



The ATM Forum
Technical Committee

Multiprotocol Over ATM
Version 1.0 MIB

AF-MPOA-0092.000

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Joan Cucchiara, Editor

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Table of Contents

1. INTRODUCTION.....	1
1.1. OBJECTIVES	1
1.2. SNMP NETWORK MANAGEMENT FRAMEWORK	1
1.3. RELATED NHRP SPECIFICATIONS AND MODULES	1
2. OVERVIEW	2
2.1. INTERFACES	2
2.2. VIRTUAL CONNECTION MANAGEMENT	2
2.3. CONNECTION MANAGEMENT.....	2
2.4. RE-INITIALIZATION OF AN MPC OR AN MPS.....	2
2.5. COUNTER64	3
2.6. TRAPS	3
2.7. CONFORMANCE STATEMENTS	3
2.7.1. <i>MPC Basic Compliance</i>	4
2.7.2. <i>MPC Advanced Compliance</i>	4
2.7.3. <i>MPC Advanced Plus Octet Compliance</i>	4
2.7.4. <i>MPS Basic Compliance</i>	4
2.7.5. <i>MPS Advanced Compliance</i>	4
3. REFERENCES.....	5
4. MANAGEMENT INFORMATION BASE (MIB).....	6

1. Introduction

This document defines an experimental portion of the Management Information Base (MIB) for use with network management protocols in the Internet community. In particular, it describes managed objects for the ATM Forum's Multiprotocol Over ATM Version 1.0 as defined in [1].

This document specifies a MIB module in a manner that is both compliant to the SNMPv2 SMI, and semantically identical to the peer SNMPv1 definitions with the exception of the two Counter64 objects which are optional (mpcIngressCacheTxTotalOctets and mpcEgressCacheRxTotalOctets).

1.1. Objectives

- This MIB is intended to meet the functional requirements of ATM Forum's Multiprotocol Over ATM Version 1.0 as defined in [1].
- It must, wherever possible, refer to existing standard MIBs (e.g., draft-ietf-ion-nhrp-mib-04 [3]), rather than containing objects that are similar or identical to those defined elsewhere.
- To the extent that SNMP does not have the required facilities to support a particular requirement or function with regard to [1] that lack will be explicitly noted.

1.2. SNMP Network Management Framework

The SNMP Network Management Framework presently consists of three major components. They are:

- the SMI, described in RFC 1902 [4] - the mechanisms used for describing and naming objects for the purpose of management.
- the MIB-II, STD 17, RFC 1213 [5] - the core set of managed objects for the Internet suite of protocols.
- the protocol, RFC 1157 [6] and/or RFC 1905 [7] - the protocol for accessing managed objects.

The Framework permits new objects to be defined for the purpose of experimentation and evaluation.

This document also makes use of the following additional components of the SNMPv2 Network Management Framework:

- RFC 1903 [12] which defines textual conventions for the specification of managed objects,
- RFC 1904 [9] which defines conformance statements for the specification of managed objects,

Managed objects are accessed via a virtual information store, termed the Management Information Base or MIB. Objects in the MIB are defined using the subset of Abstract Syntax Notation One (ASN.1) defined in the SMI. In particular, each object type is named by an OBJECT IDENTIFIER, an administratively assigned name. The object type together with an object instance serves to uniquely identify a specific instantiation of the object. For human convenience, we often use a textual string, termed the descriptor, to also refer to the object type.

1.3. Related NHRP Specifications and Modules

This document also makes use of the NHRP Specification and NHRP MIB modules from the following documents:

- RFC2332 NBMA Next Hop Resolution Protocol (NHRP), [2], the NHRP Specification
- draft-ietf-ion-nhrp-mib-04.txt, [3], the NHRP MIB

2. Overview

The focus of this section is to provide some background information of why decisions were made by the working group with regard to the MIB. The intention of the working group was to define a minimum set of objects which allows management of MPOA and MPOA entities as specified by [1].

2.1. Interfaces

MPOA does not introduce any new interfaces and the use of ifIndex was seen as unnecessary for the purposes of this MIB. However, this MIB contains sufficient addressing information which allows cross-referencing with the IFMIB, RFC 2233, [8], should this be warranted by an enterprise MIB.

The discontinuity time object semantics was borrowed from RFC 2233, [8], and applied to the statistics tables of the MPC and MPS. This object denotes a discontinuity in an MPC/MPS and gives the Manager a way to detect the discontinuity. For example, in the event of an MPC or MPS re-initialization, the discontinuity timer would obtain a new value, thus indicating to an NMS that a discontinuity in the counters has occurred and the NMS should take appropriate actions.

2.2. Virtual Connection Management

In keeping with the MPOA Specification [1], virtual connections are not explicitly denoted in this MIB. Cache Entries represent shortcuts in various stages of resolution. Management of a virtual connection associated with a specific shortcut is not denoted in this MIB. The working group discussed whether some sort of vpi/vci reference for a shortcut was necessary and concluded that the mapping of VC to a shortcut was not necessary for the purposes of this MIB.

2.3. Connection Management

All sets in this MIB, with the exception of the mpcConfigMode and mpsConfigMode, take place at the time when the set request is processed by the agent, i.e. when it is received by the agent. The mpcConfigMode and mpsConfigMode can be set at any time, but these values are only relevant during initialization (or re-initialization) of the respective MPOA entity. NOTE: re-initialization is discussed in the next section.

The MPOA Client and MPOA Server are able to retrieve their configurations from the LECS during initialization/re-initialization when the mpcConfigMode and mpsConfigMode are set to automatic. However, there could be a reason that a user wants to test out a given value, thus there exists the ability to override the configuration retrieved from the LECS manually. In other words, SNMP sets can override the configuration values retrieved from the LECS. The intention behind this manual override was to allow a user to set values to try them out. If the set values proved better, then these values could be set at the LECS.

Also, the user may start the MPOA entity using default or previously configured values. To accomplish this, the user can set the mpc/mps ConfigMode object to manual, and re-initialize the appropriate MPOA entity. Please NOTE: there should be a configured value for the appropriate Protocol Table (mpc or mps), so that MPOA will work as expected. There are NO default values for the Protocol Tables, thus values will need to be configured in the event that the MPOA entity is initialized/re-initialized when the mpcConfigMode/mpsConfigMode have the value of manual.

As stated explicitly in the MIB, certain values need to be saved to nonvolatile storage. These values are the mpcIndexes (all of them which are being used), the mpsIndexes (all of these which are being used), depending upon your implementation the mpcNextIndex, and the mpsNextIndex values may need to be stored in nonvolatile memory. Also, configured (and default) values (values for settable objects) need to be stored in nonvolatile memory.

2.4. Re-initialization of an MPC or an MPS

This MIB specifies certain qualities which must remain consistent between re-initializations of an MPC or an MPS, however, this document does not mandate any objects which would cause a re-initialization. The working group believes that specifying objects which would cause a re-initialization to occur would be beyond the scope of this MIB. In other words, re-initialization of an MPC or MPS is left to the specific implementation.

2.5. Counter64

Two objects in this MIB have the data type of Counter64. These objects are both optional. These objects prevent this MIB from being semantically functional to an SNMPv1 version. However, since these objects are optional and since the use of Counter64 is becoming more widespread this is considered to be acceptable by the working group.

2.6. Traps

There are no traps defined in this MIB. No traps were proposed during the development of the MIB.

2.7. Conformance statements

This document includes SNMPv2 conformance statements specifying the required and optional features of the MPOA MIB. There are 3 groups (or categories) which are:

Managed Objects which can be supported by either an MPC or MPS

Managed Objects which can be supported by an MPC

Managed Objects which can be supported by an MPS

Each of these 3 groups (or categories) are made up of one or more groups which contain a specific bunch of Managed Objects. These are outlined as follows:

- (1) MPOA Common Groups
 - (a) Device Type group
 - (b) Device Type Mps Mac group

- (2) MPOA Client Groups
 - (a) Configuration group
 - (b) Actual group
 - (c) Data Atm Address group
 - (d) Statistics group
 - (e) Protocol support group
 - (f) LEC -> MPC Mapping group
 - (g) MPC's MPS Information group
 - (h) MAC Address group
 - (i) Ingress Cache Total Packet group
 - (j) Ingress Cache Total Octet group
 - (k) Ingress Cache group
 - (l) Egress Cache Total Packet group
 - (m) Egress Cache Total Octet group
 - (n) Egress Cache group

- (3) MPOA Server groups
 - (a) Configuration group
 - (b) Actual group
 - (c) Statistics group
 - (d) Protocol support group
 - (e) LEC -> MPS Mapping group
 - (f) Ingress Cache group
 - (g) Egress Cache group

The compliance statements make use of these sub-groupings (the outline above). First, there is a determination of whether the MPOA entity is an MPC or an MPS (or both). The actual compliance statements are based on whether the device is acting as an MPC, an MPS or both (MPC and MPS).

- 1) MPC
- 2) MPS
- 3) Both an MPC and an MPS

2.7.1. MPC Basic Compliance

The minimum group of objects which need be supported by an MPC in order for the MPC to be compliant is given by the compliance statement, "mpoaMpcMibBasicCompliance. These are the mandatory groups of the mpcConfigGroup, the mpcActualGroup, the mpcDataAtmAddressGroup, the mpcStatisticsGroup, the mpcProtocolGroup, the mpcMpsGroup, the mpcMpsMacAddressGroup, the mpcIngressCacheGroup and the mpcEgressCacheGroup. Note that the mpcRowStatus, mpcDataAtmAddressRowStatus and mpcProtocolRowStatus allow rows to be created as read-only. In other words, the Agent is responsible for creating these rows. If a user tries to create a row, the request will result in an error and a row will not be created. For most implementations this will likely be the case. However, the implementor may allow rows to be created by a user through the row-creation process. The reason was to allow the flexibility for the implementor.

The MpcMappingGroup is required when the relationship between an MPOA Client and a LANE Client is NOT one-to-one. In other words, there may be implementations where the mpcIndex has the same value as the LecIndex, for all mpcIndices and all lecIndices. In this situation, the mpcMappingGroup is not necessary because this group provides a mapping between the mpcIndex and the corresponding lecIndex, if these values are the same then there is no need to support this table.

2.7.2. MPC Advanced Compliance

This group is a superset of the MPC Basic Compliance group. In addition to the MPC Basic Compliance group, this group contains the mpoaDeviceTypeGroup, the mpoaDeviceTypeMpsMacGroup, the mpcIngressCacheTotalPacketGroup and the mpcEgressCacheTotalPacketGroup.

2.7.3. MPC Advanced Plus Octet Compliance

This group is a superset of the MPC Advanced Compliance group. The only difference between this group and the MPC Advanced Compliance group is that this group includes the support of two 64 byte Counters: the mpcIngressCacheTotalOctets, and the mpcEgressCacheTotalOctets. This group was added because of concerns the group had about all implementations supporting these counter, thus in order to be as fair to all implementations as possible the decision was to make these optional.

2.7.4. MPS Basic Compliance

This group represents the mandatory object which need to be supported if the MPS is a compliant implementation. This group is called mpoaMpsMibBasicCompliance and contains the groups: mpsConfigGroup, mpsActualGroup, mpsStatisticsGroup, mpsProtocolGroup, mpsIngressCacheGroup, and mpsEgressCacheGroup. Note that the mpsRowStatus, and mpsProtocolRowStatus allow rows to be created as read-only. In other words, the Agent is responsible for creating these rows. If a user tries to create a row, the request will result in an error and a row will not be created. For most implementations this will likely be the case. However, the implementor may allow rows to be created by a user through the row-creation process. The reason was to allow the flexibility for the implementor.

The MpsMappingGroup is required when the relationship between an MPOA Server and a LANE Client is NOT one-to-one. In other words, there may be implementations where the mpsIndex has the same value as the LecIndex, for all mpsIndices and all lecIndices. In this situation, the mpsMappingGroup is not necessary because this group provides a mapping between the mpsIndex and the corresponding lecIndex, if these values are the same then there is no need to support this table.

2.7.5. MPS Advanced Compliance

This group is a superset of the MPS Basic Group. In addition to the MPS Basic Compliance group, this group contains the mpoaDeviceTypeGroup and the mpoaDeviceTypeMpsMacGroup.

3. References

- [1] AF-MPOA-0087.000, ATM Forum, Fredette, A., "Multiprotocol Over ATM Version 1.0", May 1997.
- [2] RFC 2332, NBMA Next Hop Resolution Protocol (NHRP)., Luciani, James V., D. Katz, D. Piscitello, and B. Cole, Bay Networks, Cisco Systems, Core Competence, Inc., April, 1998. (Status: PROPOSED STANDARD)
- [3] draft-ietf-ion-nhrp-mib-04.txt, "Definitions of Managed Objects for the NBMA Next Hop Resolution Protocol (NHRP)", Greene, Maria, J. Cucchiara, J. Luciani, May 1998.
- [4] SNMPv2 Working Group, Case, J., McCloghrie, K., Rose, M., and S. Waldbusser, "Structure of Management Information for Version 2 of the Simple Network Management Protocol (SNMPv2)", RFC1902, SNMP Research, Inc., Cisco Systems, Inc., Dover Beach Consulting, Inc., International Network Services, January 1996.
- [5] McCloghrie, K., and M. Rose, Editors, "Management Information Base for Network Management of TCP/IP-based internets: MIB-II", STD 17, RFC 1213, Hughes LAN Systems, Performance Systems International, March 1991.
- [6] Case, J., Fedor, M., Schoffstall, M., and J. Davin, "Simple Network Management Protocol", RFC 1157, SNMP Research, Performance Systems International, Performance Systems International, MIT Laboratory for Computer Science, May 1990.
- [7] SNMPv2 Working Group, Case, J., McCloghrie, K., Rose, M., and S. Waldbusser, "Protocol Operations for Version 2 of the Simple Network Management Protocol (SNMPv2)", RFC1905, SNMP Research, Inc., Cisco Systems, Inc., Dover Beach Consulting, Inc., International Network Services, January 1996.
- [8] McCloghrie, K., and F. Kastenholtz, "The Interfaces Group MIB using SMIv2", RFC 2233, November 1997.
- [9] Case, J., McCloghrie, K., Rose, M., and S. Waldbusser, "Conformance Statements for SNMPv2", RFC 1904, SNMP Research, Inc., Cisco Systems, Inc., Dover Beach Consulting, Inc., International Network Services, January 1996.
- [10] ATM Forum, "UNI Specification, Version 3.1", September 1994.
- [11] Ahmed, M., and K. Tesink, editors, "Definitions of Managed Objects for ATM Management Version 8.0 using SNMPv2", RFC 1695, Bell Communications Research, August 1994.
- [12] SNMPv2 Working Group, Case, J., McCloghrie, K., Rose, M., and S. Waldbusser, "Textual Conventions for version 2 of the Simple Network Management Protocol (SNMPv2)", RFC 1903, SNMP Research, Inc., Cisco Systems, Inc., Dover Beach Consulting, Inc., International Network Services, January 1996.
- [13] AF-LANE-0093, ATM Forum, Newton, T., "LAN Emulation Client Management Specification, Version 2.0", February 1998.

4. Management Information Base (MIB)

MPOA-MIB DEFINITIONS ::= BEGIN

IMPORTS

MODULE-IDENTITY, OBJECT-TYPE,
 enterprises, Counter32, Counter64, Integer32
 FROM SNMPv2-SMI
 TEXTUAL-CONVENTION,
 MacAddress, TimeInterval, TimeStamp, TruthValue, RowStatus
 FROM SNMPv2-TC
 MODULE-COMPLIANCE, OBJECT-GROUP
 FROM SNMPv2-CONF
 lecIndex
 FROM LAN-EMULATION-CLIENT-MIB
 AtmAddr
 FROM ATM-TC-MIB
 ;

mposMIB MODULE-IDENTITY

LAST-UPDATED "9805220000Z"
 ORGANIZATION "ATM Forum LANE/MPOA Working Group"
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DESCRIPTION

"This module defines a portion of the management information base (MIB) for managing Multiprotocol Over ATM clients and servers."

REVISION "9805220000Z"

DESCRIPTION

"Final Ballot Version, May 22, 1998
 Version of the MIB module MPOA-MIB
 that is in: AF-MPOA-0092.000."

REVISION "9802250000Z"

DESCRIPTION

"Straw Ballot Revision 1.0, February 25, 1998
 Version of the MIB module MPOA-MIB
 that is in STR-MPOA-MIB-01.01."

::= { atmMpoa 1 }

atmForum OBJECT IDENTIFIER ::= { enterprises 353 }

atmForumNetworkManagement OBJECT IDENTIFIER ::= { atmForum 5 }
 atmfMpoa OBJECT IDENTIFIER ::= { atmForumNetworkManagement 8 }

--
 -- Textual Conventions
 --

LecIndex ::= TEXTUAL-CONVENTION
 STATUS current
 DESCRIPTION
 "The value of this object identifies the LEC
 for which the entry contains management
 information. The value of this object for
 a particular LAN Emulation Client (LEC) has
 the same value as the lecIndex object, defined
 in the LAN-EMULATION-CLIENT MIB, for the same LEC."
 SYNTAX INTEGER (1..2147483647)

AtmConfigAddr ::= TEXTUAL-CONVENTION
 STATUS current
 DESCRIPTION
 "The ATM address used by the network entity.
 The address types are: NSAP SEL Byte (1 octet)
 E.164 (8 octets), and NSAP (20 octets).
 Note: If the 1 octet NSAP SEL is given, the
 other 19 octets of the NSAP are derived
 from the system either through ILMI or another method.
 Note: The E.164 address is encoded in BCD format."
 SYNTAX OCTET STRING (SIZE(1|8|20))

InternetworkAddrType ::= TEXTUAL-CONVENTION
 STATUS current
 DESCRIPTION
 "Internetwork Layer Address Types.
 Values are defined in Assigned Numbers,
 RFC1700. Note: not all of these values make sense in all
 contexts where this type is used in this MIB, but they are
 included for completeness."
 REFERENCE
 "Assigned Numbers, RFC1700, ADDRESS FAMILY NUMBERS"
 SYNTAX INTEGER {
 other(0),
 ipV4(1),
 ipV6(2),
 nsap(3),
 hdlc(4),
 bbn1822(5),
 ieee802(6),
 e163(7),
 e164(8),
 f69(9),
 x121(10),

```

        ipx(11),
        appleTalk(12),
        decnetIV(13),
        banyanVines(14),
        e164WithNsap(15)
    }

```

```

InternetworkAddr ::= TEXTUAL-CONVENTION
    STATUS      current
    DESCRIPTION
        "The value of an internetwork layer address."
    SYNTAX      OCTET STRING (SIZE (0..60))

```

```

MpcIndex ::= TEXTUAL-CONVENTION
    STATUS      current
    DESCRIPTION
        "A unique value, for each MPOA client
        which this SNMP agent manages. It is recommended that values
        are assigned contiguously starting from 1. The value for
        each MPOA Client must remain constant, even if the MPOA
        Client or SNMP agent is re-initialized."
    SYNTAX      Integer32 (1..2147483647)

```

```

MpsIndex ::= TEXTUAL-CONVENTION
    STATUS      current
    DESCRIPTION
        "A unique value, for each MPOA Server
        which this SNMP agent manages. It is recommended that values
        are assigned contiguously starting from 1. The value for
        each MPOA Server must remain constant, even if the MPOA
        Server or SNMP agent is re-initialized."
    SYNTAX      Integer32 (1..2147483647)

```

```

mpoaMIBObjects OBJECT IDENTIFIER ::= { mpoaMIB 1 }

```

```
-- This MIB module consists of the following groups:
```

- ```
--
-- (1) MPOA Common Groups
-- (a) Device Type group
-- (b) Device Type Mps Mac group
--
-- (2) MPOA Client Groups
-- (a) Configuration group
-- (b) Actual group
-- (c) Data Atm Address group
-- (d) Statistics group
-- (e) Protocol support group
-- (f) LEC -> MPC Mapping group
-- (g) MPC's MPS Information group
-- (h) MAC Address group
-- (i) Ingress Cache Total Packet group
-- (j) Ingress Cache Total Octet group
-- (k) Ingress Cache group
```

```
-- (l) Egress Cache Total Packet group
-- (m) Egress Cache Total Octet group
-- (n) Egress Cache group
--
```

```
-- (3) MPOA Server groups
-- (a) Configuration group
-- (b) Actual group
-- © Statistics group
-- (d) Protocol support group
-- (e) LEC -> MPS Mapping group
-- (f) Ingress Cache group
-- (g) Egress Cache group
--
```

```

mpoaCommonObjects OBJECT IDENTIFIER ::= { mpoaMIBObjects 1 }
```

```
deviceTypeTable OBJECT-TYPE
```

```
SYNTAX SEQUENCE OF DeviceTypeEntry
```

```
MAX-ACCESS not-accessible
```

```
STATUS current
```

```
DESCRIPTION
```

“The device type table represents the mapping of the Lane Data ATM address to the MAC device capability. The unique key is the Lane data ATM address and Lec Index of the LEC associated with the MAC addresses. This table contains information which was gathered from its environment about neighboring machines. This Device type table represents the information of other/remote MPOA devices, discovered/gathered by each MPOA device. This MIB is not the device type of MPS/MPC itself; it is DISCOVERED information.”

```
REFERENCE
```

“Sections: 5.2.3 Device Type TLV, and 4.2 Device Discovery, MPOA Version 1.0 (Letter Ballot) AF-MPOA-0087.000”

```
::= { mpoaCommonObjects 1 }
```

```
deviceTypeEntry OBJECT-TYPE
```

```
SYNTAX DeviceTypeEntry
```

```
MAX-ACCESS not-accessible
```

```
STATUS current
```

```
DESCRIPTION
```

“An entry in this table and corresponding entries in the deviceTypeMpsMacAddressTable represent a mapping of a MAC device capability (i.e. the set of MAC addresses from a device) to the LEC ATM Address.”

```
REFERENCE
```

“Section 5.2.3 Device Type TLV MPOA Version 1.0 (Letter Ballot) AF-MPOA-0087.000”

```
INDEX { deviceTypeIndex }
```

```
::= { deviceTypeTable 1 }
```

```
DeviceTypeEntry ::= SEQUENCE {
 deviceTypeIndex INTEGER,
 deviceTypeLecIndex LecIndex,
 deviceTypeRemoteLecAtmAddress AtmAddr,
 deviceTypeType INTEGER,
 deviceTypeMpsAtmAddress AtmAddr,
 deviceTypeMpcAtmAddress AtmAddr
}
```

```
deviceTypeIndex OBJECT-TYPE
 SYNTAX INTEGER (1..2147483647)
 MAX-ACCESS not-accessible
 STATUS current
 DESCRIPTION
 "Index into this table and also used as one of the indices for the
 deviceTypeMpsMacAddressTable. This index has local
 significance within the mpoaDeviceGroup.
 Entries in the 'deviceTypeMpsMacAddressTable' which correspond
 to this index, and have the 'deviceTypeType' value of 'mps' or
 'mpsAndMps' are considered to be MPS MAC addresses."
 REFERENCE
 "Section 5.2.3 Device Type TLV
 MPOA Version 1.0 (Letter Ballot) AF-MPOA-0087.000"
 ::= { deviceTypeEntry 1 }
```

```
deviceTypeLecIndex OBJECT-TYPE
 SYNTAX LecIndex
 MAX-ACCESS read-only
 STATUS current
 DESCRIPTION
 "LecIndex of LEC that supports this
 data ATM address"
 REFERENCE
 "Section 5.2.3 Device Type TLV
 MPOA Version 1.0 (Letter Ballot) AF-MPOA-0087.000"
 ::= { deviceTypeEntry 2 }
```

```
deviceTypeRemoteLecAtmAddress OBJECT-TYPE
 SYNTAX AtmAddr
 MAX-ACCESS read-only
 STATUS current
 DESCRIPTION
 "The ATM address learned by LE ARP."
 REFERENCE
 "Section 5.2.3 Device Type TLV
 MPOA Version 1.0 (Letter Ballot) AF-MPOA-0087.000"
 ::= { deviceTypeEntry 3 }
```

```
deviceTypeType OBJECT-TYPE
 SYNTAX INTEGER {
 nonMpoa(1),
 mps(2),
 mpc(3),
 mpsAndMpc(4)
 }
```

```

 }
 MAX-ACCESS read-only
 STATUS current
 DESCRIPTION
 "same as the TLV"
 REFERENCE
 "Section 5.2.3 Device Type TLV
 MPOA Version 1.0 (Letter Ballot) AF-MPOA-0087.000"
 ::= { deviceTypeEntry 4 }

```

```

deviceTypeMpsAtmAddress OBJECT-TYPE
 SYNTAX AtmAddr
 MAX-ACCESS read-only
 STATUS current
 DESCRIPTION
 "Associated MPS address, zeros for non-MPOA and mpc"
 REFERENCE
 "Section 5.2.3 Device Type TLV
 MPOA Version 1.0 (Letter Ballot) AF-MPOA-0087.000"
 ::= { deviceTypeEntry 5 }

```

```

deviceTypeMpcAtmAddress OBJECT-TYPE
 SYNTAX AtmAddr
 MAX-ACCESS read-only
 STATUS current
 DESCRIPTION
 "Associated MPC address, zeros for non-MPOA & mps"
 REFERENCE
 "Section 5.2.3 Device Type TLV
 MPOA Version 1.0 (Letter Ballot) AF-MPOA-0087.000"
 ::= { deviceTypeEntry 6 }

```

```

-- The deviceTypeMpsMacAddress Table contains MAC addresses
-- from the device type TLV. If the deviceTypeType was 'mpsAndMpc'
-- there must be at least one MPS MAC Address (i.e. at least one entry in
-- this table.) If the deviceTypeType is 'mps', there may be zero or more
-- MPS MAC addresses in this table. If the deviceTypeType is 'nonMpoa'
-- or 'mpc' then there will be no corresponding entries in this table.
-- See Section 5.2.3 of the MPOA Letter Ballot 1.0

```

```

deviceTypeMpsMacAddressTable OBJECT-TYPE
 SYNTAX SEQUENCE OF DeviceTypeMpsMacAddressEntry
 MAX-ACCESS not-accessible
 STATUS current
 DESCRIPTION
 "This table contains MPS MAC Address information gathered from
 the MPOA DeviceTypeTLV."
 REFERENCE
 "Section 5.2.3 Device Type TLV
 MPOA Version 1.0 (Letter Ballot) AF-MPOA-0087.000"
 ::= { mpoaCommonObjects 2 }

```

```

deviceTypeMpsMacAddressEntry OBJECT-TYPE
 SYNTAX DeviceTypeMpsMacAddressEntry
 MAX-ACCESS not-accessible

```

```

STATUS current
DESCRIPTION
 "Each entry represents an MPS MAC Address. Each entry
 corresponds to a deviceTypeIndex value for which the
 deviceType attribute is 'mps' or 'mpsAndMpc'."
REFERENCE
 "Section 5.2.3 Device Type TLV
 MPOA Version 1.0 (Letter Ballot) AF-MPOA-0087.000"
INDEX {
 deviceTypeIndex,
 deviceTypeMpsMacAddress
 }
 ::= { deviceTypeMpsMacAddressTable 1 }

```

```

DeviceTypeMpsMacAddressEntry ::=SEQUENCE {
 deviceTypeMpsMacAddress MacAddress
}

```

```

deviceTypeMpsMacAddress OBJECT-TYPE
 SYNTAX MacAddress
 MAX-ACCESS read-only
 STATUS current
 DESCRIPTION
 "MPS MAC address contained in the Device Type TLV which
 is identified by the deviceTypeIndex in the deviceTypeTable."
 REFERENCE
 "Section 5.2.3 Device Type TLV
 MPOA Version 1.0 (Letter Ballot) AF-MPOA-0087.000"
 ::= { deviceTypeMpsMacAddressEntry 1 }

```

```

--
-- MPOA Client Objects
--

```

```

mpcObjects OBJECT IDENTIFIER ::= { mpoaMIBObjects 2 }

```

```

--
-- MPOA Client configuration group
--

```

```

mpcNextIndex OBJECT-TYPE
 SYNTAX Integer32 (0..2147483647)
 MAX-ACCESS read-write
 STATUS current
 DESCRIPTION
 "This object contains an appropriate value to
 be used for mpcIndex when creating entries in
 the mpcConfigTable. The value 0 indicates that
 no new rows can be created. Otherwise, it is
 recommended that values are assigned contiguously,
 starting from 1.

 MPC creation by a Manager: To obtain the mpcIndex value
 for a new entry, the manager issues a management protocol
 retrieval operation to obtain the current value of this
 object. If the value retrieved is 0 (zero), the manager
 cannot create a row.

```

After each retrieval of a non-zero value, the manager should issue a management protocol SET operation using the value just retrieved. If the SET is successful, the agent should update the value to the next unassigned index, or zero if appropriate.

NOTE: the manager may also issue a set on this object with a value of its own choosing. If the set is successful, the manager may use this value for the mpcIndex. In this case, the agent would update the value to the next unassigned index, or zero if appropriate. The definition of 'next unassigned index' is any mpcNextIndex value that has not yet been set by a manager, or reserved by the agent (see next paragraph), since this agent was last re-initialized.

MPC creation by an Agent: When a row in the mpcConfigTable is created by an agent, the agent should reserve the value of the index by updating the value of this object to the next unassigned index or zero if appropriate. Thus, a manager will not be able to set an index reserved by an agent.

In the situation of an agent re-initialization, all currently used mpcIndexes must be preserved. In other words, the Agent should store in non-volatile memory all of the currently used mpcIndexes (along with all necessary configuration information from the mpcConfigTable). When the agent is re-initialized, the mpcNextIndex value is any valid Integer32 value which is not being used as an mpcIndex, except 0 which maintains its original definition of indicating that a row cannot be created."

::= { mpcObjects 1 }

mpcConfigTable OBJECT-TYPE

SYNTAX SEQUENCE OF MpcConfigEntry  
 MAX-ACCESS not-accessible  
 STATUS current  
 DESCRIPTION  
 "The MPOA Client Configuration Table.  
 This table contains configuration information  
 for all MPOA Clients which this agent manages."  
 ::= { mpcObjects 2 }

mpcConfigEntry OBJECT-TYPE

SYNTAX MpcConfigEntry  
 MAX-ACCESS not-accessible  
 STATUS current  
 DESCRIPTION  
 "MPOA Client Configuration Entry.  
 Each entry contains configuration information  
 for one MPOA Client. The configuration information, including  
 the mpcIndex, must be restored after a re-initialization of an  
 MPC or a re-initialization of the SNMP agent."

```

INDEX { mpcIndex }
 ::= { mpcConfigTable 1 }

```

```

MpcConfigEntry ::=SEQUENCE {

 --
 -- Primary config info: Index, mode and control address information
 --
 mpcIndex MpcIndex,
 mpcRowStatus RowStatus,
 mpcConfigMode INTEGER,
 mpcCtrlAtmAddr AtmConfigAddr,
 --
 -- MPC parameters which may be obtained from
 -- the LECS.
 --
 mpcSCSetupFrameCount Integer32, -- MPC-p1
 mpcSCSetupFrameTime Integer32, -- MPC-p2
 -- The Flow-detection Protocols (denoted with MPC-p3)
 -- are represented in the mpcProtocolsTable.
 mpcInitialRetryTime Integer32, -- MPC-p4
 mpcRetryTimeMaximum Integer32, -- MPC-p5
 mpcHoldDownTime Integer32 -- MPC-p6
}

```

#### mpcIndex OBJECT-TYPE

```

SYNTAX MpcIndex
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION

```

“A value which uniquely identifies this conceptual row in the mpcConfigTable. The ‘mpcNextIndex’ object needs to be used to determine the value of this object. A row cannot be added, unless the mpcCtrlAtmAddress is unique. In the event of either an MPC re-initialization or an agent re-initialization, the value of this mpcIndex must remain the same. In other words, the row needs to be saved and restored in the event of an MPC or SNMP Agent re-initialization.”

```
 ::= { mpcConfigEntry 1 }

```

#### mpcRowStatus OBJECT-TYPE

```

SYNTAX RowStatus
MAX-ACCESS read-create
STATUS current
DESCRIPTION

```

“This object allows creation and deletion of MPOA Clients.

Within each conceptual mpcConfigTable row, writable objects may be modified, regardless of the value of mpcRowStatus. It is not necessary to set a row’s status to ‘notInService’ first.

A row cannot be created, unless the mpcAtmCtrlAddress in this table is unique. When an MPOA Client is created via this object, it will initially have

```

 'mpcActualState' = 'initialState'"
 ::= { mpcConfigEntry 2 }

```

## mpcConfigMode OBJECT-TYPE

```

SYNTAX INTEGER {
 automatic(1),
 manual(2)
 }

```

```

MAX-ACCESS read-create

```

```

STATUS current

```

## DESCRIPTION

“Indicates whether this MPC should auto-configure the next time it is (re-)initialized. During the (re-)initialization of this MPC, if the mode is automatic(1), the LECS is contacted and requests are made for all MPC-p\* parameters. Otherwise, if the mode is manual(2), the values of the configuration parameters are obtained from the mpcConfigTable and the mpcProtocolTable. In other words, when the MPC is first initialized, it can use the default or configured values from the mpcConfigTable and mpcProtocolTable. If the mode is manual (2), no further action is required. If the mode is automatic (1), then the LECS should be contacted and all available MPC-p1 to MPC-p6 parameters would be retrieved. These parameters would then overwrite the existing MPC-p1 to MPC-p6 parameters. The actual values are reflected in the mpcActualTable.”

```

DEFVAL { automatic }

```

```

 ::= { mpcConfigEntry 3 }

```

## mpcCtrlAtmAddr OBJECT-TYPE

```

SYNTAX AtmConfigAddr

```

```

MAX-ACCESS read-create

```

```

STATUS current

```

## DESCRIPTION

“The MPC’s Control ATM Address. There exists one Control ATM Address per MPC, therefore, the value of this entry is unique within the table. The control ATM Address is the address which is used by the MPC in its requests to the MPS. The value of this object should not change, once created.”

```

 ::= { mpcConfigEntry 4 }

```

## mpcSCSetupFrameCount OBJECT-TYPE

```

SYNTAX Integer32 (1..65535)

```

```

MAX-ACCESS read-create

```

```

STATUS current

```

## DESCRIPTION

“This represents the MPC-p1 Short-cut setup frame count parameter.

The MPC-p1 value is frames measured over mpcSCFrameTime seconds. Flow detection is protocol independent. i.e. all network layers mpcProtocolEntries for this MPC share the flow rate specification. A value of 1 causes all flows to initiate resolution/shortcut process.”

```

DEFVAL { 10 }

```

::= { mpcConfigEntry 5 }

mpcSCSetupFrameTime OBJECT-TYPE

SYNTAX Integer32 (1..60)

MAX-ACCESS read-create

STATUS current

DESCRIPTION

“MPC-p2 Short-cut setup frame time, in seconds.”

DEFVAL { 1 }

::= { mpcConfigEntry 6 }

mpcInitialRetryTime OBJECT-TYPE

SYNTAX Integer32 (1..300)

MAX-ACCESS read-create

STATUS current

DESCRIPTION

“MPC-p4 is the initial value for the retry time out period used for timing out MPOA Resolution Requests in seconds. Retry time consists of this initial time-out (MPC-p4) and a retry multiplier (MPC-c1). If a response is not received, then another request is sent with a timeout of ‘retry time’ \* MPC-c1 seconds, or until mpcRetryTimeMaximum.”

DEFVAL { 5 }

::= { mpcConfigEntry 7 }

mpcRetryTimeMaximum OBJECT-TYPE

SYNTAX Integer32 (10..300)

MAX-ACCESS read-create

STATUS current

DESCRIPTION

“MPC-p5 cumulative max value for Retry Time (MPC-p4). Retries are attempted at intervals determined by the algorithm described in the definition of mpcInitialRetryTime.”

REFERENCE

“Multiprotocol Over ATM. AF-MPOA-0087.000. Section 4.3 MPOA Retry Mechanism”

DEFVAL { 40 }

::= { mpcConfigEntry 8 }

mpcHoldDownTime OBJECT-TYPE

SYNTAX Integer32 (30..1200)

MAX-ACCESS read-create

STATUS current

DESCRIPTION

“MPC-p6 Hold Down Time  
Minimum time to wait before reinitiating a failed resolution attempt. Default is mpcRetryTimeMaximum \* 4.”

REFERENCE

“Multiprotocol Over ATM. AF-MPOA-0087.000. Section 4.1.2.1 MPC Parameters”

DEFVAL { 160 }

::= { mpcConfigEntry 9 }

--

```
-- MPOA Client Actual group
```

```
--
```

```
mpcActualTable OBJECT-TYPE
```

```
SYNTAX SEQUENCE OF MpcActualEntry
```

```
MAX-ACCESS not-accessible
```

```
STATUS current
```

```
DESCRIPTION
```

```
“MPOA Client Actual Table.
```

```
A read-only table which contains state information and reflects the actual values which these MPOA Clients are using. The actual values may differ from the configured values.
```

```
For example, the mpcConfigMode takes affect only during (re-)initialization of the MPC.
```

```
The MPC-p1 to MPC-p6 parameters may differ from the configured values because, if the MPC was (re-)initialized and the mpcConfigMode was set to automatic (1) then some, perhaps all, of the MPC-p1 to MPC-p6 parameters were retrieved from the LECS and the values from the LECS may differ from the configured/default values of the mpcConfigTable. NOTE: after re-initialization a set to an object in the mpcConfigTable which changes the value of the object will be reflect in this Table, except for a set to the mpcConfigMode which takes effect only during re-initialization.”
```

```
::= { mpcObjects 3 }
```

```
mpcActualEntry OBJECT-TYPE
```

```
SYNTAX MpcActualEntry
```

```
MAX-ACCESS not-accessible
```

```
STATUS current
```

```
DESCRIPTION
```

```
“An entry in the MPC Actual Table.
```

```
An entry represents a specific MPOA Client’s state information and the actual values which are being used by the MPOA Client.
```

```
For example, the corresponding mpcConfigEntry contains default and/or configured parameters, if mpcConfigMode was set to manual, then these are the objects values’ which are reflected for the mpcActualEntry. However, if the mpcConfigMode is automatic, then the mpcActualEntry will be all the corresponding mpcConfigEntry’s object, excluding any objects which were retrieved from the LECS.
```

```
In other words, the objects retrieved from the LECS during the (re-)initialization of the MPC overwrite any of the default and/or configured values.
```

```
NOTE: any subsequent ‘set’ to the configured values, e.g. an SNMP set operation, which is successful could result in a change to an mpcConfigTable value, and will be reflected in this table as well.”
```

```
AUGMENTS { mpcConfigEntry }
```

```
::= { mpcActualTable 1 }
```

```
MpcActualEntry ::=SEQUENCE {
```

```

mpcActualState INTEGER,
mpcDiscontinuityTime TimeStamp,
--
-- Actual values for the MPCs.
--
mpcActualConfigMode INTEGER,
mpcActualSCSetupFrameCount Integer32, -- MPC-p1
mpcActualSCSetupFrameTime Integer32, -- MPC-p2
-- The flow-detection protocols for MPC-p3 are represented
-- in the mpcProtocolTable. There is no actual counterpart
-- for them.
mpcActualInitialRetryTime Integer32, -- MPC-p4
mpcActualRetryTimeMaximum Integer32, -- MPC-p5
mpcActualHoldDownTime Integer32 -- MPC-p6
}

```

mpcActualState OBJECT-TYPE

```

SYNTAX INTEGER {
 unknown(1),
 initialState(2),
 up(3),
 down(4)
 }
MAX-ACCESS read-only
STATUS current
DESCRIPTION
 "This object indicates the actual state
 of the MPOA Client."
 ::= { mpcActualEntry 1 }

```

mpcDiscontinuityTime OBJECT-TYPE

```

SYNTAX TimeStamp
MAX-ACCESS read-only
STATUS current
DESCRIPTION
 "The value of sysUpTime on the most recent occasion at
 which any one or more of this MPC's counters
 experienced a discontinuity. The relevant counters
 are the specific instances associated with this
 MPC. If discontinuities have not occurred since the
 last re-initialization of the local management subsystem,
 then this object contains a zero value."
 ::= { mpcActualEntry 2 }

```

mpcActualConfigMode OBJECT-TYPE

```

SYNTAX INTEGER {
 automatic(1),
 manual(2)
 }
MAX-ACCESS read-only
STATUS current
DESCRIPTION
 "Indicates whether this MPC auto-configured
 when it was last (re-)initialized."
 ::= { mpcActualEntry 3 }

```

## mpcActualSCSetupFrameCount OBJECT-TYPE

SYNTAX Integer32 (1..65535)

MAX-ACCESS read-only

STATUS current

## DESCRIPTION

“MPC-p1 Short-cut setup frame count.  
 In frames measured over mpcShortcutFrameTime seconds.  
 Flow detection is protocol independent. i.e. all  
 network layers mpcProtocolEntry share the flow rate  
 specification.  
 A value of 1 implies that resolutions for short-cuts  
 are attempted for all flows.”

::= { mpcActualEntry 4 }

## mpcActualSCSetupFrameTime OBJECT-TYPE

SYNTAX Integer32 (1..60)

MAX-ACCESS read-only

STATUS current

## DESCRIPTION

“Actual MPC-p2 Short-cut setup frame time, in seconds.”

::= { mpcActualEntry 5 }

## mpcActualInitialRetryTime OBJECT-TYPE

SYNTAX Integer32 (1..300)

MAX-ACCESS read-only

STATUS current

## DESCRIPTION

“Actual MPC-p4 is initial value for the  
 retry time out.”

::= { mpcActualEntry 6 }

## mpcActualRetryTimeMaximum OBJECT-TYPE

SYNTAX Integer32 (30..300)

MAX-ACCESS read-only

STATUS current

## DESCRIPTION

“MPC-p5 cumulative maximum value for Retry Time (MPC-p4).  
 Retries are attempted at intervals determined by the  
 algorithm described in the definition of  
 mpcActualInitialRetryTime.”

## REFERENCE

“Multiprotocol Over ATM. AF-MPOA-0087.000.  
 Section 4.3 MPOA Retry Mechanism”

::= { mpcActualEntry 7 }

## mpcActualHoldDownTime OBJECT-TYPE

SYNTAX Integer32 (30..1200)

MAX-ACCESS read-only

STATUS current

## DESCRIPTION

“MPC-p6 Hold Down Time  
 Minimum time to wait before reinitiating a failed  
 resolution attempt. The default value is  
 mpcRetryTimeMaximum \* 4.”

::= { mpcActualEntry 8 }

```

--
-- DataAtmAddresses -> MPC
--

mpcDataAtmAddressTable OBJECT-TYPE
 SYNTAX SEQUENCE OF MpcDataAtmAddressEntry
 MAX-ACCESS not-accessible
 STATUS current
 DESCRIPTION
 "A table which shows all the data ATM addresses
 associated with all MPOA Clients."
 ::= { mpcObjects 4 }

mpcDataAtmAddressEntry OBJECT-TYPE
 SYNTAX MpcDataAtmAddressEntry
 MAX-ACCESS not-accessible
 STATUS current
 DESCRIPTION
 "Each row defines one data ATM address associated with
 an MPC. NOTE: if an MPC has more than one data ATM
 address then there will be another entry which contains
 the same mpcIndex subIdentifier, with a different
 mpcDataAtmAddress."
 INDEX {
 mpcIndex,
 mpcDataAtmAddress
 }
 ::= { mpcDataAtmAddressTable 1 }

MpcDataAtmAddressEntry ::= SEQUENCE {
 mpcDataAtmAddress AtmAddr,
 mpcDataAtmAddressRowStatus RowStatus
}

mpcDataAtmAddress OBJECT-TYPE
 SYNTAX AtmAddr
 MAX-ACCESS not-accessible
 STATUS current
 DESCRIPTION
 "A data ATM Address which is associated with
 an MPOA Client specified by the mpcIndex."
 ::= { mpcDataAtmAddressEntry 1 }

mpcDataAtmAddressRowStatus OBJECT-TYPE
 SYNTAX RowStatus
 MAX-ACCESS read-create
 STATUS current
 DESCRIPTION
 "This object allows creation and deletion of
 an MPOA Client's Data ATM Addresses. The
 row can be created/deleted by either an NMS
 or by the SNMP agent."
 ::= { mpcDataAtmAddressEntry 2 }

--
-- MPOA Client statistics group
--

```

## mpcStatisticsTable OBJECT-TYPE

SYNTAX SEQUENCE OF MpcStatisticsEntry  
 MAX-ACCESS not-accessible  
 STATUS current  
 DESCRIPTION  
 "A read-only table which contains statistical  
 information for all MPOA Clients that  
 this agent manages."  
 ::= { mpcObjects 5 }

## mpcStatisticsEntry OBJECT-TYPE

SYNTAX MpcStatisticsEntry  
 MAX-ACCESS not-accessible  
 STATUS current  
 DESCRIPTION  
 "Each row in this table contains statistics  
 for one MPOA Client."  
 AUGMENTS { mpcConfigEntry }  
 ::= { mpcStatisticsTable 1 }

## MpcStatisticsEntry ::=SEQUENCE {

|                                               |            |
|-----------------------------------------------|------------|
| mpcStatTxMpoaResolveRequests                  | Counter32, |
| mpcStatRxMpoaResolveReplyAcks                 | Counter32, |
| mpcStatRxMpoaResolveReplyInsufECResources     | Counter32, |
| mpcStatRxMpoaResolveReplyInsufSCResources     | Counter32, |
| mpcStatRxMpoaResolveReplyInsufEitherResources | Counter32, |
| mpcStatRxMpoaResolveReplyUnsupportedInetProt  | Counter32, |
| mpcStatRxMpoaResolveReplyUnsupportedMacEncaps | Counter32, |
| mpcStatRxMpoaResolveReplyUnspecifiedOther     | Counter32, |
| mpcStatRxMpoaImpRequests                      | Counter32, |
| mpcStatTxMpoaImpReplyAcks                     | Counter32, |
| mpcStatTxMpoaImpReplyInsufECResources         | Counter32, |
| mpcStatTxMpoaImpReplyInsufSCResources         | Counter32, |
| mpcStatTxMpoaImpReplyInsufEitherResources     | Counter32, |
| mpcStatTxMpoaImpReplyUnsupportedInetProt      | Counter32, |
| mpcStatTxMpoaImpReplyUnsupportedMacEncaps     | Counter32, |
| mpcStatTxMpoaImpReplyUnspecifiedOther         | Counter32, |
| mpcStatTxMpoaEgressCachePurgeRequests         | Counter32, |
| mpcStatRxMpoaEgressCachePurgeReplies          | Counter32, |
| mpcStatRxMpoaKeepAlives                       | Counter32, |
| mpcStatRxMpoaTriggers                         | Counter32, |
| mpcStatRxMpoaDataPlanePurges                  | Counter32, |
| mpcStatTxMpoaDataPlanePurges                  | Counter32, |
| mpcStatRxNhrpPurgeRequests                    | Counter32, |
| mpcStatTxNhrpPurgeReplies                     | Counter32, |

-- NOTE: since the MPC supersedes the NHC's role,  
 -- the following counters should be counted here,  
 -- as opposed to the NHC.

|                                    |            |
|------------------------------------|------------|
| mpcStatRxErrUnrecognizedExtensions | Counter32, |
| mpcStatRxErrLoopDetecteds          | Counter32, |
| mpcStatRxErrProtoAddrUnreachables  | Counter32, |
| mpcStatRxErrProtoErrors            | Counter32, |
| mpcStatRxErrSduSizeExceededs       | Counter32, |

|                                    |            |
|------------------------------------|------------|
| mpcStatRxErrInvalidExtensions      | Counter32, |
| mpcStatRxErrInvalidReplies         | Counter32, |
| mpcStatRxErrAuthenticationFailures | Counter32, |
| mpcStatRxErrHopCountExceeded       | Counter32  |

}

## mpcStatTxMpoaResolveRequests OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

## DESCRIPTION

“The number of MPOA Resolve Requests transmitted by this MPC.

Discontinuities in the value of this counter can occur at re-initialization of the management system, and/or re-initialization of the MPC, and at other times, as indicated by the value of mpcDiscontinuityTime.”

::= { mpcStatisticsEntry 1 }

## mpcStatRxMpoaResolveReplyAcks OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

## DESCRIPTION

“The number of positively acknowledged MPC Resolved Replies received by this MPC with an MPOA CIE Code of 0x00 (Success).

Discontinuities in the value of this counter can occur at re-initialization of the management system, and/or re-initialization of the MPC, and at other times, as indicated by the value of mpcDiscontinuityTime.”

REFERENCE “Multiprotocol Over ATM. AF-MPOA-0087.000. Page 62.”

::= { mpcStatisticsEntry 2 }

## mpcStatRxMpoaResolveReplyInsufECResources OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

## DESCRIPTION

“The number of MPOA Resolution Replies received with an MPOA CIE Code of 0x81, ‘Insufficient resources to accept egress cache entry’.

Discontinuities in the value of this counter can occur at re-initialization of the management system, and/or re-initialization of the MPC, and at other times, as indicated by the value of mpcDiscontinuityTime.”

## REFERENCE

“Multiprotocol Over ATM. AF-MPOA-0087.000. Page 62.”

::= { mpcStatisticsEntry 3 }

## mpcStatRxMpoaResolveReplyInsufSCResources OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

## DESCRIPTION

“The number of MPOA Resolution Replies received with an MPOA CIE Code of 0x82, ‘Insufficient resources to accept the shortcut’.

Discontinuities in the value of this counter can occur at re-initialization of the management system, and/or re-initialization of the MPC, and at other times, as indicated by the value of mpcDiscontinuityTime.”

## REFERENCE

“Multiprotocol Over ATM. AF-MPOA-0087.000. Page 62.”

::= { mpcStatisticsEntry 4 }

mpcStatRxMpoaResolveReplyInsufEitherResources OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

## DESCRIPTION

“The number of MPOA Resolution Replies received with an MPOA CIE Code of 0x83, ‘Insufficient resources to accept either shortcut or egress cache entry’.

Discontinuities in the value of this counter can occur at re-initialization of the management system, and/or re-initialization of the MPC, and at other times, as indicated by the value of mpcDiscontinuityTime.”

## REFERENCE

“Multiprotocol Over ATM. AF-MPOA-0087.000. Page 62.”

::= { mpcStatisticsEntry 5 }

mpcStatRxMpoaResolveReplyUnsupportedInetProt OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

## DESCRIPTION

“The number of MPOA Resolution Replies received with an MPOA CIE Code of 0x84, ‘Unsupported Internetwork Layer protocol’.

Discontinuities in the value of this counter can occur at re-initialization of the management system, and/or re-initialization of the MPC, and at other times, as indicated by the value of mpcDiscontinuityTime.”

## REFERENCE

“Multiprotocol Over ATM. AF-MPOA-0087.000. Page 62.”

::= { mpcStatisticsEntry 6 }

mpcStatRxMpoaResolveReplyUnsupportedMacEncaps OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

## DESCRIPTION

“The number of MPOA Resolution Replies received with an MPOA CIE Code of 0x85, ‘Unsupported MAC layer encapsulation’.

Discontinuities in the value of this counter can occur at re-initialization of the management system, and/or re-initialization of the MPC, and at other times, as indicated by the value of mpcDiscontinuityTime.”

## REFERENCE

“Multiprotocol Over ATM. AF-MPOA-0087.000. Page 62.”  
 ::= { mpcStatisticsEntry 7 }

mpcStatRxMpoaResolveReplyUnspecifiedOther OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

“The number of MPOA Resolution Replies received with an MPOA CIE Code of 0x88, ‘Unspecified/Other’. Discontinuities in the value of this counter can occur at re-initialization of the management system, and/or re-initialization of the MPC, and at other times, as indicated by the value of mpcDiscontinuityTime.”

REFERENCE

“Multiprotocol Over ATM. AF-MPOA-0087.000. Page 62.”  
 ::= { mpcStatisticsEntry 8 }

mpcStatRxMpoaImpRequests OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

“The number of MPOA Cache Imposition Requests received by this MPC. Discontinuities in the value of this counter can occur at re-initialization of the management system, and/or re-initialization of the MPC, and at other times, as indicated by the value of mpcDiscontinuityTime.”

::= { mpcStatisticsEntry 9 }

mpcStatTxMpoaImpReplyAcks OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

“The number of successful MPOA Cache Imposition replies transmitted by this MPC with an MPOA CIE Code of 0x00 ‘Success’. Discontinuities in the value of this counter can occur at re-initialization of the management system, and/or re-initialization of the MPC, and at other times, as indicated by the value of mpcDiscontinuityTime.”

REFERENCE

“Multiprotocol Over ATM. AF-MPOA-0087.000. Page 62.”  
 ::= { mpcStatisticsEntry 10 }

mpcStatTxMpoaImpReplyInsufECResources OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

“The number of MPOA Cache Imposition Replies transmitted with an MPOA CIE Code of 0x81, ‘Insufficient resources to accept egress cache entry’. Discontinuities in the value of this counter can occur at re-initialization of the management system, and/or re-initialization of the MPC, and at other times,

as indicated by the value of mpcDiscontinuityTime.”

## REFERENCE

“Multiprotocol Over ATM. AF-MPOA-0087.000. Page 62.”

::= { mpcStatisticsEntry 11 }

## mpcStatTxMpoaImpReplyInsufSCResources OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

## DESCRIPTION

“The number of MPOA Imposition Replies transmitted with an MPOA CIE Code of 0x82, ‘Insufficient resources to accept shortcut’.

Discontinuities in the value of this counter can occur at re-initialization of the management system, and/or re-initialization of the MPC, and at other times, as indicated by the value of mpcDiscontinuityTime.”

## REFERENCE

“Multiprotocol Over ATM. AF-MPOA-0087.000. Page 62.”

::= { mpcStatisticsEntry 12 }

## mpcStatTxMpoaImpReplyInsufEitherResources OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

## DESCRIPTION

“The number of MPOA Imposition Replies transmitted with an MPOA CIE Code of 0x83, ‘Insufficient resources to accept either shortcut or egress cache entry’.

Discontinuities in the value of this counter can occur at re-initialization of the management system, and/or re-initialization of the MPC, and at other times, as indicated by the value of mpcDiscontinuityTime.”

## REFERENCE

“Multiprotocol Over ATM. AF-MPOA-0087.000. Page 62.”

::= { mpcStatisticsEntry 13 }

## mpcStatTxMpoaImpReplyUnsupportedInetProt OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

## DESCRIPTION

“The number of MPOA Imposition Replies transmitted with an MPOA CIE Code of 0x84, ‘Unsupported Internetwork Layer protocol’.

Discontinuities in the value of this counter can occur at re-initialization of the management system, and/or re-initialization of the MPC, and at other times, as indicated by the value of mpcDiscontinuityTime.”

## REFERENCE

“Multiprotocol Over ATM. AF-MPOA-0087.000. Page 62.”

::= { mpcStatisticsEntry 14 }

## mpcStatTxMpoaImpReplyUnsupportedMacEncaps OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

“The number of MPOA Imposition Replies transmitted with an MPOA CIE Code of 0x85, ‘Unsupported MAC Layer encapsulation’.

Discontinuities in the value of this counter can occur at re-initialization of the management system, and/or re-initialization of the MPC, and at other times, as indicated by the value of mpcDiscontinuityTime.”

REFERENCE

“Multiprotocol Over ATM. AF-MPOA-0087.000. Page 62.”

::= { mpcStatisticsEntry 15 }

mpcStatTxMpoaImpReplyUnspecifiedOther OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

“The number of MPOA Imposition Replies transmitted with an MPOA CIE Code of 0x88, ‘Unspecified/Other’.

Discontinuities in the value of this counter can occur at re-initialization of the management system, and/or re-initialization of the MPC, and at other times, as indicated by the value of mpcDiscontinuityTime.”

REFERENCE

“Multiprotocol Over ATM. AF-MPOA-0087.000. Page 62.”

::= { mpcStatisticsEntry 16 }

mpcStatTxMpoaEgressCachePurgeRequests OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

“The number of MPOA Egress Cache Purge Requests transmitted by this MPC.

Discontinuities in the value of this counter can occur at re-initialization of the management system, and/or re-initialization of the MPC, and at other times, as indicated by the value of mpcDiscontinuityTime.”

::= { mpcStatisticsEntry 17 }

mpcStatRxMpoaEgressCachePurgeReplies OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

“The number of MPOA Egress Cache Purge Replies received by this MPC.

Discontinuities in the value of this counter can occur at re-initialization of the management system, and/or re-initialization of the MPC, and at other times, as indicated by the value of mpcDiscontinuityTime.”

::= { mpcStatisticsEntry 18 }

mpcStatRxMpoaKeepAlives OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only  
 STATUS current  
 DESCRIPTION  
 “The number of MPOA Keep Alive messages received by this MPC.  
 Discontinuities in the value of this counter can occur  
 at re-initialization of the management system, and/or  
 re-initialization of the MPC, and at other times,  
 as indicated by the value of mpcDiscontinuityTime.”  
 ::= { mpcStatisticsEntry 19 }

mpcStatRxMpoaTriggers OBJECT-TYPE  
 SYNTAX Counter32  
 MAX-ACCESS read-only  
 STATUS current  
 DESCRIPTION  
 “The number of MPOA Trigger messages received by this MPC.  
 Discontinuities in the value of this counter can occur  
 at re-initialization of the management system, and/or  
 re-initialization of the MPC, and at other times,  
 as indicated by the value of mpcDiscontinuityTime.”  
 ::= { mpcStatisticsEntry 20 }

mpcStatRxMpoaDataPlanePurges OBJECT-TYPE  
 SYNTAX Counter32  
 MAX-ACCESS read-only  
 STATUS current  
 DESCRIPTION  
 “The number of MPOA Data Plane Purge messages received  
 by this MPC.  
 Discontinuities in the value of this counter can occur  
 at re-initialization of the management system, and/or  
 re-initialization of the MPC, and at other times,  
 as indicated by the value of mpcDiscontinuityTime.”  
 ::= { mpcStatisticsEntry 21 }

mpcStatTxMpoaDataPlanePurges OBJECT-TYPE  
 SYNTAX Counter32  
 MAX-ACCESS read-only  
 STATUS current  
 DESCRIPTION  
 “The number of MPOA Data Plane Purge messages transmitted  
 by this MPC.  
 Discontinuities in the value of this counter can occur  
 at re-initialization of the management system, and/or  
 re-initialization of the MPC, and at other times,  
 as indicated by the value of mpcDiscontinuityTime.”  
 ::= { mpcStatisticsEntry 22 }

mpcStatRxNhrpPurgeRequests OBJECT-TYPE  
 SYNTAX Counter32  
 MAX-ACCESS read-only  
 STATUS current  
 DESCRIPTION  
 “The number of Purge Requests received by this MPC.  
 Discontinuities in the value of this counter can occur  
 at re-initialization of the management system, and/or

re-initialization of the MPC, and at other times,  
as indicated by the value of mpcDiscontinuityTime.”  
 ::= { mpcStatisticsEntry 23 }

mpcStatTxNhrpPurgeReplies OBJECT-TYPE

SYNTAX Counter32  
MAX-ACCESS read-only  
STATUS current  
DESCRIPTION  
“The number of Purge Replies transmitted by this MPC.  
Discontinuities in the value of this counter can occur  
at re-initialization of the management system, and/or  
re-initialization of the MPC, and at other times,  
as indicated by the value of mpcDiscontinuityTime.”  
 ::= { mpcStatisticsEntry 24 }

mpcStatRxErrUnrecognizedExtensions OBJECT-TYPE

SYNTAX Counter32  
MAX-ACCESS read-only  
STATUS current  
DESCRIPTION  
“The number of Error Indication packets received by  
this MPC with the error code ‘Unrecognized Extension’.  
Discontinuities in the value of this counter can occur  
at re-initialization of the management system, and/or  
re-initialization of the MPC, and at other times,  
as indicated by the value of mpcDiscontinuityTime.”  
 ::= { mpcStatisticsEntry 25 }

mpcStatRxErrLoopDetecteds OBJECT-TYPE

SYNTAX Counter32  
MAX-ACCESS read-only  
STATUS current  
DESCRIPTION  
“The number of Error Indication packets received by  
this MPC with the error code ‘Loop Detected’.  
Discontinuities in the value of this counter can occur  
at re-initialization of the management system, and/or  
re-initialization of the MPC, and at other times,  
as indicated by the value of mpcDiscontinuityTime.”  
 ::= { mpcStatisticsEntry 26 }

mpcStatRxErrProtoAddrUnreachables OBJECT-TYPE

SYNTAX Counter32  
MAX-ACCESS read-only  
STATUS current  
DESCRIPTION  
“The number of Error Indication packets received by this  
MPC with the error code ‘Protocol Address Unreachable’.  
Discontinuities in the value of this counter can occur  
at re-initialization of the management system, and/or  
re-initialization of the MPC, and at other times,  
as indicated by the value of mpcDiscontinuityTime.”  
 ::= { mpcStatisticsEntry 27 }

mpcStatRxErrProtoErrors OBJECT-TYPE

SYNTAX Counter32  
 MAX-ACCESS read-only  
 STATUS current  
 DESCRIPTION  
 “The number of Error Indication packets received by this MPC with the error code ‘Protocol Errors’.  
 Discontinuities in the value of this counter can occur at re-initialization of the management system, and/or re-initialization of the MPC, and at other times, as indicated by the value of mpcDiscontinuityTime.”  
 ::= { mpcStatisticsEntry 28 }

mpcStatRxErrSduSizeExceededs OBJECT-TYPE

SYNTAX Counter32  
 MAX-ACCESS read-only  
 STATUS current  
 DESCRIPTION  
 “The number of Error Indication packets received by this MPC with the error code ‘SDU Size Exceeded’.  
 Discontinuities in the value of this counter can occur at re-initialization of the management system, and/or re-initialization of the MPC, and at other times, as indicated by the value of mpcDiscontinuityTime.”  
 ::= { mpcStatisticsEntry 29 }

mpcStatRxErrInvalidExtensions OBJECT-TYPE

SYNTAX Counter32  
 MAX-ACCESS read-only  
 STATUS current  
 DESCRIPTION  
 “The number of Error Indication packets received by this MPC with the error code ‘Invalid Extensions’.  
 Discontinuities in the value of this counter can occur at re-initialization of the management system, and/or re-initialization of the MPC, and at other times, as indicated by the value of mpcDiscontinuityTime.”  
 ::= { mpcStatisticsEntry 30 }

mpcStatRxErrInvalidReplies OBJECT-TYPE

SYNTAX Counter32  
 MAX-ACCESS read-only  
 STATUS current  
 DESCRIPTION  
 “The number of Error Indication packets received by this MPC with the error code ‘Invalid Reply’.  
 Discontinuities in the value of this counter can occur at re-initialization of the management system, and/or re-initialization of the MPC, and at other times, as indicated by the value of mpcDiscontinuityTime.”  
 ::= { mpcStatisticsEntry 31 }

mpcStatRxErrAuthenticationFailures OBJECT-TYPE

SYNTAX Counter32  
 MAX-ACCESS read-only  
 STATUS current  
 DESCRIPTION

“The number of Error Indication packets received by this MPC with the error code ‘Authentication Failure’. Discontinuities in the value of this counter can occur at re-initialization of the management system, and/or re-initialization of the MPC, and at other times, as indicated by the value of mpcDiscontinuityTime.”

::= { mpcStatisticsEntry 32 }

mpcStatRxErrHopCountExceededs OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

“The number of Error Indication packets received by this MPC with the error code ‘Hop Count Exceeded’. Discontinuities in the value of this counter can occur at re-initialization of the management system, and/or re-initialization of the MPC, and at other times, as indicated by the value of mpcDiscontinuityTime.”

::= { mpcStatisticsEntry 33 }

--  
 -- MPOA Client Protocol support group  
 --

mpcProtocolTable OBJECT-TYPE

SYNTAX SEQUENCE OF MpcProtocolEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

“List of protocols, per MPC, for which flow detection is enabled”

REFERENCE

“Multiprotocol Over ATM Version 1.0 (Letter Ballot), Section 4.1.2.1 MPC Parameters”

::= { mpcObjects 6 }

mpcProtocolEntry OBJECT-TYPE

SYNTAX MpcProtocolEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

“Each row indicates one protocol for which an MPC will do flow detection. If the LECS was contacted for configuration information, and the Control Octet of the MPC-p3 has the value of 0x01, ‘Enable’, then protocol values retrieved from the LECS are reflected in this table and the mpcLECSValue object will be (1) true. Also, the user or agent can create rows which appropriately correspond to the MPC denoted by mpcIndex, and the mpcLECSValue object will be set to (2) false. NOTE: if the LECS does not return information for the MPC-p3 parameter, or if in manual mode, the user or agent should create at least one entry for the corresponding MPC.”

Both, LECS and user and/or agent created rows may exist in this Table.”

```
INDEX { mpcIndex,
 mpcFlowDetectProtocol
 }
 ::= { mpcProtocolTable 1 }
```

```
MpcProtocolEntry ::= SEQUENCE {
 mpcFlowDetectProtocol InternetnetworkAddrType,
 mpcLECSValue TruthValue,
 mpcProtocolRowStatus RowStatus
}
```

mpcFlowDetectProtocol OBJECT-TYPE

```
SYNTAX InternetnetworkAddrType
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
```

“The protocol on which flow detection is performed. If this value was obtained from the LECS then this value is one of the collection of values returned in the MPC-p3 parameter.”

```
::= { mpcProtocolEntry 1 }
```

mpcLECSValue OBJECT-TYPE

```
SYNTAX TruthValue
MAX-ACCESS read-only
STATUS current
DESCRIPTION
```

“This object reflects if the current entry is due to a retrieval from the LECS or not. If this entry is due to the LECS, then true(1) is the value for this object, otherwise, false (2).”

```
::= { mpcProtocolEntry 2 }
```

mpcProtocolRowStatus OBJECT-TYPE

```
SYNTAX RowStatus
MAX-ACCESS read-create
STATUS current
DESCRIPTION
```

“This object is used by an agent or manager to create, delete or modify a row in this table.”

```
::= { mpcProtocolEntry 3 }
```

```
--
-- LEC -> MPC Mapping group
--
```

mpcMappingTable OBJECT-TYPE

```
SYNTAX SEQUENCE OF MpcMappingEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
```

“A table mapping the ‘lecIndex’ values of

LANE Clients to the 'mpcIndex' values of  
corresponding MPOA Clients.”  
 ::= { mpcObjects 7 }

## mpcMappingEntry OBJECT-TYPE

SYNTAX MpcMappingEntry  
MAX-ACCESS not-accessible  
STATUS current  
DESCRIPTION  
“Each row defines one lecIndex --> mpcIndex mapping.  
The mpcIndex that a lecIndex maps to is not  
necessarily unique (an MPC can serve many LECs, however,  
a LEC cannot be served by more than one MPC).”  
REFERENCE  
“Multiprotocol Over ATM Version 1.0 (Letter Ballot),  
Section 4.4.”  
INDEX { lecIndex }  
 ::= { mpcMappingTable 1 }

MpcMappingEntry ::= SEQUENCE {  
 mpcMappingRowStatus RowStatus,  
 mpcMappingIndex MpcIndex  
 }

## mpcMappingRowStatus OBJECT-TYPE

SYNTAX RowStatus  
MAX-ACCESS read-create  
STATUS current  
DESCRIPTION  
“This object is used by an agent or manager to create, delete  
or modify a row in this table.”  
 ::= { mpcMappingEntry 1 }

## mpcMappingIndex OBJECT-TYPE

SYNTAX MpcIndex  
MAX-ACCESS read-create  
STATUS current  
DESCRIPTION  
“The mpcIndex of the MPOA Client that is performing  
flow detection for the LANE Client represented by  
the lecIndex.”  
 ::= { mpcMappingEntry 2 }

--  
-- MPOA Client MPS information group  
--

## mpcMpsTable OBJECT-TYPE

SYNTAX SEQUENCE OF MpcMpsEntry  
MAX-ACCESS not-accessible  
STATUS current  
DESCRIPTION  
“This is a read-only table which contains  
information about the MPSs that these MPCs  
know about.”

```
::= { mpcObjects 8 }
```

mpcMpsEntry OBJECT-TYPE

```
SYNTAX MpcMpsEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
 "A row created by an MPC. The MPC learns about
 an MPS and creates a row."
INDEX { mpcMpsIndex }
 ::= { mpcMpsTable 1 }
```

```
MpcMpsEntry ::= SEQUENCE {
 mpcMpsIndex MpsIndex,
 mpcMpsAtmAddr AtmAddr
}
```

mpcMpsIndex OBJECT-TYPE

```
SYNTAX MpsIndex
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
 "The MPS's index which is used to identify
 a row in this table."
 ::= { mpcMpsEntry 1 }
```

mpcMpsAtmAddr OBJECT-TYPE

```
SYNTAX AtmAddr
MAX-ACCESS read-only
STATUS current
DESCRIPTION
 "The Control ATM Address of the MPS"
 ::= { mpcMpsEntry 2 }
```

```
--
-- MPOA Client's MAC Address group
--
```

mpcMpsMacAddressTable OBJECT-TYPE

```
SYNTAX SEQUENCE OF MpcMpsMacAddressEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
 "This is a read-only table which contains
 information about all the MPSs' MAC Addresses
 that these MPCs know about."
 ::= { mpcObjects 9 }
```

mpcMpsMacAddressEntry OBJECT-TYPE

```
SYNTAX MpcMpsMacAddressEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
 "A row is created by an MPC. The MPC learns about an
 MPS's MAC Address and creates a row."
```

```

INDEX { mpcMpsIndex,
 mpcLecIndex
 }
 ::= { mpcMpsMacAddressTable 1 }

MpcMpsMacAddressEntry ::= SEQUENCE {
 mpcLecIndex LecIndex,
 mpcMpsMacAddress MacAddress
}

mpcLecIndex OBJECT-TYPE
 SYNTAX LecIndex
 MAX-ACCESS not-accessible
 STATUS current
 DESCRIPTION
 "The lecIndex which represents the associated LEC."
 ::= { mpcMpsMacAddressEntry 1 }

mpcMpsMacAddress OBJECT-TYPE
 SYNTAX MacAddress
 MAX-ACCESS read-only
 STATUS current
 DESCRIPTION
 "The MAC Address of the MPS."
 REFERENCE
 "Multiprotocol Over ATM Version 1.0 (Letter Ballot),
 Section 3.3.3.1"
 ::= { mpcMpsMacAddressEntry 2 }

--
-- MPOA Client Ingress Cache group
--

mpcIngressCacheTxTotalPackets OBJECT-TYPE
 SYNTAX Counter32
 MAX-ACCESS read-only
 STATUS current
 DESCRIPTION
 "The total number of packets transmitted over MPC Short Cuts."
 ::= { mpcObjects 10 }

mpcIngressCacheTxTotalOctets OBJECT-TYPE
 SYNTAX Counter64
 MAX-ACCESS read-only
 STATUS current
 DESCRIPTION
 "The total number of octets transmitted over MPC Short Cuts."
 ::= { mpcObjects 11 }

mpcIngressCacheTable OBJECT-TYPE
 SYNTAX SEQUENCE OF MpcIngressCacheEntry
 MAX-ACCESS not-accessible
 STATUS current
 DESCRIPTION
 "This table contains information for MPC Caches for

```

the ingress MPC.”  
 ::= { mpcObjects 12 }

mpcIngressCacheEntry OBJECT-TYPE

SYNTAX MpcIngressCacheEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

“An entry contains control information  
 for a row in a MPC’s Ingress Cache.”

INDEX { mpcIngressCacheDestInnetworkAddrType,  
 mpcIngressCacheDestAddr,  
 mpcIndex,  
 mpcMpsIndex  
 }

::= { mpcIngressCacheTable 1 }

MpcIngressCacheEntry ::= SEQUENCE {

mpcIngressCacheDestInnetworkAddrType InternetnetworkAddrType,

mpcIngressCacheDestAddr InternetnetworkAddr,

mpcIngressCachePrefixLen Integer32,

mpcIngressCacheDestAtmAddr AtmAddr,

mpcIngressCacheSrcAtmAddr AtmAddr,

mpcIngressCacheEntryState INTEGER,

mpcIngressCacheEgressCacheTagValid TruthValue,

mpcIngressCacheEgressCacheTag Integer32,

--

-- Information for diagnosing problems

--

mpcIngressCacheLastNhrpCieCode INTEGER,

mpcIngressCacheSigErrCode Integer32,

mpcIngressCacheRetries Counter32,

mpcIngressCacheTimeUntilNextResolutionRequest

TimeInterval,

mpcIngressCacheHoldingTime TimeInterval,

mpcIngressCacheServiceCategory INTEGER

}

mpcIngressCacheDestInnetworkAddrType OBJECT-TYPE

SYNTAX InternetnetworkAddrType

MAX-ACCESS read-only

STATUS current

DESCRIPTION

“The type of the destination internetwork layer address.”

::= { mpcIngressCacheEntry 1 }

mpcIngressCacheDestAddr OBJECT-TYPE

SYNTAX InternetnetworkAddr

MAX-ACCESS read-only

STATUS current

DESCRIPTION

“The destination internetwork layer address for which this entry is defined.”  
 ::= { mpcIngressCacheEntry 2 }

mpcIngressCachePrefixLen OBJECT-TYPE

SYNTAX Integer32  
 MAX-ACCESS read-only  
 STATUS current  
 DESCRIPTION  
 “Defines an equivalence class of addresses that match Prefix Length bit positions of the destination internetwork layer address.”  
 ::= { mpcIngressCacheEntry 3 }

mpcIngressCacheDestAtmAddr OBJECT-TYPE

SYNTAX AtmAddr  
 MAX-ACCESS read-only  
 STATUS current  
 DESCRIPTION  
 “The Destination ATM Address received in the MPOA Resolution Reply.”  
 ::= { mpcIngressCacheEntry 4 }

mpcIngressCacheSrcAtmAddr OBJECT-TYPE

SYNTAX AtmAddr  
 MAX-ACCESS read-only  
 STATUS current  
 DESCRIPTION  
 “The Source ATM Address for the MPOA Resolution Request.”  
 ::= { mpcIngressCacheEntry 5 }

mpcIngressCacheEntryState OBJECT-TYPE

SYNTAX INTEGER {  
     doesNotExist (1),  
     inactive (2),  
     active(3),  
     negative(4)  
 }  
 MAX-ACCESS read-only  
 STATUS current  
 DESCRIPTION  
 “The present state of this MPC ingress cache. The states are:  
 doesNotExist (1) -- the state is not yet available  
 inactive (2) -- state exists, entry is not yet active. For an example, if using the Finite State Machine Appendix I.2, then the states Cached and query are considered ‘inactive’.  
 active (3) -- state exists, entry is active. For an example, if using the Finite State Machine in Appendix I.2, then the states resolved and refresh are considered ‘active’.  
 negative (4) -- state exists, entry is negative,

which could mean a NAK response was received, or entry is doing a retry, etc. For example, if using the Finite State Machine in Appendix I.2, then the state 'hold down' is considered 'negative'."

## REFERENCE

"Multiprotocol Over ATM, Letter Ballot, Appendix I.2."

::= { mpcIngressCacheEntry 6 }

## mpcIngressCacheEgressCacheTagValid OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-only

STATUS current

## DESCRIPTION

"If the value of this object is true(1), then a valid Egress Cache Tag is present and the value of the Egress Cache Tag is in mpcIngressCacheEgressCacheTag. Otherwise, if this value is false(2), then there was no Egress Cache Tag, and the value of mpcIngressCacheEgressCacheTag is undefined."

::= { mpcIngressCacheEntry 7 }

## mpcIngressCacheEgressCacheTag OBJECT-TYPE

SYNTAX Integer32

MAX-ACCESS read-only

STATUS current

## DESCRIPTION

"If a valid Egress Cache Tag is present, then this object contains the value of that tag. To determine if this object contains a valid value, mpcIngressCacheEgressTagValid should be used."

## REFERENCE

"Multiprotocol Over ATM Version 1.0 (Letter Ballot), Section 4.4.4.1."

::= { mpcIngressCacheEntry 8 }

## mpcIngressCacheLastNhrpCieCode OBJECT-TYPE

SYNTAX INTEGER (0..255)

MAX-ACCESS read-only

STATUS current

## DESCRIPTION

"The last NHRP CIE code received for this entry. This value is valid only during the Hold Down period of the cache entry. This value is undefined otherwise."

## REFERENCE

"Normative section 4.4.6.1.1 of Multiprotocol Over ATM Version 1.0 (Letter Ballot)"

::= { mpcIngressCacheEntry 9 }

## mpcIngressCacheSigErrCode OBJECT-TYPE

SYNTAX Integer32

MAX-ACCESS read-only

STATUS current

## DESCRIPTION

"Error code or Success of the last signalling request"

for this cache entry.”  
 ::= { mpcIngressCacheEntry 10 }

mpcIngressCacheRetries OBJECT-TYPE

SYNTAX Counter32  
 MAX-ACCESS read-only  
 STATUS current  
 DESCRIPTION

“The current number of times this MPC has issued a resolution request since it received a valid reply.”

::= { mpcIngressCacheEntry 11 }

mpcIngressCacheTimeUntilNextResolutionRequest OBJECT-TYPE

SYNTAX TimeInterval  
 MAX-ACCESS read-only  
 STATUS current  
 DESCRIPTION

“The amount of time the MPC must wait before issuing the next resolution request.”

::= { mpcIngressCacheEntry 12 }

mpcIngressCacheHoldingTime OBJECT-TYPE

SYNTAX TimeInterval  
 MAX-ACCESS read-only  
 STATUS current  
 DESCRIPTION

“The time that this MPC’s Ingress Cache Entry will remain valid. If the mpcIngressCacheEntryState is not active this value will be zero.”

::= { mpcIngressCacheEntry 13 }

mpcIngressCacheServiceCategory OBJECT-TYPE

SYNTAX INTEGER (0..65535)  
 MAX-ACCESS read-only  
 STATUS current  
 DESCRIPTION

“The service categories supported for this shortcut.”

REFERENCE

“Lane V2 LUNI TLVs. AF-LANE-0084 page 122”

::= { mpcIngressCacheEntry 14 }

--  
 -- MPOA Client Egress Cache group  
 --

mpcEgressCacheRxTotalPackets OBJECT-TYPE

SYNTAX Counter32  
 MAX-ACCESS read-only  
 STATUS current  
 DESCRIPTION

“This counts the total number of packets received by MPC Short Cuts.”

::= { mpcObjects 13 }

mpcEgressCacheRxTotalOctets OBJECT-TYPE

SYNTAX Counter64  
 MAX-ACCESS read-only  
 STATUS current  
 DESCRIPTION  
 "This counts the total number of octets  
 received by MPC Short Cuts."  
 ::= { mpcObjects 14 }

mpcEgressCacheTable OBJECT-TYPE  
 SYNTAX SEQUENCE OF MpcEgressCacheEntry  
 MAX-ACCESS not-accessible  
 STATUS current  
 DESCRIPTION  
 "This table contains Egress Cache information for  
 all the MPCs which this agent manages."  
 ::= { mpcObjects 15 }

mpcEgressCacheEntry OBJECT-TYPE  
 SYNTAX MpcEgressCacheEntry  
 MAX-ACCESS not-accessible  
 STATUS current  
 DESCRIPTION  
 "An entry in the MPOA Client's Egress Cache table."  
 INDEX { mpcEgressCacheId,  
 mpcIndex,  
 mpcMpsIndex  
 }  
 ::= { mpcEgressCacheTable 1 }

MpcEgressCacheEntry ::= SEQUENCE {  
 mpcEgressCacheId Integer32,  
 mpcEgressCacheInetAddressType InternetnetworkAddrType,  
 mpcEgressCacheIDestAddr InternetnetworkAddr,  
 mpcEgressCachePrefixLen Integer32,  
 mpcEgressCacheEntryState INTEGER,  
 mpcEgressCacheEgressCacheTagValid TruthValue,  
 mpcEgressCacheEgressCacheTag Integer32,  
 mpcEgressCacheHoldTime TimeInterval,  
 mpcEgressCacheDataLinkHeader OCTET STRING,  
 mpcEgressCacheIngressMpcDataAtmAddr AtmAddr,  
 mpcEgressCacheLecIndex LecIndex,  
 mpcEgressCacheServiceCategory INTEGER  
 }

mpcEgressCacheId OBJECT-TYPE  
 SYNTAX Integer32 (1..2147483647)  
 MAX-ACCESS read-only  
 STATUS current  
 DESCRIPTION  
 "Cache ID Provided by the MPS in the Cache  
 Imposition Request."  
 ::= { mpcEgressCacheEntry 1 }

mpcEgressCacheInetAddressType OBJECT-TYPE  
 SYNTAX InternetnetworkAddrType  
 MAX-ACCESS read-only

STATUS current  
 DESCRIPTION  
 "Type of Internetwork Address in this cache entry."  
 ::= { mpcEgressCacheEntry 2 }

mpcEgressCacheIDestAddr OBJECT-TYPE  
 SYNTAX InternetworkAddr  
 MAX-ACCESS read-only  
 STATUS current  
 DESCRIPTION  
 "The destination internetwork layer address  
 for which this entry is defined."  
 ::= { mpcEgressCacheEntry 3 }

mpcEgressCachePrefixLen OBJECT-TYPE  
 SYNTAX Integer32  
 MAX-ACCESS read-only  
 STATUS current  
 DESCRIPTION  
 "Defines an equivalence class of addresses that match  
 Prefix Length bit positions of the destination  
 internetwork layer address."  
 ::= { mpcEgressCacheEntry 4 }

mpcEgressCacheEntryState OBJECT-TYPE  
 SYNTAX INTEGER {  
     doesNotExist(1),  
     inactive(2),  
     active (3),  
     negative (4)  
 }  
 MAX-ACCESS read-only  
 STATUS current  
 DESCRIPTION  
 "The present state of this MPC egress cache entry.  
 The states are:  
     doesNotExist (1) -- the state is not yet available,  
     inactive (2) -- state exists, entry is not yet active,  
     active (3) -- state exists, entry is active.  
     For example,if using the Finite State  
         Machine in Appendix 1.5,  
         the states active and flooding  
         are 'active' state.  
     negative (4) -- state exists, entry is negative.  
  
     For example,if using the Finite  
     State Machine in Appendix 1.5,  
     the state purging is 'negative'."

REFERENCE  
 "MPOA Letter Ballot, Appendix I.5."  
 ::= { mpcEgressCacheEntry 5 }

mpcEgressCacheEgressCacheTagValid OBJECT-TYPE  
 SYNTAX TruthValue  
 MAX-ACCESS read-only  
 STATUS current

## DESCRIPTION

“If the value of this object is true(1), then a valid Egress Cache Tag is present and the value of the Egress Cache Tag is in mpcEgressCacheEgressCacheTag. Otherwise, if this value is false(2), then there was no Egress Cache Tag, and the value of mpcEgressCacheEgressCacheTag is undefined.”

::= { mpcEgressCacheEntry 6 }

## mpcEgressCacheEgressCacheTag OBJECT-TYPE

SYNTAX Integer32

MAX-ACCESS read-only

STATUS current

## DESCRIPTION

“If a valid Egress Cache Tag is present, then this object contains the value of that tag. To determine if this object contains a valid value, mpcEgressCacheEgressCacheTagValid should be used.”

::= { mpcEgressCacheEntry 7 }

## mpcEgressCacheHoldTime OBJECT-TYPE

SYNTAX TimeInterval

MAX-ACCESS read-only

STATUS current

## DESCRIPTION

“The remaining time for which this entry is valid.”

::= { mpcEgressCacheEntry 8 }

## mpcEgressCacheDataLinkHeader OBJECT-TYPE

SYNTAX OCTET STRING (SIZE (0..255))

MAX-ACCESS read-only

STATUS current

## DESCRIPTION

“The DataLink header that the egress client rebuilds the original DataLink packet with.”

::= { mpcEgressCacheEntry 9 }

## mpcEgressCacheIngressMpcDataAtmAddr OBJECT-TYPE

SYNTAX AtmAddr

MAX-ACCESS read-only

STATUS current

## DESCRIPTION

“The Data ATM Address of the ingress MPC that issued the MPOA Resolution request”

## REFERENCE

“Multiprotocol Over ATM. AF-MPOA-0087.000. Page 81.”

::= { mpcEgressCacheEntry 10 }

## mpcEgressCacheLecIndex OBJECT-TYPE

SYNTAX LecIndex

MAX-ACCESS read-only

STATUS current

## DESCRIPTION

“This is the lecIndex of the LANE Client that this flow is associated with. This can be used to get the ELAN name as well as other LANE parameters.”

```
::= { mpcEgressCacheEntry 11 }
```

```
mpcEgressCacheServiceCategory OBJECT-TYPE
```

```
SYNTAX INTEGER (0..65535)
```

```
MAX-ACCESS read-only
```

```
STATUS current
```

```
DESCRIPTION
```

“This is a bitmap describing the service categories supported for this shortcut. This value represents an inclusive OR of the bits:

bit 1 - if rt-VBR is supported,  
bit 2 - if nrt-VBR is supported,  
bit 4 - if ABR is supported,  
bit 8 - if CBR is supported

A value of 0 (zero) indicates that UBR is supported.”

```
REFERENCE
```

“Lane V2 LUNI TLVs. AF-LANE-0084, page 122.”

```
::= { mpcEgressCacheEntry 12 }
```

```
--
-- MPOA Server Objects
--
```

```
mpsObjects OBJECT IDENTIFIER ::= { mpoaMIBObjects 3 }
```

```
mpsNextIndex OBJECT-TYPE
```

```
SYNTAX Integer32 (0..2147483647)
```

```
MAX-ACCESS read-only
```

```
STATUS current
```

```
DESCRIPTION
```

“This object contains an appropriate value to be used for mpsIndex when creating entries in the mpsConfigTable. The value 0 indicates that no new rows can be created. Otherwise, it is recommended that values are assigned contiguously, starting from 1.

MPS creation by a Manager: To obtain the mpsIndex value for a new entry, the manager issues a management protocol retrieval operation to obtain the current value of this object. If the value retrieved is 0 (zero), the manager cannot create a row.

After each retrieval of a non-zero value, the manager should issue a management protocol SET operation using the value just retrieved. If the SET is successful, the agent should update the value to the next unassigned index, or zero if appropriate.

NOTE: the manager may also issue a set on this object with a value of its own choosing. If the set is successful, the manager may use this value for the mpsIndex. In this case, the agent would update the value to the next unassigned index, or zero if appropriate.

The definition of 'next unassigned index' is any mpsNextIndex value that has not yet been set by a manager, or reserved by the agent (see next paragraph), since this agent was last re-initialized.

MPS creation by an Agent: When a row in the mpsConfigTable is created by an agent, the agent should reserve the value of the index by updating the value of this object to the next unassigned index or zero if appropriate. Thus, a manager will not be able to set an index reserved by an agent.

In the situation of an agent re-initialization all currently used mpsIndexes must be preserved. In other words, the Agent should store in non-volatile memory all the currently used mpsIndexes (along with all necessary configuration information from the mpsConfigTable). When the agent is re-initialized, the mpsNextIndex value is any valid Integer32 which is not being used as an mpsIndex, except 0 which maintains its original definition of indicating that a row cannot be created."

```
::= { mpsObjects 1 }
```

```
--
-- MPOA Server configuration group
--
```

```
mpsConfigTable OBJECT-TYPE
```

```
SYNTAX SEQUENCE OF MpsConfigEntry
```

```
MAX-ACCESS not-accessible
```

```
STATUS current
```

```
DESCRIPTION
```

```
"The MPOA Server Configuration Table.
```

```
This table represents the configuration information for
all MPOA Servers which this agent manages."
```

```
::= { mpsObjects 2 }
```

```
mpsConfigEntry OBJECT-TYPE
```

```
SYNTAX MpsConfigEntry
```

```
MAX-ACCESS not-accessible
```

```
STATUS current
```

```
DESCRIPTION
```

```
"MPOA Server Configuration Entry.
```

```
Each entry contains configuration information
for one MPOA Server."
```

```
INDEX { mpsIndex }
```

```
::= { mpsConfigTable 1 }
```

```
MpsConfigEntry ::= SEQUENCE {
```

```
---- Primary config info: Index, mode and address information
```

```
--
mpsIndex MpsIndex,
mpsRowStatus RowStatus,
mpsConfigMode INTEGER,
```

```
mpsCtrlAtmAddr AtmConfigAddr,
```

```

--
-- MPS parameters that can be obtained from
-- the LECS.
--
mpsKeepAliveTime Integer32, -- MPS-p1
mpsKeepAliveLifeTime Integer32, -- MPS-p2
-- The Flow-detection Protocols (denoted with MPS-p3)
-- are represented in the mpcProtocolsTable.
mpsInitialRetryTime Integer32, -- MPS-p4
mpsRetryTimeMaximum Integer32, -- MPS-p5
mpsGiveupTime Integer32, -- MPS-p6
mpsDefaultHoldingTime Integer32 -- MPS-p7
}

mpsIndex OBJECT-TYPE
SYNTAX MpsIndex
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
 "A value which uniquely identifies this conceptual
 row in the mpsConfigTable. The 'mpsNextIndex' object
 needs to be used to determine the value of this object.
 A row cannot be added, unless the mpsCtrlAtmAddress
 is unique.
 In the event of an MPS re-initialization, the value
 of this mpsIndex must remain the same. However, in
 the event of an agent re-initialization, this value
 does not need to be preserved."
 ::= { mpsConfigEntry 1 }

mpsRowStatus OBJECT-TYPE
SYNTAX RowStatus
MAX-ACCESS read-create
STATUS current
DESCRIPTION
 "This object allows creation and deletion of MPOA Servers.
 Within each conceptual mpsConfigTable row, objects which are
 writable may be modified regardless of the value of
 mpsRowStatus. It is not necessary to set a row's status
 to 'notInService' first.

 A row cannot be created, unless the mpsAtmCtrlAddress
 in this table is unique. When an MPOA Server is created
 via this object, it will initially have
 'mpsActualState' = 'initialState'."
 ::= { mpsConfigEntry 2 }

mpsConfigMode OBJECT-TYPE
SYNTAX INTEGER {
 automatic(1),
 manual(2)
 }
MAX-ACCESS read-create
STATUS current
DESCRIPTION

```

“Indicates whether this MPS should auto-configure the next time it is (re-)initialized.

In automatic(1) mode the LECS is contacted and requests are made for the MPS-p\* parameters.

In manual(2) mode, the values of the configuration parameters are obtained from the mpsConfigTable and the mpsProtocolTable.”

DEFVAL { automatic }  
 ::= { mpsConfigEntry 3 }

#### mpsCtrlAtmAddr OBJECT-TYPE

SYNTAX AtmConfigAddr

MAX-ACCESS read-create

STATUS current

DESCRIPTION

“The MPS’s Control ATM Address. There exists one Control ATM Address per MPS, therefore, the value of this entry is unique within the table.”

::= { mpsConfigEntry 4 }

#### mpsKeepAliveTime OBJECT-TYPE

SYNTAX Integer32 (1..300)

MAX-ACCESS read-create

STATUS current

DESCRIPTION

“MPS-p1 Keep-alive time is max interval between the MPS sending MPOA Keep-Alives in seconds.”

DEFVAL { 10 }  
 ::= { mpsConfigEntry 5 }

#### mpsKeepAliveLifeTime OBJECT-TYPE

SYNTAX Integer32 (3..1000)

MAX-ACCESS read-create

STATUS current

DESCRIPTION

“MPS-p2 Keep-Alive Lifetime  
 The length of time an MPC may consider a Keep-Alive valid in seconds. This value must be at least three times the mpsKeepAliveTime (MPS-p1).”

DEFVAL { 35 }  
 ::= { mpsConfigEntry 6 }

#### mpsInitialRetryTime OBJECT-TYPE

SYNTAX Integer32 (1..300)

MAX-ACCESS read-create

STATUS current

DESCRIPTION

“MPS-p4 is initial value in seconds for the MPOA retry mechanism.”

DEFVAL { 5 }  
 ::= { mpsConfigEntry 7 }

#### mpsRetryTimeMaximum OBJECT-TYPE

SYNTAX Integer32 (10..300)

MAX-ACCESS read-create

STATUS current

## DESCRIPTION

“MPS-p5 cumulative max value in seconds  
for Retry Time (MPS-p4).”

## REFERENCE

“Multiprotocol Over ATM. AF-MPOA-0087.000.  
Section 4.3 MPOA Retry Mechanism”

DEFVAL { 40 }

::= { mpsConfigEntry 8 }

## mpsGiveupTime OBJECT-TYPE

SYNTAX Integer32 (5..300)

MAX-ACCESS read-create

STATUS current

## DESCRIPTION

“MPS-p6 Give Up Time.  
Minimum time in seconds to wait before giving up on a  
pending resolution request.”

DEFVAL { 40 }

::= { mpsConfigEntry 9 }

## mpsDefaultHoldingTime OBJECT-TYPE

SYNTAX Integer32 (1..120)

MAX-ACCESS read-create

STATUS current

## DESCRIPTION

“MPS-p7 Default Holding Time in minutes.  
The default Holding Time used in NHRP  
Resolution Replies. An egress MPS may use  
local information to determine a more  
appropriate Holding Time.”

DEFVAL { 20 }

::= { mpsConfigEntry 10 }

--

-- MPOA Server Actual group

--

## mpsActualTable OBJECT-TYPE

SYNTAX SEQUENCE OF MpsActualEntry

MAX-ACCESS not-accessible

STATUS current

## DESCRIPTION

“A read-only table containing identification, status,  
and operational information about the MPOA  
Servers this agent manages.”

::= { mpsObjects 3 }

## mpsActualEntry OBJECT-TYPE

SYNTAX MpsActualEntry

MAX-ACCESS not-accessible

STATUS current

## DESCRIPTION

“An entry in the MPS Actual Table.  
An entry represents a specific MPOA Server’s  
status and operation information.”

AUGMENTS { mpsConfigEntry }

```
::= { mpsActualTable 1 }
```

```
MpsActualEntry ::= SEQUENCE {
 mpsActualState INTEGER,
 mpsDiscontinuityTime TimeStamp,
 mpsActualConfigMode INTEGER,

 --
 -- Actual values of parameters
 --
 mpsActualKeepAlive Integer32, -- MPS-p1
 mpsActualKeepAliveLifeTime Integer32, -- MPS-p2
 -- The Internetwork-layer Protocols for MPS-p3 are
 -- represented in the mpsProtocolTable.
 --
 mpsActualInitialRetryTime Integer32, -- MPS-p4
 mpsActualRetryTimeMaximum Integer32, -- MPS-p5
 mpsActualGiveupTime Integer32, -- MPS-p6
 mpsActualDefaultHoldingTime Integer32 -- MPS-p7
}

```

```
mpsActualState OBJECT-TYPE
 SYNTAX INTEGER {
 unknown(1),
 initialState(2),
 up(3),
 down(4)
 }
 MAX-ACCESS read-only
 STATUS current
 DESCRIPTION
 "This object indicates the current operational
 status of the MPOA Server."
 ::= { mpsActualEntry 1 }

```

```
mpsDiscontinuityTime OBJECT-TYPE
 SYNTAX TimeStamp
 MAX-ACCESS read-only
 STATUS current
 DESCRIPTION
 "The value of sysUpTime on the most recent occasion at
 which any one or more of this MPS's counters
 experienced a discontinuity. The relevant counters
 are the specific instances associated with this
 MPS. If discontinuities have not occurred since the
 last re-initialization of the local management subsystem,
 then this object contains a zero value."
 ::= { mpsActualEntry 2 }

```

```
mpsActualConfigMode OBJECT-TYPE
 SYNTAX INTEGER {
 automatic(1),
 manual(2)
 }
 MAX-ACCESS read-only

```

STATUS current  
 DESCRIPTION  
 "Indicates whether this MPS auto-configured  
 when it was last (re-)initialized."  
 ::= { mpsActualEntry 3 }

mpsActualKeepAlive OBJECT-TYPE  
 SYNTAX Integer32  
 MAX-ACCESS read-only  
 STATUS current  
 DESCRIPTION  
 "The maximum amount of time in seconds this MPS waits  
 between sending MPOA Keep-Alives."  
 ::= { mpsActualEntry 5 }

mpsActualKeepAliveLifeTime OBJECT-TYPE  
 SYNTAX Integer32  
 MAX-ACCESS read-only  
 STATUS current  
 DESCRIPTION  
 "The length of time in seconds this MPS  
 considers a Keep-Alive valid."  
 ::= { mpsActualEntry 6 }

mpsActualInitialRetryTime OBJECT-TYPE  
 SYNTAX Integer32 (1..300)  
 MAX-ACCESS read-only  
 STATUS current  
 DESCRIPTION  
 "The actual initial value in seconds for the MPOA  
 retry mechanism."  
 DEFVAL { 5 }  
 ::= { mpsActualEntry 7 }

mpsActualRetryTimeMaximum OBJECT-TYPE  
 SYNTAX Integer32 (30..300)  
 MAX-ACCESS read-only  
 STATUS current  
 DESCRIPTION  
 "The actual cumulative max value in seconds  
 for Retry Time."  
 REFERENCE  
 "Multiprotocol Over ATM. AF-MPOA-0087.000.  
 Section 4.3 MPOA Retry Mechanism"  
 DEFVAL { 40 }  
 ::= { mpsActualEntry 8 }

mpsActualGiveupTime OBJECT-TYPE  
 SYNTAX Integer32 (5..300)  
 MAX-ACCESS read-only  
 STATUS current  
 DESCRIPTION  
 "Minimum time in seconds that this MPS waits  
 before giving up on a pending resolution request."  
 DEFVAL { 40 }  
 ::= { mpsActualEntry 9 }

mpsActualDefaultHoldingTime OBJECT-TYPE

SYNTAX Integer32 (1..120)

MAX-ACCESS read-only

STATUS current

DESCRIPTION

“The actual Holding Time in minutes used in  
NHRP Resolution Replies.”

::= { mpsActualEntry 10 }

--

-- MPOA Server statistics group

--

mpsStatisticsTable OBJECT-TYPE

SYNTAX SEQUENCE OF MpsStatisticsEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

“This table represents the statistical information  
for the MPSSs, which this agent manages.”

::= { mpsObjects 4 }

mpsStatisticsEntry OBJECT-TYPE

SYNTAX MpsStatisticsEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

“Each row in this table contains statistics  
for one MPOA server.”

AUGMENTS { mpsConfigEntry }

::= { mpsStatisticsTable 1 }

MpsStatisticsEntry ::= SEQUENCE {

|                                               |            |
|-----------------------------------------------|------------|
| mpsStatRxMpoaResolveRequests                  | Counter32, |
| mpsStatTxMpoaResolveReplyAcks                 | Counter32, |
| mpsStatTxMpoaResolveReplyInsufECResources     | Counter32, |
| mpsStatTxMpoaResolveReplyInsufSCResources     | Counter32, |
| mpsStatTxMpoaResolveReplyInsufEitherResources | Counter32, |
| mpsStatTxMpoaResolveReplyUnsupportedInetProt  | Counter32, |
| mpsStatTxMpoaResolveReplyUnsupportedMacEncaps | Counter32, |
| mpsStatTxMpoaResolveReplyUnspecifiedOther     | Counter32, |
| mpsStatTxMpoaResolveReplyOther                | Counter32, |
| mpsStatGiveupTimeExpires                      | Counter32, |

|                                           |            |
|-------------------------------------------|------------|
| mpsStatTxMpoaImpRequests                  | Counter32, |
| mpsStatRxMpoaImpReplyAcks                 | Counter32, |
| mpsStatRxMpoaImpReplyInsufECResources     | Counter32, |
| mpsStatRxMpoaImpReplyInsufSCResources     | Counter32, |
| mpsStatRxMpoaImpReplyInsufEitherResources | Counter32, |
| mpsStatRxMpoaImpReplyUnsupportedInetProt  | Counter32, |
| mpsStatRxMpoaImpReplyUnsupportedMacEncaps | Counter32, |
| mpsStatRxMpoaImpReplyUnspecifiedOther     | Counter32, |
| mpsStatRxMpoaImpReplyOther                | Counter32, |

```

mpsStatRxMpoaEgressCachePurgeRequests Counter32,
mpsStatTxMpoaEgressCachePurgeReplies Counter32,
mpsStatTxMpoaTriggers Counter32,
mpsStatTxNhrpResolveRequests Counter32,
mpsStatRxNhrpResolveReplies Counter32,
mpsStatRxNhrpResolveRequests Counter32,
mpsStatTxNhrpResolveReplies Counter32
}

```

## mpsStatRxMpoaResolveRequests OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

## DESCRIPTION

“The number of MPOA Resolve Requests received by this MPS which are translated to NHRP resolve requests.

Discontinuities in the value of this counter can occur at re-initialization of the management system, and/or re-initialization of the MPS, and at other times, as indicated by the value of mpsDiscontinuityTime.”

::= { mpsStatisticsEntry 1 }

## mpsStatTxMpoaResolveReplyAcks OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

## DESCRIPTION

“The number of MPOA Resolve Replies transmitted by this MPS which contain the MPOA CIE Code of 0x00, ‘Success’.

Discontinuities in the value of this counter can occur at re-initialization of the management system, and/or re-initialization of the MPS, and at other times, as indicated by the value of mpsDiscontinuityTime.”

## REFERENCE

“Multiprotocol Over ATM. AF-MPOA-0087.000. Page 62.”

::= { mpsStatisticsEntry 2 }

## mpsStatTxMpoaResolveReplyInsufECResources OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

## DESCRIPTION

“The number of MPOA Resolve Replies transmitted by this MPS which contain the MPOA CIE Code of 0x81, ‘Insufficient resources to accept egress cache entry’.

Discontinuities in the value of this counter can occur at re-initialization of the management system, and/or re-initialization of the MPS, and at other times, as indicated by the value of mpsDiscontinuityTime.”

## REFERENCE

“Multiprotocol Over ATM. AF-MPOA-0087.000. Page 62.”

::= { mpsStatisticsEntry 3 }

## mpsStatTxMpoaResolveReplyInsufSCResources OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only  
 STATUS current  
 DESCRIPTION  
 “The number of MPOA Resolve Replies transmitted by this MPS which contain the MPOA CIE Code of 0x82, ‘Insufficient resources to accept shortcut’.  
 Discontinuities in the value of this counter can occur at re-initialization of the management system, and/or re-initialization of the MPS, and at other times, as indicated by the value of mpsDiscontinuityTime.”  
 REFERENCE  
 “Multiprotocol Over ATM. AF-MPOA-0087.000. Page 62.”  
 ::= { mpsStatisticsEntry 4 }

mpsStatTxMpoaResolveReplyInsufEitherResources OBJECT-TYPE  
 SYNTAX Counter32  
 MAX-ACCESS read-only  
 STATUS current  
 DESCRIPTION  
 “The number of MPOA Resolve Replies transmitted by this MPS which contain the MPOA CIE CODE of 0x83, ‘Insufficient resources to accept either shortcut or egress cache entry’.  
 Discontinuities in the value of this counter can occur at re-initialization of the management system, and/or re-initialization of the MPS, and at other times, as indicated by the value of mpsDiscontinuityTime.”  
 REFERENCE  
 “Multiprotocol Over ATM. AF-MPOA-0087.000. Page 62.”  
 ::= { mpsStatisticsEntry 5 }

mpsStatTxMpoaResolveReplyUnsupportedInetProt OBJECT-TYPE  
 SYNTAX Counter32  
 MAX-ACCESS read-only  
 STATUS current  
 DESCRIPTION  
 “The number of MPOA Resolve Replies transmitted by this MPS which contain the MPOA CIE CODE of 0x84, ‘Unsupported Internetwork Layer protocol’.  
 Discontinuities in the value of this counter can occur at re-initialization of the management system, and/or re-initialization of the MPS, and at other times, as indicated by the value of mpsDiscontinuityTime.”  
 REFERENCE  
 “Multiprotocol Over ATM. AF-MPOA-0087.000. Page 62.”  
 ::= { mpsStatisticsEntry 6 }

mpsStatTxMpoaResolveReplyUnsupportedMacEncaps OBJECT-TYPE  
 SYNTAX Counter32  
 MAX-ACCESS read-only  
 STATUS current  
 DESCRIPTION  
 “The number of MPOA Resolve Replies transmitted by this MPS which contain the MPOA CIE CODE of 0x85, ‘Unsupported MAC layer encapsulation’.  
 Discontinuities in the value of this counter can occur at re-initialization of the management system, and/or

re-initialization of the MPS, and at other times,  
as indicated by the value of mpsDiscontinuityTime.”

## REFERENCE

“Multiprotocol Over ATM. AF-MPOA-0087.000. Page 62.”

::= { mpsStatisticsEntry 7 }

## mpsStatTxMpoaResolveReplyUnspecifiedOther OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

## DESCRIPTION

“The number of MPOA Resolve Replies transmitted by this MPS which contain the MPOA CIE CODE of 0x88, ‘Unspecified/Other’. Discontinuities in the value of this counter can occur at re-initialization of the management system, and/or re-initialization of the MPS, and at other times, as indicated by the value of mpsDiscontinuityTime.”

## REFERENCE

“Multiprotocol Over ATM. AF-MPOA-0087.000. Page 62.”

::= { mpsStatisticsEntry 8 }

## mpsStatTxMpoaResolveReplyOther OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

## DESCRIPTION

“The number of MPOA Resolve Replies transmitted by this MPS which are not counted above. NOTE: this would include NHRP errors. Discontinuities in the value of this counter can occur at re-initialization of the management system, and/or re-initialization of the MPS, and at other times, as indicated by the value of mpsDiscontinuityTime.”

## REFERENCE

“Multiprotocol Over ATM. AF-MPOA-0087.000. Page 62.”

::= { mpsStatisticsEntry 9 }

## mpsStatGiveupTimeExpires OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

## DESCRIPTION

“The number of times the MPS Give up Time (MPS-p6) has expired while waiting for a reply from a re-originated MPOA resolution request, i.e. a reply for a translated NHRP resolution request. Discontinuities in the value of this counter can occur at re-initialization of the management system, and/or re-initialization of the MPS, and at other times, as indicated by the value of mpsDiscontinuityTime.”

::= { mpsStatisticsEntry 10 }

## mpsStatTxMpoaImpRequests OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

## DESCRIPTION

“The number of MPOA Cache Imposition Requests transmitted by this MPS.  
Discontinuities in the value of this counter can occur at re-initialization of the management system, and/or re-initialization of the MPS, and at other times, as indicated by the value of mpsDiscontinuityTime.”

::= { mpsStatisticsEntry 11 }

## mpsStatRxMpoaImpReplyAcks OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

## DESCRIPTION

“The number of successful MPOA Cache Imposition Replies received by this MPS which contain an MPOA CIE Code of 0x00, ‘Success’.

Discontinuities in the value of this counter can occur at re-initialization of the management system, and/or re-initialization of the MPS, and at other times, as indicated by the value of mpsDiscontinuityTime.”

::= { mpsStatisticsEntry 12 }

## mpsStatRxMpoaImpReplyInsufECResources OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

## DESCRIPTION

“The number of MPOA Cache Imposition Replies received by this MPS which contain the MPOA CIE Code of 0x81, ‘Insufficient resources to accept egress cache entry’.  
Discontinuities in the value of this counter can occur at re-initialization of the management system, and/or re-initialization of the MPS, and at other times, as indicated by the value of mpsDiscontinuityTime.”

## REFERENCE

“Multiprotocol Over ATM. AF-MPOA-0087.000. Page 62.”

::= { mpsStatisticsEntry 13 }

## mpsStatRxMpoaImpReplyInsufSCResources OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

## DESCRIPTION

“The number of MPOA Cache Imposition Replies received by this MPS which contain the MPOA CIE Code of 0x82, ‘Insufficient resources to accept shortcut’.  
Discontinuities in the value of this counter can occur at re-initialization of the management system, and/or re-initialization of the MPS, and at other times, as indicated by the value of mpsDiscontinuityTime.”

## REFERENCE

“Multiprotocol Over ATM. AF-MPOA-0087.000. Page 62.”

::= { mpsStatisticsEntry 14 }

## mpsStatRxMpoaImpReplyInsufEitherResources OBJECT-TYPE

SYNTAX Counter32  
 MAX-ACCESS read-only  
 STATUS current  
 DESCRIPTION  
 “The number of MPOA Cache Imposition Replies received by this MPS which contain the MPOA CIE Code of 0x83, ‘Insufficient resources to accept either shortcut or egress cache entry’.  
 Discontinuities in the value of this counter can occur at re-initialization of the management system, and/or re-initialization of the MPS, and at other times, as indicated by the value of mpsDiscontinuityTime.”  
 REFERENCE  
 “Multiprotocol Over ATM. AF-MPOA-0087.000. Page 62.”  
 ::= { mpsStatisticsEntry 15 }

mpsStatRxMpoaImpReplyUnsupportedInetProt OBJECT-TYPE

SYNTAX Counter32  
 MAX-ACCESS read-only  
 STATUS current  
 DESCRIPTION  
 “The number of MPOA Cache Imposition Replies received by this MPS which contain the MPOA CIE Code of 0x84, ‘Unsupported Internetwork Layer protocol’.  
 Discontinuities in the value of this counter can occur at re-initialization of the management system, and/or re-initialization of the MPS, and at other times, as indicated by the value of mpsDiscontinuityTime.”  
 REFERENCE  
 “Multiprotocol Over ATM. AF-MPOA-0087.000. Page 62.”  
 ::= { mpsStatisticsEntry 16 }

mpsStatRxMpoaImpReplyUnsupportedMacEncaps OBJECT-TYPE

SYNTAX Counter32  
 MAX-ACCESS read-only  
 STATUS current  
 DESCRIPTION  
 “The number of MPOA Cache Imposition Replies received by this MPS which contain the MPOA CIE Code of 0x85, ‘Unsupported MAC layer encapsulation’.  
 Discontinuities in the value of this counter can occur at re-initialization of the management system, and/or re-initialization of the MPS, and at other times, as indicated by the value of mpsDiscontinuityTime.”  
 REFERENCE  
 “Multiprotocol Over ATM. AF-MPOA-0087.000. Page 62.”  
 ::= { mpsStatisticsEntry 17 }

mpsStatRxMpoaImpReplyUnspecifiedOther OBJECT-TYPE

SYNTAX Counter32  
 MAX-ACCESS read-only  
 STATUS current  
 DESCRIPTION  
 “The number of MPOA Cache Imposition Replies received by this MPS which contain the MPOA CIE Code of 0x88, ‘Unspecified/Other’.

Discontinuities in the value of this counter can occur at re-initialization of the management system, and/or re-initialization of the MPS, and at other times, as indicated by the value of mpsDiscontinuityTime.”

## REFERENCE

“Multiprotocol Over ATM. AF-MPOA-0087.000. Page 62.”

::= { mpsStatisticsEntry 18 }

## mpsStatRxMpoaImpReplyOther OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

## DESCRIPTION

“The number of MPOA Cache Imposition Replies received by this MPS which are not counted previously. NOTE: this would include NHRP errors.

Discontinuities in the value of this counter can occur at re-initialization of the management system, and/or re-initialization of the MPS, and at other times, as indicated by the value of mpsDiscontinuityTime.”

## REFERENCE

“Multiprotocol Over ATM. AF-MPOA-0087.000. Page 62.”

::= { mpsStatisticsEntry 19 }

## mpsStatRxMpoaEgressCachePurgeRequests OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

## DESCRIPTION

“The number of MPOA Egress Cache Purges Requests received by this MPS.

Discontinuities in the value of this counter can occur at re-initialization of the management system, and/or re-initialization of the MPS, and at other times, as indicated by the value of mpsDiscontinuityTime.”

::= { mpsStatisticsEntry 20 }

## mpsStatTxMpoaEgressCachePurgeReplies OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

## DESCRIPTION

“The number of MPOA Egress Cache Purge Replies transmitted by this MPS.

Discontinuities in the value of this counter can occur at re-initialization of the management system, and/or re-initialization of the MPS, and at other times, as indicated by the value of mpsDiscontinuityTime.”

::= { mpsStatisticsEntry 21 }

## mpsStatTxMpoaTriggers OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

## DESCRIPTION

“The number of MPOA Trigger messages transmitted by this MPS.

Discontinuities in the value of this counter can occur at re-initialization of the management system, and/or re-initialization of the MPS, and at other times, as indicated by the value of mpsDiscontinuityTime.”

## REFERENCE

“Multiprotocol Over ATM. AF-MPOA-0087.000. Section 4.7.2.1 MPOA Trigger”

::= { mpsStatisticsEntry 22 }

## mpsStatTxNhrpResolveRequests OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

## DESCRIPTION

“Total count of MPOA Resolution Requests received by the Ingress MPS which were translated to NHRP Resolution Requests and transmitted to the NHS.

Discontinuities in the value of this counter can occur at re-initialization of the management system, and/or re-initialization of the MPS, and at other times, as indicated by the value of mpsDiscontinuityTime.”

::= { mpsStatisticsEntry 23 }

## mpsStatRxNhrpResolveReplies OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

## DESCRIPTION

“Total count of NHRP Resolution Replies received by the Ingress.

Discontinuities in the value of this counter can occur at re-initialization of the management system, and/or re-initialization of the MPS, and at other times, as indicated by the value of mpsDiscontinuityTime.”

::= { mpsStatisticsEntry 24 }

## mpsStatRxNhrpResolveRequests OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

## DESCRIPTION

“Total count of NHRP Resolution Requests received by the Egress MPS from the NHS.

Discontinuities in the value of this counter can occur at re-initialization of the management system, and/or re-initialization of the MPS, and at other times, as indicated by the value of mpsDiscontinuityTime.”

::= { mpsStatisticsEntry 25 }

## mpsStatTxNhrpResolveReplies OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

## DESCRIPTION

“Total count of NHRP Resolution Replies transmitted by the Egress MPS to the NHS.

Discontinuities in the value of this counter can occur at re-initialization of the management system, and/or re-initialization of the MPS, and at other times, as indicated by the value of mpsDiscontinuityTime.”  
 ::= { mpsStatisticsEntry 26 }

--  
 -- MPOA Server Protocol support group  
 --

mpsProtocolTable OBJECT-TYPE  
 SYNTAX SEQUENCE OF MpsProtocolEntry  
 MAX-ACCESS not-accessible  
 STATUS current  
 DESCRIPTION  
 “List of protocols, per MPS, for which MPOA resolution is enabled.”  
 REFERENCE  
 “Multiprotocol Over ATM Version 1.0 (Letter Ballot), Section 4.1.1.1 MPS Parameters”  
 ::= { mpsObjects 5 }

mpsProtocolEntry OBJECT-TYPE  
 SYNTAX MpsProtocolEntry  
 MAX-ACCESS not-accessible  
 STATUS current  
 DESCRIPTION  
 “Each row indicates one protocol for which an MPS will perform MPOA resolution.  
 If the LECS was contacted for configuration information, and the MPS-p3’s control octet is set to Enable, 0x01, then protocol values retrieved from the LECS are reflected in this table and the mpsLECSValue object will be (1) true. Also, the user or agent can create rows which appropriately correspond to the MPS denoted by mpsIndex, and the mpsLECSValue object will be set to (2) false.  
 NOTE: if the LECS does not return information for the MPS-p3 parameter, or if in manual mode, the user or agent should create at least one entry for the corresponding MPS. Both, LECS and user and/or agent created rows may exist in this Table.”  
 INDEX { mpsIndex,  
 mpsInternetNetworkLayerProtocol  
 }  
 ::= { mpsProtocolTable 1 }

MpsProtocolEntry ::= SEQUENCE {  
 mpsInternetNetworkLayerProtocol InternetNetworkAddrType, -- MPS-p3  
 mpsLECSValue TruthValue,  
 mpsProtocolRowStatus RowStatus  
 }

mpsInternetNetworkLayerProtocol OBJECT-TYPE  
 SYNTAX InternetNetworkAddrType  
 MAX-ACCESS not-accessible

```

STATUS current
DESCRIPTION
 "MPS-p3 A protocol on which to perform MPOA resolution."
 ::= { mpsProtocolEntry 1 }

```

```

mpsLECSValue OBJECT-TYPE
 SYNTAX TruthValue
 MAX-ACCESS read-only
 STATUS current
 DESCRIPTION
 "This object reflects if the current entry is due to
 a retrieval from the LECS or not. If this entry is
 due to the LECS, then true(1) is the value for this object,
 otherwise, false (2)."
 ::= { mpsProtocolEntry 2 }

```

```

mpsProtocolRowStatus OBJECT-TYPE
 SYNTAX RowStatus
 MAX-ACCESS read-create
 STATUS current
 DESCRIPTION
 "This object allows network managers to enable
 resolution for the 'mpsInternetnetworkLayerProtocol'."
 ::= { mpsProtocolEntry 3 }

```

```

--
-- MPOA Server LEC Mapping group
--

```

```

mpsMappingTable OBJECT-TYPE
 SYNTAX SEQUENCE OF MpsMappingEntry
 MAX-ACCESS not-accessible
 STATUS current
 DESCRIPTION
 "A table mapping the 'lecIndex' values of
 LANE Clients to the 'mpsIndex' values of
 corresponding MPOA Servers."
 ::= { mpsObjects 6 }

```

```

mpsMappingEntry OBJECT-TYPE
 SYNTAX MpsMappingEntry
 MAX-ACCESS not-accessible
 STATUS current
 DESCRIPTION
 "Each row defines one lecIndex --> mpsIndex mapping.
 The mpsIndex that a lecIndex maps to is not
 necessarily unique. In other words, there can be
 multiple LECs associated with one MPS."
 REFERENCE
 "LAN Emulation Client Management Specification.
 af-lane-0044-000."
 INDEX { lecIndex }
 ::= { mpsMappingTable 1 }

```

```

MpsMappingEntry ::= SEQUENCE {
 mpsMappingRowStatus RowStatus,

```

```

 mpsMappingIndex MpsIndex
 }
mpsMappingRowStatus OBJECT-TYPE
 SYNTAX RowStatus
 MAX-ACCESS read-create
 STATUS current
 DESCRIPTION
 "Allows creation, enabling/disabling of this row."
 ::= { mpsMappingEntry 1 }

mpsMappingIndex OBJECT-TYPE
 SYNTAX MpsIndex
 MAX-ACCESS read-only
 STATUS current
 DESCRIPTION
 "The mpsMappingIndex of the MPOA Server that is associated with
 this LEC. The mpsMappingIndex corresponds to the mpsIndex."
 ::= { mpsMappingEntry 2 }

--
-- MPOA Server MPC Information Group
--

mpsMpcTable OBJECT-TYPE
 SYNTAX SEQUENCE OF MpsMpcEntry
 MAX-ACCESS not-accessible
 STATUS current
 DESCRIPTION
 "This read-only table contains information about the
 MPCs that these MPSs know about."
 ::= { mpsObjects 9 }

mpsMpcEntry OBJECT-TYPE
 SYNTAX MpsMpcEntry
 MAX-ACCESS not-accessible
 STATUS current
 DESCRIPTION
 "A row created by an MPS. The MPS learns about the MPC and
 creates a row."
 INDEX {
 mpsIndex,
 mpsMpcIndex
 }
 ::= { mpsMpcTable 1 }

MpsMpcEntry ::= SEQUENCE {
 mpsMpcIndex MpcIndex,
 mpsMpcCtrlAtmAddr AtmAddr
}

mpsMpcIndex OBJECT-TYPE
 SYNTAX MpcIndex
 MAX-ACCESS not-accessible
 STATUS current
 DESCRIPTION
 "The local index for the mpc represented by this entry"

```

```
::= { mpsMpcEntry 1 }
```

```
mpsMpcCtrlAtmAddr OBJECT-TYPE
```

```
SYNTAX AtmAddr
```

```
MAX-ACCESS read-only
```

```
STATUS current
```

```
DESCRIPTION
```

```
 "MPC control ATM address "
```

```
::= { mpsMpcEntry 2 }
```

```
--
```

```
-- MPOA Server Ingress Cache (Address Resolution) group
```

```
--
```

```
mpsIngressCacheTable OBJECT-TYPE
```

```
SYNTAX SEQUENCE OF MpsIngressCacheEntry
```

```
MAX-ACCESS not-accessible
```

```
STATUS current
```

```
DESCRIPTION
```

```
 "This table tracks all the Ingress Cache information
 of the MPSs which this agents manages."
```

```
::= { mpsObjects 7 }
```

```
mpsIngressCacheEntry OBJECT-TYPE
```

```
SYNTAX MpsIngressCacheEntry
```

```
MAX-ACCESS not-accessible
```

```
STATUS current
```

```
DESCRIPTION
```

```
 "A entry contains parameters and state variables
 for a row in a MPS's Ingress Cache."
```

```
INDEX { mpsIngressCacheDestInternetnetworkAddrType,
 mpsIngressCacheDestAddr,
 mpsIndex,
 mpsMpcIndex
 }
```

```
::= { mpsIngressCacheTable 1 }
```

```
MpsIngressCacheEntry ::= SEQUENCE {
```

```
 mpsIngressCacheDestInternetnetworkAddrType InternetnetworkAddrType,
```

```
 mpsIngressCacheDestAddr InternetnetworkAddr,
```

```
 mpsIngressCachePrefixLen Integer32,
```

```
 mpsIngressCacheEntryState INTEGER,
```

```
 mpsIngressCacheSrcInternetnetworkAddrType InternetnetworkAddrType,
```

```
 mpsIngressCacheSrcAddr InternetnetworkAddr,
```

```
 mpsIngressCacheSourceMpcCtrlAtmAddr AtmAddr,
```

```
 mpsIngressCacheResolvedAtmAddr AtmAddr,
```

```
 mpsIngressCacheHoldTime TimeInterval,
```

```
 mpsIngressCacheMpoaRequestId Integer32,
```

```
 mpsIngressCacheNhrpRequestId Integer32,
```

```
 mpsIngressCacheServiceCategory INTEGER
```

```
}
```

```
mpsIngressCacheDestInternetnetworkAddrType OBJECT-TYPE
```

```
SYNTAX InternetnetworkAddrType
```

```
MAX-ACCESS read-only
```

STATUS current  
 DESCRIPTION  
 "The type of internetwork layer address of the  
 Destination Address."  
 ::= { mpsIngressCacheEntry 1 }

mpsIngressCacheDestAddr OBJECT-TYPE  
 SYNTAX InternetworkAddr  
 MAX-ACCESS read-only  
 STATUS current  
 DESCRIPTION  
 "The Ingress MPS Destination Internetwork Layer Address."  
 ::= { mpsIngressCacheEntry 2 }

mpsIngressCachePrefixLen OBJECT-TYPE  
 SYNTAX Integer32  
 MAX-ACCESS read-only  
 STATUS current  
 DESCRIPTION  
 "The Prefix Length of the mpsIngressCacheDestAddr."  
 ::= { mpsIngressCacheEntry 3 }

mpsIngressCacheEntryState OBJECT-TYPE  
 SYNTAX INTEGER { doesNotExist (1),  
 inactive(2),  
 active(3),  
 negative(4)  
 }  
 MAX-ACCESS read-only  
 STATUS current  
 DESCRIPTION  
 "The state of this MPS Ingress cache.  
 The states are:  
 doesNotExist (1) -- the state is not yet available  
 inactive (2) -- state exists, entry is not yet active  
 For example,if using the Finite  
 State Machine in Appendix I.3,  
 the state resolving is 'inactive'.  
 active (3) -- state exists, entry is active.  
 For example,if using the Finite  
 State Machine in Appendix I.3,  
 the state resolved  
 is 'active' state.  
 negative (4) -- state exists, entry is negative.  
 For example,if using the Finite  
 State Machine in Appendix I.3,  
 the state purging is 'negative'."  
 REFERENCE  
 "Multiprotocol Over ATM, Letter Ballot, Appendix I.3."  
 ::= { mpsIngressCacheEntry 4 }

mpsIngressCacheSrcInternetworkAddrType OBJECT-TYPE  
 SYNTAX InternetworkAddrType  
 MAX-ACCESS read-only  
 STATUS current  
 DESCRIPTION

“The type of internetwork layer address of the Source Address.”

::= { mpsIngressCacheEntry 5 }

mpsIngressCacheSrcAddr OBJECT-TYPE

SYNTAX InternetworkAddr

MAX-ACCESS read-only

STATUS current

DESCRIPTION

“The Ingress MPS Source Internetwork Layer Address.”

::= { mpsIngressCacheEntry 6 }

mpsIngressCacheSourceMpcCtrlAtmAddr OBJECT-TYPE

SYNTAX AtmAddr

MAX-ACCESS read-only

STATUS current

DESCRIPTION

“The ATM Address from the source of this MPOA request. In other words, the Ingress MPC’s Control Atm Address.”

::= { mpsIngressCacheEntry 7 }

mpsIngressCacheResolvedAtmAddr OBJECT-TYPE

SYNTAX AtmAddr

MAX-ACCESS read-only

STATUS current

DESCRIPTION

“The ATM Address which has been resolved by an Egress MPC.”

::= { mpsIngressCacheEntry 8 }

mpsIngressCacheHoldTime OBJECT-TYPE

SYNTAX TimeInterval

MAX-ACCESS read-only

STATUS current

DESCRIPTION

“Time interval that this value is valid.”

::= { mpsIngressCacheEntry 9 }

mpsIngressCacheMpoaRequestId OBJECT-TYPE

SYNTAX Integer32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

“The request ID contained in the MPOA resolution request from the local Ingress MPC.”

::= { mpsIngressCacheEntry 10 }

mpsIngressCacheNhrpRequestId OBJECT-TYPE

SYNTAX Integer32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

“The request ID which this MPS generates to identify the NHRP resolution request.”

::= { mpsIngressCacheEntry 11 }

mpsIngressCacheServiceCategory OBJECT-TYPE

```

SYNTAX INTEGER (0..65535)
MAX-ACCESS read-only
STATUS current
DESCRIPTION
 "The service categories supported for this shortcut."
REFERENCE
 "Lane V2 LUNI TLVs"
 ::= { mpsIngressCacheEntry 12 }

--
-- MPOA Server Egress Cache (Impositions) group
--

mpsEgressCacheTable OBJECT-TYPE
 SYNTAX SEQUENCE OF MpsEgressCacheEntry
 MAX-ACCESS not-accessible
 STATUS current
 DESCRIPTION
 "This table contains information regarding the
 Egress MPOA Server Cache Table."
 ::= { mpsObjects 8 }

mpsEgressCacheEntry OBJECT-TYPE
 SYNTAX MpsEgressCacheEntry
 MAX-ACCESS not-accessible
 STATUS current
 DESCRIPTION
 "An entry represents an entry in the MPS's Egress
 cache Table which keeps track of the state of the
 impositions."
 INDEX { mpsEgressCacheId,
 mpsIndex,
 mpsMpcIndex
 }
 ::= { mpsEgressCacheTable 1 }

MpsEgressCacheEntry ::= SEQUENCE {
 mpsEgressCacheId Integer32,
 mpsEgressCacheDestInternetAddrType InternetAddrType,
 mpsEgressCacheDestAddr InternetAddr,
 mpsEgressCachePrefixLen INTEGER,
 mpsEgressCacheHoldTime TimeInterval,
 mpsEgressCacheEntryState INTEGER,
 mpsEgressCacheDataLinkHeader OCTET STRING,
 mpsEgressCacheElanId Integer32,
 mpsEgressCacheSourceClientAtmAddr AtmAddr,
 mpsEgressCacheNhrpRequestId Integer32,
 mpsEgressCacheMpoaRequestId Integer32,
 mpsEgressCacheServiceCategory INTEGER,
 mpsEgressCacheNextHopInternetAddrType InternetAddrType,
 mpsEgressCacheNextHopAddr InternetAddr
}

mpsEgressCacheId OBJECT-TYPE

```

SYNTAX Integer32  
 MAX-ACCESS read-only  
 STATUS current  
 DESCRIPTION  
 "The id which identifies this cache entry."  
 ::= { mpsEgressCacheEntry 1 }

mpsEgressCacheDestInternetnetworkAddrType OBJECT-TYPE  
 SYNTAX InternetnetworkAddrType  
 MAX-ACCESS read-only  
 STATUS current  
 DESCRIPTION  
 "The destination protocol address type."  
 ::= { mpsEgressCacheEntry 2 }

mpsEgressCacheDestAddr OBJECT-TYPE  
 SYNTAX InternetnetworkAddr  
 MAX-ACCESS read-only  
 STATUS current  
 DESCRIPTION  
 "The destination protocol address."  
 ::= { mpsEgressCacheEntry 3 }

mpsEgressCachePrefixLen OBJECT-TYPE  
 SYNTAX INTEGER (0..255)  
 MAX-ACCESS read-only  
 STATUS current  
 DESCRIPTION  
 "The destination prefix length."  
 ::= { mpsEgressCacheEntry 4 }

mpsEgressCacheHoldTime OBJECT-TYPE  
 SYNTAX TimeInterval  
 MAX-ACCESS read-only  
 STATUS current  
 DESCRIPTION  
 "Time interval that this value is valid."  
 ::= { mpsEgressCacheEntry 5 }

mpsEgressCacheEntryState OBJECT-TYPE  
 SYNTAX INTEGER { doesNotExist(1),  
 inactive(2),  
 active(3),  
 negative(4)  
 }  
 MAX-ACCESS read-only  
 STATUS current  
 DESCRIPTION

"The present states of this MPS egress cache entry.  
 The states are:  
 doesNotExist (1) -- the state is not yet available  
 inactive (2) -- state exists, entry is not yet active  
 For example,if using the Finite  
 State Machine in Appendix 1.4,  
 the state imposing is 'inactive'.  
 active (3) -- state exists, entry is active.

For example,if using the Finite State Machine in Appendix 1.4, the state imposed is 'active' state.

negative (4) -- state exists, entry is negative.

For example,if using the Finite State Machine in Appendix 1.4, the states purging and clearing are 'negative'."

#### REFERENCE

"Multiprotocol Over ATM. AF-MPOA-0087.000. Appendix I.4 Egress MPS Control State Machine."

::= { mpsEgressCacheEntry 6 }

#### mpsEgressCacheDataLinkHeader OBJECT-TYPE

SYNTAX OCTET STRING (SIZE (0..255))

MAX-ACCESS read-only

STATUS current

#### DESCRIPTION

"Data-Link Layer Header."

::= { mpsEgressCacheEntry 7 }

#### mpsEgressCacheElanId OBJECT-TYPE

SYNTAX Integer32

MAX-ACCESS read-only

STATUS current

#### DESCRIPTION

"The elan id that this Cache Imposition is sent on."

::= { mpsEgressCacheEntry 8 }

#### mpsEgressCacheSourceClientAtmAddr OBJECT-TYPE

SYNTAX AtmAddr

MAX-ACCESS read-only

STATUS current

#### DESCRIPTION

"The Ingress NHC's Atm Address used in the original cache imposition."

#### REFERENCE

"Multiprotocol Over ATM. AF-MPOA-0087.000. Page 45."

::= { mpsEgressCacheEntry 9 }

#### mpsEgressCacheNhrpRequestId OBJECT-TYPE

SYNTAX Integer32

MAX-ACCESS read-only

STATUS current

#### DESCRIPTION

"The request id from the original NHRP Resolution Request, may be only useful in the Resolving State."

::= { mpsEgressCacheEntry 10 }

#### mpsEgressCacheMpoaRequestId OBJECT-TYPE

SYNTAX Integer32

MAX-ACCESS read-only

STATUS current

#### DESCRIPTION

“The new request id which is generated for this imposition’s request, may be only useful in the Resolving State.”  
 ::= { mpsEgressCacheEntry 11 }

mpsEgressCacheServiceCategory OBJECT-TYPE

SYNTAX INTEGER (0..65535)  
 MAX-ACCESS read-only  
 STATUS current  
 DESCRIPTION  
 “The service categories supported for this shortcut.”  
 REFERENCE  
 “Lane V2 LUNI TLVs”  
 ::= { mpsEgressCacheEntry 12 }

mpsEgressCacheNextHopInternetnetworkAddrType OBJECT-TYPE

SYNTAX InternetnetworkAddrType  
 MAX-ACCESS read-only  
 STATUS current  
 DESCRIPTION  
 “The NextHop protocol address type.”  
 ::= { mpsEgressCacheEntry 13 }

mpsEgressCacheNextHopAddr OBJECT-TYPE

SYNTAX InternetnetworkAddr  
 MAX-ACCESS read-only  
 STATUS current  
 DESCRIPTION  
 “The NextHop protocol address.”  
 ::= { mpsEgressCacheEntry 14 }

--  
 -- Conformance Information  
 --

mpoaMIBConformance OBJECT IDENTIFIER ::= { mpoaMIB 2 }

mpoaMIBGroups  
 OBJECT IDENTIFIER ::= { mpoaMIBConformance 1 }

mpoaMIBCompliances  
 OBJECT IDENTIFIER ::= { mpoaMIBConformance 2 }

--  
 -- Compliance Statements  
 --

mpoaMpcMibBasicCompliance MODULE-COMPLIANCE

STATUS current  
 DESCRIPTION  
 “The basic implementation requirements for SNMP entities which support MPOA Clients.”

MODULE -- this module  
 MANDATORY-GROUPS{ mpcConfigGroup,

```

mpcActualGroup,
mpcDataAtmAddressGroup,
mpcStatisticsGroup,
mpcProtocolGroup,
mpcMpsGroup,
mpcMpsMacAddressGroup,
mpcIngressCacheGroup,
mpcEgressCacheGroup
}

```

```

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

```

```

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

```

```

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

```

```

--
-- MPC Mapping Group Compliance
--

```

```

GROUP mpcMappingGroup
DESCRIPTION
 "This group is mandatory only when there is NOT a one-to-one
 relationship between the MPOA Client and the LANE Client.
 Optionally, a one-to-one relationship between an MPOA Client
 and a LANE Client can be enforced. To enforce this
 one-to-one relationship the lecIndex for the LANE Client
 and the mpcIndex for the MPOA Client must have the same
 value.
 If this one-to-one mapping is enforced, then the implementation
 of the mpcMappingTable is unnecessary. (Since the lecIndex and
 the mpcIndex contain the same value, there is no need to provide
 a mapping of mpcIndex value to lecIndex value.)
 The relationship between MPC and LEC is maintained by
 ensuring that the mpcIndex is the same as the lecIndex
 that is associated with it."

```

```

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

```

```

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

```

```
::= { mpoaMIBCompliances 1 }
```

```
mpoaMpcMibAdvancedCompliance MODULE-COMPLIANCE
```

```
STATUS current
```

```
DESCRIPTION
```

```
 "The advanced implementation requirements for SNMP entities
 which support MPOA Clients."
```

```
MODULE -- this module
```

```
MANDATORY-GROUPS{
 mpoaDeviceTypeGroup,
 mpoaDeviceTypeMpsMacGroup,
 mpcConfigGroup,
 mpcActualGroup,
 mpcDataAtmAddressGroup,
 mpcStatisticsGroup,
 mpcProtocolGroup,
 mpcMpsGroup,
 mpcMpsMacAddressGroup,
 mpcIngressCacheTotalPacketGroup,
 mpcIngressCacheGroup,
 mpcEgressCacheTotalPacketGroup,
 mpcEgressCacheGroup
}
```

```
OBJECT mpcRowStatus
```

```
MIN-ACCESS read-only
```

```
DESCRIPTION
```

```
 "Write access is not required."
```

```
OBJECT mpcDataAtmAddressRowStatus
```

```
MIN-ACCESS read-only
```

```
DESCRIPTION
```

```
 "Write access is not required."
```

```
OBJECT mpcProtocolRowStatus
```

```
MIN-ACCESS read-only
```

```
DESCRIPTION
```

```
 "Write access is not required."
```

```
--
```

```
-- MPC Mapping Group Compliance
```

```
--
```

```
GROUP mpcMappingGroup
```

```
DESCRIPTION
```

```
 "This group is mandatory only when there is NOT a one-to-one
 relationship between the MPOA Client and the LANE Client.
```

```
 Optionally, a one-to-one relationship between an MPOA Client
 and a LANE Client can be enforced. To enforce this
 one-to-one relationship the lecIndex for the LANE Client
 and the mpcIndex for the MPOA Client must have the same
 value.
```

```
 If this one-to-one mapping is enforced, then the implementation
 of the mpcMappingTable is unnecessary. (Since the lecIndex and
```

the mpcIndex contain the same value, there is no need to provide a mapping of mpcIndex value to lecIndex value.) The relationship between MPC and LEC is maintained by ensuring that the mpcIndex is the same as the lecIndex that is associated with it.”

OBJECT           mpcMappingRowStatus  
MIN-ACCESS      read-only  
DESCRIPTION     “Write access is not required.”

OBJECT           mpcMappingIndex  
MIN-ACCESS      read-only  
DESCRIPTION  
                  “Write access is not required.”

::= { mpoaMIBCompliances 2 }

mpoaMpcMibAdvancedPlusOctetsCompliance MODULE-COMPLIANCE

STATUS           current

DESCRIPTION

“The AdvancedPlusOctets implementation requirements for SNMP entities which support MPOA Clients. This includes supporting the 64 bit octet counters.”

MODULE -- this module

MANDATORY-GROUPS{  
                  mpoaDeviceTypeGroup,  
                  mpoaDeviceTypeMpsMacGroup,  
                  mpcConfigGroup,  
                  mpcActualGroup,  
                  mpcDataAtmAddressGroup,  
                  mpcStatisticsGroup,  
                  mpcProtocolGroup,  
                  mpcMpsGroup,  
                  mpcMpsMacAddressGroup,  
                  mpcIngressCacheTotalPacketGroup,  
                  mpcIngressCacheTotalOctetGroup,  
                  mpcIngressCacheGroup,  
                  mpcEgressCacheTotalPacketGroup,  
                  mpcEgressCacheTotalOctetGroup,  
                  mpcEgressCacheGroup  
                  }  
}

OBJECT           mpcRowStatus  
MIN-ACCESS      read-only  
DESCRIPTION  
                  “Write access is not required.”

OBJECT           mpcDataAtmAddressRowStatus  
MIN-ACCESS      read-only  
DESCRIPTION  
                  “Write access is not required.”

OBJECT           mpcProtocolRowStatus  
MIN-ACCESS      read-only  
DESCRIPTION  
                  “Write access is not required.”

```
--
-- MPC Mapping Group Compliance
--
```

```
GROUP mpcMappingGroup
DESCRIPTION
```

“This group is mandatory only when there is NOT a one-to-one relationship between the MPOA Client and the LANE Client. Optionally, a one-to-one relationship between an MPOA Client and a LANE Client can be enforced. To enforce this one-to-one relationship the lecIndex for the LANE Client and the mpcIndex for the MPOA Client must have the same value.  
If this one-to-one mapping is enforced, then the implementation of the mpcMappingTable is unnecessary. (Since the lecIndex and the mpcIndex contain the same value, there is no need to provide a mapping of mpcIndex value to lecIndex value.)  
The relationship between MPC and LEC is maintained by ensuring that the mpcIndex is the same as the lecIndex that is associated with it.”

```
OBJECT mpcMappingRowStatus
MIN-ACCESS read-only
DESCRIPTION
```

“Write access is not required.”

```
OBJECT mpcMappingIndex
MIN-ACCESS read-only
DESCRIPTION
```

“Write access is not required.”

```
::= { mpoaMIBCompliances 3 }
```

```
mpoaMpsMibBasicCompliance MODULE-COMPLIANCE
```

```
STATUS current
```

```
DESCRIPTION
```

“The implementation requirements for SNMP entities which support MPOA Servers.”

```
MODULE -- this module
```

```
MANDATORY-GROUPS{
 mpsConfigGroup,
 mpsActualGroup,
 mpsStatisticsGroup,
 mpsProtocolGroup,
 mpsIngressCacheGroup,
 mpsEgressCacheGroup
}
```

```
OBJECT mpsRowStatus
MIN-ACCESS read-only
DESCRIPTION
```

“Write access is not required.”

```
OBJECT mpsProtocolRowStatus
MIN-ACCESS read-only
```

## DESCRIPTION

“Write access is not required.”

--  
-- MPS Mapping Group Compliance  
--

GROUP mpsMappingGroup  
DESCRIPTION

“This group is mandatory only when there is NOT a one-to-one relationship between the MPOA Server and the LANE Client. Optionally, a one-to-one relationship between an MPOA Server and a LANE Client can be enforced. To enforce this one-to-one relationship the lecIndex for the LANE Client and the mpcIndex for the MPOA Server must have the same value.  
If this one-to-one mapping is enforced, then the implementation of the mpsMappingTable is unnecessary. (Since the lecIndex and the mpsIndex contain the same value, there is no need to provide a mapping of mpsIndex value to lecIndex value.)  
The relationship between MPS and LEC is maintained by ensuring that the mpsIndex is the same as the lecIndex that is associated with it.”

OBJECT mpsMappingRowStatus  
MIN-ACCESS read-only  
DESCRIPTION  
“Write access is not required.”

::= { mpoaMIBCompliances 4 }

mpoaMpsMibAdvancedCompliance MODULE-COMPLIANCE

STATUS current  
DESCRIPTION  
“The advanced implementation requirements for SNMP entities which support MPOA Servers.”

MODULE -- this module  
MANDATORY-GROUPS {  
    mpoaDeviceTypeGroup,  
    mpoaDeviceTypeMpsMacGroup,  
    mpsConfigGroup,  
    mpsActualGroup,  
    mpsStatisticsGroup,  
    mpsProtocolGroup,  
    mpsIngressCacheGroup,  
    mpsEgressCacheGroup  
}

OBJECT mpsRowStatus  
MIN-ACCESS read-only  
DESCRIPTION  
“Write access is not required.”

OBJECT mpsProtocolRowStatus  
MIN-ACCESS read-only  
DESCRIPTION  
“Write access is not required.”

```
--
-- MPS Mapping Group Compliance
--
```

```
GROUP mpsMappingGroup
DESCRIPTION
```

“This group is mandatory only when there is NOT a one-to-one relationship between the MPOA Server and the LANE Client. Optionally, a one-to-one relationship between an MPOA Server and a LANE Client can be enforced. To enforce this one-to-one relationship the lecIndex for the LANE Client and the mpcIndex for the MPOA Server must have the same value.

If this one-to-one mapping is enforced, then the implementation of the mpsMappingTable is unnecessary. (Since the lecIndex and the mpsIndex contain the same value, there is no need to provide a mapping of mpsIndex value to lecIndex value.)

The relationship between MPS and LEC is maintained by ensuring that the mpsIndex is the same as the lecIndex that is associated with it.”

```
OBJECT mpsMappingRowStatus
MIN-ACCESS read-only
DESCRIPTION
 “Write access is not required.”
```

```
::= { mpoaMIBCompliances 5 }
```

```
--
-- Units of Conformance
--
```

```
mpoaDeviceTypeGroup OBJECT-GROUP
OBJECTS
 {
 deviceTypeLecIndex,
 deviceTypeRemoteLecAtmAddress,
 deviceTypeType,
 deviceTypeMpsAtmAddress,
 deviceTypeMpcAtmAddress
 }
STATUS current
DESCRIPTION
 “A collection of objects which exists when
 the MPOA device learns the MPOA device type and
 MPOA control addresses of neighboring MPOA devices
 using the LANEv2 Device Type TLV.”
::= { mpoaMIBGroups 1 }
```

```
mpoaDeviceTypeMpsMacGroup OBJECT-GROUP
OBJECTS { deviceTypeMpsMacAddress }
STATUS current
DESCRIPTION
```

“A collection of objects which is present when the MPOA device learns the MPOA device type and MPOA control addresses of neighboring MPOA devices using the LANEv2 Device Type TLV.”

::= { mpoaMIBGroups 2 }

mpcConfigGroup OBJECT-GROUP

OBJECTS {  
 mpcNextIndex,  
 mpcRowStatus,  
 mpcConfigMode,  
 mpcCtrlAtmAddr,  
 mpcSCSetupFrameCount,  
 mpcSCSetupFrameTime,  
 mpcInitialRetryTime,  
 mpcRetryTimeMaximum,  
 mpcHoldDownTime  
}

STATUS current

DESCRIPTION

“A collection of objects used for creating and configuring MPOA Clients.”

::= { mpoaMIBGroups 3 }

mpcActualGroup OBJECT-GROUP

OBJECTS {  
 mpcActualState,  
 mpcDiscontinuityTime,  
 mpcActualConfigMode,  
 mpcActualSCSetupFrameCount,  
 mpcActualSCSetupFrameTime,  
 mpcActualInitialRetryTime,  
 mpcActualRetryTimeMaximum,  
 mpcActualHoldDownTime  
}

STATUS current

DESCRIPTION

“A collection of objects describing the status and operational parameters of the managed MPC.”

::= { mpoaMIBGroups 4 }

mpcDataAtmAddressGroup OBJECT-GROUP

OBJECTS {  
 mpcDataAtmAddressRowStatus  
}

STATUS current

DESCRIPTION

“A collection of objects which describe the set of data ATM addresses for the MPCs.”

::= { mpoaMIBGroups 5 }

mpcStatisticsGroup OBJECT-GROUP

OBJECTS {  
 mpcStatTxMpoaResolveRequests,  
 mpcStatRxMpoaResolveReplyAcks,  
 mpcStatRxMpoaResolveReplyInsufECResources,  
}

```

mpcStatRxMpoaResolveReplyInsufSCResources,
mpcStatRxMpoaResolveReplyInsufEitherResources,
mpcStatRxMpoaResolveReplyUnsupportedInetProt,
mpcStatRxMpoaResolveReplyUnsupportedMacEncaps,
mpcStatRxMpoaResolveReplyUnspecifiedOther,
mpcStatRxMpoaImpRequests,
mpcStatTxMpoaImpReplyAcks,
mpcStatTxMpoaImpReplyInsufECResources,
mpcStatTxMpoaImpReplyInsufSCResources,
mpcStatTxMpoaImpReplyInsufEitherResources,
mpcStatTxMpoaImpReplyUnsupportedInetProt,
mpcStatTxMpoaImpReplyUnsupportedMacEncaps,
mpcStatTxMpoaImpReplyUnspecifiedOther,
mpcStatTxMpoaEgressCachePurgeRequests,
mpcStatRxMpoaEgressCachePurgeReplies,
mpcStatRxMpoaKeepAlives,
mpcStatRxMpoaTriggers,
mpcStatRxMpoaDataPlanePurges,
mpcStatTxMpoaDataPlanePurges,
mpcStatRxNhrpPurgeRequests,
mpcStatTxNhrpPurgeReplies,
mpcStatRxErrUnrecognizedExtensions,
mpcStatRxErrLoopDetecteds,
mpcStatRxErrProtoAddrUnreachables,
mpcStatRxErrProtoErrors,
mpcStatRxErrSduSizeExceededs,
mpcStatRxErrInvalidExtensions,
mpcStatRxErrInvalidReplies,
mpcStatRxErrAuthenticationFailures,
mpcStatRxErrHopCountExceededs

```

```

}
STATUS current
DESCRIPTION
 "A collection of objects that provide statistics
 on the MPOA protocol parameters."
 ::= { mpoaMIBGroups 6 }

```

```

mpcProtocolGroup OBJECT-GROUP
OBJECTS {
 mpcLECSValue,
 mpcProtocolRowStatus
}

```

```

STATUS current
DESCRIPTION
 "A collection of objects to specify which
 parameters this MPC is enabled for."
 ::= { mpoaMIBGroups 7 }

```

```

mpcMappingGroup OBJECT-GROUP
OBJECTS {
 mpcMappingRowStatus,
 mpcMappingIndex
}

```

```

STATUS current
DESCRIPTION
 "A collection of objects to map from LEC to MPC"

```

```
::= { mpoaMIBGroups 8 }
```

mpcMpsGroup OBJECT-GROUP

```
OBJECTS { mpcMpsAtmAddr }
```

```
STATUS current
```

DESCRIPTION

“A collection of objects which aid the MPCs to track information for all the MPSs which are known by the MPCs.”

```
::= { mpoaMIBGroups 9 }
```

mpcMpsMacAddressGroup OBJECT-GROUP

```
OBJECTS {
 mpcMpsMacAddress
 }
```

```
STATUS current
```

DESCRIPTION

“A collection of objects which aid the MPCs to track MAC Address information for all the MPSs which are known by the MPCs.”

```
::= { mpoaMIBGroups 10 }
```

mpcIngressCacheTotalPacketGroup OBJECT-GROUP

```
OBJECTS {
 mpcIngressCacheTxTotalPackets
 }
```

```
STATUS current
```

DESCRIPTION

“A collection of objects which count the total number of packets transmitted over MPC short cuts.”

```
::= { mpoaMIBGroups 11 }
```

mpcIngressCacheTotalOctetGroup OBJECT-GROUP

```
OBJECTS {
 mpcIngressCacheTxTotalOctets
 }
```

```
STATUS current
```

DESCRIPTION

“A collection of objects which count the total number of octets transmitted over MPC short cuts.”

```
::= { mpoaMIBGroups 12 }
```

mpcIngressCacheGroup OBJECT-GROUP

```
OBJECTS {
 mpcIngressCacheDestInetNetworkAddrType,
 mpcIngressCacheDestAddr,
 mpcIngressCachePrefixLen,
 mpcIngressCacheDestAtmAddr,
 mpcIngressCacheSrcAtmAddr,
 mpcIngressCacheEntryState,
 mpcIngressCacheEgressCacheTagValid,
 mpcIngressCacheEgressCacheTag,
 mpcIngressCacheLastNhrpCieCode,
 mpcIngressCacheSigErrCode,
 mpcIngressCacheRetries,
 }
```

```

 mpcIngressCacheTimeUntilNextResolutionRequest,
 mpcIngressCacheHoldingTime,
 mpcIngressCacheServiceCategory
 }
 STATUS current
 DESCRIPTION
 "A collection of objects used to monitor the
 MPOA ingress cache."
 ::= { mpoaMIBGroups 13 }

```

```

mpcEgressCacheTotalPacketGroup OBJECT-GROUP
 OBJECTS {
 mpcEgressCacheRxTotalPackets
 }
 STATUS current
 DESCRIPTION
 "A collection of objects which count the total
 number of packets received by MPC short cuts."
 ::= { mpoaMIBGroups 14 }

```

```

mpcEgressCacheTotalOctetGroup OBJECT-GROUP
 OBJECTS {
 mpcEgressCacheRxTotalOctets
 }
 STATUS current
 DESCRIPTION
 "A collection of objects which count the total
 number of octets received by MPC short cuts."
 ::= { mpoaMIBGroups 15 }

```

```

mpcEgressCacheGroup OBJECT-GROUP
 OBJECTS {
 mpcEgressCacheId,
 mpcEgressCacheInnetworkAddrType,
 mpcEgressCacheIDestAddr,
 mpcEgressCachePrefixLen,
 mpcEgressCacheEntryState,
 mpcEgressCacheEgressCacheTagValid,
 mpcEgressCacheEgressCacheTag,
 mpcEgressCacheHoldTime,
 mpcEgressCacheDataLinkHeader,
 mpcEgressCacheIngressMpcDataAtmAddr,
 mpcEgressCacheLecIndex,
 mpcEgressCacheServiceCategory
 }
 STATUS current
 DESCRIPTION
 "A collection of objects used to monitor the
 MPOA egress cache."
 ::= { mpoaMIBGroups 16 }

```

```

mpsConfigGroup OBJECT-GROUP
 OBJECTS {
 mpsNextIndex,
 mpsRowStatus,
 mpsConfigMode,

```

```

 mpsCtrlAtmAddr,
 mpsKeepAliveTime,
 mpsKeepAliveLifeTime,
 mpsInitialRetryTime,
 mpsRetryTimeMaximum,
 mpsGiveupTime,
 mpsDefaultHoldingTime
 }
 STATUS current
 DESCRIPTION
 "A collection of objects used for creating and
 configuring MPOA Servers."
 ::= { mpoaMIBGroups 17 }

```

```

mpsActualGroup OBJECT-GROUP
 OBJECTS
 {
 mpsActualState,
 mpsDiscontinuityTime,
 mpsActualConfigMode,
 mpsActualKeepAlive,
 mpsActualKeepAliveLifeTime,
 mpsActualInitialRetryTime,
 mpsActualRetryTimeMaximum,
 mpsActualGiveupTime,
 mpsActualDefaultHoldingTime
 }
 STATUS current
 DESCRIPTION
 "A collection of objects describing the status
 and operational parameters of the managed MPS."
 ::= { mpoaMIBGroups 18 }

```

```

mpsStatisticsGroup OBJECT-GROUP
 OBJECTS
 {
 mpsStatRxMpoaResolveRequests,
 mpsStatTxMpoaResolveReplyAcks,
 mpsStatTxMpoaResolveReplyInsufECResources,
 mpsStatTxMpoaResolveReplyInsufSCResources,
 mpsStatTxMpoaResolveReplyInsufEitherResources,
 mpsStatTxMpoaResolveReplyUnsupportedInetProt,
 mpsStatTxMpoaResolveReplyUnsupportedMacEncaps,
 mpsStatTxMpoaResolveReplyUnspecifiedOther,
 mpsStatTxMpoaResolveReplyOther,
 mpsStatGiveupTimeExpires,
 mpsStatTxMpoaImpRequests,
 mpsStatRxMpoaImpReplyAcks,
 mpsStatRxMpoaImpReplyInsufECResources,
 mpsStatRxMpoaImpReplyInsufSCResources,
 mpsStatRxMpoaImpReplyInsufEitherResources,
 mpsStatRxMpoaImpReplyUnsupportedInetProt,
 mpsStatRxMpoaImpReplyUnsupportedMacEncaps,
 mpsStatRxMpoaImpReplyUnspecifiedOther,
 mpsStatRxMpoaImpReplyOther,
 mpsStatRxMpoaEgressCachePurgeRequests,
 mpsStatTxMpoaEgressCachePurgeReplies,
 mpsStatTxMpoaTriggers,
 }

```

```

 mpsStatTxNhrpResolveRequests,
 mpsStatRxNhrpResolveReplies,
 mpsStatRxNhrpResolveRequests,
 mpsStatTxNhrpResolveReplies
 }
 STATUS current
 DESCRIPTION
 "A collection of objects that provide statistics
 on the MPOA Server protocol parameters."
 ::= { mpoaMIBGroups 19 }

```

```

mpsProtocolGroup OBJECT-GROUP
 OBJECTS {
 mpsLECSValue,
 mpsProtocolRowStatus
 }
 STATUS current
 DESCRIPTION
 "A collection of objects to specify which
 parameters this MPS is enabled for."
 ::= { mpoaMIBGroups 20 }

```

```

mpsMappingGroup OBJECT-GROUP
 OBJECTS {
 mpsMappingRowStatus,
 mpsMappingIndex
 }
 STATUS current
 DESCRIPTION
 "A collection of objects to map from MPSs to LECs."
 ::= { mpoaMIBGroups 21 }

```

```

mpsMpcGroup OBJECT-GROUP
 OBJECTS { mpsMpcCtrlAtmAddr }
 STATUS current
 DESCRIPTION
 "A collection of objects which aid the MPSs to track
 information for all the MPCs which are known by the
 MPSs."
 ::= { mpoaMIBGroups 22 }

```

```

mpsIngressCacheGroup OBJECT-GROUP
 OBJECTS {
 mpsIngressCacheDestInternetNetworkAddrType,
 mpsIngressCacheDestAddr,
 mpsIngressCachePrefixLen,
 mpsIngressCacheEntryState,
 mpsIngressCacheSrcInternetNetworkAddrType,
 mpsIngressCacheSrcAddr,
 mpsIngressCacheSourceMpcCtrlAtmAddr,
 mpsIngressCacheResolvedAtmAddr,
 mpsIngressCacheHoldTime,
 mpsIngressCacheMpoaRequestId,
 mpsIngressCacheNhrpRequestId,
 mpsIngressCacheServiceCategory
 }

```

STATUS current

DESCRIPTION

“A collection of objects to monitor the MPS  
ingress cache.”

::= { mpoaMIBGroups 23 }

mpsEgressCacheGroup OBJECT-GROUP

OBJECTS

{  
mpsEgressCacheId,  
mpsEgressCacheDestInternetworkAddrType,  
mpsEgressCacheDestAddr,  
mpsEgressCachePrefixLen,  
mpsEgressCacheHoldTime,  
mpsEgressCacheEntryState,  
mpsEgressCacheDataLinkHeader,  
mpsEgressCacheElanId,  
mpsEgressCacheSourceClientAtmAddr,  
mpsEgressCacheNhrpRequestId,  
mpsEgressCacheMpoaRequestId,  
mpsEgressCacheServiceCategory,  
mpsEgressCacheNextHopInternetworkAddrType,  
mpsEgressCacheNextHopAddr

}

STATUS current

DESCRIPTION

“A collection of objects to monitor MPS’s egress  
cache parameters.”

::= { mpoaMIBGroups 24 }

END