Network Working Group Request for Comments: 2514 Category: Standards Track M. Noto 3Com E. Spiegel Cisco Systems K. Tesink Bellcore Editors February 1999

Definitions of Textual Conventions and OBJECT-IDENTITIES for ATM Management

Status of this Memo

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Abstract

This memo describes Textual Conventions and OBJECT-IDENTITIES used for managing ATM-based interfaces, devices, networks and services.

1. Introduction

This memo describes Textual Conventions and OBJECT-IDENTITIES used for managing ATM-based interfaces, devices, networks and services.

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When designing a MIB module, it is often useful to define new types similar to those defined in the SMI. In comparison to a type defined in the SMI, each of these new types has a different name, a similar syntax, but a more precise semantics. These newly defined types are termed textual conventions, and are used for the convenience of humans reading the MIB module. This is done through Textual Conventions as defined in RFC1903 [1]. It is the purpose of this document to define the set of textual conventions available to ATM MIB modules.

When designing MIB modules, it is also often useful to register further properties with object identifier assignments so that they can be further used by other MIB modules. This is done through the OBJECT-IDENTITY macro defined in RFC1902 [2]. This document defines OBJECT-IDENTITIES available to ATM MIB modules.

Note that for organizational purposes OBJECT IDENTITIES previously defined in RFC1695 have been moved to this specification and no longer appear in the revision of RFC1695 [3]. However, the original OBJECT IDENTIFIERs have been preserved.

For an introduction to the concepts of ATM connections, see [3].

2. Definitions

ATM-TC-MIB DEFINITIONS ::= BEGIN

IMPORTS MODULE-IDENTITY, OBJECT-IDENTITY, TimeTicks, mib-2 FROM SNMPv2-SMI TEXTUAL-CONVENTION FROM SNMPv2-TC;

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atmTCMIB MODULE-IDENTITY

LAST-UPDATED "9810190200Z"

ORGANIZATION "IETF ATOMMIB Working Group"

CONTACT-INFO

"Michael Noto

Postal: 3Com Corporation

5400 Bayfront Plaza, M/S 3109

Santa Clara, CA 95052

USA

Tel: +1 408 326 2218

E-mail: mike_noto@3com.com
```

Ethan Mickey Spiegel

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Postal: Cisco Systems 170 W. Tasman Dr. San Jose, CA 95134 USA +1 408 526 6408 Tel: E-mail: mspiegel@cisco.com Kaj Tesink Postal: Bellcore 331 Newman Springs Road Red Bank, NJ 07701 USA Tel: +1 732 758 5254 Fax: +1 732 758 4177 E-mail: kaj@bellcore.com" DESCRIPTION "This MIB Module provides Textual Conventions and OBJECT-IDENTITY Objects to be used by ATM systems." ::= { mib-2 37 3 } -- atmMIB 3 (see [3]) -- The Textual Conventions defined below are organized -- alphabetically AtmAddr ::= TEXTUAL-CONVENTION DISPLAY-HINT "1x" STATUS current DESCRIPTION "An ATM address. The semantics are implied by the length. The address types are: - no address (0 octets) - E.164 (8 octets) - NSAP (20 octets) In addition, when subaddresses are used the AtmAddr may represent the concatenation of address and subaddress. The associated address types are: - E.164, E.164 (16 octets) - E.164, NSAP (28 octets) - NSAP, NSAP (40 octets) Address lengths other than defined in this definition imply address types defined elsewhere. Note: The E.164 address is encoded in BCD format." SYNTAX OCTET STRING (SIZE(0..40)) AtmConnCastType ::= TEXTUAL-CONVENTION STATUS current DESCRIPTION "The type of topology of a connection (point-

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to-point, point-to-multipoint). In the case
          of point-to-multipoint, the orientation of
          this VPL or VCL in the connection.
          On a host:
          - p2mpRoot indicates that the host
            is the root of the p2mp connection.
          - p2mpLeaf indicates that the host
           is a leaf of the p2mp connection.
          On a switch interface:
          - p2mpRoot indicates that cells received
            by the switching fabric from the interface
            are from the root of the p2mp connection.
          - p2mpLeaf indicates that cells transmitted
            to the interface from the switching fabric
            are to the leaf of the p2mp connection."
        SYNTAX INTEGER {
          p2p(1),
           p2mpRoot(2),
           p2mpLeaf(3)
           }
AtmConnKind ::= TEXTUAL-CONVENTION
        STATUS current
        DESCRIPTION
            "The type of call control used for an ATM
            connection at a particular interface. The use
            is as follows:
               pvc(1)
                  Virtual link of a PVC. Should not be
                  used for an PVC/SVC (i.e., Soft PVC)
                  crossconnect.
               svcIncoming(2)
                  Virtual link established after a
                  received signaling request to setup
                  an SVC.
               svcOutgoing(3)
                  Virtual link established after a
                  transmitted or forwarded signaling
                  request to setup an SVC.
               spvcInitiator(4)
                  Virtual link at the PVC side of an
                  SVC/PVC crossconnect, where the
                  switch is the initiator of the Soft PVC
                  setup.
               spvcTarget(5)
                  Virtual link at the PVC side of an
                  SVC/PVC crossconnect, where the
                  switch is the target of the Soft PVC
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setup. For PVCs, a pvc virtual link is always crossconnected to a pvc virtual link. For SVCs, an svcIncoming virtual link is always crossconnected to an svcOutgoing virtual link. For Soft PVCs, an spvcInitiator is either cross-connected to an svcOutgoing or an spvcTarget, and an spvcTarget is either cross-connected to an svcIncoming or an spvcInitiator." SYNTAX INTEGER { pvc(1), svcIncoming(2), svcOutgoing(3), spvcInitiator(4), spvcTarget(5) } AtmIlmiNetworkPrefix ::= TEXTUAL-CONVENTION STATUS current DESCRIPTION "A network prefix used for ILMI address registration. In the case of ATM endsystem addresses (AESAs), the network prefix is the first 13 octets of the address which includes the AFI, IDI, and HO-DSP fields. In the case of native E.164 addresses, the network prefix is the entire E.164 address encoded in 8 octets, as if it were an E.164 IDP in an ATM endsystem address structure." REFERENCE "ATM Forum, Integrated Local Management Interface (ILMI) Specification, Version 4.0, af-ilmi-0065.000, September 1996, Section 9 ATM Forum, ATM User-Network Interface Signalling Specification, Version 4.0 (UNI 4.0), af-sig-0061.000, June 1996, Section 3" SYNTAX OCTET STRING (SIZE(8|13)) AtmInterfaceType ::= TEXTUAL-CONVENTION STATUS current DESCRIPTION "The connection setup procedures used for the identified interface. Other: Connection setup procedures other than those listed below.

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Auto-configuration: Indicates that the connection setup procedures are to be determined dynamically, or that determination has not yet been completed. One such mechanism is via ATM Forum ILMI auto-configuration procedures. ITU-T DSS2: ITU-T Recommendation Q.2931, Broadband Integrated Service Digital Network (B-ISDN) Digital Subscriber Signalling System No.2 (DSS2) User-Network Interface (UNI) Layer 3 Specification for Basic Call/Connection Control (September 1994) - ITU-T Draft Recommendation Q.2961, B-ISDN DSS 2 Support of Additional Traffic Parameters (May 1995) - ITU-T Draft Recommendation Q.2971, B-ISDN DSS 2 User Network Interface Layer 3 Specification for Point-to-multipoint Call/connection Control (May 1995) ATM Forum UNI 3.0: ATM Forum, ATM User-Network Interface, Version 3.0 (UNI 3.0) Specification, (1994).ATM Forum UNI 3.1: ATM Forum, ATM User-Network Interface, Version 3.1 (UNI 3.1) Specification, (November 1994). ATM Forum UNI Signalling 4.0: ATM Forum, ATM User-Network Interface (UNI) Signalling Specification Version 4.0, af-sig-0061.000 (June 1996). ATM Forum IISP (based on UNI 3.0 or UNI 3.1) : Interim Inter-switch Signaling Protocol (IISP) Specification, Version 1.0, af-pnni-0026.000, (December 1994). ATM Forum PNNI 1.0 : ATM Forum, Private Network-Network Interface Specification, Version 1.0, af-pnni-0055.000, (March 1996).

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ATM Forum B-ICI:
               ATM Forum, B-ICI Specification, Version 2.0,
               af-bici-0013.002, (November 1995).
            ATM Forum UNI PVC Only:
               An ATM Forum compliant UNI with the
               signalling disabled.
            ATM Forum NNI PVC Only:
               An ATM Forum compliant NNI with the
               signalling disabled."
        SYNTAX INTEGER {
                  other(1),
                  autoConfig(2),
                  ituDss2(3),
                  atmfUni3Dot0(4),
                  atmfUni3Dot1(5),
                  atmfUni4Dot0(6),
                  atmfIispUni3Dot0(7),
                  atmfIispUni3Dot1(8),
                  atmfIispUni4Dot0(9),
        atmfPnnilDot0(10),
        atmfBici2Dot0(11),
        atmfUniPvcOnly(12),
        atmfNniPvcOnly(13) }
AtmServiceCategory ::= TEXTUAL-CONVENTION
        STATUS current
        DESCRIPTION
            "The service category for a connection."
        REFERENCE
            "ATM Forum Traffic Management Specification,
            Version 4.0, af-tm-0056.000, June 1996."
        SYNTAX INTEGER {
           other(1), -- none of the following
           cbr(2), -- constant bit rate
rtVbr(3), -- real-time variable bit rate
           nrtVbr(4), -- non real-time variable bit rate
           abr(5), -- available bit rate
ubr(6) -- unspecified bit rate
           }
AtmSigDescrParamIndex ::= TEXTUAL-CONVENTION
        STATUS current
        DESCRIPTION
            "The value of this object identifies a row in the
            atmSigDescrParamTable. The value 0 signifies that
            none of the signalling parameters defined in the
            atmSigDescrParamTable are applicable."
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SYNTAX INTEGER (0..2147483647) AtmTrafficDescrParamIndex ::= TEXTUAL-CONVENTION STATUS current DESCRIPTION "The value of this object identifies a row in the atmTrafficDescrParamTable. The value 0 signifies that no row has been identified." SYNTAX INTEGER (0..2147483647) AtmVcIdentifier ::= TEXTUAL-CONVENTION STATUS current DESCRIPTION "The VCI value for a VCL. The maximum VCI value cannot exceed the value allowable by atmInterfaceMaxVciBits defined in ATM-MIB." SYNTAX INTEGER (0..65535) AtmVpIdentifier ::= TEXTUAL-CONVENTION STATUS current DESCRIPTION "The VPI value for a VPL or VCL. The value VPI=0 is only allowed for a VCL. For ATM UNIS supporting VPCs the VPI value ranges from 0 to 255. The VPI value 0 is supported for ATM UNIs conforming to the ATM Forum UNI 4.0 Annex 8 (Virtual UNIs) specification. For ATM UNIs supporting VCCs the VPI value ranges from 0 to 255. For ATM NNIs the VPI value ranges from 0 to 4095. The maximum VPI value cannot exceed the value allowable by atmInterfaceMaxVpiBits defined in ATM-MIB." SYNTAX INTEGER (0..4095) AtmVorXAdminStatus ::= TEXTUAL-CONVENTION STATUS current DESCRIPTION "The value determines the desired administrative status of a virtual link or cross-connect. The up and down states indicate that the traffic flow is enabled or disabled respectively on the virtual link or cross-connect." SYNTAX INTEGER { up(1), down(2) } AtmVorXLastChange ::= TEXTUAL-CONVENTION STATUS current

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DESCRIPTION "The value of MIB II's sysUpTime at the time a virtual link or cross-connect entered its current operational state. If the current state was entered prior to the last re-initialization of the agent then this object contains a zero value." SYNTAX TimeTicks AtmVorXOperStatus ::= TEXTUAL-CONVENTION STATUS current DESCRIPTION "The value determines the operational status of a virtual link or cross-connect. The up and down states indicate that the traffic flow is enabled or disabled respectively on the virtual link or cross-connect. The unknown state indicates that the state of it cannot be determined. The state will be down or unknown if the supporting ATM interface(s) is down or unknown respectively." SYNTAX INTEGER { up(1), down(2), unknown(3) } -- OBJECT-IDENTITIES: -- The following atmTrafficDescriptorTypes has been moved -- from RFC1695 and no longer appear in the revision of -- RFC1695[3]. atmTrafficDescriptorTypes OBJECT IDENTIFIER ::= {mib-2 37 1 1} -- atmMIBObjects -- See [3]. -- All other and new OBJECT IDENTITIES -- are defined under the following subtree: atmObjectIdentities OBJECT IDENTIFIER ::= {atmTCMIB 1} -- The following values are defined for use as -- possible values of the ATM traffic descriptor type. atmNoTrafficDescriptor OBJECT-IDENTITY STATUS deprecated

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DESCRIPTION
        "This identifies the no ATM traffic
        descriptor type. Parameters 1, 2, 3, 4,
       and 5 are not used. This traffic descriptor
        type can be used for best effort traffic."
    ::= {atmTrafficDescriptorTypes 1}
atmNoClpNoScr OBJECT-IDENTITY
   STATUS current
   DESCRIPTION
        "This traffic descriptor type is for no CLP
        and no Sustained Cell Rate. The use of the
       parameter vector for this type:
       Parameter 1: peak cell rate in cells/second
                    for CLP=0+1 traffic
       Parameter 2: not used
       Parameter 3: not used
       Parameter 4: not used
       Parameter 5: not used."
   REFERENCE
        "ATM Forum, ATM User-Network Interface,
          Version 3.0 (UNI 3.0) Specification, 1994.
        ATM Forum, ATM User-Network Interface,
          Version 3.1 (UNI 3.1) Specification,
          November 1994."
    ::= {atmTrafficDescriptorTypes 2}
atmClpNoTaggingNoScr OBJECT-IDENTITY
   STATUS deprecated
   DESCRIPTION
        "This traffic descriptor is for CLP without
        tagging and no Sustained Cell Rate. The use
       of the parameter vector for this type:
       Parameter 1: peak cell rate in cells/second
                    for CLP=0+1 traffic
       Parameter 2: peak cell rate in cells/second
                    for CLP=0 traffic
       Parameter 3: not used
       Parameter 4: not used
       Parameter 5: not used."
    ::= {atmTrafficDescriptorTypes 3}
atmClpTaggingNoScr OBJECT-IDENTITY
    STATUS deprecated
   DESCRIPTION
        "This traffic descriptor is for CLP with
        tagging and no Sustained Cell Rate. The use
       of the parameter vector for this type:
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Parameter 1: peak cell rate in cells/second
                     for CLP=0+1 traffic
        Parameter 2: peak cell rate in cells/second
                     for CLP=0 traffic, excess
                     tagged as CLP=1
        Parameter 3: not used
       Parameter 4: not used
       Parameter 5: not used."
    ::= {atmTrafficDescriptorTypes 4}
atmNoClpScr OBJECT-IDENTITY
    STATUS current
   DESCRIPTION
        "This traffic descriptor type is for no CLP
       with Sustained Cell Rate. The use of the
       parameter vector for this type:
       Parameter 1: peak cell rate in cells/second
                    for CLP=0+1 traffic
       Parameter 2: sustainable cell rate in cells/second
                    for CLP=0+1 traffic
       Parameter 3: maximum burst size in cells
       Parameter 4: not used
        Parameter 5: not used."
   REFERENCE
        "ATM Forum, ATM User-Network Interface,
          Version 3.0 (UNI 3.0) Specification, 1994.
        ATM Forum, ATM User-Network Interface,
          Version 3.1 (UNI 3.1) Specification,
          November 1994."
    ::= {atmTrafficDescriptorTypes 5}
atmClpNoTaggingScr OBJECT-IDENTITY
   STATUS current
   DESCRIPTION
        "This traffic descriptor type is for CLP with
        Sustained Cell Rate and no tagging. The use
        of the parameter vector for this type:
       Parameter 1: peak cell rate in cells/second
                    for CLP=0+1 traffic
       Parameter 2: sustainable cell rate in cells/second
                    for CLP=0 traffic
       Parameter 3: maximum burst size in cells
       Parameter 4: not used
       Parameter 5: not used."
   REFERENCE
        "ATM Forum, ATM User-Network Interface,
          Version 3.0 (UNI 3.0) Specification, 1994.
        ATM Forum, ATM User-Network Interface,
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Version 3.1 (UNI 3.1) Specification, November 1994." ::= {atmTrafficDescriptorTypes 6} atmClpTaggingScr OBJECT-IDENTITY STATUS current DESCRIPTION "This traffic descriptor type is for CLP with tagging and Sustained Cell Rate. The use of the parameter vector for this type: Parameter 1: peak cell rate in cells/second for CLP=0+1 traffic Parameter 2: sustainable cell rate in cells/second for CLP=0 traffic, excess tagged as CLP=1 Parameter 3: maximum burst size in cells Parameter 4: not used Parameter 5: not used." REFERENCE "ATM Forum, ATM User-Network Interface, Version 3.0 (UNI 3.0) Specification, 1994. ATM Forum, ATM User-Network Interface, Version 3.1 (UNI 3.1) Specification, November 1994." ::= {atmTrafficDescriptorTypes 7} atmClpNoTaggingMcr OBJECT-IDENTITY STATUS current DESCRIPTION "This traffic descriptor type is for CLP with Minimum Cell Rate and no tagging. The use of the parameter vector for this type: Parameter 1: peak cell rate in cells/second for CLP=0+1 traffic Parameter 2: CDVT in tenths of microseconds Parameter 3: minimum cell rate in cells/second Parameter 4: unused Parameter 5: unused." REFERENCE "ATM Forum, ATM User-Network Interface, Version 3.0 (UNI 3.0) Specification, 1994. ATM Forum, ATM User-Network Interface, Version 3.1 (UNI 3.1) Specification, November 1994." ::= {atmTrafficDescriptorTypes 8} atmClpTransparentNoScr OBJECT-IDENTITY STATUS current

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DESCRIPTION "This traffic descriptor type is for the CLPtransparent model and no Sustained Cell Rate. The use of the parameter vector for this type: Parameter 1: peak cell rate in cells/second for CLP=0+1 traffic Parameter 2: CDVT in tenths of microseconds Parameter 3: not used Parameter 4: not used Parameter 5: not used. This traffic descriptor type is applicable to connections following the CBR.1 conformance definition. Connections specifying this traffic descriptor type will be rejected at UNI 3.0 or UNI 3.1 interfaces. For a similar traffic descriptor type that can be accepted at UNI 3.0 and UNI 3.1 interfaces, see atmNoClpNoScr." REFERENCE "ATM Forum, ATM User-Network Interface, Version 3.0 (UNI 3.0) Specification, 1994. ATM Forum, ATM User-Network Interface, Version 3.1 (UNI 3.1) Specification, November 1994. ATM Forum, Traffic Management Specification, Version 4.0, af-tm-0056.000, June 1996." ::= {atmTrafficDescriptorTypes 9} atmClpTransparentScr OBJECT-IDENTITY STATUS current DESCRIPTION "This traffic descriptor type is for the CLPtransparent model with Sustained Cell Rate. The use of the parameter vector for this type: Parameter 1: peak cell rate in cells/second for CLP=0+1 traffic Parameter 2: sustainable cell rate in cells/second for CLP=0+1 traffic Parameter 3: maximum burst size in cells Parameter 4: CDVT in tenths of microseconds Parameter 5: not used. This traffic descriptor type is applicable to connections following the VBR.1 conformance definition.

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Connections specifying this traffic descriptor type will be rejected at UNI 3.0 or UNI 3.1 interfaces. For a similar traffic descriptor type that can be accepted at UNI 3.0 and UNI 3.1 interfaces, see atmNoClpScr." REFERENCE "ATM Forum, ATM User-Network Interface, Version 3.0 (UNI 3.0) Specification, 1994. ATM Forum, ATM User-Network Interface, Version 3.1 (UNI 3.1) Specification, November 1994. ATM Forum, Traffic Management Specification, Version 4.0, af-tm-0056.000, June 1996." ::= {atmTrafficDescriptorTypes 10} atmNoClpTaggingNoScr OBJECT-IDENTITY STATUS current DESCRIPTION "This traffic descriptor type is for no CLP with tagging and no Sustained Cell Rate. The use of the parameter vector for this type: Parameter 1: peak cell rate in cells/second for CLP=0+1 traffic Parameter 2: CDVT in tenths of microseconds Parameter 3: not used Parameter 4: not used Parameter 5: not used. This traffic descriptor type is applicable to connections following the UBR.2 conformance definition ." REFERENCE "ATM Forum, ATM User-Network Interface, Version 3.0 (UNI 3.0) Specification, 1994. ATM Forum, ATM User-Network Interface, Version 3.1 (UNI 3.1) Specification, November 1994. ATM Forum, Traffic Management Specification, Version 4.0, af-tm-0056.000, June 1996." ::= {atmTrafficDescriptorTypes 11} atmNoClpNoScrCdvt OBJECT-IDENTITY STATUS current DESCRIPTION "This traffic descriptor type is for no CLP and no Sustained Cell Rate. The use of the parameter vector for this type: Parameter 1: peak cell rate in cells/second

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for CLP=0+1 traffic Parameter 2: CDVT in tenths of microseconds Parameter 3: not used Parameter 4: not used Parameter 5: not used. This traffic descriptor type is applicable to CBR connections following the UNI 3.0/3.1 conformance definition for PCR CLP=0+1. These CBR connections differ from CBR.1 connections in that the CLR objective applies only to the CLP=0 cell flow. This traffic descriptor type is also applicable to connections following the UBR.1 conformance definition." REFERENCE "ATM Forum, ATM User-Network Interface, Version 3.0 (UNI 3.0) Specification, 1994. ATM Forum, ATM User-Network Interface, Version 3.1 (UNI 3.1) Specification, November 1994. ATM Forum, Traffic Management Specification, Version 4.0, af-tm-0056.000, June 1996." ::= {atmTrafficDescriptorTypes 12} atmNoClpScrCdvt OBJECT-IDENTITY STATUS current DESCRIPTION "This traffic descriptor type is for no CLP with Sustained Cell Rate. The use of the parameter vector for this type: Parameter 1: peak cell rate in cells/second for CLP=0+1 traffic Parameter 2: sustainable cell rate in cells/second for CLP=0+1 traffic Parameter 3: maximum burst size in cells Parameter 4: CDVT in tenths of microseconds Parameter 5: not used. This traffic descriptor type is applicable to VBR connections following the UNI 3.0/3.1 conformance definition for PCR CLP=0+1 and SCR CLP=0+1. These VBR connections differ from VBR.1 connections in that the CLR objective applies only to the CLP=0 cell flow." REFERENCE

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"ATM Forum, ATM User-Network Interface, Version 3.0 (UNI 3.0) Specification, 1994. ATM Forum, ATM User-Network Interface, Version 3.1 (UNI 3.1) Specification, November 1994. ATM Forum, Traffic Management Specification, Version 4.0, af-tm-0056.000, June 1996." ::= {atmTrafficDescriptorTypes 13} atmClpNoTaggingScrCdvt OBJECT-IDENTITY STATUS current DESCRIPTION "This traffic descriptor type is for CLP with Sustained Cell Rate and no tagging. The use of the parameter vector for this type: Parameter 1: peak cell rate in cells/second for CLP=0+1 traffic Parameter 2: sustainable cell rate in cells/second for CLP=0 traffic Parameter 3: maximum burst size in cells Parameter 4: CDVT in tenths of microseconds Parameter 5: not used. This traffic descriptor type is applicable to connections following the VBR.2 conformance definition." REFERENCE "ATM Forum, ATM User-Network Interface, Version 3.0 (UNI 3.0) Specification, 1994. ATM Forum, ATM User-Network Interface, Version 3.1 (UNI 3.1) Specification, November 1994. ATM Forum, Traffic Management Specification, Version 4.0, af-tm-0056.000, June 1996." ::= {atmTrafficDescriptorTypes 14} atmClpTaggingScrCdvt OBJECT-IDENTITY STATUS current DESCRIPTION "This traffic descriptor type is for CLP with tagging and Sustained Cell Rate. The use of the parameter vector for this type: Parameter 1: peak cell rate in cells/second for CLP=0+1 traffic Parameter 2: sustainable cell rate in cells/second for CLP=0 traffic, excess tagged as CLP=1 Parameter 3: maximum burst size in cells

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Parameter 4: CDVT in tenths of microseconds Parameter 5: not used.

This traffic descriptor type is applicable to connections following the VBR.3 conformance definition." REFERENCE "ATM Forum, ATM User-Network Interface, Version 3.0 (UNI 3.0) Specification, 1994. ATM Forum, ATM User-Network Interface, Version 3.1 (UNI 3.1) Specification, November 1994. ATM Forum, Traffic Management Specification, Version 4.0, af-tm-0056.000, June 1996." ::= {atmTrafficDescriptorTypes 15}

END

3. Acknowledgments

This document is a product of the ATOMMIB Working Group.

- 4. References
 - [1] Case, J., McCloghrie, K., Rose, M. and S. Waldbusser, "Textual Conventions for Version 2 of the Simple Network Management Protocol (SNMPv2)", RFC 1903, January 1996.
 - [2] Case, J., McCloghrie, K., Rose, M. and S. Waldbusser, "Structure of Management Information for Version 2 of the Simple Network Management Protocol (SNMPv2)", RFC 1902, January 1996.
 - [3] Tesink, K., Editor, "Definitions of Managed Objects for ATM Management", RFC 2515, February 1999.
- 5. Security Considerations

This memo defines textual conventions and object identities for use in ATM MIB modules. Security issues for these MIB modules are addressed in the memos defining those modules.

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6. Authors' Addresses

Michael Noto 3Com Corporation 5400 Bayfront Plaza, M/S 3109 Santa Clara, CA 95052

Phone +1 408 326 2218 Email: mike_noto@3com.com

Ethan Mickey Spiegel Cisco Systems 170 W. Tasman Dr. San Jose, CA 95134 USA

Phone +1 408 526 6408 EMail: mspiegel@cisco.com

Kaj Tesink Bellcore 331 Newman Springs Road P.O. Box 7020 Red Bank, NJ 07701-7020

Phone: (732) 758-5254 EMail: kaj@bellcore.com

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