PacketCable™ MTA MIB Specification

PKT-SP-MIB-MTA-I02-010323

Interim

Notice

Document Status Sheet

Document Control Number:	PKT-SP-MIB-MTA-I02-010323			
Document Title:	PacketCable™ MTA MIB Specification			
Revision History:	I01-991201: release I02-010323: release			
Date:	March 23, 2001			
Status:	~~Work in Progress~~	~~Draft~~	Interim	~~Released~~
Distribution Restrictions:	~~Author Only~~	~~CL/Member~~	~~CL/ PacketCable/ Vendor~~	Public

Key to Document Status Codes:

Work in Progress	An incomplete document, designed to guide discussion and generate feedback, that may include several alternative requirements for consideration.
Draft	A document in specification format considered largely complete, but lacking review by Members and vendors. Drafts are susceptible to substantial change during the review process.
Interim	A document which has undergone rigorous Member and vendor review, suitable for use by vendors to design in conformance to and for field testing. For purposes of the “Contribution and License Agreement for Intellectual Property" which grants licenses to the intellectual property contained in the PacketCable Specification, an "Interim Specification" is a "Published” Specification.
Released	A stable document, reviewed, tested and validated, suitable to enable cross-vendor interoperability.

Contents

1 SCOPE

This Recommendation describes PacketCable MTA MIB requirement.

2 REFERENCES

The following ITU-T Recommendations and other references contain provisions which, through reference in this text, constitute provisions of this recommendation. At the time of publication, the editions indicated are valid. All Recommendations and other references are subject to revisions; all users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the currently valid ITU-T Recommendations is published regularly.

2.1 NORMATIVE REFERENCE

[1] "PacketCable MIB Framework," PKT-SP-MIBS-I02-010316, Cable Television Laboratories, Inc., March 16, 2001. http://www.PacketCable.com./

[2] "PacketCable Network-Based Call Signaling Protocol Specification," PKT-SP-EC-MGCP-I02-991201, Cable Television Laboratories, Inc., December 1, 1999, http://www.PacketCable.com./

[3] "PacketCable MTA Device Provisioning Specification," PKT-SP-PROV-I02-010316, Cable Television Laboratories, Inc., March 16, 2001, http://www.PacketCable.com./

[4] IETF RFC 2573 SNMPv3 Applications [1999]

[5] RFC2571 An Architecture for Describing SNMP Management Framework

[6] RFC2572 Message Processing and Dispatching for SNMP

[7] RFC2573 SNMPv3 Applications

[8] RFC2574 User Based Security Model for SNMPv3

[9] RFC2575 View-Based Access Control Model (VACM) for SNMP

2.2 INFORMATIVE REFERENCE

[10] ITU-T Recommendation J.160 - Architectural framework for the delivery of time critical services over cable television networks using cable modems.

3 ABBREVIATIONS

There are no abbreviations used in this document.

4 REQUIREMENT

The PacketCable™ MTA MIB MUST be implemented as defined below.

```
PKTC-MTA-MIB DEFINITIONS ::= BEGIN
IMPORTS
    MODULE-IDENTITY,
    OBJECT-TYPE,
    Integer32,
       IpAddress,
    NOTIFICATION-TYPE
                                                        FROM SNMPv2-SMI
    TruthValue, DisplayString, RowStatus,
       TEXTUAL-CONVENTION
                                                    FROM SNMPv2-TC
    OBJECT-GROUP,
    MODULE-COMPLIANCE,
       NOTIFICATION-GROUP
                                                    FROM SNMPv2-CONF
    clabProjPacketCable
                                                    FROM CLAB-DEF-MIB
    ifIndex
                                                    FROM IF-MIB
    docsDevSwCurrentVers
        FROM DOCS-CABLE-DEVICE-MIB;     -- version 8

pktcMtaMib MODULE-IDENTITY
    LAST-UPDATED    "0103230000Z" -- March 23, 2001
    ORGANIZATION    "Packet Cable OSS Group"
    CONTACT-INFO
            "Matt Osman
            Postal: Cable Television Laboratories, Inc.
                    400 Centennial Parkway
                    Louisville, Colorado 80027-1266
            U.S.A.
            Phone:  +1 303-661-9100
            Fax:    +1 303-661-9199
            E-mail: m.osman@cablelabs.com"
    DESCRIPTION
            "This MIB module supplies the basic management objects
            for the MTA Device

            Acknowledgements:
            Angela Lyda          -      Arris Interactive
            Chris Melle          -      AT&T Broadband Labs
            Sasha Medvinsky      -      Motorola
            Roy Spitzer          -      Telogy Networks, Inc.
            Rick Vetter          -      Motorola"
    ::=  { clabProjPacketCable 1 }

-- Textual conventions
       X509Certificate ::= TEXTUAL-CONVENTION
           STATUS current
           DESCRIPTION
                   "An X509 digital certificate encoded as an ASN.1 DER object."
           SYNTAX OCTET STRING (SIZE (0..4096))


--
--   PacketCable 1.0 supports embedded MTA only
```

```
--   PacketCable 1.0 assumes SNMPv3
--   PacketCable 1.0 SW load management is per DOCSIS 1.1 only
--


pktcMtaMibObjects       OBJECT IDENTIFIER ::= { pktcMtaMib 1 }
pktcMtaDevBase          OBJECT IDENTIFIER ::= { pktcMtaMibObjects 1 }
pktcMtaDevServer        OBJECT IDENTIFIER ::= { pktcMtaMibObjects 2 }
pktcMtaDevSecurity      OBJECT IDENTIFIER ::= { pktcMtaMibObjects 3 }


--
-- The following group describes the base objects in the MTA
--
pktcMtaDevResetNow  OBJECT-TYPE
    SYNTAX      TruthValue
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
            "Setting this object to true(1) causes the device to reset.
             Reading this object always returns false(2).  When
             pktcMtaDevResetNow is set to true, the following actions
             occur:
             1.     All connections (if present) are flushed locally
                     2.    All current actions such as ringing immediately
                        terminate
                     3.    Requests for notifications such as notification based
                        on digit map recognition are flushed.
                     4.    All endpoints are disabled.
                     5.    The provisioning flow is started at step MTA - 1."
    ::= { pktcMtaDevBase 1 }

pktcMtaDevSerialNumber  OBJECT-TYPE
    SYNTAX      DisplayString (SIZE (0..128))
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
            "The manufacturer's serial number for this MTA."
    ::= { pktcMtaDevBase 2 }

pktcMtaDevHardwareVersion  OBJECT-TYPE
    SYNTAX      DisplayString (SIZE (0..48))
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
            "The manufacturer's hardware version for this MTA."
    ::= { pktcMtaDevBase 3 }

pktcMtaDevMacAddress   OBJECT-TYPE
    SYNTAX      OCTET STRING
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
            "The telephony MAC address for this device."
    ::= { pktcMtaDevBase 4 }

pktcMtaDevFQDN       OBJECT-TYPE
   SYNTAX      DisplayString
   MAX-ACCESS  read-write
   STATUS      current
   DESCRIPTION
            "The Fully Qualified Domain Name for this MTA."
    ::= { pktcMtaDevBase 5 }
```

```
pktcMtaDevEndPntCount     OBJECT-TYPE
    SYNTAX      INTEGER (1..255)
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
            "The physical end points for this MTA."
    ::= { pktcMtaDevBase 6 }

pktcMtaDevEnabled     OBJECT-TYPE
    SYNTAX      TruthValue
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
            "The MTA Admin Status of this device, where True(1) means
            the voice feature is enabled and false(2) indicates that
            it is disabled."
    ::= { pktcMtaDevBase 7 }


pktcMtaDevTypeIdentifier     OBJECT-TYPE
    SYNTAX      DisplayString
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        “This is a copy of the device type identifier used in the
         DHCP option 60 exchanged between the MTA and the DHCP server.”
    ::= { pktcMtaDevBase 8 }

pktcMtaDevProvisioningState     OBJECT-TYPE
    SYNTAX      INTEGER
    {
            pass(1),
            inProgress(2),
            fail(3)
    }
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
            "This object indicates the completion state of the
     initialization process. Pass or Fail states occur after
     completion of the initialization flow. InProgress occurs
     from MTA initialization start to MTA initialization end;
        detail of inProgress status is observed from
        pktcMtaDevProvState.  Fail state requires manual
        intervention."
    ::= { pktcMtaDevBase 9 }


pktcMtaDevHttpAccess     OBJECT-TYPE
    SYNTAX      TruthValue
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
            "This indicates whether HTTP file access is supported for
             MTA configuration file transfer.”
    ::= { pktcMtaDevBase 10 }

pktcMtaDevProvisioningTimer  OBJECT-TYPE
       SYNTAX      INTEGER (0..16383)
       UNITS        "minutes"
       MAX-ACCESS  read-write
       STATUS      current
```

```
      DESCRIPTION
            "This object enables to set the duration of the provisening
            timeout timer. The value is in minutes. Setting the timer
            to 0 disables it. The default value for the timer is 30."
      DEFVAL {30}
      ::=  {pktcMtaDevBase 11}

--
-- The following group describes the security objects in the MTA
--
pktcMtaDevManufacturerCertificate  OBJECT-TYPE
    SYNTAX      X509Certificate
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
       "ASN.1 DER encoding of the MTA Manufacturer's X.509
       public-key certificate, called MTA Manufacturer
       Certificate. It is issued to each MTA manufacturer
       and is installed into each MTA either in the factory
       or with a code download. The provisioning server cannot
       update this certificate."
    ::= { pktcMtaDevSecurity 1 }


pktcMtaDevCertificate  OBJECT-TYPE
    SYNTAX      X509Certificate
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
       "ASN.1 DER encoding of the MTA's X.509 public-key
       certificate issued by the manufacturer and installed
       into the embedded-MTA in the factory. This certificate,
       called MTA Device Certificate, contains the MTA's MAC
       address. It cannot be updated by the provisioning
          server."
    ::= { pktcMtaDevSecurity 2 }

--************************************************************************
--************************* THIS OBJECT IS OBSOLETE **********************
--************************************************************************
pktcMtaDevSignature OBJECT-TYPE
    SYNTAX      OCTET STRING (SIZE (0..256))
    MAX-ACCESS  read-only
    STATUS      obsolete
    DESCRIPTION
     "A unique signature created by the MTA for each SNMP Inform
     or SNMP Trap or SNMP GetResponse message exchanged prior to
     enabling SNMPv3 security ASN.1 encoded Digital signature in
     the Cryptographic message syntax (includes nonce). "
    ::= { pktcMtaDevSecurity 3 }

pktcMtaDevCorrelationId  OBJECT-TYPE
    SYNTAX      Integer32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
            " Random value generated by the MTA for use in registration
              authorization.  It is for use only in the MTA initialization
              messages and for MTA configuration file download "
    ::= { pktcMtaDevSecurity 4 }

--========================================================================
--
```

```
--     pktcMtaDevSecurityTable
--
--The pktcMtaDevSecurityTable shows security association information relating
--     to a particular MTA endpoint.  The MTA endpoint is indexed with ifIndex.
--
--================================================================================
--********************************************************************************
--************************** THIS TABLE IS OBSOLETE ***********************
--********************************************************************************

pktcMtaDevSecurityTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF PktcMtaDevSecurityEntry
    MAX-ACCESS  not-accessible
    STATUS      obsolete
    DESCRIPTION
            "Contains per endpoint security information."
    ::= {  pktcMtaDevSecurity 5 }

pktcMtaDevSecurityEntry OBJECT-TYPE
    SYNTAX      PktcMtaDevSecurityEntry
    MAX-ACCESS  not-accessible
    STATUS      obsolete
    DESCRIPTION
        "List of security attributes for a single packet cable
         endpoint interface."
    INDEX { ifIndex }
    ::= { pktcMtaDevSecurityTable 1 }

PktcMtaDevSecurityEntry ::= SEQUENCE {
    pktcMtaDevServProviderCertificate         X509Certificate,
    pktcMtaDevTelephonyCertificate            X509Certificate,
    pktcMtaDevKerberosRealm                   OCTET STRING,
    pktcMtaDevKerbPrincipalName         DisplayString,
    pktcMtaDevServGracePeriod                 Integer32,
    pktcMtaDevLocalSystemCertificate          X509Certificate,
    pktcMtaDevKeyMgmtTimeout1                 Integer32,
    pktcMtaDevKeyMgmtTimeout2                 Integer32
    }


pktcMtaDevServProviderCertificate  OBJECT-TYPE
    SYNTAX      X509Certificate
    MAX-ACCESS  read-write
    STATUS      obsolete   -- Secure Provisioning ECR
    DESCRIPTION
       "ASN.1 DER encoding of the Telephony Service
       Provider's X.509 public-key certificate, called
       Telephony Service Provider Certificate. It serves
       as the root of the intra-domain trust hierarchy.
       Each MTA is configured with this certificate so
       that it can authenticate TGSs owned by the same
       service provider. The provisioning server needs
       the ability to update this certificate in the MTAs
       via both SNMP and configuration files"
    ::= { pktcMtaDevSecurityEntry 1 }

pktcMtaDevTelephonyCertificate  OBJECT-TYPE
    SYNTAX      X509Certificate
    MAX-ACCESS  read-write
    STATUS      obsolete   -- Secure Provisioning ECR
    DESCRIPTION
       "ASN.1 DER encoding of the MTA's X.509 public-key
       certificate issued by the Service Provider with either
```

```
       the Service Provider CA or a Local System CA. This
       certificate, called MTA Telephony Certificate, contains
       the same public key as the MTA Device Certificate issued
       by the manufacturer. It is used to authenticate the
          identity of the MTA to the TGS (during PKINIT exchanges).
          The provisioning server needs the ability to update this
          certificate in the MTAs via both SNMP and configuration
          files"
       ::= { pktcMtaDevSecurityEntry 2 }

pktcMtaDevKerberosRealm OBJECT-TYPE
    SYNTAX      OCTET STRING (SIZE (0..1280))
    MAX-ACCESS  read-write
    STATUS      obsolete         -- moved to realm table
    DESCRIPTION
        " Specifies a Kerberos realm (i.e. administrative domain), required
          for Packet Cable key management]."
    ::= { pktcMtaDevSecurityEntry 3 }


pktcMtaDevKerbPrincipalName OBJECT-TYPE
    SYNTAX      DisplayString (SIZE(0..40))
    MAX-ACCESS  read-write
    STATUS      obsolete         -- eco sec-o-00079
    DESCRIPTION
            "Kerberos principal name for the Call Agent.  This information
             is required in order for the MTA to obtain Call Agent Kerberos
             tickets.  This principal name does not include the realm, which
             is specified as a separate field in this configuration file.  A
             Single Kerberos principal name MAY be shared among several
             Call Agents."
    ::= { pktcMtaDevSecurityEntry 4 }

pktcMtaDevServGracePeriod OBJECT-TYPE
    SYNTAX      Integer32 (15..600)
       UNITS        "minutes"
    MAX-ACCESS  read-write
    STATUS      obsolete         -- moved to realm table
    DESCRIPTION
            " The MTA MUST obtain a new Kerberos ticket (with a PKINIT
              exchange) this many minutes before the old ticket expires.  The
              minimum allowable value is 15 mins.  The default is 30 mins."
    DEFVAL { 30 }
    ::= { pktcMtaDevSecurityEntry 5 }

pktcMtaDevLocalSystemCertificate OBJECT-TYPE
    SYNTAX                X509Certificate
    MAX-ACCESS            read-write
    STATUS                obsolete           -- eco sec-o-00079
    DESCRIPTION
       "Telephony Service Provider CA may delegate the issuance of
       certificates to a regional Certification Authority called Local
       System CA (with the corresponding Local System Certificate).
       This parameter is the ASN.1 DER encoding of the Local System
       Certificate.  It MUST have a non-empty value when the MTA
       Telephony certificate is signed by a Local System CA.
       Otherwise, the value MUST be of length 0."
    ::= { pktcMtaDevSecurityEntry 6 }


pktcMtaDevKeyMgmtTimeout1 OBJECT-TYPE
       SYNTAX       Integer32 (15..600)
       UNITS        "seconds"
```

```
       MAX-ACCESS   read-write
       STATUS       obsolete            -- moved to cms table
       DESCRIPTION
              "This timeout applies only when the MTA initiated key management.
              It is the period during which the MTA will save a nonce (inside
              the sequence number field) from the sent out AP Request and wait
              for the matching AP Reply from the CMS."
       REFERENCE
              "PacketCable Security Specification PKT-SP-SEC_I02-001229"
    ::= { pktcMtaDevSecurityEntry 7 }

pktcMtaDevKeyMgmtTimeout2 OBJECT-TYPE
       SYNTAX       Integer32 (15..600)
       UNITS        "seconds"
       MAX-ACCESS  read-write
       STATUS       obsolete     -- changed to adaptive backoff and moved
                                                    -- to cms table
       DESCRIPTION
              "This timeout applies only when the CMS initiated key management
              (with a Wake Up or Rekey message).  It is the period during which
              the MTA will save a nonce (inside the sequence number field) from
              the sent out AP Request and wait for the matching AP Reply
              from the CMS."
       REFERENCE
              "PacketCable Security Specification PKT-SP-SEC_I02-001229"
       ::= { pktcMtaDevSecurityEntry 8 }

--
--            Ticket Granting Server information
--
--************************************************************************
--************************ THIS TABLE IS OBSOLETE ************************
--************************************************************************

pktcMtaDevTgsTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF PktcMtaDevTgsEntry
    MAX-ACCESS  not-accessible
    STATUS      obsolete         -- Secure Provisioning ECR
    DESCRIPTION
            "Contains per endpoint Ticket Granting Server information."
    ::= {  pktcMtaDevSecurity 8 }

pktcMtaDevTgsEntry OBJECT-TYPE
    SYNTAX      PktcMtaDevTgsEntry
    MAX-ACCESS  not-accessible
    STATUS      obsolete         -- Secure Provisioning ECR
    DESCRIPTION
        "List of Tgs attributes for a single packet cable
         endpoint interface."
    INDEX { ifIndex, pktcMtaDevTgsIndex }
    ::= { pktcMtaDevTgsTable 1 }

PktcMtaDevTgsEntry ::= SEQUENCE {
    pktcMtaDevTgsIndex           Integer32,
    pktcMtaDevTgsLocation  DisplayString,
    pktcMtaDevTgsStatus    RowStatus
    }

 pktcMtaDevTgsIndex OBJECT-TYPE
    SYNTAX      Integer32 (1..2147483647)
    MAX-ACCESS  not-accessible
    STATUS      obsolete         -- Secure Provisioning ECR
    DESCRIPTION
```

```
            "Index into the TGS table for TGS locations.
            IfType specifies the endpoint, TgsIndex specifies a TGS."
    ::= { pktcMtaDevTgsEntry 1 }

pktcMtaDevTgsLocation OBJECT-TYPE
    SYNTAX      DisplayString (SIZE (0..255))
    MAX-ACCESS  read-create
    STATUS      obsolete          -- Secure Provisioning ECR
    DESCRIPTION
            " Name of the TGS Ticket Granting Server, which is the Kerberos
              Server.  This parameter is a FQDN or Ipv4 address.  There may be
              multiple entries of this type.  The order in which these entries
              are listed is the priority order in which the MTA will attempt to
              contact them for this endpoint."
    ::= { pktcMtaDevTgsEntry 2 }

pktcMtaDevTgsStatus    OBJECT-TYPE
    SYNTAX      RowStatus
    MAX-ACCESS    read-create
    STATUS    obsolete            -- Secure Provisioning ECR
    DESCRIPTION
            "This object contains the Row Status associated with
             the pktcMtaDevTgsTable."
    ::= { pktcMtaDevTgsEntry 3 }


pktcMtaDevTelephonyRootCertificate  OBJECT-TYPE
    SYNTAX      X509Certificate
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
       "ASN.1 DER encoding of the IP Telephony Root X.509
          public-key certificate stored in the MTA non-volatile
          memory and updateable with a code download.  This
          certificate is used to validate the initial AS Reply
          from the KDC received during the MTA initialization."

       ::= { pktcMtaDevSecurity 9 }


--=============================================================================
--
--     Procedures for setting up security associations:
--
--     A security association may be setup either via configuration or via
--     NCS signaling.
--
--     I.     Security association setup via configuration.
--
--            The realm must be configured first.  Associated with the realm
--            is a KDC.  The realm table (pktcMtaDevRealmTable) indicates
--            information about realm (e.g., name, organization name) and
--            parameters associated with KDC communications (e.g., grace
--            periods,  AS request/AS reply adaptive backoff parameters).
--
--            Once the realm is established, one or more servers may be
--            defined       in the realm.  For PacketCable 1.0, these are Call
--            Management Servers (CMSs).  Associated with each CMS
--            entry in the pktcMtaDevCmsTable is an explicit reference
--            to a Realm via the realm index (pktcMtaDevCmsKerbRealmIndex),
--            the FQDN of the CMS, and parameters associated with IPSec
--            key management with the CMS (e.g., clock skew, AP request/
--            AP reply adaptive backoff parameters).
```

```
--
--           If the associated CMS security association establishment
--           failed, an entry in the CMS MAP table (pktcMtaCmsMapTable)
--           is marked inactive.  The CMS Map table associates an MTA
--           endpoint (ifIndex) with zero or more CMSs
--      (pktcMtaCmsMapCmsIndex).
--
--     II.   Security association setup via NCS signaling
--
--           Note:  The following process is done automatically by the
--           MTA.  The NCS is not involved in creating signaled entries.

--           The current CMS signaling association being used by an
--           endpoint is marked as active in CMS MAP table.  If NCS
--           signaling requests a change of signaling association to
--           a different FQDN, the MTA checks the current CMS MAP
--           table entries for the affected endpoint.  If the entry
--           exists in the CMS MAP table, the current CMS MAP table
--           entry is marked inactive and the newly chosen CMS MAP
--           table entry is marked active.
--
--           If the entry does not exist in the CMS MAP table, the
--           CMS table is checked to determine whether or not it
--           contains the CMS specified by CMS signaling (possibly
--           a redirection).  If the desired CMS entry is defined,
--           then a corresponding entry is created and an entry in
--           the CMS MAP table is created.  If the MTA does not
--           have current associations with that CMS, it will now
--           perform key management to establish required security
--           associations. Once the desired CMS entry is established,
--           the current CMS MAP table entry is marked inactive and
--           the newly created CMS MAP table entry is marked active.
--           Otherwise the current CMS MAP table entry remains
--           active and the newly created CMS MAP table entry is marked
--           in active.
--
--           If the entry does not exist in the CMS MAP table and the
--           CMS entry does not exist in the CMS table, a new CMS table
--           entry should be created.  This CMS entry should use the
--           same realm as used by this endpoint. The default values
--           for the clock skew and AP request/AP reply adaptive
--           backoff parameters should be used.  The MTA will now
--           perform key management to establish required security
--           associations. Once the desired CMS entry is established,
--           the current CMS MAP table entry is marked inactive and
--           the newly created CMS MAP table entry is marked active.
--           Otherwise the current CMS MAP table entry remains
--           active and the newly created CMS MAP table entry is marked
--           inactive.
--
-- III.      When the MTA receives wake-up or rekey messages from a CMS,
--           it performs key management based on the corresponding entry
--           in the CMS table.  If the matching CMS entry does not exist,
--           it must ignore the wake-up or rekey messages.
--
--========================================================================



--========================================================================
--
--     pktcMtaDevRealmTable
--
```

```
--     The pktcMtaDevRealmTable shows the KDC realms.  The table is indexed
--   with pktcMtaDevRealmIndex.  The Realm Table is used in conjunction with
--   any server which needs a security association with an MTA.  The server
--   table (today the CMS) has a security association.  Each server-MTA security
--   association is associated with a single Realm.  This allows for multiple
--   realms, each with its own security association.
--
--=============================================================================

pktcMtaDevRealmTable  OBJECT-TYPE
    SYNTAX      SEQUENCE OF PktcMtaDevRealmEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
            "Contains per Kerberos realm security parameters."
    ::= {  pktcMtaDevSecurity 16 }

pktcMtaDevRealmEntry  OBJECT-TYPE
    SYNTAX      PktcMtaDevRealmEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "List of security parameters for a single Kerberos realm."
    INDEX { pktcMtaDevRealmName }
    ::= { pktcMtaDevRealmTable 1 }

PktcMtaDevRealmEntry ::= SEQUENCE {
       pktcMtaDevRealmName                     DisplayString,
       pktcMtaDevRealmPkinitGracePeriod  Integer32,
       pktcMtaDevRealmTgsGracePeriod           Integer32,
       pktcMtaDevRealmOrgName                  DisplayString,
       pktcMtaDevRealmUnsolicitedKeyMaxTimeout Integer32,
       pktcMtaDevRealmUnsolicitedKeyNomTimeout Integer32,
       pktcMtaDevRealmUnsolicitedKeyMeanDev    Integer32,
       pktcMtaDevRealmUnsolicitedKeyMaxRetries Integer32,
       pktcMtaDevRealmStatus                   RowStatus
       }

pktcMtaDevRealmName  OBJECT-TYPE
    SYNTAX      DisplayString (SIZE(0..255))
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
            "Kerberos realm name.  This is the index into
            pktcMtaDevTable."
    ::= { pktcMtaDevRealmEntry 1 }

pktcMtaDevRealmPkinitGracePeriod  OBJECT-TYPE
    SYNTAX      Integer32 (15..600)
      UNITS         "minutes"
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
            "For the purpose of IPSec key management with a CMS, the MTA
             MUST obtain a new Kerberos ticket (with a PKINIT exchange)
             this many minutes before the old ticket expires.  The
             minimum allowable value is 15 mins.  The default is 30 mins.
                    This parameter MAY also be used with other Kerberized
                    applications."
    DEFVAL { 30 }
    ::= { pktcMtaDevRealmEntry 2 }

pktcMtaDevRealmTgsGracePeriod  OBJECT-TYPE
```

```
    SYNTAX      Integer32 (1..600)
      UNITS         "minutes"
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
            "When the MTA implementation uses TGS Request/TGS Reply
                    Kerbersos messages for the purpose of IPSec key management
                    with the CMS, the MTA MUST obtain a new service ticket
                    for the CMS (with a TGS Request) this many minutes before
                    the old ticket expires.  The minimum allowable value is
                    1 min. The default is 10 mins.  This parameter MAY also
                    be used with other Kerberized applications."
    DEFVAL { 10 }
    ::= { pktcMtaDevRealmEntry 3 }

pktcMtaDevRealmOrgName  OBJECT-TYPE
    SYNTAX      DisplayString (SIZE (0..255))
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "The value of the X.500 organization name attribute in the
        subject name of the Service provider certificate"
    ::= { pktcMtaDevRealmEntry 4 }

--============================================================================
--
--   Unsolicited Key Updates are based on an exponential backoff mechanism with
-- two timers for AS replies.  The backoff timers has a maximum value of
-- pktcMtaDevRealmUnsolicitedKeyMaxTimeout seconds and a nominal timer has a
-- pktcMtaDevRealmUnsolicitedKeyNomTimeout seconds from which the backoff timer
-- determinations are made.  After pktcMatDevRealmUnsolicitedMaxRetries have
-- occurred no more attempts are made.
--
--============================================================================

pktcMtaDevRealmUnsolicitedKeyMaxTimeout  OBJECT-TYPE
       SYNTAX       Integer32 (15..600)
       UNITS        "seconds"
       MAX-ACCESS   read-create
       STATUS       current
       DESCRIPTION
              "This timeout applies only when the MTA initiated key management.
              The maximum timeout is the value which may not be exceeded in the
              exponential backoff algorithm."
       REFERENCE
              "PacketCable Security Specification PKT-SP-SEC_I02-001229"
       DEFVAL { 600 }
    ::= { pktcMtaDevRealmEntry 5 }

pktcMtaDevRealmUnsolicitedKeyNomTimeout  OBJECT-TYPE
       SYNTAX       Integer32 (15..600)
       UNITS        "seconds"
       MAX-ACCESS   read-create
       STATUS       current
       DESCRIPTION
              "This timeout applies only when the MTA initiated key management.
              Typically this is the average roundtrip time between the MTA and
              the KDC."
       REFERENCE
              "PacketCable Security Specification PKT-SP-SEC_I02-001229"
       DEFVAL { 30 }
    ::= { pktcMtaDevRealmEntry 6 }
```

```
pktcMtaDevRealmUnsolicitedKeyMeanDev  OBJECT-TYPE
       SYNTAX       Integer32 (1..600)
       UNITS        "seconds"
       MAX-ACCESS   read-only
       STATUS       current
       DESCRIPTION
              "This is measurement of the mean deviation for the round trip
              delay timings."
       REFERENCE
              "PacketCable Security Specification PKT-SP-SEC_I02-001229"
       DEFVAL { 2 }
    ::= { pktcMtaDevRealmEntry 7 }

pktcMtaDevRealmUnsolicitedKeyMaxRetries  OBJECT-TYPE
       SYNTAX       Integer32 (1..1024)
       MAX-ACCESS   read-create
       STATUS       current
       DESCRIPTION
       "This is the maximum number of retries before the MTA gives up attempting
              to establish a security association."
       REFERENCE
              "PacketCable Security Specification PKT-SP-SEC_I02-001229"
       DEFVAL { 20 }
    ::= { pktcMtaDevRealmEntry 8 }

pktcMtaDevRealmStatus     OBJECT-TYPE
    SYNTAX      RowStatus
    MAX-ACCESS    read-create
    STATUS    current
    DESCRIPTION
            "This object contains the Row Status associated with
             the pktcMtaDevRealmTable."
    ::= { pktcMtaDevRealmEntry 9 }

--================================================================================
--
--     pktcMtaDevCmsTable
--
--     The pktcMtaDevCmsTable shows the IPSec key management policy
--   relating to a particular CMS.  The table is indexed with
--   pktcMtaDevCmsName.
--
--================================================================================

pktcMtaDevCmsTable  OBJECT-TYPE
    SYNTAX      SEQUENCE OF PktcMtaDevCmsEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
            "Contains per CMS key management policy."
    ::= {  pktcMtaDevSecurity 17 }

pktcMtaDevCmsEntry  OBJECT-TYPE
    SYNTAX      PktcMtaDevCmsEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "List of key management parameters for a single MTA-CMS
        interface."
    INDEX { pktcMtaDevCmsFqdn }
    ::= { pktcMtaDevCmsTable 1 }

PktcMtaDevCmsEntry ::= SEQUENCE {
```

```
       pktcMtaDevCmsFqdn                DisplayString,
       pktcMtaDevCmsKerbRealmName              DisplayString,
       pktcMtaDevCmsSolicitedKeyTimeout  Integer32,
       pktcMtaDevCmsMaxClockSkew         Integer32,
       pktcMtaDevCmsUnsolicitedKeyMaxTimeout   Integer32,
       pktcMtaDevCmsUnsolicitedKeyNomTimeout   Integer32,
       pktcMtaDevCmsUnsolicitedKeyMeanDev      Integer32,
       pktcMtaDevCmsUnsolicitedKeyMaxRetries   Integer32,
       pktcMtaDevCmsStatus              RowStatus
    }


pktcMtaDevCmsFqdn  OBJECT-TYPE
    SYNTAX      DisplayString (SIZE(0..255))
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
       "The fully qualified domain name of the CMS.  This
       is the index for the a CMS entry."
    ::= { pktcMtaDevCmsEntry 1 }

pktcMtaDevCmsKerbRealmName  OBJECT-TYPE
    SYNTAX      DisplayString (SIZE(0..255))
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
       "The name for the assoicated Kerberos Realm.  This is
       the index into the pktcMtaDevRealmTable."
    ::= { pktcMtaDevCmsEntry 2 }

pktcMtaDevCmsMaxClockSkew  OBJECT-TYPE
    SYNTAX      Integer32 (1..1800)
      UNITS         "seconds"
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "This is the maximum allowable clock skew between the MTA and CMS"
      DEFVAL { 300 }
    ::= { pktcMtaDevCmsEntry 3 }

pktcMtaDevCmsSolicitedKeyTimeout  OBJECT-TYPE
       SYNTAX       Integer32 (15..600)
       UNITS        "seconds"
       MAX-ACCESS  read-create
       STATUS       current
       DESCRIPTION
              "This timeout applies only when the CMS initiated key management
              (with a Wake Up or Rekey message).  It is the period during which
              the MTA will save a nonce (inside the sequence number field) from
              the sent out AP Request and wait for the matching AP Reply
              from the CMS."
       REFERENCE
              "PacketCable Security Specification PKT-SP-SEC_I02-001229"
       ::= { pktcMtaDevCmsEntry 4 }

--=============================================================================
--
--   Unsolicited Key Updates are based on an exponential backoff mechanism with
-- two timers for AP replies.  The backoff timers has a maximum value of
-- pktcMtaDevCmsUnsolicitedKeyMaxTimeout seconds and a nominal timer has a
-- pktcMtaDevCmsUnsolicitedKeyNomTimeout seconds from which the backoff timer
-- determinations are made.  After pktcMatDevCmsUnsolicitedMaxRetries have
-- occurred no more attempts are made.
```

```
--
--============================================================================

pktcMtaDevCmsUnsolicitedKeyMaxTimeout  OBJECT-TYPE
       SYNTAX        Integer32 (15..600)
       UNITS         "seconds"
       MAX-ACCESS    read-create
       STATUS        current
       DESCRIPTION
              "This timeout applies only when the MTA initiated key management.
              The maximum timeout is the value which may not be exceeded in the
              exponential backoff algorithm."
       REFERENCE
              "PacketCable Security Specification PKT-SP-SEC_I02-001229"
       DEFVAL { 600 }
    ::= { pktcMtaDevCmsEntry 5 }

pktcMtaDevCmsUnsolicitedKeyNomTimeout  OBJECT-TYPE
       SYNTAX        Integer32 (15..600)
       UNITS         "seconds"
       MAX-ACCESS    read-create
       STATUS        current
       DESCRIPTION
              "This timeout applies only when the MTA initiated key management.
              Typically this is the average roundtrip time between the MTA and
              the CMS."
       REFERENCE
              "PacketCable Security Specification PKT-SP-SEC_I02-001229"
       DEFVAL { 30 }
    ::= { pktcMtaDevCmsEntry 6 }

pktcMtaDevCmsUnsolicitedKeyMeanDev  OBJECT-TYPE
       SYNTAX        Integer32 (1..600)
       UNITS         "seconds"
       MAX-ACCESS    read-only
       STATUS        current
       DESCRIPTION
              "This is the measurement of the mean deviation for the round
              trip delay timings."
       REFERENCE
              "PacketCable Security Specification PKT-SP-SEC_I02-001229"
       DEFVAL { 2 }
    ::= { pktcMtaDevCmsEntry 7 }

pktcMtaDevCmsUnsolicitedKeyMaxRetries  OBJECT-TYPE
       SYNTAX        Integer32 (15..600)
       MAX-ACCESS    read-create
       STATUS        current
       DESCRIPTION
        This is the maximum number of retries before the MTA gives up attempting
        to establish a security association."
       REFERENCE
              "PacketCable Security Specification PKT-SP-SEC_I02-001229"
       DEFVAL { 20 }
    ::= { pktcMtaDevCmsEntry 8 }

pktcMtaDevCmsStatus     OBJECT-TYPE
    SYNTAX      RowStatus
    MAX-ACCESS    read-create
    STATUS    current
    DESCRIPTION
            "This object contains the Row Status associated with
             the pktcMtaDevCmsTable."
```

```
    ::= { pktcMtaDevCmsEntry 9 }


--=============================================================================
--
--     pktcMtaCmsMapTable
--
--
--     The pktcMtaCmsMapTable contains the signaling associations
--     between      MTA endpoints and CMSs.  It maps the endpoint to
--     zero or more entries in pktcMtaDevCmsTable.
--
--     The table contains the following indexes and rows:
--
--     ifIndex -the index of the physical port
--
--     pktcMtaCmsMapCmsIndex - the index of the CMS entry in the
--     pktcMtaDevCmsTable.  Valid indices are equal to current
--     pktcMtaDevCmsIndex values.
--
--     pktcMtaCmsMapOperStatus -  this value indicates which signaling
--     association the endpoint is actively using
--
--     pktcMtaCmsMapAdminStatus - this flag indicates whether or not
--     an endpoint should use a particular CMS and its security
--     association.  By setting this flag to inhibit, this associated
--     CMS cannot provide signaling to the referenced endpoint.
--
--     pktcMtaCmsMapRowStatus - allows for the creation and deletion of
--     endpoint mappings via the NMS
--
--
--=============================================================================

pktcMtaCmsMapTable  OBJECT-TYPE
    SYNTAX      SEQUENCE OF PktcMtaCmsMapEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
            "Contains per endpoint CMS signaling associations."
    ::= {  pktcMtaDevSecurity 18 }

pktcMtaCmsMapEntry  OBJECT-TYPE
    SYNTAX      PktcMtaCmsMapEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "List of signaling associations."
    INDEX { ifIndex, pktcMtaCmsMapCmsFqdn }
    ::= { pktcMtaCmsMapTable 1 }

PktcMtaCmsMapEntry ::= SEQUENCE {
       pktcMtaCmsMapCmsFqdn             DisplayString,
    pktcMtaCmsMapOperStatus             INTEGER,
       pktcMtaCmsMapAdminStatus   INTEGER,
       pktcMtaCmsMapRowStatus           RowStatus
    }

pktcMtaCmsMapCmsFqdn       OBJECT-TYPE
       SYNTAX       DisplayString (SIZE(1..255))
       MAX-ACCESS   not-accessible
       STATUS       current
       DESCRIPTION
```

```
              "The index for the associated CMS.  Valid indices are
              equal to current pktcMtaDevCmsFqdn values."
       ::= { pktcMtaCmsMapEntry 1 }

pktcMtaCmsMapOperStatus  OBJECT-TYPE
    SYNTAX      INTEGER {
       inactive            (1),
              active              (2)
              }
       MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
       "The operational status of signaling association.  The
       meaning of the
       status is as follows:
                    inactive -          signaling is not currently active
                    active -            signaling is active."
    ::= { pktcMtaCmsMapEntry 2 }

pktcMtaCmsMapAdminStatus  OBJECT-TYPE
    SYNTAX      INTEGER {
       inhibit                    (1),
              allow               (2)
              }
       MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
       "The administrative status for signaling over the indicated
       security association.  The meaning of the status is as follows:
                    inhibit -           signaling is not currently allowed
                    allow -                    signaling is allowed."
    ::= { pktcMtaCmsMapEntry 3 }

pktcMtaCmsMapRowStatus  OBJECT-TYPE
    SYNTAX      RowStatus
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
       "This object is used for creating and deleting an entry
       in this table via an elment manager."
    ::= { pktcMtaCmsMapEntry 4 }


--=============================================================================
--
--     pktcMtaDevServer
--
--     The pktcMtaDevProvGroup shows the key management policy
--   relating to the Provisioning Server.  The MTA MIB only supports a
--     single provisioning server.
--
--=============================================================================




--
-- The following group describes server access and parameters used for
-- initial provisioning and bootstrapping.
--

--*****************************************************************************
--**************************This object is obsolete**********************
```

```
--************************************************************************
pktcMtaDevServerBootState OBJECT-TYPE
    SYNTAX INTEGER {
            operational                 (1),
            disabled                    (2),
            waitingForDhcpOffer         (3),
            waitingForDhcpResponse      (4),
            waitingForConfig            (5),
            refusedByCmts        (6),
            other                (7),
            unknown              (8)
    }
    MAX-ACCESS  read-only
    STATUS      obsolete
    DESCRIPTION
       "If operational(1), the device has completed loading and
             processing of configuration parameters and the CMTS has
             completed the Registration exchange.
         If disabled(2) then the device was administratively
             disabled, possibly by being refused network access in the
             configuration file.
         If waitingForDhcpOffer(3) then a DHCP Discover has been
             transmitted and no offer has yet been received.
         If waitingForDhcpResponse(4) then a DHCP Request has been
             transmitted and no response has yet been received.
         If waitingForConfig(5) then a request to the config parameter
             server has been made and no response received.
         If refusedByCmts(6) then the Registration Request/Response
             exchange with the CMTS failed. "
    REFERENCE
             "DOCSIS Radio Frequency Interface Specification, Figure
             7-1, CM Initialization Overview."
    ::= { pktcMtaDevServer 1 }

pktcMtaDevServerDhcp  OBJECT-TYPE
    SYNTAX      IpAddress
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
            "The IP address of the DHCP server that assigned an IP
             address to this device. Returns 0.0.0.0 if DHCP was not
             used for IP address assignment."
    ::= { pktcMtaDevServer 2 }

pktcMtaDevServerDns1  OBJECT-TYPE
    SYNTAX      IpAddress
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
            "The IP address of the primary DNS server that resolved
             an IP address for this device. “
    ::= { pktcMtaDevServer 3 }

pktcMtaDevServerDns2  OBJECT-TYPE
    SYNTAX      IpAddress
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
             "The IP address of the secondary DNS server that resolved an
             IP address for this device. "
    ::= { pktcMtaDevServer 4 }

pktcMtaDevConfigFile  OBJECT-TYPE
```

```
    SYNTAX      DisplayString
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
            "The URL of the TFTP/HTTP file for downloading provisioning
             and configuration parameters to this device. Returns NULL if the
             server address is unknown. Supports both TFTP and HTTP."
    ::= { pktcMtaDevServer 5 }

pktcMtaDevSnmpEntity  OBJECT-TYPE
    SYNTAX      DisplayString
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
            "The IP address or FQDN of the SNMP entity for provisioning trap
             handling that assigned an IP address to this device. Returns
             0.0.0.0 if DHCP was not used for IP address assignment."
    ::= { pktcMtaDevServer 6 }

pktcMtaDevProvConfigHash  OBJECT-TYPE
       SYNTAX OCTET STRING (SIZE(16|20))
       MAX-ACCESS read-write
       STATUS current
       DESCRIPTION
              "Hash of the contents of the config file, calculated and
              sent to the MTA prior to sending the config file.  If the
              authenthenication algorithm is MD5, the length is 128
              bits,  If the authentication algorithm is SHA-1, the
              length is 160 bits."
       ::= { pktcMtaDevServer 7 }

pktcMtaDevProvConfigKey  OBJECT-TYPE
       SYNTAX       OCTET STRING (SIZE(0|8))
       MAX-ACCESS read-write
       STATUS current
       DESCRIPTION
              "Key used to encrypt/decrypt the config file, sent to the
              MTA prior to sending the config file.  If the privacy
              algorithm is null, the length is 0.  If the privacy
              algorithm is DES, the length is 64 bits."
       ::= { pktcMtaDevServer 8 }

pktcMtaDevProvSolicitedKeyTimeout  OBJECT-TYPE
    SYNTAX      Integer32 (15..600)
       UNITS        "seconds"
    MAX-ACCESS  read-write
    STATUS      current
       DESCRIPTION
              "This timeout applies only when the Provisioning Server initiated
              key management (with a Wake Up message) for SNMPv3.  It is the
              period during which the MTA will save a nonce (inside the sequence
              number field) from the sent out AP Request and wait for the
              matching AP Reply from the Provisioning Server."
       DEFVAL { 120 }
       ::= { pktcMtaDevServer 9 }


--
--  Event Reporting
--

pktcMtaDevEvControl  OBJECT-TYPE
    SYNTAX INTEGER {
```

```
            resetLog(1),
            useDefaultReporting(2)
    }
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
            "Setting this object to resetLog(1) empties the event log.
             All data is deleted. Setting it to useDefaultReporting(2)
             returns all event priorities to their factory-default
             reporting. Reading this object always returns
             useDefaultReporting(2)."
    ::= { pktcMtaDevEvent 1 }

pktcMtaDevEvSyslog  OBJECT-TYPE
    SYNTAX      DisplayString
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
            "The IP address or FQDN of the Syslog server. If 0.0.0.0,
             syslog transmission is inhibited."
    ::= { pktcMtaDevEvent 2 }

pktcMtaDevEvThrottleAdminStatus  OBJECT-TYPE
    SYNTAX INTEGER {
            unconstrained(1),
            maintainBelowThreshold(2),
            stopAtThreshold(3),
            inhibited(4)
    }
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
            "Controls the transmission of traps and syslog messages
             with respect to the trap pacing threshold.
             unconstrained(1) causes traps and syslog messages to be
             transmitted without regard to the threshold settings.
             maintainBelowThreshold(2) causes trap transmission and
             syslog messages to be suppressed if the number of traps
             would otherwise exceed the threshold.
             stopAtThreshold(3) causes trap transmission to cease
             at the threshold, and not resume until directed to do so.
             inhibited(4) causes all trap transmission and syslog
             messages to be suppressed.

             A single event is always treated as a single event for
             threshold counting. That is, an event causing both a trap
             and a syslog message is still treated as a single event.

             Writing to this object resets the thresholding state.

             At initial startup, this object has a default value of
             unconstrained(1)."
    ::= { pktcMtaDevEvent 3 }



pktcMtaDevEvThrottleInhibited  OBJECT-TYPE
    SYNTAX      TruthValue
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
            "If true(1), trap and syslog transmission is currently
```

```
            inhibited due to thresholds and/or the current setting of
            pktcMtaDevEvThrottleAdminStatus. In addition, this is set to
            true(1) if transmission is inhibited due to no
            syslog (pktcMtaDevEvSyslog) or trap (pktcMtaDevNmAccessEntry)
            destinations having been set."
    ::= { pktcMtaDevEvent 4 }

pktcMtaDevEvThrottleThreshold  OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
            "Number of trap/syslog events per pktcMtaDevEvThrottleInterval
            to be transmitted before throttling.

            A single event is always treated as a single event for
            threshold counting. That is, an event causing both a trap
            and a syslog message is still treated as a single event.

            At initial startup, this object returns 0."
    ::= { pktcMtaDevEvent 5 }

pktcMtaDevEvThrottleInterval  OBJECT-TYPE
    SYNTAX      Integer32 (1..2147483647)
    UNITS       "seconds"
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
            "The interval over which the trap threshold applies.
            At initial startup, this object has a value of 1."
    ::= { pktcMtaDevEvent 6 }


--
-- The following table controls the reporting of the various classes of
-- events.
--

pktcMtaDevEvControlTable  OBJECT-TYPE
    SYNTAX      SEQUENCE OF PktcMtaDevEvControlEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
            "This table allows control of the reporting of event classes.
        For each event priority, a combination of logging and
        reporting mechanisms may be chosen. The mapping of event types
        to priorities is vendor-dependent. Vendors may also choose to
        allow the user to control that mapping through proprietary means."
    ::= {  pktcMtaDevEvent 7 }




pktcMtaDevEvControlEntry  OBJECT-TYPE
    SYNTAX      PktcMtaDevEvControlEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
            "Allows configuration of the reporting mechanisms for a
```

```
                particular event priority."
    INDEX { pktcMtaDevEvPriority }
    ::= { pktcMtaDevEvControlTable 1 }

PktcMtaDevEvControlEntry ::= SEQUENCE {
    pktcMtaDevEvPriority        INTEGER,
    pktcMtaDevEvReporting       BITS
    }

pktcMtaDevEvPriority  OBJECT-TYPE
    SYNTAX INTEGER {
            emergency(1),
            alert(2),
            critical(3),
            error(4),
            warning(5),
            notice(6),
            information(7),
            debug(8)
    }
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
            "The priority level that is controlled by this
             entry. These are ordered from most (emergency) to least (debug)
             critical.  Each event with a CM or CMTS has a particular
             priority level associated with it (as defined by the
             vendor). During normal operation no event more critical than
             notice(6) should be generated. Events between warning and
             emergency should be generated at appropriate levels of
             problems (e.g. emergency when the box is about to
             crash)."
    ::= { pktcMtaDevEvControlEntry 1 }

pktcMtaDevEvReporting  OBJECT-TYPE
    SYNTAX BITS {
            local(0),
            traps(1),
            syslog(2)
    }
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
            "Defines the action to be taken on occurrence of this
             event class. Implementations may not necessarily support
             all options for all event classes, but at minimum must
             allow traps and syslogging to be disabled. If the
             local(0) bit is set, then log to the internal log, if the
             traps(1) bit is set, then generate a trap, if the
             syslog(2) bit is set, then send a syslog message
             (assuming the syslog address is set)."
    ::= { pktcMtaDevEvControlEntry 2 }




pktcMtaDevEventTable  OBJECT-TYPE
    SYNTAX      SEQUENCE OF PktcMtaDevEventEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
            "Contains a log of network and device events that may be
```

```
            of interest in fault isolation and troubleshooting."
    ::= {  pktcMtaDevEvent 8 }

pktcMtaDevEventEntry  OBJECT-TYPE
    SYNTAX      PktcMtaDevEventEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
            "Describes a network or device event that may be of
             interest in fault isolation and troubleshooting. Multiple
             sequential identical events are represented by
             incrementing pktcMtaDevEvCounts and setting
             pktcMtaDevEvLastTime to the current time rather than creating
             multiple rows.

             Entries are created with the first occurrance of an event.
             pktcMtaDevEvControl can be used to clear the table.
             Individual events can not be deleted."
    INDEX { pktcMtaDevEvIndex }
    ::= { pktcMtaDevEventTable 1 }

PktcMtaDevEventEntry ::= SEQUENCE {
            pktcMtaDevEvIndex           INTEGER,
            pktcMtaDevEvFirstTime       DateAndTime,
            pktcMtaDevEvLastTime        DateAndTime,
            pktcMtaDevEvCounts          Counter32,
            pktcMtaDevEvLevel           INTEGER,
            pktcMtaDevEvId              Unsigned32,
            pktcMtaDevEvText            DisplayString
        }

pktcMtaDevEvIndex  OBJECT-TYPE
    SYNTAX      INTEGER (1..2147483647)
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
            "Provides relative ordering of the objects in the event
             log. This object will always increase except when
             (a) the log is reset via pktcMtaDevEvControl,
             (b) the device reboots and does not implement non-volatile
             storage for this log, or (c) it reaches the value 2^31.
             The next entry for all the above cases is 1."
    ::= { pktcMtaDevEventEntry 1 }

pktcMtaDevEvFirstTime  OBJECT-TYPE
    SYNTAX      DateAndTime
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
            "The time that this entry was created."
    ::= { pktcMtaDevEventEntry 2 }

pktcMtaDevEvLastTime  OBJECT-TYPE
    SYNTAX      DateAndTime
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
            "If multiple events are reported via the same entry, the
             time that the last event for this entry occurred,
             otherwise this should have the same value as
             pktcMtaDevEvFirstTime. "
    ::= { pktcMtaDevEventEntry 3 }
```

```
pktcMtaDevEvCounts  OBJECT-TYPE
    SYNTAX      Counter32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
            "The number of consecutive event instances reported by
             this entry.  This starts at 1 with the creation of this
             row and increments by 1 for each subsequent duplicate event."
    ::= { pktcMtaDevEventEntry 4 }

pktcMtaDevEvLevel  OBJECT-TYPE
    SYNTAX INTEGER {
            critical(1),
            major(2),
            minor(3),
            warning(4),
            information(5),
            notice(6),
            debug(7)
    }
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
            "The priority level of this event as defined by the
             vendor.  These are ordered from most serious (critical)
             to least serious (debug)."
    ::= { pktcMtaDevEventEntry 5 }

--
-- Vendors will provide their own enumerations for the following.
-- The interpretation of the enumeration is unambiguous for a
-- particular value of the vendor's enterprise number in sysObjectID.
--

pktcMtaDevEvId  OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
            "For this product, uniquely identifies the type of event
             that is reported by this entry."
    ::= { pktcMtaDevEventEntry 6 }

pktcMtaDevEvText  OBJECT-TYPE
    SYNTAX      DisplayString
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
            "Provides a human-readable description of the event,
             including all relevant context (interface numbers,
             etc.)."
    ::= { pktcMtaDevEventEntry 7 }

--
-- notification group is for future extension.
--

pktcMtaNotification OBJECT IDENTIFIER ::= { pktcMtaMib 2 0 }
pktcMtaConformance  OBJECT IDENTIFIER ::= { pktcMtaMib 3 }
pktcMtaCompliances  OBJECT IDENTIFIER ::= { pktcMtaConformance 1 }
pktcMtaGroups       OBJECT IDENTIFIER ::= { pktcMtaConformance 2 }

--
```

```
--    Notification Group
--


pktcMtaProvisioningEnrollment  NOTIFICATION-TYPE
    OBJECTS {
        pktcMtaDevHardwareVersion,
        docsDevSwCurrentVers,
        pktcMtaDevTypeIdentifier,
        pktcMtaDevMacAddress,
        pktcMtaDevCorrelationId
    }
    STATUS      current
    DESCRIPTION
            "This inform is issued to initiate the PacketCable
             process provisioning ."
    REFERENCE
        “Inform as defined in RFC 1902”
    ::= { pktcMtaNotification 1 }


pktcMtaProvisioningStatus  NOTIFICATION-TYPE
    OBJECTS {
        pktcMtaDevMacAddress,
        pktcMtaDevCorrelationId,
        pktcMtaDevProvisioningState
    }
    STATUS      current
    DESCRIPTION
            "This inform is issued to confirm completion of the PacketCable
             provisioning process, and indicate the completion state."
    REFERENCE
        “Inform as defined in RFC 1902”
    ::= { pktcMtaNotification 2 }


-- compliance statements

pktcMtaBasicCompliance MODULE-COMPLIANCE
    STATUS     current
    DESCRIPTION
            "The compliance statement for devices that implement
             MTA feature."
    MODULE   --pktcMtaMib







-- unconditionally mandatory groups

    MANDATORY-GROUPS {
            pktcMtaGroup
    }

-- units of conformance

OBJECT pktcMtaDevCorrelationId
    MIN-ACCESS read-only
    DESCRIPTION
            "not-accessible when request is SNMP get
             read-only when used in informs during provisioning."
```

```
OBJECT pktcMtaDevCertificate
    MIN-ACCESS  read-only
    DESCRIPTION
            "Read-write when request is through configuration file `
             download, otherwise it's a read-only object."

OBJECT pktcMtaDevTelephonyCertificate
    MIN-ACCESS  read-only
    DESCRIPTION
            "Read-write when request is through configuration file
             download, otherwise it's a read-only object."

OBJECT pktcMtaDevServProviderCertificate
    MIN-ACCESS  read-only
    DESCRIPTION
            "Read-write when request is through configuration file
             download, otherwise it's a read-only object."

OBJECT pktcMtaDevKerberosRealm
    MIN-ACCESS  read-only
    DESCRIPTION
            "Read-write when request is through configuration file
             download, otherwise it's a read-only object."

OBJECT pktcMtaDevTgsLocation
    MIN-ACCESS  read-only
    DESCRIPTION
            "Read-write when request is through configuration file
             download, otherwise it's a read-only object."

OBJECT pktcMtaDevManufacturerCertificate
    MIN-ACCESS  read-only
    DESCRIPTION
            "Read-write when request is through configuration file
             download, otherwise it's a read-only object."

OBJECT pktcMtaDevKerbPrincipalName
    MIN-ACCESS  read-only
    DESCRIPTION
            "Read-write when request is through configuration file
             download, otherwise it's a read-only object."

OBJECT pktcMtaDevServGracePeriod
    MIN-ACCESS  read-only
    DESCRIPTION
            "Read-write when request is through configuration file
             download, otherwise it's a read-only object."


::= { pktcMtaCompliances 3 }


pktcMtaGroup OBJECT-GROUP
    OBJECTS {
        pktcMtaDevResetNow,
        pktcMtaDevSerialNumber,
        pktcMtaDevHardwareVersion,
        pktcMtaDevMacAddress,
        pktcMtaDevFQDN,
        pktcMtaDevEndPntCount,
        pktcMtaDevEnabled,
        pktcMtaDevTypeIdentifier,
```

```
        pktcMtaDevProvisioningState,
        pktcMtaDevHttpAccess,
        pktcMtaDevCertificate,
        pktcMtaDevCorrelationId,
        pktcMtaDevManufacturerCertificate,
        pktcMtaDevServerDhcp,
              pktcMtaDevServerDns1,
              pktcMtaDevServerDns2,
              pktcMtaDevConfigFile,
        pktcMtaDevSnmpEntity,
              pktcMtaDevRealmPkinitGracePeriod,
              pktcMtaDevRealmTgsGracePeriod,   pktcMtaDevRealmOrgName,
              pktcMtaDevRealmUnsolicitedKeyMaxTimeout,
              pktcMtaDevRealmUnsolicitedKeyNomTimeout,
              pktcMtaDevRealmUnsolicitedKeyMeanDev,
              pktcMtaDevRealmUnsolicitedKeyMaxRetries,
              pktcMtaDevRealmStatus,
              pktcMtaDevCmsKerbRealmName,
              pktcMtaDevCmsUnsolicitedKeyMaxTimeout,
       pktcMtaDevCmsUnsolicitedKeyNomTimeout,
              pktcMtaDevCmsUnsolicitedKeyMeanDev,
              pktcMtaDevCmsUnsolicitedKeyMaxRetries,
       pktcMtaDevCmsSolicitedKeyTimeout,
              pktcMtaDevCmsMaxClockSkew,       pktcMtaDevCmsStatus,
              pktcMtaCmsMapOperStatus,         pktcMtaCmsMapAdminStatus,
              pktcMtaCmsMapRowStatus,
           pktcMtaDevProvUnsolicitedKeyMaxTimeout,
           pktcMtaDevProvUnsolicitedKeyNomTimeout,
              pktcMtaDevProvUnsolicitedKeyMeanDev,
              pktcMtaDevProvUnsolicitedKeyMaxRetries,
           pktcMtaDevProvKerbRealmName,
              pktcMtaDevProvSolicitedKeyTimeout,
           pktcMtaDevProvConfigHash,
           pktcMtaDevProvConfigKey,
              pktcMtaDevProvState,
              pktcMtaDevProvisioningTimer,
              pktcMtaDevTelephonyRootCertificate
    }
    STATUS    current
    DESCRIPTION
        "Group of objects for PacketCable MTA MIB."
    ::= { pktcMtaGroups 1 }

pktcMtaNotificationGroup         NOTIFICATION-GROUP
       NOTIFICATIONS { pktcMtaProvisioningStatus, pktcMtaProvisioningEnrollment
}
       STATUS current
       DESCRIPTION
              "These notifications deal with change in status of
              MTA Device."
       ::= { pktcMtaGroups 2 }

pktcMtaObsoleteGroup      OBJECT-GROUP
       OBJECTS {
              pktcMtaDevSignature,
              pktcMtaDevTelephonyCertificate,
              pktcMtaDevTgsLocation,
              pktcMtaDevKerberosRealm,
              pktcMtaDevServGracePeriod,
              pktcMtaDevKeyMgmtTimeout1,
              pktcMtaDevKeyMgmtTimeout2,
              pktcMtaDevServProviderCertificate,
              pktcMtaDevTgsStatus,
```

```
              pktcMtaDevKerbPrincipalName,
              pktcMtaDevLocalSystemCertificate,
              pktcMtaDevServerBootState
                    }
       STATUS  obsolete
       DESCRIPTION
              "Group of obsolete objects for PacketCable MTA MIB."
       ::= { pktcMtaGroups 3}

END
```