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STANDARDIZATION SECTOR
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X.283

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**DATA NETWORKS AND OPEN SYSTEM
COMMUNICATIONS**

**OPEN SYSTEMS INTERCONNECTION –
LAYER MANAGED OBJECTS**

**ELEMENTS OF MANAGEMENT INFORMATION
RELATED TO THE OSI NETWORK LAYER**

ITU-T Recommendation X.283

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(Previously "CCITT Recommendation")

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FOREWORD

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The World Telecommunication Standardization Conference (WTSC), which meets every four years, establishes the topics for study by the ITU-T Study Groups which, in their turn, produce Recommendations on these topics.

The approval of Recommendations by the Members of the ITU-T is covered by the procedure laid down in WTSC Resolution No. 1 (Helsinki, March 1-12, 1993).

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NOTE

In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

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SUMMARY

This Recommendation provides the specification of management information related to the network layer, including the managed object class definition of network layer managed objects, the relationship of the managed objects and attributes to both operation of the layer and to other objects and attributes of the layer, and the allowable actions on the attributes of network layer managed objects.

INTRODUCTION

This Recommendation is one of Recommendations produced to facilitate the interconnection of open systems. The set of Recommendations covers the services, protocols and management information required to achieve such interconnection.

This Recommendation is positioned with respect to other related Recommendations by the layers defined in the Reference Model for Open System Interconnection (see Recommendation X.200). In particular, it is concerned with the definition of Network Layer management information.

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Recommendation X.283

ELEMENTS OF MANAGEMENT INFORMATION RELATED TO THE OSI NETWORK LAYER¹⁾

(Geneva, 1993)

1 Scope

This Recommendation provides the specification of management information within an Open System related to those operations of the OSI Network Layer. Specifics on how Network layer management is accomplished is beyond the scope of this Recommendation. Network Layer management information is defined by specifying:

- the managed object class definition of Network Layer Managed Objects following guidelines put forth by the *Structure of Management Information* (see Recommendations X.720-X.723),
- the relationship of the Managed Objects and attributes to both the operation of the layer and to other objects and attributes of the layer, and
- the action type operations on the attributes of Network Layer Managed Objects that are available to OSI Systems Management.

2 Normative references

The following Recommendations and International Standards contain provisions which, through reference in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All Recommendations and Standards are subject to revision, and parties to agreements based on this Recommendation are encouraged to investigate the possibility of applying the most recent editions of the Recommendations and Standards listed below. Members of IEC and ISO maintain registers of currently valid International Standards. The Telecommunication Standardization Bureau of the ITU maintains a list of the currently valid ITU-T Recommendations.

2.1 Identical CCITT Recommendations | International Standards

- CCITT Recommendation X.213 (1992) | ISO/IEC 8348:1993, *Information technology – Network service definition for Open Systems Interconnection*.
- ITU-T Recommendation X.233 (1993) | ISO/IEC 8473:1993, *Information technology – Protocol for providing the OSI connectionless-mode network service: Protocol specification*.
- CCITT Recommendation X.701 (1992) | ISO/IEC 10040:1992, *Information technology – Open Systems Interconnection – Systems Management Overview*.
- CCITT Recommendation X.720 (1992) | ISO/IEC 10165-1:1993, *Information technology – Open Systems Interconnection – Management Information Services – Structure of Management Information: Management Information Model*.
- CCITT Recommendation X.721 (1992) | ISO/IEC 10165-2:1992, *Information technology – Open Systems Interconnection – Management Information Services – Structure of Management Information: Definition of Management Information*.
- CCITT Recommendation X.722 (1992) | ISO/IEC 10165-4:1992, *Information technology – Open Systems Interconnection – Management Information Services – Structure of Management Information: Guidelines for the Definition of Managed Objects*.
- ITU-T Recommendation X.723 (1993) | ISO/IEC 10165-5:1994, *Information technology – Open Systems Interconnection – Management Information Services – Structure of Management Information: Generic Management Information*.

¹⁾ This Recommendation and ISO/IEC 10733, *Information technology – Telecommunications and information exchange between systems – Elements of Management Information related to OSI Network Layer Standards*, were developed in close collaboration and are technically identical.

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- CCITT Recommendation X.730 (1992) | ISO/IEC 10164-1:1993, *Information technology – Open Systems Interconnection – Systems Management: Object Management Function.*
- CCITT Recommendation X.731 (1992) | ISO/IEC 10164-2:1993, *Information technology – Open Systems Interconnection – Systems Management: State Management Function.*
- CCITT Recommendation X.732 (1992) | ISO/IEC 10164-3:1993, *Information technology – Open Systems Interconnection – Systems Management: Attributes for Representing Relationships.*
- CCITT Recommendation X.733 (1992) | ISO/IEC 10164-4:1992, *Information technology – Open Systems Interconnection – Systems Management: Alarm Reporting Function.*
- CCITT Recommendation X.734 (1992) | ISO/IEC 10164-5:1993, *Information technology – Open Systems Interconnection – Systems Management: Event Report Management Function.*

2.2 Paired Recommendations | International Standards equivalent in technical content

- CCITT Recommendation X.200 (1988), *Reference Model of Open Systems Interconnection for CCITT Applications.*
ISO 7498:1984, *Information processing systems – Open Systems Interconnection – Basic Reference Model.*
- CCITT Recommendation X.208 (1988), *Specification of Abstract Syntax Notation One (ASN.1).*
ISO/IEC 8824:1990, *Information technology – Open Systems Interconnection – Specification of the Abstract Syntax Notation One (ASN.1).*
- ITU-T Recommendation X.223 (1993), *Use of X.25 to Provide the OSI Connection-mode Network Service for CCITT Applications.*
ISO/IEC 8878:1992, *Information Processing Systems – Data Communications – Systems – Use of X.25 to Provide the OSI Connection-mode Network Service.*
- CCITT Recommendation X.700 (1992), *Management Framework for Open Systems Interconnection for CCITT Applications.*
ISO/IEC 7498-4:1989, *Information Processing Systems – Open Systems Interconnection – Basic Reference Model – Part 4: Management Framework.*
- CCITT Recommendation X.710 (1991), *Common Management Information Service Definition for CCITT Applications.*
ISO/IEC 9595:1991, *Information Technology – Open Systems Interconnection – Common Management Information Service Definition.*
- CCITT Recommendation X.711 (1991), *Common Management Information Protocol Specification for CCITT Applications.*
ISO/IEC 9596-1:1991, *Information technology – Open Systems Interconnection – Common management information protocol – Part 1: Specification.*

2.3 Additional references

- CCITT Recommendation D.10 (1991), *General tariff principles for international public data networks.*
- CCITT Recommendation D.11 (1991), *Special tariff principles for international packet-switched public data communication services by means of the virtual call facility.*
- CCITT Recommendation D.12 (1988), *Measurement unit for charging by volume in the international packet-switched data communication service.*
- CCITT Recommendation E.164 (1991), *The numbering plan for the ISDN era.*
- ITU-T Recommendation X.2 (1993), *International data transmission services and optional user facilities in public data networks and ISDNs.*

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- ITU-T Recommendation X.25 (1993), *Interface between data terminal equipment (DTE), and data circuit-terminating equipment (DCE) for terminals operating in the packet mode and connected to public data networks by dedicated circuit.*
- CCITT Recommendation X.121 (1992), *International numbering plan for public data networks.*
- ISO/IEC 8208:1993, *Information technology – Data Communications – X.25 Packet Layer Protocol for Data Terminal Equipment.*
- ISO 8648:1988, *Information processing systems – Open Systems Interconnection – Internal organization of the Network Layer.*
- ISO/IEC 8880-1:1990, *Information technology – Telecommunications and Information Exchange Between Systems – Protocol Combinations to Provide and Support the OSI Network Service – Part 1: General Principles.*
- ISO/IEC 8880-2:1993, *Information technology – Telecommunications and Information Exchange Between Systems – Protocol Combinations to Provide and Support the OSI Network Service – Part 2: Provision and Support of the Connection-mode Network Service.*
- ISO/IEC 8880-3:1990, *Information technology – Telecommunications and Information Exchange Between Systems – Protocol Combinations to Provide and Support the OSI Network Service – Part 3: Provision and Support of the Connectionless-mode Network Service.*
- ISO/IEC 8881:1989, *Information Processing Systems – Data Communications – Use of the X.25 Packet level Protocol in Local Area Networks.*
- ISO 9542:1988, *Information Processing Systems – Telecommunications and Information Exchange Between Systems – End system to Intermediate system Routing exchange protocol for use in conjunction with the protocol for providing the Connectionless-mode network service (ISO 8473).*
- ISO/TR 9577:1990, *Information technology – Telecommunications and Information Exchange Between Systems – Protocol Identification in the Network Layer.*
- ISO/IEC 10589:1992, *Information technology – Telecommunications and Information Exchange Between Systems – Intermediate system to Intermediate system Intra-Domain routing information exchange protocol for use in Conjunction with the Protocol for providing the Connectionless-mode Network Service (ISO 8473).*

3 Definitions

3.1 Reference model

This Recommendations makes use of the following terms defined in *OSI Reference Model* (see CCITT Rec. X.200 | ISO 7498).

- a) Open System;
- b) (N)-Service Access Point;
- c) Network Layer;
- d) Network Protocol;
- e) Layer Management;
- f) Systems Management.

3.2 Information model

This Recommendations makes use of the following terms defined in *Structure of Management Information: Management Information Model* (see CCITT Rec. X.720 | ISO/IEC 10165-1).

- a) Attributes;
- b) Attribute Type;
- c) Containment;

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- d) Distinguished Name;
- e) Inheritance;
- f) Managed Object;
- g) Management Operations;
- h) Notifications;
- i) Object Class;
- j) Relative Distinguished Name;
- k) Subclass;
- l) Superclass.

3.3 Guidelines for the definition of managed objects (GDMO)

This Recommendation makes use of the following terms defined in *Structure of Management Information: Guidelines for the Definition of Managed Objects* (see CCITT Rec. X.722 | ISO/IEC 10165-4).

- a) Managed Object Class Definition;
- b) Template;
- c) Parameter.

3.4 Management framework

This Recommendation makes use of the following term defined in *Management Framework for open Systems Interconnection* (see CCITT Rec. X.700 | ISO/IEC 7498-4).

- Management Information.

4 Symbols and abbreviations

Within the Managed Object definitions and GDMO templates the following abbreviations are used in the standard-name element of a document-identifier when making references to other documents.

DMI	CCITT Rec. X.721 ISO/IEC 10165-2
GMI	ITU-T Rec. X.723 ISO/IEC 10165-5

This Recommendation makes use of the following symbols and abbreviations.

BCUG	Bilateral Closed User Group
CLNP	Connectionless-mode Network Protocol
CLNS	Connectionless-mode Network Service
CMIP	Common Management Information Protocol
CMIS	Common management Information Service Definition
CONS	Connection-mode Network Service
CUG	Closed user Group
ES	End System
ESH	End System Hello
ER PDU	Error Report Protocol Data Unit
IS	Intermediate System
ISH	Intermediate System Hello
IVMO	Initial Values Managed Object
LCN	Logical Channel Number

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MO	Managed Object
NSAP	Network Service Access Point
NSE	Network Service Element
NUI	Network User Identification
PLE	Packet Layer Entity
PVC	Permanent Virtual Circuit
RD PDU	Redirect Protocol Data Unit
RDN	Relative Distinguished Name
SNDCF	Subnetwork Dependent Convergence Function
SNPA	Subnetwork Point of Attachment
VC	Virtual Call

5 Elements of network layer management information

5.1 Managed object hierarchy

5.1.1 Summary of managed objects

The following set of managed object classes are defined for the OSI Network Layer:

- a) The network subsystem managed object (see 5.3).
- b) The network entity managed object (see 5.4).
- c) The NSAP managed object (see 5.5).
- d) The connectionless-mode network service managed object (see 5.6).
- e) The linkage managed object (see 5.7).
- f) The connection-mode network service managed object (see 5.8).
- g) The network connection managed object (see 5.9).
- h) The X.25 PLE DTE managed object (see 5.10.3).
- i) The X.25 PLE DCE managed object (see 5.10.4).
- j) The X.25 PLE DTE initial values managed object (see 5.10.5).
- k) The X.25 PLE DCE initial values managed object (see 5.10.6).
- l) The permanent virtual circuit DTE managed object (see 5.11.4).
- m) The permanent virtual circuit DCE managed object (see 5.11.5).
- n) The virtual call initial values managed object (see 5.11.6).
- o) The virtual call DTE managed object (see 5.11.7).
- p) The virtual call DCE managed object (see 5.11.8).
- q) The Recommendation D series counts managed object (see 5.11.9).

The following Managed Object classes are never instantiated, but exist only for the purposes of deriving subclasses.

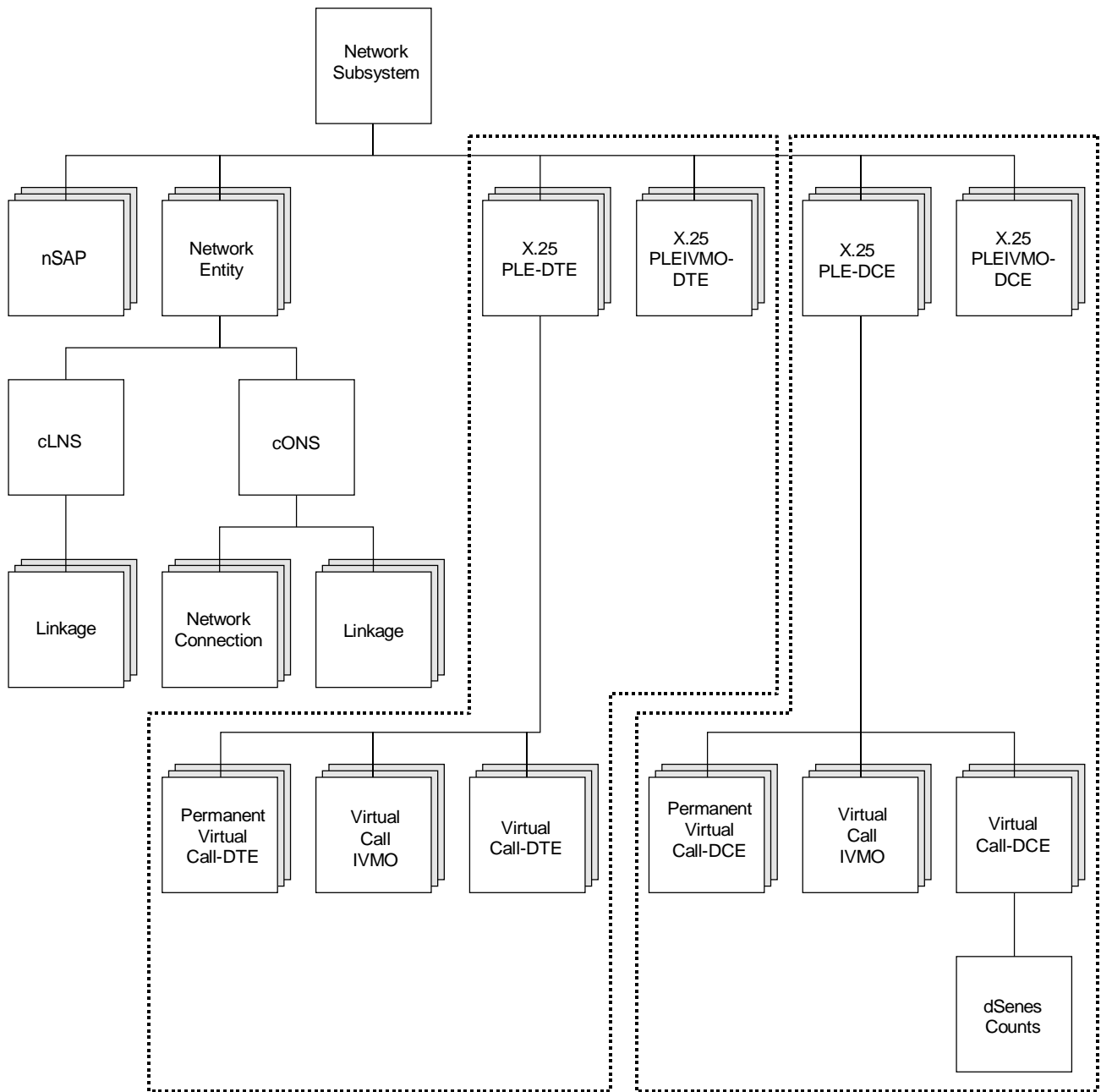
- a) The X.25 PLE managed object (see 5.10.1).
- b) The X.25 PLE initial values managed object (see 5.10.2).
- c) The virtual circuit managed object (see 5.11.1).
- d) The virtual circuit DTE managed object (see 5.11.2).
- e) The virtual circuit DCE managed object (see 5.11.3).

These Managed Objects represent OSI Management's view of those elements of an Open System which support the OSI Network Service subject to OSI management operations.

5.1.2 Containment hierarchy

The containment hierarchy is illustrated in Figure 1. Managed Objects which can have multiple instances are illustrated by shadowed (multiple) boxes. These objects are defined in detail in the following subclauses.

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FIGURE 1/X.283
Network Layer Containment Hierarchy

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The networkSubsystem MO is subordinate to the system MO. The x25PLE MO and IVMOs are examples of what are termed 'SNPA' MOs. The 'SNPA' MOs are subnetwork specific MOs. It is expected that there will in future be a number of additional 'SNPA' MOs, for example for ISDN.

The 'SNPA' MO is concerned with the protocol used to access a subnetwork. For example, there is an 'SNPA' MO corresponding to each X.25 Packet layer entity. The cLNS MO is concerned with the functions of the CLNS protocols (see ITU-T Rec. X.233 | ISO/IEC 8473-1, ISO 9542 and ISO/IEC 10589) which apply to the general operation of the protocol as a whole rather than being specifically related to individual points of attachment, whereas the linkage MO applies to the subnetwork dependent convergence functions. The cONS MO and its associated linkage MOs apply similarly to protocols associated with CONS (see ITU-T Rec. X.223 | ISO/IEC 8878, CCITT Rec. X.612 | ISO/IEC 9574, ISO 10030, ISO/IEC 10177 etc.)

For the requirements regarding which MOs in the containment tree shall be instantiated for a conforming implementation see the applicable clauses of the conformance statement.

5.1.3 Relationships

5.1.3.1 General

The following subclauses describe the individual relationships. The use of relationship attributes is illustrated by examples in Appendix II.

5.1.3.2 Linkage

There is a relationship (sN-ServiceProvider and sN-SAP both pointing to the same MO) between linkage MOs and 'SNPA' MOs. For example, a linkage concerned with the operation of the ITU-T Rec. X.233 | ISO/IEC 8473-1 SNDCF for X.25 has a relationship with an x25PLE-DTE MO. A linkage has a relationship identifying only one 'SNPA', so in the case of a network entity containing one ITU-T Rec. X.233 | ISO/IEC 8473-1 protocol machine operating over a number of X.25 Packet Layer Entities, there would be a number of linkage MOs, each related to a different x25PLE-DTE MO. But although one linkage is related to only one 'SNPA', it is possible for a number of other linkages to be related to the same 'SNPA'; for example, there could be cONS Linkages and cLNS linkages both using the same x25PLE-DTE and therefore the same 'SNPA' MO.

In some cases of network layer operation there is no specific access protocol; for example, ITU-T Rec. X.233 | ISO/IEC 8473-1 contains an SNDCF for use over the data link service directly. In such cases, the linkage has relationships (sN-ServiceProvider and sN-SAP pointing to different MOs), not to an 'SNPA', but to appropriate MOs in the Data Link Layer.

5.1.3.3 NSAPs

There is a relationship (localSAPNames) between a networkEntity MO and an nSAP MO. Each nSAP MO is related to only one networkEntity, although one networkEntity may be related to several nSAP MOs.

5.1.3.4 Layer n+1 clients

The nSAP MO has a set of relationships (userEntityName) to Layer n+1 clients (typically the Transport Layer Entity). The Transport Layer Entity has a relationship (actualNSAP) to the nSAP MO.

5.1.3.5 Layer n-1 services

Both the linkage and x25PLE MOs have relationships (sN-ServiceProvider and sN-SAP) to the appropriate Data Link Layer MOs.

5.1.3.6 Connections

There is a relationship (underlyingConnectionNames) between a transportConnection MO and its underlying networkConnection MO (if one exists), and between the networkConnection MO and the underlying virtualCall-DTE

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MO. The relationship between the virtualCall-DTE MO and any underlying Datalink Layer MO is implicitly available as a result of the parent x25PLE-DTE or x25PLE-DCE MOs relationships to the Data Link Layer, as described above.

In addition there is a relationship (localNSAPMO) from the networkConnection MO to the corresponding nSAP MO.

5.1.4 Minimum event filtering capabilities

The network layer management definitions embodied in this Recommendation imply the frequent, and possibly excessive, generation of notifications during regular layer operation. These notifications are especially useful for effective fault management, where they facilitate the tracing and pinpointing of error situations. To avoid the excessive dissemination of these event reports under normal operating conditions, it is advisable for a managed system to have, as a minimum, the capability to perform discrimination based upon:

- a) The source managed object class
- b) The object identifier values in the probable cause and specific problems field of communication alarms, and the communication type field communication informations.

5.1.5 Use of optional fields

Where reference is made in this Recommendation to ASN.1 syntax defined in Rec. X.723 | ISO/IEC 10165-5 or Rec. X.721 | ISO/IEC 10165-2, only the following fields shall be employed:

- a) those which are not OPTIONAL in the ASN.1 syntax;
- b) those which are OPTIONAL, but whose use is explicitly required by this Recommendation;
- c) those which are OPTIONAL, but whose ASN.1 type is SET OF ManagementExtension.

The use of any other fields is prohibited.

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5.2 Common behaviour templates

commonCreationDeletion-B BEHAVIOUR

DEFINED AS

!Managed object class imports the ISO/IEC 10165-2 objectCreation and objectDeletion notifications. Used as follows:

objectCreation - Generated whenever an instance of the managed object class is created. Implementations may optionally include the sourceIndicator parameter in the notification. If creation occurred as a result of internal operation of the resource, the value 'resourceOperation' is used. If creation occurred in response to a management operation, the value 'managementOperation' is used. A value of 'unknown' may be returned if it is not possible to determine the source of the operation. None of the other optional parameters are used.

objectDeletion - Generated whenever an instance of the managed object class is deleted. Implementations may optionally include the sourceIndicator parameter in the notification. If deletion occurred as a result of internal operation of the resource, the value 'resourceOperation' is used. If deletion occurred in response to a management operation, the value 'managementOperation' is used. A value of 'unknown' may be returned if it is not possible to determine the source of the operation. None of the other optional parameters are used.!

commonStateChange-B BEHAVIOUR

DEFINED AS

!Managed object class imports the ISO/IEC 10165-2 stateChange notification. Used to report the changes to the operationalState attribute, and where present, the administrativeState attribute. A single parameter set is included in the State change definition field. Only the (mandatory) attributeId and (optional) newAttributeValue parameters are used.!

octetsSentReceivedCounter-B BEHAVIOUR

DEFINED AS

The octetsSentCounter and octetsReceivedCounter shall count only user data octets in valid data packets. They shall not count user data octets in data packets which are rejected for any reason, nor user data octets in non data packets;

successfulConnectionEstablishment-B BEHAVIOUR

DEFINED AS

This Package imports the communicationsInformation notification from "GMI".

It is used to report the following events.

successfulConnectionEstablishment: Generated when a connection is successfully established. However, the precise synchronization between the notification and the corresponding protocol and service interface interactions is not defined by this Specification.

The value NLM.successfulConnectionEstablishment shall be reported in the informationType field.;

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deactivateConnection-B BEHAVIOUR

DEFINED AS

The Deactivate action causes the connection to be terminated. The termination should occur as rapidly as practical, but no particular time constraints are implied. Typically, this action simulates a disconnect request received across the service interface. If a more rapid means for terminating the connection exists, then this should be used. The termination shall occur in conformance to the protocol standard. The Managed Object remains in existence after completion of the Deactivate action. It is subsequently deleted when the connection is terminated, in the same way as if the connection has been terminated by other means. A deactivate action may fail (with the ProcessingError response) if it is temporarily not possible to terminate the connection.;

resettingTimer-B BEHAVIOUR

DEFINED AS

This attribute specifies the interval between certain events in the operation of the protocol state machine. If the value of this attribute is changed to a new value while the protocol state machine is in operation, the implementation shall take the necessary steps to ensure that for any time interval which was in progress when the corresponding attribute was changed, the next expiration of that interval takes place no later than the expiration of the interval in progress or the specified interval whichever is the sooner. The precision with which this time shall be implemented shall be the same as that associated with the basic operation of the timer attribute;

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5.3 The network subsystem managed object

-- *Managed Object for Network Layer Subsystem*

--

-- *There is exactly one of these MOs within a system. It exists to provide a container for the*

-- *Network Entity MOs, nSAP MOs and the 'SNPA' MOs as described in clause.*

--

-- *The networkSubsystem managed object cannot be created or deleted*

-- *explicitly by management operation. It exists inherently in a system;*

-- *created and deleted as part of system operation.*

--

networkSubsystem MANAGED OBJECT CLASS

DERIVED FROM "GMI":subsystem;

CHARACTERIZED BY networkSubsystem-P PACKAGE

ATTRIBUTES

"GMI":subsystemId

INITIAL VALUE NLM.networkSubsystemId-Value

GET;

REGISTERED AS { NLM.moi networkSubsystem (1) };

-- **Name Bindings**

networkSubsystem-system NAME BINDING

SUBORDINATE OBJECT CLASS networkSubsystem AND SUBCLASSES;

NAMED BY

SUPERIOR OBJECT CLASS "DMI":system AND SUBCLASSES;

WITH ATTRIBUTE "GMI":subsystemId;

REGISTERED AS { NLM.nboi networkSubsystem-system (1) };

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5.4 The network entity managed object

- *There may be multiple instances of these MOs within a system.*
- *Its definition permits it to be deleted and created explicitly by*
- *management operation, or to be created and deleted automatically*
- *as part of system operation.*

networkEntity MANAGED OBJECT CLASS

```
DERIVED FROM "GMI":communicationsEntity;  
CHARACTERIZED BY networkEntity-P PACKAGE  
BEHAVIOUR commonCreationDeletion-B;  
ATTRIBUTES  
    networkEntityTitles  
        GET-REPLACE  
        ADD-REMOVE,  
    systemTypes GET;  
NOTIFICATIONS  
    "DMI":objectDeletion,  
    "DMI":objectCreation;  
;;
```

```
REGISTERED AS { NLM.moi networkEntity (22) };
```

-- Name Bindings

networkEntity-networkSubsystem-Automatic NAME BINDING

```
SUBORDINATE OBJECT CLASS networkEntity AND SUBCLASSES;  
NAMED BY  
    SUPERIOR OBJECT CLASS networkSubsystem AND SUBCLASSES;  
    WITH ATTRIBUTE "GMI":communicationsEntityId;  
BEHAVIOUR networkEntity-networkSubsystem-Automatic-B BEHAVIOUR  
DEFINED AS This name binding shall be used when the  
    networkEntity MO is created automatically by the operation  
    of the system. The details of these operations are outside  
    the scope of this Specification.;;
```

```
REGISTERED AS { NLM.nboi networkEntity-networkSubsystem-Automatic (27) };
```

networkEntity-networkSubsystem-Management NAME BINDING

```
SUBORDINATE OBJECT CLASS networkEntity AND SUBCLASSES;  
NAMED BY  
    SUPERIOR OBJECT CLASS networkSubsystem AND SUBCLASSES;  
    WITH ATTRIBUTE "GMI":communicationsEntityId;  
BEHAVIOUR networkEntity-networkSubsystem-Management-B BEHAVIOUR  
DEFINED AS This name binding shall be used when the  
    networkEntity MO is created automatically by system management.  
;;
```

```
CREATE;  
DELETE;
```

```
REGISTERED AS { NLM.nboi networkEntity-networkSubsystem-Management (28) };
```

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-- Attributes

networkEntityTitles ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.NAddresses;

MATCHES FOR EQUALITY;

BEHAVIOUR networkEntityTitles-B BEHAVIOUR

DEFINED AS The set of Network Entity Titles

(having the same abstract syntax as an NSAP address),

which unambiguously identify the Network Entity in

an End or Intermediate System. The value may be entered by a system

management operation or it may be derived by some local means, for example

by autoconfiguration.;;

REGISTERED AS { NLM.aoi networkEntityTitles (3) };

systemTypes ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.SystemTypes;

MATCHES FOR EQUALITY;

BEHAVIOUR systemTypes-B BEHAVIOUR

DEFINED AS The set of system roles supported by this Network Entity.

This may be End System, Intermediate System or both. The actual

role in which a particular instance of the protocol machine

is operating is determined by the operationalSystemType attribute

of the cLNS or cONS MO.;;

REGISTERED AS { NLM.aoi systemTypes (108) };

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5.5 The NSAP managed object

--
-- *There is one nSAP MO for each set of NSAPs supported by the Network Subsystem*
-- *associated with a single Transport layer client.*
-- *Each NSAP MO corresponds to a set of one or more NSAPs*
-- *supported by the Network Subsystem.*
--
-- *There is not more than one Transport layer client associated with a single nSAP MO,*
-- *but there may be more than one nSAP MO, and corresponding sets of NSAPs,*
-- *associated with a single Transport layer client.*
-- *Its definition permits it to be created and deleted explicitly by*
-- *management operation or to be created and deleted automatically as*
-- *part of system operation.*
--

nSAP MANAGED OBJECT CLASS

DERIVED FROM "GMI":sap2;
CHARACTERIZED BY nSAP-P PACKAGE
BEHAVIOUR commonCreationDeletion-B;
ATTRIBUTES
 "GMI":sap2Address
 INITIAL VALUE DERIVATION RULE nAddressesIV-B
 GET;
NOTIFICATIONS
 "DMI":objectDeletion,
 "DMI":objectCreation;

;;

REGISTERED AS { NLM.moi nSAP (4) };

-- Behaviours

nAddressesIV-B BEHAVIOUR

DEFINED AS If the package is created using the nSAP-networkSubsystem-Automatic name binding the initial value of this attribute is not constrained by this Specification. However, if the package is created using the nSAP-networkSubsystem-Management name binding the initial value shall be specified in the CMIP create;

-- Name Bindings

nSAP-networkSubsystem-Automatic NAME BINDING

SUBORDINATE OBJECT CLASS nSAP AND SUBCLASSES;
NAMED BY
 SUPERIOR OBJECT CLASS networkSubsystem AND SUBCLASSES;
 WITH ATTRIBUTE "GMI":sapId;

BEHAVIOUR nSAP-networkSubsystem-Automatic-B BEHAVIOUR

DEFINED AS This name binding shall be used when the nSAP MO is created automatically by the operation of the network entity. For example, by the use of autoconfiguration or dynamic NSAP Address assignment techniques. The details of the operation of these techniques are outside the scope of this Specification.;;

REGISTERED AS { NLM.nboi nSAP-networkSubsystem-Automatic (4) };

Superseded by a more recent version

nSAP-networkSubsystem-Management NAME BINDING
SUBORDINATE OBJECT CLASS nSAP AND SUBCLASSES;
NAMED BY
 SUPERIOR OBJECT CLASS networkSubsystem AND SUBCLASSES;
 WITH ATTRIBUTE "GMI":sapId;
BEHAVIOUR nSAP-networkSubsystem-Management-B BEHAVIOUR
 DEFINED AS This name binding shall be used when the nSAP MO is created by system
 management.
 The value of the sap2Address attribute shall be specified in the CMIP create;;
CREATE;
DELETE;
REGISTERED AS { NLM.nboi nSAP-networkSubsystem-Management (5) };

Superseded by a more recent version

5.6 The connectionless-mode network service managed object

--
-- *There is no more than one of these MOs per network entity.*
-- *Its definition permits it to be created and deleted explicitly by*
-- *management operation, but in some systems it will exist inherently*
-- *and neither creation nor deletion by management operation will be*
-- *possible. Name bindings are defined for both cases.*
--
-- *When the protocol machine is operable, the operationalState shall*
-- *have the value 'enabled'; otherwise it shall have the value 'disabled'.*
-- *Transitions of operationalState shall be reported using the*
-- *stateChange notification. A cLNS MO may be created in the*
-- *'enabled' operational state.*
--

cLNS MANAGED OBJECT CLASS

```
DERIVED FROM "GMI":cIProtocolMachine;
CHARACTERIZED BY cLNS-P PACKAGE
BEHAVIOUR commonStateChange-B,
commonCreationDeletion-B;
ATTRIBUTES
  "DMI":administrativeState GET-REPLACE,
  "GMI":cIProtocolMachinelid
  INITIAL VALUE NLM.cLNSId-Value
  GET,
  supportedProtocols GET,
  operationalSystemType
  INITIAL VALUE DERIVATION RULE operationalSystemTypeIV-B
  GET;
ATTRIBUTE GROUPS
  "DMI":state
  "DMI":administrativeState
  "DMI":operationalState;
ACTIONS
  "GMI":activate,
  "GMI":deactivate;
NOTIFICATIONS
  "DMI":objectCreation,
  "DMI":objectDeletion,
  "DMI":stateChange;
;;
CONDITIONAL PACKAGES
cLNS8473-P
  PRESENT IF The protocol defined in ITU-T Rec. X.233 |ISO/IEC 8473-1 is used to implement
  the CLNS,
cLNSChecksum-P
  PRESENT IF The ITU-T Rec. X.233 |ISO/IEC 8473-1 Generate Checksum option is implemented,
```

Superseded by a more recent version

-- The following packages are associated with ISO/IEC 10589

"ISO/IEC 10589":cLNSISISBasic-P
PRESENT IF The system is an ISO 10589 IS,
"ISO/IEC 10589":cLNSISISAuthentication-P
PRESENT IF The system is an ISO 10589 IS
and the authentication procedures are implemented,
"ISO/IEC 10589":cLNSISISPartitionRepair-P
PRESENT IF The system is an ISO 10589 Level 2 IS
and the partition repair procedures are implemented,
"ISO/IEC 10589":cLNSISISLevel2-P
PRESENT IF The system is an ISO 10589 Level 2 IS,
"ISO/IEC 10589":cLNSISISLevel2Authentication-P
PRESENT IF The system is an ISO 10589 Level 2 IS
and the authentication procedures are implemented;

REGISTERED AS { NLM.moi cLNS (21) };

-- Packages

cLNS8473-P PACKAGE

BEHAVIOUR cLNS8473-P-B BEHAVIOUR

DEFINED AS Present when ITU-T Rec. X.233 |ISO/IEC 8473-1 is used to provide the CLNS;;
cLNS8473PImportedNotifications-B,
cLNS8473PImportedCounters-B;

ATTRIBUTES

"DMI":octetsSentCounter GET,
"DMI":octetsReceivedCounter GET,
segmentsReceived GET,
segmentsSent GET,
segmentsDiscarded GET,
assemblingSegmentsDiscarded GET,
errorReportsReceived GET,
pDUDiscards GET,
congestionDiscards GET,
maximumLifetime GET-REPLACE;

ATTRIBUTE GROUPS

"GMI":counters
"DMI":octetsSentCounter
"DMI":octetsReceivedCounter
segmentsReceived
segmentsDiscarded
assemblingSegmentsDiscarded
errorReportsReceived
pDUDiscards
congestionDiscards;

NOTIFICATIONS

"DMI":communicationsAlarm
notificationPDUHeader;

REGISTERED AS { NLM.poi cLNS8473-P (20) };

Superseded by a more recent version

cLNSChecksum-P PACKAGE

BEHAVIOUR cLNSChecksum-P-B BEHAVIOUR

DEFINED AS When present checksum generation is controlled by the enableChecksum attribute;;

ATTRIBUTES

enableChecksum REPLACE-WITH-DEFAULT

DEFAULT VALUE NLM.false

GET-REPLACE;

REGISTERED AS { NLM.poi cLNSChecksum-P (1) };

-- Behaviours

cLNS8473PImportedCounters-B BEHAVIOUR

DEFINED AS The cLNS8473-P package imports octetsSentCounter and octetsReceivedCounter from ISO/IEC 10165-2. They are used to count the number of octets of data transmitted or received by the local network entity in ITU-T Rec. X.233 | ISO/IEC 8473-1 Data PDUs. (i.e. those which have a source or destination N-Address, respectively, which corresponds to that one of those of the local network entity.)

cLNS8473PImportedNotifications-B BEHAVIOUR

DEFINED AS The cLNS8473-P package imports the communicationsAlarm notification from Rec. 721 | ISO/IEC 10165-2.

It is used to report the following cLNS managed object events.

pDUDiscard:

Generated when a data NPDU is discarded due to any of the reasons specified in ITU-T Rec. X.233 | ISO/IEC 8473-1 Table 7, with the exception of 'PDU Discarded due to Congestion' The header of the PDU in error shall be reported as a parameter in the additionalInformation field of the communicationsAlarm, using the notificationPDUHeader parameters. The significance sub-parameter of each item of additionalInformation shall be set to the value 'False' (i.e. not significant) so that a managing system receiving the event report will be less likely to reject it. The value NLM.pDUDiscard and that corresponding to the Reason For Discard shall both be reported in the specificProblems parameter. The probableCause shall be set to NLM.communicationsProtocolError. The perceivedSeverity shall be set to 'Minor'. A subsequent communicationsAlarm with a perceivedSeverity value of 'Cleared' shall not be generated. No other fields or parameters shall be used, with the exception of further parameters in the AdditionalInformation field. A PDU which does not contain one of the protocol identifiers defined in ITU-T Rec. X.233 | ISO/IEC 8473-1 shall not cause this event. A PDU with a protocol ID 1000 0001 shall not cause this event if it does not also contain the Version/Protocol Identifier extension in 7.2.4 of ITU-T Rec. X.233 | ISO/IEC 8473-1. If an error report PDU is generated, the PDU header and Discard Reason in the error report shall be the same as those in the corresponding notification.

;

Superseded by a more recent version

operationalSystemTypeIV-B BEHAVIOUR

DEFINED AS If the MO is created by management operation (using the cLNS-networkEntity-Management or cONS-networkEntity-Management name binding), the initial value of the operationalSystemType attribute shall be specified in the CMIP create. Otherwise, the value shall be determined in an implementation specific manner. The value shall be one of those present in the systemTypes attribute of the superior Network Entity MO.

-- Name Bindings

cLNS-networkEntity-Management NAME BINDING

SUBORDINATE OBJECT CLASS cLNS AND SUBCLASSES;

NAMED BY

SUPERIOR OBJECT CLASS networkEntity AND SUBCLASSES;

WITH ATTRIBUTE "GMI":clProtocolMachinelid;

BEHAVIOUR cLNS-networkEntity-Management-B BEHAVIOUR

DEFINED AS The name binding that applies when the cLNS managed object can be created and deleted by management;;

CREATE;

DELETE ONLY-IF-NO-CONTAINED-OBJECTS;

REGISTERED AS { NLM.nboi cLNS-networkEntity-Management (3) };

cLNS-networkEntity-Automatic NAME BINDING

SUBORDINATE OBJECT CLASS cLNS AND SUBCLASSES;

NAMED BY

SUPERIOR OBJECT CLASS networkEntity AND SUBCLASSES;

WITH ATTRIBUTE "GMI":clProtocolMachinelid;

BEHAVIOUR cLNS-networkEntity-Automatic-B BEHAVIOUR

DEFINED AS The name binding that applies when the cLNS managed object cannot be created or deleted by management;;

REGISTERED AS { NLM.nboi cLNS-networkEntity-Automatic (16) };

-- Attributes

assemblingSegmentsDiscarded ATTRIBUTE

DERIVED FROM "GMI":nonWrapping64BitCounter;

BEHAVIOUR assemblingSegmentsDiscarded-B BEHAVIOUR

DEFINED AS Counter of segments discarded due to reassembly time expiry.

This is the number of data and error report NPDUs discarded due to reassembly time expiry;;

REGISTERED AS { NLM.aoi assemblingSegmentsDiscarded (8) };

congestionDiscards ATTRIBUTE

DERIVED FROM "GMI":nonWrapping64BitCounter;

BEHAVIOUR congestionDiscards-B BEHAVIOUR

DEFINED AS Counter of PDUs discarded due to congestion.

This is the number of data or error report PDUs discarded due to congestion.

This counter is incremented irrespective of the setting of the Error Report bit in the received PDU;;

REGISTERED AS { NLM.aoi congestionDiscards (11) };

Superseded by a more recent version

enableChecksum ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.Boolean;

MATCHES FOR EQUALITY;

BEHAVIOUR enableChecksum-B **BEHAVIOUR**

DEFINED AS When True, the generation of checksums is enabled.;

REGISTERED AS { NLM.aoi enableChecksum (4) };

errorReportsReceived ATTRIBUTE

DERIVED FROM "GMI":nonWrapping64BitCounter;

BEHAVIOUR errorReportsReceived-B **BEHAVIOUR**

DEFINED AS Counter of received error reports.

This is the number of error report NPDUs received which were addressed to the local network entity.;

REGISTERED AS { NLM.aoi errorReportsReceived (9) };

maximumLifetime ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.Lifetime;

MATCHES FOR EQUALITY, ORDERING;

BEHAVIOUR maximumLifetime-B **BEHAVIOUR**

DEFINED AS Maximum PDU lifetime (in half seconds).

This attribute controls the maximum value (in half seconds) which may be placed in the lifetime field of any ITU-T Rec. X.233 | ISO/IEC 8473-1 data or error report PDU generated by the local network entity.

It does not affect the lifetime field of any PDUs not generated by this network entity, for example those relayed by this system acting as an Intermediate System. PDUs generated by the local network entity are permitted to have a lower value of lifetime field than this attribute, but shall not have a larger value. The means by which the value of the lifetime field is determined for an individual PDU is outside the scope of this Specification, provided that it meets the above constraints.;

REGISTERED AS { NLM.aoi maximumLifetime (102) };

operationalSystemType ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.SystemType;

MATCHES FOR EQUALITY;

BEHAVIOUR operationalSystemType-B **BEHAVIOUR**

DEFINED AS The system role in which this instance is operating.

A value of ES indicates that the system

shall perform no forwarding operations upon non-local PDUs.

A value of IS indicates that the system is permitted to perform forwarding operations, but the decision to forward individual PDUs, or not to forward them, shall be taken on the basis of the available routing information.;

REGISTERED AS { NLM.aoi operationalSystemType (109) };

Superseded by a more recent version

pDUDiscards ATTRIBUTE

DERIVED FROM "GMI":nonWrapping64BitCounter;

BEHAVIOUR pDUDiscards-B BEHAVIOUR

DEFINED AS Counter of PDUs discarded (except for congestion).

This is the number of data or error report PDUs discarded for any of the reasons specified in ITU-T Rec. X.233 | ISO/IEC 8473-1 Table 7 with the exception of 'PDU discarded due to congestion'.

This counter is incremented irrespective of the setting of the Error Report bit in the received PDU;;

-- NOTE – This counter is therefore a count of the number of

-- communicationsAlarm notifications with a specificProblem value of

-- pDUDiscard generated (as opposed to CMIP events,

-- may be suppressed) as required by GDMO subclause 9.8.5 (SC21 N4852).

REGISTERED AS { NLM.aoi pDUDiscards (10) };

segmentsDiscarded ATTRIBUTE

DERIVED FROM "GMI":nonWrapping64BitCounter;

BEHAVIOUR segmentsDiscarded-B BEHAVIOUR

DEFINED AS Counter of segments discarded.

This is the number of data and error report NPDUs discarded without being delivered to a Network Service user or forwarded. This includes segments discarded for any reason except reassembly time expiry;;

REGISTERED AS { NLM.aoi segmentsDiscarded (7) };

segmentsReceived ATTRIBUTE

DERIVED FROM "GMI":nonWrapping64BitCounter;

BEHAVIOUR segmentsReceived-B BEHAVIOUR

DEFINED AS Counter of segments received.

This is the number of data and error report NPDUs received prior to reassembly, including those which may subsequently be discarded;;

REGISTERED AS { NLM.aoi segmentsReceived (6) };

segmentsSent ATTRIBUTE

DERIVED FROM "GMI":nonWrapping64BitCounter;

BEHAVIOUR segmentsSent-B BEHAVIOUR

DEFINED AS Counter of segments Sent.

This is the number of data and error report NPDUs sent after segmentation processing occurs;;

REGISTERED AS { NLM.aoi segmentsSent (118) };

supportedProtocols ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.SupportedProtocols;

MATCHES FOR EQUALITY, SET-COMPARISON, SET-INTERSECTION;

BEHAVIOUR supportedProtocols-B BEHAVIOUR

DEFINED AS The set of Connectionless Network protocols supported

by this instance of the cLNS protocol machine, expressed except where otherwise indicated (for example because there are more than one protocol described in a single International Standard)

as the registered object identifiers of the relevant

International Standard. The operation of a particular protocol

over a particular linkage is determined by the linkage

operationalProtocols attribute. The value of the

supportedProtocols attribute is determined by the implementation.;;

REGISTERED AS { NLM.aoi supportedProtocols (110) };

Superseded by a more recent version

-- Parameters

notificationPDUHeader PARAMETER

CONTEXT EVENT-INFO;

WITH SYNTAX NLM.OctetString;

BEHAVIOUR notificationPDUHeader-B BEHAVIOUR

DEFINED AS The header of the data NPDU header which caused this event;;

REGISTERED AS { NLM.proi notificationPDUHeader (1) };

Superseded by a more recent version

5.7 The linkage managed object

-- Linkage Managed Object
--
-- There is one of these MOs associated with each separate provision
-- of the underlying service to the superior protocol machine.
-- Its definition permits it to be created and deleted explicitly by
-- management operation, but in some systems it will exist inherently
-- and neither creation nor deletion by management operation will be
-- possible. Name bindings are defined for both cases.
--
-- When the linkage is operable, the operationalState shall
-- have the value 'enabled'; otherwise it shall have the value 'disabled'.
-- Transitions of operationalState shall be reported using the
-- stateChange notification. A linkage MO may be created in the
-- 'enabled' operational state.
--

linkage MANAGED OBJECT CLASS

```
DERIVED FROM "DMI":top;
CHARACTERIZED BY linkage-P PACKAGE
  BEHAVIOUR commonCreationDeletion-B,
             commonStateChange-B;
ATTRIBUTES
  linkageld GET,
  "DMI":operationalState GET,
  "DMI":administrativeState GET-REPLACE,
  sN-ServiceProvider
    INITIAL VALUE DERIVATION RULE sN-ServiceProviderIV-B
    GET,
  sN-SAP GET,
  operationalProtocols
    INITIAL VALUE DERIVATION RULE operationalProtocolIV-B
    GET;
ATTRIBUTE GROUPS
  "DMI":state
  "DMI":administrativeState
  "DMI":operationalState;
ACTIONS
  "GMI":activate,
  "GMI":deactivate;
NOTIFICATIONS
  "DMI":stateChange,
  "DMI":objectCreation,
  "DMI":objectDeletion;
;;
CONDITIONAL PACKAGES
linkage-ISO9542IS-P
  PRESENT IF support for ISO 9542 operating as an IS,
linkage-ISO9542ES-P
  PRESENT IF support for ISO 9542 operating as an ES,
linkage-ISO9542Checksum-P
  PRESENT IF support for ISO 9542 PDU Header Checksum Generation function,
linkageInitialMinimumTimer-P
```

Superseded by a more recent version

PRESENT IF support for the initial minimum timer attribute of the ITU-T Rec. X.233 | ISO/IEC 8473-1 SNDCF when operating ITU-T Rec. X.233 | ISO/IEC 8473-1 over an ISO/IEC 8208 or ITU-T Rec.X.25 or CO Datalink Service,

linkageReserveTimer-P

PRESENT IF support for the reserve timer attribute of the ITU-T Rec. X.233 | ISO/IEC 8473-1 SNDCF when operating ITU-T Rec. X.233 | ISO/IEC 8473-1 over an ISO/IEC 8208 or ITU-T Rec. X.25 or CO Datalink Service,

linkageIdleTimer-P

PRESENT IF support for the idle timer attribute of the ITU-T Rec. X.233 | ISO/IEC 8473-1 SNDCF when operating ITU-T Rec. X.233 | ISO/IEC 8473-1 over an ISO/IEC 8208 or ITU-T Rec. X.25 or CO Datalink Service,

linkage-ITU-T Rec. X.233 | ISO/IEC 8473-1-ISO8208SNDCF-P

PRESENT IF operating ITU-T Rec. X.233 | ISO/IEC 8473-1 over ISO/IEC 8208 or ITU-T Rec. X.25 or,

linkageCODLService-P

PRESENT IF operating ITU-T Rec. X.233 | ISO/IEC 8473-1 over the CO Datalink Service,

-- The following packages are associated with ISO/IEC 10589

"ISO/IEC 10589":linkageSISBasic-P

PRESENT IF the system is an ISO 10589 IS,

"ISO/IEC 10589":linkageSISAuthentication-P

PRESENT IF the authentication procedures are implemented on an ISO 10589 IS,

"ISO/IEC 10589":linkageSISBroadcast-P

PRESENT IF the linkage is a broadcast circuit on an ISO 10589 IS,

"ISO/IEC 10589":linkageSISDASCallEstablishmentMetricIncrement-P

PRESENT IF the linkage is a DA Circuit and support is implemented for call establishment metric increment values greater than zero on an ISO/IEC 10589 IS,

"ISO/IEC 10589":linkageSISPtToPt-P

PRESENT IF the linkage is a point to point circuit on an ISO 10589 IS,

"ISO/IEC 10589":linkageSISStatic-P

PRESENT IF the linkage is an X.25 static circuit (IN or OUT) on an ISO 10589 IS,

"ISO/IEC 10589":linkageSISLevel2-P

PRESENT IF the system is an ISO/IEC 10589 level 2 IS,

"ISO/IEC 10589":linkageSISlevel2Broadcast-P

PRESENT IF the linkage is a broadcast circuit on an ISO 10589 level 2 IS;

REGISTERED AS { NLM.moi linkage (23) };

-- Packages

linkageCODLService-P PACKAGE

BEHAVIOUR linkageCODLService-P-B BEHAVIOUR

DEFINED AS Controls the operation of CO Datalink as an SNDCF for ITU-T Rec. X.233 | ISO/IEC 8473-1;;

ATTRIBUTES

callsPlaced GET,

callsFailed GET;

ATTRIBUTE GROUPS

"GMI":counters

callsPlaced

callsFailed;

REGISTERED AS { NLM.poi linkageCODLService-P (9) };

Superseded by a more recent version

linkageIdleTimer-P PACKAGE

BEHAVIOUR linkageIdleTimer-P-B BEHAVIOUR

DEFINED AS Controls the ability, when implemented, of an ISO/IEC 8208 or ITU-T Rec. X.25 or CO Datalink SNDCF for ITU-T Rec. X.233 | ISO/IEC 8473-1 to close an established Virtual Call when it is idle. ;;

ATTRIBUTES

idleTimer REPLACE-WITH-DEFAULT

GET-REPLACE;

REGISTERED AS { NLM.poi linkageIdleTimer-P (5) };

linkageInitialMinimumTimer-P PACKAGE

BEHAVIOUR linkageInitialMinimumTimer-P-B BEHAVIOUR

DEFINED AS Controls the ability, when implemented, of an ISO/IEC 8208 or ITU-T Rec. X.25 or CO Datalink SNDCF for ITU-T Rec. X.233 | ISO/IEC 8473-1 to close an established Virtual Call when it is idle, but only after a minimum time after its establishment;;

ATTRIBUTES

initialMinimumTimer REPLACE-WITH-DEFAULT

GET-REPLACE;

REGISTERED AS { NLM.poi linkageInitialMinimumTimer-P (7) };

linkage-ITU-T Rec. X.233 | ISO/IEC 8473-1-ISO/IEC8208 or ITU-T Rec. X.25SNDCF-P PACKAGE

BEHAVIOUR linkage-ISO8473-ISO8208SNDCF-P-B BEHAVIOUR

DEFINED AS Controls the operation of ISO/IEC 8208 or ITU-T Rec. X.25 as an SNDCF for ITU-T Rec. X.233 | ISO/IEC 8473-1;;

ATTRIBUTES

callsPlaced GET,

callsFailed GET;

ATTRIBUTE GROUPS

"GMI":counters

callsPlaced

callsFailed;

REGISTERED AS { NLM.poi linkage-ITU-T Rec. X.233 | ISO/IEC 8473-1-ISO/IEC8208 or ITU-T Rec. X.25SNDCF-P (4) };

linkage-ISO9542Checksum-P PACKAGE

BEHAVIOUR linkage-ISO9542Checksum-P-B BEHAVIOUR

DEFINED AS When present, checksum generation is controlled by the enableChecksum attribute;;

ATTRIBUTES

enableChecksum REPLACE-WITH-DEFAULT

DEFAULT VALUE NLM.false

GET-REPLACE;

REGISTERED AS { NLM.poi linkage-ISO9542Checksum-P(17) };

linkage-ISO9542ES-P PACKAGE

BEHAVIOUR

linkage-ISO9542ES-P-B BEHAVIOUR

DEFINED AS Controls the operation of ISO 9542 on an End System;;

linkage-ISO9542ImportedAlarmNotifications-B,

linkage-ISO9542ISReachabilityChange-B,

linkage-ISO9542ESReachabilityChange-B;

ATTRIBUTES

ISO9542OperationalSubsets GET-REPLACE,

holdingTimerMultiplier

REPLACE-WITH-DEFAULT

DEFAULT VALUE NLM.holdingTimerMultiplierDefault

Superseded by a more recent version

PERMITTED VALUES NLM.HoldingTimerMultiplierPermitted
REQUIRED VALUES NLM.HoldingTimerMultiplierRequired
GET-REPLACE,
manualISSNPAAddress REPLACE-WITH-DEFAULT
GET-REPLACE ADD-REMOVE,
defaultESConfigTimer REPLACE-WITH-DEFAULT
GET-REPLACE,
activeESConfigTimer GET,
iSReachabilityChanges GET,
invalid9542PDUs GET;
ATTRIBUTE GROUPS
"GMI":counters
iSReachabilityChanges
invalid9542PDUs;
NOTIFICATIONS
"DMI":communicationsAlarm,
"GMI":communicationsInformation
reachabilityChange;
REGISTERED AS { NLM.poi linkage-ISO9542ES-P (21) };
linkage-ISO9542IS-P PACKAGE
BEHAVIOUR linkage-ISO9542IS-P-B BEHAVIOUR
DEFINED AS Controls the operation of ISO 9542 on an Intermediate System;;
linkage-ISO9542ImportedAlarmNotifications-B,
linkage-ISO9542ISReachabilityChange-B,
linkage-ISO9542ESReachabilityChange-B;
ATTRIBUTES
iS09542OperationalSubsets GET-REPLACE,
holdingTimerMultiplier
REPLACE-WITH-DEFAULT
DEFAULT VALUE NLM.holdingTimerMultiplierDefault
PERMITTED VALUES NLM.HoldingTimerMultiplierPermitted

REQUIRED VALUES NLM.HoldingTimerMultiplierRequired
GET-REPLACE,
iSConfigurationTimer REPLACE-WITH-DEFAULT
DEFAULT VALUE NLM.iSConfigurationTimerDefault
GET-REPLACE,
suggestedESConfigurationTimer REPLACE-WITH-DEFAULT
DEFAULT VALUE NLM.suggestedESConfigurationTimerDefault
GET-REPLACE,
redirectHoldingTime
REPLACE-WITH-DEFAULT
DEFAULT VALUE NLM.redirectHoldingTime-Default
PERMITTED VALUES NLM.RedirectHoldingTime-Permitted
GET-REPLACE,

Superseded by a more recent version

eSReachabilityChanges GET,
invalid9542PDUs GET;

ATTRIBUTE GROUPS

"GMI":counters
eSReachabilityChanges
invalid9542PDUs;

NOTIFICATIONS

"DMI":communicationsAlarm,
"GMI":communicationsInformation
reachabilityChange;

REGISTERED AS { NLM.poi linkage-ISO9542IS-P (22) };

linkageReserveTimer-P PACKAGE

BEHAVIOUR linkageReserveTimer-P-B BEHAVIOUR

DEFINED AS Controls the ability, when implemented, of an ISO/IEC 8208 or ITU-T Rec. X.25 or CO Datalink SND CF for ITU-T Rec. X.233 | ISO/IEC 8473-1 to close an established Virtual Call when it is idle, but retain resources for its re-establishment ;;

ATTRIBUTES

reserveTimer REPLACE-WITH-DEFAULT
GET-REPLACE;

REGISTERED AS { NLM.poi linkageReserveTimer-P (6) };

-- Behaviours

linkage-ISO9542ISReachabilityChange-B BEHAVIOUR

DEFINED AS

This package imports the communicationsInformation notification from Rec. X.723 | ISO/IEC 10165-5. It is used to report the following events.

iSReachabilityChange:

Generated when an ES or IS detects a change in the reachability of a neighbouring IS. The value NLM.iSReachabilityChange shall be reported in the informationType field. The new State, NET of the IS concerned, snpaAddress (where available) and the reason for the change shall be reported in the informationData field using the reachabilityChange PARAMETER.

linkage-ISO9542ESReachabilityChange-B BEHAVIOUR

DEFINED AS

This package imports the communicationsInformation notification from Rec. X.723 | ISO/IEC 10165-5. It is used to report the following events.

Superseded by a more recent version

eSReachabilityChange:

Generated when an ES or IS detects a change in the reachability of a neighboring ES.
The value NLM.eSReachabilityChange shall be reported in the informationType field.
The new State, set of NSAPAddresses of the IS concerned, the snpaAddress (where available) and the reason for the change shall be reported in the informationData field using the reachabilityChange PARAMETER.

;

linkage-ISO9542ImportedAlarmNotifications-B BEHAVIOUR

DEFINED AS This package imports the communicationsAlarm notification from Rec. X.721 (1992) | ISO/IEC 10165-2.
It is used to report the following events.

invalid9542PDU:

Generated when an ISO 9542 PDU is received which is discarded as result of the PDU Header Error Detection or Protocol Error Processing Functions specified in ISO 9542.
The significance sub-parameter of each item of additionalInformation shall be set to the value 'False' (i.e. not significant) so that a managing system receiving the event report will be less likely to reject it.
The value NLM.iso9542PDUDiscard shall be reported in the specificProblems parameter.
The probableCause shall be set to NLM.communicationsProtocolError.
The perceivedSeverity shall be set to 'Minor'. A subsequent communicationsAlarm with a perceivedSeverity value of 'Cleared' shall not be generated.
No other fields or parameters shall be used, with the exception of further parameters in the AdditionalInformation field.

operationalProtocolIV-B BEHAVIOUR

DEFINED AS If the linkage MO is created by management operation (using the linkage-cLNS-Management name binding), the initial value of the operationalProtocols attribute shall be specified in the CMIP create.
Otherwise, the value shall be determined in an implementation specific manner;

sN-ServiceProviderIV-B BEHAVIOUR

DEFINED AS If the linkage MO is created by management operation (using the linkage-cONS-Management or linkage-cONS-Management name bindings), the initial value of the sN-ServiceProvider attribute shall be specified in the CMIP create.
Otherwise, the value shall be determined in an implementation specific manner;

Superseded by a more recent version

-- Name Bindings

linkage-cLNS-Management NAME BINDING

SUBORDINATE OBJECT CLASS linkage AND SUBCLASSES;
NAMED BY
SUPERIOR OBJECT CLASS cLNS AND SUBCLASSES;
WITH ATTRIBUTE linkageld;
BEHAVIOUR sN-ServiceProviderIV-B, operationalProtocolIV-B,
linkage-cLNS-Management-B BEHAVIOUR
DEFINED AS The name binding which applies when the linkage managed object
can be created and deleted by management as a subordinate object of the cLNS
managed object class;;
CREATE WITH-REFERENCE-OBJECT;
DELETE;

REGISTERED AS { NLM.nboi linkage-cLNS-Management (20) };

linkage-cONS-Management NAME BINDING

SUBORDINATE OBJECT CLASS linkage AND SUBCLASSES;
NAMED BY
SUPERIOR OBJECT CLASS cONS AND SUBCLASSES;
WITH ATTRIBUTE linkageld;
BEHAVIOUR sN-ServiceProviderIV-B,
linkage-cONS-Management-B BEHAVIOUR
DEFINED AS The name binding which applies when the linkage managed object
can be created and deleted by management as a subordinate object of the cONS
managed object class;;
CREATE WITH-REFERENCE-OBJECT;
DELETE;

REGISTERED AS { NLM.nboi linkage-cONS-Management (21) };

linkage-cLNS-Automatic NAME BINDING

SUBORDINATE OBJECT CLASS linkage AND SUBCLASSES;
NAMED BY
SUPERIOR OBJECT CLASS cLNS AND SUBCLASSES;
WITH ATTRIBUTE linkageld;
BEHAVIOUR sN-ServiceProviderIV-B, operationalProtocolIV-B,
linkage-cLNS-Automatic-B BEHAVIOUR
DEFINED AS The name binding which applies when the linkage managed object
cannot be created and deleted by management as a subordinate object of the cLNS
managed object class;;

REGISTERED AS { NLM.nboi linkage-cLNS-Automatic (22) };

linkage-cONS-Automatic NAME BINDING

SUBORDINATE OBJECT CLASS linkage AND SUBCLASSES;
NAMED BY
SUPERIOR OBJECT CLASS cONS AND SUBCLASSES;
WITH ATTRIBUTE linkageld;
BEHAVIOUR sN-ServiceProviderIV-B,
linkage-cONS-Automatic-B BEHAVIOUR
DEFINED AS The name binding which applies when the linkage managed object
cannot be created and deleted by management as a subordinate object of the cONS
managed object class;;

REGISTERED AS { NLM.nboi linkage-cONS-Automatic (23) };

Superseded by a more recent version

-- Attributes

activeESConfigTimer ATTRIBUTE

DERIVED FROM "GMI":timer;

BEHAVIOUR activeESConfigTimer-B BEHAVIOUR

DEFINED AS Currently active value for the ISO 9542 ES configuration timer
in seconds.;;

REGISTERED AS { NLM.aoi activeESConfigTimer (22) };

callsFailed ATTRIBUTE

DERIVED FROM "GMI":nonWrapping64BitCounter;

BEHAVIOUR callsFailed-B BEHAVIOUR

DEFINED AS Counter of the number of X.25 call failures
while attempting establishment by the SNDCF;;

REGISTERED AS { NLM.aoi callsFailed (30) };

callsPlaced ATTRIBUTE

DERIVED FROM "GMI":nonWrapping64BitCounter;

BEHAVIOUR callsPlaced-B BEHAVIOUR

DEFINED AS Counter of the number of X.25 VCs successfully established
by the SNDCF;;

REGISTERED AS { NLM.aoi callsPlaced (29) };

defaultESConfigTimer ATTRIBUTE

DERIVED FROM "GMI":timer;

BEHAVIOUR resettingTimer-B, defaultESConfigTimer-B BEHAVIOUR

DEFINED AS Default value for the ISO 9542 ES configuration timer
in seconds. This value is used when the ES has not received,
or has not chosen to accept, a suggested configuration timer
value from an Intermediate System;;

REGISTERED AS { NLM.aoi defaultESConfigTimer (21) };

eSReachabilityChanges ATTRIBUTE

DERIVED FROM "GMI":nonWrapping64BitCounter;

BEHAVIOUR eSReachabilityChanges-B BEHAVIOUR

DEFINED AS Count of the number of changes in reachability of End Systems
from this system;;

REGISTERED AS { NLM.aoi eSReachabilityChanges (27) };

holdingTimerMultiplier ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.Integer;

BEHAVIOUR holdingTimerMultiplier-B BEHAVIOUR

DEFINED AS The factor to derive holding timer from configuration timer.

This value, when multiplied by a configuration timer yields the value of
the holding timer parameter issued with configuration information. The semantics of
this parameter are such that it is permissible to also add a delta value to the result to
compensate for possible delays and imprecision of timers. The result of the calculation
is truncated, upon overflow, to the maximum value for the parameter permitted by the
protocol (65535);;

REGISTERED AS { NLM.aoi holdingTimerMultiplier (20) };

Superseded by a more recent version

idleTimer ATTRIBUTE

DERIVED FROM "GMI":timer;

BEHAVIOUR idleTimer-B BEHAVIOUR

DEFINED AS Time in seconds before release of an idle call.

This timer determines the interval (in seconds) for which a call is permitted to remain idle (i.e. no data traffic in either direction) before being released by the SNDCF;;

REGISTERED AS { NLM.aoi idleTimer (31) };

initialMinimumTimer ATTRIBUTE

DERIVED FROM "GMI":timer;

BEHAVIOUR initialMinimumTimer-B BEHAVIOUR

DEFINED AS Minimum time in seconds to retain call after establishment.

This timer determines the interval (in seconds) that a call shall remain connected after being established, irrespective of traffic. (NOTE – This should be set small enough so that the call is cleared before the start of the next charging interval.);;

REGISTERED AS { NLM.aoi initialMinimumTimer (33) };

invalid9542PDUs ATTRIBUTE

DERIVED FROM "GMI":nonWrapping64BitCounter;

BEHAVIOUR invalid9542PDUs-B BEHAVIOUR

DEFINED AS Counter of invalid 9542 PDUs received.

This is the number of ISO 9542 PDUs received which are discarded as a result of the PDU Header Error Detection or Protocol Error Processing Functions specified in ISO 9542;;

-- NOTE – This counter is therefore a count of the number of

-- *communicationsAlarm* notifications with a specific *Problem* value of

-- *NLM.iSO9542PDUDiscard* generated.

REGISTERED AS { NLM.aoi invalid9542PDUs (101) };

iSConfigurationTimer ATTRIBUTE

DERIVED FROM "GMI":timer;

BEHAVIOUR resettingTimer-B, iSConfigurationTimer-B BEHAVIOUR

DEFINED AS Value in seconds for the ISO 9542 IS configuration timer.

It is used to determine how often an IS reports configuration information to ESs;;

REGISTERED AS { NLM.aoi iSConfigurationTimer (24) };

iSO9542OperationalSubsets ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.ISO9542Subsets;

MATCHES FOR EQUALITY;

BEHAVIOUR iSO9542OperationalSubsets-B BEHAVIOUR

DEFINED AS The set of ISO 9542 subsets operational on this linkage.;;

REGISTERED AS { NLM.aoi iSO9542OperationalSubsets (115) };

iSReachabilityChanges ATTRIBUTE

DERIVED FROM "GMI":nonWrapping64BitCounter;

BEHAVIOUR iSReachabilityChanges-B BEHAVIOUR

DEFINED AS Counter of the number of changes in reachability of Intermediate Systems from this system;;

REGISTERED AS { NLM.aoi iSReachabilityChanges (23) };

Superseded by a more recent version

linkageId ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.GraphicString;

MATCHES FOR EQUALITY, SUBSTRINGS;

BEHAVIOUR linkageId-B BEHAVIOUR

DEFINED AS The naming attribute of the linkage MO instance;;

REGISTERED AS { NLM.aoi linkageId (17) };

manualISSNPAAddress ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.ManualISSNPAAddress;

MATCHES FOR SET-COMPARISON, SET-INTERSECTION;

BEHAVIOUR manualISSNPAAddress-B BEHAVIOUR

DEFINED AS The set of SNPA Addresses to which calls associated with the SNDCF are to be established in the absence of any other information. The maximum set cardinality shall be implementation specific. An attempt to set the value of an element of this set to a type of SNPAAddress which is not supported by this linkage shall result in a failure of the SET operation.;;

REGISTERED AS { NLM.aoi manualISSNPAAddress (28) };

operationalProtocols ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.SupportedProtocols;

MATCHES FOR EQUALITY, SET-COMPARISON, SET-INTERSECTION;

BEHAVIOUR operationalProtocols-B BEHAVIOUR

DEFINED AS The set of network layer protocols supported by this instance of the linkage MO, expressed as the registered object identifiers of the relevant International Standard.;;

REGISTERED AS { NLM.aoi operationalProtocols (111) };

redirectHoldingTime ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.RedirectHoldingTime;

MATCHES FOR EQUALITY, ORDERING;

BEHAVIOUR redirectHoldingTime-B BEHAVIOUR

DEFINED AS The holding time (in seconds) to be specified in Redirect PDUs generated by this system.;;

REGISTERED AS { NLM.aoi redirectHoldingTime (26) };

reserveTimer ATTRIBUTE

DERIVED FROM "GMI":timer;

BEHAVIOUR reserveTimer-B BEHAVIOUR

DEFINED AS Time in seconds to reserve resources for call re-establishment.

This timer determines the interval (in seconds) for which an attempt shall be made to retain those resources, as determined by the implementation, whose retention will increase the probability of successful re-establishment of an idled VC.;;

REGISTERED AS { NLM.aoi reserveTimer (32) };

Superseded by a more recent version

sN-SAP ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.LocalDistinguishedName;

MATCHES FOR EQUALITY;

BEHAVIOUR sN-SAP-B BEHAVIOUR

DEFINED AS Distinguished name of the service provider SAP MO
(if present).

This is obtained via an internal interface when the linkage is enabled. The sN-SAP may be a relationship to an SAP MO in the Datalink Layer, or it may be a relationship to another Managed Object within the Network Layer which is not an SAP MO.

For example, when operating ITU-T Rec. X.233 | ISO/IEC 8473-1 over the ISO/IEC 8208 or ITU-T Rec. X.25 SNDCF, it is a relationship to the same x25PLE-DTE MO which is pointed to by the sN-ServiceProvider Attribute. ;;

REGISTERED AS { NLM.aoi sN-SAP (18) };

sN-ServiceProvider ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.LocalDistinguishedName;

MATCHES FOR EQUALITY;

BEHAVIOUR sN-ServiceProvider-B BEHAVIOUR

DEFINED AS Distinguished name of the SN service provider MO.

This attribute identifies the subnetwork entity to be used to support the linkage, when enabled. The subnetwork service provider may be in the Datalink Layer, or it may be in the Network Layer

(for example when operating ITU-T Rec. X.233 | ISO/IEC 8473-1 over the ISO/IEC 8208 or ITU-T Rec. X.25 SNDCF).;;

REGISTERED AS { NLM.aoi sN-ServiceProvider (19) };

suggestedESConfigurationTimer ATTRIBUTE

DERIVED FROM "GMI":timer;

BEHAVIOUR resettingTimer-B, suggestedESConfigurationTimer-B BEHAVIOUR

DEFINED AS Value to be used for the ISO 9542 suggested ES configuration timer value (in seconds),

advertised in IS hellos generated by this network entity;;

REGISTERED AS { NLM.aoi suggestedESConfigurationTimer (25) };

-- Parameters

reachabilityChange PARAMETER

CONTEXT EVENT-INFO;

WITH SYNTAX NLM.ReachabilityChangeSyntax;

REGISTERED AS { NLM.proi reachabilityChange (12) };

Superseded by a more recent version

5.8 The connection-mode network service managed object

--
-- *There is no more than one of these MOs per network entity.*
-- *Its definition permits it to be created and deleted explicitly by*
-- *management operation, but in some systems it will exist inherently*
-- *and neither creation nor deletion by management operation will be*
-- *possible. Name bindings are defined for both cases.*
--
-- *When the protocol machine is operable, the operationalState shall*
-- *have the value 'enabled'; otherwise it shall have the value 'disabled'.*
-- *Transitions of operationalState shall be reported using the*
-- *stateChange notification. A cONS MO may be created in the*
-- *'enabled' operational state.*
--

cONS MANAGED OBJECT CLASS

```
DERIVED FROM "GMI":coProtocolMachine;
CHARACTERIZED BY cONS-P PACKAGE
  BEHAVIOUR commonStateChange-B,
             commonCreationDeletion-B;
ATTRIBUTES
  "DMI":administrativeState GET-REPLACE,
  "GMI":coProtocolMachineld
    INITIAL VALUE NLM.cONSId-Value
    GET,
  operationalSystemType
    INITIAL VALUE DERIVATION RULE operationalSystemTypeIV-B
    GET;
ATTRIBUTE GROUPS
  "DMI":state
    "DMI":administrativeState
    "DMI":operationalState;
ACTIONS
  "GMI":activate,
  "GMI":deactivate,
  "GMI":deactivateWhenNoUsers;
NOTIFICATIONS
  "DMI":objectCreation,
  "DMI":objectDeletion,
  "DMI":stateChange;
```

;;

```
REGISTERED AS { NLM.moi cONS (24) };
```


Superseded by a more recent version

-- Name Bindings

cONS-networkEntity-Management NAME BINDING

SUBORDINATE OBJECT CLASS cONS AND SUBCLASSES;

NAMED BY

SUPERIOR OBJECT CLASS networkEntity AND SUBCLASSES;

WITH ATTRIBUTE "GMI":coProtocolMachineld;

BEHAVIOUR cONS-networkEntity-Management-B BEHAVIOUR

DEFINED AS The name binding that applies when the cONS managed object
can be created and deleted by management;;

CREATE;

DELETE ONLY-IF-NO-CONTAINED-OBJECTS;

REGISTERED AS { NLM.nboi cONS-networkEntity-Management (8) };

cONS-networkEntity-Automatic NAME BINDING

SUBORDINATE OBJECT CLASS cONS AND SUBCLASSES;

NAMED BY

SUPERIOR OBJECT CLASS networkEntity AND SUBCLASSES;

WITH ATTRIBUTE "GMI":coProtocolMachineld;

BEHAVIOUR cONS-networkEntity-Automatic-B BEHAVIOUR

DEFINED AS The name binding that applies when the cONS managed object
cannot be created or deleted by management;;

REGISTERED AS { NLM.nboi cONS-networkEntity-Automatic (17) };

Superseded by a more recent version

5.9 The network connection managed object

--
-- *There is one instance of this MO corresponding to each network
-- connection. It is created and deleted by the operation of the protocol
-- machine.*
--
-- *In some configurations the underlyingConnectionNames attribute may
-- contain more than one distinguished name. In this case, the type of
-- the underlying MO (and hence the particular underlying resource)
-- can only be determined by inspection of the MO pointed to by this
-- distinguished name.*
--

networkConnection MANAGED OBJECT CLASS

DERIVED FROM "GMI":singlePeerConnection;
CHARACTERIZED BY networkConnection-P PACKAGE

BEHAVIOUR

commonCreationDeletion-B,
successfulConnectionEstablishment-B,
deactivateConnection-B,
networkConnection-P-B BEHAVIOUR
DEFINED AS The "GMI":underlyingConnectionNames
attribute shall contain the distinguished name(s) of the
other MO(s) which represent the resources used to support
this connection. In the case of the CONS operating
directly over X.25, this shall be the single distinguished
name of the underlying virtual call or permanent
virtual circuit MO;;

ATTRIBUTES

localNSAPMO GET,
remoteNSAPAddress GET;

ACTIONS

"GMI":deactivate;

NOTIFICATIONS

"DMI":objectCreation,
"DMI":objectDeletion,
"GMI":communicationsInformation;

;;

REGISTERED AS { NLM.moi networkConnection (13) };

-- Name Bindings

networkConnection-cONS NAME BINDING

SUBORDINATE OBJECT CLASS networkConnection AND SUBCLASSES;

NAMED BY

SUPERIOR OBJECT CLASS cONS AND SUBCLASSES;

WITH ATTRIBUTE "GMI":connectionId;

DELETE;

REGISTERED AS { NLM.nboi networkConnection-cONS (19) };

Superseded by a more recent version

-- Attributes

localINSAPMO ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.LocalDistinguishedName;

MATCHES FOR EQUALITY;

BEHAVIOUR localINSAPMO-B BEHAVIOUR

DEFINED AS Pointer to local nSAP MO.

This is a relationship attribute which points to the

local nSAP MO which is associated with the connection;;

REGISTERED AS { NLM.aoi localINSAPMO (106) };

remoteNSAPAddress ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.NAddress;

MATCHES FOR EQUALITY;

BEHAVIOUR remoteNSAPAddress-B BEHAVIOUR

DEFINED AS The remote NSAP Address

associated with the connection;;

REGISTERED AS { NLM.aoi remoteNSAPAddress (107) };

Superseded by a more recent version

5.10 The X.25 PLE and related managed objects

5.10.1 The X.25 PLE managed object

-- This MO class is never instantiated. It serves as a generic
-- x25PLE MO from which both the x25PLE-DTE and x25PLE-DCE MO
-- classes are derived.
--
-- Note that the values of the x25PLEId naming attribute are
-- required to be unique across all instances of MOs derived from
-- this, which have a common superior.
--

x25PLE MANAGED OBJECT CLASS

```
DERIVED FROM "DMI":top;
CHARACTERIZED BY x25PLE-P PACKAGE
  BEHAVIOUR commonStateChange-B,
    commonCreationDeletion-B,
    logicalChannelAssignmentsX25PLE-P-B BEHAVIOUR
  DEFINED AS The logicalChannelAssignments attribute shall not be replaceable
    when the value of the operationalState attribute is 'enabled';
ATTRIBUTES
  x25PLEId GET,
  "DMI":operationalState GET,
  "DMI":administrativeState GET-REPLACE,
  protocolVersionSupported GET,
  localDTEAddress GET-REPLACE,
  x25PLEMode GET-REPLACE,
  defaultThroughputClasses REPLACE-WITH-DEFAULT
    DEFAULT VALUE NLM.nullBidirectionalValues
    GET-REPLACE,
  flowControlParameterNegotiation REPLACE-WITH-DEFAULT
    GET-REPLACE,
  defaultPacketSizes REPLACE-WITH-DEFAULT
    DEFAULT VALUE NLM.nullBidirectionalValues
    GET-REPLACE,
  defaultWindowSizees REPLACE-WITH-DEFAULT
    DEFAULT VALUE NLM.nullBidirectionalValues
    GET-REPLACE,
  throughputClassNegotiation REPLACE-WITH-DEFAULT
    GET-REPLACE,
  sN-ServiceProvider REPLACE-WITH-DEFAULT
    GET-REPLACE,
  sN-SAP GET,
  logicalChannelAssignments GET-REPLACE;
ATTRIBUTE GROUPS
  "DMI":state
```

Superseded by a more recent version

```
"DMI":administrativeState  
"DMI":operationalState;
```

ACTIONS

```
"GMI":activate,  
"GMI":deactivate;
```

NOTIFICATIONS

```
"DMI":stateChange,  
"DMI":objectCreation,  
"DMI":objectDeletion;
```

```
;;
```

```
REGISTERED AS { NLM.moi x25PLE (25) };
```

Superseded by a more recent version

5.10.2 The X.25 PLE initial values managed object

- This MO class is never instantiated. It serves as a generic
- x25PLE IVMO from which both the x25PLEIVMO-DTE and x25PLEIVMO-DCE
- MO classes are derived.
-
- Note that the values of the x25PLEIVMOld naming attribute are
- required to be unique across all instances of MOs derived from
- this, which have a common superior.

x25PLEIVMO MANAGED OBJECT CLASS

```
DERIVED FROM "DMI":top;
CHARACTERIZED BY x25PLEIVMO-P PACKAGE
BEHAVIOUR commonCreationDeletion-B;
ATTRIBUTES
    defaultPacketSizes REPLACE-WITH-DEFAULT
        DEFAULT VALUE NLM.nullBidirectionalValues
        GET-REPLACE,
    defaultThroughputClasses REPLACE-WITH-DEFAULT
        DEFAULT VALUE NLM.nullBidirectionalValues
        GET-REPLACE,
    defaultWindowSizes REPLACE-WITH-DEFAULT
        DEFAULT VALUE NLM.nullBidirectionalValues
        GET-REPLACE,
    flowControlParameterNegotiation REPLACE-WITH-DEFAULT
        GET-REPLACE,
    localDTEAddress GET-REPLACE,
    logicalChannelAssignments GET-REPLACE,
    sN-ServiceProvider GET-REPLACE,
    throughputClassNegotiation REPLACE-WITH-DEFAULT
        GET-REPLACE,
    x25PLEIVMOld GET,
    x25PLEMode GET-REPLACE;
NOTIFICATIONS
    "DMI":objectCreation,
    "DMI":objectDeletion;
;;
REGISTERED AS { NLM.moi x25PLEIVMO (26) };
```

Superseded by a more recent version

5.10.3 The X25 PLE DTE managed object

- There may be multiple instances of these MOs within a system,
- corresponding to Multiple X.25 PLEs.
-
- The definition of this MO
- permits it to be created and deleted explicitly by
- management operation or to be created and deleted automatically as
- part of system operation. When an instance of this MO
- is created automatically, an instance of the
- x25PLEIVMO-DTE may be used as the source
- of the initial values for attributes of this MO.
-
- When the x25 PLE is operable, the operationalState shall
- have the value 'enabled'; otherwise it shall have the value 'disabled'.
- Transitions of operationalState shall be reported using the
- stateChange notification.

x25PLE-DTE MANAGED OBJECT CLASS

DERIVED FROM x25PLE;

CHARACTERIZED BY x25PLE-DTE-P PACKAGE

BEHAVIOUR

x25PLEImportedNotifications-B;

ATTRIBUTES

**callDeflectionSubscription REPLACE-WITH-DEFAULT
GET-REPLACE,**

**callRequestResponseTimer REPLACE-WITH-DEFAULT
DEFAULT VALUE NLM.callRequestResponseTimerDefault
GET-REPLACE,**

**extendedPacketSequenceNumbering REPLACE-WITH-DEFAULT
GET-REPLACE,**

**maxActiveCircuits REPLACE-WITH-DEFAULT
DEFAULT VALUE NLM.nullChoiceInteger
GET-REPLACE,**

**minimumRecallTimer REPLACE-WITH-DEFAULT
GET-REPLACE,**

**resetRequestResponseTimer REPLACE-WITH-DEFAULT
DEFAULT VALUE NLM.resetRequestResponseTimerDefault
GET-REPLACE,**

**restartRequestRetransmissionCount REPLACE-WITH-DEFAULT
DEFAULT VALUE NLM.restartRequestRetransmissionCountDefault
GET-REPLACE,**

**restartRequestResponseTimer REPLACE-WITH-DEFAULT
DEFAULT VALUE NLM.restartRequestResponseTimerDefault
GET-REPLACE,**

**clearRequestResponseTimer REPLACE-WITH-DEFAULT
DEFAULT VALUE NLM.clearRequestResponseTimerDefault
GET-REPLACE,**

**interruptResponseTimer REPLACE-WITH-DEFAULT
DEFAULT VALUE NLM.interruptResponseTimerDefault
GET-REPLACE,**

**resetRequestRetransmissionCount REPLACE-WITH-DEFAULT
DEFAULT VALUE NLM.resetRequestRetransmissionCountDefault
GET-REPLACE,**

Superseded by a more recent version

```
clearRequestRetransmissionCount REPLACE-WITH-DEFAULT
  DEFAULT VALUE NLM.clearRequestRetransmissionCountDefault
  GET-REPLACE,
callAttempts GET,
protocolErrorsDetectedLocally GET,
protocolErrorsAccusedOf GET,
callEstablishmentRetryCountsExceeded GET;
ATTRIBUTE GROUPS
  "GMI":counters
    callAttempts
    protocolErrorsDetectedLocally
    protocolErrorsAccusedOf
    callEstablishmentRetryCountsExceeded;
NOTIFICATIONS
  "DMI":communicationsAlarm
    notificationData;
;;
CONDITIONAL PACKAGES
dTEX25PLECounters-P
  PRESENT IF the instance supports the dTEX25PLECounters-P
  capabilities,
receivingWindowRotationRecoveryProcedures-P
  PRESENT IF The optional window rotation recovery procedures
  are implemented at a receiving DTE,
transmittingWindowRotationRecoveryProcedures-P
  PRESENT IF The optional window rotation recovery procedures
  are implemented at a transmitting DTE,
packetRetransmissionProcedures-P
  PRESENT IF The optional packet retransmission procedures
  are implemented,
onlineRegistration-P
  PRESENT IF The optional online registration facility
  is implemented;
REGISTERED AS { NLM.moi x25PLE-DTE (17) };
```


Superseded by a more recent version

5.10.4 The X.25 PLE DCE managed object

- There may be multiple instances of these MOs within a system,
- corresponding to Multiple X.25 PLEs.
-
- The definition of this MO
- permits it to be created and deleted explicitly by
- management operation or to be created and deleted automatically as
- part of system operation. When an instance of this MO
- is created automatically, an instance of the
- x25PLEIVMO-DCE may be used as the source
- of the initial values for attributes of this MO.
-
- When the x25 PLE is operable, the operationalState shall
- have the value 'enabled'; otherwise it shall have the value 'disabled'.
- Transitions of operationalState shall be reported using the
- stateChange notification.

x25PLE-DCE MANAGED OBJECT CLASS

DERIVED FROM x25PLE;

CHARACTERIZED BY x25PLE-DCE-P PACKAGE

ATTRIBUTES

callAttempts GET,

callsConnected GET,

cUG REPLACE-WITH-DEFAULT

GET-REPLACE,

fastSelectAcceptance REPLACE-WITH-DEFAULT

GET-REPLACE,

incomingCallsBarred REPLACE-WITH-DEFAULT

GET-REPLACE,

oneWayLogicalChannelOutgoing REPLACE-WITH-DEFAULT

GET-REPLACE,

outgoingCallsBarred REPLACE-WITH-DEFAULT

GET-REPLACE;

ATTRIBUTE GROUPS

"GMI":counters

callAttempts

callsConnected;

::

CONDITIONAL PACKAGES

dCECommonVirtualCircuitCounters-P

PRESENT IF the instance supports the dCECommonVirtualCircuitCounters capabilities,

dCEX25PLEFacilities-P

PRESENT IF the instance supports the dCEX25PLEFacilities capabilities,

dCEX25PLETimers-P

PRESENT IF the instance supports the dCEX25PLETimers capabilities;

REGISTERED AS { NLM.moi x25PLE-DCE (27) };

Superseded by a more recent version

5.10.5 The X.25 PLE DTE initial values managed object

- There may be multiple instances of the x25PLEIVMO-DTE in a system.
- An x25PLEIVMO-DTE may be used to supply initial values for the attributes of the x25PLE-DTE MO.
- Different instances of x25PLEIVMO-DTE may contain different initial values.
-
- Its definition permits it to be created and deleted explicitly by management operation.
-

x25PLEIVMO-DTE MANAGED OBJECT CLASS

```
DERIVED FROM x25PLEIVMO;
CHARACTERIZED BY x25PLEIVMO-DTE-P PACKAGE
ATTRIBUTES
  callDeflectionSubscription REPLACE-WITH-DEFAULT
    GET-REPLACE,
  callRequestResponseTimer REPLACE-WITH-DEFAULT
    DEFAULT VALUE NLM.callRequestResponseTimerDefault
    GET-REPLACE,
  clearRequestResponseTimer REPLACE-WITH-DEFAULT
    DEFAULT VALUE NLM.clearRequestResponseTimerDefault
    GET-REPLACE,
  clearRequestRetransmissionCount REPLACE-WITH-DEFAULT
    DEFAULT VALUE NLM.clearRequestRetransmissionCountDefault
    GET-REPLACE,
  extendedPacketSequenceNumbering REPLACE-WITH-DEFAULT
    GET-REPLACE,
  interruptResponseTimer REPLACE-WITH-DEFAULT
    DEFAULT VALUE NLM.interruptResponseTimerDefault
    GET-REPLACE,
  maxActiveCircuits REPLACE-WITH-DEFAULT
    DEFAULT VALUE NLM.nullChoiceInteger
    GET-REPLACE,
  minimumRecallTimer REPLACE-WITH-DEFAULT
    GET-REPLACE,
  resetRequestResponseTimer REPLACE-WITH-DEFAULT
    DEFAULT VALUE NLM.resetRequestResponseTimerDefault
    GET-REPLACE,
  resetRequestRetransmissionCount REPLACE-WITH-DEFAULT
    DEFAULT VALUE NLM.resetRequestRetransmissionCountDefault
    GET-REPLACE,
  restartRequestResponseTimer REPLACE-WITH-DEFAULT
    DEFAULT VALUE NLM.restartRequestResponseTimerDefault
    GET-REPLACE,
  restartRequestRetransmissionCount REPLACE-WITH-DEFAULT
    DEFAULT VALUE NLM.restartRequestRetransmissionCountDefault
    GET-REPLACE;
;;
```

Superseded by a more recent version

CONDITIONAL PACKAGES

receivingWindowRotationRecoveryProcedures-P

PRESENT IF The optional window rotation recovery procedures are implemented at a receiving DTE,

transmittingWindowRotationRecoveryProcedures-P

PRESENT IF The optional window rotation recovery procedures are implemented at a transmitting DTE,

packetRetransmissionProcedures-P

PRESENT IF The optional packet retransmission procedures are implemented, **onlineRegistration-P**

PRESENT IF The optional online registration facility is implemented;

REGISTERED AS { NLM.moi x25PLEIVMO-DTE (20) };

Superseded by a more recent version

5.10.6 The X.25 PLE DCE initial values managed object

-- There may be multiple instances of the x25PLEIVMO-DCE in a system.
-- An x25PLEIVMO-DCE may be used to supply initial
-- values for the attributes of the x25PLE-DCE MO.
-- Different instances of x25PLEIVMO-DCE may contain different initial values.
--
-- Its definition permits it to be created and deleted explicitly by
-- management operation.
--

x25PLEIVMO-DCE MANAGED OBJECT CLASS

DERIVED FROM x25PLEIVMO;
REGISTERED AS { NLM.moi x25PLEIVMO-DCE (28) };

-- Packages

dCECommonVirtualCircuitCounters-P PACKAGE

BEHAVIOUR dCECommonVirtualCircuitCounters-P-B BEHAVIOUR

DEFINED AS provides the set of common counters used in the normal operation of a
DCE environment, as defined in the appropriate clauses;,
octetsSentReceivedCounter-B;

ATTRIBUTES

dataPacketsReceived GET,
dataPacketsSent GET,
interruptPacketsReceived GET,
interruptPacketsSent GET,
interruptTimerExpiries GET,
"DMI":octetsReceivedCounter GET,
"DMI":octetsSentCounter GET,
providerInitiatedDisconnects GET,
providerInitiatedResets GET,
remotelyInitiatedRestarts GET,
remotelyInitiatedResets GET,
resetTimeouts GET,
x25SegmentsReceived GET,
x25SegmentsSent GET;

ATTRIBUTE GROUPS

"GMI":counters
dataPacketsReceived
dataPacketsSent
interruptPacketsReceived
interruptPacketsSent
interruptTimerExpiries
"DMI":octetsReceivedCounter
"DMI":octetsSentCounter
providerInitiatedDisconnects
providerInitiatedResets
remotelyInitiatedRestarts
remotelyInitiatedResets
resetTimeouts
x25SegmentsReceived
x25SegmentsSent;

REGISTERED AS { NLM.poi dCECommonVirtualCircuitCounters-P (23) };

Superseded by a more recent version

dCEX25PLEFacilities-P PACKAGE

BEHAVIOUR dCEX25PLEFacilities-P-B BEHAVIOUR

DEFINED AS provides the set of Facilities which are optional, and may be implemented in a DCE environment, as defined in the appropriate clauses;;

ATTRIBUTES

bilateralCUG REPLACE-WITH-DEFAULT

GET-REPLACE,

bilateralCUGWithOutgoingAccess REPLACE-WITH-DEFAULT

GET-REPLACE,

callDeflectionSubscription REPLACE-WITH-DEFAULT

GET-REPLACE,

callRedirection REPLACE-WITH-DEFAULT

GET-REPLACE,

chargingInformation REPLACE-WITH-DEFAULT

GET-REPLACE,

cUGWithIncomingAccess REPLACE-WITH-DEFAULT

GET-REPLACE,

cUGWithOutgoingAccess REPLACE-WITH-DEFAULT

GET-REPLACE,

dBitModification REPLACE-WITH-DEFAULT

GET-REPLACE,

defaultThroughputClassesAssignment REPLACE-WITH-DEFAULT

GET-REPLACE,

extendedPacketSequenceNumbering REPLACE-WITH-DEFAULT

GET-REPLACE,

huntGroup REPLACE-WITH-DEFAULT

GET-REPLACE,

incomingCallBarredWithinCUG REPLACE-WITH-DEFAULT

GET-REPLACE,

localChargingPrevention REPLACE-WITH-DEFAULT

GET-REPLACE,

nonStandardDefaultPacketSizes REPLACE-WITH-DEFAULT

GET-REPLACE,

nonStandardDefaultWindowSizees REPLACE-WITH-DEFAULT

GET-REPLACE,

nUIOverride REPLACE-WITH-DEFAULT

GET-REPLACE,

nUISubscription REPLACE-WITH-DEFAULT

GET-REPLACE,

oneWayLogicalChannellIncoming REPLACE-WITH-DEFAULT

GET-REPLACE,

onlineFacilityRegistration REPLACE-WITH-DEFAULT

GET-REPLACE,

outgoingCallBarredWithinCUG REPLACE-WITH-DEFAULT

GET-REPLACE,

packetRetransmission REPLACE-WITH-DEFAULT

GET-REPLACE,

reverseChargingAcceptance REPLACE-WITH-DEFAULT

GET-REPLACE,

rPOASubscription REPLACE-WITH-DEFAULT

GET-REPLACE;

REGISTERED AS { NLM.poi dCEX25PLEFacilities-P (26) };

Superseded by a more recent version

dCEX25PLETimers-P PACKAGE

BEHAVIOUR dCEX25PLETimers-P-B BEHAVIOUR

DEFINED AS provides the set of timers used during the normal operation in a DCE environment, as defined in the appropriate clauses ;;

ATTRIBUTES

clearIndication GET-REPLACE,

-- *T13 timer.*

incomingCall GET-REPLACE,

-- *T11 timer.*

resetIndication GET-REPLACE,

-- *T12 timer.*

restartIndication GET-REPLACE;

-- *T10 timer.*

REGISTERED AS { NLM.poi dCEX25PLETimers-P (25) };

dTEX25PLECounters-P PACKAGE

BEHAVIOUR dTEX25PLECounters-P-B BEHAVIOUR

DEFINED AS Provides the set of counters which may be associated with the x25PLE-DTE MO.;;
octetsSentReceivedCounter-B;

ATTRIBUTES

"DMI":octetsReceivedCounter GET,

-- *Note that the DMI definition is in terms of user data octets.*

"DMI":octetsSentCounter GET,

-- *Note that the DMI definition is in terms of user data octets.*

callTimeouts GET,

callsConnected GET,

clearCountsExceeded GET,

clearTimeouts GET,

dataPacketsReceived GET,

dataPacketsSent GET,

-- *Note that the "DMI":PDUsSentCounter*

-- *cannot be used here since it is defined as total number of PDUs sent,*

-- *not just data PDUs.*

dataRetransmissionTimerExpiries GET,

providerInitiatedResets GET,

providerInitiatedDisconnects GET,

remotelyInitiatedResets GET,

remotelyInitiatedRestarts GET,

resetTimeouts GET,

restartCountsExceeded GET;

ATTRIBUTE GROUPS

"GMI":counters

"DMI":octetsSentCounter

"DMI":octetsReceivedCounter

callTimeouts

callsConnected

clearCountsExceeded

Superseded by a more recent version

clearTimeouts
dataPacketsReceived
dataPacketsSent
dataRetransmissionTimerExpiries
providerInitiatedDisconnects
providerInitiatedResets
remotelyInitiatedResets
remotelyInitiatedRestarts
resetTimeouts
restartCountsExceeded;
REGISTERED AS { NLM.poi dTEX25PLECounters-P (18) };

packetRetransmissionProcedures-P PACKAGE

BEHAVIOUR packetRetransmissionProcedures-P-B BEHAVIOUR
DEFINED AS Controls the operation of the optional packet retransmission procedures
as described in 13.4 of ISO/IEC 8208 or ITU-T Rec. X.25 (2nd Edition);;

ATTRIBUTES

rejectResponseTimer REPLACE-WITH-DEFAULT
DEFAULT VALUE NLM.rejectResponseTimerDefault
GET-REPLACE,
rejectRetransmissionCount REPLACE-WITH-DEFAULT
DEFAULT VALUE NLM.rejectRetransmissionCountDefault
GET-REPLACE;

REGISTERED AS { NLM.poi packetRetransmissionProcedures-P (14) };

receivingWindowRotationRecoveryProcedures-P PACKAGE

BEHAVIOUR

receivingWindowRotationRecoveryProcedures-P-B BEHAVIOUR
DEFINED AS Controls the operation of the optional window rotation recovery procedures
at a receiving DTE as described in 11.2.2 of ISO/IEC 8208 or ITU-T Rec. X.25 (2nd Edition);;

ATTRIBUTES

windowStatusTransmissionTimer REPLACE-WITH-DEFAULT
DEFAULT VALUE NLM.windowStatusTransmissionTimerDefault
GET-REPLACE;

REGISTERED AS { NLM.poi receivingWindowRotationRecoveryProcedures-P (12) };

transmittingWindowRotationRecoveryProcedures-P PACKAGE

BEHAVIOUR

transmittingWindowRotationRecoveryProcedures-P-B BEHAVIOUR
DEFINED AS Controls the operation of the optional window rotation recovery procedures
at a transmitting DTE as described in 11.2.1 of ISO/IEC 8208 or ITU-T Rec. X.25 (2nd Edition);;

ATTRIBUTES

windowRotationTimer REPLACE-WITH-DEFAULT
DEFAULT VALUE
NLM.windowRotationTimerDefault
GET-REPLACE,
dataPacketRetransmissionCount REPLACE-WITH-DEFAULT
DEFAULT VALUE NLM.dataPacketRetransmissionCountDefault
GET-REPLACE;

REGISTERED AS { NLM.poi transmittingWindowRotationRecoveryProcedures-P (13) };

Superseded by a more recent version

onlineRegistration-P PACKAGE

BEHAVIOUR onlineRegistration-P-B BEHAVIOUR

DEFINED AS Controls the operation of the optional online registration facility as described in 13.1 of ISO/IEC 8208 or ITU-T Rec. X.25 (2nd Edition);;

ATTRIBUTES

registrationRequestResponseTimer REPLACE-WITH-DEFAULT

DEFAULT VALUE NLM.registrationRequestResponseTimerDefault

GET-REPLACE,

registrationRequestRetransmissionCount REPLACE-WITH-DEFAULT

DEFAULT VALUE NLM.registrationRequestRetransmissionCountDefault

GET-REPLACE,

registrationPermitted REPLACE-WITH-DEFAULT

DEFAULT VALUE NLM.registrationPermittedDefault

GET-REPLACE;

REGISTERED AS { NLM.poi onlineRegistration-P (11) };

-- *Behaviours*

x25PLEPImportedNotifications-B BEHAVIOUR

DEFINED AS The x25PLE-P package imports the communicationsAlarm notification from Rec. X.721 (1992) | ISO/IEC 10165-2.

It is used to report the following x25PLE managed object events.

providerInitiatedDisconnect:

Issued upon receipt of a clear packet with a cause code other than 'DTE originated'.

The information relating to the packet shall be reported as a parameter in the additionalInformation field of the communicationsAlarm, using the notificationData PARAMETER.

The significance sub-parameter of each item of additionalInformation shall be set to the value 'False' (i.e. not significant) so that a managing system receiving the event report will be less likely to reject it.

The value NLM.providerInitiatedDisconnect shall be reported in the specificProblems parameter.

The probableCause shall be set to NLM.communicationsProtocolError.

The perceivedSeverity shall be set to 'Minor'. A subsequent communicationsAlarm with a perceivedSeverity value of 'Cleared' shall not be generated.

No other fields or parameters shall be used, with the exception of further parameters in the additionalInformation field.

Superseded by a more recent version

remotelyInitiatedReset:

Issued upon occurrence of a remotely initiated reset.
This event is issued in lieu of a 'providerInitiatedReset' when operating in a DTE-DXE environment.
The information relating to the packet shall be reported as a parameter in the additionalInformation field of the communicationsAlarm, using the notificationData PARAMETER
The significance sub-parameter of each item of additionalInformation shall be set to the value 'False' (i.e. not significant) so that a managing system receiving the event report will be less likely to reject it.
The value NLM.remotelyInitiatedDisconnect shall be reported in the specificProblems parameter.
The probableCause shall be set to NLM.communicationsProtocolError.
The perceivedSeverity shall be set to 'Minor'. A subsequent communicationsAlarm with a perceivedSeverity value of 'Cleared' shall not be generated.
No other fields or parameters shall be used, with the exception of further parameters in the additionalInformation field.

providerInitiatedReset:

Issued upon occurrence of a provider initiated reset.
This event is issued when operating in a DTE-DCE environment.
The information relating to the packet shall be reported as a parameter in the additionalInformation field of the communicationsAlarm, using the notificationData PARAMETER
The significance sub-parameter of each item of additionalInformation shall be set to the value 'False' (i.e. not significant) so that a managing system receiving the event report will be less likely to reject it.
The value NLM.providerInitiatedReset shall be reported in the specificProblems parameter.
The probableCause shall be set to NLM.communicationsProtocolError.
The perceivedSeverity shall be set to 'Minor'. A subsequent communicationsAlarm with a perceivedSeverity value of 'Cleared' shall not be generated.
No other fields or parameters shall be used, with the exception of further parameters in the additionalInformation field.

remotelyInitiatedRestart:

Issued upon receipt of a remotely (including provider) initiated restart.
The information relating to the packet shall be reported as a parameter in the additionalInformation field of the communicationsAlarm, using the notificationData PARAMETER
The significance sub-parameter of each item of additionalInformation shall be set to the value 'False' (i.e. not significant) so that a managing system receiving the event report will be less likely to reject it.
The value NLM.remotelyInitiatedRestart shall be reported in the specificProblems parameter.
The probableCause shall be set to NLM.communicationsProtocolError.
The perceivedSeverity shall be set to 'Minor'. A subsequent communicationsAlarm with a perceivedSeverity value of 'Cleared' shall not be generated.
No other fields or parameters shall be used, with the exception of further parameters in the additionalInformation field.

Superseded by a more recent version

restartCountExceeded:

Issued on restart failure due to restart count (R20) exceeded.
The information relating to the packet shall be reported as a parameter in the additionalInformation field of the communicationsAlarm, using the notificationData PARAMETER
The significance sub-parameter of each item of additionalInformation shall be set to the value 'False' (i.e. not significant) so that a managing system receiving the event report will be less likely to reject it.
The value NLM.restartCountExceeded shall be reported in the specificProblems parameter.
The probableCause shall be set to NLM.communicationsProtocolError.
The perceivedSeverity shall be set to 'Minor'. A subsequent communicationsAlarm with a perceivedSeverity value of 'Cleared' shall not be generated.
No other fields or parameters shall be used, with the exception of further parameters in the additionalInformation field.

protocolErrorDetectedLocally:

Issued upon receipt of a packet which causes the "A=Error" action in the ISO/IEC 8208 or ITU-T Rec. X.25 state tables to be taken.
The information relating to the packet shall be reported as a parameter in the additionalInformation field of the communicationsAlarm, using the notificationData PARAMETER. The values of cause and diagnostic codes shall be those which would have been placed in a diagnostic packet had one been generated by the DTE (i.e. as if it were a DTE). The actual generation of such a packet is not required.
The significance sub-parameter of each item of additionalInformation shall be set to the value 'False' (i.e. not significant) so that a managing system receiving the event report will be less likely to reject it.
The value NLM.communicationsProtocolErrorDetectedLocally shall be reported in the specificProblems parameter.
The probableCause shall be set to NLM.communicationsProtocolError.
The perceivedSeverity shall be set to 'Minor'. A subsequent communicationsAlarm with a perceivedSeverity value of 'Cleared' shall not be generated.
No other fields or parameters shall be used, with the exception of further parameters in the additionalInformation field.

accusedOfProtocolError:

Issued upon receipt of a diagnostic packet or a clear, reset or restart packet with a cause code equal to one of the following:
Remote Procedure Error,
Incompatible Destination,
Invalid Facility Request,
Local Procedure Error.
No other x25PLE communication alarm shall be generated as a result of this particular instance of packet.
The information relating to the packet shall be reported as a

Superseded by a more recent version

parameter in the additionalInformation field of the communicationsAlarm, using the notificationData PARAMETER

The significance sub-parameter of each item of additionalInformation shall be set to the value 'False' (i.e. not significant) so that a managing system receiving the event report will be less likely to reject it.

The value NLM.accusedOfProtocolError shall be reported in the specificProblems parameter.

The probableCause shall be set to NLM.communicationsProtocolError.

The perceivedSeverity shall be set to 'Minor'. A subsequent communicationsAlarm with a perceivedSeverity value of 'Cleared' shall not be generated.

No other fields or parameters shall be used, with the exception of further parameters in the additionalInformation field.

callEstablishmentRetryCountExceeded:

Issued on retry failure during call establishment due to retry limit exceeded.

The information relating to the call shall be reported as a parameter in the additionalInformation field of the communicationsAlarm, using the notificationData PARAMETER

The significance sub-parameter of each item of additionalInformation shall be set to the value 'False' (i.e. not significant) so that a managing system receiving the event report will be less likely to reject it.

The value NLM.callEstablishmentRetryCountExceeded shall be reported in the specificProblems parameter.

The probableCause shall be set to NLM.communicationsProtocolError.

The perceivedSeverity shall be set to 'Minor'. A subsequent communicationsAlarm with a perceivedSeverity value of 'Cleared' shall not be generated.

No other fields or parameters shall be used, with the exception of further parameters in the additionalInformation field.

clearCountExceeded:

Issued on retry failure due to clear limit (R23) exceeded.

The information relating to the call shall be reported as a parameter in the additionalInformation field of the communicationsAlarm, using the notificationData PARAMETER

The significance sub-parameter of each item of additionalInformation shall be set to the value 'False' (i.e. not significant) so that a managing system receiving the event report will be less likely to reject it.

The value NLM.clearCountExceeded shall be reported in the specificProblems parameter.

The probableCause shall be set to NLM.communicationsProtocolError.

The perceivedSeverity shall be set to 'Minor'. A subsequent communicationsAlarm with a perceivedSeverity value of 'Cleared' shall not be generated.

No other fields or parameters shall be used, with the exception of further parameters in the additionalInformation field.

Superseded by a more recent version

-- Name Bindings

x25PLEIVMO-networkSubsystem NAME BINDING

SUBORDINATE OBJECT CLASS x25PLEIVMO AND SUBCLASSES;
NAMED BY
SUPERIOR OBJECT CLASS networkSubsystem AND SUBCLASSES;
WITH ATTRIBUTE x25PLEIVMOId;
CREATE WITH-REFERENCE-OBJECT;
DELETE;
REGISTERED AS { NLM.nboi x25PLEIVMO-networkSubsystem (10) };

x25PLE-networkSubsystem-Management NAME BINDING

SUBORDINATE OBJECT CLASS x25PLE AND SUBCLASSES;
NAMED BY
SUPERIOR OBJECT CLASS networkSubsystem AND SUBCLASSES;
WITH ATTRIBUTE x25PLEId;
BEHAVIOUR x25PLE-networkSubsystem-Management-B BEHAVIOUR
DEFINED AS The name binding that applies when the x25PLE Managed Object
or its subclasses are created by management operation.;;
CREATE WITH-REFERENCE-OBJECT;
DELETE ONLY-IF-NO-CONTAINED-OBJECTS;
REGISTERED AS { NLM.nboi x25PLE-networkSubsystem-Management (9) };

x25PLE-networkSubsystem-Automatic NAME BINDING

SUBORDINATE OBJECT CLASS x25PLE AND SUBCLASSES;
NAMED BY
SUPERIOR OBJECT CLASS networkSubsystem AND SUBCLASSES;
WITH ATTRIBUTE x25PLEId;
BEHAVIOUR x25PLE-networkSubsystem-Automatic-B BEHAVIOUR
DEFINED AS The name binding that applies when the x25PLE Managed Object
or its subclasses are created by automatic operation of the system.
The creation of an instance of the x25PLE MO or its subclass
using this name binding may reference an instance of the x25PLEIVMO
(or of its subclass). The means by which such an instance (if any)
of the x25PLEIVMO (or its subclass) is identified a local matter.
When this occurs,
some of the initial values of the attributes of the instance
of the x25PLE MO (or its subclass) may be supplied by the values of the
attributes in the specified instance of the x25PLEIVMO. However, any
such value may be overridden by a value supplied by local means (for
example across an internal interface). Where values are supplied by the
IVMO, the initial value of an attribute of the x25PLE MO (or its subclass)
shall be the value of the corresponding attribute in the x25PLEIVMO
(that is, which has the same attribute template label). The naming
attribute of the x25PLE MO (or its subclass) is assigned a value
according to local mechanisms;;
DELETE;
REGISTERED AS { NLM.nboi x25PLE-networkSubsystem-Automatic (18) };

Superseded by a more recent version

-- Attributes

bilateralCUG ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.Boolean;

MATCHES FOR EQUALITY;

BEHAVIOUR bilateralCUG-B BEHAVIOUR

DEFINED AS The subscription of the bilateral closed user group facility as described in ITU-T Recommendation X.2. Expressed as a boolean where a value of 'True' indicates subscription and a value of 'False' indicates non-subscription;;

REGISTERED AS { NLM.aoi bilateralCUG (125) };

bilateralCUGWithOutgoingAccess ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.Boolean;

MATCHES FOR EQUALITY;

BEHAVIOUR bilateralCUGWithOutgoingAccess-B BEHAVIOUR

DEFINED AS The subscription of the bilateral CUG with outgoing access facility as described in ITU-T Recommendation X.2. Expressed as a boolean where a value of 'True' indicates subscription and a value of 'False' indicates non-subscription;;

REGISTERED AS { NLM.aoi bilateralCUGWithOutgoingAccess (127) };

callAttempts ATTRIBUTE

DERIVED FROM "GMI":nonWrapping64BitCounter;

BEHAVIOUR callAttempts-B BEHAVIOUR

DEFINED AS Counter of the total number of calls attempted;;

REGISTERED AS { NLM.aoi callAttempts (52) };

callDeflectionSubscription ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.Boolean;

MATCHES FOR EQUALITY;

BEHAVIOUR callDeflectionSubscription-B BEHAVIOUR

DEFINED AS The subscription of the call deflection facility as described in ITU-T Recommendation X.2. Expressed as a boolean where a value of 'True' indicates subscription and a value of "False" indicates non-subscription;;

REGISTERED AS { NLM.aoi callDeflectionSubscription (114) };

callEstablishmentRetryCountsExceeded ATTRIBUTE

DERIVED FROM "GMI":nonWrapping64BitCounter;

BEHAVIOUR callEstablishmentRetryCountsExceeded-B BEHAVIOUR

DEFINED AS Counter associated with the callEstablishmentRetryCountExceeded event which generates a communications alarm notification.;;

REGISTERED AS { NLM.aoi callEstablishmentRetryCountsExceeded (65) };

Superseded by a more recent version

callRedirection ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.Boolean;

MATCHES FOR EQUALITY;

BEHAVIOUR callRedirection-B BEHAVIOUR

DEFINED AS The subscription of the call redirection facility as described in ITU-T Recommendation X.2 Expressed as a boolean where a value of 'True' indicates subscription and a value of 'False' indicates non-subscription;;

REGISTERED AS { NLM.aoi callRedirection (129) };

callRequestResponseTimer ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.Integer;

MATCHES FOR EQUALITY, ORDERING;

BEHAVIOUR callRequestResponseTimer-B BEHAVIOUR

DEFINED AS Value for Timer T21 (Call Request Response Timer) in seconds;;

REGISTERED AS { NLM.aoi callRequestResponseTimer (77) };

callTimeouts ATTRIBUTE

DERIVED FROM "GMI":nonWrapping64BitCounter;

BEHAVIOUR callTimeouts-B BEHAVIOUR

DEFINED AS Counter of the number of times timer T21 expiry is experienced by the PLE;;

REGISTERED AS { NLM.aoi callTimeouts (55) };

callsConnected ATTRIBUTE

DERIVED FROM "GMI":nonWrapping64BitCounter;

BEHAVIOUR callsConnected-B BEHAVIOUR

DEFINED AS Counter of the total number of calls which have reached the open state;;

REGISTERED AS { NLM.aoi callsConnected (53) };

chargingInformation ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.Boolean;

MATCHES FOR EQUALITY;

BEHAVIOUR chargingInformation-B BEHAVIOUR

DEFINED AS The subscription of the charging information facility as described in ITU-T Recommendation X.2.

Expressed as a boolean where a value of 'True' indicates subscription and a value of 'False' indicates non-subscription;;

REGISTERED AS { NLM.aoi chargingInformation (132) };

clearCountsExceeded ATTRIBUTE

DERIVED FROM "GMI":nonWrapping64BitCounter;

BEHAVIOUR clearCountsExceeded-B BEHAVIOUR

DEFINED AS Counter associated with the clearCountExceeded event which generates a communications alarm notification.;;

REGISTERED AS { NLM.aoi clearCountsExceeded (66) };

Superseded by a more recent version

clearIndication ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.Integer;
MATCHES FOR EQUALITY, ORDERING;
BEHAVIOUR clearIndication-B BEHAVIOUR
DEFINED AS Value for the Clear Indication, T13 timer, in seconds.;;
REGISTERED AS { NLM.aoi clearIndication (133) };

clearRequestResponseTimer ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.Integer;
MATCHES FOR EQUALITY, ORDERING;
BEHAVIOUR clearRequestResponseTimer-B BEHAVIOUR
DEFINED AS Value for Timer T23 (Clear Request Response Timer)
in seconds;;
REGISTERED AS { NLM.aoi clearRequestResponseTimer (79) };

clearRequestRetransmissionCount ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.Integer;
MATCHES FOR EQUALITY, ORDERING;
BEHAVIOUR clearRequestRetransmissionCount-B BEHAVIOUR
DEFINED AS Value for count R23 (Clear Request Retransmission Count);;
REGISTERED AS { NLM.aoi clearRequestRetransmissionCount (81) };

clearTimeouts ATTRIBUTE

DERIVED FROM "GMI":nonWrapping64BitCounter;
BEHAVIOUR clearTimeouts-B BEHAVIOUR
DEFINED AS Counter of the number of times timer T23 expiry is experienced
by the PLE;;
REGISTERED AS { NLM.aoi clearTimeouts (56) };

cUG ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.Boolean;
MATCHES FOR EQUALITY;
BEHAVIOUR cUG-B BEHAVIOUR
DEFINED AS The subscription of the closed user group facility
as described in ITU-T Recommendation X.2. Expressed as a boolean
where a value of 'True' indicates subscription and a value
of 'False' indicates non-subscription;;
REGISTERED AS { NLM.aoi cUG (134) };

cUGWithIncomingAccess ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.Boolean;
MATCHES FOR EQUALITY;
BEHAVIOUR cUGWithIncomingAccess-B BEHAVIOUR
DEFINED AS The subscription of the closed user group with incoming access facility
as described in ITU-T Recommendation X.2. Expressed as a boolean
where a value of 'True' indicates subscription
and a value of 'False' indicates non-subscription;;
REGISTERED AS { NLM.aoi cUGWithIncomingAccess (136) };

Superseded by a more recent version

cUGWithOutgoingAccess ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.Boolean;
MATCHES FOR EQUALITY;
BEHAVIOUR cUGWithOutgoingAccess-B BEHAVIOUR

DEFINED AS The subscription of the CUG with outgoing access facility as described in ITU-T Recommendation X.2. Expressed as a boolean where a value of 'True' indicates subscription and a value of 'False' indicates non-subscription;;

REGISTERED AS { NLM.aoi cUGWithOutgoingAccess (137) };

dBitModification ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.Boolean;
MATCHES FOR EQUALITY;
BEHAVIOUR dBitModification-B BEHAVIOUR

DEFINED AS The subscription of the D bit modification facility as described in ITU-T Recommendation X.2. Expressed as a boolean where a value of 'True' indicates subscription and a value of 'False' indicates non-subscription;;

REGISTERED AS { NLM.aoi dBitModification (139) };

dataPacketRetransmissionCount ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.Integer;
MATCHES FOR EQUALITY, ORDERING;
BEHAVIOUR dataPacketRetransmissionCount-B BEHAVIOUR

DEFINED AS Value for count R25 (Data Packet Retransmission Count);;

REGISTERED AS { NLM.aoi dataPacketRetransmissionCount (85) };

dataPacketsReceived ATTRIBUTE

DERIVED FROM "GMI":nonWrapping64BitCounter;
BEHAVIOUR dataPacketsReceived-B BEHAVIOUR

DEFINED AS Counter of the total number of data packets received;;

REGISTERED AS { NLM.aoi dataPacketsReceived (51) };

dataPacketsSent ATTRIBUTE

DERIVED FROM "GMI":nonWrapping64BitCounter;
BEHAVIOUR dataPacketsSent-B BEHAVIOUR

DEFINED AS Counter of the total number of data packets sent;;

REGISTERED AS { NLM.aoi dataPacketsSent (50) };

dataRetransmissionTimerExpiries ATTRIBUTE

DERIVED FROM "GMI":nonWrapping64BitCounter;
BEHAVIOUR dataRetransmissionTimerExpiries-B BEHAVIOUR
DEFINED AS Counter of the number of expiries of timer T25.

Returns zero if the option is not implemented;;

REGISTERED AS { NLM.aoi dataRetransmissionTimerExpiries (58) };

Superseded by a more recent version

defaultPacketSizes ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.BidirectionalValues;

MATCHES FOR EQUALITY;

BEHAVIOUR defaultPacketSizes-B BEHAVIOUR

DEFINED AS The default value of the packet sizes.

A value of NULL indicates the ISO/IEC 8208 or ITU-T Rec. X.25 default value of 128. Any other value indicates the value agreed by the nonstandard default packet sizes facility.;;

REGISTERED AS { NLM.aoi defaultPacketSizes (103) };

defaultThroughputClasses ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.BidirectionalValues;

MATCHES FOR EQUALITY;

BEHAVIOUR defaultThroughputClasses-B BEHAVIOUR

DEFINED AS The default throughput class values.

A value of NULL indicates the normal default.
Any other value indicates the value agreed by the defaultThroughputClassesAssignment facility.;;

REGISTERED AS { NLM.aoi defaultThroughputClasses (112) };

defaultThroughputClassesAssignment ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.DefaultTCA;

MATCHES FOR EQUALITY;

BEHAVIOUR defaultThroughputClassesAssignment-B BEHAVIOUR

DEFINED AS The subscription of the default throughput classes assignment facility as described in ITU-T Recommendation X.2. Expressed as a boolean where a value of 'True' indicates subscription and a value of 'False' indicates non-subscription.;;

REGISTERED AS { NLM.aoi defaultThroughputClassesAssignment (144) };

defaultWindowSizes ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.BidirectionalValues;

MATCHES FOR EQUALITY;

BEHAVIOUR defaultWindowSizes-B BEHAVIOUR

DEFINED AS The default value of the window sizes.

A value of NULL indicates the ITU-T Recommendation | International Standard default value of 2. Any other value indicates the value agreed by the nonstandard default window sizes facility.;;

REGISTERED AS { NLM.aoi defaultWindowSizes (104) };

extendedPacketSequenceNumbering ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.PacketSequencing;

MATCHES FOR EQUALITY;

BEHAVIOUR extendedPacketSequenceNumbering-B BEHAVIOUR

DEFINED AS The modulo of the packet sequence number space.

Expressed as an integer. The ITU-T Recommendation | International Standard only requires support for at least one of the two values 8 and 128, but it is possible that some future revision may extend the range. A system is only required to support the setting of values which are also required by the protocol standard. A system shall return an error when an attempt is made to set the value to a value which is not supported by that system.;;

REGISTERED AS { NLM.aoi extendedPacketSequenceNumbering (49) };

Superseded by a more recent version

fastSelectAcceptance ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.Boolean;

MATCHES FOR EQUALITY;

BEHAVIOUR fastSelectAcceptance-B BEHAVIOUR

DEFINED AS The subscription of the fast select acceptance as described in ITU-T Recommendation X.2. Expressed as a boolean where a value of 'True' indicates subscription and a value of 'False' indicates non-subscription;;

REGISTERED AS { NLM.aoi fastSelectAcceptance (145) };

flowControlParameterNegotiation ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.Boolean;

MATCHES FOR EQUALITY;

BEHAVIOUR flowControlParameterNegotiation-B BEHAVIOUR

DEFINED AS The subscription of the flow control parameter negotiation facility as described in ITU-T Recommendation X.2.

When this has the value 'true', the use of flow control parameter negotiation (by specifying values for the window and packet size in call request and accept packets) is permitted. When it has the value 'false', no such values shall be specified in call request and accept packets, and any values specified in an IVMO or via an internal interface shall be ignored.;;

REGISTERED AS { NLM.aoi flowControlParameterNegotiation (119) };

huntGroup ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.Boolean;

MATCHES FOR EQUALITY;

BEHAVIOUR huntGroup-B BEHAVIOUR

DEFINED AS The subscription of the hunt group facility as described in ITU-T Recommendation X.2. Expressed as a boolean where a value of 'True' indicates subscription and a value of 'False' indicates non-subscription;;

REGISTERED AS { NLM.aoi huntGroup (146) };

incomingCall ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.Integer;

MATCHES FOR EQUALITY, ORDERING;

BEHAVIOUR incomingCall-B BEHAVIOUR

DEFINED AS Value for the Incoming Call, T11 timer, in seconds.;;

REGISTERED AS { NLM.aoi incomingCall (147) };

incomingCallBarredWithinCUG ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.Boolean;

MATCHES FOR EQUALITY;

BEHAVIOUR incomingCallBarredWithinCUG-B BEHAVIOUR

DEFINED AS The subscription of the incoming call barred within a CUG facility as described in ITU-T Recommendation X.2. Expressed as a boolean where a value of 'True' indicates subscription and a value of 'False' indicates non-subscription;;

REGISTERED AS { NLM.aoi incomingCallBarredWithinCUG (149) };

Superseded by a more recent version

incomingCallsBarred ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.Boolean;

MATCHES FOR EQUALITY;

BEHAVIOUR incomingCallsBarred-B BEHAVIOUR

DEFINED AS The subscription of the incoming calls barred facility as described in ITU-T Recommendation X.2. Expressed as a boolean where a value of 'True' indicates subscription and a value of 'False' indicates non-subscription;;

REGISTERED AS { NLM.aoi incomingCallsBarred (148) };

interruptPacketsReceived ATTRIBUTE

DERIVED FROM "GMI":nonWrapping64BitCounter;

BEHAVIOUR interruptPacketsReceived-B BEHAVIOUR

DEFINED AS Counter of the number of interrupt packets received by the PLE or over the PVC/VC;;

REGISTERED AS { NLM.aoi interruptPacketsReceived (68) };

interruptPacketsSent ATTRIBUTE

DERIVED FROM "GMI":nonWrapping64BitCounter;

BEHAVIOUR interruptPacketsSent-B BEHAVIOUR

DEFINED AS Counter of the number of interrupt packets sent by the PLE or over the PVC/VC;;

REGISTERED AS { NLM.aoi interruptPacketsSent (67) };

interruptResponseTimer ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.Integer;

MATCHES FOR EQUALITY, ORDERING;

BEHAVIOUR interruptResponseTimer-B BEHAVIOUR

DEFINED AS Value for Timer T26 (Interrupt Response Timer) in seconds;;

REGISTERED AS { NLM.aoi interruptResponseTimer (82) };

interruptTimerExpiries ATTRIBUTE

DERIVED FROM "GMI":nonWrapping64BitCounter;

BEHAVIOUR interruptTimerExpiries-B BEHAVIOUR

DEFINED AS Counter of the number of expiries of timer T26 experienced by the PLE or over the PVC/VC;;

REGISTERED AS { NLM.aoi interruptTimerExpiries (69) };

localChargingPrevention ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.Boolean;

MATCHES FOR EQUALITY;

BEHAVIOUR localChargingPrevention-B BEHAVIOUR

DEFINED AS The subscription of the local charging prevention facility as described in ITU-T Recommendation X.2. Expressed as a boolean where a value of 'True' indicates subscription and a value of 'False' indicates non-subscription;;

REGISTERED AS { NLM.aoi localChargingPrevention (150) };

Superseded by a more recent version

localDTEAddress ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.DTEAddress;
MATCHES FOR EQUALITY;
BEHAVIOUR localDTEAddress-B BEHAVIOUR
DEFINED AS The full DTE address of this PLE
expressed as an X.121, E.164, etc. address;;
REGISTERED AS { NLM.aoi localDTEAddress (39) };

logicalChannelAssignments ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.LogicalChannelAssignments;
MATCHES FOR EQUALITY;
BEHAVIOUR logicalChannelAssignments-B BEHAVIOUR
DEFINED AS Represents the logical channel assignments of this PLE,
expressed as a four-tuple where the values represent
the set (with maximum permitted cardinality (LIC - 1), minimum required
cardinality of zero) of PVC channels (with maximum value (LIC - 1),
and minimum value 1) assigned,
the incoming channel range,
the two-way channel range,
the outgoing channel range,
respectively.
The presence of each of the ranges shall be optional. Absence of a particular range
shall signify that there are no channels of that type assigned. Within each range, the
low value shall be less than or equal to the high value, and there shall be no value in any
set or range which is greater than or equal to a value in a subsequent range when ordered
as above.
This attribute is subject to the rules for logical assignments described in 3.7 of
ISO/IEC 8208 or ITU-T Rec. X.25.;;
REGISTERED AS { NLM.aoi logicalChannelAssignments (48) };

maxActiveCircuits ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.MaxActiveCircuits;
MATCHES FOR EQUALITY, ORDERING;
BEHAVIOUR maxActiveCircuits-B BEHAVIOUR
DEFINED AS The maximum number of active circuits permitted on this PLE.
When the NULL value is specified, the maximum number of active circuits
shall be limited only by the resources available to the entity;;
REGISTERED AS { NLM.aoi maxActiveCircuits (41) };

minimumRecallTimer ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.Integer;
MATCHES FOR EQUALITY, ORDERING;
BEHAVIOUR minimumRecallTimer-B BEHAVIOUR
DEFINED AS Minimum time in seconds before recall permitted.
This timer determines the minimum interval (in seconds) which shall elapse
following an unsuccessful first call attempt before a subsequent call attempt is
permitted;;
REGISTERED AS { NLM.aoi minimumRecallTimer (43) };

Superseded by a more recent version

nonStandardDefaultPacketSizes ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.NonStandardDPS;

MATCHES FOR EQUALITY;

BEHAVIOUR nonStandardDefaultPacketSizes-B BEHAVIOUR

DEFINED AS The subscription of the non standard default packet sizes facility as described in ITU-T Recommendation X.2. Expressed as a boolean where a value of 'True' indicates subscription and a value of 'False' indicates non-subscription;;

REGISTERED AS { NLM.aoi nonStandardDefaultPacketSizes (151) };

nonStandardDefaultWindowSizes ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.NonStandardDWS;

MATCHES FOR EQUALITY;

BEHAVIOUR nonStandardDefaultWindowSizes-B BEHAVIOUR

DEFINED AS The subscription of the non standard default window sizes facility as described in ITU-T Recommendation X.2. Expressed as a boolean where a value of 'True' indicates subscription and a value of 'False' indicates non-subscription;;

REGISTERED AS { NLM.aoi nonStandardDefaultWindowSizes (152) };

nUIOverride ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.Boolean;

MATCHES FOR EQUALITY;

BEHAVIOUR nUIOverride-B BEHAVIOUR

DEFINED AS The subscription of the NUI override facility as described in ITU-T Recommendation X.2. Expressed as a boolean where a value of 'True' indicates subscription and a value of 'False' indicates non-subscription;;

REGISTERED AS { NLM.aoi nUIOverride (154) };

nUISubscription ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.Boolean;

MATCHES FOR EQUALITY;

BEHAVIOUR nUISubscription-B BEHAVIOUR

DEFINED AS The subscription of the NUI subscription facility as described in ITU-T Recommendation X.2. Expressed as a boolean where a value of 'True' indicates subscription and a value of 'False' indicates non-subscription;;

REGISTERED AS { NLM.aoi nUISubscription (153) };

oneWayLogicalChannellncoming ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.Boolean;

MATCHES FOR EQUALITY;

BEHAVIOUR oneWayLogicalChannellncoming-B BEHAVIOUR

DEFINED AS The subscription of the one way logical channel incoming facility as described in ITU-T Recommendation X.2. Expressed as a boolean where a value of 'True' indicates subscription and a value of 'False' indicates non-subscription;;

REGISTERED AS { NLM.aoi oneWayLogicalChannellncoming (156) };

Superseded by a more recent version

oneWayLogicalChannelOutgoing ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.Boolean;

MATCHES FOR EQUALITY;

BEHAVIOUR oneWayLogicalChannelOutgoing-B BEHAVIOUR

DEFINED AS The subscription of the one way logical channel outgoing facility as described in ITU-T Recommendation X.2. Expressed as a boolean where a value of 'True' indicates subscription and a value of 'False' indicates non-subscription;;

REGISTERED AS { NLM.aoi oneWayLogicalChannelOutgoing (157) };

onlineFacilityRegistration ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.Boolean;

MATCHES FOR EQUALITY;

BEHAVIOUR onlineFacilityRegistration-B BEHAVIOUR

DEFINED AS The subscription of the on-line facility registration facility as described in ITU-T Recommendation X.2. Expressed as a boolean where a value of 'True' indicates subscription and a value of 'False' indicates non subscription;;

REGISTERED AS { NLM.aoi onlineFacilityRegistration (158) };

outgoingCallBarredWithinCUG ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.Boolean;

MATCHES FOR EQUALITY;

BEHAVIOUR outgoingCallBarredWithinCUG-B BEHAVIOUR

DEFINED AS The subscription of the outgoing call barred within a CUG facility as described in ITU-T Recommendation X.2. Expressed as a boolean where a value of 'True' indicates subscription and a value of 'False' indicates non-subscription;;

REGISTERED AS { NLM.aoi outgoingCallBarredWithinCUG (160) };

outgoingCallsBarred ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.Boolean;

MATCHES FOR EQUALITY;

BEHAVIOUR outgoingCallsBarred-B BEHAVIOUR

DEFINED AS The subscription of the outgoing calls barred facility as described in ITU-T Recommendation X.2. Expressed as a boolean where a value of 'True' indicates subscription and a value of 'False' indicates non-subscription;;

REGISTERED AS { NLM.aoi outgoingCallsBarred (159) };

packetRetransmission ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.Boolean;

MATCHES FOR EQUALITY;

BEHAVIOUR packetRetransmission-B BEHAVIOUR

DEFINED AS The subscription of the packet retransmissions facility as described in ITU-T Recommendation X.2. Expressed as a boolean where a value of 'True' indicates subscription and a value of 'False' indicates non-subscription. If non-subscription, then the attributes for rejectTimer and rejectCount will have NULL values.;;

REGISTERED AS { NLM.aoi packetRetransmission (161) };

Superseded by a more recent version

protocolErrorsAccusedOf ATTRIBUTE

DERIVED FROM "GMI":nonWrapping64BitCounter;
BEHAVIOUR protocolErrorsAccusedOf-B BEHAVIOUR
DEFINED AS Counter associated with the accusedOfProtocolError event
which generates a communications alarm notification.;;
REGISTERED AS { NLM.aoi protocolErrorsAccusedOf (64) };

protocolErrorsDetectedLocally ATTRIBUTE

DERIVED FROM "GMI":nonWrapping64BitCounter;
BEHAVIOUR protocolErrorsDetectedLocally-B BEHAVIOUR
DEFINED AS Counter associated with the protocolErrorDetectedLocally event
which generates a communications alarm notification.;;
REGISTERED AS { NLM.aoi protocolErrorsDetectedLocally (63) };

protocolVersionSupported ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.ProtocolVersion;
MATCHES FOR EQUALITY;
BEHAVIOUR protocolVersionSupported-B BEHAVIOUR
DEFINED AS The supported ITU-T Recommendation | International Standard protocol version
available on the PLE interface.;;
REGISTERED AS { NLM.aoi protocolVersionSupported (38) };

providerInitiatedDisconnects ATTRIBUTE

DERIVED FROM "GMI":nonWrapping64BitCounter;
BEHAVIOUR providerInitiatedDisconnects-B BEHAVIOUR
DEFINED AS Counter for the providerInitiatedDisconnect events
which generate communication alarm notifications.;;
REGISTERED AS { NLM.aoi providerInitiatedDisconnects (54) };

providerInitiatedResets ATTRIBUTE

DERIVED FROM "GMI":nonWrapping64BitCounter;
BEHAVIOUR providerInitiatedResets-B BEHAVIOUR
DEFINED AS Counter associated with the providerInitiatedReset event
which generates a communication alarm notification.;;
REGISTERED AS { NLM.aoi providerInitiatedResets (59) };

rOASubscription ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.Boolean;
MATCHES FOR EQUALITY;
BEHAVIOUR rOASubscription-B BEHAVIOUR
DEFINED AS The subscription of the ROA Subscription facility
as described in ITU-T Recommendation X.2. Expressed as a boolean
where a value of 'True' indicates subscription and a value
of 'False' indicates non-subscription.;;
REGISTERED AS { NLM.aoi rOASubscription (167) };

registrationPermitted ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.Boolean;
MATCHES FOR EQUALITY;
BEHAVIOUR registrationPermitted-B BEHAVIOUR
DEFINED AS When true, the use of online facility registration is permitted.;;
REGISTERED AS { NLM.aoi registrationPermitted (105) };

Superseded by a more recent version

registrationRequestResponseTimer ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.Integer;
MATCHES FOR EQUALITY, ORDERING;
BEHAVIOUR registrationRequestResponseTimer-B BEHAVIOUR
DEFINED AS Value for Timer T28 (Registration Request Response Timer) in seconds;;
REGISTERED AS { NLM.aoi registrationRequestResponseTimer (44) };

registrationRequestRetransmissionCount ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.Integer;
MATCHES FOR EQUALITY, ORDERING;
BEHAVIOUR registrationRequestRetransmissionCount-B BEHAVIOUR
DEFINED AS Value for count R28 (Registration Request Retransmission Count);;
REGISTERED AS { NLM.aoi registrationRequestRetransmissionCount (46) };

rejectResponseTimer ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.Integer;
MATCHES FOR EQUALITY, ORDERING;
BEHAVIOUR rejectResponseTimer-B BEHAVIOUR
DEFINED AS Value for Timer T27 (Reject Response Timer) in seconds;;
REGISTERED AS { NLM.aoi rejectResponseTimer (86) };

rejectRetransmissionCount ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.Integer;
MATCHES FOR EQUALITY, ORDERING;
BEHAVIOUR rejectRetransmissionCount-B BEHAVIOUR
DEFINED AS Value for count R27 (Reject Retransmission Count);;
REGISTERED AS { NLM.aoi rejectRetransmissionCount (87) };

remotelyInitiatedResets ATTRIBUTE

DERIVED FROM "GMI":nonWrapping64BitCounter;
BEHAVIOUR remotelyInitiatedResets-B BEHAVIOUR
DEFINED AS Counter associated with the remotelyInitiatedReset event
which generates a communication alarm notification.;;
REGISTERED AS { NLM.aoi remotelyInitiatedResets (57) };

remotelyInitiatedRestarts ATTRIBUTE

DERIVED FROM "GMI":nonWrapping64BitCounter;
BEHAVIOUR remotelyInitiatedRestarts-B BEHAVIOUR
DEFINED AS Counter of the number of remotely initiated restarts.
This is the total number of remotely initiated (including provider initiated) restarts
experienced by the PLE, excluding the
restart associated with bringing up the PLE interface;;
REGISTERED AS { NLM.aoi remotelyInitiatedRestarts (61) };

resetIndication ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.Integer;
MATCHES FOR EQUALITY, ORDERING;
BEHAVIOUR resetIndication-B BEHAVIOUR
DEFINED AS Value for the Reset Indication, T12 timer, in seconds.;;
REGISTERED AS { NLM.aoi resetIndication (163) };

Superseded by a more recent version

resetRequestResponseTimer ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.Integer;
MATCHES FOR EQUALITY, ORDERING;
BEHAVIOUR resetRequestResponseTimer-B BEHAVIOUR
DEFINED AS Value for Timer T22 (Reset Request Response Timer) in seconds;;
REGISTERED AS { NLM.aoi resetRequestResponseTimer (78) };

resetRequestRetransmissionCount ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.Integer;
MATCHES FOR EQUALITY, ORDERING;
BEHAVIOUR resetRequestRetransmissionCount-B BEHAVIOUR
DEFINED AS Value for count R22 (Reset Request Retransmission Count);;
REGISTERED AS { NLM.aoi resetRequestRetransmissionCount (80) };

resetTimeouts ATTRIBUTE

DERIVED FROM "GMI":nonWrapping64BitCounter;
BEHAVIOUR resetTimeouts-B BEHAVIOUR
DEFINED AS Counter of the number of timer T22 expiries experienced
by the PLE;;
REGISTERED AS { NLM.aoi resetTimeouts (60) };

restartCountsExceeded ATTRIBUTE

DERIVED FROM "GMI":nonWrapping64BitCounter;
BEHAVIOUR restartCountsExceeded-B BEHAVIOUR
DEFINED AS Counter associated with the restartCountExceeded event
which generates a communication alarm notification.;;
REGISTERED AS { NLM.aoi restartCountsExceeded (62) };

restartIndication ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.Integer;
MATCHES FOR EQUALITY, ORDERING;
BEHAVIOUR restartIndication-B BEHAVIOUR
DEFINED AS Value for the Restart Indication, T10 timer, in seconds.;;
REGISTERED AS { NLM.aoi restartIndication (164) };

restartRequestResponseTimer ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.Integer;
MATCHES FOR EQUALITY, ORDERING;
BEHAVIOUR restartRequestResponseTimer-B BEHAVIOUR
DEFINED AS Value for Timer T20 (Restart Request Response Timer) in seconds;;
REGISTERED AS { NLM.aoi restartRequestResponseTimer (42) };

restartRequestRetransmissionCount ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.Integer;
MATCHES FOR EQUALITY, ORDERING;
BEHAVIOUR restartRequestRetransmissionCount-B BEHAVIOUR
DEFINED AS Value for count R20 (Restart Request Retransmission Count);;
REGISTERED AS { NLM.aoi restartRequestRetransmissionCount (45) };

Superseded by a more recent version

reverseChargingAcceptance ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.Boolean;

MATCHES FOR EQUALITY;

BEHAVIOUR reverseChargingAcceptance-B BEHAVIOUR

DEFINED AS The subscription of the reverse charging acceptance facility as described in ITU-T Recommendation X.2. Expressed as a boolean where a value of 'True' indicates subscription and a value of 'False' indicates non-subscription;;

REGISTERED AS { NLM.aoi reverseChargingAcceptance (165) };

throughputClassNegotiation ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.Boolean;

MATCHES FOR EQUALITY;

BEHAVIOUR throughputClassNegotiation-B BEHAVIOUR

DEFINED AS The subscription of the throughput class negotiation facility as described in ITU-T Recommendation X.2. Expressed as a boolean where a value of 'True' indicates subscription and a value of 'False' indicates non-subscription;;

REGISTERED AS { NLM.aoi throughputClassNegotiation (168) };

windowRotationTimer ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.Integer;

MATCHES FOR EQUALITY, ORDERING;

BEHAVIOUR windowRotationTimer-B BEHAVIOUR

DEFINED AS Default for Timer T25 (Window Rotation Timer) in seconds;;

REGISTERED AS { NLM.aoi windowRotationTimer (84) };

windowStatusTransmissionTimer ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.Integer;

MATCHES FOR EQUALITY, ORDERING;

BEHAVIOUR windowStatusTransmissionTimer-B BEHAVIOUR

DEFINED AS Value for Timer T24 (Window Status Transmission Timer) in seconds;;

REGISTERED AS { NLM.aoi windowStatusTransmissionTimer (83) };

x25PLEId ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.GraphicString;

MATCHES FOR EQUALITY, SUBSTRINGS;

BEHAVIOUR x25PLEId-B BEHAVIOUR

DEFINED AS The name of this instance of x25PLE MO;;

REGISTERED AS { NLM.aoi x25PLEId (36) };

x25PLEMode ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.X25PLEMode;

MATCHES FOR EQUALITY;

BEHAVIOUR x25PLEMode-B BEHAVIOUR

DEFINED AS The DCE/DTE mode in which the X.25 PLE is currently operating.

One of the following modes of operation may be indicated.

(0) DTE mode applying to both ITU-T Rec. X.25 and ISO/IEC 8208 operation,

(1) DCE mode applying to ITU-T Rec. X.25 operation only, and

(2) DTE acting as a DCE applying to ISO/IEC 8208 operation only.;;

REGISTERED AS { NLM.aoi x25PLEMode (120) };

Superseded by a more recent version

x25PLEIVMOld ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.GraphicString;
MATCHES FOR EQUALITY, SUBSTRINGS;
BEHAVIOUR x25PLEIVMOld-B BEHAVIOUR
DEFINED AS The name of this instance of x25PLE IVMO;;
REGISTERED AS { NLM.aoi x25PLEIVMOld (37) };

x25SegmentsReceived ATTRIBUTE

DERIVED FROM "GMI":nonWrapping64BitCounter;
MATCHES FOR EQUALITY, ORDERING;
BEHAVIOUR x25SegmentsReceived-B BEHAVIOUR
DEFINED AS Value for count of X.25 Segments Received.;;
REGISTERED AS { NLM.aoi x25SegmentsReceived (171) };

x25SegmentsSent ATTRIBUTE

DERIVED FROM "GMI":nonWrapping64BitCounter;
MATCHES FOR EQUALITY, ORDERING;
BEHAVIOUR x25SegmentsSent-B BEHAVIOUR
DEFINED AS Value for count of X.25 Segments Sent.;;
REGISTERED AS { NLM.aoi x25SegmentsSent (170) };

-- Parameters

notificationData PARAMETER

CONTEXT EVENT-INFO;
WITH SYNTAX NLM.NotificationDataSyntax;
BEHAVIOUR notificationData-B BEHAVIOUR
DEFINED AS Information relating to the call
which resulted in the notification;;
REGISTERED AS { NLM.proi notificationData (7) };

Superseded by a more recent version

5.11 The virtual circuit and related managed objects

5.11.1 The virtual managed object

- *This MO Class is never instantiated. It serves as a generic Virtual Circuit MO from which both the*
- *Virtual Circuit DTE and Virtual Circuit DCE MOs are derived.*
- *Note that the values of the virtualCircuitId naming attribute are*
- *required to be unique across all instances of MOs derived from this*
- *which have a common superior.*
-

virtualCircuit MANAGED OBJECT CLASS

```
DERIVED FROM "DMI":top;
CHARACTERIZED BY virtualCircuit-P PACKAGE
BEHAVIOUR
    commonCreationDeletion-B,
    virtualCircuitNaming-B;
ATTRIBUTES
    virtualCircuitId GET,
    logicalChannel GET,
    packetSizes GET,
    throughputClasses GET,
    windowSizes GET;
NOTIFICATIONS
    "DMI":objectCreation,
    "DMI":objectDeletion;
```

```
REGISTERED AS { NLM.moi virtualCircuit (14) };
```

Superseded by a more recent version

5.11.2 The virtual circuit DTE managed object

- *This MO Class is never instantiated. It serves as a generic Virtual Circuit DTE MO from which both the*
- *Virtual Call DTE and the Permanent Virtual Circuit DTE MOs are derived.*
- *Note that the values of the virtualCircuitId naming attribute are*
- *required to be unique across all instances of MOs derived from this*
- *which have a common superior.*
-

virtualCircuit-DTE MANAGED OBJECT CLASS

DERIVED FROM virtualCircuit;
CONDITIONAL PACKAGES
dTEVirtualCircuitCounters-P
PRESENT IF the instance supports the dTEVirtualCircuitCounters
capabilities;

REGISTERED AS { NLM.moi virtualCircuit-DTE (18) };

5.11.3 The virtual circuit DCE managed object

- *This MO Class is never instantiated. It serves as a generic Virtual Circuit DCE MO from which both the*
- *Virtual Call DCE and the Permanent Virtual Circuit DCE MOs are derived.*
- *Note that the values of the virtualCircuitId naming attribute are*
- *required to be unique across all instances of MOs derived from this*
- *which have a common superior.*
-

virtualCircuit-DCE MANAGED OBJECT CLASS

DERIVED FROM virtualCircuit;
CONDITIONAL PACKAGES
dCECommonVirtualCircuitCounters-P
PRESENT IF the instance supports the dCECommonVirtualCircuitCounters capabilities

;
REGISTERED AS { NLM.moi virtualCircuit-DCE (29) };

Superseded by a more recent version

5.11.4 The permanent virtual circuit DTE managed object

--
-- *An instance of this MO exists for each Permanent Virtual Circuit.*
-- *It may be both created and deleted by management.*
--

permanentVirtualCircuit-DTE MANAGED OBJECT CLASS

DERIVED FROM virtualCircuit-DTE;

CHARACTERIZED BY permanentVirtualCircuit-DTE-P PACKAGE

BEHAVIOUR permanentVirtualCircuit-DTE-P-B BEHAVIOUR

DEFINED AS When the MO is created, the protocol machine

shall be reinitialized and a reset PDU with a cause code of DTE originated (encoded as 00000000) and a diagnostic code of DTE operational (161) shall be transmitted. When the MO is deleted, the protocol machine shall be reinitialized and a reset PDU with a cause code of DTE originated (encoded as 00000000) and a diagnostic code of DTE not operational (162) shall be transmitted.;;

ATTRIBUTES

logicalChannel INITIAL VALUE DERIVATION RULE logicalChannelIV-B,
packetSizes INITIAL VALUE DERIVATION RULE optionalCMIPV-B,
throughputClasses INITIAL VALUE DERIVATION RULE optionalCMIPV-B,
windowSizes INITIAL VALUE DERIVATION RULE optionalCMIPV-B;

;;

REGISTERED AS { NLM.moi permanentVirtualCircuit-DTE (19) };

Superseded by a more recent version

5.11.5 The permanent virtual circuit DCE managed object

-- An instance of this MO exists for each Permanent Virtual Circuit. It may be both created and
-- deleted by management.
--

permanentVirtualCircuit-DCE MANAGED OBJECT CLASS

DERIVED FROM virtualCircuit-DCE;

CHARACTERIZED BY permanentVirtualCircuit-DCE-P PACKAGE

BEHAVIOUR permanentVirtualCircuit-DCE-P-B BEHAVIOUR

DEFINED AS When the MO is created, the protocol machine shall be re-initialized

and a reset PDU shall be transmitted. A cause code of remote DTE Operational

(encoded as X000 1001) or Network Operational (encoded as X000 1111) may,

for example, be included. When the MO is deleted the protocol machine shall

be reinitialized and a reset PDU shall be transmitted. A cause code of

Out of Order (encoded as X000 0001) or Network Out of Order

(encoded as X001 1101) may, for example, be included.;;

commonStateChange-B;

ATTRIBUTES

chargingDirection GET,

logicalChannel INITIAL VALUE DERIVATION RULE logicalChannelIV-B,

packetSizes INITIAL VALUE DERIVATION RULE optionalCMIPV-B,

throughputClasses INITIAL VALUE DERIVATION RULE optionalCMIPV-B,

windowSizes INITIAL VALUE DERIVATION RULE optionalCMIPV-B,

"DMI":operationalState GET,

remoteDTEAddress GET,

remoteLogicalChannel GET;

ATTRIBUTE GROUPS

"DMI":state

"DMI":operationalState;

NOTIFICATIONS

"DMI":stateChange;

;;

REGISTERED AS { NLM.moi permanentVirtualCircuit-DCE (30) };

Superseded by a more recent version

5.11.6 The virtual call initial values managed object

- *There may be multiple instances of the virtualCallIVMO in a system.*
- *A virtualCallIVMO may be used to supply initial*
- *values for the attributes of the virtualCall-DTE or virtualCall-DCE MO.*
- *Different instances of virtualCallIVMO may contain different initial values.*
-
- *Its definition permits it to be created and deleted explicitly by*
- *management operation.*

virtualCallIVMO MANAGED OBJECT CLASS

```
DERIVED FROM "DMI":top;
CHARACTERIZED BY virtualCallIVMO-P PACKAGE
BEHAVIOUR commonCreationDeletion-B;
ATTRIBUTES
    virtualCallIVMOId GET,
    fastSelect REPLACE-WITH-DEFAULT
        GET-REPLACE,
    packetSizes REPLACE-WITH-DEFAULT
        GET-REPLACE,
    reverseCharging REPLACE-WITH-DEFAULT
        GET-REPLACE,
    throughputClasses REPLACE-WITH-DEFAULT
        GET-REPLACE,
    windowSizes REPLACE-WITH-DEFAULT
        GET-REPLACE;
NOTIFICATIONS
    "DMI":objectCreation,
    "DMI":objectDeletion;
;;
REGISTERED AS { NLM.moi virtualCallIVMO (15) };
```


Superseded by a more recent version

5.11.7 The virtual call DTE managed object

- *An instance of this MO exists for each Virtual Call. It is not created by management, but by the operation of the protocol state machine.*
- *An existing instance may, however, be deactivated by management action, which will cause the associated VC to be cleared.*
-
- *An instance of this MO is created and exists as long as real resources are consumed by the existence of the virtual call. It is an implementation matter to determine the point during call establishment when real resources are consumed, and conversely, when during call clearing, when they are released.*

virtualCall-DTE MANAGED OBJECT CLASS

DERIVED FROM virtualCircuit-DTE;
CHARACTERIZED BY virtualCall-DTE-P PACKAGE

BEHAVIOUR

deactivateConnection-B,
successfulConnectionEstablishment-B;

ATTRIBUTES

callingAddressExtension GET,
calledAddressExtension GET,
direction GET,
fastSelect GET,
originallyCalledAddress GET,
redirectReason GET,
remoteDTEAddress GET,
reverseCharging GET;

ACTIONS

"GMI":deactivate;

NOTIFICATIONS

"GMI":communicationsInformation;

::

REGISTERED AS { NLM.moi virtualCall-DTE (16) };

Superseded by a more recent version

5.11.8 The virtual call DCE managed object

- *An instance of this MO is created and exists as long as real resources are consumed by the existence*
- *of the Virtual Call. It is an implementation matter to determine the point during a call establishment*
- *when real resources are consumed, and conversely, when during call clearing, when they are released.*

virtualCall-DCE MANAGED OBJECT CLASS

```
DERIVED FROM virtualCircuit-DCE;
CHARACTERIZED BY virtualCall-DCE-P PACKAGE
BEHAVIOUR
    deactivateConnection-B,
    successfulConnectionEstablishment-B;
ATTRIBUTES
    chargingDirection GET,
    cUGSelection GET,
    direction GET,
    fastSelect GET,
    remoteDTEAddress GET,
    transitDelaySelectionAndIndication GET;
ACTIONS
    "GMI":deactivate;
NOTIFICATIONS
    "GMI":communicationsInformation;
;;
CONDITIONAL PACKAGES
    dCEVirtualCallFacilities-P
    PRESENT IF the instance supports the dCEVirtualCallFacilities capabilities;
REGISTERED AS { NLM.moi virtualCall-DCE (31) };
```

Superseded by a more recent version

5.11.9 The recommendation D series counts managed object

- There is one instance of this MO created by management action or
- automatically for each instance of a virtual call where the Tariff
- Principles applying to Data Communications Services over dedicated
- Public Data Networks are applicable. The provisions of the tariff
- principles are defined in Recommendations D.10, D.11 and D.12.

dSeriesCounts MANAGED OBJECT CLASS

DERIVED FROM "DMI":top;

CHARACTERIZED BY dSeriesCounts-P PACKAGE

BEHAVIOUR dSeriesCounts-P-B BEHAVIOUR

DEFINED AS provides the set of packet and segment counts required to collect the charges levied according to the tariff principles contained in Recommendations D.10, D.11 and D.12 for international packet switched public data communications services. The values collected are reported at object deletion.;;

ATTRIBUTES

dSeriesId GET,
dSeriesResetRequestIndicationPackets GET,
dSeriesSegmentsSent GET,
dSeriesSegmentsReceived GET;

ATTRIBUTE GROUPS

"GMI":counters
dSeriesResetRequestIndicationPackets
dSeriesSegmentsSent
dSeriesSegmentsReceived;

NOTIFICATIONS

"DMI":objectCreation,
"DMI":objectDeletion;

;;

REGISTERED AS { NLM.moi dSeriesCounts (32) };

-- Packages

dTEVirtualCircuitCounters-P PACKAGE

BEHAVIOUR

octetsSentReceivedCounter-B;

ATTRIBUTES

"DMI":octetsSentCounter GET,
-- Note that the DMI definition is in terms of user data octets.

"DMI":octetsReceivedCounter GET,
-- Note that the DMI definition is in terms of user data octets.

dataPacketsReceived GET,

dataPacketsSent GET,

-- Note the "DMI":PDUsSentCounter
-- cannot be used here since it is defined as total number of PDUs sent,
-- not just data PDUs.

dataRetransmissionTimerExpiries GET,

interruptPacketsReceived GET,

interruptPacketsSent GET,

interruptTimerExpiries GET,

providerInitiatedResets GET,

remotelyInitiatedResets GET,

Superseded by a more recent version

resetTimeouts GET;
ATTRIBUTE GROUPS

"GMI":counters
"DMI":octetsReceivedCounter
"DMI":octetsSentCounter
dataPacketsReceived
dataPacketsSent
dataRetransmissionTimerExpiries
interruptPacketsReceived
interruptPacketsSent
interruptTimerExpiries
providerInitiatedResets
remotelyInitiatedResets
resetTimeouts;

REGISTERED AS { NLM.poi dTEVirtualCircuitCounters-P (19) };

dCEVirtualCallFacilities-P PACKAGE

BEHAVIOUR dCEVirtualCallFacilities-P-B BEHAVIOUR

DEFINED AS provides the set of optional facilities used during the normal operation of a DCE, as defined in the appropriate clauses ;;

ATTRIBUTES

bilateralCUGSelection GET,
callRedirectionDeflectionNotification GET,
calledLineAddressModifiedNotification GET,
cUGWithOutgoingAccessSelection GET,
nUISelection GET,
reverseCharging GET,
rPOASelection GET;

REGISTERED AS { NLM.poi dCEVirtualCallFacilities-P (24) };

-- *Behaviours*

logicalChannelIV-B BEHAVIOUR

DEFINED AS The initial value of the logical channel attribute shall be specified in the CMIP create;

optionalCMIPV-B BEHAVIOUR

DEFINED AS The initial value of this attribute may be supplied in the CMIP create. When not so supplied, the default value shall be used;

virtualCircuitNaming-B BEHAVIOUR

DEFINED AS A system shall ensure that all instances of MOs derived from the virtualCircuit MO which have a common x25PLE or subclass as their superior MO, shall have unique values for the virtualCircuitId attribute. This applies to both automatically generated names and those supplied by means of a CMIP create.;

Superseded by a more recent version

-- Name Bindings

permanentVirtualCircuit-DTE-x25PLE-DTE NAME BINDING

SUBORDINATE OBJECT CLASS permanentVirtualCircuit-DTE AND SUBCLASSES;
NAMED BY

SUPERIOR OBJECT CLASS x25PLE-DTE AND SUBCLASSES;
WITH ATTRIBUTE virtualCircuitId;
BEHAVIOUR logicalChannelIV-B;
CREATE WITH-AUTOMATIC-INSTANCE-NAMING;
DELETE;

REGISTERED AS { NLM.nboi permanentVirtualCircuit-DTE-x25PLE-DTE (26) };

permanentVirtualCircuit-DCE-x25PLE-DCE NAME BINDING

SUBORDINATE OBJECT CLASS permanentVirtualCircuit-DCE AND SUBCLASSES;
NAMED BY

SUPERIOR OBJECT CLASS x25PLE-DCE AND SUBCLASSES;
WITH ATTRIBUTE virtualCircuitId;
BEHAVIOUR logicalChannelIV-B;
CREATE WITH-AUTOMATIC-INSTANCE-NAMING;
DELETE;

REGISTERED AS { NLM.nboi permanentVirtualCircuit-DCE-x25PLE-DCE (29) };

virtualCall-DTE-x25PLE-DTE NAME BINDING

SUBORDINATE OBJECT CLASS virtualCall-DTE AND SUBCLASSES;
NAMED BY

SUPERIOR OBJECT CLASS x25PLE-DTE AND SUBCLASSES;
WITH ATTRIBUTE virtualCircuitId;
BEHAVIOUR virtualCall-DTE-x25PLE-DTE-B BEHAVIOUR

DEFINED AS Created only by the operation of the protocol or local interface. The instance name is derived automatically (as for CREATE WITH-AUTOMATIC-INSTANCE-NAMING). The creation of an instance of the virtualCall-DTE MO using this name binding may reference an instance of the virtualCallIVMO. The means by which such an instance (if any) of the virtualCallIVMO is identified is a local matter.

When this occurs,

some of the initial values of the attributes of the instance of the virtualCall-DTE MO may be supplied by the values of the attributes in the specified instance of the virtualCallIVMO. However, any such value may be overridden by a value supplied by local means (for example, across an internal interface). Where values are supplied by the IVMO, the initial value of an attribute of the virtualCall-DTE MO shall be the value of the corresponding attribute in the virtualCallIVMO (that is, which has the same attribute template label). The naming attribute of the virtualCall-DTE is assigned a value according to local mechanisms.;

REGISTERED AS { NLM.nboi virtualCall-DTE-x25PLE-DTE (24) };

Superseded by a more recent version

virtualCall-DCE-x25PLE-DCE-Automatic NAME BINDING

**SUBORDINATE OBJECT CLASS virtualCall-DCE AND SUBCLASSES;
NAMED BY**

**SUPERIOR OBJECT CLASS x25PLE-DCE AND SUBCLASSES;
WITH ATTRIBUTE virtualCircuitId;**

BEHAVIOUR virtualCall-DCE-x25PLE-DCE-Automatic-B BEHAVIOUR

DEFINED AS The name binding that applies when the virtualCall-DCE

Managed Object is created automatically by the operation of the system. The instance name is derived automatically (as for CREATE WITH-AUTOMATIC-INSTANCE-NAMING).

The creation of an instance of the virtualCall-DCE MO using this name binding may reference an instance of the virtualCallIVMO. The means by which such an instance (if any) of the virtualCallIVMO is identified is a local matter.

When this occurs,

some of the initial values of the attributes of the instance of the virtualCall-DCE MO may be supplied by the values of the attributes in the specified instance of the virtualCallIVMO. However, any such value may be overridden by a value supplied by local means (for example, across an internal interface). Where values are supplied by the IVMO, the initial value of an attribute of the virtualCall-DCE MO shall be the value of the corresponding attribute in the virtualCallIVMO (that is, which has the same attribute template label). The naming attribute of the virtualCall-DCE is assigned a value according to local mechanisms.;

DELETE;

REGISTERED AS { NLM.nboi virtualCall-DCE-x25PLE-DCE-Automatic (30) };

virtualCall-DCE-x25PLE-DCE-Management NAME BINDING

**SUBORDINATE OBJECT CLASS virtualCall-DCE AND SUBCLASSES;
NAMED BY**

**SUPERIOR OBJECT CLASS x25PLE-DCE AND SUBCLASSES;
WITH ATTRIBUTE virtualCircuitId;**

BEHAVIOUR virtualCall-DCE-x25PLE-DCE-Management-B BEHAVIOUR

DEFINED AS The name binding that applies when the virtualCall-DCE Managed Object is created by management operation.;

CREATE WITH-AUTOMATIC-INSTANCE-NAMING;

DELETE;

REGISTERED AS { NLM.nboi virtualCall-DCE-x25PLE-DCE-Management (31) };

virtualCallIVMO-x25PLE NAME BINDING

**SUBORDINATE OBJECT CLASS virtualCallIVMO AND SUBCLASSES;
NAMED BY**

**SUPERIOR OBJECT CLASS x25PLE AND SUBCLASSES;
WITH ATTRIBUTE virtualCallIVMOId;**

CREATE;

DELETE;

REGISTERED AS { NLM.nboi virtualCallIVMO-x25PLE (25) };

Superseded by a more recent version

dSeriesCounts-virtualCall-DCE-Automatic NAME BINDING

SUBORDINATE OBJECT CLASS dSeriesCounts AND SUBCLASSES;
NAMED BY

SUPERIOR OBJECT CLASS virtualCall-DCE AND SUBCLASSES;
WITH ATTRIBUTE dSeriesId;

BEHAVIOUR dSeriesCounts-virtualCall-DCE-Automatic-B BEHAVIOUR

DEFINED AS Created only by the operation of the protocol or local interface. The instance name is derived automatically (as for CREATE WITH-AUTOMATIC-INSTANCE-NAMING);;

DELETE;

REGISTERED AS { NLM.nboi dSeriesCounts-virtualCall-DCE-Automatic (32) };

dSeriesCounts-virtualCall-DCE-Management NAME BINDING

SUBORDINATE OBJECT CLASS dSeriesCounts AND SUBCLASSES;
NAMED BY

SUPERIOR OBJECT CLASS virtualCall-DCE AND SUBCLASSES;
WITH ATTRIBUTE dSeriesId;

BEHAVIOUR dSeriesCounts-virtualCall-DCE-Management-B BEHAVIOUR

DEFINED AS The name binding that applies when the dSeriesCounts Managed Object is created by management operation.;;

DELETE;

REGISTERED AS { NLM.nboi dSeriesCounts-virtualCall-DCE-Management (33) };

-- *Attributes*

bilateralCUGSelection ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.Boolean;

MATCHES FOR EQUALITY;

BEHAVIOUR bilateralCUGSelection-B BEHAVIOUR

DEFINED AS Indicates the use of the bilateral closed user group selection facility for that call.;;

REGISTERED AS { NLM.aoi bilateralCUGSelection (126) };

calledAddressExtension ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.NAddress;

-- *In the OSI context this will always be an NSAP address but in other uses*

-- *it may not. In any case it may be null, for example, when used by ITU-T Rec. X.233 | ISO/IEC 8473-1.*

MATCHES FOR EQUALITY, SUBSTRINGS;

BEHAVIOUR calledAddressExtension-B BEHAVIOUR

DEFINED AS The contents of the called address extension field.;;

REGISTERED AS { NLM.aoi calledAddressExtension (100) };

calledLineAddressModifiedNotification ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.Boolean;

MATCHES FOR EQUALITY;

BEHAVIOUR calledLineAddressModifiedNotification-B BEHAVIOUR

DEFINED AS Indicates the use of the called line address modified notification facility for that call.;;

REGISTERED AS { NLM.aoi calledLineAddressModifiedNotification (128) };

Superseded by a more recent version

callingAddressExtension ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.NAddress;

- In the OSI context this will always be an NSAP address but in other uses
- it may not. In any case it may be null, for example, when used by ITU-T Rec. X.233 | ISO/IEC 8473-1.

MATCHES FOR EQUALITY, SUBSTRINGS;

BEHAVIOUR callingAddressExtension-B BEHAVIOUR

DEFINED AS The contents of the calling address extension field.;;

REGISTERED AS { NLM.aoi callingAddressExtension (99) };

callRedirectionDeflectionNotification ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.Boolean;

MATCHES FOR EQUALITY;

BEHAVIOUR callRedirectionDeflectionNotification-B BEHAVIOUR

DEFINED AS Indicates the use of the call redirection deflection notification facility for that call.;;

REGISTERED AS { NLM.aoi callRedirectionDeflectionNotification (130) };

chargingDirection ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.Boolean;

MATCHES FOR EQUALITY;

BEHAVIOUR chargingDirection-B BEHAVIOUR

DEFINED AS Indicates the use of the charging direction facility for that call.;;

REGISTERED AS { NLM.aoi chargingDirection (131) };

cUGSelection ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.Boolean;

MATCHES FOR EQUALITY;

BEHAVIOUR cUGSelection-B BEHAVIOUR

DEFINED AS Indicates the use of the closed user group selection facility for that call.;;

REGISTERED AS { NLM.aoi cUGSelection (135) };

cUGWithOutgoingAccessSelection ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.Boolean;

MATCHES FOR EQUALITY;

BEHAVIOUR cUGWithOutgoingAccessSelection-B BEHAVIOUR

DEFINED AS Indicates the use of the Closed User Group With Outgoing Access Selection facility for that call. It may only take the value 'True' if the DTE does not have a preferential closed user group, as described in ITU-T Recommendation X.25 and ISO/IEC 8208.;;

REGISTERED AS { NLM.aoi cUGWithOutgoingAccessSelection (138) };

dSeriesId ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.GraphicString;

MATCHES FOR EQUALITY, SUBSTRINGS;

BEHAVIOUR dSeriesId-B BEHAVIOUR

DEFINED AS The name of this instance of the dSeriesCounts MO.;;

REGISTERED AS { NLM.aoi dSeriesId (140) };

Superseded by a more recent version

dSeriesResetRequestIndicationPackets ATTRIBUTE

DERIVED FROM "GMI":nonWrapping64BitCounter;
MATCHES FOR EQUALITY, ORDERING;
BEHAVIOUR dSeriesResetRequestIndicationPackets-B BEHAVIOUR
DEFINED AS Value for count of Reset Request or Indication Packets
with restrictions defined in Recommendation D.11 ;;

REGISTERED AS { NLM.aoi dSeriesResetRequestIndicationPackets (141) };

dSeriesSegmentsReceived ATTRIBUTE

DERIVED FROM "GMI":nonWrapping64BitCounter;
MATCHES FOR EQUALITY, ORDERING;
BEHAVIOUR dSeriesSegmentsReceived-B BEHAVIOUR
DEFINED AS Value for count of Segments Received, in 64 octets,
as per Recommendation D.12;;

REGISTERED AS { NLM.aoi dSeriesSegmentsReceived (143) };

dSeriesSegmentsSent ATTRIBUTE

DERIVED FROM "GMI":nonWrapping64BitCounter;
MATCHES FOR EQUALITY, ORDERING;
BEHAVIOUR dSeriesSegmentsSent-B BEHAVIOUR
DEFINED AS Value for count of Segments Sent, in 64 octets,
as per Recommendation D.12;;

REGISTERED AS { NLM.aoi dSeriesSegmentsSent (142) };

direction ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.Direction;

-- Enumerated(*Incoming, Outgoing*)

MATCHES FOR EQUALITY;
BEHAVIOUR direction-B BEHAVIOUR

DEFINED AS The direction (incoming or outgoing) of the call;;

REGISTERED AS { NLM.aoi direction (92) };

fastSelect ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.FastSelect;

-- Enumerated(*Not Specified, Fast Select, Fast Select With Restricted Response, No Fast Select*)

MATCHES FOR EQUALITY;
BEHAVIOUR fastSelect-B BEHAVIOUR

DEFINED AS Type of fast select used or to be used for call.

In the case of an IVMO, this specifies that one of 'fast select',
'fast select with restricted response', or no fast select
facility is to be used for the call. It includes a value
'not specified' which indicates that no preference is expressed
in the IVMO. In the case of a non-IVMO MO, this specifies that one
of 'fast select' or 'no fast select' was used for the call.;;

REGISTERED AS { NLM.aoi fastSelect (76) };

logicalChannel ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.LogicalChannelId;

MATCHES FOR EQUALITY, ORDERING;
BEHAVIOUR logicalChannel-B BEHAVIOUR

DEFINED AS The actual Logical Channel ID used for the call;;

REGISTERED AS { NLM.aoi logicalChannel (89) };

Superseded by a more recent version

nUISelection ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.Boolean;

MATCHES FOR EQUALITY;

BEHAVIOUR nUISelection-B BEHAVIOUR

DEFINED AS Indicates the use of the network user identification selection facility for that call.;

REGISTERED AS { NLM.aoi nUISelection (155) };

originallyCalledAddress ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.DTEAddress;

MATCHES FOR EQUALITY, SUBSTRINGS;

BEHAVIOUR originallyCalledAddress-B BEHAVIOUR

DEFINED AS The originally called address.;

REGISTERED AS { NLM.aoi originallyCalledAddress (98) };

packetSizes ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.BidirectionalValues;

MATCHES FOR EQUALITY;

BEHAVIOUR packetSizes-B BEHAVIOUR

DEFINED AS The packet sizes for this VC.

In the case of an IVMO MO it is the proposed value of the packet sizes (incoming and outgoing) to be used when establishing the virtual call, expressed in octets. The value of NULL indicates that the default packet size for that direction (as indicated by the defaultPacketSizes attribute of the containing X.25 PLE MO), is to be used.

In the case of a non-IVMO MO it is the actual packet sizes in use for this VC.;

REGISTERED AS { NLM.aoi packetSizes (121) };

redirectReason ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.RedirectReason;

MATCHES FOR EQUALITY;

BEHAVIOUR redirectReason-B BEHAVIOUR

DEFINED AS The reason why the call has been redirected.

This is the reason why the call has been offered or has been connected to an address different from the originally called address.

That is, the value of the first octet of the Facility Parameter Field of the CRCDN or CLAMN facility, indicating the reason for call redirection or call deflection.

The zero value indicates that the call was not redirected.;

REGISTERED AS { NLM.aoi redirectReason (97) };

Superseded by a more recent version

remoteDTEAddress ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.DTEAddress;
MATCHES FOR EQUALITY, SUBSTRINGS;
BEHAVIOUR remoteDTEAddress-B BEHAVIOUR

DEFINED AS The DTE Address of the remote DTE.

In the case of an outgoing call, this is the remote DTE address
from the called address of the transmitted call request packet.

In the case of an incoming call, it is the calling address from
the received call request packet.;;

REGISTERED AS { NLM.aoi remoteDTEAddress (93) };

remoteLogicalChannel ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.LogicalChannelId;

-- 12 bit Channel ID

MATCHES FOR EQUALITY, ORDERING;
BEHAVIOUR remoteLogicalChannel-B BEHAVIOUR

DEFINED AS The Remote Logical Channel ID for the Permanent Virtual Circuit.;;

REGISTERED AS { NLM.aoi remoteLogicalChannel (162) };

reverseCharging ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.Boolean;
MATCHES FOR EQUALITY;
BEHAVIOUR reverseCharging-B BEHAVIOUR

DEFINED AS Use of reverse charging.

When 'True' for an outgoing call, it shall be (for an IVMO), or was
(for a non-IVMO), initiated requesting reverse charging. When

'True' for an incoming call associated with a virtualCall MO,
it indicates that reverse charging was accepted.;;

REGISTERED AS { NLM.aoi reverseCharging (75) };

rOASelection ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.Boolean;
MATCHES FOR EQUALITY;
BEHAVIOUR rOASelection-B BEHAVIOUR

DEFINED AS Indicates the use of the registered operating agency selection
facility for that call.;;

REGISTERED AS { NLM.aoi rOASelection (166) };

throughputClasses ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.BidirectionalValues;
MATCHES FOR EQUALITY, ORDERING;
BEHAVIOUR throughputClasses-B BEHAVIOUR

DEFINED AS The throughput classes in use or to be used.

For an IVMO, this is the throughput classes to be proposed.

For a non-IVMO it is the actual throughput classes in use.

For Virtual Calls this is the result of negotiation.;;

REGISTERED AS { NLM.aoi throughputClasses (96) };

Superseded by a more recent version

transitDelaySelectionAndIndication ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.Boolean;
MATCHES FOR EQUALITY;
BEHAVIOUR transitDelaySelectionAndIndication-B BEHAVIOUR
DEFINED AS Indicates the use of the transit delay selection and
indication facility for that call.;;
REGISTERED AS { NLM.aoi transitDelaySelectionAndIndication (169) };

virtualCallIVMOld ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.GraphicString;
MATCHES FOR EQUALITY, SUBSTRINGS;
BEHAVIOUR virtualCallIVMOld-B BEHAVIOUR
DEFINED AS The name of this instance of virtualCallIVMO;;
REGISTERED AS { NLM.aoi virtualCallIVMOld (117) };

virtualCircuitId ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.GraphicString;
MATCHES FOR EQUALITY, SUBSTRINGS;
BEHAVIOUR virtualCircuitId-B BEHAVIOUR
DEFINED AS The name of this instance of virtualCircuit MO or subclass;;
REGISTERED AS { NLM.aoi virtualCircuitId (116) };

windowSizes ATTRIBUTE

WITH ATTRIBUTE SYNTAX NLM.BidirectionalValues;
MATCHES FOR EQUALITY;
BEHAVIOUR windowSizes-B BEHAVIOUR
DEFINED AS The actual window sizes in use for this VC;;
REGISTERED AS { NLM.aoi windowSizes (124) };

Superseded by a more recent version

6 ASN.1 modules

```
NLM { joint-iso-ccitt network-layer (13) management (0) nLM(2) asn1Module (2) 0 }
DEFINITIONS IMPLICIT TAGS ::= BEGIN
EXPORTS everything
IMPORTS communicationsProtocolError
FROM Attribute-ASN1Module { joint-iso-ccitt ms(9) smi(3) part2(2) asn1Module(2) 1 };
```

6.1 Object identifier definitions

6.1.1 Abbreviations

```
network-layer OBJECT IDENTIFIER ::= { joint-iso-ccitt network-layer (13) }
nl OBJECT IDENTIFIER ::= { network-layer management (0) }
nloi OBJECT IDENTIFIER ::= { nl nLM(2) }
sseoi OBJECT IDENTIFIER ::= { nloi standardSpecificExtensions (0) }
moi OBJECT IDENTIFIER ::= { nloi managedObjectClass (3) }
poi OBJECT IDENTIFIER ::= { nloi package (4) }
proi OBJECT IDENTIFIER ::= { nloi parameter (5) }
nboi OBJECT IDENTIFIER ::= { nloi nameBinding (6) }
aoi OBJECT IDENTIFIER ::= { nloi attribute (7) }
agoi OBJECT IDENTIFIER ::= { nloi attributeGroup (8) }
acoi OBJECT IDENTIFIER ::= { nloi action (9) }
noi OBJECT IDENTIFIER ::= { nloi notification (10) }
```

6.1.2 Others

-- value assignments for specificProblems

```
pDUDiscard OBJECT IDENTIFIER ::= { sseoi specificProblems(3) pDUDiscard(1) }
pDUDiscardReasonNotSpecified OBJECT IDENTIFIER ::= { pDUDiscard
  reasonNotSpecified(0) }
pDUDiscardProtocolProcedureError OBJECT IDENTIFIER ::= { pDUDiscard
  protocolProcedureError(1) }
pDUDiscardIncorrectChecksum OBJECT IDENTIFIER ::= { pDUDiscard
  incorrectChecksum(2) }
pDUDiscardHeaderSyntaxError OBJECT IDENTIFIER ::= { pDUDiscard
  headerSyntaxError(4) }
pDUDiscardSegmentationNeededButNotPermitted OBJECT IDENTIFIER ::= { pDUDiscard
  segmentationNeededButNotPermitted(5) }
pDUDiscardIncompletePDUReceived OBJECT IDENTIFIER ::= { pDUDiscard
  incompletePDUReceived(6) }
pDUDiscardDuplicateOption OBJECT IDENTIFIER ::= { pDUDiscard
  duplicateOption(7) }
pDUDiscardDestinationAddressUnreachable OBJECT IDENTIFIER ::= { pDUDiscard
  destinationAddressUnreachable(128) }
pDUDiscardDestinationAddressUnknown OBJECT IDENTIFIER ::= { pDUDiscard
  destinationAddressUnknown(129) }
pDUDiscardUnspecifiedSourceRouteingError OBJECT IDENTIFIER ::= { pDUDiscard
  unspecifiedSourceRouteingError(144) }
pDUDiscardSyntaxErrorInSourceRouteingField OBJECT IDENTIFIER ::= { pDUDiscard
  syntaxErrorInSourceRouteingField(145) }
```

Superseded by a more recent version

pDUDiscardUnknownAddressInSourceRouteingField OBJECT IDENTIFIER ::= { pDUDiscard unknownAddressInSourceRouteingField(146) }

pDUDiscardPathNotAcceptable OBJECT IDENTIFIER ::= { pDUDiscard pathNotAcceptable(147) }

pDUDiscardLifetimeExpiredWhileDataUnitInTransit OBJECT IDENTIFIER ::= { pDUDiscard lifetimeExpiredWhileDataUnitInTransit(160) }

pDUDiscardLifetimeExpiredDuringReassembly OBJECT IDENTIFIER ::= { pDUDiscard lifetimeExpiredDuringReassembly(161) }

pDUDiscardUnsupportedOptionNotSpecified OBJECT IDENTIFIER ::= { pDUDiscard unsupportedOptionNotSpecified(176) }

pDUDiscardUnsupportedProtocolVersion OBJECT IDENTIFIER ::= { pDUDiscard unsupportedProtocolVersion(177) }

pDUDiscardUnsupportedSecurityOption OBJECT IDENTIFIER ::= { pDUDiscard unsupportedSecurityOption(178) }

pDUDiscardUnsupportedSourceRouteingOption OBJECT IDENTIFIER ::= { pDUDiscard unsupportedSourceRouteingOption(179) }

pDUDiscardUnsupportedRecordingOfRouteOption OBJECT IDENTIFIER ::= { pDUDiscard unsupportedRecordingOfRouteOption(180) }

pDUDiscardReassemblyInterference OBJECT IDENTIFIER ::= { pDUDiscard reassemblyInterference(181) }

iSO9542PDUDiscard OBJECT IDENTIFIER ::= { sseoi specificProblems(3) iSO9542PDUDiscard(2) }

-- for communication information notification

iSReachabilityChange OBJECT IDENTIFIER ::= { sseoi informationtype(4) iSReachabilityChange(1) }

eSReachabilityChange OBJECT IDENTIFIER ::= { sseoi informationtype(4) eSReachabilityChange(2) }

successfulConnectionEstablishment OBJECT IDENTIFIER ::= { sseoi informationtype(4) successfulConnectionEstablishment (3) }

-- for SNPAAddress type

sNPADTEAddress OBJECT IDENTIFIER ::= { sseoi sNPAAAddressType(5) dTEAddress(1) }

sNPAMACAddress OBJECT IDENTIFIER ::= { sseoi sNPAAAddressType(5) mACAddress(2) }

6.2 Other definitions

BidirectionalValues ::= SEQUENCE {
 incoming [0] ChoiceInteger,
 outgoing [1] ChoiceInteger }

Boolean ::= BOOLEAN

callRequestResponseTimerDefault INTEGER ::= 200

ChoiceInteger ::= CHOICE {
 [0] IMPLICIT NULL, -- The 'I don't care' value
 [1] IMPLICIT INTEGER }

clearRequestRetransmissionCountDefault INTEGER ::= 1

clearRequestResponseTimerDefault INTEGER ::= 180

cLNSId-Value GRAPHIC STRING ::= "CLNS"

CONSID-Value GRAPHIC STRING ::= "CONS"

Superseded by a more recent version

DefaultTCA ::= SEQUENCE {
 subscription [0] **BOOLEAN,**
 supportedThroughClasses [1] **SET OF INTEGER OPTIONAL,**
 selectedThroughputClasses [2] **BidirectionalValues OPTIONAL }**
dataPacketRetransmissionCountDefault **INTEGER ::= 0**
windowRotationTimerDefault **INTEGER ::= 200**
DTEAddress ::= SEQUENCE {
 numberingPlanId [0] **ENUMERATED { unknown (0), x121(1), e164(2) },**
 addressDigits [1] **OCTET STRING }**
NUMERICSTRING(FROM("0"|"1"|"2"|"3"|"4"|"5"|"6"|"7"|"8"|"9"))(SIZE(0..15))
 -- Up to 15 Digits 0..9
Direction ::= ENUMERATED {
 incoming(0),
 outgoing(1) }
DiscardReason ::= INTEGER(0..255)
EndToEndDelay ::= INTEGER(0..65535)
 -- Note that according to ISO/IEC 8208 or ITU-T Rec. X.25 a value of 65535 indicates that the delay is unknown
 -- or exceeds 65534 milliseconds.
false **BOOLEAN ::= FALSE**
False ::= BOOLEAN (FALSE)
FastSelect ::= ENUMERATED {
 notSpecified(0),
 fastSelect(1),
 fastSelectWithRestrictedResponse(2),
 noFastSelect(3) }
GraphicString ::= GRAPHICSTRING
holdingTimerMultiplierDefault **INTEGER ::= 3**
HoldingTimerMultiplierPermitted ::= INTEGER(2..63)
HoldingTimerMultiplierRequired ::= INTEGER(3)
Integer ::= INTEGER
interruptResponseTimerDefault **INTEGER ::= 180**
iSConfigurationTimerDefault **INTEGER ::= 10**
ISO9542Subsets ::= BITSTRING { configuration(0), redirection(1) }
Lifetime ::= INTEGER(1..255)
LocalDistinguishedName ::= DMI.ObjectInstance
LocalDistinguishedNames ::= DMI.GroupObjects
LogicalChannelAssignments ::= SEQUENCE {
 pVC [0] **SET OF LogicalChannelId,**
 incoming [1] **LogicalChannelRange OPTIONAL,**
 twoWay [2] **LogicalChannelRange OPTIONAL,**
 outgoing [3] **LogicalChannelRange OPTIONAL }**
LogicalChannelId ::= INTEGER (1..4095)
LogicalChannelRange ::= SEQUENCE {
 low [1] **LogicalChannelId,**
 high [2] **LogicalChannelId }**
ManualISSNPAAAddress ::= SET OF SNPAAAddress
MaxActiveCircuits ::= ChoiceInteger
NotificationDataSyntax ::= SEQUENCE {
 channel [1] **LogicalChannelId OPTIONAL,**
 packetHeader [2] **OCTET STRING,**
 diagnosticCode [3] **OCTET**
 causeCode [4] **OCTET }**
NAddress ::= OCTETSTRING(SIZE(0..20))
 -- up to 20 octets
NAddresses ::= SET OF NAddress
networkSubsystemId-Value **GRAPHIC STRING ::= "NetworkSubsystem"**

Superseded by a more recent version

```
NonStandardDPS ::= SEQUENCE {
    subscription                [0] BOOLEAN,
    supportedPacketSizes        [1] SET OF INTEGER OPTIONAL,
    selectedPacketSizes         [2] BidirectionalValues OPTIONAL }
NonStandardDWS ::= SEQUENCE {
    subscription                [0] BOOLEAN,
    supportedWindowSizes        [1] SET OF INTEGER OPTIONAL,
    selectedWindowSizes         [2] BidirectionalValues OPTIONAL }
NUI ::= OctetString(SIZE(0..255))
nullBidirectionalValues BidirectionalValues ::= { NULL, NULL }
nullChoiceInteger ChoiceInteger ::= NULL
OctetString ::= OCTETSTRING
PacketSequencing ::= INTEGER
PDUFormatErrorSyntax ::= PDUHeader
PDUHeader ::= OCTETSTRING(SIZE(1..255))
PDUOtherErrorSyntax ::= SEQUENCE {
    errorCode                   [1] INTEGER(0..255),
    header                      [2] PDUHeader }
ProtocolVersion ::= ENUMERATED {
    ISO8208V1 (0),
    ISO8208V2 (1),
    x2584 (2),
    x2588 (3) }
ReachabilityChangeSyntax ::= SEQUENCE {
    newState                    [1] ENUMERATED { down(0), up(1) },
    nAddresses                  [2] SET OF NAddress,
    sNPAAAddress                [3] SNPAAAddress OPTIONAL,
    reason                      [4] ENUMERATED
        { holdingTimerExpired(0),
          circuitDisabled(1) } OPTIONAL } -- Down only
RedirectHoldingTime ::= INTEGER(1..65535)
redirectHoldingTime-Default INTEGER ::= 600
RedirectHoldingTime-Permitted ::= INTEGER(1..65535)
RedirectReason ::= INTEGER(0..127)
registrationRequestRetransmissionCountDefault INTEGER ::= 1
registrationRequestResponseTimerDefault INTEGER ::= 300
registrationPermittedDefault BOOLEAN ::= FALSE
rejectRetransmissionCountDefault INTEGER ::= 0
rejectResponseTimerDefault INTEGER ::= 60
resetRequestRetransmissionCountDefault INTEGER ::= 1
resetRequestResponseTimerDefault INTEGER ::= 180
restartRequestRetransmissionCountDefault INTEGER ::= 1
restartRequestResponseTimerDefault INTEGER ::= 180
ROASequence ::= SEQUENCE OF NUMERICSTRING(SIZE(0..4))
    -- each numeric string limited to 4 decimal digits
    -- an empty sequence is permitted
SDUSize ::= INTEGER (0..65535)
SNPAAAddress ::= SEQUENCE {
    type                        [1] OBJECT IDENTIFIER,
    address                    [2] OCTET STRING }
suggestedESConfigurationTimerDefault INTEGER ::= 600
SupportedProtocol ::= SEQUENCE {
    protocol                   [1] OBJECT IDENTIFIER,
```


Superseded by a more recent version

```
versions [2] SET OF ProtocolVersion;
defectsRepaired [3] SET OF OBJECT IDENTIFIER OPTIONAL }
SupportedProtocols ::= SET OF SupportedProtocol
SystemType ::= ENUMERATED { eS(1), iS(2) }
SystemTypes ::= SET OF SystemType
windowStatusTransmissionTimerDefault INTEGER ::= 60
X25PLEMode ::= ENUMERATED {
    dTE(0),
    dCE(1),
    dTEasDCE(2) }
END
```

Superseded by a more recent version

7 Conformance

7.1 Conformance requirements to ISO/IEC 10733

An implementation for which conformance to this International Standard as a managed implementation is claimed shall:

- a) support the networkSubsystem MO,
- b) for each supported MO, support at least one name binding defined in this International Standard, for which the MO is the subordinate.

7.2 Protocol specific conformance requirements

7.2.1 An implementation claiming conformance to the management operation of CLNS as a managed implementation shall:

- a) conform to ISO/IEC 10733 as defined in 7.1,
- b) support the networkEntity MO, the CLNS MO, the NSAP MO and the linkage MO.

7.2.2 An implementation claiming conformance to the management operation of CONS as a managed implementation shall:

- a) conform to ISO/IEC 10733 as defined in 7.1,
- b) support the networkEntity MO, the CONS MO, the NSAP MO, the Connection MO and the linkage MO.

7.2.3 An implementation claiming conformance to the management operation of X.25 DTE as a managed implementation shall:

- a) conform to ISO/IEC 10733 as defined in 7.1,
- b) support the x25PLE-DTE MO and at least one class derived from virtualCircuit-DTE.

7.2.4 An implementation claiming conformance to the management operation of X.25-DCE as a managed implementation shall:

- a) conform to ISO/IEC 10733 as defined in 7.1,
- b) support the x25PLE-DCE MO and at least one class derived from virtualCircuit-DCE.

NOTE – Behaviour clauses defined in this standard may not always be testable. Care should be exercised when defining behaviour test suites in order not to impose additional constraints to those defined in this standard for implementations.

Superseded by a more recent version

Annex A

Allocation of Object Identifiers

(This annex forms an integral part of this Recommendation)

The following Object Identifiers have been allocated by this Recommendation: Object Identifiers which had been allocated when the equivalent of this Recommendation was at the Draft International Standard stage in ISO/IEC have not been re-allocated. If any modification, other than a change to the behaviour clause, has been made to any template which had been allocated an object identifier, the new template has been allocated a new Object Identifier and the old Object Identifier (identified thus: *obsolete (1)*) should not be re-used.

joint-iso-ccitt

ms (9)

smi (3)

part2 (2)

asn1Module (2)

(1)

network-layer (13)

management (0)

nLM (2)

standardSpecificExtensions (0)

specificProblems (3)

pDUDiscard (1)

reasonNotSpecified (0)

protocolProcedureError (1)

incorrectChecksum (2)

headerSyntaxError (4)

segmentationNeededButNotPermitted (5)

incompletePDUReceived (6)

duplicateOption (7)

destinationAddressUnreachable (128)

destinationAddressUnknown (129)

unspecifiedSourceRouteingError (144)

syntaxErrorInSourceRouteingField (145)

unknownAddressInSourceRouteingField (146)

pathNotAcceptable (147)

lifetimeExpiredWhileDataUnitInTransit (160)

lifetimeExpiredDuringReassembly (161)

unsupportedOptionNotSpecified (176)

unsupportedProtocolVersion (177)

unsupportedSecurityOption (178)

unsupportedSourceRouteingOption (179)

unsupportedRecordingOfRouteOption (180)

reassemblyInterference (181)

Superseded by a more recent version

- ISO9542PDUDiscard (2)
- informationtype (4)
 - iSReachabilityChange (1)
 - eSReachabilityChange (2)
 - successfulConnectionEstablishment (3)
- sNPAAddressType (5)
 - dTEAddress (1)
 - mACAddress (2)
- asn1Module (2)
 - (0)
- managedObjectClass (3)
 - networkSubsystem (1)
 - obsolete* (2)
 - obsolete* (3)
 - nSAP (4)
 - obsolete* (5)
 - obsolete* (6)
 - obsolete* (7)
 - obsolete* (8)
 - obsolete* (9)
 - obsolete* (10)
 - obsolete* (11)
 - obsolete* (12)
 - networkConnection (13)
 - virtualCircuit (14)
 - virtualCallIVMO (15)
 - virtualCall-DTE (16)
 - x25PLE-DTE (17)
 - virtualCircuit-DTE (18)
 - permanentVirtualCircuit-DTE (19)
 - x25PLEIVMO-DTE (20)
 - cLNS (21)
 - networkEntity (22)
 - linkage (23)
 - cONS (24)
 - x25PLE (25)
 - x25PLEIVMO (26)
 - x25PLE-DCE (27)
 - x25PLEIVMO-DCE (28)
 - virtualCircuit-DCE (29)
 - permanentVirtualCircuit-DCE (30)
 - virtualCall-DCE (31)
 - dSeriesCounts (32)
- package (4)
 - cLNSChecksum-P (1)
 - obsolete* (2)
 - obsolete* (3)
 - linkage-ISO8473-ISO8208SNDCE-P (4)
 - linkageIdleTimer-P (5)
 - linkageReserveTimer-P (6)
 - linkageInitialMinimumTimer-P (7)
 - obsolete* (8)
 - linkageCODLService-P (9)
 - obsolete* (10)
 - onlineRegistration-P (11)
 - receivingWindowRotationRecoveryProcedures-P (12)

Superseded by a more recent version

transmittingWindowRotationRecoveryProcedures-P (13)
packetRetransmissionProcedures-P (14)
obsolete (15)
obsolete (16)
linkage-ISO9542Checksum-P (17)
dTEX25PLECounters-P (18)
dTEVirtualCircuitCounters-P (19)
cLNS8473-P (20)
linkage-ISO9542ES-P (21)
linkage-ISO9542IS-P (22)
dCECommonVirtualCircuitCounters-P (23)
dCEVirtualCallFacilities-P (24)
dCEX25PLETimers-P (25)
dCEX25PLEFacilities-P (26)
parameter (5)
notificationPDUHeader (1)
obsolete (2)
obsolete (3)
obsolete (4)
obsolete (5)
obsolete (6)
notificationData (7)
obsolete (8)
obsolete (9)
obsolete (10)
obsolete (11)
reachabilityChange (12)
nameBinding (6)
networkSubsystem-system (1)
obsolete (2)
cLNS-networkEntity-Management (3)
nSAP-networkSubsystem-Automatic (4)
nSAP-networkSubsystem-Management (5)
obsolete (6)
obsolete (7)
cONS-networkEntity-Management (8)
x25PLE-networkSubsystem-Management (9)
x25PLEIVMO-networkSubsystem (10)
obsolete (11)
obsolete (12)
obsolete (13)
obsolete (14)
obsolete (15)
cLNS-networkEntity-Automatic (16)
cONS-networkEntity-Automatic (17)
x25PLE-networkSubsystem-Automatic (18)
networkConnection-cONS (19)
linkage-cLNS-Management (20)
linkage-cONS-Management (21)
linkage-cLNS-Automatic (22)
linkage-cONS-Automatic (23)
virtualCall-DTE-x25PLE-DTE (24)
virtualCallIVMO-x25PLE (25)
permanentVirtualCircuit-DTE-x25PLE-DTE (26)
networkEntity-networkSubsystem-Automatic (27)
networkEntity-networkSubsystem-Management (28)

Superseded by a more recent version

permanentVirtualCircuit-DCE-x25PLE-DCE (29)
virtualCall-DCE-x25PLE-DCE-Automatic (30)
virtualCall-DCE-x25PLE-DCE-Management (31)
dSeriesCounts-virtualCall-DCE-Automatic (32)
dSeriesCounts-virtualCall-DCE-Management (33)
attribute (7)
 obsolete (1)
 obsolete (2)
 networkEntityTitles (3)
 enableChecksum (4)
 obsolete (5)
 segmentsReceived (6)
 segmentsDiscarded (7)
 assemblingSegmentsDiscarded (8)
 errorReportsReceived (9)
 pDUDiscards (10)
 congestionDiscards (11)
 obsolete (12)
 obsolete (13)
 obsolete (14)
 obsolete (15)
 obsolete (16)
 linkageId (17)
 sN-SAP (18)
 sN-ServiceProvider (19)
 holdingTimerMultiplier (20)
 defaultESConfigTimer (21)
 activeESConfigTimer (22)
 iSReachabilityChanges (23)
 iSConfigurationTimer (24)
 suggestedESConfigurationTimer (25)
 redirectHoldingTime (26)
 eSReachabilityChanges (27)
 manualISSNPAAddress (28)
 callsPlaced (29)
 callsFailed (30)
 idleTimer (31)
 reserveTimer (32)
 initialMinimumTimer (33)
 obsolete (34)
 obsolete (35)
 x25PLEId (36)
 x25PLEIVMOld (37)
 protocolVersionSupported (38)
 localDTEAddress (39)
 obsolete (40)
 maxActiveCircuits (41)
 restartRequestResponseTimer (42)
 minimumRecallTimer (43)
 registrationRequestResponseTimer (44)
 restartRequestRetransmissionCount (45)
 registrationRequestRetransmissionCount (46)
 obsolete (47)
 logicalChannelAssignments (48)
 extendedPacketSequenceNumbering (49)
 dataPacketsSent (50)

Superseded by a more recent version

dataPacketsReceived (51)
callAttempts (52)
callsConnected (53)
providerInitiatedDisconnects (54)
callTimeouts (55)
clearTimeouts (56)
remotelyInitiatedResets (57)
dataRetransmissionTimerExpiries (58)
providerInitiatedResets (59)
resetTimeouts (60)
remotelyInitiatedRestarts (61)
restartCountsExceeded (62)
protocolErrorsDetectedLocally (63)
protocolErrorsAccusedOf (64)
callEstablishmentRetryCountsExceeded (65)
clearCountsExceeded (66)
interruptPacketsSent (67)
interruptPacketsReceived (68)
interruptTimerExpiries (69)
obsolete (70)
obsolete (71)
obsolete (72)
obsolete (73)
obsolete (74)
reverseCharging (75)
fastSelect (76)
callRequestResponseTimer (77)
resetRequestResponseTimer (78)
clearRequestResponseTimer (79)
resetRequestRetransmissionCount (80)
clearRequestRetransmissionCount (81)
interruptResponseTimer (82)
windowStatusTransmissionTimer (83)
windowRotationTimer (84)
dataPacketRetransmissionCount (85)
rejectResponseTimer (86)
rejectRetransmissionCount (87)
obsolete (88)
logicalChannel (89)
obsolete (90)
obsolete (91)
direction (92)
remoteDTEAddress (93)
obsolete (94)
obsolete (95)
throughputClasses (96)
redirectReason (97)
originallyCalledAddress (98)
callingAddressExtension (99)
calledAddressExtension (100)
invalid9542PDUs (101)
maximumLifetime (102)
defaultPacketSizes (103)
defaultWindowSizees (104)
registrationPermitted (105)
localINSAPMO (106)

Superseded by a more recent version

remoteNSAPAddress (107)
systemTypes (108)
operationalSystemType (109)
supportedProtocols (110)
operationalProtocols (111)
defaultThroughputClasses (112)
obsolete (113)
callDeflectionSubscription (114)
ISO9542OperationalSubsets (115)
virtualCircuitId (116)
virtualCallIVMOld (117)
segmentsSent (118)
flowControlParameterNegotiation (119)
x25PLEMode (120)
packetSizes (121)
obsolete (122)
obsolete (123)
windowSizes (124)
bilateralCUG (125)
bilateralCUGSelection (126)
bilateralCUGWithOutgoingAccess (127)
calledLineAddressModifiedNotification (128)
callRedirection (129)
callRedirectionDeflectionNotification (130)
chargingDirection (131)
chargingInformation (132)
clearIndication (133)
cUG (134)
cUGSelection (135)
cUGWithIncomingAccess (136)
cUGWithOutgoingAccess (137)
cUGWithOutgoingAccessSelection (138)
dBitModification (139)
dSeriesId (140)
dSeriesResetRequestIndicationPackets (141)
dSeriesSegmentsSent (142)
dSeriesSegmentsReceived (143)
defaultThroughputClassesAssignment (144)
fastSelectAcceptance (145)
huntGroup (146)
incomingCall (147)
incomingCallsBarred (148)
incomingCallBarredWithinCUG (149)
localChargingPrevention (150)
nonStandardDefaultPacketSizes (151)
nonStandardDefaultWindowSizes (152)
nUISubscription (153)
nUIOverride (154)
nUISelection (155)
oneWayLogicalChannelIncoming (156)
oneWayLogicalChannelOutgoing (157)
onlineFacilityRegistration (158)
outgoingCallsBarred (159)
outgoingCallBarredWithinCUG (160)
packetRetransmission (161)
remoteLogicalChannel (162)

Superseded by a more recent version

resetIndication (163)
restartIndication (164)
reverseChargingAcceptance (165)
rPOASelection (166)
rPOASubscription (167)
throughputClassNegotiation (168)
transitDelaySelectionAndIndication (169)
x25SegmentsSent (170)
x25SegmentsReceived (171)
attributeGroup (8)
action (9)
notification (10)

END

Superseded by a more recent version

Appendix I

Shorthand Description of Managed Objects

(This appendix does not form an integral part of this Recommendation)

The information in this appendix is intended only to give a broad outline of the Network Layer Management Specification. While the information contained herein has been derived from the normative GDMO text in the body of this Recommendation, it should be treated with caution, as there may be errors.

The following abbreviations are used to describe the property lists of attributes.

G	Get
R	Replace
RWD	Replace With Default
A	Add
RM	Remove

The following abbreviations are used for external label references

DMI:	“CCITT Rec. X.721 ISO/IEC 10165-2”
GMI:	“CCITT Rec. X.723 ISO/IEC 10165-5”

Template types with a ‘*’ suffix (for example ATTRIBUTE*) refer to template types defined in conditional packages. All inherited templates, except those inherited from 'top', are included in each Managed Object Class.

The inheritance hierarchy is illustrated in Figure I.1.

Superseded by a more recent version

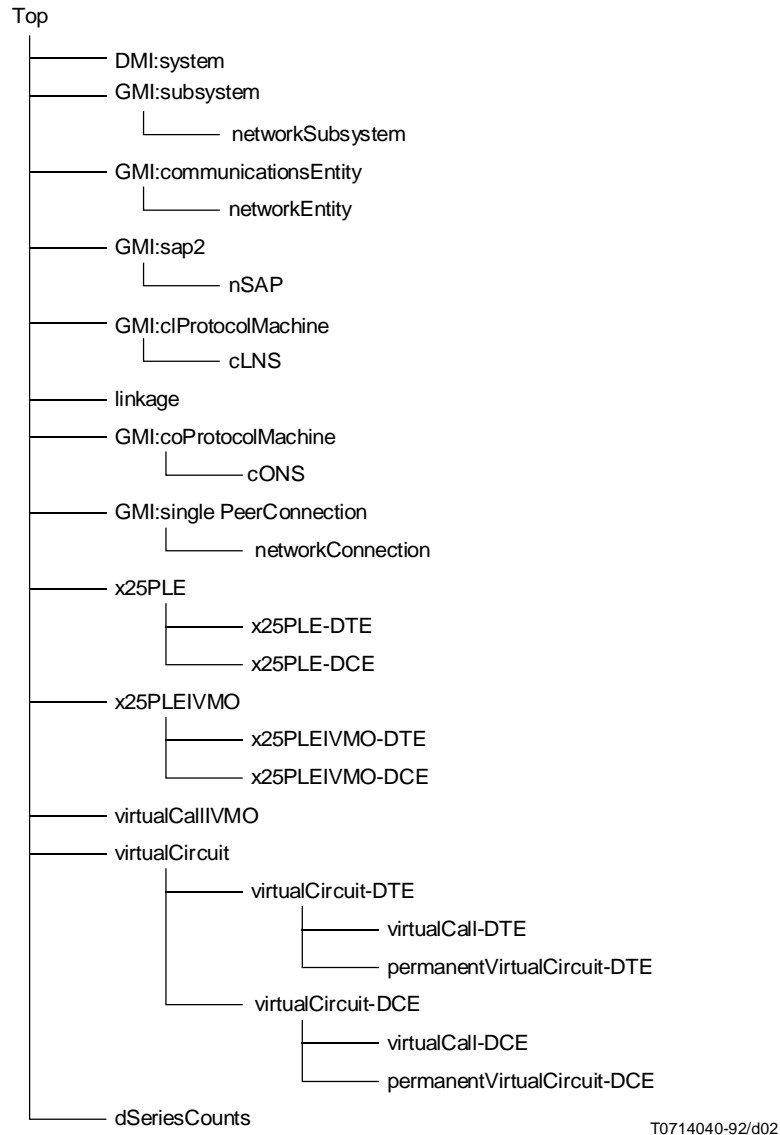


FIGURE I.1/X.283
Network Layer Inheritance Hierarchy

MANAGED OBJECT CLASS networkSubsystem DERIVED FROM (GMI:subsystem) CONTAINED IN (DMI:system)
GMI:subsystemId ATTRIBUTE (G)
END MANAGED OBJECT CLASS networkSubsystem

Superseded by a more recent version

MANAGED OBJECT CLASS networkEntity DERIVED FROM (GMI:communicationsEntity) CONTAINED IN (networkSubsystem)

DMI:objectCreation NOTIFICATION

DMI:objectDeletion NOTIFICATION

networkEntityTitles ATTRIBUTE (G, R, A, RM)

The set of Network Entity Titles

systemTypes ATTRIBUTE (G)

The set of system roles supported by this Network Entity.

END MANAGED OBJECT CLASS networkEntity

MANAGED OBJECT CLASS nSAP DERIVED FROM (GMI:sap2) CONTAINED IN (networkSubsystem)

DMI:objectCreation NOTIFICATION

DMI:objectDeletion NOTIFICATION

GMI:sap2Address ATTRIBUTE (G)

END MANAGED OBJECT CLASS nSAP

MANAGED OBJECT CLASS cLNS DERIVED FROM (GMI:clProtocolMachine) CONTAINED IN (networkEntity)

DMI:administrativeState ATTRIBUTE (G, R)

DMI:communicationsAlarm NOTIFICATION*

DMI:objectCreation NOTIFICATION

DMI:objectDeletion NOTIFICATION

DMI:octetsReceivedCounter ATTRIBUTE* (G)

DMI:octetsSentCounter ATTRIBUTE* (G)

DMI:stateChange NOTIFICATION

GMI:activate ACTION

GMI:clProtocolMachinelid ATTRIBUTE (G)

GMI:deactivate ACTION

assemblingSegmentsDiscarded ATTRIBUTE* (G)

Counter of segments discarded due to reassembly time expiry.

congestionDiscards ATTRIBUTE* (G)

Counter of PDUs discarded due to congestion.

enableChecksum ATTRIBUTE* (G, R, RWD)

When True, the generation of checksums is enabled.

errorReportsReceived ATTRIBUTE* (G)

Counter of received error reports.

maximumLifetime ATTRIBUTE* (G, R)

Maximum PDU lifetime (in half seconds).

operationalSystemType ATTRIBUTE (G)

The system role in which this instance is operating.

pDUDiscards ATTRIBUTE* (G)

Counter of PDUs discarded (except for congestion).

segmentsDiscarded ATTRIBUTE* (G)

Counter of segments discarded.

segmentsReceived ATTRIBUTE* (G)

Counter of segments received.

segmentsSent ATTRIBUTE* (G)

Counter of segments Sent.

supportedProtocols ATTRIBUTE (G)

The set of Connectionless Network protocols supported

END MANAGED OBJECT CLASS cLNS

Superseded by a more recent version

MANAGED OBJECT CLASS linkage DERIVED FROM (DMI:top) CONTAINED IN (cONS, cLNS)

DMI:administrativeState ATTRIBUTE (G, R)

DMI:communicationsAlarm NOTIFICATION*

DMI:objectCreation NOTIFICATION

DMI:objectDeletion NOTIFICATION

DMI:operationalState ATTRIBUTE (G)

DMI:stateChange NOTIFICATION

GMI:activate ACTION

GMI:communicationsInformation NOTIFICATION*

GMI:deactivate ACTION

activeESConfigTimer ATTRIBUTE* (G)

Currently active value for the ISO 9542 ES configuration timer

callsFailed ATTRIBUTE* (G)

Counter of the number of X.25 call failures

callsPlaced ATTRIBUTE* (G)

Counter of the number of X.25 VCs successfully established

defaultESConfigTimer ATTRIBUTE* (G, R, RWD)

Default value for the ISO 9542 ES configuration timer

eSReachabilityChanges ATTRIBUTE* (G)

Count of the number of changes in reachability of End Systems

enableChecksum ATTRIBUTE* (G, R, RWD)

When True, the generation of checksums is enabled.

holdingTimerMultiplier ATTRIBUTE* (G, R, RWD)

The factor to derive holding timer from configuration timer.

iSConfigurationTimer ATTRIBUTE* (G, R, RWD)

Value in seconds for the ISO 9542 IS configuration timer.

ISO9542OperationalSubsets ATTRIBUTE* (G, R)

The set of ISO 9542 subsets operational on this linkage.

iSReachabilityChanges ATTRIBUTE* (G)

Counter of the number of changes in reachability of Intermediate Systems

idleTimer ATTRIBUTE* (G, R, RWD)

Time in seconds before release of an idle call.

initialMinimumTimer ATTRIBUTE* (G, R, RWD)

Minimum time in seconds to retain call after establishment.

invalid9542PDUs ATTRIBUTE* (G)

Counter of invalid 9542 PDUs received.

linkageId ATTRIBUTE (G)

The naming attribute of the linkage MO instance

manualISSNPAAddress ATTRIBUTE* (G, R, RWD, A, RM)

The set of SNPA Addresses to which calls associated with the SND CF are to established

operationalProtocols ATTRIBUTE (G)

The set of network layer protocols supported

redirectHoldingTime ATTRIBUTE* (G, R, RWD)

The holding time (in seconds) to be specified in Redirect PDUs

reserveTimer ATTRIBUTE* (G, R, RWD)

Time in seconds to reserve resources for call re-establishment.

sN-SAP ATTRIBUTE (G)

Distinguished name of the service provider SAP MO

sN-ServiceProvider ATTRIBUTE (G)

Distinguished name of the SN service provider MO.

suggestedESConfigurationTimer ATTRIBUTE* (G, R, RWD)

Value to be used for the ISO 9542 suggested ES configuration timer

END MANAGED OBJECT CLASS linkage

Superseded by a more recent version

MANAGED OBJECT CLASS cONS DERIVED FROM (GMI:coProtocolMachine) CONTAINED IN (networkEntity)

DMI:administrativeState ATTRIBUTE (G, R)

DMI:objectCreation NOTIFICATION

DMI:objectDeletion NOTIFICATION

DMI:stateChange NOTIFICATION

GMI:activate ACTION

GMI:coProtocolMachineld ATTRIBUTE (G)

GMI:deactivate ACTION

GMI:deactivateWhenNoUsers ACTION

operationalSystemType ATTRIBUTE (G)

The system role in which this instance is operating.

END MANAGED OBJECT CLASS cONS

MANAGED OBJECT CLASS networkConnection DERIVED FROM (GMI:singlePeerConnection) CONTAINED IN (cONS)

DMI:objectCreation NOTIFICATION

DMI:objectDeletion NOTIFICATION

GMI:communicationsInformation NOTIFICATION

GMI:deactivate ACTION

localNSAPMO ATTRIBUTE (G)

Pointer to local nSAP MO.

remoteNSAPAddress ATTRIBUTE (G)

The remote NSAP Address

END MANAGED OBJECT CLASS networkConnection

Superseded by a more recent version

MANAGED OBJECT CLASS x25PLE DERIVED FROM (DMI:top) CONTAINED IN (networkSubsystem)

DMI:administrativeState ATTRIBUTE (G, R)

DMI:objectCreation NOTIFICATION

DMI:objectDeletion NOTIFICATION

DMI:operationalState ATTRIBUTE (G)

DMI:stateChange NOTIFICATION

GMI:activate ACTION

GMI:deactivate ACTION

defaultPacketSizes ATTRIBUTE (G, R, RWD)

The default value of the packet sizes.

defaultThroughputClasses ATTRIBUTE (G, R, RWD)

The default throughput class values.

defaultWindowSizes ATTRIBUTE (G, R, RWD)

The default value of the window sizes.

flowControlParameterNegotiation ATTRIBUTE (G, R, RWD)

The subscription of the flow control parameter negotiation facility

localDTEAddress ATTRIBUTE (G, R)

The full DTE address of this PLE

logicalChannelAssignments ATTRIBUTE (G, R)

Represents the logical channel assignments of this PLE,

protocolVersionSupported ATTRIBUTE (G)

The supported Recommendation | International Standard protocol version

sN-SAP ATTRIBUTE (G)

Distinguished name of the service provider SAP MO

sN-ServiceProvider ATTRIBUTE (G, R, RWD)

Distinguished name of the SN service provider MO.

throughputClassNegotiation ATTRIBUTE (G, R, RWD)

The subscription of the throughput class negotiation facility

x25PLEId ATTRIBUTE (G)

The name of this instance of x25PLE MO

x25PLEMode ATTRIBUTE (G, R)

The DCE/DTE mode in which the X.25 PLE is currently operating.

END MANAGED OBJECT CLASS x25PLE

Superseded by a more recent version

```
MANAGED OBJECT CLASS x25PLEIVMO DERIVED FROM (DMI:top) CONTAINED IN (networkSubsystem)
  DMI:objectCreation NOTIFICATION
  DMI:objectDeletion NOTIFICATION
  defaultPacketSizes ATTRIBUTE (G, R, RWD)
    The default value of the packet sizes.
  defaultThroughputClasses ATTRIBUTE (G, R, RWD)
    The default throughput class values.
  defaultWindowSizes ATTRIBUTE (G, R, RWD)
    The default value of the window sizes.
  flowControlParameterNegotiation ATTRIBUTE (G, R, RWD)
    The subscription of the flow control parameter negotiation facility
  localDTEAddress ATTRIBUTE (G, R)
    The full DTE address of this PLE
  logicalChannelAssignments ATTRIBUTE (G, R)
    Represents the logical channel assignments of this PLE,
  sN-ServiceProvider ATTRIBUTE (G, R)
    Distinguished name of the SN service provider MO.
  throughputClassNegotiation ATTRIBUTE (G, R, RWD)
    The subscription of the throughput class negotiation facility
  x25PLEIVMOId ATTRIBUTE (G)
    The name of this instance of x25PLE IVMO
  x25PLEMode ATTRIBUTE (G, R)
    The DCE/DTE mode in which the X.25 PLE is currently operating.
END MANAGED OBJECT CLASS x25PLEIVMO
```


Superseded by a more recent version

MANAGED OBJECT CLASS x25PLE-DTE DERIVED FROM (x25PLE)

DMI:administrativeState ATTRIBUTE (G, R)
DMI:communicationsAlarm NOTIFICATION
DMI:objectCreation NOTIFICATION
DMI:objectDeletion NOTIFICATION
DMI:octetsReceivedCounter ATTRIBUTE* (G)
DMI:octetsSentCounter ATTRIBUTE* (G)
DMI:operationalState ATTRIBUTE (G)
DMI:stateChange NOTIFICATION
GMI:activate ACTION
GMI:deactivate ACTION
callAttempts ATTRIBUTE (G)
Counter of the total number of calls attempted
callDeflectionSubscription ATTRIBUTE (G, R, RWD)
The subscription of the call deflection facility
callEstablishmentRetryCountsExceeded ATTRIBUTE (G)
Counter associated with the callEstablishmentRetryCountExceeded event
callRequestResponseTimer ATTRIBUTE (G, R, RWD)
Value for Timer T21 (Call Request Response Timer)
callTimeouts ATTRIBUTE* (G)
Counter of the number of times timer T21 expiry is experienced
callsConnected ATTRIBUTE* (G)
Counter of the total number of calls which have reached the open state
clearCountsExceeded ATTRIBUTE* (G)
Counter associated with the clearCountExceeded event
clearRequestResponseTimer ATTRIBUTE (G, R, RWD)
Value for Timer T23 (Clear Request Response Timer)
clearRequestRetransmissionCount ATTRIBUTE (G, R, RWD)
Value for count R23 (Clear Request Retransmission Count)
clearTimeouts ATTRIBUTE* (G)
Counter of the number of times timer T23 expiry is experienced
dataPacketRetransmissionCount ATTRIBUTE* (G, R, RWD)
Value for count R25 (Data Packet Retransmission Count)
dataPacketsReceived ATTRIBUTE* (G)
Counter of the total number of data packets received
dataPacketsSent ATTRIBUTE* (G)
Counter of the total number of data packets sent
dataRetransmissionTimerExpiries ATTRIBUTE* (G)
Counter of the number of expiries of timer T25.
defaultPacketSizes ATTRIBUTE (G, R, RWD)
The default value of the packet sizes.
defaultThroughputClasses ATTRIBUTE (G, R, RWD)
The default throughput class values.
defaultWindowSizes ATTRIBUTE (G, R, RWD)
The default value of the window sizes.
extendedPacketSequenceNumbering ATTRIBUTE (G, R, RWD)
The modulo of the packet sequence number space.
flowControlParameterNegotiation ATTRIBUTE (G, R, RWD)
The subscription of the flow control parameter negotiation facility
interruptResponseTimer ATTRIBUTE (G, R, RWD)
Value for Timer T26 (Interrupt Response Timer) in seconds
localDTEAddress ATTRIBUTE (G, R)
The full DTE address of this PLE
logicalChannelAssignments ATTRIBUTE (G, R)
Represents the logical channel assignments of this PLE,
maxActiveCircuits ATTRIBUTE (G, R, RWD)

Superseded by a more recent version

The maximum number of active circuits permitted on this PLE.
minimumRecallTimer ATTRIBUTE (G, R, RWD)
Minimum time in seconds before recall permitted.
protocolErrorsAccusedOf ATTRIBUTE (G)
Counter associated with the accusedOfProtocolError event
protocolErrorsDetectedLocally ATTRIBUTE (G)
Counter associated with the protocolErrorDetectedLocally event
protocolVersionSupported ATTRIBUTE (G)
The supported Recommendation | International Standard protocol version
providerInitiatedDisconnects ATTRIBUTE* (G)
Counter for the providerInitiatedDisconnect events
providerInitiatedResets ATTRIBUTE* (G)
Counter associated with the providerInitiatedReset event
registrationPermitted ATTRIBUTE* (G, R, RWD)
When true, the use of online facility registration is permitted.
registrationRequestResponseTimer ATTRIBUTE* (G, R, RWD)
Value for Timer T28 (Registration Request Response Timer) in seconds
registrationRequestRetransmissionCount ATTRIBUTE* (G, R, RWD)
Value for count R28 (Registration Request Retransmission Count)
rejectResponseTimer ATTRIBUTE* (G, R, RWD)
Value for Timer T27 (Reject Response Timer) in seconds
rejectRetransmissionCount ATTRIBUTE* (G, R, RWD)
Value for count R27 (Reject Retransmission Count)
remotelyInitiatedResets ATTRIBUTE* (G)
Counter associated with the remotelyInitiatedReset event
remotelyInitiatedRestarts ATTRIBUTE* (G)
Counter of the number of remotely initiated restarts.
resetRequestResponseTimer ATTRIBUTE (G, R, RWD)
Value for Timer T22 (Reset Request Response Timer) in seconds
resetRequestRetransmissionCount ATTRIBUTE (G, R, RWD)
Value for count R22 (Reset Request Retransmission Count)
resetTimeouts ATTRIBUTE* (G)
Counter of the number of timer T22 expiries experienced
restartCountsExceeded ATTRIBUTE* (G)
Counter associated with the restartCountExceeded event
restartRequestResponseTimer ATTRIBUTE (G, R, RWD)
Value for Timer T20 (Restart Request Response Timer) in seconds
restartRequestRetransmissionCount ATTRIBUTE (G, R, RWD)
Value for count R20 (Restart Request Retransmission Count)
sN-SAP ATTRIBUTE (G)
Distinguished name of the service provider SAP MO
sN-ServiceProvider ATTRIBUTE (G, R, RWD)
Distinguished name of the N service provider MO.
throughputClassNegotiation ATTRIBUTE (G, R, RWD)
The subscription of the throughput class negotiation facility
windowRotationTimer ATTRIBUTE* (G, R, RWD)
Default for Timer T25 (Window Rotation Timer) in seconds
windowStatusTransmissionTimer ATTRIBUTE* (G, R, RWD)
Value for Timer T24 (Window Status Transmission Timer) in seconds
x25PLEId ATTRIBUTE (G)
The name of this instance of x25PLE MO
x25PLEMode ATTRIBUTE (G, R)
The DCE/DTE mode in which the X.25 PLE is currently operating.
END MANAGED OBJECT CLASS x25PLE-DTE

Superseded by a more recent version

MANAGED OBJECT CLASS x25PLE-DCE DERIVED FROM (x25PLE)

DMI:administrativeState ATTRIBUTE (G, R)

DMI:objectCreation NOTIFICATION

DMI:objectDeletion NOTIFICATION

DMI:octetsReceivedCounter ATTRIBUTE* (G)

DMI:octetsSentCounter ATTRIBUTE* (G)

DMI:operationalState ATTRIBUTE (G)

DMI:stateChange NOTIFICATION

GMI:activate ACTION

GMI:deactivate ACTION

bilateralCUG ATTRIBUTE* (G, R, RWD)

The subscription of the bilateral closed user group facility

bilateralCUGWithOutgoingAccess ATTRIBUTE* (G, R, RWD)

The subscription of the bilateral CUG with outgoing access facility

cUG ATTRIBUTE (G, R, RWD)

The subscription of the closed user group facility

cUGWithIncomingAccess ATTRIBUTE* (G, R, RWD)

The subscription of the closed user group with incoming access facility

cUGWithOutgoingAccess ATTRIBUTE* (G, R, RWD)

The subscription of the CUG with outgoing access facility

callAttempts ATTRIBUTE (G)

Counter of the total number of calls attempted

callDeflectionSubscription ATTRIBUTE* (G, R, RWD)

The subscription of the call deflection facility

callRedirection ATTRIBUTE* (G, R, RWD)

The subscription of the call redirection facility

callsConnected ATTRIBUTE (G)

Counter of the total number of calls which have reached the open state

chargingInformation ATTRIBUTE* (G, R, RWD)

The subscription of the charging information facility

clearIndication ATTRIBUTE* (G, R)

Value for the Clear Indication, T13 timer, in seconds.

dBitModification ATTRIBUTE* (G, R, RWD)

The subscription of the D bit modification facility

dataPacketsReceived ATTRIBUTE* (G)

Counter of the total number of data packets received

dataPacketsSent ATTRIBUTE* (G)

Counter of the total number of data packets sent

defaultPacketSizes ATTRIBUTE (G, R, RWD)

The default value of the packet sizes.

defaultThroughputClasses ATTRIBUTE (G, R, RWD)

The default throughput class values.

defaultThroughputClassesAssignment ATTRIBUTE* (G, R, RWD)

The subscription of the default throughput classes assignment facility

defaultWindowSizes ATTRIBUTE (G, R, RWD)

The default value of the window sizes.

extendedPacketSequenceNumbering ATTRIBUTE* (G, R, RWD)

The modulo of the packet sequence number space.

fastSelectAcceptance ATTRIBUTE (G, R, RWD)

The subscription of the fast select acceptance

flowControlParameterNegotiation ATTRIBUTE (G, R, RWD)

The subscription of the flow control parameter negotiation facility

huntGroup ATTRIBUTE* (G, R, RWD)

The subscription of the hunt group facility

incomingCall ATTRIBUTE* (G, R)

Value for the Incoming Call, T11 timer, in seconds.

Superseded by a more recent version

incomingCallBarredWithinCUG ATTRIBUTE* (G, R, RWD)
The subscription of the incoming call barred within a CUG facility

incomingCallsBarred ATTRIBUTE (G, R, RWD)
The subscription of the incoming calls barred facility

interruptPacketsReceived ATTRIBUTE* (G)
Counter of the number of interrupt packets received

interruptPacketsSent ATTRIBUTE* (G)
Counter of the number of interrupt packets sent

interruptTimerExpiries ATTRIBUTE* (G)
Counter of the number of expiries of timer T26

localChargingPrevention ATTRIBUTE* (G, R, RWD)
The subscription of the local charging prevention facility

localDTEAddress ATTRIBUTE (G, R)
The full DTE address of this PLE

logicalChannelAssignments ATTRIBUTE (G, R)
Represents the logical channel assignments of this PLE,

nUIOverride ATTRIBUTE* (G, R, RWD)
The subscription of the NUI override facility

nUISubscription ATTRIBUTE* (G, R, RWD)
The subscription of the NUI subscription facility

nonStandardDefaultPacketSizes ATTRIBUTE* (G, R, RWD)
The subscription of the non standard default packet sizes facility

nonStandardDefaultWindowSizes ATTRIBUTE* (G, R, RWD)
The subscription of the non standard default window sizes facility

oneWayLogicalChannelIncoming ATTRIBUTE* (G, R, RWD)
The subscription of the one way logical channel incoming facility

oneWayLogicalChannelOutgoing ATTRIBUTE (G, R, RWD)
The subscription of the one way logical channel outgoing facility

onlineFacilityRegistration ATTRIBUTE* (G, R, RWD)
The subscription of the on-line facility registration facility

outgoingCallBarredWithinCUG ATTRIBUTE* (G, R, RWD)
The subscription of the outgoing call barred with a CUG facility

outgoingCallsBarred ATTRIBUTE (G, R, RWD)
The subscription of the outgoing calls barred facility

packetRetransmission ATTRIBUTE* (G, R, RWD)
The subscription of the packet retransmissions facility

protocolVersionSupported ATTRIBUTE (G)
The supported Recommendation | International Standard protocol version

providerInitiatedDisconnects ATTRIBUTE* (G)
Counter for the providerInitiatedDisconnect events

providerInitiatedResets ATTRIBUTE* (G)
Counter associated with the providerInitiatedReset event

rPOASubscription ATTRIBUTE* (G, R, RWD)
The subscription of the RPOA Subscription facility

remotelyInitiatedResets ATTRIBUTE* (G)
Counter associated with the remotelyInitiatedReset event

remotelyInitiatedRestarts ATTRIBUTE* (G)
Counter of the number of remotely initiated restarts.

resetIndication ATTRIBUTE* (G, R)
Value for the Reset Indication, T12 timer, in seconds.

resetTimeouts ATTRIBUTE* (G)
Counter of the number of timer T22 expiries experienced

restartIndication ATTRIBUTE* (G, R)
Value for the Restart Indication, T10 timer, in seconds.

reverseChargingAcceptance ATTRIBUTE* (G, R, RWD)
The subscription of the reverse charging acceptance facility

Superseded by a more recent version

sN-SAP ATTRIBUTE (G)

Distinguished name of the service provider SAP MO

sN-ServiceProvider ATTRIBUTE (G, R, RWD)

Distinguished name of the SN service provider MO.

throughputClassNegotiation ATTRIBUTE (G, R, RWD)

The subscription of the throughput class negotiation facility

x25PLEId ATTRIBUTE (G)

The name of this instance of x25PLE MO

x25PLEMode ATTRIBUTE (G, R)

The DCE/DTE mode in which the X.25 PLE is currently operating.

x25SegmentsReceived ATTRIBUTE* (G)

Value for count of X.25 Segments Received.

x25SegmentsSent ATTRIBUTE* (G)

Value for count of X.25 Segments Sent.

END MANAGED OBJECT CLASS x25PLE-DCE

Superseded by a more recent version

MANAGED OBJECT CLASS x25PLEIVMO-DTE DERIVED FROM (x25PLEIVMO)

DMI:objectCreation NOTIFICATION

DMI:objectDeletion NOTIFICATION

callDeflectionSubscription ATTRIBUTE (G, R, RWD)

The subscription of the call deflection facility

callRequestResponseTimer ATTRIBUTE (G, R, RWD)

Value for Timer T21 (Call Request Response Timer)

clearRequestResponseTimer ATTRIBUTE (G, R, RWD)

Value for Timer T23 (Clear Request Response Timer)

clearRequestRetransmissionCount ATTRIBUTE (G, R, RWD)

Value for count R23 (Clear Request Retransmission Count)

dataPacketRetransmissionCount ATTRIBUTE* (G, R, RWD)

Value for count R25 (Data Packet Retransmission Count)

defaultPacketSizes ATTRIBUTE (G, R, RWD)

The default value of the packet sizes.

defaultThroughputClasses ATTRIBUTE (G, R, RWD)

The default throughput class values.

defaultWindowSizes ATTRIBUTE (G, R, RWD)

The default value of the window sizes.

extendedPacketSequenceNumbering ATTRIBUTE (G, R, RWD)

The modulo of the packet sequence number space.

flowControlParameterNegotiation ATTRIBUTE (G, R, RWD)

The subscription of the flow control parameter negotiation facility

interruptResponseTimer ATTRIBUTE (G, R, RWD)

Value for Timer T26 (Interrupt Response Timer) in seconds

localDTEAddress ATTRIBUTE (G, R)

The full DTE address of this PLE

logicalChannelAssignments ATTRIBUTE (G, R)

Represents the logical channel assignments of this PLE,

maxActiveCircuits ATTRIBUTE (G, R, RWD)

The maximum number of active circuits permitted on this PLE.

minimumRecallTimer ATTRIBUTE (G, R, RWD)

Minimum time in seconds before recall permitted.

registrationPermitted ATTRIBUTE* (G, R, RWD)

When true, the use of online facility registration is permitted.

registrationRequestResponseTimer ATTRIBUTE* (G, R, RWD)

Value for Timer T28 (Registration Request Response Timer) in seconds

registrationRequestRetransmissionCount ATTRIBUTE* (G, R, RWD)

Value for count R28 (Registration Request Retransmission Count)

rejectResponseTimer ATTRIBUTE* (G, R, RWD)

Value for Timer T27 (Reject Response Timer) in seconds

rejectRetransmissionCount ATTRIBUTE* (G, R, RWD)

Value for count R27 (Reject Retransmission Count)

resetRequestResponseTimer ATTRIBUTE (G, R, RWD)

Value for Timer T22 (Reset Request Response Timer) in seconds

resetRequestRetransmissionCount ATTRIBUTE (G, R, RWD)

Value for count R22 (Reset Request Retransmission Count)

restartRequestResponseTimer ATTRIBUTE (G, R, RWD)

Value for Timer T20 (Restart Request Response Timer) in seconds

restartRequestRetransmissionCount ATTRIBUTE (G, R, RWD)

Value for count R20 (Restart Request Retransmission Count)

sN-ServiceProvider ATTRIBUTE (G, R)

Distinguished name of the SN service provider MO.

Superseded by a more recent version

throughputClassNegotiation ATTRIBUTE (G, R, RWD)

The subscription of the throughput class negotiation facility

windowRotationTimer ATTRIBUTE* (G, R, RWD)

Default for Timer T25 (Window Rotation Timer) in seconds

windowStatusTransmissionTimer ATTRIBUTE* (G, R, RWD)

Value for Timer T24 (Window Status Transmission Timer) in seconds

x25PLEIVMOld ATTRIBUTE (G)

The name of this instance of x25PLE IVMO

x25PLEMode ATTRIBUTE (G, R)

The DCE/DTE mode in which the X.25 PLE is currently operating.

END MANAGED OBJECT CLASS x25PLEIVMO-DTE

MANAGED OBJECT CLASS x25PLEIVMO-DCE DERIVED FROM (x25PLEIVMO)

DMI:objectCreation NOTIFICATION

DMI:objectDeletion NOTIFICATION

defaultPacketSizes ATTRIBUTE (G, R, RWD)

The default value of the packet sizes.

defaultThroughputClasses ATTRIBUTE (G, R, RWD)

The default throughput class values.

defaultWindowSizes ATTRIBUTE (G, R, RWD)

The default value of the window sizes.

flowControlParameterNegotiation ATTRIBUTE (G, R, RWD)

The subscription of the flow control parameter negotiation facility

localDTEAddress ATTRIBUTE (G, R)

The full DTE address of this PLE

logicalChannelAssignments ATTRIBUTE (G, R)

Represents the logical channel assignments of this PLE,

sN-ServiceProvider ATTRIBUTE (G, R)

Distinguished name of the SN service provider MO.

throughputClassNegotiation ATTRIBUTE (G, R, RWD)

The subscription of the throughput class negotiation facility

x25PLEIVMOld ATTRIBUTE (G)

The name of this instance of x25PLE IVMO

x25PLEMode ATTRIBUTE (G, R)

The DCE/DTE mode in which the X.25 PLE is currently operating.

END MANAGED OBJECT CLASS x25PLEIVMO-DCE

Superseded by a more recent version

```
MANAGED OBJECT CLASS virtualCircuit DERIVED FROM (DMI:top)
  DMI:objectCreation NOTIFICATION
  DMI:objectDeletion NOTIFICATION
  logicalChannel ATTRIBUTE (G)
    The actual Logical Channel ID used for the call
  packetSizes ATTRIBUTE (G)
    The packet sizes for this VC.
  throughputClasses ATTRIBUTE (G)
    The throughput classes in use or to be used.
  virtualCircuitId ATTRIBUTE (G)
    The name of this instance of virtualCircuit MO or subclass
  windowSizes ATTRIBUTE (G)
    The actual window sizes in use for this VC
END MANAGED OBJECT CLASS virtualCircuit

MANAGED OBJECT CLASS virtualCircuit-DTE DERIVED FROM (virtualCircuit)
  DMI:objectCreation NOTIFICATION
  DMI:objectDeletion NOTIFICATION
  DMI:octetsReceivedCounter ATTRIBUTE* (G)
  DMI:octetsSentCounter ATTRIBUTE* (G)
  dataPacketsReceived ATTRIBUTE* (G)
    Counter of the total number of data packets received
  dataPacketsSent ATTRIBUTE* (G)
    Counter of the total number of data packets sent
  dataRetransmissionTimerExpiries ATTRIBUTE* (G)
    Counter of the number of expiries of timer T25.
  interruptPacketsReceived ATTRIBUTE* (G)
    Counter of the number of interrupt packets received
  interruptPacketsSent ATTRIBUTE* (G)
    Counter of the number of interrupt packets sent
  interruptTimerExpiries ATTRIBUTE* (G)
    Counter of the number of expiries of timer T26
  logicalChannel ATTRIBUTE (G)
    The actual Logical Channel ID used for the call
  packetSizes ATTRIBUTE (G)
    The packet sizes for this VC.
  providerInitiatedResets ATTRIBUTE* (G)
    Counter associated with the providerInitiatedReset event
  remotelyInitiatedResets ATTRIBUTE* (G)
    Counter associated with the remotelyInitiatedReset event
  resetTimeouts ATTRIBUTE* (G)
    Counter of the number of timer T22 expiries experienced
  throughputClasses ATTRIBUTE (G)
    The throughput classes in use or to be used.
  virtualCircuitId ATTRIBUTE (G)
    The name of this instance of virtualCircuit MO or subclass
  windowSizes ATTRIBUTE (G)
    The actual window sizes in use for this VC
END MANAGED OBJECT CLASS virtualCircuit-DTE
```


Superseded by a more recent version

MANAGED OBJECT CLASS virtualCircuit-DCE DERIVED FROM (virtualCircuit)

DMI:objectCreation NOTIFICATION

DMI:objectDeletion NOTIFICATION

DMI:octetsReceivedCounter ATTRIBUTE* (G)

DMI:octetsSentCounter ATTRIBUTE* (G)

dataPacketsReceived ATTRIBUTE* (G)

Counter of the total number of data packets received

dataPacketsSent ATTRIBUTE* (G)

Counter of the total number of data packets sent

interruptPacketsReceived ATTRIBUTE* (G)

Counter of the number of interrupt packets received

interruptPacketsSent ATTRIBUTE* (G)

Counter of the number of interrupt packets sent

interruptTimerExpiries ATTRIBUTE* (G)

Counter of the number of expiries of timer T26

logicalChannel ATTRIBUTE (G)

The actual Logical Channel ID used for the call

packetSizes ATTRIBUTE (G)

The packet sizes for this VC.

providerInitiatedDisconnects ATTRIBUTE* (G)

Counter for the providerInitiatedDisconnect events

providerInitiatedResets ATTRIBUTE* (G)

Counter associated with the providerInitiatedReset event

remotelyInitiatedResets ATTRIBUTE* (G)

Counter associated with the remotelyInitiatedReset event

remotelyInitiatedRestarts ATTRIBUTE* (G)

Counter of the number of remotely initiated restarts.

resetTimeouts ATTRIBUTE* (G)

Counter of the number of timer T22 expiries experienced

throughputClasses ATTRIBUTE (G)

The throughput classes in use or to be used.

virtualCircuitId ATTRIBUTE (G)

The name of this instance of virtualCircuit MO or subclass

windowSizes ATTRIBUTE (G)

The actual window sizes in use for this VC

x25SegmentsReceived ATTRIBUTE* (G)

Value for count of X.25 Segments Received.

x25SegmentsSent ATTRIBUTE* (G)

Value for count of X.25 Segments Sent.

END MANAGED OBJECT CLASS virtualCircuit-DCE

Superseded by a more recent version

MANAGED OBJECT CLASS permanentVirtualCircuit-DTE DERIVED FROM (virtualCircuit-DTE) CONTAINED IN (x25PLE-DTE)

DMI:objectCreation NOTIFICATION

DMI:objectDeletion NOTIFICATION

DMI:octetsReceivedCounter ATTRIBUTE* (G)

DMI:octetsSentCounter ATTRIBUTE* (G)

dataPacketsReceived ATTRIBUTE* (G)

Counter of the total number of data packets received

dataPacketsSent ATTRIBUTE* (G)

Counter of the total number of data packets sent

dataRetransmissionTimerExpiries ATTRIBUTE* (G)

Counter of the number of expiries of timer T25.

interruptPacketsReceived ATTRIBUTE* (G)

Counter of the number of interrupt packets received

interruptPacketsSent ATTRIBUTE* (G)

Counter of the number of interrupt packets sent

interruptTimerExpiries ATTRIBUTE (G)

Counter of the number of expiries of timer T26

logicalChannel ATTRIBUTE (G)

The actual Logical Channel ID used for the call

packetSizes ATTRIBUTE (G)

The packet sizes for this VC.

providerInitiatedResets ATTRIBUTE* (G)

Counter associated with the providerInitiatedReset event

remotelyInitiatedResets ATTRIBUTE* (G)

Counter associated with the remotelyInitiatedReset event

resetTimeouts ATTRIBUTE (G)

Counter of the number of timer T22 expiries experienced

throughputClasses ATTRIBUTE (G)

The throughput classes in use or to be used.

virtualCircuitId ATTRIBUTE (G)

The name of this instance of virtualCircuit MO or subclass

windowSizes ATTRIBUTE (G)

The actual window sizes in use for this VC

END MANAGED OBJECT CLASS permanentVirtualCircuit-DTE

Superseded by a more recent version

MANAGED OBJECT CLASS permanentVirtualCircuit-DCE DERIVED FROM (virtualCircuit-DCE) CONTAINED IN (x25PLE-DCE)

DMI:objectCreation NOTIFICATION
DMI:objectDeletion NOTIFICATION
DMI:octetsReceivedCounter ATTRIBUTE* (G)
DMI:octetsSentCounter ATTRIBUTE* (G)
DMI:operationalState ATTRIBUTE (G)
DMI:stateChange NOTIFICATION
chargingDirection ATTRIBUTE (G)
Indicates the use of the charging direction facility
dataPacketsReceived ATTRIBUTE* (G)
Counter of the total number of data packets received
dataPacketsSent ATTRIBUTE* (G)
Counter of the total number of data packets sent
interruptPacketsReceived ATTRIBUTE* (G)
Counter of the number of interrupt packets received
interruptPacketsSent ATTRIBUTE* (G)
Counter of the number of interrupt packets sent
interruptTimerExpiries ATTRIBUTE (G)
Counter of the number of expiries of timer T26
logicalChannel ATTRIBUTE (G)
The actual Logical Channel ID used for the call
packetSizes ATTRIBUTE (G)
The packet sizes for this VC.
providerInitiatedDisconnects ATTRIBUTE* (G)
Counter for the providerInitiatedDisconnect events
providerInitiatedResets ATTRIBUTE* (G)
Counter associated with the providerInitiatedReset event
remoteDTEAddress ATTRIBUTE (G)
The DTE Address of the remote DTE.
remoteLogicalChannel ATTRIBUTE (G)
The Remote Logical Channel ID for the Permanent Virtual Circuit.
remotelyInitiatedResets ATTRIBUTE* (G)
Counter associated with the remotelyInitiatedReset event
remotelyInitiatedRestarts ATTRIBUTE* (G)
Counter of the number of remotely initiated restarts.
resetTimeouts ATTRIBUTE (G)
Counter of the number of timer T22 expiries experienced
throughputClasses ATTRIBUTE (G)
The throughput classes in use or to be used.
virtualCircuitId ATTRIBUTE (G)
The name of this instance of virtualCircuit MO or subclass
windowSizes ATTRIBUTE (G)
The actual window sizes in use for this VC
x25SegmentsReceived ATTRIBUTE* (G)
Value for count of X.25 Segments Received.
x25SegmentsSent ATTRIBUTE* (G)
Value for count of X.25 Segments Sent.

END MANAGED OBJECT CLASS permanentVirtualCircuit-DCE

Superseded by a more recent version

MANAGED OBJECT CLASS virtualCallIVMO DERIVED FROM (DMI:top) CONTAINED IN (x25PLE)
DMI:objectCreation NOTIFICATION
DMI:objectDeletion NOTIFICATION
fastSelect ATTRIBUTE (G, R, RWD)
Type of fast select used or to be used for call.
packetSizes ATTRIBUTE (G, R, RWD)
The packet sizes for this VC.
reverseCharging ATTRIBUTE (G, R, RWD)
Use of reverse charging.
throughputClasses ATTRIBUTE (G, R, RWD)
The throughput classes in use or to be used.
virtualCallIVMOId ATTRIBUTE (G)
The name of this instance of virtualCallIVMO
windowSizes ATTRIBUTE (G, R, RWD)
The actual window sizes in use for this VC
END MANAGED OBJECT CLASS virtualCallIVMO

Superseded by a more recent version

MANAGED OBJECT CLASS virtualCall-DTE DERIVED FROM (virtualCircuit-DTE) CONTAINED IN (x25PLE-DTE)

DMI:objectCreation NOTIFICATION

DMI:objectDeletion NOTIFICATION

DMI:octetsReceivedCounter ATTRIBUTE* (G)

DMI:octetsSentCounter ATTRIBUTE* (G)

GMI:communicationsInformation NOTIFICATION

GMI:deactivate ACTION

calledAddressExtension ATTRIBUTE (G)
The contents of the called address extension field.

callingAddressExtension ATTRIBUTE (G)
The contents of the calling address extension field.

dataPacketsReceived ATTRIBUTE* (G)
Counter of the total number of data packets received

dataPacketsSent ATTRIBUTE* (G)
Counter of the total number of data packets sent

dataRetransmissionTimerExpiries ATTRIBUTE* (G)
Counter of the number of expiries of timer T25.

direction ATTRIBUTE (G)
The direction (incoming or outgoing) of the call

fastSelect ATTRIBUTE (G)
Type of fast select used or to be used for call.

interruptPacketsReceived ATTRIBUTE* (G)
Counter of the number of interrupt packets received

interruptPacketsSent ATTRIBUTE* (G)
Counter of the number of interrupt packets sent

interruptTimerExpiries ATTRIBUTE* (G)
Counter of the number of expiries of timer T26

logicalChannel ATTRIBUTE (G)
The actual Logical Channel ID used for the call

originallyCalledAddress ATTRIBUTE (G)
The originally called address

packetSizes ATTRIBUTE (G)
The packet sizes for this VC.

providerInitiatedResets ATTRIBUTE* (G)
Counter associated with the providerInitiatedReset event

redirectReason ATTRIBUTE (G)
The reason why the call has been redirected.

remoteDTEAddress ATTRIBUTE (G)
The DTE Address of the remote DTE.

remotelyInitiatedResets ATTRIBUTE* (G)
Counter associated with the remotelyInitiatedReset event

resetTimeouts ATTRIBUTE* (G)
Counter of the number of timer T22 expiries experienced

reverseCharging ATTRIBUTE (G)
Use of reverse charging.

throughputClasses ATTRIBUTE (G)
The throughput classes in use or to be used.

virtualCircuitId ATTRIBUTE (G)
The name of this instance of virtualCircuit MO or subclass

windowSizes ATTRIBUTE (G)
The actual window sizes in use for this VC

END MANAGED OBJECT CLASS virtualCall-DTE

Superseded by a more recent version

MANAGED OBJECT CLASS virtualCall-DCE DERIVED FROM (virtualCircuit-DCE) CONTAINED IN (x25PLE-DCE)

DMI:objectCreation NOTIFICATION

DMI:objectDeletion NOTIFICATION

DMI:octetsReceivedCounter ATTRIBUTE* (G)

DMI:octetsSentCounter ATTRIBUTE* (G)

GMI:communicationsInformation NOTIFICATION

GMI:deactivate ACTION

bilateralCUGSelection ATTRIBUTE* (G)
Indicates the use of the bilateral closed user group selection facility

cUGSelection ATTRIBUTE (G)
Indicates the use of the closed user group selection facility

cUGWithOutgoingAccessSelection ATTRIBUTE* (G)
Indicates the use of the Closed User Group With Outgoing Access Selection facility

callRedirectionDeflectionNotification ATTRIBUTE* (G)
Indicates the use of the call redirection deflection notification facility

calledLineAddressModifiedNotification ATTRIBUTE* (G)
Indicates the use of the called line address modified notification facility

chargingDirection ATTRIBUTE (G)
Indicates the use of the charging direction facility

dataPacketsReceived ATTRIBUTE* (G)
Counter of the total number of data packets received

dataPacketsSent ATTRIBUTE* (G)
Counter of the total number of data packets sent

direction ATTRIBUTE (G)
The direction (incoming or outgoing) of the call

fastSelect ATTRIBUTE (G)
Type of fast select used or to be used for call.

interruptPacketsReceived ATTRIBUTE* (G)
Counter of the number of interrupt packets received

interruptPacketsSent ATTRIBUTE* (G)
Counter of the number of interrupt packets sent

interruptTimerExpiries ATTRIBUTE* (G)
Counter of the number of expiries of timer T26

logicalChannel ATTRIBUTE (G)
The actual Logical Channel ID used for the call

nUISelection ATTRIBUTE* (G)
Indicates the use of the network user identification selection facility

packetSizes ATTRIBUTE (G)
The packet sizes for this VC.

providerInitiatedDisconnects ATTRIBUTE* (G)
Counter for the providerInitiatedDisconnect events

providerInitiatedResets ATTRIBUTE* (G)
Counter associated with the providerInitiatedReset event

rOASelection ATTRIBUTE* (G)
Indicates the use of the registered operating agency selection

remoteDTEAddress ATTRIBUTE (G)
The DTE Address of the remote DTE.

remotelyInitiatedResets ATTRIBUTE* (G)
Counter associated with the remotelyInitiatedReset event

remotelyInitiatedRestarts ATTRIBUTE* (G)
Counter of the number of remotely initiated restarts.

resetTimeouts ATTRIBUTE* (G)
Counter of the number of timer T22 expiries experienced

reverseCharging ATTRIBUTE* (G)
Use of reverse charging.

throughputClasses ATTRIBUTE (G)

Superseded by a more recent version

The throughput classes in use or to be used.
transitDelaySelectionAndIndication ATTRIBUTE (G)
Indicates the use of the transit delay selection and
virtualCircuitId ATTRIBUTE (G)

The name of this instance of virtualCircuit MO or subclass
windowSizes ATTRIBUTE (G)

The actual window sizes in use for this VC
x25SegmentsReceived ATTRIBUTE* (G)

Value for count of X.25 Segments Received.
x25SegmentsSent ATTRIBUTE* (G)

Value for count of X.25 Segments Sent.

END MANAGED OBJECT CLASS virtualCall-DCE

MANAGED OBJECT CLASS dSeriesCounts DERIVED FROM (DMI:top) CONTAINED IN (virtualCall-DCE)

DMI:objectCreation NOTIFICATION

DMI:objectDeletion NOTIFICATION

dSeriesId ATTRIBUTE (G)

The name of this instance of the dSeriesCounts MO.

dSeriesResetRequestIndicationPackets ATTRIBUTE (G)

Value for count of Reset Request or Indication Packets

dSeriesSegmentsReceived ATTRIBUTE (G)

Value for count of Segments Received, in 64 octets,

dSeriesSegmentsSent ATTRIBUTE (G)

Value for count of Segments Sent, in 64 octets,

END MANAGED OBJECT CLASS dSeriesCounts

Superseded by a more recent version

Appendix II

Examples of the use of Relationship Attributes

(This appendix does not form an integrated part of this Recommendation)

This appendix provides examples of the use of relationship attributes, both within the network layer and also between the network layer and its adjoining layers. These examples are not intended to be exhaustive. Relationships for other protocol combinations may be constructed in a similar manner, and a particular implementation may be capable of supporting multiple protocols simultaneously. For example, transport connections over CONS at the same time as transport connections over CLNS. Such possibilities have only been omitted for reasons of clarity.

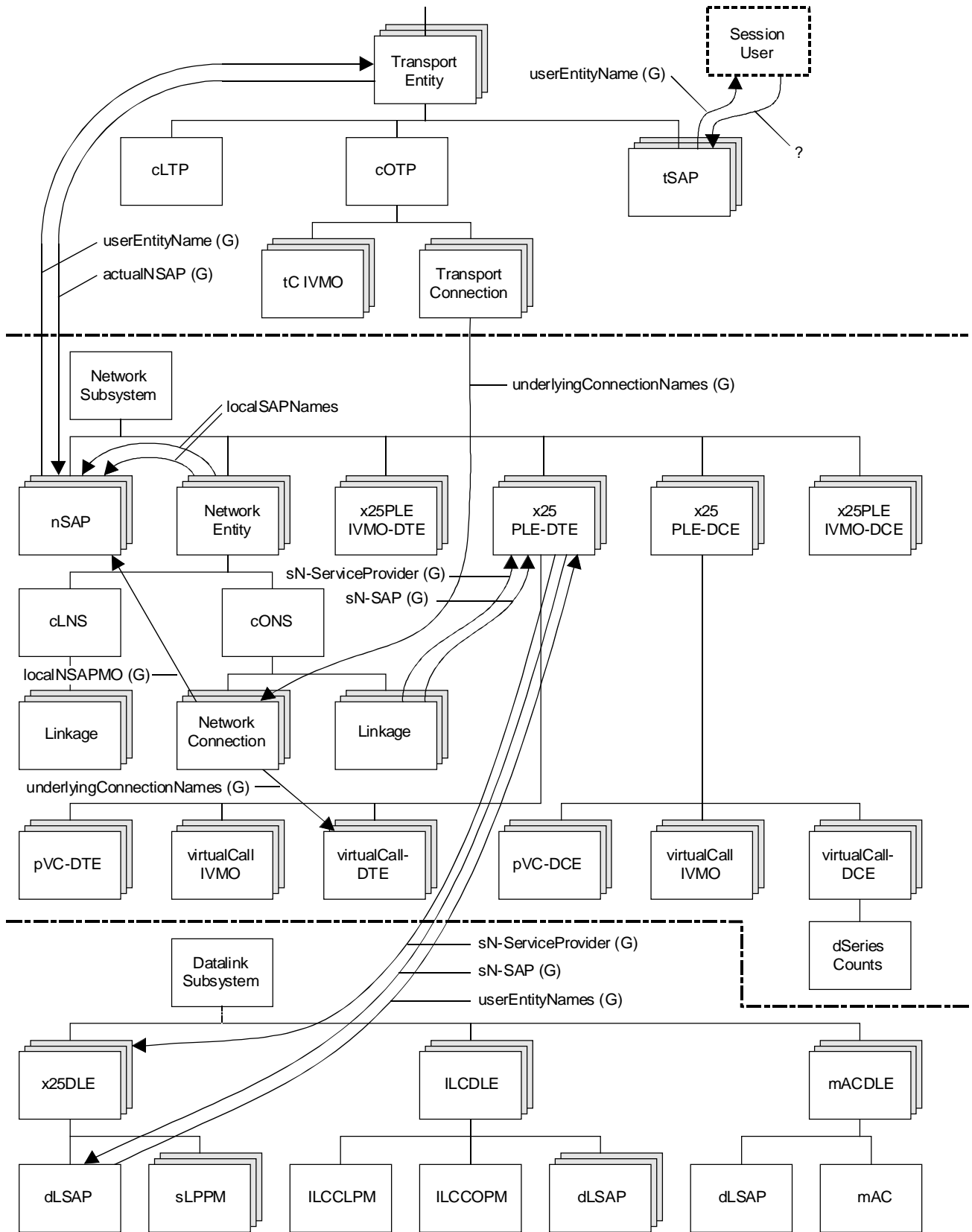
In order to illustrate the use of cross layer relationships it has been necessary to include diagrams which represent the Transport and Data Link Layer managed objects in the Figures II.1 to II.3. However, these are for illustrative purposes only, and the relevant layer management Recommendations should be consulted for accurate details of these managed objects.

Note that some relationships are implied by containment, and therefore no explicit relationship attributes are required. For example, there is no relationship between a VirtualCall MO and an underlying SLP Connection MO. This relationship can be deduced from the sN-ServiceProvider attribute of the parent X.25 PLE MO. Another example is the relationship between the TSAP MO and its parent Transport Entity MO.

The examples are as follows.

- Figure II.1 – COTP over CONS over X.25.
- Figure II.2 – COTP over CLNS over X.25. Note that when operating over the CLNS, the Transport Connection underlyingConnectionNames attribute has a value of the empty set. Note also that when a linkage is operating over an ‘SNPA’ MO within the network layer, as opposed to operating directly over the datalink layer, both the sN-ServiceProvider and sN-SAP linkage relationship attributes point to the same MO within the network layer.
- Figure II.3 – COTP over CLNS over CSMA/CD

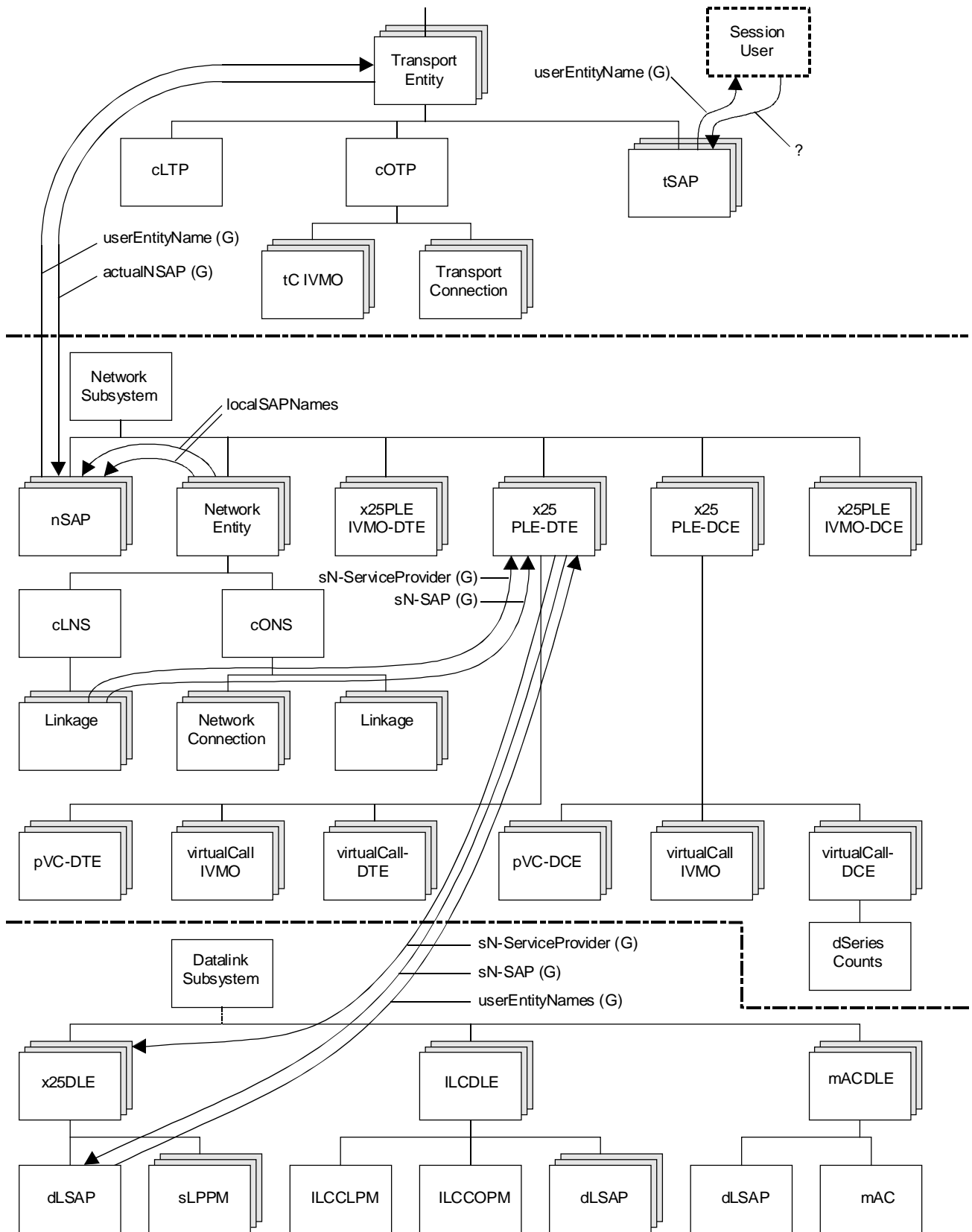
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T0714050-92/d03

FIGURE II.1/X.283
COTP over CONS over X.25

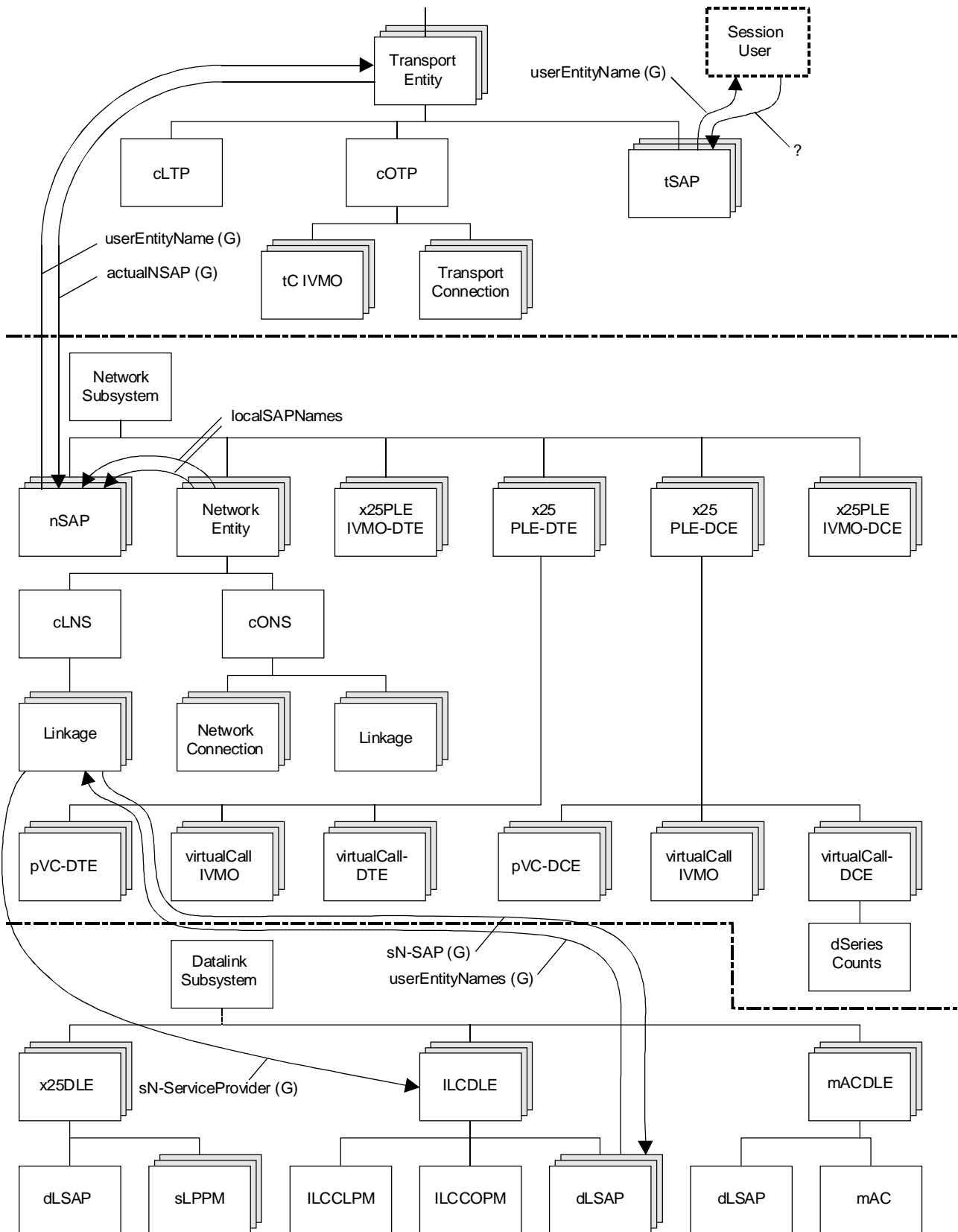
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FIGURE II.2/X.283
COTP over CLNS over X.25

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T0714070-92/d05

FIGURE II.3/X.283
COTP over CLNS over CSMA/CD

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