TICTOC Working Group   Vinay Shankarkumar
INTERNET DRAFT   Laurent Montini
Intended status: Standards Track   Cisco Systems

                                                        Tim Frost
                                                        Greg Dowd
                                                        Symmetricom

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                   Precision Time Protocol Version 2 (PTPv2)
                         Management Information Base
                       draft-ietf-tictoc-ptp-mib-02.txt

Status of this Memo

Copyright Notice

Abstract

   This memo defines a portion of the Management Information Base (MIB)
   for use with network management protocols in TCP/IP-based internets.
   In particular, it defines objects for managing networks using
   Precision Time Protocol.

   This memo specifies a MIB module in a manner that is both compliant
   to the SNMPv2 SMI, and semantically identical to the peer SNMPv1
   definitions.

Table of Contents

1. Introduction

   This memo defines a portion of the Management Information Base (MIB)
   for use with network management protocols in the Internet Community.
   In particular, it describes managed objects used for managing PTP
   devices including the ordinary clock, transparent clock, boundary
   clocks.

   This MIB is restricted to reading standard PTP data elements, as
   described in [IEEE 1588-2008]. It is envisioned this MIB will
   complement other managed objects to be defined to monitor, measure
   the performance of the PTP devices and telecom clocks. Those objects
   are considered out of scope for the current draft.

   Similarly, this MIB is read-only and not intended to provide the
   ability to configure PTP clocks. Since PTP clocks are often embedded
   in other network elements such as routers, switches and gateways,
   this ability is generally provided via the configuration interface
   for the network element.

1.1. Relationship to other Profiles and MIBs

   This MIB is intended to be used with the default PTP profile
   described in [IEEE 1588-2008], and the Telecom Profile described in
   [G.8265.1], when running over the IP network layer. As stated above,
   it is envisioned this MIB will complement other managed objects to be
   defined to monitor, measure the performance of the PTP devices and
   telecom clocks.

   Some other PTP profiles have their own MIBs defined as part of the
   profile, and this MIB is not intended to replace those MIBs.

1.2. Change Log

   This section tracks changes made to the revisions of the Internet
   Drafts of this document. It will be *deleted* when the document is
   published as an RFC. This section tracks changes made to the
   revisions of the Internet Drafts of this document. It will be
   deleted when the document is published as an RFC.

   draft-vinay-tictoc-ptp-mib

   -00 Mar 11 Initial version; showed structure of MIB

   draft-ietf-tictoc-ptp-mib

   -00 Jul 11 First full, syntactically correct and compileable MIB
   -01 Jan 12 Revised following comments from Bert Wijnen:
                - revised introduction to clarify the scope, and the
                  relationship to other MIBs and profiles
                - changed name to "ptpbase"
                - corrected some data types
                - corrected references and typos
   -02 Jul 12 Revised following comment at IETF83:
                - changed "ptpbaseClockPortRunningIPversion" to the more
                  generic "ptpbaseClockPortRunningTransport", covering
                  all transport types defined in [IEEE 1588-2008]
                  (i.e. IPv4, IPv6, Ethernet, DeviceNet and ControlNet).
                - changed addresses associated with transports from
                  "InetAddress" (for the IP transport) to a string,
                  to allow for the different transport types.

2. The SNMP Management Framework

   The SNMP Management Framework presently consists of five major
   components:

   o An overall architecture, described in STD62, [RFC 3411].

   o Mechanisms for describing and naming objects and events for the
      purpose of management. The first version of this Structure of
      Management Information (SMI) is called SMIv1 and described in
      STD 16: [RFC 1155], [RFC 1212] and [RFC 1215].
      The second version, called SMIv2, is described in STD 58:
      [RFC 2578], [RFC 2579] and [RFC 2580].

   o Message protocols for transferring management information. The
      first version of the SNMP message protocol is called SNMPv1 and
      described in STD 15 [RFC 1157]. A second version of the SNMP
      message protocol, which is not an Internet standards track
      protocol, is called SNMPv2c and described in [RFC 1901] and
      [RFC 1906]. The third version of the message protocol is called
      SNMPv3 and described in STD62: [RFC 3417], [RFC 3412] and [RFC
      3414].

   o Protocol operations for accessing management information. The
      first set of protocol operations and associated PDU formats is
      described in STD 15 [RFC 1157]. A second set of protocol
      operations and associated PDU formats is described in STD 62
      [RFC 3416].

   o A set of fundamental applications described in STD 62 [RFC 3413]
      and the view-based access control mechanism described in STD 62
      [RFC 3415].

   Managed objects are accessed via a virtual information store, termed
   the Management Information Base or MIB. Objects in the MIB are
   defined using the mechanisms defined in the SMI.

   This memo specifies a MIB module that is compliant to the SMIv2. A
   MIB conforming to the SMIv1 can be produced through the appropriate
   translations. The resulting translated MIB must be semantically
   equivalent, except where objects or events are omitted because no
   translation is possible (e.g., use of Counter64). Some machine
   readable information in SMIv2 will be converted into textual
   descriptions in SMIv1 during the translation process. However, this
   loss of machine readable information is not considered to change the
   semantics of the MIB.

3. Overview

   The objects defined in this MIB are to be used when describing the
   Precision Time Protocol (PTPv2).

4. IETF PTP MIB Definition

PTPBASE-MIB DEFINITIONS ::= BEGIN

IMPORTS
    MODULE-IDENTITY,
    OBJECT-TYPE,
    Integer32,
    Gauge32,
    Unsigned32,
    Counter32,
    Counter64
        FROM SNMPv2-SMI
    OBJECT-GROUP,
    MODULE-COMPLIANCE
        FROM SNMPv2-CONF
    TEXTUAL-CONVENTION,
    TruthValue,
    DisplayString
        FROM SNMPv2-TC
    InterfaceIndexOrZero
        FROM IF-MIB;

ptpbaseMIB MODULE-IDENTITY
    LAST-UPDATED   "201201230000Z"
    ORGANIZATION   "TICTOC Working Group"
    CONTACT-INFO
         "WG Email: tictoc@ietf.org

          Vinay Shankarkumar
          Cisco Systems,
          Email: vinays@cisco.com

          Laurent Montini,
          Cisco Systems,
          Email: lmontini@cisco.com

          Tim Frost,
          Symmetricom Inc.,
          Email: tfrost@symmetricom.com

          Greg Dowd,
          Symmetricom Inc.,
          Email: gdowd@symmetricom.com"

     DESCRIPTION
          "The MIB module for PTP version 2 (IEEE Std. 1588(TM)-2008)

          Overview of PTP version 2 (IEEE Std. 1588(TM)-2008)

          [IEEE 1588-2008] defines a protocol enabling precise
          synchronization of clocks in measurement and control systems
          implemented with packet-based networks, the Precision Time
          Protocol Version 2 (PTPv2). This MIB does not address the
          earlier version IEEE Std. 1588(TM)-2002 (PTPv1). The protocol
          is applicable to network elements communicating using IP. The
          protocol enables heterogeneous systems that include clocks of
          various inherent precision, resolution, and stability to
          synchronize to a grandmaster clock.

          The protocol supports system-wide synchronization accuracy in
          the sub-microsecond range with minimal network and local clock
          computing resources. [IEEE 1588-2008] uses UDP/IP or
          Ethernet and can be adapted to other mappings. It includes
          formal mechanisms for message extensions, higher sampling rates,
          correction for asymmetry, a clock type to reduce error
          accumulation in large topologies, and specifications on how to
          incorporate the resulting additional data into the
          synchronization protocol. The [IEEE 1588-2008] defines
          conformance and management capability also.

          MIB description

          This MIB is to support the Precision Time Protocol version 2
          (PTPv2, hereafter designated as PTP) features of network element
          system devices, when using the default PTP profile described in
          [IEEE 1588-2008], or the Telecom Profile described in
          [G.8265.1], when running over the IP network layer.

It is envisioned this MIB will complement other managed objects
to be defined to monitor, measure the performance of the PTP
devices and telecom clocks.

Some other PTP profiles have their own MIBs defined as part of
the profile, and this MIB is not intended to replace those MIBs.

Acronyms:
            ARB   Arbitrary Timescale
            E2E   End-to-End
            EUI   Extended Unique Identifier.
            GPS   Global Positioning System
            IANA   Internet Assigned Numbers Authority
            IP   Internet Protocol
            MAC   Media Access Control
                     according to [IEEE 802.3-2008]
            NIST   National Institute of Standards and Technology
            NTP   Network Time Protocol (see IETF [RFC 5905])
            OUI   Organizational Unique Identifier
                     (allocated by the IEEE)
            P2P   Peer-to-Peer
            PTP   Precision Time Protocol
            TAI   International Atomic Time
            TC   Transparent Clock
            UDP   User Datagram Protocol
            UTC   Coordinated Universal Time

References:
[IEEE 1588-2008] IEEE Standard for A Precision Clock
      Synchronization Protocol for Networked Measurement and
      Control Systems, IEEE Std. 1588(TM)-2008, 24 July 2008.

[G.8265.1] Precision Time Protocol Telecom Profile for
      Frequency Synchronization, ITU-T Recommendation G.8265.1,
      October 2010.

As defined in [IEEE 1588-2008]:

Accuracy:
The mean of the time or frequency error between the clock under
test and a perfect reference clock, over an ensemble of

measurements. Stability is a measure of how the mean varies
with respect to variables such as time, temperature, and so on,
while the precision is a measure of the deviation of the error
from the mean.

Atomic process:
A process is atomic if the values of all inputs to the process
are not permitted to change until all of the results of the
process are instantiated, and the outputs of the process are
not visible to other processes until the processing of each
output is complete.

Boundary clock:
A clock that has multiple Precision Time Protocol (PTP) ports in
a domain and maintains the timescale used in the domain. It
may serve as the source of time, i.e., be a master clock, and
may synchronize to another clock, i.e., be a slave clock.

Boundary node clock:
A clock that has multiple Precision Time Protocol(PTP) ports in
a domain and maintains the timescale used in the domain. It
differs from a boundary clock in that the clock roles can
change.

Clock:
A node participating in the Precision Time Protocol (PTP) that
is capable of providing a measurement of the passage of time
since a defined epoch.

Domain:
A logical grouping of clocks that synchronize to each other
using the protocol, but that are not necessarily synchronized
to clocks in another domain.

End-to-end transparent clock:
A transparent clock that supports the use of the end-to-end
delay measurement mechanism between slave clocks and the master
clock. Each node must measure the residence time of PTP event
messages and accumulate it in Correction Field.

Epoch:
The origin of a timescale.

Event:
An abstraction of the mechanism by which signals or conditions
are generated and represented.

Foreign master:
An ordinary or boundary clock sending Announce messages to
another clock that is not the current master recognized by the
other clock.

Grandmaster clock:
Within a domain, a clock that is the ultimate source of time
for clock synchronization using the protocol.

Holdover:
A clock previously synchronized/syntonized to another clock
(normally a primary reference or a master clock) but now
free-running based on its own internal oscillator, whose
frequency is being adjusted using data acquired while it had
been synchronized/syntonized to the other clock. It is said to
be in holdover or in the holdover mode, as long as it is within
its accuracy requirements.

Link:
A network segment between two Precision Time Protocol ports
supporting the peer delay mechanism of this standard. The peer
delay mechanism is designed to measure the propagation time
over such a link.

Management node:
A device that configures and monitors clocks.

Master clock:
In the context of a single Precision Time Protocol
communication path, a clock that is the source of time to which
all other clocks on that path synchronize.

Message timestamp point:
A point within a Precision Time Protocol event message serving
as a reference point in the message. A timestamp is defined by
the instant a message timestamp point passes the reference
plane of a clock.

Multicast communication:

A communication model in which each Precision Time Protocol
message sent from any PTP port is capable of being received and
processed by all PTP ports on the same PTP communication path.

Node:
A device that can issue or receive Precision Time Protocol
communications on a network.

One-step clock:
A clock that provides time information using a single event
message.

On-pass support:
Indicates that each node in the synchronization chain from
master to slave can support IEEE-1588.

Ordinary clock:
A clock that has a single Precision Time Protocol port in a
domain and maintains the timescale used in the domain. It may
serve as a source of time, i.e., be a master clock, or may
synchronize to another clock, i.e., be a slave clock.

Parent clock:
The master clock to which a clock is synchronized.

Peer-to-peer transparent clock:
A transparent clock that, in addition to providing Precision
Time Protocol event transit time information, also provides
corrections for the propagation delay of the link connected to
the port receiving the PTP event message. In the presence of
peer-to-peer transparent clocks, delay measurements between
slave clocks and the master clock are performed using the
peer-to-peer delay measurement mechanism.

Phase change rate:
The observed rate of change in the measured time with respect
to the reference time. The phase change rate is equal to the
fractional frequency offset between the measured frequency and
the reference frequency.

PortNumber:
An index identifying a specific Precision Time Protocol port on
a PTP node.

Primary reference:
A source of time and or frequency that is traceable to
international standards.

Profile:
The set of allowed Precision Time Protocol features applicable
to a device.

Precision Time Protocol communication:
Information used in the operation of the protocol, transmitted
in a PTP message over a PTP communication path.

Precision Time Protocol communication path:
The signaling path portion of a particular network enabling
direct communication among ordinary and boundary clocks.

Precision Time Protocol node:
PTP ordinary, boundary, or transparent clock or a device that
generates or parses PTP messages.

Precision Time Protocol port:
A logical access point of a clock for PTP communications to the
communications network.

Recognized standard time source:
A recognized standard time source is a source external to
Precision Time Protocol that provides time and/or frequency as
appropriate that is traceable to the international standards
laboratories maintaining clocks that form the basis for the
International Atomic Time and Universal Coordinated Time
timescales. Examples of these are GPS, NTP, and NIST
timeservers.

Requestor:
The port implementing the peer-to-peer delay mechanism that
initiates the mechanism by sending a Pdelay_Req message.

Responder:
The port responding to the receipt of a Pdelay_Req message as
part of the operation of the peer-to-peer delay mechanism.

Synchronized clocks:

Two clocks are synchronized to a specified uncertainty if they
have the same epoch and their measurements of the time of a
single event at an arbitrary time differ by no more than that
uncertainty.

Syntonized clocks:
Two clocks are syntonized if the duration of the second is the
same on both, which means the time as measured by each advances
at the same rate. They may or may not share the same epoch.

Timeout:
A mechanism for terminating requested activity that, at least
from the requester's perspective, does not complete within the
specified time.

Timescale:
A linear measure of time from an epoch.

Traceability:
A property of the result of a measurement or the value of a
standard whereby it can be related to stated references,
usually national or international standards, through an
unbroken chain of comparisons all having stated uncertainties.

Translation device:
A boundary clock or, in some cases, a transparent clock that
translates the protocol messages between regions implementing
different transport and messaging protocols, between different
versions of [IEEE 1588-2008], or different PTP profiles.

Transparent clock:
A device that measures the time taken for a Precision Time
Protocol event message to transit the device and provides this
information to clocks receiving this PTP event message.

Two-step clock:
A clock that provides time information using the combination of
an event message and a subsequent general message.

The table below specifies the object formats of the various
textual conventions used.

```
        Data type mapping    Textual Convention SYNTAX
        ------------------  -----------------  --------------------
        5.3.2 TimeInterval  ClockTimeInterval OCTET STRING(SIZE(1..255))
        5.3.3 Timestamp     ClockTimestamp    OCTET STRING(SIZE(6))
        5.3.4 ClockIdentity ClockIdentity     OCTET STRING(SIZE(1..255))
        5.3.5 PortIdentity  ClockPortNumber   INTEGER(1..65535)
        5.3.7 ClockQuality  ClockQualityClassType
```

Simple master-slave hierarchy, section 6.6.2.4 [IEEE 1588-2008]:

```
                    +---------------+
                    |   Ordinary    |
                    |   Clock -1    |
                    | (GrandMaster) |
                    +-------M-------+
                            |
                            1
                            |
        +--------------S---------------+
        |           Boundary           |
        |           Clock -1           |
        +-----M--------------------M-----+
              |                     |
              2                     3
              |                     |
        +-----S-----+ +-----------S-------------+
        | Ordinary  | |         Boundary        |
        | Clock -2  | |         Clock -2        |
        +----------+ +-----M-------------M-----+
                           |             |
                           4             5
                           |             |
                     +-----S-----+ +-----S-----+
                     | Ordinary  | | Ordinary  |
                     | Clock -3  | | Clock -4  |
                     +----------+ +----------+
```
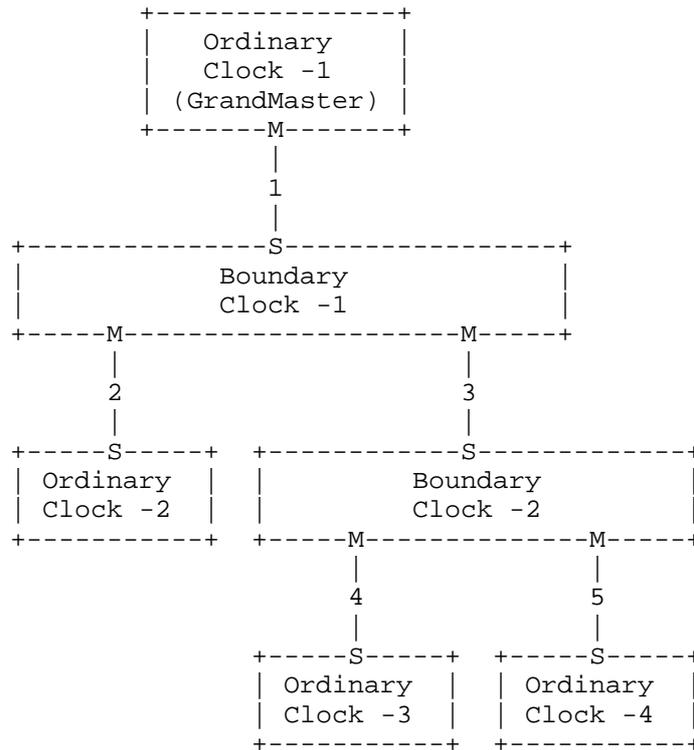
        Grandmaster

        Boundary Clock(0-N)   Ordinary Clocks(0-N)
        Ordinary Clocks(0-N)

Relationship cardinality:
    PTP system 1 : N PTP Clocks
    PTP Clock 1 : 1 Domain
    PTP Clock 1 : N PTP Ports
    PTP Ports N : M Physical Ports (interface in IF-MIB)

Transparent clock diagram, section 6.7.1.3 of [IEEE 1588-2008]:

```
                +----------------------------+
                |     Boundary clock - 1     |
                +----------------------------+
                   |                      |
                   |                      |
          +-- A --+                       B
          |                               |
+----------------------+                  |
| Ordinary clock       |                  |
+----------------------+                  |
                                +---------------------+
+----------------------+        |     End-to-end      |
| Ordinary clock 1-1   |--------| transparent clock-  |
+----------------------+        |       1 - 1         |
                                +---------------------+
                                          |
                                          C
                                          |
                                +---------------------+
+----------------------+        |     End-to-end      |
| Ordinary clock 1-2   |--------| transparent clock-  |
+----------------------+        |       1 - 2         |
                                +---------------------+
```
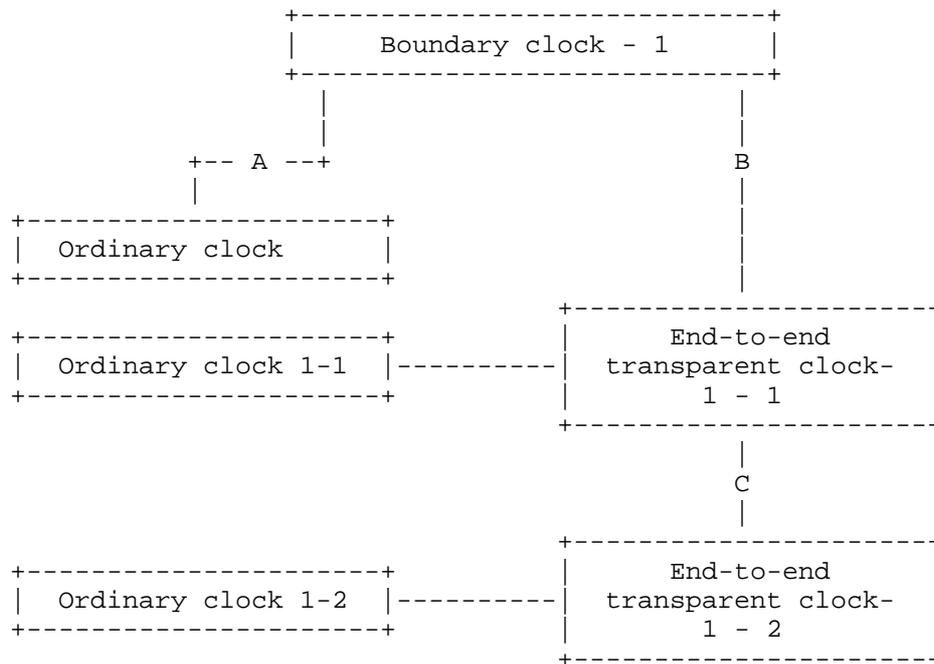

    The MIB refers to the sections of [IEEE 1588-2008]."

   -- revision log

   ::= { mib-2 XXX }_-- XXX to be assigned by IANA

```
ClockDomainType ::= TEXTUAL-CONVENTION
    DISPLAY-HINT    "d"
    STATUS          current
    DESCRIPTION
        "The Domain is identified by an integer, the domainNumber, in
        the range of 0 to 255. An integer value that is used to assign
        each PTP device to a particular domain. The following values
        define the valid domains.

                Value       Definition
                ---------   ------------------
                0           Default domain
                1           Alternate domain 1
                2           Alternate domain 2
                3           Alternate domain 3
                4 - 127     User-defined domains
                128 - 255   Reserved"

    REFERENCE     "Section 7.1 Domains, Table 2 of [IEEE 1588-2008]"
    SYNTAX        Unsigned32 (0..255)

ClockIdentity ::= TEXTUAL-CONVENTION
    STATUS          current
    DESCRIPTION
        "The clock Identity is an 8-octet array and will be presented in
        the form of a character array. The value of the
        ClockIdentity should be taken from the IEEE EUI-64 individual
        assigned numbers as indicated in Section 7.5.2.2.2 of
        [IEEE 1588-2008].  The EUI-64 address is divided into the
        following fields:

            OUI bytes (0-2)
            Extension identifier bytes (3-7)

        The clock identifier can be constructed from existing EUI-48
        assignments and here is an abbreviated example extracted from
        section 7.5.2.2.2 [IEEE 1588-2008].

            Company EUI-48 = 0xACDE4823456716
            EUI-64 = ACDE48FFFE23456716

        It is important to note the IEEE Registration Authority has
        deprecated the use of MAC-48 in any new design."
```

```
    REFERENCE         "Section 7.5.2.2.1 of [IEEE 1588-2008]"
    SYNTAX            OCTET STRING (SIZE (1..255))

ClockIntervalBase2 ::= TEXTUAL-CONVENTION
    DISPLAY-HINT    "d"
    STATUS          current
    DESCRIPTION
        "The interval included in message types Announce, Sync,
        Delay_Req, and Pdelay_Req as indicated in section 7.7.2.1 of
        [IEEE 1588-2008].

        The mean time interval between successive messages shall be
        represented as the logarithm to the base 2 of this time
        interval measured in seconds on the local clock of the device
        sending the message. The values of these logarithmic attributes
        shall be selected from integers in the range -128 to 127 subject
        to further limits established in an applicable PTP profile."

    REFERENCE    "Section 7.7.2.1 General interval specification of
                 [IEEE 1588-2008]"
    SYNTAX       Integer32 (-128..127)

ClockMechanismType ::= TEXTUAL-CONVENTION
    STATUS          current
    DESCRIPTION
        "The clock type based on whether End to End or peer to peer
        mechanisms are used. The mechanism used to calculate the Mean
        Path Delay as indicated in Table 9 of [IEEE 1588-2008].

        Delay mechanism    Value(hex)  Specification
        ---------------    ----------  -------------
        E2E                01          The port is configured to use the
                                       delay request-response mechanism.
        P2P                02          The port is configured to use the
                                       peer delay mechanism.
        DISABLED           FE          The port does not implement the
                                       delay mechanism."

    REFERENCE    "Sections 8.2.5.4.4, 6.6.4, 7.4.2 of [IEEE 1588-2008]."
    SYNTAX       INTEGER {
                    e2e(1),
                    p2p(2),
```

```
                    disabled(254)
                    }

ClockInstanceType ::= TEXTUAL-CONVENTION
    DISPLAY-HINT    "d"
    STATUS          current
    DESCRIPTION
        "The instance of the Clock of a given clock type in a given
        domain."
    SYNTAX          Unsigned32 (0..255)

ClockPortNumber ::= TEXTUAL-CONVENTION
    DISPLAY-HINT    "d"
    STATUS          current
    DESCRIPTION
        "An index identifying a specific Precision Time Protocol (PTP)
        port on a PTP node."

    REFERENCE    "Sections 7.5.2.3 and 5.3.5 of [IEEE 1588-2008]"
    SYNTAX       Unsigned32 (0..65535)

ClockPortState ::= TEXTUAL-CONVENTION
    STATUS          current
    DESCRIPTION
        "This is the value of the current state of the protocol engine
        associated with this port.
        Port state      Value      Description
        -------------------------------------------------------------
        initializing     1         In this state a port initializes
                                   its data sets, hardware, and
                                   communication facilities.
        faulty           2         The fault state of the protocol.
        disabled         3         The port shall not place any
                                   messages on its communication path.
        listening        4         The port is waiting for the
                                   announceReceiptTimeout to expire or
                                   to receive an Announce message from
                                   a master.
        preMaster        5         The port shall behave in all respects
                                   as though it were in the MASTER state
                                   except that it shall not place any
                                   messages on its communication path
                                   except for Pdelay_Req, Pdelay_Resp,
```

```
                                    Pdelay_Resp_Follow_Up, signaling, or
                                    management messages.
        master              6       The port is behaving as a master port.
        passive             7       The port shall not place any messages
                                    on its communication path except for
                                    Pdelay_Req, Pdelay_Resp,
                                    Pdelay_Resp_Follow_Up, or signaling
                                    messages, or management messages that
                                    are a required response to another
                                    management message
        uncalibrated        8       The local port is preparing to
                                    synchronize to the master port.
        slave               9       The port is synchronizing to the
                                    selected master port."

    REFERENCE           "Section 8.2.5.3.1 portState and 9.2.5 of
                        [IEEE 1588-2008]"
    SYNTAX              INTEGER  {
                            initializing(1),
                            faulty(2),
                            disabled(3),
                            listening(4),
                            preMaster(5),
                            master(6),
                            passive(7),
                            uncalibrated(8),
                            slave(9)
                        }

ClockProfileType ::= TEXTUAL-CONVENTION
    STATUS          current
    DESCRIPTION
        "Clock Profile used. A profile is the set of allowed Precision
        Time Protocol (PTP) features applicable to a device."

    REFERENCE           "Section 3.1.30 and 19.3 PTP profiles of
                        [IEEE 1588-2008]"
    SYNTAX              INTEGER  {
                            default(1),
                            telecom(2),
                            vendorspecific(3)
                        }
```

```
ClockQualityAccuracyType ::= TEXTUAL-CONVENTION
    STATUS          current
    DESCRIPTION
        "The ClockQuality as specified in section 5.3.7, 7.6.2.5 and
        Table 6 of [IEEE 1588-2008].

        The following values are not represented in the enumerated
        values.

                0x01-0x1F Reserved
                0x32-0x7F Reserved

        It is important to note that section 7.1.1 RFC2578 allows for
        gaps and enumerate values to start with zero when indicated by
        the protocol."

    REFERENCE       "Section 5.3.7, 7.6.2.5 and Table 6 of
                     [IEEE 1588-2008]"
    SYNTAX          INTEGER   {
                        reserved00(1),        -- 0
                        nanoSecond25(32),     -- 0x20
                        nanoSecond100(33),    -- 0x21
                        nanoSecond250(34),    -- 0x22
                        microSec1(35),        -- 0x23
                        microSec2dot5(36),    -- 0x24
                        microSec10(37),       -- 0x25
                        microSec25(38),       -- 0x26
                        microSec100(39),      -- 0x27
                        microSec250(40),      -- 0x28
                        milliSec1(41),        -- 0x29
                        milliSec2dot5(42),    -- 0x2A
                        milliSec10(43),       -- 0x2B
                        milliSec25(44),       -- 0x2C
                        milliSec100(45),      -- 0x2D
                        milliSec250(46),      -- 0x2E
                        second1(47),          -- 0x2F
                        second10(48),         -- 0x30
                        secondGreater10(49),  -- 0x31
                        unknown(254),         -- 0xFE
                        reserved255(255)      -- 0xFF
                    }

ClockQualityClassType ::= TEXTUAL-CONVENTION
```

         DISPLAY-HINT   "d"
         STATUS   current
         DESCRIPTION
             "The ClockQuality as specified in section 5.3.7, 7.6.2.4 and
             Table 5 of [IEEE 1588-2008].

             Value   Description
             --------   ---
                    0   Reserved to enable compatibility with future
                        versions.
                  1-5   Reserved
                    6   Shall designate a clock that is synchronized
                        to a primary reference time source. The
                        timescale distributed shall be PTP. A
                        clockClass 6 clock shall not be a slave to
                        another clock in the domain.
                    7   Shall designate a clock that has previously
                        been designated as clockClass 6 but that has
                        lost the ability to synchronize to a primary
                        reference time source and is in holdover mode
                        and within holdover specifications. The
                        timescale distributed shall be PTP. A
                        clockClass 7 clock shall not be a slave to
                        another clock in the domain.
                    8   Reserved.
                 9-10   Reserved to enable compatibility with future
                        versions.
                11-12   Reserved.
                   13   Shall designate a clock that is synchronized
                        to an application-specific source of time.
                        The timescale distributed shall be ARB. A
                        clockClass 13 clock shall not be a slave to
                        another clock in the domain.
                   14   Shall designate a clock that has previously
                        been designated as clockClass 13 but that
                        has lost the ability to synchronize to an
                        application-specific source of time and is
                        in holdover mode and within holdover
                        specifications. The timescale distributed
                        shall be ARB. A clockClass 14 clock shall
                        not be a slave to another clock in the domain.
                15-51   Reserved.
                   52   Degradation alternative A for a clock of

```
                    clockClass 7 that is not within holdover
                    specification.  A clock of clockClass 52
                    shall not be a slave to another clock in
                    the domain.
          53-57     Reserved.
             58     Degradation alternative A for a clock of
                    clockClass 14 that is not within holdover
                    specification. A clock of clockClass 58 shall
                    not be a slave to another clock in the domain.
          59-67     Reserved.
         68-122     For use by alternate PTP profiles.
        123-127     Reserved.
        128-132     Reserved.
        133-170     For use by alternate PTP profiles.
        171-186     Reserved.

            187     Degradation alternative B for a clock of
                    clockClass 7 that is not within holdover
                    specification. A clock of clockClass 187 may
                    be a slave to another clock in the domain.
        188-192     Reserved.
            193     Degradation alternative B for a clock of
                    clockClass 14 that is not within holdover
                    specification. A clock of clockClass 193 may
                    be a slave to another clock in the domain.
        194-215     Reserved.
        216-232     For use by alternate PTP profiles.
        233-247     Reserved.
            248     Default. This clockClass shall be used if
                    none of the other clockClass definitions apply.
        249-250     Reserved.
            251     Reserved for version 1 compatibility; see Clause 18.
        252-254     Reserved.
            255     Shall be the clockClass of a slave-only clock; see
                    9.2.2."

    REFERENCE       "Section 5.3.7, 7.6.2.4 and Table 5 of
                     [IEEE 1588-2008]."
    SYNTAX          Unsigned32 (0..255)

ClockRoleType ::= TEXTUAL-CONVENTION
    STATUS          current
    DESCRIPTION
```

            "The Clock Role. The protocol generates a Master Slave
            relationship among the clocks in the system.

            Clock Role   Value   Description

            Master clock   1   A clock that is the source of
                                         time to which all other clocks on
                                         that path synchronize.

            Slave clock   2   A clock which synchronizes to
                                         another clock (master)."
      SYNTAX   INTEGER {
                               master(1),
                               slave(2)
                           }

ClockStateType ::= TEXTUAL-CONVENTION
      STATUS   current
      DESCRIPTION
            "The clock state returned by PTP engine.

            Clock State   Value   Description

            Freerun state   1   Applies to a slave device that is not
                                     locked to a master. This is the initial
                                     state a slave starts out with when it
                                     is not getting any PTP packets from the
                                     master or because of some other input
                                     error (erroneous packets, etc).

            Holdover state   2   In this state the slave device is
                                     locked to a master but communication
                                     with the master is lost or the
                                     timestamps in the ptp packets are
                                     incorrect. But since the slave was
                                     locked to the master, it can run with
                                     the same accuracy for sometime. The
                                     slave can continue to operate in this
                                     state for some time. If communication
                                     with the master is not restored for a
                                     while, the device is moved to the
                                     FREERUN state.

```
        Acquiring state     3   The slave device is receiving packets
                                from a master and is trying to acquire
                                a lock.

        Freq_locked state   4   Slave device is locked to the Master
                                with respect to frequency, but not phase
                                aligned

        Phase_aligned state 5   Locked to the master with respect to
                                frequency and phase."
    SYNTAX          INTEGER  {
                        freerun(1),
                        holdover(2),
                        acquiring(3),
                        frequencyLocked(4),
                        phaseAligned(5)
                    }

ClockTimeSourceType ::= TEXTUAL-CONVENTION
    STATUS          current
    DESCRIPTION
        "The ClockQuality as specified in section 5.3.7, 7.6.2.6 and
        Table 7 of [IEEE 1588-2008].

        The following values are not represented in the enumerated
        values.

        0xF0-0xFE  For use by alternate PTP profiles
        0xFF       Reserved

        It is important to note that section 7.1.1 RFC2578 allows for
        gaps and enumerate values to start with zero when indicated by
        the protocol."

    REFERENCE       "Section 5.3.7, 7.6.2.6 and Table 7 of
                     [IEEE 1588-2008]."
    SYNTAX          INTEGER  {
                        atomicClock(16), -- 0x10
                        gps(32), -- 0x20
                        terrestrialRadio(48), -- 0x22
                        ptp(64), -- 0x40
                        ntp(80), -- 0x50
                        handSet(96), -- 0x60
```

```
                            other(144),  -- 0x90
                            internalOscillator(160) -- 0xA0
                    }

ClockTimeInterval ::= TEXTUAL-CONVENTION
    STATUS          current
    DESCRIPTION
        "This textual convention corresponds to the TimeInterval
        structure indicated in section 5.3.2 of [IEEE 1588-2008].
        It will be presented in the form of a character array.

        The TimeInterval type represents time intervals.

            struct TimeInterval
            {
                Integer64 scaledNanoseconds;
            };

        The scaledNanoseconds member is the time interval expressed in
        units of nanoseconds and multiplied by 2**16.

        Positive or negative time intervals outside the maximum range
        of this data type shall be encoded as the largest positive and
        negative values of the data type, respectively.

        For example, 2.5 ns is expressed as 0000 0000 0002 8000 in
        Base16."

    REFERENCE
        "Section 5.3.2 and setion 7.7.2.1 Timer interval
         specification of [IEEE 1588-2008]"
    SYNTAX          OCTET STRING (SIZE (1..255))

ClockTxModeType ::= TEXTUAL-CONVENTION
    STATUS          current
    DESCRIPTION
        "Transmission mode.

        unicast. Using unicast communication channel.

        multicast. Using Multicast communication channel.

        multicast-mix. Using multicast-unicast communication channel"
```

```
    SYNTAX             INTEGER  {
                           unicast(1),
                           multicast(2),
                           multicastmix(3)
                       }

ClockType ::= TEXTUAL-CONVENTION
    STATUS            current
    DESCRIPTION
        "The clock types as defined in the MIB module description."

    REFERENCE         "Section 6.5.1 of [IEEE 1588-2008]."
    SYNTAX             INTEGER  {
                           ordinaryClock(1),
                           boundaryClock(2),
                           transparentClock(3),
                           boundaryNode(4)
                       }

ClockPortTransportType ::= TEXTUAL-CONVENTION
    STATUS            current
    DESCRIPTION
    DESCRIPTION
        "The Clock port transport type. The transport protocol used for
         the communication between the clock nodes. This includes
         IP version 4, IP version 6, Ethernet, DeviceNet, ControlNet and
         IEC61158."
    REFERENCE     "Annex D (IPv4), Annex E (IPv6), Annex F (Ethernet),
                   Annex G (DeviceNet), Annex H (ControlNet) and
                   Annex I (IEC61158) of [IEEE 1588-2008]"
    SYNTAX             INTEGER  {
                           ipversion4(1),
                           ipversion6(2),
                           ethernet(3),
                           DeviceNet(4),
                           ControlNet(5),
                           IEC61158(6)
                       }

ClockPortTransportTypeAddress ::= TEXTUAL-CONVENTION
    STATUS            current
    DESCRIPTION
        "The Clock port transport protocol address used for the
```

          communication between the clock nodes. This is a string
          corresponding to the address type as specified by the
          ClockPortTransportType.
          This can be an address of types IP version 4, IP version 6,
          Ethernet, DeviceNet, ControlNet and IEC61158."
     REFERENCE   "Annex D (IPv4), Annex E (IPv6), Annex F (Ethernet),
                    Annex G (DeviceNet), Annex H (ControlNet) and
                    Annex I (IEC61158) of [IEEE 1588-2008]"
     SYNTAX   OCTET STRING (SIZE (1..255))

ptpbaseMIBNotifs OBJECT IDENTIFIER
    ::= { ptpbaseMIB 0 }

ptpbaseMIBObjects OBJECT IDENTIFIER
    ::= { ptpbaseMIB 1 }

ptpbaseMIBConformance OBJECT IDENTIFIER
    ::= { ptpbaseMIB 2 }

ptpbaseMIBSystemInfo OBJECT IDENTIFIER
    ::= { ptpbaseMIBObjects 1 }

-- Conformance Information Definition

ptpbaseMIBCompliances OBJECT IDENTIFIER
    ::= { ptpbaseMIBConformance 1 }

ptpbaseMIBGroups OBJECT IDENTIFIER
    ::= { ptpbaseMIBConformance 2 }

ptpbaseMIBCompliances1 MODULE-COMPLIANCE
    STATUS   current
    DESCRIPTION
        "Compliance statement for agents that provide read-only support
        for PTPBASE-MIB. Such devices can only be monitored using this
        MIB module.

        The Module is implemented with support for read-only. In other
        words, only monitoring is available by implementing this
        MODULE-COMPLIANCE."
    MODULE   -- this module
    MANDATORY-GROUPS { ptpbaseMIBSystemInfoGroup }

    ::= { ptpbaseMIBCompliances 1 }

ptpbaseMIBCompliances2 MODULE-COMPLIANCE
    STATUS   current
    DESCRIPTION
        "Compliance statement for agents that provide read-only support
        for PTPBASE-MIB. Such devices can only be monitored using this
        MIB module.

        The Module is implemented with support for read-only. In other
        words, only monitoring is available by implementing this
        MODULE-COMPLIANCE."
    MODULE   -- this module
    MANDATORY-GROUPS {
                    ptpbaseMIBClockCurrentDSGroup,
                    ptpbaseMIBClockParentDSGroup,
                    ptpbaseMIBClockDefaultDSGroup,
                    ptpbaseMIBClockRunningGroup,
                    ptpbaseMIBClockTimepropertiesGroup
                }
    ::= { ptpbaseMIBCompliances 2 }

ptpbaseMIBCompliances3 MODULE-COMPLIANCE
    STATUS   current
    DESCRIPTION
        "Compliance statement for agents that provide read-only support
        for PTPBASE-MIB. Such devices can only be monitored using this
        MIB module.

        The Module is implemented with support for read-only. In other
        words, only monitoring is available by implementing this
        MODULE-COMPLIANCE."
    MODULE   -- this module
    MANDATORY-GROUPS {
                    ptpbaseMIBClockPortGroup,
                    ptpbaseMIBClockPortDSGroup,
                    ptpbaseMIBClockPortRunningGroup,
                    ptpbaseMIBClockPortAssociateGroup
                }
    ::= { ptpbaseMIBCompliances 3 }

ptpbaseMIBCompliances4 MODULE-COMPLIANCE
    STATUS   current

        DESCRIPTION
            "Compliance statement for agents that provide read-only support
            for PTPBASE-MIB. Such devices can only be monitored using this
            MIB module.

            The Module is implemented with support for read-only. In other
            words, only monitoring is available by implementing this
            MODULE-COMPLIANCE."
        MODULE   -- this module
        MANDATORY-GROUPS {
                          ptpbaseMIBClockTranparentDSGroup,
                          ptpbaseMIBClockPortTransDSGroup
                          }
        ::= { ptpbaseMIBCompliances 4 }

    ptpbaseMIBSystemInfoGroup OBJECT-GROUP
        OBJECTS   {
                          ptpbaseSystemDomainTotals,
                          ptpDomainClockPortsTotal,
                          ptpbaseSystemProfile
                          }
        STATUS   current
        DESCRIPTION
            "Group which aggregates objects describing system-wide
            information"
        ::= { ptpbaseMIBGroups 1 }

    ptpbaseMIBClockCurrentDSGroup OBJECT-GROUP
        OBJECTS   {
                          ptpbaseClockCurrentDSStepsRemoved,
                          ptpbaseClockCurrentDSOffsetFromMaster,
                          ptpbaseClockCurrentDSMeanPathDelay
                          }
        STATUS   current
        DESCRIPTION
            "Group which aggregates objects describing PTP Current Dataset
            information"
        ::= { ptpbaseMIBGroups 2 }

    ptpbaseMIBClockParentDSGroup OBJECT-GROUP
        OBJECTS   {
                          ptpbaseClockParentDSParentPortIdentity,
                          ptpbaseClockParentDSParentStats,

```
                            ptpbaseClockParentDSOffset,
                            ptpbaseClockParentDSClockPhChRate,
                            ptpbaseClockParentDSGMClockIdentity,
                            ptpbaseClockParentDSGMClockPriority1,
                            ptpbaseClockParentDSGMClockPriority2,
                            ptpbaseClockParentDSGMClockQualityClass,
                            ptpbaseClockParentDSGMClockQualityAccuracy,
                            ptpbaseClockParentDSGMClockQualityOffset
                        }
    STATUS            current
    DESCRIPTION
        "Group which aggregates objects describing PTP Parent Dataset
        information"
    ::= { ptpbaseMIBGroups 3 }

ptpbaseMIBClockDefaultDSGroup OBJECT-GROUP
    OBJECTS           {
                            ptpbaseClockDefaultDSTwoStepFlag,
                            ptpbaseClockDefaultDSClockIdentity,
                            ptpbaseClockDefaultDSPriority1,
                            ptpbaseClockDefaultDSPriority2,
                            ptpbaseClockDefaultDSSlaveOnly,
                            ptpbaseClockDefaultDSQualityClass,
                            ptpbaseClockDefaultDSQualityAccuracy,
                            ptpbaseClockDefaultDSQualityOffset
                        }
    STATUS            current
    DESCRIPTION
        "Group which aggregates objects describing PTP Default Dataset
        information"
    ::= { ptpbaseMIBGroups 4 }

ptpbaseMIBClockRunningGroup OBJECT-GROUP
    OBJECTS           {
                            ptpbaseClockRunningState,
                            ptpbaseClockRunningPacketsSent,
                            ptpbaseClockRunningPacketsReceived
                        }
    STATUS            current
    DESCRIPTION
        "Group which aggregates objects describing PTP running state
        information"
    ::= { ptpbaseMIBGroups 5 }
```

```
ptpbaseMIBClockTimepropertiesGroup OBJECT-GROUP
    OBJECTS   {
                ptpbaseClockTimePropertiesDSCurrentUTCOffsetValid,
                ptpbaseClockTimePropertiesDSCurrentUTCOffset,
                ptpbaseClockTimePropertiesDSLeap59,
                ptpbaseClockTimePropertiesDSLeap61,
                ptpbaseClockTimePropertiesDSTimeTraceable,
                ptpbaseClockTimePropertiesDSFreqTraceable,
                ptpbaseClockTimePropertiesDSPTPTimescale,
                ptpbaseClockTimePropertiesDSSource
              }
    STATUS          current
    DESCRIPTION
        "Group which aggregates objects describing PTP Time Properties
        information"
    ::= { ptpbaseMIBGroups 6 }

ptpbaseMIBClockTranparentDSGroup OBJECT-GROUP
    OBJECTS          {
                        ptpbaseClockTransDefaultDSClockIdentity,
                        ptpbaseClockTransDefaultDSNumOfPorts,
                        ptpbaseClockTransDefaultDSDelay,
                        ptpbaseClockTransDefaultDSPrimaryDomain
                     }
    STATUS          current
    DESCRIPTION
        "Group which aggregates objects describing PTP Transparent
        Dataset
        information"
    ::= { ptpbaseMIBGroups 7 }

ptpbaseMIBClockPortGroup OBJECT-GROUP
    OBJECTS          {
                        ptpbaseClockPortName,
                        ptpbaseClockPortSyncOneStep,
                        ptpbaseClockPortCurrentPeerAddress,
                        ptpbaseClockPortNumOfAssociatedPorts,
                        ptpbaseClockPortCurrentPeerAddressType,
                        ptpbaseClockPortRole
                     }
    STATUS          current
    DESCRIPTION
```

         "Group which aggregates objects describing information for a
         given PTP Port."
      ::= { ptpbaseMIBGroups 8 }

 ptpbaseMIBClockPortDSGroup OBJECT-GROUP
      OBJECTS   {
                         ptpbaseClockPortDSName,
                         ptpbaseClockPortDSPortIdentity,
                         ptpbaseClockPortDSAnnouncementInterval,
                         ptpbaseClockPortDSAnnounceRctTimeout,
                         ptpbaseClockPortDSSyncInterval,
                         ptpbaseClockPortDSMinDelayReqInterval,
                         ptpbaseClockPortDSPeerDelayReqInterval,
                         ptpbaseClockPortDSDelayMech,
                         ptpbaseClockPortDSPeerMeanPathDelay,
                         ptpbaseClockPortDSGrantDuration,
                         ptpbaseClockPortDSPTPVersion
                         }
      STATUS   current
      DESCRIPTION
         "Group which aggregates objects describing PTP Port Dataset
         information"
      ::= { ptpbaseMIBGroups 9 }

 ptpbaseMIBClockPortRunningGroup OBJECT-GROUP
      OBJECTS   {
                         ptpbaseClockPortRunningName,
                         ptpbaseClockPortRunningState,
                         ptpbaseClockPortRunningRole,
                         ptpbaseClockPortRunningInterfaceIndex,
                         ptpbaseClockPortRunningTransport,
                         ptpbaseClockPortRunningEncapsulationType,
                         ptpbaseClockPortRunningTxMode,
                         ptpbaseClockPortRunningRxMode,
                         ptpbaseClockPortRunningPacketsReceived,
                         ptpbaseClockPortRunningPacketsSent
                         }
      STATUS   current
      DESCRIPTION
         "Group which aggregates objects describing PTP running interface
         information"
      ::= { ptpbaseMIBGroups 10 }

ptpbaseMIBClockPortTransDSGroup OBJECT-GROUP
    OBJECTS   {
                        ptpbaseClockPortTransDSPortIdentity,
                        ptpbaseClockPortTransDSlogMinPdelayReqInt,
                        ptpbaseClockPortTransDSFaultyFlag,
                        ptpbaseClockPortTransDSPeerMeanPathDelay
                     }
    STATUS   current
    DESCRIPTION
        "Group which aggregates objects describing PTP TransparentDS
        Dataset
        information"
    ::= { ptpbaseMIBGroups 11 }

ptpbaseMIBClockPortAssociateGroup OBJECT-GROUP
    OBJECTS   {
                        ptpbaseClockPortAssociatePacketsSent,
                        ptpbaseClockPortAssociatePacketsReceived,
                        ptpbaseClockPortAssociateAddress,
                        ptpbaseClockPortAssociateAddressType,
                        ptpbaseClockPortAssociateInErrors,
                        ptpbaseClockPortAssociateOutErrors
                     }
    STATUS   current
    DESCRIPTION
        "Group which aggregates objects describing information on peer
        PTP ports for a given PTP clock-port."
    ::= { ptpbaseMIBGroups 12 }
ptpbaseMIBClockInfo   OBJECT IDENTIFIER
    ::= { ptpbaseMIBObjects 2 }

ptpbaseSystemTable OBJECT-TYPE
    SYNTAX   SEQUENCE OF PtpbaseSystemEntry
    MAX-ACCESS   not-accessible
    STATUS   current
    DESCRIPTION
        "Table of count information about the PTP system for all
        domains."
    ::= { ptpbaseMIBSystemInfo 1 }

ptpbaseSystemEntry OBJECT-TYPE
    SYNTAX   PtpbaseSystemEntry

```
    MAX-ACCESS        not-accessible
    STATUS            current
    DESCRIPTION
        "An entry in the table, containing count information about a
        single domain. New row entries are added when the PTP clock for
        this domain is configured, while the unconfiguration of the PTP
        clock removes it."
    INDEX             {
                        ptpDomainIndex,
                        ptpInstanceIndex
                      }
    ::= { ptpbaseSystemTable 1 }

PtpbaseSystemEntry ::= SEQUENCE {
        ptpDomainIndex          ClockDomainType,
        ptpInstanceIndex        ClockInstanceType,
        ptpDomainClockPortsTotal Gauge32
}

ptpDomainIndex OBJECT-TYPE
    SYNTAX            ClockDomainType
    MAX-ACCESS        not-accessible
    STATUS            current
    DESCRIPTION
        "This object specifies the domain number used to create logical
        group of PTP devices. The Clock Domain is a logical group of
        clocks and devices that synchronize with each other using the
        PTP protocol.

        0         Default domain
        1         Alternate domain 1
        2         Alternate domain 2
        3         Alternate domain 3
        4 - 127   User-defined domains
        128 - 255 Reserved"
    ::= { ptpbaseSystemEntry 1 }

ptpInstanceIndex OBJECT-TYPE
    SYNTAX            ClockInstanceType
    MAX-ACCESS        not-accessible
    STATUS            current
    DESCRIPTION
        "This object specifies the instance of the Clock for this
```

```
        domain."
    ::= { ptpbaseSystemEntry 2 }

ptpDomainClockPortsTotal OBJECT-TYPE
    SYNTAX          Gauge32
    UNITS           "ptp ports"
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "This object specifies the total number of clock ports
        configured within a domain."
    ::= { ptpbaseSystemEntry 3 }




ptpbaseSystemDomainTable OBJECT-TYPE
    SYNTAX          SEQUENCE OF PtpbaseSystemDomainEntry
    MAX-ACCESS      not-accessible
    STATUS          current
    DESCRIPTION
        "Table of information about the PTP system for all clock modes
        -- ordinary, boundary or transparent."
    ::= { ptpbaseMIBSystemInfo 2 }

ptpbaseSystemDomainEntry OBJECT-TYPE
    SYNTAX          PtpbaseSystemDomainEntry
    MAX-ACCESS      not-accessible
    STATUS          current
    DESCRIPTION
        "An entry in the table, containing information about a single
        clock mode for the PTP system. A row entry gets added when PTP
        clocks are configured on the router."
    INDEX           { ptpbaseSystemDomainClockTypeIndex }
    ::= { ptpbaseSystemDomainTable 1 }

PtpbaseSystemDomainEntry ::= SEQUENCE {
        ptpbaseSystemDomainClockTypeIndex ClockType,
        ptpbaseSystemDomainTotals         Unsigned32
}

ptpbaseSystemDomainClockTypeIndex OBJECT-TYPE
    SYNTAX          ClockType
    MAX-ACCESS      not-accessible
```

```
    STATUS          current
    DESCRIPTION
        "This object specifies the clock type as defined in the
        Textual convention description."
    ::= { ptpbaseSystemDomainEntry 1 }

ptpbaseSystemDomainTotals OBJECT-TYPE
    SYNTAX          Unsigned32
    UNITS           "domains"
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "This object specifies the total number of PTP domains for this
        particular clock type configured in this node."
    ::= { ptpbaseSystemDomainEntry 2 }



ptpbaseSystemProfile OBJECT-TYPE
    SYNTAX          ClockProfileType
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "This object specifies the PTP Profile implemented on the
        system."
    REFERENCE       "Section 19.3 PTP profiles of [IEEE 1588-2008]"
    ::= { ptpbaseMIBSystemInfo 3 }

ptpbaseClockCurrentDSTable OBJECT-TYPE
    SYNTAX          SEQUENCE OF PtpbaseClockCurrentDSEntry
    MAX-ACCESS      not-accessible
    STATUS          current
    DESCRIPTION
        "Table of information about the PTP clock Current Datasets for
        all domains."
    ::= { ptpbaseMIBClockInfo 1 }

ptpbaseClockCurrentDSEntry OBJECT-TYPE
    SYNTAX          PtpbaseClockCurrentDSEntry
    MAX-ACCESS      not-accessible
    STATUS          current
    DESCRIPTION
        "An entry in the table, containing information about a single
```

            PTP clock Current Datasets for a domain."
        REFERENCE
            "1588 Version 2.0 Section 8.2.2 currentDS data set member
            specifications of [IEEE 1588-2008]"
        INDEX   {
                            ptpbaseClockCurrentDSDomainIndex,
                            ptpbaseClockCurrentDSClockTypeIndex,
                            ptpbaseClockCurrentDSInstanceIndex
                        }
        ::= { ptpbaseClockCurrentDSTable 1 }

PtpbaseClockCurrentDSEntry ::= SEQUENCE {
        ptpbaseClockCurrentDSDomainIndex   ClockDomainType,
        ptpbaseClockCurrentDSClockTypeIndex   ClockType,
        ptpbaseClockCurrentDSInstanceIndex   ClockInstanceType,
        ptpbaseClockCurrentDSStepsRemoved   Unsigned32,
        ptpbaseClockCurrentDSOffsetFromMaster ClockTimeInterval,
        ptpbaseClockCurrentDSMeanPathDelay   ClockTimeInterval
}

ptpbaseClockCurrentDSDomainIndex OBJECT-TYPE
    SYNTAX   ClockDomainType
    MAX-ACCESS   not-accessible
    STATUS   current
    DESCRIPTION
        "This object specifies the domain number used to create logical
        group of PTP devices."
    ::= { ptpbaseClockCurrentDSEntry 1 }

ptpbaseClockCurrentDSClockTypeIndex OBJECT-TYPE
    SYNTAX   ClockType
    MAX-ACCESS   not-accessible
    STATUS   current
    DESCRIPTION
        "This object specifies the clock type as defined in the
        Textual convention description."
    ::= { ptpbaseClockCurrentDSEntry 2 }

ptpbaseClockCurrentDSInstanceIndex OBJECT-TYPE
    SYNTAX   ClockInstanceType
    MAX-ACCESS   not-accessible
    STATUS   current
    DESCRIPTION

         "This object specifies the instance of the clock for this clock
         type in the given domain."
      ::= { ptpbaseClockCurrentDSEntry 3 }

ptpbaseClockCurrentDSStepsRemoved OBJECT-TYPE
      SYNTAX   Unsigned32
      UNITS   "Steps"
      MAX-ACCESS   read-only
      STATUS   current
      DESCRIPTION
         "The current clock dataset StepsRemoved value.

         This object specifies the distance measured by the number of
         Boundary clocks between the local clock and the Foreign master
         as indicated in the stepsRemoved field of Announce messages."
      REFERENCE   "1588 Version 2.0 Section 8.2.2.2 stepsRemoved"
      ::= { ptpbaseClockCurrentDSEntry 4 }

ptpbaseClockCurrentDSOffsetFromMaster OBJECT-TYPE
      SYNTAX   ClockTimeInterval
      UNITS   "Time Interval"
      MAX-ACCESS   read-only
      STATUS   current
      DESCRIPTION
         "This object specifies the current clock dataset ClockOffset
         value. The value of the computation of the offset in time
         between a slave and a master clock."
      REFERENCE   "1588 Version 2.0 Section 8.2.2.3 of
                        [IEEE 1588-2008]"
      ::= { ptpbaseClockCurrentDSEntry 5 }

ptpbaseClockCurrentDSMeanPathDelay OBJECT-TYPE
      SYNTAX   ClockTimeInterval
      MAX-ACCESS   read-only
      STATUS   current
      DESCRIPTION
         "This object specifies the current clock dataset
         MeanPathDelay value.

         The mean path delay between a pair of ports as measure by the
         delay request-response mechanism."
      REFERENCE   "1588 Version 2.0 Section 8.2.2.4 mean path delay"
      ::= { ptpbaseClockCurrentDSEntry 6 }

```
ptpbaseClockParentDSTable OBJECT-TYPE
    SYNTAX          SEQUENCE OF PtpbaseClockParentDSEntry
    MAX-ACCESS      not-accessible
    STATUS          current
    DESCRIPTION
        "Table of information about the PTP clock Parent Datasets for
        all domains."
    ::= { ptpbaseMIBClockInfo 2 }

ptpbaseClockParentDSEntry OBJECT-TYPE
    SYNTAX          PtpbaseClockParentDSEntry
    MAX-ACCESS      not-accessible
    STATUS          current
    DESCRIPTION
        "An entry in the table, containing information about a single
        PTP clock Parent Datasets for a domain."
    REFERENCE
        "Section 8.2.3 parentDS data set member specifications of
        [IEEE 1588-2008]"
    INDEX           {
                        ptpbaseClockParentDSDomainIndex,
                        ptpbaseClockParentDSClockTypeIndex,
                        ptpbaseClockParentDSInstanceIndex
                    }
    ::= { ptpbaseClockParentDSTable 1 }

PtpbaseClockParentDSEntry ::= SEQUENCE {
    ptpbaseClockParentDSDomainIndex            ClockDomainType,
    ptpbaseClockParentDSClockTypeIndex         ClockType,
    ptpbaseClockParentDSInstanceIndex          ClockInstanceType,
    ptpbaseClockParentDSParentPortIdentity     OCTET STRING,
    ptpbaseClockParentDSParentStats            TruthValue,
    ptpbaseClockParentDSOffset                 ClockIntervalBase2,
    ptpbaseClockParentDSClockPhChRate          Integer32,
    ptpbaseClockParentDSGMClockIdentity        ClockIdentity,
    ptpbaseClockParentDSGMClockPriority1       Unsigned32,
    ptpbaseClockParentDSGMClockPriority2       Unsigned32,
    ptpbaseClockParentDSGMClockQualityClass    ClockQualityClassType,
    ptpbaseClockParentDSGMClockQualityAccuracy ClockQualityAccuracyType,
    ptpbaseClockParentDSGMClockQualityOffset   Unsigned32
```

}

ptpbaseClockParentDSDomainIndex OBJECT-TYPE
    SYNTAX   ClockDomainType
    MAX-ACCESS   not-accessible
    STATUS   current
    DESCRIPTION
        "This object specifies the domain number used to create logical
        group of PTP devices."
    ::= { ptpbaseClockParentDSEntry 1 }

ptpbaseClockParentDSClockTypeIndex OBJECT-TYPE
    SYNTAX   ClockType
    MAX-ACCESS   not-accessible
    STATUS   current
    DESCRIPTION
        "This object specifies the clock type as defined in the
        Textual convention description."
    ::= { ptpbaseClockParentDSEntry 2 }

ptpbaseClockParentDSInstanceIndex OBJECT-TYPE
    SYNTAX   ClockInstanceType
    MAX-ACCESS   not-accessible
    STATUS   current
    DESCRIPTION
        "This object specifies the instance of the clock for this clock
        type in the given domain."
    ::= { ptpbaseClockParentDSEntry 3 }

ptpbaseClockParentDSParentPortIdentity OBJECT-TYPE
    SYNTAX   OCTET STRING(SIZE(1..256))
    MAX-ACCESS   read-only
    STATUS   current
    DESCRIPTION
        "This object specifies the value of portIdentity of the port on
        the master that issues the Sync messages used in synchronizing
        this clock."
    REFERENCE
        "Section 8.2.3.2 parentDS.parentPortIdentity of
         [IEEE 1588-2008]"
    ::= { ptpbaseClockParentDSEntry 4 }

ptpbaseClockParentDSParentStats OBJECT-TYPE

```
     SYNTAX          TruthValue
     MAX-ACCESS      read-only
     STATUS          current
     DESCRIPTION
         "This object specifies the Parent Dataset ParentStats value.

         This value indicates whether the values of ParentDSOffset
         and ParentDSClockPhChRate have been measured and are valid.
         A TRUE value shall indicate valid data."
     REFERENCE       "Section 8.2.3.3 parentDS.parentStats of
                     [IEEE 1588-2008]"
     ::= { ptpbaseClockParentDSEntry 5 }

ptpbaseClockParentDSOffset OBJECT-TYPE
     SYNTAX          ClockIntervalBase2 (-128..127)
     MAX-ACCESS      read-only
     STATUS          current
     DESCRIPTION
         "This object specifies the Parent Dataset
         ParentOffsetScaledLogVariance value.

         This value is the variance of the parent clocks phase as
         measured by the local clock."
     REFERENCE
         "Section 8.2.3.4
         parentDS.observedParentOffsetScaledLogVariance
         [IEEE 1588-2008]"
     ::= { ptpbaseClockParentDSEntry 6 }

ptpbaseClockParentDSClockPhChRate OBJECT-TYPE
     SYNTAX          Integer32
     MAX-ACCESS      read-only
     STATUS          current
     DESCRIPTION
         "This object specifies the clock's parent dataset
         ParentClockPhaseChangeRate value.

         This value is an estimate of the parent clocks phase change
         rate as measured by the slave clock."
     REFERENCE
         "Section 8.2.3.5
         parentDS.observedParentClockPhaseChangeRate of
         [IEEE 1588-2008]"
```

```
    ::= { ptpbaseClockParentDSEntry 7 }

ptpbaseClockParentDSGMClockIdentity OBJECT-TYPE
    SYNTAX          ClockIdentity
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "This object specifies the parent dataset Grandmaster clock
        identity."
    REFERENCE
        "Section 8.2.3.6 parentDS.grandmasterIdentity of
         [IEEE 1588-2008]"
    ::= { ptpbaseClockParentDSEntry 8 }

ptpbaseClockParentDSGMClockPriority1 OBJECT-TYPE
    SYNTAX          Unsigned32
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "This object specifies the parent dataset Grandmaster clock
        priority1."
    REFERENCE
        "Section 8.2.3.8 parentDS.grandmasterPriority1 of
         [IEEE 1588-2008]"
    ::= { ptpbaseClockParentDSEntry 9 }

ptpbaseClockParentDSGMClockPriority2 OBJECT-TYPE
    SYNTAX          Unsigned32
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "This object specifies the parent dataset grandmaster clock
        priority2."
    REFERENCE
        "Section 8.2.3.9 parentDS.grandmasterPriority2 of
         [IEEE 1588-2008]"
    ::= { ptpbaseClockParentDSEntry 10 }

ptpbaseClockParentDSGMClockQualityClass OBJECT-TYPE
    SYNTAX          ClockQualityClassType (0..255)
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
```

```
        "This object specifies the parent dataset grandmaster clock
        quality class."
     REFERENCE
        "Section 8.2.3.7 parentDS.grandmasterClockQuality of
         [IEEE 1588-2008]"
     ::= { ptpbaseClockParentDSEntry 11 }

ptpbaseClockParentDSGMClockQualityAccuracy OBJECT-TYPE
     SYNTAX          ClockQualityAccuracyType
     MAX-ACCESS      read-only
     STATUS          current
     DESCRIPTION
        "This object specifies the parent dataset grandmaster clock
        quality accuracy."
     REFERENCE
        "Section 8.2.3.7 parentDS.grandmasterClockQuality of
         [IEEE 1588-2008]"
     ::= { ptpbaseClockParentDSEntry 12 }

ptpbaseClockParentDSGMClockQualityOffset OBJECT-TYPE
     SYNTAX          Unsigned32
     MAX-ACCESS      read-only
     STATUS          current
     DESCRIPTION
        "This object specifies the parent dataset grandmaster clock
        quality offset."
     REFERENCE
        "Section 8.2.3.7 parentDS.grandmasterClockQuality of
         [IEEE 1588-2008]"
     ::= { ptpbaseClockParentDSEntry 13 }



ptpbaseClockDefaultDSTable OBJECT-TYPE
     SYNTAX          SEQUENCE OF PtpbaseClockDefaultDSEntry
     MAX-ACCESS      not-accessible
     STATUS          current
     DESCRIPTION
        "Table of information about the PTP clock Default Datasets for
        all domains."
     ::= { ptpbaseMIBClockInfo 3 }

ptpbaseClockDefaultDSEntry OBJECT-TYPE
```

```
    SYNTAX           PtpbaseClockDefaultDSEntry
    MAX-ACCESS       not-accessible
    STATUS           current
    DESCRIPTION
        "An entry in the table, containing information about a single
        PTP clock Default Datasets for a domain."
    INDEX            {
                        ptpbaseClockDefaultDSDomainIndex,
                        ptpbaseClockDefaultDSClockTypeIndex,
                        ptpbaseClockDefaultDSInstanceIndex
                    }
    ::= { ptpbaseClockDefaultDSTable 1 }

PtpbaseClockDefaultDSEntry ::= SEQUENCE {
        ptpbaseClockDefaultDSDomainIndex     ClockDomainType,
        ptpbaseClockDefaultDSClockTypeIndex  ClockType,
        ptpbaseClockDefaultDSInstanceIndex   ClockInstanceType,
        ptpbaseClockDefaultDSTwoStepFlag     TruthValue,
        ptpbaseClockDefaultDSClockIdentity   ClockIdentity,
        ptpbaseClockDefaultDSPriority1       Unsigned32,
        ptpbaseClockDefaultDSPriority2       Unsigned32,
        ptpbaseClockDefaultDSSlaveOnly       TruthValue,
        ptpbaseClockDefaultDSQualityClass    ClockQualityClassType,
        ptpbaseClockDefaultDSQualityAccuracy ClockQualityAccuracyType,
        ptpbaseClockDefaultDSQualityOffset   Integer32
}

ptpbaseClockDefaultDSDomainIndex OBJECT-TYPE
    SYNTAX           ClockDomainType
    MAX-ACCESS       not-accessible
    STATUS           current
    DESCRIPTION
        "This object specifies the domain number used to create logical
        group of PTP devices."
    ::= { ptpbaseClockDefaultDSEntry 1 }

ptpbaseClockDefaultDSClockTypeIndex OBJECT-TYPE
    SYNTAX           ClockType
    MAX-ACCESS       not-accessible
    STATUS           current
    DESCRIPTION
        "This object specifies the clock type as defined in the
        Textual convention description."
```

```
    ::= { ptpbaseClockDefaultDSEntry 2 }

ptpbaseClockDefaultDSInstanceIndex OBJECT-TYPE
    SYNTAX          ClockInstanceType
    MAX-ACCESS      not-accessible
    STATUS          current
    DESCRIPTION
        "This object specifies the instance of the clock for this clock
        type in the given domain."
    ::= { ptpbaseClockDefaultDSEntry 3 }

ptpbaseClockDefaultDSTwoStepFlag OBJECT-TYPE
    SYNTAX          TruthValue
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "This object specifies whether the Two Step process is used."
    ::= { ptpbaseClockDefaultDSEntry 4 }

ptpbaseClockDefaultDSClockIdentity OBJECT-TYPE
    SYNTAX          ClockIdentity
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "This object specifies the default Datasets clock identity."
    ::= { ptpbaseClockDefaultDSEntry 5 }

ptpbaseClockDefaultDSPriority1 OBJECT-TYPE
    SYNTAX          Unsigned32
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "This object specifies the default Datasets clock Priority1."
    ::= { ptpbaseClockDefaultDSEntry 6 }

ptpbaseClockDefaultDSPriority2 OBJECT-TYPE
    SYNTAX          Unsigned32
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "This object specifies the default Datasets clock Priority2."
    ::= { ptpbaseClockDefaultDSEntry 7 }
```

```
ptpbaseClockDefaultDSSlaveOnly OBJECT-TYPE
    SYNTAX          TruthValue
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "Whether the SlaveOnly flag is set."
    ::= { ptpbaseClockDefaultDSEntry 8 }

ptpbaseClockDefaultDSQualityClass OBJECT-TYPE
    SYNTAX          ClockQualityClassType (0..255)
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "This object specifies the default dataset Quality Class."
    ::= { ptpbaseClockDefaultDSEntry 9 }

ptpbaseClockDefaultDSQualityAccuracy OBJECT-TYPE
    SYNTAX          ClockQualityAccuracyType
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "This object specifies the default dataset Quality Accurarcy."
    ::= { ptpbaseClockDefaultDSEntry 10 }

ptpbaseClockDefaultDSQualityOffset OBJECT-TYPE
    SYNTAX          Integer32
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "This object specifies the default dataset Quality offset."
    ::= { ptpbaseClockDefaultDSEntry 11 }



ptpbaseClockRunningTable OBJECT-TYPE
    SYNTAX          SEQUENCE OF PtpbaseClockRunningEntry
    MAX-ACCESS      not-accessible
    STATUS          current
    DESCRIPTION
        "Table of information about the PTP clock Running Datasets for
        all domains."
    ::= { ptpbaseMIBClockInfo 4 }
```

```
ptpbaseClockRunningEntry OBJECT-TYPE
    SYNTAX          PtpbaseClockRunningEntry
    MAX-ACCESS      not-accessible
    STATUS          current
    DESCRIPTION
        "An entry in the table, containing information about a single
        PTP clock running Datasets for a domain."
    INDEX           {
                        ptpbaseClockRunningDomainIndex,
                        ptpbaseClockRunningClockTypeIndex,
                        ptpbaseClockRunningInstanceIndex
                    }
    ::= { ptpbaseClockRunningTable 1 }

PtpbaseClockRunningEntry ::= SEQUENCE {
        ptpbaseClockRunningDomainIndex     ClockDomainType,
        ptpbaseClockRunningClockTypeIndex  ClockType,
        ptpbaseClockRunningInstanceIndex   ClockInstanceType,
        ptpbaseClockRunningState           ClockStateType,
        ptpbaseClockRunningPacketsSent     Counter64,
        ptpbaseClockRunningPacketsReceived Counter64
}

ptpbaseClockRunningDomainIndex OBJECT-TYPE
    SYNTAX          ClockDomainType
    MAX-ACCESS      not-accessible
    STATUS          current
    DESCRIPTION
        "This object specifies the domain number used to create logical
        group of PTP devices."
    ::= { ptpbaseClockRunningEntry 1 }

ptpbaseClockRunningClockTypeIndex OBJECT-TYPE
    SYNTAX          ClockType
    MAX-ACCESS      not-accessible
    STATUS          current
    DESCRIPTION
        "This object specifies the clock type as defined in the
        Textual convention description."
    ::= { ptpbaseClockRunningEntry 2 }

ptpbaseClockRunningInstanceIndex OBJECT-TYPE
    SYNTAX          ClockInstanceType
```

```
    MAX-ACCESS        not-accessible
    STATUS            current
    DESCRIPTION
        "This object specifies the instance of the clock for this clock
        type in the given domain."
    ::= { ptpbaseClockRunningEntry 3 }

ptpbaseClockRunningState OBJECT-TYPE
    SYNTAX            ClockStateType
    MAX-ACCESS        read-only
    STATUS            current
    DESCRIPTION
        "This object specifies the Clock state returned by PTP engine
        which was described earlier.

        Freerun state. Applies to a slave device that is not locked to
        a master. This is the initial state a slave starts out with
        when
        it is not getting any PTP packets from the master or because of
        some other input error (erroneous packets, etc).

        Holdover state. In this state the slave device is locked to a
        master but communication with the master is lost or the
        timestamps in the ptp packets are incorrect. But since the
        slave was locked to the master, it can run with the same
        accuracy for
        sometime. The slave can continue to operate in this state for
        some time. If communication with the master is not restored for
        a while, the device is moved to the FREERUN state.

        Acquiring state. The slave device is receiving packets from a
        master and is trying to acquire a lock.

        Freq_locked state. Slave device is locked to the Master with
        respect to frequency, but not phase aligned

        Phase_aligned state. Locked to the master with respect to
        frequency and phase."
    ::= { ptpbaseClockRunningEntry 4 }

ptpbaseClockRunningPacketsSent OBJECT-TYPE
    SYNTAX            Counter64
    MAX-ACCESS        read-only
```

```
     STATUS            current
     DESCRIPTION
         "This object specifies the total number of all packet Unicast
         and multicast that have been sent out for this clock in this
         domain for this type."
     ::= { ptpbaseClockRunningEntry 5 }

ptpbaseClockRunningPacketsReceived OBJECT-TYPE
     SYNTAX            Counter64
     MAX-ACCESS        read-only
     STATUS            current
     DESCRIPTION
         "This object specifies the total number of all packet Unicast
         and multicast that have been received for this clock in this
         domain for this type."
     ::= { ptpbaseClockRunningEntry 6 }




ptpbaseClockTimePropertiesDSTable OBJECT-TYPE
     SYNTAX            SEQUENCE OF PtpbaseClockTimePropertiesDSEntry
     MAX-ACCESS        not-accessible
     STATUS            current
     DESCRIPTION
         "Table of information about the PTP clock Timeproperties
         Datasets for all domains."
     ::= { ptpbaseMIBClockInfo 5 }

ptpbaseClockTimePropertiesDSEntry OBJECT-TYPE
     SYNTAX            PtpbaseClockTimePropertiesDSEntry
     MAX-ACCESS        not-accessible
     STATUS            current
     DESCRIPTION
         "An entry in the table, containing information about a single
         PTP clock timeproperties Datasets for a domain."
     REFERENCE         "Section 8.2.4 of [IEEE 1588-2008]"
     INDEX             {
                         ptpbaseClockTimePropertiesDSDomainIndex,
                         ptpbaseClockTimePropertiesDSClockTypeIndex,
                         ptpbaseClockTimePropertiesDSInstanceIndex
                       }
     ::= { ptpbaseClockTimePropertiesDSTable 1 }
```

PtpbaseClockTimePropertiesDSEntry ::= SEQUENCE {
  ptpbaseClockTimePropertiesDSDomainIndex   ClockDomainType,
  ptpbaseClockTimePropertiesDSClockTypeIndex   ClockType,
  ptpbaseClockTimePropertiesDSInstanceIndex   ClockInstanceType,
  ptpbaseClockTimePropertiesDSCurrentUTCOffsetValid TruthValue,
  ptpbaseClockTimePropertiesDSCurrentUTCOffset   Integer32,
  ptpbaseClockTimePropertiesDSLeap59   TruthValue,
  ptpbaseClockTimePropertiesDSLeap61   TruthValue,
  ptpbaseClockTimePropertiesDSTimeTraceable   TruthValue,
  ptpbaseClockTimePropertiesDSFreqTraceable   TruthValue,
  ptpbaseClockTimePropertiesDSPTPTimescale   TruthValue,
  ptpbaseClockTimePropertiesDSSource   ClockTimeSourceType
}

ptpbaseClockTimePropertiesDSDomainIndex OBJECT-TYPE
    SYNTAX   ClockDomainType
    MAX-ACCESS   not-accessible
    STATUS   current
    DESCRIPTION
        "This object specifies the domain number used to create logical
        group of PTP devices."
    ::= { ptpbaseClockTimePropertiesDSEntry 1 }

ptpbaseClockTimePropertiesDSClockTypeIndex OBJECT-TYPE
    SYNTAX   ClockType
    MAX-ACCESS   not-accessible
    STATUS   current
    DESCRIPTION
        "This object specifies the clock type as defined in the
        Textual convention description."
    ::= { ptpbaseClockTimePropertiesDSEntry 2 }

ptpbaseClockTimePropertiesDSInstanceIndex OBJECT-TYPE
    SYNTAX   ClockInstanceType
    MAX-ACCESS   not-accessible
    STATUS   current
    DESCRIPTION
        "This object specifies the instance of the clock for this clock
        type in the given domain."
    ::= { ptpbaseClockTimePropertiesDSEntry 3 }

ptpbaseClockTimePropertiesDSCurrentUTCOffsetValid OBJECT-TYPE
    SYNTAX   TruthValue

```
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "This object specifies the timeproperties dataset value of
        whether current UTC offset is valid."
    REFERENCE       "Section 8.2.4.2 of [IEEE 1588-2008]"
    ::= { ptpbaseClockTimePropertiesDSEntry 4 }

ptpbaseClockTimePropertiesDSCurrentUTCOffset OBJECT-TYPE
    SYNTAX          Integer32
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "This object specifies the timeproperties dataset value of
        current UTC offset.

        In PTP systems whose epoch is the PTP epoch, the value of
        timePropertiesDS.currentUtcOffset is the offset
        between TAI and UTC; otherwise the value has no meaning. The
        value shall be in units of seconds.
        The initialization value shall be selected as follows:
        a) If the timePropertiesDS.ptpTimescale (see 8.2.4.8) is TRUE,
        the value is the value obtained from a
        primary reference if the value is known at the time of
        initialization, else.
        b) The value shall be the current number of leap seconds (7.2.3)
        when the node is designed."
    REFERENCE       "Section 8.2.4.3 of [IEEE 1588-2008]"
    ::= { ptpbaseClockTimePropertiesDSEntry 5 }

ptpbaseClockTimePropertiesDSLeap59 OBJECT-TYPE
    SYNTAX          TruthValue
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "This object specifies the Leap59 value in the clock Current
        Dataset."
    REFERENCE       "Section 8.2.4.4 of [IEEE 1588-2008]"
    ::= { ptpbaseClockTimePropertiesDSEntry 6 }

ptpbaseClockTimePropertiesDSLeap61 OBJECT-TYPE
    SYNTAX          TruthValue
    MAX-ACCESS      read-only
```

```
    STATUS          current
    DESCRIPTION
        "This object specifies the Leap61 value in the clock Current
        Dataset."
    REFERENCE       "Section 8.2.4.5 of [IEEE 1588-2008]"
    ::= { ptpbaseClockTimePropertiesDSEntry 7 }

ptpbaseClockTimePropertiesDSTimeTraceable OBJECT-TYPE
    SYNTAX          TruthValue
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "This object specifies the Timetraceable value in the clock
        Current Dataset."
    REFERENCE       "Section 8.2.4.6 of [IEEE 1588-2008]"
    ::= { ptpbaseClockTimePropertiesDSEntry 8 }

ptpbaseClockTimePropertiesDSFreqTraceable OBJECT-TYPE
    SYNTAX          TruthValue
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "This object specifies the Frequency Traceable value in the
        clock Current Dataset."
    REFERENCE       "Section 8.2.4.7 of [IEEE 1588-2008]"
    ::= { ptpbaseClockTimePropertiesDSEntry 9 }

ptpbaseClockTimePropertiesDSPTPTimescale OBJECT-TYPE
    SYNTAX          TruthValue
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "This object specifies the PTP Timescale value in the clock
        Current Dataset."
    REFERENCE       "Section 8.2.4.8 of [IEEE 1588-2008]"
    ::= { ptpbaseClockTimePropertiesDSEntry 10 }

ptpbaseClockTimePropertiesDSSource OBJECT-TYPE
    SYNTAX          ClockTimeSourceType
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "This object specifies the Timesource value in the clock Current
```

          Dataset."
     REFERENCE   "Section 8.2.4.9 of [IEEE 1588-2008]"
     ::= { ptpbaseClockTimePropertiesDSEntry 11 }

ptpbaseClockTransDefaultDSTable OBJECT-TYPE
     SYNTAX   SEQUENCE OF PtpbaseClockTransDefaultDSEntry
     MAX-ACCESS   not-accessible
     STATUS   current
     DESCRIPTION
         "Table of information about the PTP Transparent clock Default
         Datasets for all domains."
     ::= { ptpbaseMIBClockInfo 6 }

ptpbaseClockTransDefaultDSEntry OBJECT-TYPE
     SYNTAX   PtpbaseClockTransDefaultDSEntry
     MAX-ACCESS   not-accessible
     STATUS   current
     DESCRIPTION
         "An entry in the table, containing information about a single
         PTP Transparent clock Default Datasets for a domain."
     REFERENCE   "Section 8.3.2 of [IEEE 1588-2008]"
     INDEX   {
                         ptpbaseClockTransDefaultDSDomainIndex,
                         ptpbaseClockTransDefaultDSInstanceIndex
                       }
     ::= { ptpbaseClockTransDefaultDSTable 1 }

PtpbaseClockTransDefaultDSEntry ::= SEQUENCE {
        ptpbaseClockTransDefaultDSDomainIndex   ClockDomainType,
        ptpbaseClockTransDefaultDSInstanceIndex ClockInstanceType,
        ptpbaseClockTransDefaultDSClockIdentity ClockIdentity,
        ptpbaseClockTransDefaultDSNumOfPorts   Counter32,
        ptpbaseClockTransDefaultDSDelay   ClockMechanismType,
        ptpbaseClockTransDefaultDSPrimaryDomain Integer32
}

ptpbaseClockTransDefaultDSDomainIndex OBJECT-TYPE
     SYNTAX   ClockDomainType
     MAX-ACCESS   not-accessible
     STATUS   current
     DESCRIPTION

          "This object specifies the domain number used to create logical
          group of PTP devices."
      ::= { ptpbaseClockTransDefaultDSEntry 1 }

ptpbaseClockTransDefaultDSInstanceIndex OBJECT-TYPE
      SYNTAX   ClockInstanceType
      MAX-ACCESS   not-accessible
      STATUS   current
      DESCRIPTION
          "This object specifies the instance of the clock for this clock
          type in the given domain."
      ::= { ptpbaseClockTransDefaultDSEntry 2 }

ptpbaseClockTransDefaultDSClockIdentity OBJECT-TYPE
      SYNTAX   ClockIdentity
      MAX-ACCESS   read-only
      STATUS   current
      DESCRIPTION
          "This object specifies the value of the clockIdentity attribute
          of the local clock."
      REFERENCE   "Section 8.3.2.2.1 of [IEEE 1588-2008]"
      ::= { ptpbaseClockTransDefaultDSEntry 3 }

ptpbaseClockTransDefaultDSNumOfPorts OBJECT-TYPE
      SYNTAX   Counter32
      MAX-ACCESS   read-only
      STATUS   current
      DESCRIPTION
          "This object specifies the number of PTP ports of the device."
      REFERENCE   "Section 8.3.2.2.2 of [IEEE 1588-2008]"
      ::= { ptpbaseClockTransDefaultDSEntry 4 }

ptpbaseClockTransDefaultDSDelay OBJECT-TYPE
      SYNTAX   ClockMechanismType
      MAX-ACCESS   read-only
      STATUS   current
      DESCRIPTION
          "This object, if the transparent clock is an end-to-end
          transparent clock, has the value shall be E2E; If the
          transparent clock is a peer-to-peer transparent clock, the
          value
          shall be P2P."
      REFERENCE   "Section 8.3.2.3.1 of [IEEE 1588-2008]"

```
    ::= { ptpbaseClockTransDefaultDSEntry 5 }

ptpbaseClockTransDefaultDSPrimaryDomain OBJECT-TYPE
    SYNTAX          Integer32
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "This object specifies the value of the primary syntonization
        domain. The initialization value shall be 0."
    REFERENCE       "Section 8.3.2.3.2 of [IEEE 1588-2008]"
    ::= { ptpbaseClockTransDefaultDSEntry 6 }



ptpbaseClockPortTable OBJECT-TYPE
    SYNTAX          SEQUENCE OF PtpbaseClockPortEntry
    MAX-ACCESS      not-accessible
    STATUS          current
    DESCRIPTION
        "Table of information about the clock ports for a particular
        domain."
    ::= { ptpbaseMIBClockInfo 7 }

ptpbaseClockPortEntry OBJECT-TYPE
    SYNTAX          PtpbaseClockPortEntry
    MAX-ACCESS      not-accessible
    STATUS          current
    DESCRIPTION
        "An entry in the table, containing information about a single
        clock port."
    INDEX           {
                        ptpbaseClockPortDomainIndex,
                        ptpbaseClockPortClockTypeIndex,
                        ptpbaseClockPortClockInstanceIndex,
                        ptpbaseClockPortTablePortNumberIndex
                    }
    ::= { ptpbaseClockPortTable 1 }

PtpbaseClockPortEntry ::= SEQUENCE {
        ptpbaseClockPortDomainIndex         ClockDomainType,
        ptpbaseClockPortClockTypeIndex      ClockType,
        ptpbaseClockPortClockInstanceIndex  ClockInstanceType,
        ptpbaseClockPortTablePortNumberIndex  ClockPortNumber,
```

```
        ptpbaseClockPortName                   DisplayString,
        ptpbaseClockPortRole                   ClockRoleType,
        ptpbaseClockPortSyncOneStep            TruthValue,
        ptpbaseClockPortCurrentPeerAddressType ClockPortTransportType,
        ptpbaseClockPortCurrentPeerAddress
ClockPortTransportTypeAddress,
        ptpbaseClockPortNumOfAssociatedPorts   Gauge32
}

ptpbaseClockPortDomainIndex OBJECT-TYPE
    SYNTAX          ClockDomainType
    MAX-ACCESS      not-accessible
    STATUS          current
    DESCRIPTION
        "This object specifies the domain number used to create logical
        group of PTP devices."
    ::= { ptpbaseClockPortEntry 1 }

ptpbaseClockPortClockTypeIndex OBJECT-TYPE
    SYNTAX          ClockType
    MAX-ACCESS      not-accessible
    STATUS          current
    DESCRIPTION
        "This object specifies the clock type as defined in the
        Textual convention description."
    ::= { ptpbaseClockPortEntry 2 }

ptpbaseClockPortClockInstanceIndex OBJECT-TYPE
    SYNTAX          ClockInstanceType
    MAX-ACCESS      not-accessible
    STATUS          current
    DESCRIPTION
        "This object specifies the instance of the clock for this clock
        type in the given domain."
    ::= { ptpbaseClockPortEntry 3 }

ptpbaseClockPortTablePortNumberIndex OBJECT-TYPE
    SYNTAX          ClockPortNumber (1..65535)
    MAX-ACCESS      not-accessible
    STATUS          current
    DESCRIPTION
        "This object specifies the PTP Portnumber for this port."
    ::= { ptpbaseClockPortEntry 4 }
```

```
ptpbaseClockPortName OBJECT-TYPE
    SYNTAX          DisplayString (SIZE  (1..64))
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "This object specifies the PTP clock port name configured on the
        router."
    ::= { ptpbaseClockPortEntry 5 }

ptpbaseClockPortRole OBJECT-TYPE
    SYNTAX          ClockRoleType
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "This object describes the current role (slave/master) of the
        port."
    ::= { ptpbaseClockPortEntry 6 }

ptpbaseClockPortSyncOneStep OBJECT-TYPE
    SYNTAX          TruthValue
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "This object specifies that one-step clock operation between
        the PTP master and slave device is enabled."
    ::= { ptpbaseClockPortEntry 7 }

ptpbaseClockPortCurrentPeerAddressType OBJECT-TYPE
    SYNTAX          ClockPortTransportType
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "This object specifies the current peer's network address used
        for PTP communication."
    ::= { ptpbaseClockPortEntry 8 }

ptpbaseClockPortCurrentPeerAddress OBJECT-TYPE
    SYNTAX          ClockPortTransportTypeAddress
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "This object specifies the current peer's network address used
```

```
        for PTP communication."
    ::= { ptpbaseClockPortEntry 9 }

ptpbaseClockPortNumOfAssociatedPorts OBJECT-TYPE
    SYNTAX          Gauge32
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "This object specifies -
        For a master port - the number of PTP slave sessions (peers)
        associated with this PTP port.
        For a slave port - the number of masters available to this slave
        port (might or might not be peered)."
    ::= { ptpbaseClockPortEntry 10 }



ptpbaseClockPortDSTable OBJECT-TYPE
    SYNTAX          SEQUENCE OF PtpbaseClockPortDSEntry
    MAX-ACCESS      not-accessible
    STATUS          current
    DESCRIPTION
        "Table of information about the clock ports dataset for a
        particular domain."
    ::= { ptpbaseMIBClockInfo 8 }

ptpbaseClockPortDSEntry OBJECT-TYPE
    SYNTAX          PtpbaseClockPortDSEntry
    MAX-ACCESS      not-accessible
    STATUS          current
    DESCRIPTION
        "An entry in the table, containing port dataset information for
        a single clock port."
    INDEX           {
                        ptpbaseClockPortDSDomainIndex,
                        ptpbaseClockPortDSClockTypeIndex,
                        ptpbaseClockPortDSClockInstanceIndex,
                        ptpbaseClockPortDSPortNumberIndex
                    }
    ::= { ptpbaseClockPortDSTable 1 }

PtpbaseClockPortDSEntry ::= SEQUENCE {
        ptpbaseClockPortDSDomainIndex          ClockDomainType,
```

```
        ptpbaseClockPortDSClockTypeIndex       ClockType,
        ptpbaseClockPortDSClockInstanceIndex   ClockInstanceType,
        ptpbaseClockPortDSPortNumberIndex      ClockPortNumber,
        ptpbaseClockPortDSName                 DisplayString,
        ptpbaseClockPortDSPortIdentity         OCTET STRING,
        ptpbaseClockPortDSAnnouncementInterval Integer32,
        ptpbaseClockPortDSAnnounceRctTimeout   Integer32,
        ptpbaseClockPortDSSyncInterval         Integer32,
        ptpbaseClockPortDSMinDelayReqInterval  Integer32,
        ptpbaseClockPortDSPeerDelayReqInterval Integer32,
        ptpbaseClockPortDSDelayMech            ClockMechanismType,
        ptpbaseClockPortDSPeerMeanPathDelay    ClockTimeInterval,
        ptpbaseClockPortDSGrantDuration        Unsigned32,
        ptpbaseClockPortDSPTPVersion           Integer32
}

ptpbaseClockPortDSDomainIndex OBJECT-TYPE
    SYNTAX          ClockDomainType
    MAX-ACCESS      not-accessible
    STATUS          current
    DESCRIPTION
        "This object specifies the domain number used to create logical
        group of PTP devices."
    ::= { ptpbaseClockPortDSEntry 1 }

ptpbaseClockPortDSClockTypeIndex OBJECT-TYPE
    SYNTAX          ClockType
    MAX-ACCESS      not-accessible
    STATUS          current
    DESCRIPTION
        "This object specifies the clock type as defined in the
        Textual convention description."
    ::= { ptpbaseClockPortDSEntry 2 }

ptpbaseClockPortDSClockInstanceIndex OBJECT-TYPE
    SYNTAX          ClockInstanceType
    MAX-ACCESS      not-accessible
    STATUS          current
    DESCRIPTION
        "This object specifies the instance of the clock for this clock
        type in the given domain."
    ::= { ptpbaseClockPortDSEntry 3 }
```

ptpbaseClockPortDSPortNumberIndex OBJECT-TYPE
    SYNTAX   ClockPortNumber (1..65535)
    MAX-ACCESS   not-accessible
    STATUS   current
    DESCRIPTION
        "This object specifies the PTP portnumber associated with this
        PTP port."
    ::= { ptpbaseClockPortDSEntry 4 }

ptpbaseClockPortDSName OBJECT-TYPE
    SYNTAX   DisplayString (SIZE (1..64))
    MAX-ACCESS   read-only
    STATUS   current
    DESCRIPTION
        "This object specifies the PTP clock port name."
    ::= { ptpbaseClockPortDSEntry 5 }

ptpbaseClockPortDSPortIdentity OBJECT-TYPE
    SYNTAX   OCTET STRING(SIZE(1..256))
    MAX-ACCESS   read-only
    STATUS   current
    DESCRIPTION
        "This object specifies the PTP clock port Identity."
    ::= { ptpbaseClockPortDSEntry 6 }

ptpbaseClockPortDSAnnouncementInterval OBJECT-TYPE
    SYNTAX   Integer32
    MAX-ACCESS   read-only
    STATUS   current
    DESCRIPTION
        "This object specifies the Announce message transmission
        interval associated with this clock port."
    ::= { ptpbaseClockPortDSEntry 7 }

ptpbaseClockPortDSAnnounceRctTimeout OBJECT-TYPE
    SYNTAX   Integer32
    MAX-ACCESS   read-only
    STATUS   current
    DESCRIPTION
        "This object specifies the Announce receipt timeout associated
        with this clock port."
    ::= { ptpbaseClockPortDSEntry 8 }

```
ptpbaseClockPortDSSyncInterval OBJECT-TYPE
    SYNTAX          Integer32
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "This object specifies the Sync message transmission interval."
    ::= { ptpbaseClockPortDSEntry 9 }

ptpbaseClockPortDSMinDelayReqInterval OBJECT-TYPE
    SYNTAX          Integer32
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "This object specifies the Delay_Req message transmission
        interval."
    ::= { ptpbaseClockPortDSEntry 10 }

ptpbaseClockPortDSPeerDelayReqInterval OBJECT-TYPE
    SYNTAX          Integer32
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "This object specifies the Pdelay_Req message transmission
        interval."
    ::= { ptpbaseClockPortDSEntry 11 }

ptpbaseClockPortDSDelayMech OBJECT-TYPE
    SYNTAX          ClockMechanismType
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "This object specifies the delay mechanism used. If the clock
        is an end-to-end clock, the value of the is e2e, else if the
        clock is a peer to-peer clock, the value shall be p2p."
    ::= { ptpbaseClockPortDSEntry 12 }

ptpbaseClockPortDSPeerMeanPathDelay OBJECT-TYPE
    SYNTAX          ClockTimeInterval
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "This object specifies the peer meanPathDelay."
    ::= { ptpbaseClockPortDSEntry 13 }
```

```
ptpbaseClockPortDSGrantDuration OBJECT-TYPE
    SYNTAX          Unsigned32
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "This object specifies the grant duration allocated by the
        master."
    ::= { ptpbaseClockPortDSEntry 14 }

ptpbaseClockPortDSPTPVersion OBJECT-TYPE
    SYNTAX          Integer32
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "This object specifies the PTP version being used."
    ::= { ptpbaseClockPortDSEntry 15 }



ptpbaseClockPortRunningTable OBJECT-TYPE
    SYNTAX          SEQUENCE OF PtpbaseClockPortRunningEntry
    MAX-ACCESS      not-accessible
    STATUS          current
    DESCRIPTION
        "Table of information about the clock ports running dataset for
        a particular domain."
    ::= { ptpbaseMIBClockInfo 9 }

ptpbaseClockPortRunningEntry OBJECT-TYPE
    SYNTAX          PtpbaseClockPortRunningEntry
    MAX-ACCESS      not-accessible
    STATUS          current
    DESCRIPTION
        "An entry in the table, containing runing dataset information
        about a single clock port."
    INDEX           {
                        ptpbaseClockPortRunningDomainIndex,
                        ptpbaseClockPortRunningClockTypeIndex,
                        ptpbaseClockPortRunningClockInstanceIndex,
                        ptpbaseClockPortRunningPortNumberIndex
                    }
    ::= { ptpbaseClockPortRunningTable 1 }
```

```
PtpbaseClockPortRunningEntry ::= SEQUENCE {
        ptpbaseClockPortRunningDomainIndex        ClockDomainType,
        ptpbaseClockPortRunningClockTypeIndex     ClockType,
        ptpbaseClockPortRunningClockInstanceIndex ClockInstanceType,
        ptpbaseClockPortRunningPortNumberIndex    ClockPortNumber,
        ptpbaseClockPortRunningName               DisplayString,
        ptpbaseClockPortRunningState              ClockPortState,
        ptpbaseClockPortRunningRole               ClockRoleType,
        ptpbaseClockPortRunningInterfaceIndex     InterfaceIndexOrZero,
        ptpbaseClockPortRunningTransport
ClockPortTransportType,
        ptpbaseClockPortRunningEncapsulationType  Integer32,
        ptpbaseClockPortRunningTxMode             ClockTxModeType,
        ptpbaseClockPortRunningRxMode             ClockTxModeType,
        ptpbaseClockPortRunningPacketsReceived    Counter64,
        ptpbaseClockPortRunningPacketsSent        Counter64
}

ptpbaseClockPortRunningDomainIndex OBJECT-TYPE
    SYNTAX          ClockDomainType
    MAX-ACCESS      not-accessible
    STATUS          current
    DESCRIPTION
        "This object specifies the domain number used to create logical
        group of PTP devices."
    ::= { ptpbaseClockPortRunningEntry 1 }

ptpbaseClockPortRunningClockTypeIndex OBJECT-TYPE
    SYNTAX          ClockType
    MAX-ACCESS      not-accessible
    STATUS          current
    DESCRIPTION
        "This object specifies the clock type as defined in the
        Textual convention description."
    ::= { ptpbaseClockPortRunningEntry 2 }

ptpbaseClockPortRunningClockInstanceIndex OBJECT-TYPE
    SYNTAX          ClockInstanceType
    MAX-ACCESS      not-accessible
    STATUS          current
    DESCRIPTION
        "This object specifies the instance of the clock for this clock
```

        type in the given domain."
    ::= { ptpbaseClockPortRunningEntry 3 }

ptpbaseClockPortRunningPortNumberIndex OBJECT-TYPE
    SYNTAX   ClockPortNumber (1..65535)
    MAX-ACCESS   not-accessible
    STATUS   current
    DESCRIPTION
        "This object specifies the PTP portnumber associated with this
        clock port."
    ::= { ptpbaseClockPortRunningEntry 4 }

ptpbaseClockPortRunningName OBJECT-TYPE
    SYNTAX   DisplayString (SIZE (1..64))
    MAX-ACCESS   read-only
    STATUS   current
    DESCRIPTION
        "This object specifies the PTP clock port name."
    ::= { ptpbaseClockPortRunningEntry 5 }

ptpbaseClockPortRunningState OBJECT-TYPE
    SYNTAX   ClockPortState
    MAX-ACCESS   read-only
    STATUS   current
    DESCRIPTION
        "This object specifies the port state returned by PTP engine.

        initializing - In this state a port initializes
                       its data sets, hardware, and
                       communication facilities.
        faulty   - The fault state of the protocol.
        disabled   - The port shall not place any
                       messages on its communication path.
        listening   - The port is waiting for the
                       announceReceiptTimeout to expire or
                       to receive an Announce message from
                       a master.
        preMaster   - The port shall behave in all respects
                       as though it were in the MASTER state
                       except that it shall not place any
                       messages on its communication path
                       except for Pdelay_Req, Pdelay_Resp,
                       Pdelay_Resp_Follow_Up, signaling, or

```
                              management messages.
        master        - The port is behaving as a master port.
        passive       - The port shall not place any
                        messages on its communication path
                        except for Pdelay_Req, Pdelay_Resp,
                        Pdelay_Resp_Follow_Up, or signaling
                        messages, or management messages
                        that are a required response to
                        another management message
        uncalibrated - The local port is preparing to
                        synchronize to the master port.
        slave         - The port is synchronizing to the
                        selected master port."
    ::= { ptpbaseClockPortRunningEntry 6 }

ptpbaseClockPortRunningRole OBJECT-TYPE
    SYNTAX          ClockRoleType
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "This object specifies the Clock Role."
    ::= { ptpbaseClockPortRunningEntry 7 }

ptpbaseClockPortRunningInterfaceIndex OBJECT-TYPE
    SYNTAX          InterfaceIndexOrZero
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "This object specifies the interface on the router being used by
        the PTP Clock for PTP communication."
    ::= { ptpbaseClockPortRunningEntry 8 }

ptpbaseClockPortRunningTransport OBJECT-TYPE
    SYNTAX          ClockPortTransportType
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "This object specifies the transport protocol being used for PTP
        communication (the mapping used)."
    ::= { ptpbaseClockPortRunningEntry 9 }

ptpbaseClockPortRunningEncapsulationType OBJECT-TYPE
    SYNTAX          Integer32
```

```
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "This object specifies the type of encapsulation if the
        interface is adding extra layers (eg. VLAN, Pseudowire
        encapsulation...) for the PTP messages."
    ::= { ptpbaseClockPortRunningEntry 10 }

ptpbaseClockPortRunningTxMode OBJECT-TYPE
    SYNTAX          ClockTxModeType
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "This object specifies the clock transmission mode as

        unicast:        Using unicast communication channel.
        multicast:      Using Multicast communication channel.
        multicast-mix: Using multicast-unicast communication channel"
    ::= { ptpbaseClockPortRunningEntry 11 }

ptpbaseClockPortRunningRxMode OBJECT-TYPE
    SYNTAX          ClockTxModeType
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "This object specifie the clock receive mode as

        unicast:        Using unicast communication channel.
        multicast:      Using Multicast communication channel.
        multicast-mix: Using multicast-unicast communication channel"
    ::= { ptpbaseClockPortRunningEntry 12 }

ptpbaseClockPortRunningPacketsReceived OBJECT-TYPE
    SYNTAX          Counter64
    UNITS           "packets"
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "This object specifies the packets received on the clock port
        (cummulative)."
    ::= { ptpbaseClockPortRunningEntry 13 }

ptpbaseClockPortRunningPacketsSent OBJECT-TYPE
```

```
    SYNTAX          Counter64
    UNITS           "packets"
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "This object specifies the packets sent on the clock port
        (cummulative)."
    ::= { ptpbaseClockPortRunningEntry 14 }



ptpbaseClockPortTransDSTable OBJECT-TYPE
    SYNTAX          SEQUENCE OF PtpbaseClockPortTransDSEntry
    MAX-ACCESS      not-accessible
    STATUS          current
    DESCRIPTION
        "Table of information about the Transparent clock ports running
        dataset for a particular domain."
    ::= { ptpbaseMIBClockInfo 10 }

ptpbaseClockPortTransDSEntry OBJECT-TYPE
    SYNTAX          PtpbaseClockPortTransDSEntry
    MAX-ACCESS      not-accessible
    STATUS          current
    DESCRIPTION
        "An entry in the table, containing clock port Transparent
        dataset information about a single clock port"
    INDEX           {
                        ptpbaseClockPortTransDSDomainIndex,
                        ptpbaseClockPortTransDSInstanceIndex,
                        ptpbaseClockPortTransDSPortNumberIndex
                    }
    ::= { ptpbaseClockPortTransDSTable 1 }

PtpbaseClockPortTransDSEntry ::= SEQUENCE {
        ptpbaseClockPortTransDSDomainIndex         ClockDomainType,
        ptpbaseClockPortTransDSInstanceIndex       ClockInstanceType,
        ptpbaseClockPortTransDSPortNumberIndex     ClockPortNumber,
        ptpbaseClockPortTransDSPortIdentity        ClockIdentity,
        ptpbaseClockPortTransDSlogMinPdelayReqInt  Integer32,
        ptpbaseClockPortTransDSFaultyFlag          TruthValue,
        ptpbaseClockPortTransDSPeerMeanPathDelay   ClockTimeInterval
}
```

ptpbaseClockPortTransDSDomainIndex OBJECT-TYPE
    SYNTAX   ClockDomainType
    MAX-ACCESS   not-accessible
    STATUS   current
    DESCRIPTION
        "This object specifies the domain number used to create logical
        group of PTP devices."
    ::= { ptpbaseClockPortTransDSEntry 1 }

ptpbaseClockPortTransDSInstanceIndex OBJECT-TYPE
    SYNTAX   ClockInstanceType
    MAX-ACCESS   not-accessible
    STATUS   current
    DESCRIPTION
        "This object specifies the instance of the clock for this clock
        type in the given domain."
    ::= { ptpbaseClockPortTransDSEntry 2 }

ptpbaseClockPortTransDSPortNumberIndex OBJECT-TYPE
    SYNTAX   ClockPortNumber (1..65535)
    MAX-ACCESS   not-accessible
    STATUS   current
    DESCRIPTION
        "This object specifies the PTP port number associated with this
        port."
    REFERENCE   "Section 7.5.2 Port Identity [IEEE 1588-2008]"
    ::= { ptpbaseClockPortTransDSEntry 3 }

ptpbaseClockPortTransDSPortIdentity OBJECT-TYPE
    SYNTAX   ClockIdentity
    MAX-ACCESS   read-only
    STATUS   current
    DESCRIPTION
        "This object specifies the value of the PortIdentity
        attribute of the local port."
    REFERENCE   "Section 8.3.3.2.1 of [IEEE 1588-2008]"
    ::= { ptpbaseClockPortTransDSEntry 4 }

ptpbaseClockPortTransDSlogMinPdelayReqInt OBJECT-TYPE
    SYNTAX   Integer32
    MAX-ACCESS   read-only
    STATUS   current

        DESCRIPTION
            "This object specifies the value of the logarithm to the
            base 2 of the minPdelayReqInterval."
        REFERENCE   "Section 8.3.3.3.1 of [IEEE 1588-2008]"
        ::= { ptpbaseClockPortTransDSEntry 5 }

ptpbaseClockPortTransDSFaultyFlag OBJECT-TYPE
        SYNTAX   TruthValue
        MAX-ACCESS   read-only
        STATUS   current
        DESCRIPTION
            "This object specifies the value TRUE if the port is faulty
            and FALSE if the port is operating normally."
        REFERENCE   "Section 8.3.3.3.2 of [IEEE 1588-2008]"
        ::= { ptpbaseClockPortTransDSEntry 6 }

ptpbaseClockPortTransDSPeerMeanPathDelay OBJECT-TYPE
        SYNTAX   ClockTimeInterval
        MAX-ACCESS   read-only
        STATUS   current
        DESCRIPTION
            "This object specifies, (if the delayMechanism used is P2P) the
            value is the estimate of the current one-way propagation delay,
            i.e., <meanPathDelay> on the link attached to this port
            computed
            using the peer delay mechanism. If the value of the
            delayMechanism
            used is E2E, then the value will be zero."
        REFERENCE   "Section 8.3.3.3.3 of [IEEE 1588-2008]"
        ::= { ptpbaseClockPortTransDSEntry 7 }

ptpbaseClockPortAssociateTable OBJECT-TYPE
        SYNTAX   SEQUENCE OF PtpbaseClockPortAssociateEntry
        MAX-ACCESS   not-accessible
        STATUS   current
        DESCRIPTION
            "Table of information about a given port's associated ports.

            For a master port - multiple slave ports which have established
            sessions with the current master port.
            For a slave port - the list of masters available for a given

        slave port.

        Session information (pkts, errors) to be displayed based on
        availability and scenario."
    ::= { ptpbaseMIBClockInfo 11 }

ptpbaseClockPortAssociateEntry OBJECT-TYPE
    SYNTAX   PtpbaseClockPortAssociateEntry
    MAX-ACCESS   not-accessible
    STATUS   current
    DESCRIPTION
        "An entry in the table, containing information about a single
        associated port for the given clockport."
    INDEX   {
                        ptpClockPortCurrentDomainIndex,
                        ptpClockPortCurrentClockTypeIndex,
                        ptpClockPortCurrentClockInstanceIndex,
                        ptpClockPortCurrentPortNumberIndex,
                        ptpbaseClockPortAssociatePortIndex
                    }
    ::= { ptpbaseClockPortAssociateTable 1 }

PtpbaseClockPortAssociateEntry ::= SEQUENCE {
        ptpClockPortCurrentDomainIndex   ClockDomainType,
        ptpClockPortCurrentClockTypeIndex   ClockType,
        ptpClockPortCurrentClockInstanceIndex   ClockInstanceType,
        ptpClockPortCurrentPortNumberIndex   ClockPortNumber,
        ptpbaseClockPortAssociatePortIndex   Unsigned32,
        ptpbaseClockPortAssociateAddressType   ClockPortTransportType,
        ptpbaseClockPortAssociateAddress
ClockPortTransportTypeAddress,
        ptpbaseClockPortAssociatePacketsSent   Counter64,
        ptpbaseClockPortAssociatePacketsReceived Counter64,
        ptpbaseClockPortAssociateInErrors   Counter64,
        ptpbaseClockPortAssociateOutErrors   Counter64
}

ptpClockPortCurrentDomainIndex OBJECT-TYPE
    SYNTAX   ClockDomainType
    MAX-ACCESS   not-accessible
    STATUS   current
    DESCRIPTION
        "This object specifies the given port's domain number."

```
    ::= { ptpbaseClockPortAssociateEntry 1 }

ptpClockPortCurrentClockTypeIndex OBJECT-TYPE
    SYNTAX          ClockType
    MAX-ACCESS      not-accessible
    STATUS          current
    DESCRIPTION
        "This object specifies the given port's clock type."
    ::= { ptpbaseClockPortAssociateEntry 2 }

ptpClockPortCurrentClockInstanceIndex OBJECT-TYPE
    SYNTAX          ClockInstanceType
    MAX-ACCESS      not-accessible
    STATUS          current
    DESCRIPTION
        "This object specifies the instance of the clock for this clock
        type in the given domain."
    ::= { ptpbaseClockPortAssociateEntry 3 }

ptpClockPortCurrentPortNumberIndex OBJECT-TYPE
    SYNTAX          ClockPortNumber
    MAX-ACCESS      not-accessible
    STATUS          current
    DESCRIPTION
        "This object specifies the PTP Port Number for the given port."
    ::= { ptpbaseClockPortAssociateEntry 4 }

ptpbaseClockPortAssociatePortIndex OBJECT-TYPE
    SYNTAX          Unsigned32 (1..65535)
    MAX-ACCESS      not-accessible
    STATUS          current
    DESCRIPTION
        "This object specifies the associated port's serial number in
        the current port's context."
    ::= { ptpbaseClockPortAssociateEntry 5 }

ptpbaseClockPortAssociateAddressType OBJECT-TYPE
    SYNTAX          ClockPortTransportType
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "This object specifies the peer port's network address type used
        for PTP communication."
```

```
    ::= { ptpbaseClockPortAssociateEntry 6 }

ptpbaseClockPortAssociateAddress OBJECT-TYPE
    SYNTAX          ClockPortTransportTypeAddress
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "This object specifies the peer port's network address used for
        PTP communication."
    ::= { ptpbaseClockPortAssociateEntry 7 }

ptpbaseClockPortAssociatePacketsSent OBJECT-TYPE
    SYNTAX          Counter64
    UNITS           "packets"
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "The number of packets sent to this peer port from the current
        port."
    ::= { ptpbaseClockPortAssociateEntry 8 }

ptpbaseClockPortAssociatePacketsReceived OBJECT-TYPE
    SYNTAX          Counter64
    UNITS           "packets"
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "The number of packets received from this peer port by the
        current port."
    ::= { ptpbaseClockPortAssociateEntry 9 }

ptpbaseClockPortAssociateInErrors OBJECT-TYPE
    SYNTAX          Counter64
    UNITS           "packets"
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "This object specifies the input errors associated with the
        peer port."
    ::= { ptpbaseClockPortAssociateEntry 10 }

ptpbaseClockPortAssociateOutErrors OBJECT-TYPE
    SYNTAX          Counter64
```

```
        UNITS           "packets"
        MAX-ACCESS      read-only
        STATUS          current
        DESCRIPTION
            "This object specifies the output errors associated with the
            peer port."
        ::= { ptpbaseClockPortAssociateEntry 11 }
```


END

5. Security Considerations

   This MIB contains readable objects whose values provide information
   related to PTP objects. While unauthorized access to the readable
   objects is relatively innocuous, unauthorized access to the write-
   able objects could cause a denial of service, or could cause
   unauthorized creation and/or manipulation of tunnels. Hence, the
   support for SET operations in a non-secure environment without proper
   protection can have a negative effect on network operations.

   SNMPv1 by itself is such an insecure environment. Even if the
   network itself is secure (for example by using IPSec), even then,
   there is no control as to who on the secure network is allowed to
   access and SET (change/create/delete) the objects in this MIB.

   It is recommended that the implementers consider the security
   features as provided by the SNMPv3 framework. Specifically, the use
   of the User-based Security Model [RFC 3414] and the View-based Access
   Control Model [RFC 3415] is recommended.

   It is then a customer/user responsibility to ensure that the SNMP
   entity giving access to this MIB, is properly configured to give
   access to those objects only to those principals (users) that have
   legitimate rights to access them.

6. IANA Considerations

   To be added.

7. References

7.1. Normative References

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9. Author's Addresses

   Vinay Shankarkumar
   Cisco Systems,
   7025-4 Kit Creek Road,
   Research Triangle Park,
   NC 27560,
   USA.
   Email: vinays@cisco.com

   Laurent Montini,
   Cisco Systems,
   11, rue Camille Desmoulins,
   92782 Issy-les-Moulineaux,
   France.
   Email: lmontini@cisco.com

   Tim Frost,
   Symmetricom Inc.,
   2300 Orchard Parkway,
   San Jose,
   CA 95131,
   USA.
   Email: tfrost@symmetricom.com

   Greg Dowd,
   Symmetricom Inc.,
   2300 Orchard Parkway,
   San Jose,
   CA 95131,
   USA.
   Email: gdowd@symmetricom.com