TC	Transparent Clock
N/A	Not Applicable

Initials	Commentor
AKB	Alan K. Bartky
DVJ	David V. James
GG	Geoffrey Garner

#	Name ***(TC same/similar object in OC & BC if in bold italic)***	Class	Short Description (note: If from 1588, usually a straight copy that document)	1588 Section	In/ Out/ Maybe	Reqd.	Access	Default	Comments
A1	ptpAdminStatus	A	The desired state of the protocol engine (for all ports). When the managed system initializes, the protocol engine starts with ptpAdminStatus in the down(2) state. As a result of either explicit management action or per configuration information retained by the managed system, ptpAdminStatus is then changed to either the up(1) or testing(3) states (or remains in the down(2) state). The testing(3) state is a request to enter a testing state for the protocol engine and all/or PTP ports (implementation depedent). Support for testing(3) is optional. If set to down(2), then all 802.1AS ports will be set to 802.1AS DISABLED. If Set to up(1) for all ports in 802.1AS DISABLED state will be set to INITIALIZING state if ptpPortAdminStatus is also set to up(1) for each port.	N/A	**In**	Y	**RW**	up(1)	AKB: My proposal. Also testing state would be optional. Inspired by ifAdminStatus from RFC 2863. DVJ: Need some thought. GG: Need to explain how ptpAdminStatus, ptpOperStatus, ptpPortAdminStatus, and ptpPortOperStatus, and their various values (up, down, testing, dormant, etc.) relate to the various port states (FAULTY, DISABLED, INITIALIZING, SLAVE, MASTER, PREMASTER, etc.). AKB: Based on that, updated description.

#	Name ***(TC same/similar object in OC & BC if in bold italic)***	Class	Short Description (note: If from 1588, usually a straight copy that document)	1588 Section	In/ Out/ Maybe	Reqd.	Access	Default	Comments
A2	ptpOperStatus	O	The current operational state of the protocol (i.e. as viewed as a combination of multiple ports). If ptpAdminStatus is down(2) then ptpOperStatus should be down(2). If ptpAdminStatus is changed to up(1) then ptpOperStatus should change to up(1) if the protocol engine is ready to transmit and receive network traffic on any interface (i.e. any port is not in DISABLED, FAULTY or INITIALIZING states); it should change to dormant(5) if the protocol engine is waiting for external actions (such as waiting for an Ethernet port to become active); it should remain in the down(2) state if and only if there is a fault that prevents it from going to the up(1) state; it should remain in the notPresent(6) state if the interface has missing components. The testing(3) state indicates that the PTP protocol engine and/or all ports are being tested and that no operational packets can be passed on any port. Operational states of up and down are mandatory, all others are optional.	N/A	**In**	Y	RO		AKB: My proposal. Only up and down states would be mandatory. Inspired by ptpOperStatus from RFC 2863. DVJ: Theme is valuable, haven't checked details. GG: Need to explain how ptpAdminStatus, ptpOperStatus, ptpPortAdminStatus, and ptpPortOperStatus, and their various values (up, down, testing, dormant, etc.) relate to the various port states (FAULTY, DISABLED, INITIALIZING, SLAVE, MASTER, PREMASTER, etc.). AKB: Based on that, updated description.

#	Name ***(TC same/similar object in OC & BC if in bold italic)***	Class	Short Description (note: If from 1588, usually a straight copy that document)	1588 Section	In/ Out/ Maybe	Reqd.	Access	Default	Comments
B1	ptpPortAdminStatus	A	"The desired state of a port. When the managed system initializes, the port starts with ptpPortAdminStatus in the down(2) state. As a result of either explicit management action or per configuration information retained by the managed system, ptpPortAdminStatus is then changed to either the up(1) or testing(3) states (or remains in the down(2) state). The testing(3) state indicates that no operational packets can be passed. The testing(3) state is a request to enter a testing state for PTP port (implementation depedent). Support for the testing state is optional. When running testing, the PTP port state will show as DISABLED (i.e. the PTP state machine is effectively "offline" for that port).		**In**	Y	**RW**		AKB: My proposal. Also testing state would be optional. Inspired by ifAdminStatus from RFC 2863. GG: Need to explain how ptpAdminStatus, ptpOperStatus, ptpPortAdminStatus, and ptpPortOperStatus, and their various values (up, down, testing, dormant, etc.) relate to the various port states (FAULTY, DISABLED, INITIALIZING, SLAVE, MASTER, PREMASTER, etc.). AKB: Based on that, updated description.

#	Name ***(TC same/similar object in OC & BC if in bold italic)***	Class	Short Description (note: If from 1588, usually a straight copy that document)	1588 Section	In/ Out/ Maybe	Reqd.	Access	Default	Comments
B2	ptpPortOperStatus	O	~~The current operational state of the port. If~~ ptpPortAdminStatus is down(2) then ptpPortOperStatus should be down(2). If ptpPortAdminStatus is changed to up(1) then ptpPortOperStatus should change to up(1) if the port is not in INITIALIZING, DISABLED or FAULTY state; it should change to dormant(5) if the port is waiting for external actions (such as waiting for other parts of the system to initialize); it should remain in the down(2) state if and only if there is a fault that prevents it from going to the up(1) state; it should remain in the notPresent(6) state if the port has missing software or hardware components. The testing(3) state indicates that the 802.1AS is currently being tested and that no operational 802.1AS packets can be passed on this port. When running testing, the PTP port state will show as DISABLED (i.e. the PTP state machine is effectively "offline" for that port). Only states of up(1) and down(2) are mandatory, all others are optional.		**In**	Y	RO		AKB: My proposal. Only up and down states would be mandatory. Inspired by ptpPortOperStatus from RFC 2863 GG: Need to explain how ptpAdminStatus, ptpOperStatus, ptpPortAdminStatus, and ptpPortOperStatus, and their various values (up, down, testing, dormant, etc.) relate to the various port states (FAULTY, DISABLED, INITIALIZING, SLAVE, MASTER, PREMASTER, etc.). AKB: Based on that, updated description.
B3	ptpPortInOctets	P	Total PTP Octets received		**In**	Y	RO		Inspired by ifInOctets from RFC 2863

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B4	ptpPortInPkts	P	Total PTP packets received		**In**	Y	RO		AKB: Inspired by ifInUcastPkts from RFC 2863 DVJ: Theme seems OK, but counts may vary depending on types and types is premature. AKB: In and Out octets/packets count all PTP packets regardless of subtype. This is used in SNMP to check basic health (are the numbers increasing in both directions over time) and/or to calculate rough bandwidth used by PTP for this port. See RFC 2863 for more details or I can help describe more how ifTable or ifTable like objects are used.
B5	ptpPortOutOctets	P	Total PTP Octets received		**In**	Y	RO		Inspired by ifOutOctets from RFC 2863
B6	ptpPortOutPkts	P	Total PTP packets received		**In**	Y	RO		Inspired by ifOutUcastPkts from RFC 2863
B7	ptpPortInErrors	P	Invalid PTP packets received		**In**	Y	RO		Inspired by ifInErrors from RFC 2863
B8	ptpPortOutErrors	P	PTP transmit packets discarded due to some error		**In**	Y	RO		Inspired by ifOutErrors from RFC 2863
C1	two_step_clock	S	The value shall be TRUE if the clock is a two-step clock; otherwise the value shall be FALSE	8.2.1.2.1	Out	N	RO		AKB: Believe that this is fixed in 802.1AS, so we don't need a management object DVJ: Premature and Unnecessary.

#	Name ***(TC same/similar object in OC & BC if in bold italic)***	Class	Short Description (note: If from 1588, usually a straight copy that document)	1588 Section	In/ Out/ Maybe	Reqd.	Access	Default	Comments
C2	clock_identity	S	The value shall be the clock identity, see 7.6.2.1, of the local clock.	8.2.1.2.2	**In**	Y	RO	Based on MAC address	AKB: I'd assume you would be able to allow overriding of the ID of the clock to other values not based on MAC address. GG: 1588 does not allow for changing the clock_identity; the member is static there. My thought was that in 802.1AS this would also be fixed. AKB: If 1588 is fixed, then I'm OK with it being fixed in 802.1AS as well. DVJ: Hardwired to the MAC address, so unnecessary within here. AKB: Ports can have multiple MAC addresses, plus in an SNMP context, you would have to go and search the MAC address in another table rather than having a management app just get it here. Based on above argument, changing from "In" to "Maybe" and will discuss further.
C3	number_ports	S	The value shall be the number of PTP ports on the device. For an ordinary clock this shall be the value 1.	8.2.1.2.3	Maybe	?	RO		AKB: Static (unless system can allow creation of additional ports dynamically?).
C4	clock_quality: clockClass	D	The value is the clockClass member of the clock_quality member, see 5.3.7, and shall implement the clock class specifications of 7.6.2.4.	8.2.1.3.1.1	Maybe	Y	RO		DVJ: Still a bit premature. AKB: Changed to "maybe"
C5	clock_quality: clockAccuracy	D	The value is the clockAccuracy member of the clock_quality member, see 5.3.7.	8.2.1.3.1.2	Maybe	Y	RO		DVJ: Still a bit premature. AKB: Changed to "maybe"
C6	clock_quality: offsetScaledLogVariance	D	The value is the offsetScaledLogVariance member of the clock_quality member, see 5.3.7.	8.2.1.3.1.3	Maybe	Y	RO		DVJ: Still a bit premature. AKB: Changed to "maybe"
C7	priority1	C	The value is the priority1 attribute, see 7.6.2.2, of the local clock	8.2.1.4.1	**In**	Y	**RW**		
C8	priority2	C	The value is priority2 attribute, see 7.6.2.3, of the local clock	8.2.1.4.2	**In**	Y	**RW**		

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C9	domain_number	C	The value is the domain attribute, see 7.1, of the local clock.	8.2.1.4.3	Out	N	**RW**		AKB: Domain number not in 802.1AS as all members are always in the same domain (i.e. multiple domains are not supported) DVJ: Irrelevant. AKB: Set to "out"
C10	slave_only	C	The value shall be TRUE if the clock is a slave-only clock, see 9.2.2. The value shall be FALSE if the clock is a non-slave-only clock, see 9.2.3.	8.2.1.4.4	Maybe	?	**RW**		DVJ: Not clear what this means. Its its end-station option, then one of: slave, master, both traceable, ... are more relevant. See my last ClockTerms doc, for what are the (current) relevant options. AKB: Even with those options, this one object from a managment perspective I still think is a good thing to have as it allows a simple Y/N to force an 802.1AS port to never become a master. Setting to "Maybe".
D1	steps_removed	D	The value is the number of communication paths traversed between the local clock and the grandmaster clock.	8.2.2.1	Maybe	?	RO		GG: This is currently in 802.1AS. It actually is not needed for operation of the protocol, because we are assuming that loops are broken by spanning tree or equivalent. However, this member could still be retained if it was felt to be useful information for the user. DVJ: Proably useful. AKB: Setting to "Maybe"

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D2	offset_from_master	D	The value is an implementation specific representation of the current value of the time difference between a master and a slave as computed by the slave, see 11.2.	8.2.2.2	Maybe	Y	RO	N/A	EPON or wireless, the master may sometimes be the only one that knows. AKB: Management objects could be defined to return 0 or estimated values for cases that cannot be computed/determined/configured. Suggest leaving the object in but defining actions if the value cannot be determined. Setting to "Maybe"
D3	mean_path_delay	D	The value is an implementation specific representation of the current value of the mean propagation time between a master and slave clock as computed by the slave, see 11.2.	8.2.2.3	Out	N	RO	N/A	better description is needed. GG: Request-Response mechanism. It is therefore not needed in 802.1AS, as 802.1AS will measure delay using the peer delay mechanism (and the measured delay will be stored in the peer_mean_path_delay member of the port data set and TC port data set). AKB: Per Geoff's comment, setting to "Out"

#	Name *(TC same/similar object in OC & BC if in bold italic)*	Class	Short Description (note: If from 1588, usually a straight copy that document)	1588 Section	In/ Out/ Maybe	Reqd.	Access	Default	Comments
E1	parent_port_identity	D	The value is the source port identity of the port on the master that issues the Sync messages used in synchronizing this clock	8.2.3.2	**In**	Y	RO	From default data set	AKB: Believe that this is fixed in 802.1AS, so we don't need a management object. GG: This member is not fixed; it is dynamic. It is used to check that a received Sync message is from the current master. DVJ: Using 1588 or 802.1 conventions? Is this simply stated as the slave port? What about on the grand master? AKB: Convention shouldn't matter as the Slave just reports whatever it sees in incoming Sync messages and for the master, it reports its own ID. Based on that, believe this object should be "in".
E2	parent_stats	D	The value shall be TRUE if all of the following conditions are satisfied: □ The clock has a port in the SLAVE state. □ The clock has computed statistically valid estimates of the observed_parent_offset_scaled_log_variance and observed_parent_clock_phase_change_rate members.	8.2.3.3	Out	N	RO		AKB: Do not believe this is necessary for 802.1AS (i.e. as long as master is a better clock and running, I do not believe it is necessary to compute this by bridges and end stations). If nothing else, it certainly should not be a requirement and should be OK to always return FALSE. DVJ: Deep six this. Too implementation dependent, as per "statistically valid".
E3	observed_parent_offset_scaled_log_variance	D	The value shall be an estimate of the parent clock's PTP variance as observed by the slave clock, computed and represented as described in 7.6.3.5. The computation of this value is optional but, if not computed, the value of parent_stats shall be FALSE.	8.2.3.4	Out	N	RO		AKB: similar comment to above, do not believe that this should be required and has limited use in 802.1AS. Deep six this. Too hard to understand how to do, or to ever be done…

#	Name ***(TC same/similar object in OC & BC if in bold italic)***	Class	Short Description (note: If from 1588, usually a straight copy that document)	1588 Section	In/ Out/ Maybe	Reqd.	Access	Default	Comments
E4	observed_parent_clock_phase_change_rate	D	The value shall be an estimate of the parent clock's phase change rate as observed by the slave clock as defined in 7.6.4.4. If the estimate exceeds the capacity of its data type, see 15.5.3.5.1.4, this value shall be set to 0x7FFF FFFF or 0x8000 0000, as appropriate. A positive sign indicates that the parent clock's phase change rate is greater than the rate of the slave clock. The computation of this value is optional but, if not computed, the value of parent_stats shall be FALSE.	8.2.3.5	Out	N	RO		AKB: similar comment to above, do not believe that this should be required and has limited use in 802.1AS. DVJ: Deep six this. Too hard to understand how to do, or to ever be done…
E5	grandmaster_identity	D	The value shall be the clock identity, see 7.6.2.1, of the grandmaster clock.	8.2.3.6	**In**	Y	RO	From default data set	DVJ: Useful
E6	grandmaster_clock_quality: clockClass	D	The value is the clockClass member of the clock_quality member of the grandmaster clock, see 5.3.7, and shall implement the clock class specifications of 7.6.2.4.	8.2.3.6	**In**	Y	RO	From default data set	DVJ: How different from other one? AKB: For a slave, this tells the value as reported by the master in incoming messages. For a master, this would be the same as its own value.
E7	grandmaster_clock_quality: clockAccuracy	D	The value is the clockAccuracy member of the clock_quality member of the grandmaster clock, see 5.3.7.	8.2.3.6	**In**	Y	RO	From default data set	DVJ: How different from other one? AKB: For a slave, this tells the value as reported by the master in incoming messages. For a master, this would be the same as its own value.
E8	grandmaster_priority1	D	The value is the priority1 attribute, see 7.6.2.2, of the grandmaster clock	8.2.3.7	**In**	Y	RO	From default data set	DVJ: How different from other one? AKB: For a slave, this tells the value as reported by the master in incoming messages. For a master, this would be the same as its own value.
E9	grandmaster_priority2	D	The value is priority2 attribute, see 7.6.2.3, of the grandmaster clock	8.2.3.8	**In**	Y	RO	From default data set	DVJ: How different from other one? AKB: For a slave, this tells the value as reported by the master in incoming messages. For a master, this would be the same as its own value.

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F1	current_utc_offset	C?	In PTP systems whose epoch is the PTP epoch this value is the offset between TAI and UTC; otherwise the value has no meaning. The value shall be in units of seconds.	8.2.4.2	**In**	N	**RW**		AKB: I don't think we need this for 802.1AS GG: This is needed to enable an application at a slave clock node to obtain UTC. The PTP protocol transports PTP time, which is traceable to TAI; to obtain UTC, you must know the number of leap seconds. DVJ: I think we need this in the GM capable stations, possibly also want to monitor what was received. AKB: My intent was that "time of day" functions in general for 802.1AS are optional as simpler devices may not need a time of day clock and only use 802.1AS for frequency syncronization between systems. Based on current comments, changing to "In" but not required (i.e. optional)
F2	current_utc_offset_valid	C?	The value is TRUE if the current_utc_offset is known to be correct.	8.2.4.3	Maybe	N	**RW**		GG: I think this member is needed, as an indication to an application of whether current_utc_offset is valid or not. I don't understand your comment here. AKB: How do does a 1588 device "know" if the UTC offset is "correct". Is this by user verification, or does it use something like GPS to postively determine its position on the planet? DVJ: Premature, we may not have it.

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F3	leap_59	D	In PTP systems whose epoch is the PTP epoch, a TRUE value shall indicate that the last minute of the current UTC day will contain 59 seconds.	8.2.4.4	**In**	N	**RW**		~~AKB: as we are not designing clocking~~ systems, I'd assume 802.1AS doesn't shouldn't have to require to support this and if an 802.1AS slave sees a jump in time at Midnight UTC, it will just adjust its time accordingly. GG: leap_59 and leap_61 are provided so that applications that would like to have advance notice of an impending leap second will have the notice. AKB: "Time of day" function should still be optional, so changing to "In" but not required. DVJ: Premature. May be encoded differently. Is this the value assumed by this GM capable, or observed? AKB: My understanding of this the leap_59 and leap_61 is it allows a PTP station to know that at Midnight UTC time on the day it needs to account for the leap second if it is doing TAI to UTC conversion. So it shouldn't matter if it is for a slave or for a master.
F4	leap_61	D	In PTP systems whose epoch is the PTP epoch, a TRUE value shall indicate that the last minute of the current UTC day will contain 61 seconds.	8.2.4.5	**In**	N	**RW**		systems, I'd assume 802.1AS doesn't shouldn't have to require to support this and if an 802.1AS slave sees a jump in time at Midnight UTC, it will just adjust its time accordingly. GG: leap_59 and leap_61 are provided so that applications that would like to have advance notice of an impending leap second will have the notice. AKB: "Time of day" function should still be optional, so changing to "In" but not required.

#	Name ***(TC same/similar object in OC & BC if in bold italic)***	Class	Short Description (note: If from 1588, usually a straight copy that document)	1588 Section	In/ Out/ Maybe	Reqd.	Access	Default	Comments
F5	time_traceable	D	The value is TRUE if the timescale and the value of current_utc_offset are traceable to a primary standard; otherwise the value shall be FALSE.	8.2.4.6	**In**	Y	RO	D	AKB: Although absolute time of day is not needed for A/V synchronization, it would be useful by some applications to also be able to set their time of day clock (i.e. to avoid the flashing 12:00:00 VCR) so those devices don't also have to have an NTP stack or other means of getting time of day. DVJ: Traceable has a distinct accurate 802.1AS meaning and is useful. Again, which one?
F6	frequency_traceable	D	The value is TRUE if the frequency determining the timescale is traceable to a primary standard; otherwise the value shall be FALSE.	8.2.4.7	Maybe	?	RO		AKB: No opinion on this one. DVJ: Irrelevant.
F7	ptp_timescale	S or C?	The value is TRUE if the clock timescale of the grandmaster clock, see 7.2.1, is PTP and FALSE otherwise.	8.2.4.8	Out	N	RO or RW		AKB: Believe this is not necessary for 802.1AS as the only timescale allowed in PTP. DJV: Toss it.
F8	time_source	D	~~The value is the source of time used by the~~ grandmaster clock. The initialization value shall be selected as follows: a) If the time source, see 7.6.2.6, is known at the time of initialization the value shall be set to that value, else b) The value shall be INTERNAL_OSCILLATOR.	8.2.4.9	Maybe	?	RO		DVJ: Meaning and value unclear. AKB: Cut and pasted the rest of the description from the June version of P1588v2. Value for slave isfrom what is reported in messages from the master, or internally if running as master. Seems to me to be useful. Setting to "Maybe"

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G1	port_identity	S	The value shall be the PortIdentity attribute of the local port, see 7.5.2.	8.2.5.2.1	**In**	Y	RO		AKB: Static (unless system can allow creation of additional PTP ports dynamically?) DVJ: Huh? Isn't this done in a generic way? AKB: This object is straight from 1588 and is part of the Port data set table. How it would be used in a management perspective would be dependent on the management protocol/method. In an SNMP context, I would guess the object could be a Table Index type and not necessarily an object entry in the table itself (although sometimes in SNMP it is done that way). It is certanly an object that numbers from 1 to N not necessarily tied to all LAN ports (as some could be non-PTP capable). Believe that this object will be needed in some form or fashion from a managment perspective, so setting to "in". May need another object to correlate between PTP indexes and other port table indexes.

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									~~AKB: This is listed in IEEE 1588 as~~ Dynamic instead of configurable. Wouldn't you want to make this so you could set this (or is there some other way this value is calculated based on other configurable values??). GG: This is dynamic in 1588; its value is a result of operation of the PTP state machine. It is true that a user can cause certain values to occur, i.e., INITIALIZING, DISABLED, but this occurs as a result of the DESIGNATED_DISABLED and DESIGNATED_ENABLED events, presumably caused by the user. DVJ: Relevant, but details premature. AKB: Suggest this object in "In" as a read only object and you can disable one port with ptpPortAdminStatus or all ports with ptpAdminStatus. We can continue to work on details (such as if we support INITIALIZED, DISABLED and FAULTY states.
G2	port_state	D	The value shall be the value of the current state of the protocol engine associated with this port, see 9.2, and shall be taken from the enumeration in Table 8.	8.2.5.3.1	**In**	Y	RO		
G3	log_min_mean_delay_req_interval	D	The value is the logarithm to the base 2 of the minimum mean Delay_Req interval, see 7.7.2.4. The initialization value is implementation specific consistent with 7.7.2.4.	8.2.5.3.2	Out	N	RO		~~DVJ: Premature. Might dissappear~~ GG: This is not needed, as 802.1AS is not using the Delay Request Response mechanism. AKB: Changed to "Out"
G4	peer_mean_path_delay	D	If the value of the delay_mechanism member is P2P, the value shall be an estimate of the current one-way propagation delay on the link attached to this port computed using the peer delay mechanism, see 11.4. It is recommended that the data type be TimeInterval.	8.2.5.3.3	**In**	N	RO		DVJ: We don't do E2E. AKB: Text I used was copied from 1588. Removed E2E text from Description. Set to "In" as a starting point for discussion.

#	Name ***(TC same/similar object in OC & BC if in bold italic)***	Class	Short Description (note: If from 1588, usually a straight copy that document)	1588 Section	In/ Out/ Maybe	Reqd.	Access	Default	Comments
G5	log_mean_announce_interval	C	The value shall be the logarithm to the base 2 of the of the mean Announce interval, see 7.7.2.2.	8.2.5.4.1	**In**	Y	**RW**		DVJ: One notation, please. In the GM or observed? AKB: This is an IEEE 1588 Configuration object, so by definition it would only apply if the system was running as GM, and not if it was running as slave. For this case of this, there is no requirement in my knowledge to even try to or want to try and calculate time between announce messages. I think this object is OK and necessary for management purposes to be able to set.
G6	announce_receipt_timeout	C	The value shall be an integral multiple of Announce intervals, see 7.7.3.1.	8.2.5.4.2	Maybe	Y	**RW**		DVJ: Premature, may dissappear. AKB: And be replaced by something else?? Please advise. Setting to "maybe"
G7	log_mean_sync_interval	C	The value shall be the logarithm to the base 2 of the mean Sync interval for multicast messages, see 7.7.2.3.	8.2.5.4.3	Maybe	Y	**RW**		DVJ: Premature, may dissappear. AKB: And be replaced by something else?? Please advise. Setting to "maybe"
G8	delay_mechanism	C	The value shall indicate the propagation delay measuring option used by the port in computing mean_path_delay. The value shall be taken from the enumeration in Table 9.	8.2.5.4.4	Maybe	?	**RW**		AKB: Is this a case where we only support peer delay (P2P) or is it an option in 802.1AS to support Delay request-response (E2E) or DISABLED (syntonize only, transparent clocks)?
G9	log_min_mean_pdelay_req_interval	C	The value shall be the logarithm to the base 2 of the minimum mean Pdelay_Req interval, see 7.7.2.5.	8.2.5.4.5	**In**	Y	**RW**		

#	Name ***(TC same/similar object in OC & BC if in bold italic)***	Class	Short Description (note: If from 1588, usually a straight copy that document)	1588 Section	In/ Out/ Maybe	Reqd.	Access	Default	Comments
G10	version_number	C	The value shall indicate the PTP protocol version in use on the port.	8.2.5.4.6	**In**	Y	**RW**		AKB: Won't need this object for initial release of 802.1AS which only support v2 formatting, but there might be a 2.1, 3.0, etc. in the future, so you might as well define this now IMHO, but make it write operation optional if only one version of the protocol is supported.
H1	***clock_identity***	S	The value shall be the clock identity, see 7.6.2.1, of the local clock.	8.3.2.2.1	**In**	Y	RO	Based on MAC address	AKB: I'd assume you would be able to allow overriding of the ID of the clock to other values not based on MAC address. GG: 1588 does not allow for changing the clock_identity; the member is static there. My thought was that in 802.1AS this would also be fixed. AKB: If 1588 is fixed, then I'm OK with it being fixed in 802.1AS as well. DVJ: Thought I saw already. AKB: Yes, my view of 1588 is they defined duplicate objects for the TC that were already defined or similar in OC/BC object tables. These ones for this contribution, I put in bold/italic. My current opinion if we did an SNMP MIB, we may be better served by combining some of these tables, but then making certain objects and object values optional or not applicable if running as TC (as some ports could in theory change from OC, BC or TC on the fly).

#	Name ***(TC same/similar object in OC & BC if in bold italic)***	Class	Short Description (note: If from 1588, usually a straight copy that document)	1588 Section	In/ Out/ Maybe	Reqd.	Access	Default	Comments
H2	***number_ports***	S	The value shall be the number of PTP ports on the device. For an ordinary clock this shall be the value 1.	8.3.2.2.2	**In**	Y	RO		DVJ: Thought I saw already. AKB: Yes, my view of 1588 is they defined duplicate objects for the TC that were already defined or similar in OC/BC object tables. These ones for this contribution, I put in bold/italic. My current opinion if we did an SNMP MIB, we may be better served by combining some of these tables, but then making certain objects and object values optional or not applicable if running as TC (as some ports could in theory change from OC, BC or TC on the fly).
H3	***delay_mechanism***	C	If the transparent clock is an end-to-end transparent clock, the value shall be E2E, see Table 9. If the transparent clock is a peer-to-peer transparent clock, the value shall be P2P.	8.3.2.2.3	Maybe	?	**RW**		AKB: In 802.1AS do we restrict what kind of delay mechanism you can use for TCs? DVJ: Thought I saw already. AKB: Yes, my view of 1588 is they defined duplicate objects for the TC that were already defined or similar in OC/BC object tables. These ones for this contribution, I put in bold/italic. My current opinion if we did an SNMP MIB, we may be better served by combining some of these tables, but then making certain objects and object values optional or not applicable if running as TC (as some ports could in theory change from OC, BC or TC on the fly).
H4	***primary_domain***	C	The value shall be the domain number of the primary syntonization domain, see 10.1. The initialization value shall be 0. ***(similar to BC/OC object domain_number)***	8.3.2.2.4	Out	N	N		AKB: Not necessary for 802.1AS as only one domain is supported. DVJ: Toss it.

#	Name ***(TC same/similar object in OC & BC if in bold italic)***	Class	Short Description (note: If from 1588, usually a straight copy that document)	1588 Section	In/ Out/ Maybe	Reqd.	Access	Default	Comments
I1	syntonized	D	The value shall be TRUE if the clock is syntonized to a master clock of the primary syntonization domain, see 10.1, and FALSE otherwise.	8.3.2.2.1	Out	N	RO		DVJ: May get this through standard ClockSlave service interface. GG: This was omitted in the October 4-5 F2F 1588 meeting. It is no longer needed (it was always for information only). AKB: Based on Geoff's comment, setting initial propsed decision to "Out"
I2	domain_syntonization	D	The value is an array of length 256 with elements numbered 0 through 255 corresponding to the range of domain numbers. The value of each element shall be TRUE if the device is syntonized to a master clock of the domain corresponding to the element number, and FALSE otherwise.	8.3.2.2.2	Out	N	RO		AKB: 802.1AS supports only one domain, so this object is not needed. GG: This was omitted in the October 4-5 F2F 1588 meeting. It is no longer needed (it was always for information only). May get this through standard ClockSlave service interface. AKB: Based on that, setting proposed decision to "Out"
I3	scaled_fractional_frequency_offset	D	The value is an array of length 256 with elements numbered 0 through 255 corresponding to the range of domain numbers. The measured fractional frequency offset is defined in 3.1.11. In the definition, FFO is the fractional frequency offset, FR is the frequency of the local oscillator of the transparent clock and FM is the frequency of a master clock of the domain corresponding to the element number as measured by the transparent clock. The value of scaled_fractional_frequency_offset is equal to FFO multiplied by 240, i.e., it is the fractional frequency offset expressed in units of 240 . The value of each element is significant only if the corresponding element value of domain_syntonization is TRUE.	8.3.2.2.3	Out	N	RO		AKB: Assume this is useful for management of TCs in 802.1AS, but not in an array format as only one domain is supported. DVJ: Agree GG: This was omitted in the October 4-5 F2F 1588 meeting. It is no longer needed (it was always for information only). AKB: Based on that, changing it to "Out"

#	Name ***(TC same/similar object in OC & BC if in bold italic)***	Class	Short Description (note: If from 1588, usually a straight copy that document)	1588 Section	In/ Out/ Maybe	Reqd.	Access	Default	Comments
J1	***port_identity***	S	The value shall be the PortIdentity attribute of the local port, see 7.5.2.	8.3.4.2.1	**In**	Y	RO		AKB: Static (unless system can allow creation of additional PTP ports dynamically?) DVJ: Thought I saw already. AKB: Yes, my view of 1588 is they defined duplicate objects for the TC that were already defined or similar in OC/BC object tables. These ones for this contribution, I put in bold/italic. My current opinion if we did an SNMP MIB, we may be better served by combining some of these tables, but then making certain objects and object values optional or not applicable if running as TC (as some ports could in theory change from OC, BC or TC on the fly).
J2	***log_min_mean_pdelay_req_interval***	Static	The value shall be the logarithm to the base 2 of the minimum of the mean value of the Pdelay_Req interval, see 7.7.2.5 ***(similar to log_min_mean_delay_req_interval)***	8.3.4.2.2	**In**	Y	RO		AKB: This is listed in IEEE 1588 as Dynamic instead of configurable. Wouldn't you want to make this so you could set this (or is there some other way this value is calculated based on other configurable values??) AKB: If we define a MIB, then I think it would be better to use the same State object used in OC/BC and just reduce the allowable states when running as Transparent clock.

#	Name ***(TC same/similar object in OC & BC if in bold italic)***	Class	Short Description (note: If from 1588, usually a straight copy that document)	1588 Section	In/ Out/ Maybe	Reqd.	Access	Default	Comments
J3	***faulty***	D	The value of this member shall be TRUE if the port is faulty, and FALSE if the port is operating normally. ***(similar to FAULTY port_state)***	8.3.4.2.3	Maybe	Y	RO		observed. The only state to be written is connect/disconnect. AKB: My opinion is that instead of Faulty, all 802.1AS should just report PTP State (for detailed) and ptpPortOperState (for high level and SNMP management convention following). Setting initial decision to "Maybe" on this one.
J4	***peer_mean_path_delay***	D	If the value of the delay_mechanism member is P2P, the value shall be an estimate of the current one-way propagation delay on the link attached to this port computed using the peer delay mechanism, see 11.4. It is recommended that the data type be TimeInterval. If the value of the delay_mechanism member is E2E, this member's value shall be zero. The initialization value shall be zero.	8.3.4.2.4	Maybe	Y	RO		DVJ: Huh? AKB: I just copied this from 1588. Geoff any opinion on this? Setting to "Maybe"

#	Name ***(TC same/similar object in OC & BC if in bold italic)***	Class	Short Description (note: If from 1588, usually a straight copy that document)	1588 Section	In/ Out/ Maybe	Reqd.	Access	Default	Comments
A1	ptpAdminStatus	A	The desired state of the protocol engine (for all ports). When the managed system initializes, the protocol engine starts with ptpAdminStatus in the down(2) state. As a result of either explicit management action or per configuration information retained by the managed system, ptpAdminStatus is then changed to either the up(1) or testing(3) states (or remains in the down(2) state). The testing(3) state is a request to enter a testing state for the protocol engine and all/or PTP ports (implementation depedent). Support for testing(3) is optional. If set to down(2), then all 802.1AS ports will be set to 802.1AS DISABLED. If Set to up(1) for all ports in 802.1AS DISABLED state will be set to INITIALIZING state if ptpPortAdminStatus is also set to up(1) for each port.	N/A	**In**	Y	**RW**	up(1)	AKB: My proposal. Also testing state would be optional. Inspired by ifAdminStatus from RFC 2863. DVJ: Need some thought. GG: Need to explain how ptpAdminStatus, ptpOperStatus, ptpPortAdminStatus, and ptpPortOperStatus, and their various values (up, down, testing, dormant, etc.) relate to the various port states (FAULTY, DISABLED, INITIALIZING, SLAVE, MASTER, PREMASTER, etc.). AKB: Based on that, updated description.

#	Name ***(TC same/similar object in OC & BC if in bold italic)***	Class	Short Description (note: If from 1588, usually a straight copy that document)	1588 Section	In/ Out/ Maybe	Reqd.	Access	Default	Comments
A2	ptpOperStatus	O	The current operational state of the protocol (i.e. as viewed as a combination of multiple ports). If ptpAdminStatus is down(2) then ptpOperStatus should be down(2). If ptpAdminStatus is changed to up(1) then ptpOperStatus should change to up(1) if the protocol engine is ready to transmit and receive network traffic on any interface (i.e. any port is not in DISABLED, FAULTY or INITIALIZING states); it should change to dormant(5) if the protocol engine is waiting for external actions (such as waiting for an Ethernet port to become active); it should remain in the down(2) state if and only if there is a fault that prevents it from going to the up(1) state; it should remain in the notPresent(6) state if the interface has missing components. The testing(3) state indicates that the PTP protocol engine and/or all ports are being tested and that no operational packets can be passed on any port. Operational states of up and down are mandatory, all others are optional.	N/A	**In**	Y	RO		AKB: My proposal. Only up and down states would be mandatory. Inspired by ptpOperStatus from RFC 2863. DVJ: Theme is valuable, haven't checked details. GG: Need to explain how ptpAdminStatus, ptpOperStatus, ptpPortAdminStatus, and ptpPortOperStatus, and their various values (up, down, testing, dormant, etc.) relate to the various port states (FAULTY, DISABLED, INITIALIZING, SLAVE, MASTER, PREMASTER, etc.). AKB: Based on that, updated description.

#	Name ***(TC same/similar object in OC & BC if in bold italic)***	Class	Short Description (note: If from 1588, usually a straight copy that document)	1588 Section	In/ Out/ Maybe	Reqd.	Access	Default	Comments
B1	ptpPortAdminStatus	A	"The desired state of a port. When the managed system initializes, the port starts with ptpPortAdminStatus in the down(2) state. As a result of either explicit management action or per configuration information retained by the managed system, ptpPortAdminStatus is then changed to either the up(1) or testing(3) states (or remains in the down(2) state). The testing(3) state indicates that no operational packets can be passed. The testing(3) state is a request to enter a testing state for PTP port (implementation depedent). Support for the testing state is optional. When running testing, the PTP port state will show as DISABLED (i.e. the PTP state machine is effectively "offline" for that port).		**In**	Y	**RW**		AKB: My proposal. Also testing state would be optional. Inspired by ifAdminStatus from RFC 2863. GG: Need to explain how ptpAdminStatus, ptpOperStatus, ptpPortAdminStatus, and ptpPortOperStatus, and their various values (up, down, testing, dormant, etc.) relate to the various port states (FAULTY, DISABLED, INITIALIZING, SLAVE, MASTER, PREMASTER, etc.). AKB: Based on that, updated description.

#	Name ***(TC same/similar object in OC & BC if in bold italic)***	Class	Short Description (note: If from 1588, usually a straight copy that document)	1588 Section	In/ Out/ Maybe	Reqd.	Access	Default	Comments
B2	ptpPortOperStatus	O	~~The current operational state of the port. If~~ ptpPortAdminStatus is down(2) then ptpPortOperStatus should be down(2). If ptpPortAdminStatus is changed to up(1) then ptpPortOperStatus should change to up(1) if the port is not in INITIALIZING, DISABLED or FAULTY state; it should change to dormant(5) if the port is waiting for external actions (such as waiting for other parts of the system to initialize); it should remain in the down(2) state if and only if there is a fault that prevents it from going to the up(1) state; it should remain in the notPresent(6) state if the port has missing software or hardware components. The testing(3) state indicates that the 802.1AS is currently being tested and that no operational 802.1AS packets can be passed on this port. When running testing, the PTP port state will show as DISABLED (i.e. the PTP state machine is effectively "offline" for that port). Only states of up(1) and down(2) are mandatory, all others are optional.		**In**	Y	RO		AKB: My proposal. Only up and down states would be mandatory. Inspired by ptpPortOperStatus from RFC 2863 GG: Need to explain how ptpAdminStatus, ptpOperStatus, ptpPortAdminStatus, and ptpPortOperStatus, and their various values (up, down, testing, dormant, etc.) relate to the various port states (FAULTY, DISABLED, INITIALIZING, SLAVE, MASTER, PREMASTER, etc.). AKB: Based on that, updated description.
B3	ptpPortInOctets	P	Total PTP Octets received		**In**	Y	RO		Inspired by ifInOctets from RFC 2863

#	Name ***(TC same/similar object in OC & BC if in bold italic)***	Class	Short Description (note: If from 1588, usually a straight copy that document)	1588 Section	In/ Out/ Maybe	Reqd.	Access	Default	Comments
B4	ptpPortInPkts	P	Total PTP packets received		**In**	Y	RO		AKB: Inspired by ifInUcastPkts from RFC 2863 DVJ: Theme seems OK, but counts may vary depending on types and types is premature. AKB: In and Out octets/packets count all PTP packets regardless of subtype. This is used in SNMP to check basic health (are the numbers increasing in both directions over time) and/or to calculate rough bandwidth used by PTP for this port. See RFC 2863 for more details or I can help describe more how ifTable or ifTable like objects are used.
B5	ptpPortOutOctets	P	Total PTP Octets received		**In**	Y	RO		Inspired by ifOutOctets from RFC 2863
B6	ptpPortOutPkts	P	Total PTP packets received		**In**	Y	RO		Inspired by ifOutUcastPkts from RFC 2863
B7	ptpPortInErrors	P	Invalid PTP packets received		**In**	Y	RO		Inspired by ifInErrors from RFC 2863
B8	ptpPortOutErrors	P	PTP transmit packets discarded due to some error		**In**	Y	RO		Inspired by ifOutErrors from RFC 2863

#	Name ***(TC same/similar object in OC & BC if in bold italic)***	Class	Short Description (note: If from 1588, usually a straight copy that document)	1588 Section	In/ Out/ Maybe	Reqd.	Access	Default	Comments
C2	clock_identity	S	The value shall be the clock identity, see 7.6.2.1, of the local clock.	8.2.1.2.2	**In**	Y	RO	Based on MAC address	AKB: I'd assume you would be able to allow overriding of the ID of the clock to other values not based on MAC address. GG: 1588 does not allow for changing the clock_identity; the member is static there. My thought was that in 802.1AS this would also be fixed. AKB: If 1588 is fixed, then I'm OK with it being fixed in 802.1AS as well. DVJ: Hardwired to the MAC address, so unnecessary within here. AKB: Ports can have multiple MAC addresses, plus in an SNMP context, you would have to go and search the MAC address in another table rather than having a management app just get it here. Based on above argument, changing from "In" to "Maybe" and will discuss further.
C7	priority1	C	The value is the priority1 attribute, see 7.6.2.2, of the local clock	8.2.1.4.1	**In**	Y	**RW**		
C8	priority2	C	The value is priority2 attribute, see 7.6.2.3, of the local clock	8.2.1.4.2	**In**	Y	**RW**		

#	Name ***(TC same/similar object in OC & BC if in bold italic)***	Class	Short Description (note: If from 1588, usually a straight copy that document)	1588 Section	In/ Out/ Maybe	Reqd.	Access	Default	Comments
E1	parent_port_identity	D	The value is the source port identity of the port on the master that issues the Sync messages used in synchronizing this clock	8.2.3.2	**In**	Y	RO	From default data set	AKB: Believe that this is fixed in 802.1AS, so we don't need a management object. GG: This member is not fixed; it is dynamic. It is used to check that a received Sync message is from the current master. DVJ: Using 1588 or 802.1 conventions? Is this simply stated as the slave port? What about on the grand master? AKB: Convention shouldn't matter as the Slave just reports whatever it sees in incoming Sync messages and for the master, it reports its own ID. Based on that, believe this object should be "in".
E5	grandmaster_identity	D	The value shall be the clock identity, see 7.6.2.1, of the grandmaster clock.	8.2.3.6	**In**	Y	RO	From default data set	DVJ: Useful
E6	grandmaster_clock_quality: clockClass	D	The value is the clockClass member of the clock_quality member of the grandmaster clock, see 5.3.7, and shall implement the clock class specifications of 7.6.2.4.	8.2.3.6	**In**	Y	RO	From default data set	DVJ: How different from other one? AKB: For a slave, this tells the value as reported by the master in incoming messages. For a master, this would be the same as its own value.
E7	grandmaster_clock_quality: clockAccuracy	D	The value is the clockAccuracy member of the clock_quality member of the grandmaster clock, see 5.3.7.	8.2.3.6	**In**	Y	RO	From default data set	DVJ: How different from other one? AKB: For a slave, this tells the value as reported by the master in incoming messages. For a master, this would be the same as its own value.
E8	grandmaster_priority1	D	The value is the priority1 attribute, see 7.6.2.2, of the grandmaster clock	8.2.3.7	**In**	Y	RO	From default data set	DVJ: How different from other one? AKB: For a slave, this tells the value as reported by the master in incoming messages. For a master, this would be the same as its own value.

#	Name ***(TC same/similar object in OC & BC if in bold italic)***	Class	Short Description (note: If from 1588, usually a straight copy that document)	1588 Section	In/ Out/ Maybe	Reqd.	Access	Default	Comments
E9	grandmaster_priority2	D	The value is priority2 attribute, see 7.6.2.3, of the grandmaster clock	8.2.3.8	**In**	Y	RO	From default data set	DVJ: How different from other one? AKB: For a slave, this tells the value as reported by the master in incoming messages. For a master, this would be the same as its own value.
F1	current_utc_offset	C?	In PTP systems whose epoch is the PTP epoch this value is the offset between TAI and UTC; otherwise the value has no meaning. The value shall be in units of seconds.	8.2.4.2	**In**	N	**RW**		AKB: I don't think we need this for 802.1AS GG: This is needed to enable an application at a slave clock node to obtain UTC. The PTP protocol transports PTP time, which is traceable to TAI; to obtain UTC, you must know the number of leap seconds. DVJ: I think we need this in the GM capable stations, possibly also want to monitor what was received. AKB: My intent was that "time of day" functions in general for 802.1AS are optional as simpler devices may not need a time of day clock and only use 802.1AS for frequency syncronization between systems. Based on current comments, changing to "In" but not required (i.e. optional)

#	Name ***(TC same/similar object in OC & BC if in bold italic)***	Class	Short Description (note: If from 1588, usually a straight copy that document)	1588 Section	In/ Out/ Maybe	Reqd.	Access	Default	Comments
F3	leap_59	D	In PTP systems whose epoch is the PTP epoch, a TRUE value shall indicate that the last minute of the current UTC day will contain 59 seconds.	8.2.4.4	**In**	N	**RW**		~~AKB: as we are not designing clocking~~ systems, I'd assume 802.1AS doesn't shouldn't have to require to support this and if an 802.1AS slave sees a jump in time at Midnight UTC, it will just adjust its time accordingly. GG: leap_59 and leap_61 are provided so that applications that would like to have advance notice of an impending leap second will have the notice. AKB: "Time of day" function should still be optional, so changing to "In" but not required. DVJ: Premature. May be encoded differently. Is this the value assumed by this GM capable, or observed? AKB: My understanding of this the leap_59 and leap_61 is it allows a PTP station to know that at Midnight UTC time on the day it needs to account for the leap second if it is doing TAI to UTC conversion. So it shouldn't matter if it is for a slave or for a master.
F4	leap_61	D	In PTP systems whose epoch is the PTP epoch, a TRUE value shall indicate that the last minute of the current UTC day will contain 61 seconds.	8.2.4.5	**In**	N	**RW**		systems, I'd assume 802.1AS doesn't shouldn't have to require to support this and if an 802.1AS slave sees a jump in time at Midnight UTC, it will just adjust its time accordingly. GG: leap_59 and leap_61 are provided so that applications that would like to have advance notice of an impending leap second will have the notice. AKB: "Time of day" function should still be optional, so changing to "In" but not required.

#	Name ***(TC same/similar object in OC & BC if in bold italic)***	Class	Short Description (note: If from 1588, usually a straight copy that document)	1588 Section	In/ Out/ Maybe	Reqd.	Access	Default	Comments
F5	time_traceable	D	The value is TRUE if the timescale and the value of current_utc_offset are traceable to a primary standard; otherwise the value shall be FALSE.	8.2.4.6	**In**	Y	RO	D	AKB: Although absolute time of day is not needed for A/V synchronization, it would be useful by some applications to also be able to set their time of day clock (i.e. to avoid the flashing 12:00:00 VCR) so those devices don't also have to have an NTP stack or other means of getting time of day. DVJ: Traceable has a distinct accurate 802.1AS meaning and is useful. Again, which one?
G1	port_identity	S	The value shall be the PortIdentity attribute of the local port, see 7.5.2.	8.2.5.2.1	**In**	Y	RO		AKB: Static (unless system can allow creation of additional PTP ports dynamically?) DVJ: Huh? Isn't this done in a generic way? AKB: This object is straight from 1588 and is part of the Port data set table. How it would be used in a management perspective would be dependent on the management protocol/method. In an SNMP context, I would guess the object could be a Table Index type and not necessarily an object entry in the table itself (although sometimes in SNMP it is done that way). It is certanly an object that numbers from 1 to N not necessarily tied to all LAN ports (as some could be non-PTP capable). Believe that this object will be needed in some form or fashion from a managment perspective, so setting to "in". May need another object to correlate between PTP indexes and other port table indexes.

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G2	port_state	D	The value shall be the value of the current state of the protocol engine associated with this port, see 9.2, and shall be taken from the enumeration in Table 8.	8.2.5.3.1	**In**	Y	RO		~~AKB: This is listed in IEEE 1588 as~~ Dynamic instead of configurable. Wouldn't you want to make this so you could set this (or is there some other way this value is calculated based on other configurable values??). GG: This is dynamic in 1588; its value is a result of operation of the PTP state machine. It is true that a user can cause certain values to occur, i.e., INITIALIZING, DISABLED, but this occurs as a result of the DESIGNATED_DISABLED and DESIGNATED_ENABLED events, presumably caused by the user. DVJ: Relevant, but details premature. AKB: Suggest this object in "In" as a read only object and you can disable one port with ptpPortAdminStatus or all ports with ptpAdminStatus. We can continue to work on details (such as if we support INITIALIZED, DISABLED and FAULTY states.
G4	peer_mean_path_ delay	D	If the value of the delay_mechanism member is P2P, the value shall be an estimate of the current one-way propagation delay on the link attached to this port computed using the peer delay mechanism, see 11.4. It is recommended that the data type be TimeInterval.	8.2.5.3.3	**In**	N	RO		DVJ: We don't do E2E. AKB: Text I used was copied from 1588. Removed E2E text from Description. Set to "In" as a starting point for discussion.

#	Name ***(TC same/similar object in OC & BC if in bold italic)***	Class	Short Description (note: If from 1588, usually a straight copy that document)	1588 Section	In/ Out/ Maybe	Reqd.	Access	Default	Comments
G5	log_mean_announce_interval	C	The value shall be the logarithm to the base 2 of the of the mean Announce interval, see 7.7.2.2.	8.2.5.4.1	**In**	Y	**RW**		DVJ: One notation, please. In the GM or observed? AKB: This is an IEEE 1588 Configuration object, so by definition it would only apply if the system was running as GM, and not if it was running as slave. For this case of this, there is no requirement in my knowledge to even try to or want to try and calculate time between announce messages. I think this object is OK and necessary for management purposes to be able to set.
G9	log_min_mean_pdelay_req_interval	C	The value shall be the logarithm to the base 2 of the minimum mean Pdelay_Req interval, see 7.7.2.5.	8.2.5.4.5	**In**	Y	**RW**		
G10	version_number	C	The value shall indicate the PTP protocol version in use on the port.	8.2.5.4.6	**In**	Y	**RW**		AKB: Won't need this object for initial release of 802.1AS which only support v2 formatting, but there might be a 2.1, 3.0, etc. in the future, so you might as well define this now IMHO, but make it write operation optional if only one version of the protocol is supported.

#	Name ***(TC same/similar object in OC & BC if in bold italic)***	Class	Short Description (note: If from 1588, usually a straight copy that document)	1588 Section	In/ Out/ Maybe	Reqd.	Access	Default	Comments
H1	***clock_identity***	S	The value shall be the clock identity, see 7.6.2.1, of the local clock.	8.3.2.2.1	**In**	Y	RO	Based on MAC address	AKB: I'd assume you would be able to allow overriding of the ID of the clock to other values not based on MAC address. GG: 1588 does not allow for changing the clock_identity; the member is static there. My thought was that in 802.1AS this would also be fixed. AKB: If 1588 is fixed, then I'm OK with it being fixed in 802.1AS as well. DVJ: Thought I saw already. AKB: Yes, my view of 1588 is they defined duplicate objects for the TC that were already defined or similar in OC/BC object tables. These ones for this contribution, I put in bold/italic. My current opinion if we did an SNMP MIB, we may be better served by combining some of these tables, but then making certain objects and object values optional or not applicable if running as TC (as some ports could in theory change from OC, BC or TC on the fly).

#	Name ***(TC same/similar object in OC & BC if in bold italic)***	Class	Short Description (note: If from 1588, usually a straight copy that document)	1588 Section	In/ Out/ Maybe	Reqd.	Access	Default	Comments
H2	***number_ports***	S	The value shall be the number of PTP ports on the device. For an ordinary clock this shall be the value 1.	8.3.2.2.2	**In**	Y	RO		DVJ: Thought I saw already. AKB: Yes, my view of 1588 is they defined duplicate objects for the TC that were already defined or similar in OC/BC object tables. These ones for this contribution, I put in bold/italic. My current opinion if we did an SNMP MIB, we may be better served by combining some of these tables, but then making certain objects and object values optional or not applicable if running as TC (as some ports could in theory change from OC, BC or TC on the fly).
J1	***port_identity***	S	The value shall be the PortIdentity attribute of the local port, see 7.5.2.	8.3.4.2.1	**In**	Y	RO		AKB: Static (unless system can allow creation of additional PTP ports dynamically?) DVJ: Thought I saw already. AKB: Yes, my view of 1588 is they defined duplicate objects for the TC that were already defined or similar in OC/BC object tables. These ones for this contribution, I put in bold/italic. My current opinion if we did an SNMP MIB, we may be better served by combining some of these tables, but then making certain objects and object values optional or not applicable if running as TC (as some ports could in theory change from OC, BC or TC on the fly).

#	Name ***(TC same/similar object in OC & BC if in bold italic)***	Class	Short Description (note: If from 1588, usually a straight copy that document)	1588 Section	In/ Out/ Maybe	Reqd.	Access	Default	Comments
J2	***log_min_mean_pdelay_req_interval***	Static	The value shall be the logarithm to the base 2 of the minimum of the mean value of the Pdelay_Req interval, see 7.7.2.5 ***(similar to log_min_mean_delay_req_interval)***	8.3.4.2.2	**In**	Y	RO		AKB: This is listed in IEEE 1588 as Dynamic instead of configurable. Wouldn't you want to make this so you could set this (or is there some other way this value is calculated based on other configurable values??) AKB: If we define a MIB, then I think it would be better to use the same State object used in OC/BC and just reduce the allowable states when running as Transparent clock.
C3	number_ports	S	The value shall be the number of PTP ports on the device. For an ordinary clock this shall be the value 1.	8.2.1.2.3	Maybe	?	RO		AKB: Static (unless system can allow creation of additional ports dynamically?).
C4	clock_quality: clockClass	D	The value is the clockClass member of the clock_quality member, see 5.3.7, and shall implement the clock class specifications of 7.6.2.4.	8.2.1.3.1.1	Maybe	Y	RO		DVJ: Still a bit premature. AKB: Changed to "maybe"
C5	clock_quality: clockAccuracy	D	The value is the clockAccuracy member of the clock_quality member, see 5.3.7.	8.2.1.3.1.2	Maybe	Y	RO		DVJ: Still a bit premature. AKB: Changed to "maybe"
C6	clock_quality: offsetScaledLogVariance	D	The value is the offsetScaledLogVariance member of the clock_quality member, see 5.3.7.	8.2.1.3.1.3	Maybe	Y	RO		DVJ: Still a bit premature. AKB: Changed to "maybe"
C10	slave_only	C	The value shall be TRUE if the clock is a slave-only clock, see 9.2.2. The value shall be FALSE if the clock is a non-slave-only clock, see 9.2.3.	8.2.1.4.4	Maybe	?	**RW**		DVJ: Not clear what this means. Its its end-station option, then one of: slave, master, both traceable, ... are more relevant. See my last ClockTerms doc, for what are the (current) relevant options. AKB: Even with those options, this one object from a managment perspective I still think is a good thing to have as it allows a simple Y/N to force an 802.1AS port to never become a master. Setting to "Maybe".

#	Name ***(TC same/similar object in OC & BC if in bold italic)***	Class	Short Description (note: If from 1588, usually a straight copy that document)	1588 Section	In/ Out/ Maybe	Reqd.	Access	Default	Comments
D1	steps_removed	D	The value is the number of communication paths traversed between the local clock and the grandmaster clock.	8.2.2.1	Maybe	?	RO		GG: This is currently in 802.1AS. It actually is not needed for operation of the protocol, because we are assuming that loops are broken by spanning tree or equivalent. However, this member could still be retained if it was felt to be useful information for the user. DVJ: Proably useful. AKB: Setting to "Maybe"
D2	offset_from_master	D	The value is an implementation specific representation of the current value of the time difference between a master and a slave as computed by the slave, see 11.2.	8.2.2.2	Maybe	Y	RO	N/A	EPON or wireless, the master may sometimes be the only one that knows. AKB: Management objects could be defined to return 0 or estimated values for cases that cannot be computed/determined/configured. Suggest leaving the object in but defining actions if the value cannot be determined. Setting to "Maybe"
F2	current_utc_offset_valid	C?	The value is TRUE if the current_utc_offset is known to be correct.	8.2.4.3	Maybe	N	**RW**		GG: I think this member is needed, as an indication to an application of whether current_utc_offset is valid or not. I don't understand your comment here. AKB: How do does a 1588 device "know" if the UTC offset is "correct". Is this by user verification, or does it use something like GPS to postively determine its position on the planet? DVJ: Premature, we may not have it.
F6	frequency_traceable	D	The value is TRUE if the frequency determining the timescale is traceable to a primary standard; otherwise the value shall be FALSE.	8.2.4.7	Maybe	?	RO		AKB: No opinion on this one. DVJ: Irrelevant.

#	Name ***(TC same/similar object in OC & BC if in bold italic)***	Class	Short Description (note: If from 1588, usually a straight copy that document)	1588 Section	In/ Out/ Maybe	Reqd.	Access	Default	Comments
F8	time_source	D	~~The value is the source of time used by the~~ grandmaster clock. The initialization value shall be selected as follows: a) If the time source, see 7.6.2.6, is known at the time of initialization the value shall be set to that value, else b) The value shall be INTERNAL_OSCILLATOR.	8.2.4.9	Maybe	?	RO		DVJ: Meaning and value unclear. AKB: Cut and pasted the rest of the description from the June version of P1588v2. Value for slave isfrom what is reported in messages from the master, or internally if running as master. Seems to me to be useful. Setting to "Maybe"
G6	announce_receipt_timeout	C	The value shall be an integral multiple of Announce intervals, see 7.7.3.1.	8.2.5.4.2	Maybe	Y	**RW**		DVJ: Premature, may dissappear. AKB: And be replaced by something else?? Please advise. Setting to "maybe"
G7	log_mean_sync_interval	C	The value shall be the logarithm to the base 2 of the mean Sync interval for multicast messages, see 7.7.2.3.	8.2.5.4.3	Maybe	Y	**RW**		DVJ: Premature, may dissappear. AKB: And be replaced by something else?? Please advise. Setting to "maybe"
G8	delay_mechanism	C	The value shall indicate the propagation delay measuring option used by the port in computing mean_path_delay. The value shall be taken from the enumeration in Table 9.	8.2.5.4.4	Maybe	?	**RW**		~~AKB: Is this a case where we only~~ support peer delay (P2P) or is it an option in 802.1AS to support Delay request-response (E2E) or DISABLED (syntonize only, transparent clocks)?

#	Name ***(TC same/similar object in OC & BC if in bold italic)***	Class	Short Description (note: If from 1588, usually a straight copy that document)	1588 Section	In/ Out/ Maybe	Reqd.	Access	Default	Comments
H3	***delay_mechanism***	C	If the transparent clock is an end-to-end transparent clock, the value shall be E2E, see Table 9. If the transparent clock is a peer-to-peer transparent clock, the value shall be P2P.	8.3.2.2.3	Maybe	?	**RW**		AKB: In 802.1AS do we restrict what kind of delay mechanism you can use for TCs? DVJ: Thought I saw already. AKB: Yes, my view of 1588 is they defined duplicate objects for the TC that were already defined or similar in OC/BC object tables. These ones for this contribution, I put in bold/italic. My current opinion if we did an SNMP MIB, we may be better served by combining some of these tables, but then making certain objects and object values optional or not applicable if running as TC (as some ports could in theory change from OC, BC or TC on the fly).
J3	***faulty***	D	The value of this member shall be TRUE if the port is faulty, and FALSE if the port is operating normally. ***(similar to FAULTY port_state)***	8.3.4.2.3	Maybe	Y	RO		observed. The only state to be written is connect/disconnect. AKB: My opinion is that instead of Faulty, all 802.1AS should just report PTP State (for detailed) and ptpPortOperState (for high level and SNMP management convention following). Setting initial decision to "Maybe" on this one.

#	Name ***(TC same/similar object in OC & BC if in bold italic)***	Class	Short Description (note: If from 1588, usually a straight copy that document)	1588 Section	In/ Out/ Maybe	Reqd.	Access	Default	Comments
J4	***peer_mean_path_delay***	D	If the value of the delay_mechanism member is P2P, the value shall be an estimate of the current one-way propagation delay on the link attached to this port computed using the peer delay mechanism, see 11.4. It is recommended that the data type be TimeInterval. If the value of the delay_mechanism member is E2E, this member's value shall be zero. The initialization value shall be zero.	8.3.4.2.4	Maybe	Y	RO		DVJ: Huh? AKB: I just copied this from 1588. Geoff any opinion on this? Setting to "Maybe"
C1	two_step_clock	S	The value shall be TRUE if the clock is a two-step clock; otherwise the value shall be FALSE	8.2.1.2.1	Out	N	RO		AKB: Believe that this is fixed in 802.1AS, so we don't need a management object DVJ: Premature and Unnecessary.
C9	domain_number	C	The value is the domain attribute, see 7.1, of the local clock.	8.2.1.4.3	Out	N	**RW**		AKB: Domain number not in 802.1AS as all members are always in the same domain (i.e. multiple domains are not supported) DVJ: Irrelevant. AKB: Set to "out"
D3	mean_path_delay	D	The value is an implementation specific representation of the current value of the mean propagation time between a master and slave clock as computed by the slave, see 11.2.	8.2.2.3	Out	N	RO	N/A	better description is needed. GG: Request-Response mechanism. It is therefore not needed in 802.1AS, as 802.1AS will measure delay using the peer delay mechanism (and the measured delay will be stored in the peer_mean_path_delay member of the port data set and TC port data set). AKB: Per Geoff's comment, setting to "Out"

#	Name ***(TC same/similar object in OC & BC if in bold italic)***	Class	Short Description (note: If from 1588, usually a straight copy that document)	1588 Section	In/ Out/ Maybe	Reqd.	Access	Default	Comments
E2	parent_stats	D	The value shall be TRUE if all of the following conditions are satisfied: □ The clock has a port in the SLAVE state. □ The clock has computed statistically valid estimates of the observed_parent_offset_scaled_log_variance and observed_parent_clock_phase_change_rate members.	8.2.3.3	Out	N	RO		AKB: Do not believe this is necessary for 802.1AS (i.e. as long as master is a better clock and running, I do not believe it is necessary to compute this by bridges and end stations). If nothing else, it certainly should not be a requirement and should be OK to always return FALSE. DVJ: Deep six this. Too implementation dependent, as per "statistically valid".
E3	observed_parent_offset_scaled_log_variance	D	The value shall be an estimate of the parent clock's PTP variance as observed by the slave clock, computed and represented as described in 7.6.3.5. The computation of this value is optional but, if not computed, the value of parent_stats shall be FALSE.	8.2.3.4	Out	N	RO		AKB: similar comment to above, do not believe that this should be required and has limited use in 802.1AS. Deep six this. Too hard to understand how to do, or to ever be done…
E4	observed_parent_clock_phase_change_rate	D	The value shall be an estimate of the parent clock's phase change rate as observed by the slave clock as defined in 7.6.4.4. If the estimate exceeds the capacity of its data type, see 15.5.3.5.1.4, this value shall be set to 0x7FFF FFFF or 0x8000 0000, as appropriate. A positive sign indicates that the parent clock's phase change rate is greater than the rate of the slave clock. The computation of this value is optional but, if not computed, the value of parent_stats shall be FALSE.	8.2.3.5	Out	N	RO		AKB: similar comment to above, do not believe that this should be required and has limited use in 802.1AS. DVJ: Deep six this. Too hard to understand how to do, or to ever be done…
F7	ptp_timescale	S or C?	The value is TRUE if the clock timescale of the grandmaster clock, see 7.2.1, is PTP and FALSE otherwise.	8.2.4.8	Out	N	RO or RW		AKB: Believe this is not necessary for 802.1AS as the only timescale allowed in PTP. DJV: Toss it.

#	Name ***(TC same/similar object in OC & BC if in bold italic)***	Class	Short Description (note: If from 1588, usually a straight copy that document)	1588 Section	In/ Out/ Maybe	Reqd.	Access	Default	Comments
G3	log_min_mean_delay_req_interval	D	The value is the logarithm to the base 2 of the minimum mean Delay_Req interval, see 7.7.2.4. The initialization value is implementation specific consistent with 7.7.2.4.	8.2.5.3.2	Out	N	RO		DVJ: Premature. Might dissappear GG: This is not needed, as 802.1AS is not using the Delay Request Response mechanism. AKB: Changed to "Out"
H4	***primary_domain***	C	The value shall be the domain number of the primary syntonization domain, see 10.1. The initialization value shall be 0. ***(similar to BC/OC object domain_number)***	8.3.2.2.4	Out	N	N		AKB: Not necessary for 802.1AS as only one domain is supported. DVJ: Toss it.
I1	syntonized	D	The value shall be TRUE if the clock is syntonized to a master clock of the primary syntonization domain, see 10.1, and FALSE otherwise.	8.3.2.2.1	Out	N	RO		DVJ: May get this through standard ClockSlave service interface. GG: This was omitted in the October 4-5 F2F 1588 meeting. It is no longer needed (it was always for information only). AKB: Based on Geoff's comment, setting initial propsed decision to "Out"
I2	domain_syntonization	D	The value is an array of length 256 with elements numbered 0 through 255 corresponding to the range of domain numbers. The value of each element shall be TRUE if the device is syntonized to a master clock of the domain corresponding to the element number, and FALSE otherwise.	8.3.2.2.2	Out	N	RO		[illegible] domain, so this object is not needed. GG: This was omitted in the October 4-5 F2F 1588 meeting. It is no longer needed (it was always for information only). May get this through standard ClockSlave service interface. AKB: Based on that, setting proposed decision to "Out"

#	Name ***(TC same/similar object in OC & BC if in bold italic)***	Class	Short Description (note: If from 1588, usually a straight copy that document)	1588 Section	In/ Out/ Maybe	Reqd.	Access	Default	Comments
I3	scaled_fractional_ frequency_offset	D	The value is an array of length 256 with elements numbered 0 through 255 corresponding to the range of domain numbers. The measured fractional frequency offset is defined in 3.1.11. In the definition, FFO is the fractional frequency offset, FR is the frequency of the local oscillator of the transparent clock and FM is the frequency of a master clock of the domain corresponding to the element number as measured by the transparent clock. The value of scaled_fractional_frequency_offset is equal to FFO multiplied by 240, i.e., it is the fractional frequency offset expressed in units of 240 . The value of each element is significant only if the corresponding element value of domain_syntonization is TRUE.	8.3.2.2.3	Out	N	RO		AKB: Assume this is useful for management of TCs in 802.1AS, but not in an array format as only one domain is supported. DVJ: Agree GG: This was omitted in the October 4-5 F2F 1588 meeting. It is no longer needed (it was always for information only). AKB: Based on that, changing it to "Out"