The ATM Forum

Technical Committee

Private Network-Network Interface Specification Version 1.0 Addendum (Soft PVC MIB)

af-pnni-0066.000

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1. Introduction

This document is an Addendum to the Private Network-Network Interface Specification Version 1.0 (af-pnni-0055.000). This addendum only introduces clarification for implementors of Soft PVCCs and Soft PVPCs and provides a MIB definition. This document does not replace af-pnni-0055.000 and must be used in conjunction with af-pnni-0055.000.

The MIB contains groups to support Soft PVPCs however these are not shown as mandatory in the conformance section as support for Switched Virtual Paths (and therefore Soft PVPs) is optional in the PNNI Version 1.0 specification.

2. Soft PVC MIB Definition

```
ATM-SOFT-PVC-MIB DEFINITIONS ::= BEGIN

IMPORTS
      enterprises                          FROM RFC1155-SMI
      MODULE-IDENTITY, OBJECT-TYPE,
      NOTIFICATION-TYPE,
      Counter32, Gauge32                   FROM SNMPv2-SMI
      TEXTUAL-CONVENTION, RowStatus,
      TruthValue, TimeStamp                FROM SNMPv2-TC
      MODULE-COMPLIANCE, OBJECT-GROUP      FROM SNMPv2-CONF
      ifIndex                              FROM IF-MIB
      atmVplVpi, atmVclVpi,
      atmVclVci                            FROM ATM-MIB;

atmSoftPvcMIB MODULE-IDENTITY
      LAST-UPDATED       "9606210000Z"
      ORGANIZATION       "The ATM Forum."
      CONTACT-INFO
            "The ATM Forum
            2570 West El Camino Real, Suite 304
            Mountain View, CA 94040-1313 USA
            Phone:      +1 415-949-6700
            Fax:        +1 415-949-6705
            info@atmforum.com"
      DESCRIPTION
            "ATM Soft PVC MIB"
      REVISION    "9606210000Z"
      DESCRIPTION
            "Initial version of this MIB module."
      ::= { atmfSoftPvc 1 }

atmForum                     OBJECT IDENTIFIER ::= { enterprises 353 }
atmForumNetworkManagement    OBJECT IDENTIFIER ::= { atmForum 5 }
atmfSoftPvc       OBJECT IDENTIFIER ::= { atmForumNetworkManagement 5 }

atmSoftPvcMIBObjects  OBJECT IDENTIFIER ::= { atmSoftPvcMIB 1 }
atmSoftPvcMIBTraps    OBJECT IDENTIFIER ::= { atmSoftPvcMIB 2 }

AtmAddr ::= TEXTUAL-CONVENTION
      STATUS  current
      DESCRIPTION
            "The ATM address used by the network entity.
            The address types are: no address (0 octets),
            E.164 (8 octets)and NSAP (20 octets).
            Note: The E.164 address is encoded in BCD format."
      SYNTAX    OCTET STRING (SIZE(0|8|20))
```

```
--
-- This MIB contains five tables and a number of scalars. The scalars
-- contain overall status information and counters. The tables are:
--      Soft PVC VCCs - manage Soft PVCC at originating switch
--      Soft PVC VPCs - manage Soft PVPC at originating switch
--      Interface Soft PVC Address
--      Currently failing Soft PVCC table
--      Currently failing Soft PVPC table
--
-- Traffic statistics for Soft PVCCs and Soft PVPCs are accessible
-- via the atmVclStatTable and atmVplStatTable, as defined in the
-- Supplemental AtomMIB


atmSoftPvcBaseGroup     OBJECT IDENTIFIER ::= { atmSoftPvcMIBObjects 1}

atmSoftPvcCallFailuresTrapEnable    OBJECT-TYPE
      SYNTAX      TruthValue
      MAX-ACCESS  read-write
      STATUS      current
      DESCRIPTION
            "Allows the generation of traps in response to call
            failures. By default, this object is set to 'false'."
      ::= { atmSoftPvcBaseGroup 1 }


atmSoftPvcCallFailures  OBJECT-TYPE
      SYNTAX      Counter32
      MAX-ACCESS  read-only
      STATUS      current
      DESCRIPTION
            "The number of times a series of call attempts has failed to
            establish a Soft PVCC or Soft PVPC. The number of call
            attempts in a series is determined by
            atmSoftPVccRetryThreshold or atmSoftPVpcRetryThreshold,
            respectively."
      ::= {atmSoftPvcBaseGroup 2 }


atmSoftPvcCurrentlyFailingSoftPVccs OBJECT-TYPE
      SYNTAX      Gauge32
      MAX-ACCESS  read-only
      STATUS      current
      DESCRIPTION
            "The current number of Soft PVCCs for which there is
            an active row in the atmSoftPVccTable having an
            atmSoftPVccOperStatus with a value other than 'connected'."
      ::= { atmSoftPvcBaseGroup 3 }


atmSoftPvcCurrentlyFailingSoftPVpcs OBJECT-TYPE
      SYNTAX      Gauge32
      MAX-ACCESS  read-only
      STATUS      current
      DESCRIPTION
            "The current number of Soft PVPCs for which there is an
            active row in the atmSoftPVpcTable having an
            atmSoftPVpcOperStatus with a value other than 'connected'."
      ::= { atmSoftPvcBaseGroup 4 }
```

```
atmSoftPvcNotificationInterval      OBJECT-TYPE
      SYNTAX      INTEGER (0..3600)
      UNITS       "seconds"
      MAX-ACCESS  read-write
      STATUS      current
      DESCRIPTION
            "The minimum interval between the sending
            of atmSoftPvcCallFailuresTrap notifications."
      DEFVAL { 30 }
      ::= { atmSoftPvcBaseGroup 5 }


--
-- Table to manage Soft PVCCs.
--

atmSoftPVccTable  OBJECT-TYPE
      SYNTAX      SEQUENCE OF AtmSoftPVccEntry
      MAX-ACCESS  not-accessible
      STATUS      current
      DESCRIPTION
            "The (conceptual) table used to manage Soft
            Permanent Virtual Channel Connections (Soft PVCCs).
            The Soft PVCC table is applicable only to switches."
      ::= { atmSoftPvcMIBObjects 2 }


atmSoftPVccEntry  OBJECT-TYPE
      SYNTAX      AtmSoftPVccEntry
      MAX-ACCESS  not-accessible
      STATUS      current
      DESCRIPTION
            "Each entry in this table represents a  Soft
            Permanent Virtual Channel Connection (Soft PVCC)
            originating at a switch interface.

            A Soft PVCC is a VCC that is:
              - provisioned at the originating (source)
                  interface of the connection
              - established by signalling procedures
                  across a network to a destination interface.

            A row in the atmVclTable must be created,
            defining a VCL on the source interface, prior to
            creating an atmSoftPVccEntry row. The row in the
            atmVclTable must be active prior to activating the
            atmSoftPVccEntry row.

            The contents of this table reflect only the
            characteristics unique to a Soft PVCC. The traffic
            parameters are defined in the VCL row for the source
            interface, as specified in the ATOMMIB (RFC1695) and
            the forthcoming addition, the Supplemental ATOMMIB.

            Note that the atmSigDescrParamTable contains some objects
            such as the AAL parameters, Broadband high layer
            information and Broadband low layer information
            elements which are used to carry end-to-end information.
            For this reason, these objects are not relevant to Soft
            PVCCs.

            When a row is made active, an attempt is made
            to set up a switched connection to an interface at
            the destination switch. No objects (other than
```

```
            atmSoftPVccRowStatus) can be set while the row is
            active.

            At the destination, the VCL may be defined (but
            not cross-connected) prior to arrival of the Setup
            request.

            The combination of ifIndex, atmVclVpi, and atmVclVci
            specified in the index clause of this entry serves to
            identify the VCL on the source interface. The
            atmSoftPVccLeafReference object aids in distinguishing
            between leaves of a point-to-multipoint Soft PVCC."
      INDEX { ifIndex,
            atmVclVpi,
            atmVclVci,
            atmSoftPVccLeafReference }
      ::= { atmSoftPVccTable 1 }


AtmSoftPVccEntry ::=
      SEQUENCE    {
                  atmSoftPVccLeafReference            INTEGER,
                  atmSoftPVccTargetAddress            AtmAddr,
                  atmSoftPVccTargetSelectType         INTEGER,
                  atmSoftPVccTargetVpi                INTEGER,
                  atmSoftPVccTargetVci                INTEGER,
                  atmSoftPVccLastReleaseCause         INTEGER,
                  atmSoftPVccLastReleaseDiagnostic    OCTET STRING,
                  atmSoftPVccOperStatus               INTEGER,
                  atmSoftPVccRestart                  INTEGER,
                  atmSoftPVccRetryInterval            INTEGER,
                  atmSoftPVccRetryTimer               INTEGER,
                  atmSoftPVccRetryThreshold           INTEGER,
                  atmSoftPVccRetryFailures            Gauge32,
                  atmSoftPVccRetryLimit               INTEGER,
                  atmSoftPVccRowStatus                RowStatus
                  }


atmSoftPVccLeafReference OBJECT-TYPE
      SYNTAX      INTEGER  (1..65535)
      MAX-ACCESS  not-accessible
      STATUS      current
      DESCRIPTION
            "An arbitrary integer which, in the case of the
            source VCL having an atmVclCastType of
            'p2mpRoot', serves to distinguish between the
            multiple leaves attached to a root of a
            point-to-multipoint Soft PVCC. If the atmVclCastType
            is not 'p2mpRoot' the value 1 shall be used."
      ::= { atmSoftPVccEntry 1 }


atmSoftPVccTargetAddress      OBJECT-TYPE
      SYNTAX      AtmAddr
      MAX-ACCESS  read-create
      STATUS      current
      DESCRIPTION
            "The target ATM Address of this Soft PVCC."
      ::= { atmSoftPVccEntry 2 }
```

```
atmSoftPVccTargetSelectType   OBJECT-TYPE
      SYNTAX      INTEGER {
                        required(1),
                        any(2)
                  }
      MAX-ACCESS  read-create
      STATUS      current
      DESCRIPTION
            "Indicates whether the target VPI/VCI values
            are to be used at the destination.

            If the value 'any' is specified, the destination
            switch will choose the VPI/VCI values. In such a
            case, once the Soft PVCC atmSoftPVccOperStatus
            value is 'connected', the value of this object
            changes to 'required', such that the same VPI/VCI
            values will continue to be used even if the connection
            is subsequently torn down and re-established. The
            VPI/VCI values chosen will be available for reading in
            atmSoftPVccTargetVpi and atmSoftPVccTargetVci.

            If the value 'required' is specified, then values
            must be supplied for objects atmSoftPVccTargetVpi
            and atmSoftPVccTargetVci prior to activation of the
            row. These values are then to be used at the destination."
      DEFVAL { required }
      ::= { atmSoftPVccEntry 3 }


atmSoftPVccTargetVpi    OBJECT-TYPE
      SYNTAX      INTEGER (0..4095)
      MAX-ACCESS  read-create
      STATUS      current
      DESCRIPTION
            "The VPI value of the VCL used at the target interface.
            This value is not relevant when the value of
            atmSoftPVccTargetSelectType is 'any'."
      DEFVAL { 0 }
      ::= { atmSoftPVccEntry 4 }


atmSoftPVccTargetVci    OBJECT-TYPE
      SYNTAX      INTEGER  (0..65535)
      MAX-ACCESS  read-create
      STATUS      current
      DESCRIPTION
            "The VCI value of the VCL used at the target interface.
            This value must be filled in when the
            atmSoftPVccTargetSelectType is set to 'required'.This
            value is not relevant when the value of
            atmSoftPVccTargetSelectType is 'any'."
      ::= { atmSoftPVccEntry 5 }


atmSoftPVccLastReleaseCause   OBJECT-TYPE
      SYNTAX      INTEGER(1..127)
      MAX-ACCESS  read-only
      STATUS      current
      DESCRIPTION
            "Value of the Cause field of the Cause
            Information Element in the last RELEASE
            signalling message received for this Soft PVCC.
            Indicates the reason for the Release."
      ::= { atmSoftPVccEntry 6 }
```

```
atmSoftPVccLastReleaseDiagnostic    OBJECT-TYPE
      SYNTAX      OCTET STRING (SIZE(0..8))
      MAX-ACCESS  read-only
      STATUS      current
      DESCRIPTION
            "Value of the first 8 bytes of diagnostic information
            from the Cause field of the Cause Information Element
            in the last RELEASE signalling message received for
            this Soft PVCC."
      ::= { atmSoftPVccEntry 7 }


atmSoftPVccOperStatus     OBJECT-TYPE
      SYNTAX      INTEGER {
                        other(1),
                        establishmentInProgress(2),
                        connected(3),
                        retriesExhausted(4)
                        }
      MAX-ACCESS  read-only
      STATUS      current
      DESCRIPTION
            "Describes the status of the Soft PVCC. When the
            row is not 'active', the value of this
            object is 'other'."
      ::= { atmSoftPVccEntry 8 }


atmSoftPVccRestart      OBJECT-TYPE
      SYNTAX      INTEGER {
                  restart(1),
                  noop(2)
                  }
      MAX-ACCESS  read-create
      STATUS      current
      DESCRIPTION
            "When the value is set to 'restart' the Soft PVCC
            is released if necessary and a new setup procedure
            is begun. As a result of this action, the
            atmSoftPVccOperStatus object transitions to
            'establishmentInProgress' (if not already in this state)
            and the atmSoftPVccRetryFailures object is cleared

            When the value is set to 'noop' no operation is
            performed. When read, the value 'noop' is returned."
      ::= { atmSoftPVccEntry 9 }


atmSoftPVccRetryInterval      OBJECT-TYPE
      SYNTAX      INTEGER (0..3600)
      UNITS       "seconds"
      MAX-ACCESS  read-create
      STATUS      current
      DESCRIPTION
            "Defines the period to wait before attempting
            to establish the Soft PVC after the first failed call
            attempt.  Zero represents an infinite interval indicating no
            retries."
      DEFVAL { 10 }
      ::= { atmSoftPVccEntry 10 }
```

```
atmSoftPVccRetryTimer   OBJECT-TYPE
      SYNTAX       INTEGER (0..86400)
      UNITS        "seconds"
      MAX-ACCESS   read-only
      STATUS       current
      DESCRIPTION
            "Indicates the current value of the retry timer for
            this connection. When the value reaches zero an attempt
            will be made to establish the Soft PVCC. When the timer
            is not running, the value zero shall be returned."
      ::= { atmSoftPVccEntry 11 }


atmSoftPVccRetryThreshold     OBJECT-TYPE
      SYNTAX       INTEGER (0..65535)
      MAX-ACCESS   read-create
      STATUS       current
      DESCRIPTION
            "Indicates the number of consecutive call setup attempts for
            the same Soft PVCC which need to fail before the
            atmSoftPvcCallFailures object is incremented. A value of
            zero indicates that an infinite number of call attempts
            are required to increment the atmSoftPvcCallFailures object
            and thus disables alarms for the Soft PVCC."
      DEFVAL { 1 }
      ::= { atmSoftPVccEntry 12 }


atmSoftPVccRetryFailures      OBJECT-TYPE
      SYNTAX       Gauge32
      MAX-ACCESS   read-only
      STATUS       current
      DESCRIPTION
            "Indicates how many attempts to establish the connection
            have failed.  This count is reset whenever a connection
            is successfully established or the Soft PVCC is restarted."
      ::= { atmSoftPVccEntry 13 }


atmSoftPVccRetryLimit   OBJECT-TYPE
      SYNTAX       INTEGER (0..65535)
      MAX-ACCESS   read-create
      STATUS       current
      DESCRIPTION
            "Sets a maximum limit on how many consecutive unsuccessful
            call setup attempts can be made before stopping the attempt
            to set up the connection. If this limit is reached then
            management action will be required (e.g. setting
            atmSoftPVccRestart to 'restart') to initiate a new attempt
            to establish the connection. A value of zero indicates
            no limit - the attempts will continue until successful."
      DEFVAL { 0 }
      ::= { atmSoftPVccEntry 14 }
```

```
atmSoftPVccRowStatus    OBJECT-TYPE
      SYNTAX      RowStatus
      MAX-ACCESS  read-create
      STATUS      current
      DESCRIPTION
            "Used to create and delete a Soft PVCC. When this
            object is set to 'active' an attempt is made to
            set up the Soft PVCC. When this object has the value
            'active' and is set to another value, any
            set-up or connection in-progress is released."
      ::= { atmSoftPVccEntry 15 }


-- Table to manage Soft PVPCs

--
-- The following MIB definition includes support for point to
-- multipoint Soft PVPCs. Version 1.0 of the PNNI specification does
-- not allow the use of point to multipoint Soft PVPCs. The value
-- of atmSoftPVpcLeafReference should always be set to 1 indicating
-- a point to point Soft PVPC.
--


atmSoftPVpcTable  OBJECT-TYPE
      SYNTAX      SEQUENCE OF AtmSoftPVpcEntry
      MAX-ACCESS  not-accessible
      STATUS      current
      DESCRIPTION
            "The (conceptual) table used to manage Soft
            Permanent Virtual Path Connections (Soft PVPCs)
            The Soft PVPC table is applicable only to switches."
      ::= { atmSoftPvcMIBObjects 3 }


atmSoftPVpcEntry  OBJECT-TYPE
      SYNTAX      AtmSoftPVpcEntry
      MAX-ACCESS  not-accessible
      STATUS      current
      DESCRIPTION
            "Each entry in this table represents a  Soft
            Permanent Virtual Path Connection (Soft PVPC)
            originating at a switch interface.

            A Soft PVPC is a VPC that is:
              - provisioned at the originating (source)
                  interface of the connection
              - established by signalling procedures
                  across a network to a destination interface.

            A row in the atmVplTable must be created,
            defining a VPL on the source interface, prior to
            creating an atmSoftPVpcEntry row. The row in the
            atmVplTable must be active prior to activating the
            atmSoftPVpcEntry row.

            The contents of this table reflect only the
            characteristics unique to a Soft PVPC. The traffic
            parameters are defined in the VPL row for the source
            interface, as specified in the ATOMMIB (RFC1695) and
            the forthcoming addition, the Supplemental ATOMMIB.

            Note that the atmSigDescrParamTable contains some
            objects such as the AAL parameters, Broadband high
```

```
            layer information, and Broadband low layer information
            elements which are used to carry end-to-end information.
            For this reason, these objects are not relevant to Soft
            PVPCs.

            When a row is made active, an attempt is made
            to set up a switched connection to an interface at
            the destination switch. No objects (other than
            atmSoftPVpcRowStatus) can be set while the row is
            active.

            At the destination, the VPL may be defined (but
            not cross-connected) prior to arrival of the Setup
            request.

            The combination of ifIndex, atmVplVpi specified
            in the index clause of this entry serves to
            identify the VPL on the source interface. The
            atmSoftPVpcLeafReference object aids in distinguishing
            between leaves of a point-to-multipoint Soft PVPC."
      INDEX { ifIndex,
            atmVplVpi,
            atmSoftPVpcLeafReference }
      ::= { atmSoftPVpcTable 1 }


AtmSoftPVpcEntry ::=
      SEQUENCE {
            atmSoftPVpcLeafReference            INTEGER,
            atmSoftPVpcTargetAddress            AtmAddr,
            atmSoftPVpcTargetSelectType         INTEGER,
            atmSoftPVpcTargetVpi                INTEGER,
            atmSoftPVpcLastReleaseCause         INTEGER,
            atmSoftPVpcLastReleaseDiagnostic    OCTET STRING,
            atmSoftPVpcOperStatus               INTEGER,
            atmSoftPVpcRestart                  INTEGER,
            atmSoftPVpcRetryInterval            INTEGER,
            atmSoftPVpcRetryTimer               INTEGER,
            atmSoftPVpcRetryThreshold           INTEGER,
            atmSoftPVpcRetryFailures            Gauge32,
            atmSoftPVpcRetryLimit               INTEGER,
            atmSoftPVpcRowStatus                RowStatus
            }


atmSoftPVpcLeafReference      OBJECT-TYPE
      SYNTAX      INTEGER  (1..63535)
      MAX-ACCESS  not-accessible
      STATUS      current
      DESCRIPTION
            "An arbitrary integer which, in the case of the
            source VPL having a atmVplCastType of
            'p2mpRoot', serves to distinguish between the
            multiple leaves attached to a root of a
            point-to-multipoint Soft PVPC.

            If the atmVplCastType is not 'p2mpRoot', the
            value 1 shall be used."
      ::= { atmSoftPVpcEntry 1 }
```

```
atmSoftPVpcTargetAddress      OBJECT-TYPE
      SYNTAX      AtmAddr
      MAX-ACCESS  read-create
      STATUS      current
      DESCRIPTION
            "The target ATM Address of this Soft PVPC."
      ::= { atmSoftPVpcEntry 2 }


atmSoftPVpcTargetSelectType   OBJECT-TYPE
      SYNTAX      INTEGER {
                  required(1),
                  any(2)
                  }
      MAX-ACCESS  read-create
      STATUS      current
      DESCRIPTION
            "Indicates whether the target VPI value
            is to be used at the destination.
            If the value 'any' is specified, the
            destination switch will choose the VPI
            value. In such a case, once the Soft PVPC
            atmSoftPVpcOperStatus value is 'connected',
            the value of this object changes to 'required',
            such that the same VPI value will continue to
            be used even if the connection is subsequently
            torn down and re-established. The VPI value
            chosen will be available for reading in
            atmSoftPVpcTargetVpi.

            If the value 'required' is specified, then
            a value must be supplied for object
            atmSoftPVpcTargetVpi prior to activation
            of the row. This value is then to be used
            at the destination."
      DEFVAL { required }
      ::= { atmSoftPVpcEntry 3 }


atmSoftPVpcTargetVpi    OBJECT-TYPE
      SYNTAX      INTEGER (0..4095)
      MAX-ACCESS  read-create
      STATUS      current
      DESCRIPTION
            "The VPI value of the VPL used at the
            target interface.

            This value must be filled in when the
            atmSoftPVpcTargetSelectType is set to 'required'.
            This value is not relevant when the value of
            atmSoftPVpcTargetSelectType is 'any'."
      ::= { atmSoftPVpcEntry 4 }


atmSoftPVpcLastReleaseCause   OBJECT-TYPE
      SYNTAX      INTEGER(1..127)
      MAX-ACCESS  read-only
      STATUS      current
      DESCRIPTION
            "Value of the Cause field of the Cause
            Information Element in the last RELEASE
            signalling message received for this Soft PVPC.
            Indicates the reason for the Release."
      ::= { atmSoftPVpcEntry 5 }
```

```
atmSoftPVpcLastReleaseDiagnostic    OBJECT-TYPE
      SYNTAX      OCTET STRING (SIZE(0..8))
      MAX-ACCESS  read-only
      STATUS      current
      DESCRIPTION
            "Value of the first 8 bytes of diagnostic information
            from the Cause field of the Cause Information Element
            in the last RELEASE signalling message received for
            this Soft PVPC."
      ::= { atmSoftPVpcEntry 6 }


atmSoftPVpcOperStatus   OBJECT-TYPE
      SYNTAX      INTEGER {
                        other(1),
                        establishmentInProgress(2),
                        connected(3),
                        retriesExhausted(4)
                        }
      MAX-ACCESS  read-only
      STATUS      current
      DESCRIPTION
            "Describes the status of the Soft PVPC. When the
            row is not 'active', the value of this
            object is 'other'."
      ::= { atmSoftPVpcEntry 7 }


atmSoftPVpcRestart      OBJECT-TYPE
      SYNTAX      INTEGER {
                        restart(1),
                        noop(2)
                        }
      MAX-ACCESS  read-create
      STATUS      current
      DESCRIPTION
            "When the value is set to 'restart', the Soft PVPC is
            released if necessary and a new setup procedure is begun.
            As a result of this action, the atmSoftPVpcOperStatus
            object transitions to 'establishmentInProgress' (if not
            already in this state) and the atmSoftPVpcRetryFailures
            object is cleared.

            When the value is set to 'noop', no operation is performed.
            When read, the value 'noop' is returned."
      ::= { atmSoftPVpcEntry 8 }


atmSoftPVpcRetryInterval      OBJECT-TYPE
      SYNTAX      INTEGER (0..3600)
      UNITS       "seconds"
      MAX-ACCESS  read-create
      STATUS      current
      DESCRIPTION
            "Defines the period to wait before attempting
            to establish the Soft PVPC connection after the first
            failed call attempt.  Zero represents an infinite
            interval indicating no retries."
      DEFVAL { 10 }
      ::= { atmSoftPVpcEntry 9 }
```

```
atmSoftPVpcRetryTimer   OBJECT-TYPE
      SYNTAX      INTEGER (0..86400)
      UNITS       "seconds"
      MAX-ACCESS  read-only
      STATUS      current
      DESCRIPTION
            "Indicates the current value of the retry timer for
            this connection. When the value reaches zero an attempt
            will be made to establish the Soft PVPC. When the
            timer is not running, the value zero shall be returned."
      ::= { atmSoftPVpcEntry 10 }


atmSoftPVpcRetryThreshold  OBJECT-TYPE
      SYNTAX      INTEGER (0..65535)
      MAX-ACCESS  read-create
      STATUS      current
      DESCRIPTION
            "Indicates the number of consecutive call setup attempts for
            the same Soft PVPC which need to fail before the
            atmSoftPvcCallFailures object is incremented. A value of
            zero indicates that an infinite number of call attempts
            are required to increment the atmSoftPvcCallFailures object
            and thus disables alarms for the Soft PVPC."
      DEFVAL { 1 }
      ::= { atmSoftPVpcEntry 11 }


atmSoftPVpcRetryFailures      OBJECT-TYPE
      SYNTAX      Gauge32
      MAX-ACCESS  read-only
      STATUS      current
      DESCRIPTION
            "Indicates how many attempts to establish the connection
            have failed.  This count is reset whenever a connection
            is successfully established or the Soft PVPC is restarted."
      ::= { atmSoftPVpcEntry 12 }


atmSoftPVpcRetryLimit   OBJECT-TYPE
      SYNTAX      INTEGER (0..65535)
      MAX-ACCESS  read-create
      STATUS      current
      DESCRIPTION
            "Sets a maximum limit on how many consecutive unsuccessful
            call setup attempts can be made before stopping the attempt
            to set up the connection. If this limit is reached then
            management action will be required (e.g. setting
            atmSoftPVpcRestart to 'restart') to initiate a new attempt
            to establish the connection. A value of zero indicates no
            limit - the attempts will continue until successful."
      DEFVAL { 0 }
      ::= { atmSoftPVpcEntry 13 }
```

```
atmSoftPVpcRowStatus    OBJECT-TYPE
      SYNTAX      RowStatus
      MAX-ACCESS  read-create
      STATUS      current
      DESCRIPTION
            "Used to create and delete a Soft PVPC. When this
            object is set to 'active' an attempt is made to
            set up the Soft PVPC. When this object has the value
            'active' and is set to another value, any
            set-up or connection in-progress is released."
      ::= { atmSoftPVpcEntry 14 }

--
-- This table is used to configure one or more ATM addresses
-- prior to setting up Soft PVCCs or Soft PVPCs at an ATM
-- interface in a node.
-- In addition, prior to setting up a Soft PVC at the source
-- interface, this table can be consulted at the destination
-- interface.
--

atmInterfaceSoftPvcAddressTable     OBJECT-TYPE
      SYNTAX      SEQUENCE OF AtmInterfaceSoftPvcAddressEntry
      MAX-ACCESS  not-accessible
      STATUS      current
      DESCRIPTION
            "This table is used to configure ATM addresses at
            an ATM interface on this node prior to setting up
            Soft PVPCs or Soft PVPCs at that interface."
      ::= { atmSoftPvcMIBObjects 4 }


atmInterfaceSoftPvcAddressEntry     OBJECT-TYPE
      SYNTAX      AtmInterfaceSoftPvcAddressEntry
      MAX-ACCESS  not-accessible
      STATUS      current
      DESCRIPTION
            "ATM address entry for configuring Soft PVCCs or
            Soft PVPCs at an ATM interface."
      INDEX { ifIndex, atmInterfaceSoftPvcAddress }
      ::= { atmInterfaceSoftPvcAddressTable 1 }


AtmInterfaceSoftPvcAddressEntry ::=
      SEQUENCE {
            atmInterfaceSoftPvcAddress          AtmAddr,
            atmInterfaceSoftPvcAddressRowStatus RowStatus
            }


atmInterfaceSoftPvcAddress    OBJECT-TYPE
      SYNTAX      AtmAddr
      MAX-ACCESS  not-accessible
      STATUS      current
      DESCRIPTION
            "Specifies the address that can be used to establish a Soft
            PVCC or Soft PVPC to this interface."
      ::= { atmInterfaceSoftPvcAddressEntry 1 }
```

```
atmInterfaceSoftPvcAddressRowStatus OBJECT-TYPE
      SYNTAX      RowStatus
      MAX-ACCESS  read-create
      STATUS      current
      DESCRIPTION
            "Used to create and delete an ATM address at this interface
            for setting up Soft PVCCs or Soft PVPCs."
      ::= { atmInterfaceSoftPvcAddressEntry 2 }


-- Currently Failing Soft PVCC table


atmCurrentlyFailingSoftPVccTable    OBJECT-TYPE
      SYNTAX      SEQUENCE OF AtmCurrentlyFailingSoftPVccEntry
      MAX-ACCESS  not-accessible
      STATUS      current
      DESCRIPTION
            "A table indicating all Soft Permanent Virtual Channel
            Connections (Soft PVCCs) for which the atmSoftPVccRowStatus
            is 'active' and the atmSoftPVccOperStatus is other than
            'connected'."
      ::= { atmSoftPvcMIBObjects 5 }


atmCurrentlyFailingSoftPVccEntry    OBJECT-TYPE
      SYNTAX      AtmCurrentlyFailingSoftPVccEntry
      MAX-ACCESS  not-accessible
      STATUS      current
      DESCRIPTION
            "Each entry in this table represents a Soft Permanent
            Virtual Channel Connection (Soft PVCC) for which the
            atmSoftPVccRowStatus is 'active' and the
            atmSoftPVccOperStatus is other than 'connected'."
      INDEX { ifIndex,
            atmVclVpi,
            atmVclVci,
            atmSoftPVccLeafReference }
      ::= { atmCurrentlyFailingSoftPVccTable 1 }


AtmCurrentlyFailingSoftPVccEntry ::=
      SEQUENCE {
            atmCurrentlyFailingSoftPVccTimeStamp      TimeStamp
            }


atmCurrentlyFailingSoftPVccTimeStamp      OBJECT-TYPE
      SYNTAX      TimeStamp
      MAX-ACCESS  read-only
      STATUS      current
      DESCRIPTION
            "The time at which this Soft PVCC began to fail."
      ::= { atmCurrentlyFailingSoftPVccEntry 1 }
```

```
-- Currently Failing Soft PVPC table

atmCurrentlyFailingSoftPVpcTable    OBJECT-TYPE
      SYNTAX      SEQUENCE OF AtmCurrentlyFailingSoftPVpcEntry
      MAX-ACCESS  not-accessible
      STATUS      current
      DESCRIPTION
            "A table indicating all Soft Permanent Virtual Path
            Connections (Soft PVPCs) for which the atmSoftPVpcRowStatus
            is 'active' and the atmSoftPVpcOperStatus is other than
            'connected'."
      ::= { atmSoftPvcMIBObjects 6 }


atmCurrentlyFailingSoftPVpcEntry    OBJECT-TYPE
      SYNTAX      AtmCurrentlyFailingSoftPVpcEntry
      MAX-ACCESS  not-accessible
      STATUS      current
      DESCRIPTION
            "Each entry in this table represents a Soft Permanent
            Virtual Path Connection (Soft PVPC) for which the
            atmSoftPVpcRowStatus is 'active' and the
            atmSoftPVpcOperStatus is other than 'connected'."
      INDEX { ifIndex,
            atmVclVpi,
            atmSoftPVpcLeafReference }
      ::= { atmCurrentlyFailingSoftPVpcTable 1 }


AtmCurrentlyFailingSoftPVpcEntry ::=
      SEQUENCE {
            atmCurrentlyFailingSoftPVpcTimeStamp      TimeStamp
            }


atmCurrentlyFailingSoftPVpcTimeStamp      OBJECT-TYPE
      SYNTAX      TimeStamp
      MAX-ACCESS  read-only
      STATUS      current
      DESCRIPTION
            "The time at which this Soft PVPC began to fail."
      ::= { atmCurrentlyFailingSoftPVpcEntry 1 }


-- Soft PVC Traps

atmSoftPvcTraps         OBJECT IDENTIFIER ::= { atmSoftPvcMIBTraps 1 }

atmSoftPvcTrapsPrefix   OBJECT IDENTIFIER ::= { atmSoftPvcTraps 0 }

atmSoftPvcCallFailuresTrap    NOTIFICATION-TYPE
      OBJECTS     { atmSoftPvcCallFailures,
                  atmSoftPvcCurrentlyFailingSoftPVccs,
                  atmSoftPvcCurrentlyFailingSoftPVpcs }
      STATUS      current
      DESCRIPTION
            "A notification indicating that one or more series of
            call attempts in trying to establish a Soft PVPC or
            Soft PVCC have failed since the last
            atmSoftPvcCallFailureTrap was sent. If this trap has
            not been sent for the last atmSoftPvcNotificationInterval,
            then it will be sent on the next increment of
            atmSoftPvcCallFailures."
::= { atmSoftPvcTrapsPrefix 1 }
```

```
-- conformance information

atmSoftPvcMIBConformance
            OBJECT IDENTIFIER ::= { atmSoftPvcMIB 3 }
atmSoftPvcMIBCompliances
            OBJECT IDENTIFIER ::= { atmSoftPvcMIBConformance 1 }
atmSoftPvcMIBGroups
            OBJECT IDENTIFIER ::= { atmSoftPvcMIBConformance 2 }


-- compliance statements

atmSoftPvcMIBCompliance MODULE-COMPLIANCE
      STATUS      current
      DESCRIPTION
            "The compliance statement for the ATM Soft PVC group."
      MODULE      -- this module
      MANDATORY-GROUPS
            { atmSoftPvcBaseMIBGroup, atmSoftPvcVccMIBGroup,
              atmSoftPvcAddressMIBGroup
            }
      OBJECT atmSoftPVccRetryLimit
      MIN-ACCESS read-only
      DESCRIPTION
            "Write access not required."

      GROUP atmSoftPvcVpcMIBGroup
      DESCRIPTION
            "Required if Soft PVPCs are supported."

      OBJECT atmSoftPVpcRetryLimit
      MIN-ACCESS read-only
      DESCRIPTION
            "Write access not required."

      ::= { atmSoftPvcMIBCompliances 1 }


-- units of conformance

atmSoftPvcBaseMIBGroup  OBJECT-GROUP
      OBJECTS {
            atmSoftPvcCallFailuresTrapEnable,
            atmSoftPvcCallFailures,
            atmSoftPvcCurrentlyFailingSoftPVccs,
            atmSoftPvcCurrentlyFailingSoftPVpcs,
            atmSoftPvcNotificationInterval
            }
      STATUS      current
      DESCRIPTION
            "A collection of objects to related to failing
            Soft PVCCs and Soft PVPCs."
      ::= { atmSoftPvcMIBGroups 1 }
```

```
atmSoftPvcVccMIBGroup   OBJECT-GROUP
      OBJECTS {
            atmSoftPVccTargetAddress,
            atmSoftPVccTargetSelectType, atmSoftPVccTargetVpi,
            atmSoftPVccTargetVci, atmSoftPVccLastReleaseCause,
            atmSoftPVccLastReleaseDiagnostic,
            atmSoftPVccOperStatus, atmSoftPVccRestart,
            atmSoftPVccRetryInterval,
            atmSoftPVccRetryTimer, atmSoftPVccRetryThreshold,
            atmSoftPVccRetryFailures, atmSoftPVccRetryLimit,
            atmSoftPVccRowStatus
            }
      STATUS      current
      DESCRIPTION
            "A collection of objects managing Soft PVCCs."
      ::= { atmSoftPvcMIBGroups 2 }


atmSoftPvcVpcMIBGroup   OBJECT-GROUP
      OBJECTS     {
            atmSoftPVpcTargetAddress,
            atmSoftPVpcTargetSelectType, atmSoftPVpcTargetVpi,
            atmSoftPVpcLastReleaseCause,
            atmSoftPVpcLastReleaseDiagnostic,
            atmSoftPVpcOperStatus, atmSoftPVpcRestart,
            atmSoftPVpcRetryInterval,
            atmSoftPVpcRetryTimer, atmSoftPVpcRetryThreshold,
            atmSoftPVpcRetryFailures,
            atmSoftPVpcRetryLimit,atmSoftPVpcRowStatus
            }
      STATUS      current
      DESCRIPTION
            "A collection of objects managing Soft PVPCs."
      ::= { atmSoftPvcMIBGroups 3 }


atmSoftPvcAddressMIBGroup     OBJECT-GROUP
      OBJECTS     {
            atmInterfaceSoftPvcAddressRowStatus
            }
      STATUS      current
      DESCRIPTION
            "A collection of objects managing interfaces addresses for
            Soft PVCCs and Soft PVPCs."
      ::= { atmSoftPvcMIBGroups 4 }


atmCurrentlyFailingSoftPVccMIBGroup OBJECT-GROUP
      OBJECTS     {
            atmCurrentlyFailingSoftPVccTimeStamp
            }
      STATUS      current
      DESCRIPTION
            "A collection of objects for management of currently
            failing Soft PVCCs."
      ::= { atmSoftPvcMIBGroups 5 }
```

```
atmCurrentlyFailingSoftPVpcMIBGroup OBJECT-GROUP
      OBJECTS     {
            atmCurrentlyFailingSoftPVpcTimeStamp
            }
      STATUS      current
      DESCRIPTION
            "A collection of objects for management of currently
            failing Soft PVPCs."
      ::= { atmSoftPvcMIBGroups 6 }

END
```

References

[1] IETF RFC 1573 "Evolution of the Interface Group of MIB-II", K. McCloghrie and F. Kastenholz, January 1994.

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[3] IETF RFC 1902 "Structure of Management Information for Version 2 of the Simple Network Management Protocol (SNMPv2)", SNMPv2 Working Group, January 1996.

[4] IETF RFC 1903 "Textual Conventions for Version 2 of the Simple Network Management Protocol (SNMPv2)", SNMPv2 Working Group, January 1996.

[5] IETF RFC 1904 "Conformance Statements for Version 2 of the Simple Network Management Protocol (SNMPv2)", SNMPv2 Working Group, January 1996.

[6] IETF RFC (TBD) "Definitions of Supplemental Managed Objects for ATM Management", Ly/Noto/Smith/Tesink.

[7] ATM Forum "Private Network-Network Interface Specification V1.0 (PNNI 1.0)", af-pnni-0055.000, 1996.