Definitions of Textual Conventions and OBJECT-IDENTITIES for ATM Management

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Table of Contents

1 Introduction ........................................ 2
2 Definitions ........................................ 3
3 Acknowledgments .................................... 17
4 References ........................................ 17
5 Security Considerations ............................ 17
6 Authors’ Addresses ................................. 18
7 Intellectual Property ............................... 19
8 Full Copyright Statement .......................... 20

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.
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;

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

Noto, et. al. Standards Track [Page 2]
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-
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 setup."
setup.

For PVCs, a pvc virtual link is always cross-connected to a pvc virtual link.

For SVCs, an svcIncoming virtual link is always cross-connected 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."
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).
ATM Forum B-ICI:
ATM Forum, B-ICI Specification, Version 2.0,

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),
    atmfPnni1Dot0(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."
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
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
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,
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:
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

::= {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,
::= {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

::= {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

::= {atmTrafficDescriptorTypes 8}

atmClpTransparentNoScr  OBJECT-IDENTITY 

STATUS  current
DESCRIPTION

"This traffic descriptor type is for the CLP-transparent 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: 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 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

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


::= {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


::= {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
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
::= {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,
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
    
    This traffic descriptor type is applicable to connections following the VBR.2 conformance definition."

REFERENCE
  "ATM Forum, ATM User-Network Interface,
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."
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

::= {atmTrafficDescriptorTypes 15}

END

3. Acknowledgments

This document is a product of the AToMMIB Working Group.

4. References


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.
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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