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SERIES Q: SWITCHING AND SIGNALLING

Specifications of Signalling System No. 7 – Signalling
System No. 7 management

Network element management information model for the Signalling Connection Control Part

ITU-T Recommendation Q.751.2

(Previously CCITT Recommendation)

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ITU-T RECOMMENDATION Q.751.2

NETWORK ELEMENT MANAGEMENT INFORMATION MODEL FOR THE SIGNALLING CONNECTION CONTROL PART

Summary

The management functionality described in this Recommendation pertains to the Network Element Management of the Signalling Connection Control Part (SCCP). It contains the Network Element Management Information Model for the SCCP, that is the definition of network element managed objects. Both the 1993 (*White Book*) and 1996 (*Green Book*) versions of SCCP are covered. For the latter, also the B-SCCP aspects LUDT and LUDTs are anticipated.

Source

ITU-T Recommendation Q.751.2 was prepared by ITU-T Study Group 11 (1997-2000) and was approved under the WTSC Resolution No. 1 procedure on the 5th of June 1997.

FOREWORD

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In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC.

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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Recommendation Q.751.2

NETWORK ELEMENT MANAGEMENT INFORMATION MODEL FOR THE SIGNALLING CONNECTION CONTROL PART

(Geneva, 1997)

1 Scope

This Recommendation describes a management information model for the network element management of the Signalling Connection Control Part (SCCP) following the principles of the Telecommunications Management Network (TMN). The SCCP is part of the protocol stack used in Signalling System No. 7 networks. SCCP offers network services that can be compared with the functionality of the OSI network layer. SCCP uses the services from the Message Transfer Part (MTP).

This Recommendation focuses on all aspects of network element management of SCCP with exception of the connection-oriented services. Management modelling of mechanisms for SCCP calling party address insertion and calling party address translation is not included in this Recommendation. This typical management functionality might be needed for managing implementations, however.

2 References

The following ITU-T Recommendations and other references 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 other references are subject to revision; all users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the currently valid ITU-T Recommendations is regularly published.

- ITU-T Recommendation A.3 (1996), *Elaboration and presentation of texts and development of terminology and other means of expression for Recommendations of the ITU Telecommunication Standardization Sector*.
- ITU-T Recommendation M.3010 (1996), *Principles for a telecommunications management network*.
- ITU-T Recommendation M.3100 (1995), *Generic network information model*.
- ITU-T Recommendation Q.700 (1993), *Introduction to CCITT Signalling System No. 7*.
- ITU-T Recommendation Q.701 (1993), *Functional description of the Message Transfer Part (MTP) of Signalling System No. 7*.
- CCITT Recommendation Q.702 (1988), *Signalling data link*.
- ITU-T Recommendation Q.704 (1996), *Signalling network functions and messages*.
- ITU-T Recommendation Q.705 (1993), *Signalling network structure*.
- ITU-T Recommendation Q.711 (1996), *Functional description of the signalling connection control part*.
- ITU-T Recommendation Q.712 (1996), *Definition and Function of signalling connection control part messages*.

- ITU-T Recommendation Q.713 (1996), *Signalling connection control part formats and codes.*
- ITU-T Recommendation Q.714 (1996), *Signalling connection control part procedures.*
- ITU-T Recommendation Q.715 (1996), *Signalling connection control part user guide.*
- ITU-T Recommendation Q.716 (1993), *Signalling connection control part (SCCP) performance.*
- ITU-T Recommendation Q.750 (1997), *Overview of Signalling System No. 7 management.*
- ITU-T Recommendation Q.751.1 (1995), *Network element management information model for the Message Transfer Part.*
- ITU-T Recommendation Q.752 (1997), *Monitoring and measurements for Signalling System No. 7 networks.*
- ITU-T Recommendation Q.753 (1997), *Signalling System No. 7 management functions MRVT, SRVT and CVT and definition of the OMASE-user.*
- ITU-T Recommendation Q.756 (1997), *Guide book to Operations, Maintenance and Administration Part (OMAP).*
- ITU-T Recommendation Q.822 (1994), *Stage 1, stage 2 and stage 3 description for the Q3 interface – Performance management.*
- CCITT Recommendation X.208 (1988), *Specification of Abstract Syntax Notation One (ASN.1).*
- ITU-T Recommendation X.283 (1993), *Elements of management information related to the OSI network layer.*
- ITU-T Recommendation X.680 (1994), *Information technology – Abstract Syntax Notation One (ASN.1): Specification of basic notation.*
- CCITT Recommendation X.700 (1992), *Management framework for Open Systems Interconnection (OSI) for CCITT applications.*
- CCITT Recommendation X.721 (1992), *Information technology – Open Systems Interconnection – Structure of management information: Definition of management information.*
- ITU-T Recommendation X.723 (1993), *Information technology – Open Systems Interconnection – Structure of management information: Generic management information.*
- CCITT Recommendation X.731 (1992), *Information technology – Open Systems Interconnection – Systems management: State management function.*
- CCITT Recommendation X.733 (1992), *Information technology – Open Systems Interconnection – Systems management: Alarm reporting function.*

3 Terms and definitions

This Recommendation defines the following terms.

This Recommendation makes use of the following terms defined in Recommendation M.3010:

- a) performance management;
- b) Telecommunications Management Network (TMN).

This Recommendation makes use of the following terms defined in Recommendation X.700:

- a) managed object class;
- b) object instance.

This Recommendation makes use of the following terms defined in Recommendation X.701:

- a) managed object class;
- b) management information;
- c) notification.

This Recommendation makes use of the following term defined in Recommendation X.710:

- attribute.

This Recommendation makes use of the following terms defined in Recommendation X.720:

- a) inheritance;
- b) name binding;
- c) package.

This Recommendation makes use of the following term defined in Recommendation X.722:

- template.

This Recommendation makes use of the following terms defined in Recommendation Q.700:

- a) Message Transfer Part (MTP);
- b) Signalling Connection Control Part (SCCP);
- c) signalling point;
- d) subsystem.

This Recommendation makes use of the following term defined in Recommendation Q.711:

- sequence mapping.

This Recommendation makes use of the following terms defined in Recommendation Q.713:

- a) address field;
- b) address indicator;
- c) encoding scheme;
- d) global title;
- e) Global Title Address Information (GTAI);
- f) global title indicator;
- g) hop counter;
- h) nature of address indicator;
- i) numbering plan;
- j) party address;
- k) routing indicator;
- l) translation type.

This Recommendation makes use of the following terms defined in Recommendation Q.714:

- a) global title translation rule;
- b) global title translator;
- c) reassembly process;

- d) reassembly timer;
- e) SCCP connection-Oriented Control (SCOC);
- f) SCCP connectionLess Control (SCLC);
- g) SCCP entity;
- h) SCCP entity set;
- i) SCCP management;
- j) SCCP routing control;
- k) segmentation process;
- l) signalling point status;
- m) subsystem status.

This Recommendation makes use of the following terms defined in Recommendation Q.716:

- a) destination node;
- b) originating node;
- c) relay point;
- d) signalling point type.

This Recommendation makes use of the following term defined in Recommendation Q.751:

- MTP access point.

This Recommendation makes use of the following term defined in Recommendation Q.752:

- measurement.

This Recommendation makes use of the following term defined in Recommendation Q.753:

- SCCP Routing Verification Test (SRVT).

The following addition definition also applies:

3.1 SCCP access point: Service Access Point of the SCCP services to its users. The Access Point is identified by a SSN. Several GT's can translate to an Access Point.

4 Abbreviations

This Recommendation uses the following abbreviations:

CL _s	Congestion Level Status
DPC	Destination Point Code
GT	Global Title
INAP	Intelligent Network Application Part
ISUP	ISDN User Part
MTP	Message Transfer Part
OPC	Originating Point Code
QOS	Quality of Service
SCCP	Signalling Connection Control Part
SCLC	SCCP ConnectionLess Control
SCMG	SCCP Management

SCOC	SCCP Connection-Oriented Control
SCRC	SCCP Routing Control
SLS	Signalling Link Selection
SPC	Signalling Point Code
SS No. 7	Signalling System No. 7
SSN	SubSystem Number
TC	Transaction Capabilities
TMN	Telecommunications Management Network

5 Conventions

Recommendation A.3 is used for the elaboration and presentation of texts for Recommendations of the ITU-T.

The Guidelines for the Definition of Managed Objects (GDMO), defined in Recommendation X.722, are used. In case of differences between the formal part (clause 7) and the informal parts of this Recommendation the formal part is to be regarded as leading.

Throughout this Recommendation the wording "The managed object class x" refers to a particular managed object class while the wording "An x" refers to an instance of the managed object class "x".

Modelling of redundancy is avoided (e.g. relationships between managed objects are described in one MOC only). However, for some implementations, it may be useful or necessary to add some additional information to some managed object classes, depending on the user's needs. This can be done by subclassing. For all timers that are modelled in this Recommendation, it is implementation dependent what value they take when they are not used.

6 Informal specification

This clause describes the managed object classes necessary for the network element management of SCCP. The managed objects are derived from the information models in Annex B. The names of the managed object classes are abbreviated and are qualified with, for example "sccp-" or "sclc-". The managed object classes are described in alphabetic order. Behind the name of the managed object class, a reference to the corresponding entity in the information model is included.

The information models presented in Annex B show the relationship between the managed object classes, the attributes, the actions, the notifications, and the name bindings.

In this clause, references are made to existing definitions in other standards and Recommendations. Table 1 shows a list of abbreviations of other standards and Recommendations used in this clause.

Table 1/Q.751.2 – References to other Management Information Models

DMI	Definitions of Management Information	Rec. X.721	ISO/IEC 10165-2
GMI	Generic Management Information	Rec. X.723	ISO/IEC 10165-5
NLM	Elements of management information related to OSI network layer standards	Rec. X.283	ISO/IEC 10733
PM	Stage 1, stage 2 and stage 3 description for the Q3 interface, performance management	Rec. Q.822	None
GNM	Generic Network Management Information Model	Rec. M.3100	None
MTP	Network Information Model for the Message Transfer Part (MTP), 1996	Rec. Q.751.1	None

Most of the formal descriptions in DMI are explained in the OSI systems management function documents. These can be found in the X.73x and X.74x-Series of Recommendations and in the ISO/IEC 10164-x-Series.

Each managed object class is (informally) described using tables. In these tables (D), (C), (R) and (O) are used with the following meaning:

- (D) this element is inherited from a mandatory package in a super-class;
- (C) this element is inherited from a conditional package in a super-class;
- (R) this element is reused, however, not by inheritance;
- (O) this element is optional, preconditions on presence may apply.

Table 2 shows the structure of the tables.

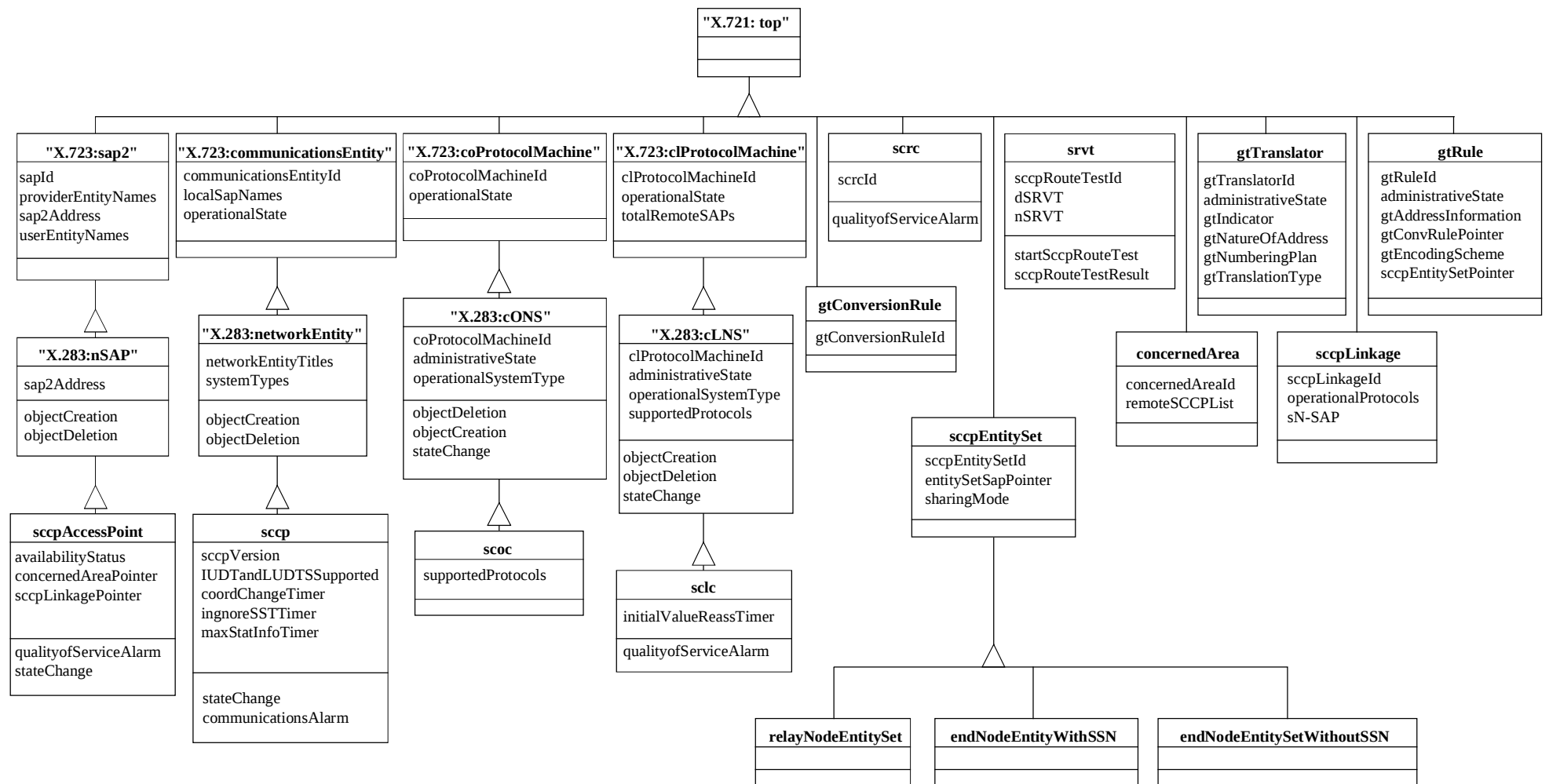
Table 2/Q.751.2 – Structure of package tables

Attributes	Notifications	Actions
Name of (mandatory) package (D/C/R/O)		
attribute 0	notification 0	action 0
attribute 1	...	...

A summary on the notation used for the diagrams in this clause is given in Annex A.

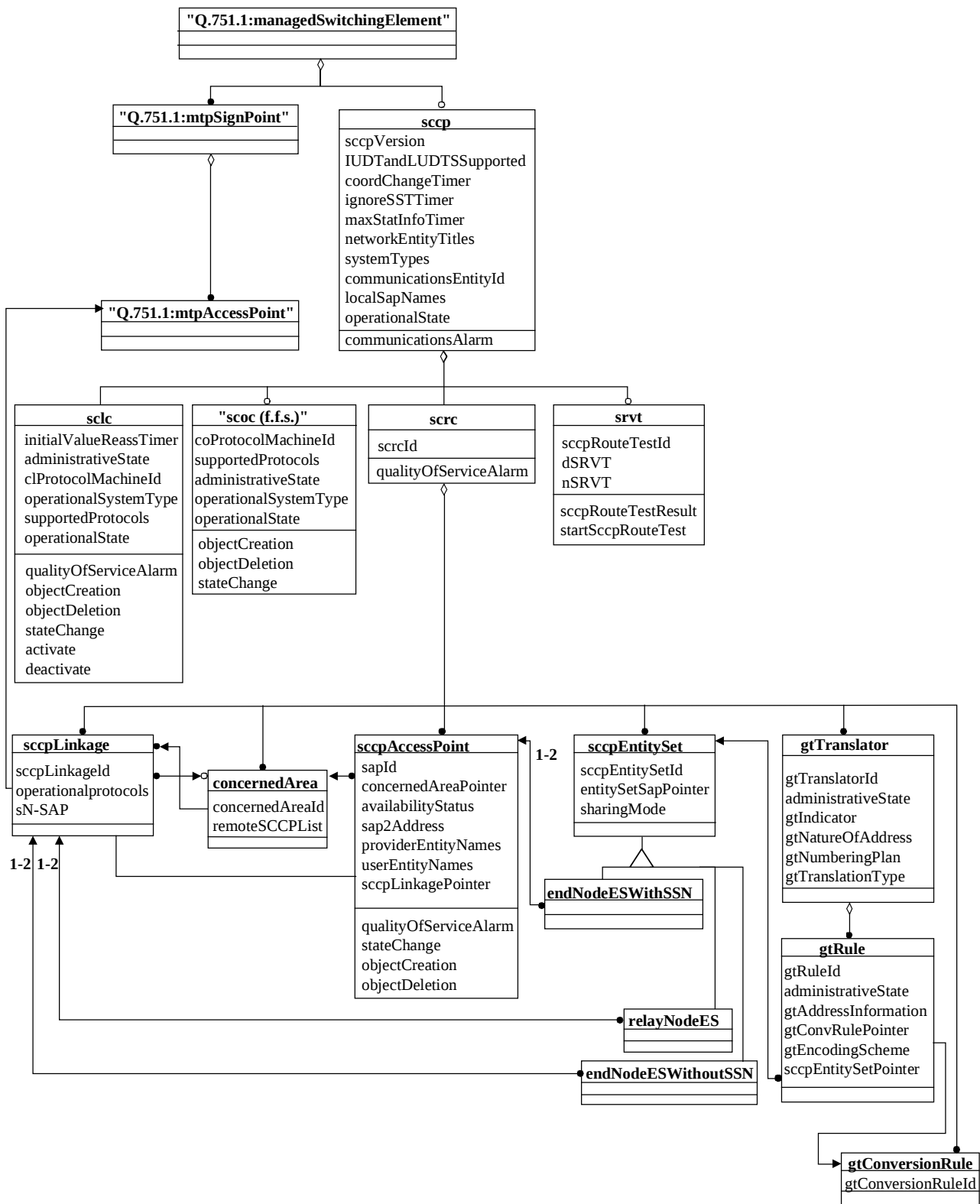
6.1 Diagrams

Naming, containment and pointer relationships are visualized in the following two diagrams. The diagrams show all managed object classes except for the ones that model the SCCP measurements which can be found in Annex C. Only the mandatory parts are shown in the diagrams. See Figures 1 and 2.



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Figure 1/Q.751.2 – Inheritance tree for SCCP managed object classes



T1183740-97

Figure 2/Q.751.2 – Naming schema for SCCP managed object classes

6.2 Managed Object Classes

6.2.1 concernedArea managed object class

Attributes	Notifications	Actions
concernedAreaPackage		
concernedAreaId		
remoteSCCPList		
"ITU-T Rec. M.3100 (1995)": createDeleteNotificationsPackage (O)		
	objectCreation	
	objectDeletion	
"ITU-T Rec. M.3100 (1995)": attributeValueChangeNotificationPackage (O)		
	attributeValueChange	
concernedAreaNamePackage (O)		
concernedAreaName		

A concernedArea contains a list of remote SCCPs (mtpAccessPoints/sccpLinkages) to be informed of local (primary broadcast) or remote (secondary broadcast) SCCP subsystem status changes, or to be informed of the SCCP status after completion of SCCP Restart.

NOTE – The local distribution of the status changes among different subsystems is not related to the concernedArea and is application-specific.

6.2.2 endNodeEntitySetWithoutSSN managed object class

Attributes	Notifications	Actions
"ITU-T Rec. Q.751.2 (1995)": sccpEntitySet (D)		
sccpEntitySetId		
entitySetSapPointer		
sharingMode		
"ITU-T Rec. M.3100 (1995)": createDeleteNotificationsPackage (C)		
	objectCreation	
	objectDeletion	
"ITU-T Rec. M.3100 (1995)": attributeValueChangeNotificationPackage (C)		
	attributeValueChange	
sccpEntitySetLoadsharingPackage (C)		
loadSharingAlgPointer		
entitySetNamePackage (C)		
entitySetName		

This managed object class is an sccpEntitySet that identifies SCCP end nodes. Because of this, the entitySetSapPointer attribute is only allowed to refer to instances of the sccpLinkage class. A subsystem number is not specified by this entity set, but routing is on SSN.

6.2.3 endNodeEntitySetWithSSN managed object class

Attributes	Notifications	Actions
sccpEntitySet (D)		
sccpEntitySetId		
entitySetSapPointer		
sharingMode		
"ITU-T Rec. M.3100 (1995)": createDeleteNotificationsPackage (O, D)		
	objectCreation	
	objectDeletion	
"ITU-T Rec. M.3100 (1995)": attributeValueChangeNotificationPackage (O, D)		
	attributeValueChange	
sccpEntitySetLoadsharingPackage (C, D)		
loadSharingAlgPointer		
entitySetNamePackage (C)		
entitySetName		

This managed object class is an sccpEntitySet that identifies SCCP Access Points. Because of this, the SAP pointer attribute is only allowed to refer to instances of the sccpAccessPoint class.

6.2.4 gtConversionRule (Global Title Conversion Rule)

Attributes	Notifications	Actions
gtConversionRulePackage		
gtConversionRuleId		
"ITU-T Rec. M.3100 (1995)": createDeleteNotificationsPackage (O)		
	objectCreation	
	objectDeletion	
"ITU-T Rec. M.3100 (1995)": attributeValueChangeNotificationPackage (O)		
	attributeValueChange	
addressInfoConversionRulePackage (O)		
addressInfoConversionRule		
newEncodingSchemePackage (O)		
newEncodingScheme		
newNatureOfAddressPackage (O)		
newNatureOfAddress		
newNumberingPlan Package (O)		
newNumberingPlan		

Attributes	Notifications	Actions
newTranslationTypePackage (O)		
newTranslationType		
gtConversionRuleNamePackage (O)		
gtConversionRuleName		

This managed object class defines the rules that can be used to change the global title in a called party address. The conversion can replace all parts of the global title with a new value. If the addressInfoConversionRulePackage is present, it specifies how address elements can be inserted, replaced, passed transparently, or deleted from the (old) GTAI into a new GTAI. The procedures for Global Title Conversion are described in 7.3/Q.715. Only those parts of the GT information are modified that have a corresponding new value identified by instances of this class. In case an attribute representing GT information is present but is not to be used for converting Global Titles, it has value NULL. As a result, the particular part of the Global Title will not be overwritten.

NOTE – The application of the gtConversionRule to calling party address conversions is for further study.

6.2.5 gtRule managed object class (Global Title Translation Rule)

Attributes	Notifications	Actions
gtRulePackage		
gtRuleId		
administrativeState (R)		
gtAddressInformation		
gtConvRulePointer		
gtEncodingScheme		
sccpEntitySetPointer		
"ITU-T Rec. M.3100 (1995)": createDeleteNotificationsPackage (O)		
	objectCreation	
	objectDeletion	
"ITU-T Rec. M.3100 (1995)": attributeValueChangeNotificationPackage (O)		
	attributeValueChange	
gtRuleNamePackage (O)		
gtRuleName		

A Global Title Rule is selected by the (matching) Global Title Address Information and possibly the Encoding Scheme. If there is no matching Translation Rule for a given Global Title, then a Routing Failure notification with the reason "no translation for an address of this nature" is emitted by the SCRC. The Global Title Rule points to the Entity Set resulting from the Global Title Translation. The Global Title Conversion Rule pointer refers to an optional Global Title Conversion Rule that may modify the Global Title.

The administrativeState attribute can have the following states: locked and unlocked.

NOTE – The new Routing Indicator is implicitly set according the sccpEntitySet pointed to.

6.2.6 gtTranslator managed object class (Global Title Translator)

Attributes	Notifications	Actions
gtTranslatorPackage		
gtTranslatorId		
administrativeState (R)		
gtIndicator		
gtNatureOfAddress		
gtNumberingPlan		
gtTranslationType		
"ITU-T Rec. M.3100 (1995)": createDeleteNotificationsPackage (O)		
	objectCreation	
	objectDeletion	
gtTranslatorNamePackage (O)		
gtTranslatorName		

The Global Title Translator is selected based on a combination of the values of the Nature of Address, the Translation Type, and the Numbering Plan (if available). As a consequence, the Global Title Translator is modelled as a class with three characteristic attributes: Nature of Address, Translation Type, and Numbering Plan. If a Global Title address field is not used, it has value NULL. The gtIndicator attribute is read-only and is derived from the combination of Nature of Address, the Translation Type, and Numbering Plan used. If for a given combination no Global Title Translator exists, a Routing Failure notification with the reason "no translation for an address of this nature" is emitted by the SCRC.

The administrativeState attribute can have the following states: locked and unlocked.

6.2.7 managedSwitchingElement managed object class

This managed object class can be found in Recommendation Q.751.1.

6.2.8 mtpAccessPoint managed object class (Message Transfer Part)

This managed object class can be found in Recommendation Q.751.1.

6.2.9 mtpSignPoint managed object class (Message Transfer Part)

This managed object class can be found in Recommendation Q.751.1.

6.2.10 relayNodeEntitySet managed object class

Attributes	Notifications	Actions
sccpEntitySet (D)		
sccpEntitySetId		
entitySetSapPointer		
sharingMode		
"ITU-T Rec. M.3100 (1995)": createDeleteNotificationsPackage (C)		
	objectCreation	
	objectDeletion	
"ITU-T Rec. M.3100 (1995)": attributeValueChangeNotificationPackage (C)		
	attributeValueChange	
sccpEntitySetLoadsharingPackage (C)		
loadSharingAlgPointer		
ssnPackage (O)		
ssn		
entitySetNamePackage (C)		
entitySetName		

This managed object class is an sccpEntitySet that identifies SCCP relay nodes, i.e. MTP Access Points. Because of this, the entitySetSapPointer attribute is only allowed to refer to instances of the sccpLinkage class.

The ssn attribute allows to optionally set the subsystem number as a result of a Global Title Translation, if routing is done on Global title and DPC to a relay node.

6.2.11 sccp managed object class (Signalling Connection Control Part)

Attributes	Notifications	Actions
sccpPackage		
sccpVersion	communicationsAlarm (R)	
lUDTandLUDTSSupported	stateChange(R)	
coordChangeTimer		
ignoreSSTimer		
maxStatInfoTimer		
"ITU-T Rec. X.283 (1993)": networkEntity (D)		
networkEntityTitles	objectCreation	
systemTypes	objectDeletion	
"ITU-T Rec. X.723 (1993)": communicationsEntity (D)		
communicationsEntityId		
localSapNames		
operationalState		
"ITU-T Rec. M.3100 (1995)": attributeValueChangeNotificationPackage (O)		
	attributeValueChange	
"ITU-T Rec. M.3100 (1995)": alarmSeverityAssignmentPointerPackage (O)		
alarmSeverityAssignmentProfile Pointer		
sccpNamePackage (O)		
sccpName		

This managed object class is derived from the generic managed object class networkEntity. The communicationsEntityId is used in naming instances of the communicationsEntity or networkEntity or SCCP. The sccp managed object class is the place holder for all SCCP related managed objects. No specific management aspects have been identified.

The localSapNames attribute contains a set of distinguished names of SCCP SAPs at which services are provided to the entity. This attribute is for further study.

The systemTypes attribute is a set-valued attribute with possible values: End System (ES) indicates an SCCP destination node, Intermediate System indicates an SCCP relay node. The networkEntityTitles attribute unambiguously identifies the name of the SCCP in an end or intermediate node. The value may be entered by a system management operation or it may be derived by some local means, for example by auto configuration.

The communicationsAlarm can have the following probable causes:

- Probable Cause = LocalSccpUnavailable which represents measurements Q.752/8.1 – measurement Q.752/8.3 (SpecificProblems = Failure, Maintenance, Congestion) (PerceivedSeverity = Major/Minor/Warning) and measurement Q.752/8.4 (PerceivedSeverity = Cleared);
- Probable Cause = SubsystemOoSgranted which represents measurement Q.752/8.6; and
- Probable Cause = SubsystemOoSdenied which represents measurement Q.752/8.7.

6.2.12 sccpAccessPoint managed object class

Attributes	Notifications	Actions
sccpAccessPointPackage		
availabilityStatus (R)	stateChange (R)	
concernedAreaPointer	qualityOfServiceAlarm(R)	
	communicationsAlarm (R)	
sccpLinkagePointer		
ssAvailableAfterSpRestartPackage (O)		
ssAvailableAfterSpRestart (default value is 'TRUE')		
"ITU-T Rec. X.283 (1993)": nSAP (D)		
sap2Address	objectCreation	
	objectDeletion	
"ITU-T Rec. X.723 (1993)": sap2 (D)		
sapId		
providerEntityNames		
userEntityNames		
"ITU-T Rec. M.3100 (1995)": attributeValueChangeNotificationPackage (O)		
	attributeValueChange	
"ITU-T Rec. M.3100 (1995)": alarmSeverityAssignmentPointerPackage (O)		
alarmSeverityAssignmentProfile Pointer		
sccpAccessPointNamePackage (O)		
sccpAccessPointName		

This managed object class is derived from the generic Managed object class nSAP (network Service Access Point).

The sap2Address attribute contains the address of the sccpAccessPoint. The address contains SubSystem Number (SSN). The sap2Address is of type SET OF OCTETSTRING. For sccpAccessPoints, the set size is 1. The sapId attribute is used in naming instances of the sccpAccessPoint managed object class.

The userEntityNames attribute contains the distinguished names of the managed objects that represent the user entities that are using the sccpAccessPoint, i.e. instances of the SCCP subsystem. The providerEntityNames attribute contains the distinguished names of the managed objects that represent the provider entities that are supporting the sccpAccessPoint, i.e. the instance of the SCCP.

The status of the sccpAccessPoint is represented by the "availability status attribute" described in Recommendation X.731. A subsystem can have the status:

- allowed, the sccpAccessPoint is reachable and is functioning normally (availability status = available);
- prohibited, the sccpAccessPoint is not reachable (availability status = unavailable);
- congested (availability status = degraded).

The optional (national network provider option) SsAvailableAfterSpRestart attribute holds the default subsystem status as described in the procedure of 5.2.3/Q.714.

The concernedAreaPointer specifies the concerned area to be used by SCCP Management for primary broadcast in case this access point is local. In case of a remote access point, the pointed concerned area will be used by SCCP Management for the secondary broadcast. The concernedAreaPointer has value "NULL" if no concerned area is pointed at.

The sccpLinkagePointer specifies the sccpLinkage that is associated with remote sccpAccessPoints only. In case of a local sccpAccessPoint, the sccpLinkagePointer has value NULL. A remote sccpAccessPoint cannot be created without a valid pointer to an sccpLinkage.

The qualityofServiceAlarm can have the following probable cause:

- ProbableCause = TooLargeForSegmentation which represents measurement Q.752/7.14 (PerceivedSeverity = Major/Minor/Warning).
- ProbableCause = subsystemProhibited which represents measurement Q.752/8.11 and Q.752/8.12 (PerceivedSeverity = Major/Minor/Warning/Cleared).

The communicationsAlarm can have the following probable causes:

- ProbableCause = sccpCongested which represents measurement Q.752/8.8.
- (PerceivedSeverity = Major/Minor/Warning). The congestion level is given as a parameter of the notification.
- ProbableCause = localSubsystemProhibited which represents measurements Q.752/8.9 and Q.752/8.10 (PerceivedSeverity = Major/Minor/Warning/Cleared).

6.2.13 sccpEntitySet managed object class

Attributes	Notifications	Actions
sccpEntitySetPackage		
sccpEntitySetId		
entitySetSapPointer		
sharingMode		
"ITU-T Rec. M.3100 (1995)": createDeleteNotificationsPackage (O)		
	objectCreation	
	objectDeletion	
"ITU-T Rec. M.3100 (1995)": attributeValueChangeNotificationPackage (O)		
	attributeValueChange	
sccpEntitySetLoadsharingPackage (O)		
loadSharingAlgPointer		
entitySetNamePackage(O)		
entitySetName		

This managed object class identifies the set of access points that result from a global title translation. This set may contain one or two access points. The distribution of SCCP traffic over the entities in the set depends on the value of the sharingMode attribute:

In case of value "solitary", there can only be one access point in the set.

In case of value "dupliDominant", the second entity is a backup for the first entity, according to the procedure described in clause 5/Q.714.

In case of value "dupliReplacement", the second entity is standby for backup for the first entity, but after changeover, the primary and backup roles are swapped according to the procedure described in clause 5/Q.714. In this case, also the value of the entitySetSapPointer changes.

If the sccpEntitySetLoadsharingPackage is present, sharing mode can also take the value "dupliLoadshared". In this case, the load is shared over the entities in the set according to the algorithm referred to by the loadSharingAlgPointer attribute.

This managed object class is not instantiable, it is only a superclass for the instantiable subclasses endNodeEntitySetWithoutSSN, endNodeEntitySetWithSSN and relayNodeEntitySet.

NOTE 1 – The availability of an sccpEntitySet can be derived from the availability of the individual entities in the set. It is assumed that this is done at the network management level.

NOTE 2 – The sharing mode value "duplicatedReplacement" was defined for the 1993 version of SCCP but removed in the 1996 version.

6.2.14 sccpLinkage managed object class

Attributes	Notifications	Actions
sccpLinkagePackage		
sccpLinkId		
operationalProtocols (R)		
sN-SAP (R)		
"ITU-T Rec. M.3100 (1995)": createDeleteNotificationsPackage (O)		
	objectCreation	
	objectDeletion	
"ITU-T Rec. M.3100 (1995)": attributeValueChangeNotificationPackage (O)		
	attributeValueChange	
congestionPackage (O)		
attackTimerValue		
cLS (default value 8)		
congestionTimerValue		
decayTimerValue		
nrOfRestrictionLevels (default value 8)		
nrOfSubLevels (default value 8)		
p (default value 8)		
importanceLevel-CR		
importanceLevel-CC		
importanceLevel-CREF		

Attributes	Notifications	Actions
congestionPackage (O)		
importanceLevel-DT1		
importanceLevel-DT2		
importanceLevel-AK		
importanceLevel-IT		
importanceLevel-ED		
importanceLevel-EA		
importanceLevel-RSR		
importanceLevel-RSC		
importanceLevel-ERR		
importanceLevel-RLC		
importanceLevel-RLSD		
importanceLevel-UDT		
importanceLevel-UDTS		
importanceLevel-XUDT		
importanceLevel-XUDTS		
importanceLevel-LUDT		
importanceLevel-LUDTS		
rLM		
rSLM		
localSccpLinkagePackage (O)		
concernedAreaPointer		
lowerLimitForSegmentation		
upperLimitForSegmentation		
sccpLinkageNamePackage(O)		
sccpLinkageName		

This managed object class stores data about the specific capabilities of the underlying MTP access point. It is analogous to the generic managed object class linkage that is described in Recommendation X.283. For this managed object class subclasses may be specified for vendor specific additions.

The sN-SAP attribute indicates a relationship to the underlying MTP access point. The operationalProtocols attribute indicates the supported protocol classes supported by this instance. The "versions" field of the attribute is always "empty".

The concernedAreaPointer specifies the concerned area to be used for broadcasting the SCCP status after completion of SCCP Restart. It has value "NULL" if no concerned area is pointed at.

The congestionPackage must be used for *local* access points only.

NOTE 1 – For recommended values of the importance attributes, see 2.6.2/Q.714.

NOTE 2 – Caution should be taken when modifying the importance levels. Co-ordination within and in between different networks might be required.

6.2.15 sclc managed object class (SCCP Connectionless Control)

Attributes	Notifications	Actions
sclcPackage		
	qualityOfServiceAlarm (R)	
initialValueReassTimer		
"ITU-T Rec. X.283 (1993)": cLNS (D)		
administrativeState	objectCreation	activate
clProtocolMachineId	objectDeletion	deactivate
operationalSystemType	stateChange	
supportedProtocols		
"ITU-T Rec. X.723 (1993)": clProtocolMachine (D)		
operationalState		
totalRemoteSAPs (C)		
"ITU-T Rec. M.3100 (1995)": attributeValueChangeNotificationPackage (O)		
	attributeValueChange	
"ITU-T Rec. M.3100 (1995)": alarmSeverityAssignmentPointerPackage (O)		
alarmSeverityAssignmentProfile Pointer		
sclcNamePackage(O)		
sclcName		

This managed object class contains the management information concerning the SCCP connectionless services. The managed object class is derived from the generic managed object class cLNS (connectionless-mode Network Service).

The following states of the administrative state are appropriate: locked and unlocked.

The operationalSystemType attribute is an attribute with possible values: End System (ES) indicates an SCCP destination node, Intermediate System indicates an SCCP relay node. If the operationalSystemType equals "Destination Node", it indicates that the system shall perform no forwarding operations upon non-local SCCP messages. A value of "Intermediate Node" indicates that the system is permitted to perform forwarding operations, but the decision to forward individual SCCP messages, or not to forward them, shall be taken on the basis of the available routing information.

If the managed object is created by management operation, the initial value of the operationalSystemType 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 SCCP managed object.

The set of network protocols supported by this instance of the sclc protocol machine is represented by the supportedProtocols attribute. For the connectionless protocol, it can be either class 0 or 1, or both.

The qualityofServiceAlarm can have the following probable causes:

- ProbableCause = ReassemblyTimeOut which represents measurement Q.752/7.10 (PerceivedSeverity = Major/Minor/Warning);
- ProbableCause = SegmentOutOfOrder which represents measurement Q.752/7.11 (PerceivedSeverity = Major/Minor/Warning);
- ProbableCause = NoReassemblySpace which represents measurement Q.752/7.12 (PerceivedSeverity = Major/Minor/Warning);
- ProbableCause = NoSegmentationSupport which represents measurement Q.752/7.19 (PerceivedSeverity = Major/Minor/Warning);
- ProbableCause = SegmentationFailure which represents measurement Q.752/7.20 (PerceivedSeverity = Major/Minor/Warning); and
- ProbableCause = ReassemblyFailure which represents measurement Q.752/7.21 (PerceivedSeverity = Major/Minor/Warning).

6.2.16 scoc managed object class (SCCP Connection-Oriented Control)

NOTE – This managed object class is for further study.

Attributes	Notifications	Actions
scocPackage		
supportedProtocols(R)		
"ITU-T Rec. X.283 (1993)":cONS (D)		
administrativeState	objectCreation	activate
coProtocolMachineId	objectDeletion	deactivate
operationalSystemType	stateChange	deactivateWhenNoUsers
"ITU-T Rec. X.723 (1993)": coProtocolMachine (D)		
operationalState		
scocNamePackage(O)		
scocName		

This managed object contains management information concerning the SCCP connection-oriented services. The managed object class is derived from the generic managed object class cONS (connection-mode Network Service).

The following states of the administrative state are appropriate: locked and unlocked.

The operationalSystemType attribute is an attribute with possible values: End System (ES) indicates an SCCP destination node, Intermediate System indicates an SCCP relay node. The operationalSystemType indicates the system role in which this instance is operating. A value of "Destination Node" indicates that the system shall perform no forwarding operations upon non-local SCCP messages. A value of Intermediate Node indicates that the system is permitted to perform forwarding operations, but the decision to forward individual SCCP messages, or not to forward them, shall be taken on the basis of the available routing information. If the MO is created by management operation, the initial value of the operationalSystemType 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 SCCP managed object.

The set of network protocols supported by this instance of the scoc protocol machine is represented by the supportedProtocols attribute. For the connection-oriented protocol, it can be either class 2 or 3, or both.

6.2.17 scrc managed object class (SCCP Routing Control)

Attributes	Notifications	Actions
scrcPackage		
scrcId	qualityofServiceAlarm (R)	
"ITU-T Rec. M.3100 (1995)": createDeleteNotificationsPackage (O)		
	objectCreation	
	objectDeletion	
"ITU-T Rec. M.3100 (1995)": alarmSeverityAssignmentPointerPackage (O)		
alarmSeverityAssignmentProfile Pointer		
scrcNamePackage(O)		
scrcName		

This managed object contains management information concerning the SCCP routing control.

The qualityofServiceAlarm can have the following probable causes:

- ProbableCause = NoTranslatorForAddress which represents measurement Q.752/7.1 (PerceivedSeverity = Major/Minor/Warning);
- ProbableCause = NoRuleForAddress which represents measurement Q.752/7.2 (PerceivedSeverity = Major/Minor/Warning);
- ProbableCause = PointCodeNotAvailable which represents measurement Q.752/7.31 (PerceivedSeverity = Major/Minor/Warning);
- ProbableCause = PointCodeCongested which represents measurement Q.752/7.4 (PerceivedSeverity = Major/Minor/Warning);
- ProbableCause = SubsystemUnavailable which represents measurement Q.752/7.5 (PerceivedSeverity = Major/Minor/Warning);
- ProbableCause = SubsystemCongested which represents measurement Q.752/7.6 (PerceivedSeverity = Major/Minor/Warning);
- ProbableCause = UnequipedSubsystem which represents measurement Q.752/7.7 (PerceivedSeverity = Major/Minor/Warning);
- ProbableCause = SyntaxErrorDetected which represents measurement Q.752/7.8 (PerceivedSeverity = Major/Minor/Warning);
- ProbableCause = RoutingFailureNoReasonOrUnqualified which represents measurement Q.752/7.9 (PerceivedSeverity = Major/Minor/Warning); and
- ProbableCause = HopCounterViolation which represents measurement Q.752/7.13 (PerceivedSeverity = Major/Minor/Warning).

6.2.18 srvt managed object class (SCCP Routing Verification Test)

Attributes	Notifications	Actions
srvtPackage		
sccpRouteTestId	sccpRouteTestResult	startSccpRouteTest
dSRVT		
nSRVT		
"ITU-T Rec. M.3100 (1995)": createDeleteNotificationsPackage (O)		
	objectCreation	
	objectDeletion	
"ITU-T Rec. M.3100 (1995)": attributeValueChangeNotificationPackage (O)		
	attributeValueChange	
srvtNamePackage(O)		
srvtName		

This managed object represents the management information of the SCCP Routing Verification Test. This test is described in Recommendation Q.753. The SCCP Routing Verification Test (SRVT) is used to test the Global Title Translation service of the SCCP.

6.3 Attributes

administrativeState (DMI)

The semantics of the administrativeState attribute are specified in the Administrative State attribute in 8.1.1.3/X.731.

alarmSeverityAssignmentProfilePointer

The alarmSeverityAssignmentProfilePointer attribute semantics are defined in 5.6/M.3100.

attackTimerValue

This attribute models the congestion control parameter Ta, as described in 5.2.4/Q.714.

availabilityStatus (DMI)

The semantics of the availabilityStatus attribute type are specified in the Availability Status attribute in 8.1.2.3/X.731.

clProtocolMachineId (GMI)

The clProtocolMachineId attribute is used in naming instances of the connectionless mode protocol machine managed object class.

cLS

This attribute models the congestion control parameter CL_S, as described in 5.2.7/Q.714. The default value is 8.

communicationsEntityId (GMI)

concernedAreaId

concernedAreaName

concernedAreaPointer

congestionTimerValue

This attribute models the congestion control parameter Tcon, as described in 5.2.7/Q.714.

coordChangeTimer

coProtocolMachineId (GMI)

The coProtocolMachineId attribute is used in naming instances of the connection-oriented mode protocol machine managed object class.

decayTimerValue

This attribute models the congestion control parameter Td, as described in 5.2.4/Q.714.

addressInfoConversionRule

This optional attribute is used within the Global Title Conversion Rule and specifies how address elements can be inserted, replaced, pass transparently, or deleted from the (old) GTAI into a new GTAI.

dSRVT

This attribute represents the estimated maximum delay between relay points D_{SRVT} as described in 3.2.2.5/Q.753. This value is needed for the calculation of the SRVT Guard Timer T2.

entitySetName

entitySetSapPointer

The entitySetSapPointer attribute refers to the access point(s) contained in the SCCP entity set.

gtAddressInformation

The gtAddressInformation attribute contains the value of the Global Title address information (see 3.4.2/Q.713).

gtConversionRuleId

gtConversionRuleName

gtConvRulePointer

gtEncodingScheme

The encoding scheme is a part of the Global Title that identifies the encoding scheme of the Global Title Address Information. For example, BCD with an odd number of digits or BCD with an even number of digits.

gtIndicator

The global title indicator is an attribute that indicates what type of global title is used (see 3.4/Q.713).

gtNatureOfAddress

The nature of address attribute is single valued. The nature of address includes values for "international number", "subscriber number", etc. (see 3.4.2.3/Q.713).

gtNumberingPlan

The numbering plan attribute is single valued. The numbering plan indicates how the global title address information is constructed from different parts (e.g. country codes, subscriber number or national significant number) according to the syntax and semantic defined for that particular numbering plan (see 2.4.2.1/Q.714).

gtRuleId**gtRuleName****gtTranslationType****gtTranslatorId****importanceLevel-AK****importanceLevel-CC****importanceLevel-CR****importanceLevel-CREF****importanceLevel-DT1****importanceLevel-DT2****importanceLevel-EA****importanceLevel-ED****importanceLevel-ERR****importanceLevel-IT****importanceLevel-LUDT****importanceLevel-LUDTS****importanceLevel-RLC****importanceLevel-RLSD****importanceLevel-RSC****importanceLevel-RSR****importanceLevel-UDT****importanceLevel-UDTS****importanceLevel-XUDT****importanceLevel-XUDTS****ignoreSSTimer**

initialValueReassTimer

This attribute represents the initial value of Reassembly Timers, when they are created.

loadSharingAlgPointer

The loadSharingAlgPointer attribute refers to the load sharing algorithm that must be applied if the sharing mode of an entity set is duplicated-loadshared.

localSapNames (GMI)

The semantics of the localSapNames attribute type are defined in 7.2/X.723. It contains a set of distinguished names of layer (N-1) SAPs or ports at which services are provided to the entity.

lowerLimitForSegmentation

This read/write attribute represents a number of octets. If the length of the user data exceeds this length then it depends on the status of the network whether the message is segmented or not. The attribute corresponds to the parameter Z as described in 4.1.1.1.1/Q.714. The value of this attribute shall obey the relation $150 \leq \text{lowerLimitForSegmentation} \leq \text{upperLimitForSegmentation}$, as described in 4.1.1.1.1/Q.714.

IUDTandLUDTSSupported

This attribute indicates whether the implementation supports LUDT(S) messages.

maxStatInfoTimer**networkEntityTitles (NLM)**

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

newEncodingScheme

This optional attribute is used within the Global Title Conversion Rule and specifies the new Encoding Scheme.

newNatureOfAddress

This optional attribute is used within the Global Title Conversion Rule and specifies the new Nature of Address.

newNumberingPlan

This optional attribute is used within the Global Title Conversion Rule and specifies the new Numbering Plan.

newTranslationType

This optional attribute is used within the Global Title Conversion Rule and specifies the new Translation Type.

nrOfRestrictionLevels

This attribute models the congestion control parameter N, as described in 5.2.7/Q.714. The default value is 8.

nrOfSubLevels

This attribute models the congestion control parameter M, as described in 5.2.7/Q.714. The default value is 4.

nSRVT attribute

This attribute equals to the value of N_{SRVT} as described in 3.2.2.5/Q.753.

operationalProtocols (NLM)

The operationalProtocols attribute identifies the set of network layer protocols supported by this instance of the sccpLinkage managed object class. Its value is implementation dependent.

operationalState (DMI)

The semantics of the operationalState attribute type are specified in the Operational State attribute in 8.1.1.1/X.731.

operationalSystemType (NLM)

The system role in which this instance is operating. A value of ES indicates that the system operates as an end system and thus shall perform no forwarding operations upon non-local PDUs. A value of IS indicates that the system operates as an intermediate system and thus 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.

P

This attribute models the congestion control parameter P, as described in 5.2.7/Q.714. The default value is 8.

providerEntityNames (GMI)

The semantics of the providerEntityNames attribute type are defined in 7.7/X.723. They contain the distinguished names of the managed object classes that represent the user entities that are supporting the SAP.

remoteSCCPList

This attribute models a list of remote MTP Access Points all belonging to the same MTP network.

rLM

This attribute models the restriction level parameter RLm as defined in 5.2.4/Q.714.

rSLM

This attribute models the restriction sub-level parameter RSLm as defined in 5.2.4/Q.714.

sap2Address (GMI)

The semantics of the sap2Address attribute type are defined in 7.7/ X.723. They contain the address of the SAP.

sapId (GMI)

The sapId attribute is used in naming instances of the sccpAccessPoint managed object class.

sccpAccessPointName

sccpEntitySetId

sccpEntitySetPointer

The sccpEntitySetPointer attribute refers to the SCCP entity set resulting from the global title translation.

sccpLinkageId

sccpLinkageName

sccpLinkagePointer

sccpName

sccpRouteTestId

The sccpRouteTestId attribute is used in naming instances of the srvt managed object class.

sccpVersion

The SCCP version attribute is single-valued. It refers to the Recommendation on which the SCCP implementation is based.

sclcName

scocName

srcId attribute

srcName

sharingMode attribute

This attribute models the sharing mode of the SCCP Entity Set.

sN-SAP (NLM)

The sN-SAP attribute indicates a relationship to the underlying MTP access point.

ssAvailableAfterSpRestart

The ssAvailableAfterSpRestart attribute holds the default subsystem status as described in the procedure of 5.2.3/Q.714.

ssn

The ssn attribute represents the subsystem number.

supportedProtocols (NLM)

The set of network protocols supported by this instance of the protocol machine. The value of the supportedProtocols attribute is determined by implementation.

systemTypes (NLM)

The set of system roles supported by this Network Entity. This may be an 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.

totalRemoteSAPs (GMI)

The totalRemoteSAPs provide a count of the number of remote SAPs that a clProtocolMachine has communicated with during its lifetime. This attribute is part of a conditional package.

translationTypeName

upperLimitForSegmentation

This read/write attribute represents a number of octets. If the length of the user data exceeds this length then the message is always segmented. The attribute corresponds to the parameter Y as described in 4.1.1.1.1/Q.714. The value of this attribute shall obey the relation $\text{lowerLimitForSegmentation} \leq \text{upperLimitForSegmentation} \leq 3952$, as described in 4.1.1.1.1/Q.714.

userEntityNames (GMI)

The semantics of the userEntityNames attribute type are defined in 7.6/X.723 and 7.7/X.723. They contain the distinguished names of the managed object classes that represent the user entities that are using the SAP.

6.4 Actions

activate action (GMI)

The activate action provides a means of initializing a managed object. For further description, see 11.1/X.723.

deactivate action (GMI)

The deactivate action provides a means of abruptly terminating the operation of a managed object. For further description, see 11.2/X.723.

deactivateWhenNoUsers action (GMI)

The deactivate action provides a means of gracefully terminating the operation of a managed object. For further description see 11.3/X.723.

startSccpRouteTest action

This action starts the SCCP Route Verification Test (SRVT). The parameters correspond to those identified in 3.2/Q.753.

6.5 Notifications

attributeValueChange notification

The semantics of the attributeValueChange notification type are specified in Recommendation X.721.

communicationsAlarm (DMI)

The semantics of the communicationsAlarm notification type are specified in Recommendation X.733. Table 3a lists the probable causes that have been identified for the communications Alarm.

objectCreation notification (DMI, NLM)

The semantics of the objectCreation notification type are specified in Recommendation X.730.

objectDeletion notification (DMI, NLM)

The semantics of the objectDeletion notification type are specified in Recommendation X.730.

qualityofServiceAlarm (DMI)

The semantics of the qualityofServiceAlarm notification type are specified in Recommendation X.733. Table 3b lists the probable causes that have been identified for the qualityofServiceAlarm.

Table 3a/Q.751.2 – Probable causes for communicationsAlarm

Probable cause	Description	Q.752 (93)	Q.752 (97)
LocalSccpUnavailable	Start of local SCCP unavailable – SpecificProblems = failure	8.1	8.1
	Start of local SCCP unavailable – SpecificProblems = maintenance made busy	8.2	8.2
	Start of local SCCP unavailable – SpecificProblems = congestion	8.3	8.3
	Stop of local SCCP unavailable – all reasons	8.4	8.4
SubsystemOoSGranted	Subsystem out-of-service request granted	8.6	8.6
SubsystemOoSdenied	Subsystem out-of-service request denied	8.7	8.7
SCCPcongested	SCCP(subsystem) congested message received	-	8.8
LocalSubsystemProhibited	Start of local subsystem prohibited	-	8.9
	Stop of local subsystem prohibited	-	8.10

Table 3b/Q.751.2 – Probable causes for qualityofServiceAlarm

Probable cause	Description	Q.752 (93)	Q.752 (97)
NoTranslatorForAddress	The failure occurs when the translation of the Global Title fails because the type of address is unknown to the translation function. This measurement is only required at SCCP nodes with global title translation capabilities.	7.1	7.1
NoRuleForAddress	The failure occurs when the translation of the Global Title fails because the address cannot be translated although the type is known to the translation function. This measurement is only required at SCCP nodes with global title translation capabilities.	7.2	7.2
PointCodeNotAvailable	The failure occurs when the translation of the Global Title fails because no available route could be found for the concerned destination address, due to failures in MTP and/or SCCP.	7.3	7.3
PointCodeCongested	The failure occurs when the translation of the Global Title fails because no available route could be found for the concerned destination address, due to congestion in MTP and/or SCCP.	7.4	7.4

Table 3b/Q.751.2 – Probable causes for qualityofServiceAlarm (continued)

Probable cause	Description	Q.752 (93)	Q.752 (97)
SubsystemUnavailable	The failure occurs when the translation of the Global Title fails because no available route could be found for the concerned destination address, due to failures in the SCCP subsystem.	7.5	7.5
SubsystemCongested	The failure occurs when the translation of the Global Title fails because no available route could be found for the concerned destination address, due to congestion in the SCCP subsystem.	7.6	7.6
UnequippedSubsystem	The failure occurs when the received SSN is unequipped in the local node.	7.7	7.7
SyntaxErrorDetected	The failure occurs when syntax errors are detected in the SCCP message.	7.8	7.8
RoutingFailureNoReasonOrUnqualified		7.9	7.9
ReassemblyTimeOut	This notification is sent by one of the Reassembly Timers when this timer expires. This measurement is obligatory at SCCP nodes where SCCP segmentation and reassembly is supported.		7.10
SegmentOutOfOrder	This notification is generated if one of the reassembly processes receives a segment that is out of order. This measurement is obligatory at SCCP nodes where SCCP segmentation and reassembly is supported.		7.11
NoReassemblySpace	This notification is sent by the SCLC to indicate a resource limitation when the first segment of a sequence is received. This measurement is obligatory at SCCP nodes where SCCP segmentation and reassembly is supported.		7.12
HopCounterViolation	A Hop Counter Violation occurs when the Hop Counter is zero. The Hop Counter is used to detect circular routings. This counter is decremented each time a Global Title translation occurs. The Hop Counter is only part of specific SCCP messages: Extended Unitdata, Extended Unitdata Service, CR and LUDT(S).		7.13
TooLargeForSegmentation	This notification is sent by the SCLC when the length of the user data is greater than 3952 octets.		7.14
NoSegmentationSupport	This notification is sent by the SCLC when a message has to be segmented but the segmentation function is not implemented.		7.19

Table 3b/Q.751.2 – Probable causes for qualityofServiceAlarm (concluded)

Probable cause	Description	Q.752 (93)	Q.752 (97)
Segmentation Failure	This notification is sent by the SCLC to indicate that segmentation failed due to, for example, a lack of resources.		7.20
ReassemblyFailure			7.21
SubsystemProhibited	Subsystem prohibited message received.		8.11
	Subsystem allowed message received.		8.12

NOTE – The modelling of the Q.752 (97) measurements 7.15 - 7.18 is for further study. These measurements are related to the scoc managed object class that is also for further study.

sccpRouteTestResult notification

The parameters sccpRouteTestResult corresponds to the received SCCP Routing Verification Result (SRVR) Message described in 3.2/Q.753.

stateChange notification (DMI)

The semantics of the stateChange notification type are specified in Recommendation X.731.

7 Formal specification

This clause contains the formal definition of management information of the Network Element part of SCCP. GDMO is used to describe the management information model.

7.1 Managed object classes definitions

7.1.1 concernedArea

concernedArea MANAGED OBJECT CLASS

DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":top;

CHARACTERIZED BY concernedAreaPackage PACKAGE

BEHAVIOUR concernedAreaBhv **BEHAVIOUR DEFINED AS**

"A concernedArea contains a list of remote SCCP's (mtpAccessPoints) to be informed of local (primary broadcast) or remote (secondary broadcast) sccp subsystem status changes, or to be informed of the SCCP status after completion of SCCP Restart.";;

ATTRIBUTES

concernedAreaId

GET SET-BY-CREATE,

remoteSCCPList

GET-REPLACE ADD-REMOVE;;;

CONDITIONAL PACKAGES

"ITU-T Rec. M.3100 (1995)":createDeleteNotificationsPackage **PRESENT IF** "the objectCreation and objectDeletion notifications defined in 'ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992' are supported by an instance of this class",

"ITU-T Rec. M.3100 (1995)": attributeValueChangeNotificationPackage **PRESENT IF** "the attributeValueChange notification defined in 'ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992' is supported by an instance of this class",

concernedAreaNamePackage **PRESENT IF** "an instance supports it";

REGISTERED AS { sccpObjectClass 1 };

--NOTE – The local distribution of the status changes among different subsystems is not related to the concernedArea and is application specific.

7.1.2 endNodeEntitySetWithoutSSN

endNodeEntitySetWithoutSSN MANAGED OBJECT CLASS

DERIVED FROM sccpEntitySet;

CHARACTERIZED BY endNodeEntitySetWithoutSSNPackage PACKAGE

BEHAVIOUR endNodeEntitySetWithoutSSNBhv BEHAVIOUR DEFINED AS

"This managed object class is an sccpEntitySet that identifies SCCP end nodes. Because of this, the entitySetSapPointer attribute is only allowed to refer to instances of the sccpLinkage class. A subsystem number is not specified by this entity set, but routing is on SSN. ";;;

REGISTERED AS { sccpObjectClass 2 };

7.1.3 endNodeEntitySetWithSSN

endNodeEntitySetWithSSN MANAGED OBJECT CLASS

DERIVED FROM sccpEntitySet;

CHARACTERIZED BY endNodeEntitySetWithSSNPackage PACKAGE

BEHAVIOUR endNodeEntitySetWithSSNBhv BEHAVIOUR DEFINED AS

"This managed object class is an sccpEntitySet that identifies SCCP Access Points. Because of this, the SAP pointer attribute is only allowed to refer to instances of the sccpAccessPoint class.";;;

REGISTERED AS { sccpObjectClass 3 };

7.1.4 gtConversionRule

gtConversionRule MANAGED OBJECT CLASS

DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":top;

CHARACTERIZED BY gtConversionRulePackage PACKAGE

BEHAVIOUR gtConversionRuleBhv BEHAVIOUR DEFINED AS

"This managed object class defines the rules that can be used to change the global title in a called party address. The conversion can replace all parts of the global title with a new value. If the addressInfoConversionRulePackage is present, it specifies how address elements can be inserted, replaced, passed transparently, or deleted from the (old) GTAI into a new GTAI. The procedures for Global Title Conversion are described in 7.3/Q.715. Only those parts of the GT information are modified that have a corresponding new value identified by instances of this class. In case an attribute representing GT information is present but is not to be used for converting Global Titles, it has value NULL. As a result, the particular part of the Global Title will not be overwritten.";;

ATTRIBUTES

gtConversionRuleId GET SET-BY-CREATE;;;

CONDITIONAL PACKAGES

"ITU-T Rec. M.3100 (1995)":createDeleteNotificationsPackage PRESENT IF "the objectCreation and objectDeletion notifications defined in 'ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992' are supported by an instance of this class",

"ITU-T Rec. M.3100 (1995)":attributeValueChangeNotificationPackage PRESENT IF "the attributeValueChange notification defined in 'ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992' is supported by an instance of this class",

addressInfoConversionRulePackage PRESENT IF "an instance supports it",

newEncodingSchemePackage PRESENT IF "an instance supports it",

newNatureOfAddressPackage PRESENT IF "an instance supports it",

newNumberingPlanPackage PRESENT IF "an instance supports it",

newTranslationTypePackage PRESENT IF "an instance supports it",

gtConversionRuleNamePackage PRESENT IF "an instance supports it";

REGISTERED AS { sccpObjectClass 4 };

--NOTE 1 – The application of gtConversionRule to calling party addresses conversions is for further study.

--NOTE 2 – The translationType managed object also offers a mechanism to modify global title translation types. That mechanism should not be used in parallel with the gtConversionRule managed object.

7.1.5 gtRule

gtRule MANAGED OBJECT CLASS

DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":top;

CHARACTERIZED BY gtRulePackage PACKAGE

BEHAVIOUR gtRuleBhv BEHAVIOUR DEFINED AS

"A Global Title Rule is selected based on the (matching) Global Title Address Information and possibly the Encoding Scheme. If there is no matching Translation Rule for a given Global Title, then a Routing Failure notification with the reason 'no translation for an address of this nature' is emitted by the SCRC. The Global Title Rule points to the Entity Set resulting from the Global Title Translation. The Global Title Conversion Rule pointer refers to an optional Global Title Conversion Rule that may modify the Global Title. The new Routing Indicator is implicitly set according the sccpEntitySet pointed to. The administrativeState attribute can have the following states: locked and unlocked.";;

ATTRIBUTES

gtRuleId	GET SET-BY-CREATE, "ITU-T Rec. X.721 (1992) ISO/IEC 10165-2 : 1992":administrativeState
gtAddressInformation	GET-REPLACE, GET SET-BY-CREATE,
gtConvRulePointer	GET-REPLACE,
gtEncodingScheme	GET SET-BY-CREATE,
sccpEntitySetPointer	GET-REPLACE;;;

CONDITIONAL PACKAGES

"ITU-T Rec. M.3100 (1995)":createDeleteNotificationsPackage PRESENT IF "the objectCreation and objectDeletion notifications defined in 'ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992' are supported by an instance of this class",
"ITU-T Rec. M.3100 (1995)": attributeValueChangeNotificationPackage PRESENT IF "the attributeValueChange notification defined in 'ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992' is supported by an instance of this class",
gtRuleNamePackage PRESENT IF "an instance supports it";

REGISTERED AS { sccpObjectClass 5 };

--NOTE – The new Routing Indicator is implicitly set according the sccpEntitySet pointed to.

7.1.6 gtTranslator

gtTranslator MANAGED OBJECT CLASS

DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":top;

CHARACTERIZED BY gtTranslatorPackage PACKAGE

BEHAVIOUR gtTranslatorBhv BEHAVIOUR DEFINED AS

"The Global Title Translator is selected on a combination of the values of the Nature of Address, the Translation Type, and the Numbering Plan (if available). As a consequence, the Global Title Translator is modelled as a class with three characteristic attributes: Nature of Address, Translation Type, and Numbering Plan. If an Global Title address field is not used, it has value NULL. The gtIndicator attribute is read-only and is derived from the combination of Nature of Address, the Translation Type, and Numbering Plan used. If for a given combination no Global Title Translator exists, a Routing Failure notification with the reason 'no translation for an address of this nature' is emitted by the SCRC. The administrativeState attribute can have the following states: locked and unlocked.";;

ATTRIBUTES

gtTranslatorId	GET SET-BY-CREATE, "ITU-T Rec. X.721 (1992) ISO/IEC 10165-2 : 1992":administrativeState
gtIndicator	GET-REPLACE, GET,
gtNatureOfAddress	GET SET-BY-CREATE,
gtNumberingPlan	GET SET-BY-CREATE,
gtTranslationType	GET SET-BY-CREATE;;;

CONDITIONAL PACKAGES

"ITU-T Rec. M.3100 (1995)":createDeleteNotificationsPackage PRESENT IF "the objectCreation and objectDeletion notifications defined in 'ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992' are supported by an instance of this class",
gtTranslatorNamePackage PRESENT IF "an instance supports it";

REGISTERED AS { sccpObjectClass 6 };

7.1.7 managedSwitchingElement managed object class

This managed object class can be found in Recommendation Q.751.1.

7.1.8 mtpAccessPoint managed object class (Message Transfer Part)

This managed object class can be found in Recommendation Q.751.1.

7.1.9 mtpSignPoint managed object class (Message Transfer Part)

This managed object class can be found in Recommendation Q.751.1.

7.1.10 relayNodeEntitySet

relayNodeEntitySet MANAGED OBJECT CLASS

DERIVED FROM sccpEntitySet;

CHARACTERIZED BY relayNodeEntitySetPackage PACKAGE

BEHAVIOUR relayNodeEntitySetBhv **BEHAVIOUR DEFINED AS**

"This managed object class is an sccpEntitySet that identifies SCCP relay nodes, i.e. MTP Access Points. Because of this, the entitySetSapPointer attribute is only allowed to refer to instances of the sccpLinkage class.

The ssn attribute allows to optionally set the subsystem number as a result of a Global Title Translation, if routing is done on Global title and DPC to a relay node";;;

CONDITIONAL PACKAGES

ssnPackage **PRESENT IF** "an instance supports it";

REGISTERED AS { sccpObjectClass 7 };

7.1.11 sccp

sccp MANAGED OBJECT CLASS

DERIVED FROM "ITU-T Rec. X.283 (1993) | ISO/IEC 10733 : 1992":networkEntity;

CHARACTERIZED BY sccpMOCPackage PACKAGE

BEHAVIOUR sccpMOCPackageBhv **BEHAVIOUR DEFINED AS**

"The sccp managed object class is the placeholder for all SCCP related managed objects. No specific management aspects have been identified. The communicationsEntiyId is used for naming. The localSapNames attribute contains a set of distinguished names of SCCP SAPs at which services are provided to the entity. The systemTypes attribute is a set-valued attribute with possible values: End System (ES) indicates an SCCP destination node, Intermediate System indicates an SCCP relay node. The networkEntityTitles attribute unambiguously identifies the name of the SCCP in an end or intermediate node. The value may be entered by a system management operation or it may be derived by some local means, for example by auto configuration.

The communicationsAlarm can have the following probable causes:

Probable Cause = LocalSccpUnavailable which represents measurements Q.752/8.1 – measurement Q.752/8.3 (SpecificProblems = Failure, Maintenance, Congestion)

(PerceivedSeverity = Major/Minor/Warning) and measurement Q.752/8.4 (PerceivedSeverity = Cleared),

Probable Cause = SubsystemOoSgranted which represents measurement Q.752/8.6, and

Probable Cause = SubsystemOoSdenied which represents measurement Q.752/8.7.";;

ATTRIBUTES

sccpVersion GET,

IUDTandLUDTSSupported GET,

coordChangeTimer GET-REPLACE,

ignoreSSTTimer GET-REPLACE,

maxStatInfoTimer GET-REPLACE;

NOTIFICATIONS

"ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":communicationsAlarm,

"ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":stateChange;;

CONDITIONAL PACKAGES

"ITU-T Rec. M.3100 (1995)": attributeValueChangeNotificationPackage PRESENT IF "the attributeValueChange notification defined in 'ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992' is supported by an instance of this class",
 "ITU-T Rec. M.3100 (1995)": alarmSeverityAssignmentPointerPackage PRESENT IF " an instance supports it",
 sccpNamePackage PRESENT IF "an instance supports it";
 REGISTERED AS { sccpObjectClass 8 };

7.1.12 sccpAccessPoint

sccpAccessPoint MANAGED OBJECT CLASS

DERIVED FROM "ITU-T Rec. X.283 (1993) | ISO/IEC 10733 : 1992":nSAP;

CHARACTERIZED BY sccpAccessPointPkg PACKAGE

BEHAVIOUR sccpAccessPointBhv BEHAVIOUR DEFINED AS

"The sap2Address attribute contains the address of the sccpAccessPoint. The address contains the SubSystem Number (SSN). The sap2Address is of type SET OF OCTETSTRING. For sccpAccessPoints, the set size is 1. The sapId attribute is used in naming instances of the sccpAccessPoint managed object class.

The userEntityNames attribute contains the distinguished names of the managed objects that represent the user entities that are using the sccpAccessPoint, i.e. instances of the SCCP subsystem. The providerEntityNames attribute contains the distinguished names of the managed objects that represent the provider entities that are supporting the sccpAccessPoint, i.e. the instance of the SCCP.

The status of the sccpAccessPoint is represented by the availability status attribute. A subsystem can have the status:

- allowed, the sccpAccessPoint is reachable and is functioning normally (availability status = available)
- prohibited, the sccpAccessPoint not reachable (availability status = unavailable)
- congested (availability status = degraded)

The optional (national network provider option) ssAvailableAfterSpRestart attribute holds the default subsystem status as described in the procedure of 5.2.3/Q.714.

The concernedAreaPointer specifies the concerned area to be used by SCCP Management for primary broadcast in case this access point is local. In case of a remote access point, the pointed concerned area will be used by SCCP Management for the secondary broadcast. The concernedAreaPointer has value 'NULL' if no concerned area is pointed at.

The sccpLinkagePointer specifies the sccpLinkage that is associated with remote sccpAccessPoints only. In case of a local sccpAccessPoint, the sccpLinkagePointer has value NULL. A remote sccpAccessPoint cannot be created without a valid pointer to an sccpLinkage.

The qualityofServiceAlarm can have the following probable cause:

ProbableCause = TooLargeForSegmentation which represents measurement Q.752/7.14 (PerceivedSeverity = Major/Minor/Warning).

ProbableCause = subsystemProhibited which represents measurement Q.752/8.11 and Q.752/8.12 (PerceivedSeverity = Major/Minor/Warning/Cleared).

The communicationsAlarm can have the following probable causes:

ProbableCause = sccpCongested which represents measurement Q.752/8.8

(PerceivedSeverity = Major/Minor/Warning). The congestion level is given as a parameter of the notification.

ProbableCause = localSubsystemProhibited which represents measurements Q.752/8.9 and Q.752/8.10 (PerceivedSeverity = Major/Minor/Warning/Cleared)";;

ATTRIBUTES

"ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":

availabilityStatus

GET,

concernedAreaPointer

GET-REPLACE,

sccpLinkagePointer

GET SET-BY-CREATE;

NOTIFICATIONS

"ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":communicationsAlarm congestionLevel,

"ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":qualityofServiceAlarm,
"ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":stateChange;;;

CONDITIONAL PACKAGES

ssAvailableAfterSpRestartPackage PRESENT IF "The national network provider option as described in 5.2.3/Q.714 is supported",

"ITU-T Rec. M.3100 (1995)": attributeValueChangeNotificationPackage PRESENT IF "the attributeValueChange notification defined in 'ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992' is supported by an instance of this class",

"ITU-T Rec. M.3100 (1995)": alarmSeverityAssignmentPointerPackage PRESENT IF " an instance supports it",

sccpAccessPointNamePackage PRESENT IF "an instance supports it";

REGISTERED AS { sccpObjectClass 9 };

7.1.13 sccpEntitySet

sccpEntitySet MANAGED OBJECT CLASS

DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":top;

CHARACTERIZED BY sccpEntitySetPackage PACKAGE

BEHAVIOUR sccpEntitySetBhv BEHAVIOUR DEFINED AS

"This managed object class identifies the set of access points that result from a global title translation. This set may contain one or two access points. The distribution of SCCP traffic over the entities in the set depends on the value of the sharingmode attribute:

In case of value 'solitary', there can only be one access point in the set.

In case of value 'dupliDominant', the second entity is a backup for the first entity, according to the procedure described in clause 5/Q.714.

In case of value 'dupliReplacement', the second entity is standby for backup for the first entity, but after change over, the primary and backup roles are swapped according to the procedure described in clause 5/Q.714. In this case, also the value of the entitySetSapPointer changes.

If the sccpEntitySetLoadsharingPackage is present, sharing mode can also take the value 'dupliLoadshared'. In this case, the load is shared over the entities in the set according to the algorithm referred to by the loadSharingAlgPointer attribute.

This managed object class is not instantiable, it is only a superclass for the instantiable subclasses endNodeEntitySetWithoutSSN, endNodeEntitySetWithSSN and relayNodeEntitySet.";;

ATTRIBUTES

sccpEntitySetId

entitySetSapPointer

sharingMode

GET SET-BY-CREATE,

GET-REPLACE ADD-REMOVE,

GET-REPLACE;;;

CONDITIONAL PACKAGES

"ITU-T Rec. M.3100 (1995)":createDeleteNotificationsPackage PRESENT IF "the objectCreation and objectDeletion notifications defined in 'ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992' are supported by an instance of this class",

"ITU-T Rec. M.3100 (1995)": attributeValueChangeNotificationPackage PRESENT IF "the attributeValueChange notification defined in 'ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992' is supported by an instance of this class",

sccpEntitySetLoadsharingPackage PRESENT IF "an instance supports it",

entitySetNamePackage PRESENT IF "an instance supports it";

REGISTERED AS { sccpObjectClass 10 };

--NOTE 1 – The sharing mode value 'duplicatedReplacement' was defined for the 1993 version of SCCP but removed in the 1996 version.

--NOTE 2 – The availability of an sccpEntitySet can be derived from the availability of the individual entities in the set. It is assumed that this is done at the network management level.

7.1.14 sccpLinkage

sccpLinkage MANAGED OBJECT CLASS

DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":top;

CHARACTERIZED BY sccpLinkagePackage PACKAGE

BEHAVIOUR sccpLinkageBhv BEHAVIOUR DEFINED AS

"This managed object class stores data about the specific capabilities of the underlying MTP access point. It is analogue to the generic managed object class linkage that is described in Recommendation X.283. For this managed object class subclasses may be specified for vendor-specific additions.

The sN-SAP attribute indicates a relationship to the underlying MTP access point.

The operationalProtocols attribute indicates the protocol classes actually supported by this MTP network. The 'versions' field of the attribute is always 'empty'.

The concernedAreaPointer specifies the concerned area to be used for broadcasting the SCCP status after completion of SCCP Restart. It has value 'NULL' if no concerned area is pointed at.";;

ATTRIBUTES

sccpLinkId	GET SET- BY-CREATE,
"ITU-T Rec. X.283 (1993) ISO/IEC 10733 : 1992":operationalProtocols	GET,
"ITU-T Rec. X.283 (1993) ISO/IEC 10733 : 1992":sN-SAP	GET;;;

CONDITIONAL PACKAGES

"ITU-T Rec. M.3100 (1995)":createDeleteNotificationsPackage PRESENT IF "the objectCreation and objectDeletion notifications defined in 'ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992' are supported by an instance of this class",

"ITU-T Rec. M.3100 (1995)": attributeValueChangeNotificationPackage PRESENT IF "the attributeValueChange notification defined in 'ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992' is supported by an instance of this class",

congestionPackage PRESENT IF "an instance supports it and only if the access point is local",

localSccpLinkagePackage PRESENT IF "an instance represents a local sccpLinkage",

sccpLinkageNamePackage PRESENT IF "an instance supports it";

REGISTERED AS { sccpObjectClass 11 };

7.1.15 sclc

sclc MANAGED OBJECT CLASS

DERIVED FROM "ITU-T Rec. X.283 (1993) | ISO/IEC 10733 : 1992":cLNS;

CHARACTERIZED BY sclcPackage PACKAGE

BEHAVIOUR sclcPackageBhv BEHAVIOUR DEFINED AS

"This managed object class contains the management information concerning the SCCP connectionless services. The managed object class is derived from ISO/IEC 10733 cLNS.

The following states of the administrative state are appropriate: locked and unlocked.

The operationalSystemType attribute is an attribute with possible values: End System (ES) indicates an SCCP destination node, Intermediate System indicates an SCCP relay node. If the operationalSystemType equals 'Destination Node' it indicates that the system shall perform no forwarding operations upon non-local SCCP messages. A value of 'Intermediate Node' indicates that the system is permitted to perform forwarding operations, but the decision to forward individual SCCP messages or not to forward them, shall be taken on the basis of the available routing information.

If the managed object is created by management operation, the initial value of the operationalSystemType 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 SCCP managed object.

The set of connectionless network protocols supported by this instance of the sclc protocol machine is represented by the supportedProtocols attribute. For the connectionless protocol, it can be either class 0 or 1, or both.

The qualityofServiceAlarm can have the following probable causes:

ProbableCause = ReassemblyTimeOut which represents measurement Q.752/7.10 (PerceivedSeverity = Major/Minor/Warning),

ProbableCause = SegmentOutOfOrder which represents measurement Q.752/7.11 (PerceivedSeverity = Major/Minor/Warning),

ProbableCause = NoReassemblySpace which represents measurement Q.752/7.12 (PerceivedSeverity = Major/Minor/Warning),

ProbableCause = NoSegmentationSupport which represents measurement Q.752/7.19 (PerceivedSeverity = Major/Minor/Warning),
 ProbableCause = SegmentationFailure which represents measurement Q.752/7.20 (PerceivedSeverity = Major/Minor/Warning), and
 ProbableCause = ReassemblyFailure which represents measurement Q.752/7.21 (PerceivedSeverity = Major/Minor/Warning).";;

ATTRIBUTES

initialValueReassTimer GET-REPLACE;

NOTIFICATIONS

"ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":qualityofServiceAlarm;;

CONDITIONAL PACKAGES

"ITU-T Rec. M.3100 (1995)": attributeValueChangeNotificationPackage PRESENT IF "the attributeValueChange notification defined in 'ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992' is supported by an instance of this class",

"ITU-T Rec. M.3100 (1995)": alarmSeverityAssignmentPointerPackage PRESENT IF "an instance supports it",

sclcNamePackage PRESENT IF "an instance supports it";

REGISTERED AS { sccpObjectClass 12 };

7.1.16 scoc

--NOTE – The following managed object class is for further study.

scoc MANAGED OBJECT CLASS

DERIVED FROM "ITU-T Rec. X.283 (1993) | ISO/IEC 10733 : 1992":cONS;

CHARACTERIZED BY scocPackage PACKAGE

BEHAVIOUR scocPackageBhv BEHAVIOUR DEFINED AS

"The following states of the administrative state are appropriate: locked and unlocked.

The operationalSystemType attribute is an attribute with possible values: End System (ES) indicates an SCCP destination node, Intermediate System indicates an SCCP relay node. The operationalSystemType indicates the system role in which this instance is operating. A value of 'Destination Node' indicates that the system shall perform no forwarding operations upon non-local SCCP messages. A value of Intermediate Node indicates that the system is permitted to perform forwarding operations, but the decision to forward individual SCCP messages or not to forward them, shall be taken on the basis of the available routing information. If the MO is created by management operation, the initial value of the operationalSystemType 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 SCCP managed object.

The set of connection-oriented network protocols supported by this instance of the scoc protocol machine is represented by the supportedProtocols attribute. For the connection-oriented protocol, it can be either class 2 or 3, or both.";;

ATTRIBUTES

"ITU-T Rec. X.283 (1993) | ISO/IEC 10733 : 1992":supportedProtocols GET;;

CONDITIONAL PACKAGES

scocNamePackage PRESENT IF "an instance supports it";

REGISTERED AS { sccpObjectClass 13 };

7.1.17 scrc

scrc MANAGED OBJECT CLASS

DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":top;

CHARACTERIZED BY scrcPackage PACKAGE

BEHAVIOUR scrcPackageBhv BEHAVIOUR DEFINED AS

"The scrc managed object class contains the management information concerning the SCCP routing control.

The qualityofServiceAlarm can have the following probable causes:

ProbableCause = NoTranslatorForAddress which represents measurement Q.752/7.1 (PerceivedSeverity = Major/Minor/Warning),

ProbableCause = NoRuleForAddress which represents measurement Q.752/7.2 (PerceivedSeverity = Major/Minor/Warning),

ProbableCause = PointCodeNotAvailable which represents measurement Q.752/7.31

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        (PerceivedSeverity = Major/Minor/Warning),
        ProbableCause = PointCodeCongested which represents measurement Q.752/7.4
        (PerceivedSeverity = Major/Minor/Warning),
        ProbableCause = SubsystemUnavailable which represents measurement Q.752/7.5
        (PerceivedSeverity = Major/Minor/Warning),
        ProbableCause = SubsystemCongested which represents measurement Q.752/7.6
        (PerceivedSeverity = Major/Minor/Warning),
        ProbableCause = UnequippedSubsystem which represents measurement Q.752/7.7
        (PerceivedSeverity = Major/Minor/Warning),
        ProbableCause = SyntaxErrorDetected which represents measurement Q.752/7.8
        (PerceivedSeverity = Major/Minor/Warning),
        ProbableCause = RoutingFailureNoReasonOrUnqualified which represents measurement
        Q.752/7.9 (PerceivedSeverity = Major/Minor/Warning), and
        ProbableCause = HopCounterViolation which represents measurement Q.752/7.13
        (PerceivedSeverity = Major/Minor/Warning).";
ATTRIBUTES
    srcId          GET SET-BY-CREATE;
NOTIFICATIONS
    "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":qualityofServiceAlarm;;;
CONDITIONAL PACKAGES
    "ITU-T Rec. M.3100 (1995)":createDeleteNotificationsPackage PRESENT IF "the
    objectCreation and objectDeletion notifications defined in 'ITU-T Rec. X.721 (1992) |
    ISO/IEC 10165-2 : 1992' are supported by an instance of this class",
    "ITU-T Rec. M.3100 (1995)": alarmSeverityAssignmentPointerPackage PRESENT IF " an
    instance supports it",
    srcNamePackage PRESENT IF "an instance supports it";
REGISTERED AS { sccpObjectClass 14 };

```

7.1.18 srvt

srvt MANAGED OBJECT CLASS

```

    DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":top;
    CHARACTERIZED BY srvtPackage PACKAGE
        BEHAVIOUR srvtBhv BEHAVIOUR DEFINED AS
            "This managed object represents the management information of the SCCP Routing
            Verification Test. This test is described in Recommendation Q.753. The SCCP Routing
            Verification Test (srvt) is used to test the Global Title Translation service of the SCCP.";;
    ATTRIBUTES
        sccpRouteTestId  GET SET-BY-CREATE,
        dSRVT             GET,
        nSRVT             GET-REPLACE;
    ACTIONS
        startSccpRouteTest;
    NOTIFICATIONS
        sccpRouteTestResult;;;
    CONDITIONAL PACKAGES
        "ITU-T Rec. M.3100 (1995)":createDeleteNotificationsPackage PRESENT IF "the
        objectCreation and objectDeletion notifications defined in 'ITU-T Rec. X.721 (1992) |
        ISO/IEC 10165-2 : 1992' are supported by an instance of this class",
        "ITU-T Rec. M.3100 (1995)": attributeValueChangeNotificationPackage PRESENT IF "the
        attributeValueChange notification defined in 'ITU-T Rec. X.721 (1992) |
        ISO/IEC 10165-2 : 1992' is supported by an instance of this class",
        srvtNamePackage PRESENT IF "an instance supports it";
REGISTERED AS { sccpObjectClass 15};

```

7.2 Package definitions

concernedAreaNamePackage PACKAGE

ATTRIBUTES

concernedAreaName GET-REPLACE;
REGISTERED AS { sccpPackage 1 };

congestionPackage PACKAGE

ATTRIBUTES

attackTimerValue GET-REPLACE,
decayTimerValue GET-REPLACE,
nrOfRestrictionLevels DEFAULT VALUE
SCCPDefinedTypesModule.nrOfRestrictionLevelsDefault
GET-REPLACE,
nrOfSubLevels DEFAULT VALUE SCCPDefinedTypesModule.nrOfSubLevelsDefault
GET-REPLACE,
cLS DEFAULT VALUE SCCPDefinedTypesModule.cLSDefault
GET-REPLACE,
congestionTimerValue GET-REPLACE,
p DEFAULT VALUE SCCPDefinedTypesModule.pDefault
GET SET-BY-CREATE,
importanceLevel-CR GET-REPLACE,
importanceLevel-CC GET-REPLACE,
importanceLevel-CREF GET-REPLACE,
importanceLevel-DT1 GET-REPLACE,
importanceLevel-DT2 GET-REPLACE,
importanceLevel-AK GET-REPLACE,
importanceLevel-IT GET-REPLACE,
importanceLevel-ED GET-REPLACE,
importanceLevel-EA GET-REPLACE,
importanceLevel-RSR GET-REPLACE,
importanceLevel-RSC GET-REPLACE,
importanceLevel-ERR GET-REPLACE,
importanceLevel-RLC GET-REPLACE,
importanceLevel-RLSD GET-REPLACE,
importanceLevel-UDT GET-REPLACE,
importanceLevel-UDTS GET-REPLACE,
importanceLevel-XUDT GET-REPLACE,
importanceLevel-XUDTS GET-REPLACE,
importanceLevel-LUDT GET-REPLACE,
importanceLevel-LUDTS GET-REPLACE,
rLM GET-REPLACE,
rSLM GET-REPLACE;
REGISTERED AS { sccpPackage 2 };

--NOTE 1 – For recommended values of the importanceLevel attributes, see 2.6.2/Q.714.

--NOTE 2 – Caution should be taken when modifying the importance levels. Co-ordination within and in between different networks might be required.

addressInfoConversionRulePackage PACKAGE

ATTRIBUTES

addressInfoConversionRule GET-REPLACE;
REGISTERED AS { sccpPackage 3 };

entitySetNamePackage PACKAGE

ATTRIBUTES

entitySetName GET-REPLACE;
REGISTERED AS { sccpPackage 4 };

gtConversionRuleNamePackage PACKAGE	
ATTRIBUTES	
gtConversionRuleName	GET-REPLACE;
REGISTERED AS { sccpPackage 5 };	
gtRuleNamePackage PACKAGE	
ATTRIBUTES	
gtRuleName	GET-REPLACE;
REGISTERED AS { sccpPackage 6 };	
gtTranslatorNamePackage PACKAGE	
ATTRIBUTES	
gtTranslatorName	GET-REPLACE;
REGISTERED AS { sccpPackage 7 };	
localSccpLinkagePackage PACKAGE	
ATTRIBUTES	
concernedAreaPointer	GET-REPLACE,
lowerLimitForSegmentation	GET-REPLACE,
upperLimitForSegmentation	GET-REPLACE;
REGISTERED AS { sccpPackage 8 };	
newEncodingSchemePackage PACKAGE	
ATTRIBUTES	
newEncodingScheme	GET-REPLACE;
REGISTERED AS { sccpPackage 9 };	
newNatureOfAddressPackage PACKAGE	
ATTRIBUTES	
newNatureOfAddress	GET-REPLACE;
REGISTERED AS { sccpPackage 10 };	
newNumberingPlanPackage PACKAGE	
ATTRIBUTES	
newNumberingPlan	GET-REPLACE;
REGISTERED AS { sccpPackage 11 };	
newTranslationTypePackage PACKAGE	
ATTRIBUTES	
newTranslationType	GET-REPLACE;
REGISTERED AS { sccpPackage 12 };	
sccpAccessPointNamePackage PACKAGE	
ATTRIBUTES	
sccpAccessPointName	GET-REPLACE;
REGISTERED AS { sccpPackage 13 };	
sccpEntitySetLoadsharingPackage PACKAGE	
ATTRIBUTES	
loadSharingAlgPointer	GET-REPLACE;
REGISTERED AS { sccpPackage 14 };	
sccpLinkageNamePackage PACKAGE	
ATTRIBUTES	
sccpLinkageName	GET-REPLACE;
REGISTERED AS { sccpPackage 15 };	
sccpNamePackage PACKAGE	
ATTRIBUTES	
sccpName	GET-REPLACE;
REGISTERED AS { sccpPackage 16 };	

```

sclcNamePackage PACKAGE
  ATTRIBUTES
    sclcName GET-REPLACE;
REGISTERED AS { sccpPackage 17 };

scocNamePackage PACKAGE
  ATTRIBUTES
    scocName GET-REPLACE;
REGISTERED AS { sccpPackage 18 };

scrcNamePackage PACKAGE
  ATTRIBUTES
    scrcName GET-REPLACE;
REGISTERED AS { sccpPackage 19 };

srvtNamePackage PACKAGE
  ATTRIBUTES
    srvtName GET-REPLACE;
REGISTERED AS { sccpPackage 20 };

ssAvailableAfterSpRestartPackage PACKAGE
  ATTRIBUTES
    ssAvailableAfterSpRestart DEFAULT VALUE
    SCCPDefinedTypesModule.ssAvailableAfterSpRestartDefault
    GET-REPLACE;
REGISTERED AS { sccpPackage 21 };

ssnPackage PACKAGE
  ATTRIBUTES
    ssn GET-REPLACE;
REGISTERED AS { sccpPackage 22 };

```

7.3 Parameter definitions

```

congestionLevel PARAMETER
  CONTEXT EVENT-INFO;
  WITH SYNTAX SCCPDefinedTypesModule.CongestionLevel;
REGISTERED AS { sccpParameter 1 };

```

7.4 Attribute definitions

addressInfoConversionRule

```

addressInfoConversionRule ATTRIBUTE
  WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.AddressInfoConversionRule;
  MATCHES FOR EQUALITY;
  BEHAVIOUR addressInfoConversionRuleBhv BEHAVIOUR DEFINED AS
    "This attribute specifies how address elements can be inserted, replaced, passed transparently, or
    deleted from the (old) GTAI into a new GTAI.";;
REGISTERED AS { sccpAttribute 1 };

```

attackTimerValue

```

attackTimerValue ATTRIBUTE
  WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.AttackTimerValue;
  MATCHES FOR EQUALITY;
  BEHAVIOUR attackTimerValueBhv BEHAVIOUR DEFINED AS
    "This attribute models the congestion control parameter Ta, as described in 5.2.4/Q.714.";;
REGISTERED AS { sccpAttribute 2 };

```

cLS

cLS ATTRIBUTE

WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.CLS;

MATCHES FOR EQUALITY;

BEHAVIOUR cLSBhv BEHAVIOUR DEFINED AS

"This attribute models the congestion control parameter CL_s, as described in 5.2.7/Q.714.";;

REGISTERED AS { sccpAttribute 3 };

concernedAreaId

concernedAreaId ATTRIBUTE

WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.SimpleNameType;

MATCHES FOR EQUALITY;

BEHAVIOUR concernedAreaIdBhv BEHAVIOUR DEFINED AS

"This attribute is used for naming instances.";;

REGISTERED AS { sccpAttribute 4 };

concernedAreaName

concernedAreaName ATTRIBUTE

WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.AdditionalName;

MATCHES FOR EQUALITY;

REGISTERED AS { sccpAttribute 5 };

concernedAreaPointer

concernedAreaPointer ATTRIBUTE

WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.PointerOrNull;

MATCHES FOR EQUALITY;

BEHAVIOUR concernedAreaPointerBhv BEHAVIOUR DEFINED AS

"This attribute is used for referring to instances of concernedArea. It has value 'NULL' if no concerned area is pointed at.";;

REGISTERED AS { sccpAttribute 6 };

congestionTimerValue

congestionTimerValue ATTRIBUTE

WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.CongestionTimerValue;

MATCHES FOR EQUALITY;

BEHAVIOUR congestionTimerValueBhv BEHAVIOUR DEFINED AS

"This attribute models the congestion control parameter Tcon, as described in 5.2.7/Q.714.";;

REGISTERED AS { sccpAttribute 7 };

coordChangeTimer

coordChangeTimer ATTRIBUTE

WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.TcoordChg;

MATCHES FOR EQUALITY;

BEHAVIOUR coordChangeTimerBhv BEHAVIOUR DEFINED AS

"This attribute represents the initial value of timer tCoordChg: waiting for grant for subsystem to go out of service, as defined in 5.3.5.2/Q.714.";;

REGISTERED AS { sccpAttribute 8 };

decayTimerValue

decayTimerValue ATTRIBUTE

WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.DecayTimerValue;

MATCHES FOR EQUALITY;

BEHAVIOUR decayTimerValueBhv BEHAVIOUR DEFINED AS

"This attribute models the congestion control parameter Td, as described in 5.2.4/Q.714.";;

REGISTERED AS { sccpAttribute 9 };

dSRVT

dSRVT ATTRIBUTE

WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.DSRVT;

MATCHES FOR EQUALITY;

BEHAVIOUR dSRVTBhv BEHAVIOUR DEFINED AS

"The estimated maximum delay between relay points D_{SRVT} as described in 3.2.2.5/Q.753. This value is needed for the calculation of the SRVT Guard Timer T2.";;

REGISTERED AS { sccpAttribute 10 };

entitySetName
entitySetName ATTRIBUTE
WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.AdditionalName;
MATCHES FOR EQUALITY;
REGISTERED AS { sccpAttribute 11 };

entitySetSapPointer
entitySetSapPointer ATTRIBUTE
WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.EntitySetSapPointer;
MATCHES FOR EQUALITY, SET-COMPARISON, SET-INTERSECTION;
BEHAVIOUR entitySetSapPointerBhv BEHAVIOUR DEFINED AS
"The entitySetSapPointer attribute refers to the access point(s) contained in the SCCP entity set.
For the mtp access points, this is to be done by referring to sccpLinkage's.";;
REGISTERED AS { sccpAttribute 12 };

gtAddressInformation
gtAddressInformation ATTRIBUTE
WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.GtAddressInformation;
MATCHES FOR EQUALITY;
BEHAVIOUR gtAddressInformationBhv BEHAVIOUR DEFINED AS
"The globalTitleAddressInformation attribute contains the value of the Global Title address information, as indicated in 3.4.2/Q.713.";;
REGISTERED AS { sccpAttribute 13 };

gtConversionRuleId
gtConversionRuleId ATTRIBUTE
WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.SimpleNameType;
MATCHES FOR EQUALITY;
BEHAVIOUR gtConversionRuleIdBhv BEHAVIOUR DEFINED AS
"This attribute is used for naming instances.";;
REGISTERED AS { sccpAttribute 14 };

gtConversionRuleName
gtConversionRuleName ATTRIBUTE
WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.AdditionalName;
MATCHES FOR EQUALITY;
REGISTERED AS { sccpAttribute 15 };

gtConvRulePointer
gtConvRulePointer ATTRIBUTE
WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.PointerOrNull;
MATCHES FOR EQUALITY;
BEHAVIOUR gtConvRulePointerBhv BEHAVIOUR DEFINED AS
"This attribute refers to a Global Title conversion rule.";;
REGISTERED AS { sccpAttribute 16 };

gtEncodingScheme
gtEncodingScheme ATTRIBUTE
WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.GtEncodingScheme;
MATCHES FOR EQUALITY;
BEHAVIOUR gtEncodingSchemeBhv BEHAVIOUR DEFINED AS
"The encoding scheme is a part of the Global Title that identifies the encoding scheme of the Global Title Address Information. For example, BCD with an odd number of digits or BCD with an even number of digits.";;
REGISTERED AS { sccpAttribute 17 };

gtIndicator

gtIndicator ATTRIBUTE

WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.GtIndicator;

MATCHES FOR EQUALITY;

BEHAVIOUR gtIndicatorBhv BEHAVIOUR DEFINED AS

"The global title indicator indicates what type of global title is used (3.4/Q.713).";;

REGISTERED AS { sccpAttribute 18 };

gtNatureOfAddress

gtNatureOfAddress ATTRIBUTE

WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.GtNatureOfAddress;

MATCHES FOR EQUALITY;

BEHAVIOUR gtNatureOfAddressBhv BEHAVIOUR DEFINED AS

"The nature of address attribute is single valued. The nature of address includes values for
'international number', 'subscriber number', etcetera (3.4.2.3/Q.713).";;

REGISTERED AS { sccpAttribute 19 };

gtNumberingPlan

gtNumberingPlan ATTRIBUTE

WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.GtNumberingPlan;

MATCHES FOR EQUALITY;

BEHAVIOUR gtNumberingPlanBhv BEHAVIOUR DEFINED AS

"The numbering plan attribute is single valued. The numbering plan indicates how the global title
address information is constructed from different parts (e.g. country codes, subscriber number or
national significant number) according to the syntax and semantic defined for that particular
numbering plan (see 2.4.2.1/Q.714).";;

REGISTERED AS { sccpAttribute 20 };

gtRuleId

gtRuleId ATTRIBUTE

WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.SimpleNameType;

MATCHES FOR EQUALITY;

BEHAVIOUR gtRuleIdBhv BEHAVIOUR DEFINED AS

"This attribute is used for naming instances.";;

REGISTERED AS { sccpAttribute 21 };

gtRuleName

gtRuleName ATTRIBUTE

WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.AdditionalName;

MATCHES FOR EQUALITY;

REGISTERED AS { sccpAttribute 22 };

gtTranslationType

gtTranslationType ATTRIBUTE

WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.GtTranslationType;

MATCHES FOR EQUALITY;

BEHAVIOUR gtTranslationTypeBhv BEHAVIOUR DEFINED AS

"The translation type attribute is single valued. ";;

REGISTERED AS { sccpAttribute 23 };

gtTranslatorId

gtTranslatorId ATTRIBUTE

WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.SimpleNameType;

MATCHES FOR EQUALITY;

BEHAVIOUR gtTranslatorIdBhv BEHAVIOUR DEFINED AS

"This attribute is used for naming instances.";;

REGISTERED AS { sccpAttribute 24 };

gtTranslatorName

gtTranslatorName ATTRIBUTE

WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.AdditionalName;

MATCHES FOR EQUALITY;
REGISTERED AS { sccpAttribute 25 };

importanceLevel-AK

importanceLevel-AK ATTRIBUTE
WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.ImportanceLevel;
MATCHES FOR EQUALITY;
REGISTERED AS { sccpAttribute 26 };

importanceLevel-CC

importanceLevel-CC ATTRIBUTE
WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.ImportanceLevel;
MATCHES FOR EQUALITY;
REGISTERED AS { sccpAttribute 27 };

importanceLevel-CR

importanceLevel-CR ATTRIBUTE
WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.ImportanceLevel;
MATCHES FOR EQUALITY;
REGISTERED AS { sccpAttribute 28 };

importanceLevel-CREF

importanceLevel-CREF ATTRIBUTE
WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.ImportanceLevel;
MATCHES FOR EQUALITY;
REGISTERED AS { sccpAttribute 29 };

importanceLevel-DT1

importanceLevel-DT1 ATTRIBUTE
WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.ImportanceLevel;
MATCHES FOR EQUALITY;
REGISTERED AS { sccpAttribute 30 };

importanceLevel-DT2

importanceLevel-DT2 ATTRIBUTE
WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.ImportanceLevel;
MATCHES FOR EQUALITY;
REGISTERED AS { sccpAttribute 31 };

importanceLevel-EA

importanceLevel-EA ATTRIBUTE
WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.ImportanceLevel;
MATCHES FOR EQUALITY;
REGISTERED AS { sccpAttribute 32 };

importanceLevel-ED

importanceLevel-ED ATTRIBUTE
WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.ImportanceLevel;
MATCHES FOR EQUALITY;
REGISTERED AS { sccpAttribute 33 };

importanceLevel-ERR

importanceLevel-ERR ATTRIBUTE
WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.ImportanceLevel;
MATCHES FOR EQUALITY;
REGISTERED AS { sccpAttribute 34 };

importanceLevel-IT

importanceLevel-IT ATTRIBUTE
WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.ImportanceLevel;
MATCHES FOR EQUALITY;
REGISTERED AS { sccpAttribute 35 };

importanceLevel-LUDT
importanceLevel-LUDT ATTRIBUTE
 WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.ImportanceLevel;
 MATCHES FOR EQUALITY;
REGISTERED AS { sccpAttribute 36 };

importanceLevel-LUDTS
importanceLevel-LUDTS ATTRIBUTE
 WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.ImportanceLevel;
 MATCHES FOR EQUALITY;
REGISTERED AS { sccpAttribute 37 };

importanceLevel-RLC
importanceLevel-RLC ATTRIBUTE
 WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.ImportanceLevel;
 MATCHES FOR EQUALITY;
REGISTERED AS { sccpAttribute 38 };

importanceLevel-RLSD
importanceLevel-RLSD ATTRIBUTE
 WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.ImportanceLevel;
 MATCHES FOR EQUALITY;
REGISTERED AS { sccpAttribute 39 };

importanceLevel-RSC
importanceLevel-RSC ATTRIBUTE
 WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.ImportanceLevel;
 MATCHES FOR EQUALITY;
REGISTERED AS { sccpAttribute 40 };

importanceLevel-RSR
importanceLevel-RSR ATTRIBUTE
 WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.ImportanceLevel;
 MATCHES FOR EQUALITY;
REGISTERED AS { sccpAttribute 41 };

importanceLevel-UDT
importanceLevel-UDT ATTRIBUTE
 WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.ImportanceLevel;
 MATCHES FOR EQUALITY;
REGISTERED AS { sccpAttribute 42 };

importanceLevel-UDTS
importanceLevel-UDTS ATTRIBUTE
 WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.ImportanceLevel;
 MATCHES FOR EQUALITY;
REGISTERED AS { sccpAttribute 43 };

importanceLevel-XUDT
importanceLevel-XUDT ATTRIBUTE
 WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.ImportanceLevel;
 MATCHES FOR EQUALITY;
REGISTERED AS { sccpAttribute 44 };

importanceLevel-XUDTS
importanceLevel-XUDTS ATTRIBUTE
 WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.ImportanceLevel;
 MATCHES FOR EQUALITY;
REGISTERED AS { sccpAttribute 45 };

ignoreSSTTimer

ignoreSSTTimer ATTRIBUTE

WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule. TignoreSST;

MATCHES FOR EQUALITY;

BEHAVIOUR ignoreSSTTimerBhv BEHAVIOUR DEFINED AS

"This attribute represents the initial value of timer TignoreSST: delay for sub-system between receiving grant to go out of service and actually going out of service, as defined in 5.3.5.2/Q.714.";;

REGISTERED AS { sccpAttribute 46 };

initialValueReassTimer

initialValueReassTimer ATTRIBUTE

WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.InitialValueReassTimer;

MATCHES FOR EQUALITY;

BEHAVIOUR initialValueReassTimerBhv BEHAVIOUR DEFINED AS

"This attribute represents the initial value of Reassembly Timers, when they are created.";;

REGISTERED AS { sccpAttribute 47 };

loadSharingAlgPointer

loadSharingAlgPointer ATTRIBUTE

WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.Pointer;

MATCHES FOR EQUALITY;

BEHAVIOUR loadSharingAlgPointerBhv BEHAVIOUR DEFINED AS

"The loadSharingAlgPointer attribute refers to the load sharing algorithm that must be applied if the sharing mode of an entity set is duplicated-loadshared. ";;

REGISTERED AS { sccpAttribute 48 };

lowerLimitForSegmentation

lowerLimitForSegmentation ATTRIBUTE

WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule. LowerLimitForSegmentation;

MATCHES FOR EQUALITY;

BEHAVIOUR lowerLimitForSegmentationBhv BEHAVIOUR DEFINED AS

"This attribute represents a number of octets. If the length of the user data exceeds this length then it depends on the status of the network whether the message is segmented or not. The attribute corresponds to the parameter Z as described in 4.1.1.1.1/Q.714. The value of this attribute shall obey the relation $150 \leq \text{lowerLimitForSegmentation} \leq \text{upperLimitForSegmentation}$, as described in 4.1.1.1.1/Q.714.";;

REGISTERED AS { sccpAttribute 49 };

IUDTandLUDTSSupported

IUDTandLUDTSSupported ATTRIBUTE

WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.LUDTandLUDTSSupported ;

MATCHES FOR EQUALITY;

BEHAVIOUR IUDTandLUDTSSupportedBhv BEHAVIOUR DEFINED AS

"This attribute indicates whether the implementation supports LUDT(S) messages.";;

REGISTERED AS { sccpAttribute 50 };

maxStatInfoTimer

maxStatInfoTimer ATTRIBUTE

WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule. MaxStatInfoTimer;

MATCHES FOR EQUALITY;

BEHAVIOUR maxStatInfoTimerBhv BEHAVIOUR DEFINED AS

"This attribute represents the maximum value of timer TstatInfo: delay between requests for sub-system status information, as defined in 5.3.4.2/Q.714.";;

REGISTERED AS { sccpAttribute 51 };

newEncodingScheme

newEncodingScheme ATTRIBUTE

WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.GtEncodingScheme;

MATCHES FOR EQUALITY;

BEHAVIOUR newEncodingSchemeBhv BEHAVIOUR DEFINED AS

"This attribute specifies the new ES.";;

REGISTERED AS { sccpAttribute 52 };

newNatureOfAddress

newNatureOfAddress ATTRIBUTE

WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.GtNatureOfAddress;

MATCHES FOR EQUALITY;

BEHAVIOUR newNatureOfAddressBhv BEHAVIOUR DEFINED AS

"This attribute specifies the new NAI.";;

REGISTERED AS { sccpAttribute 53 };

newNumberingPlan

newNumberingPlan ATTRIBUTE

WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.GtNumberingPlan;

MATCHES FOR EQUALITY;

BEHAVIOUR newNumberingPlanBhv BEHAVIOUR DEFINED AS

"This attribute specifies the new NP.";;

REGISTERED AS { sccpAttribute 54 };

newTranslationType

newTranslationType ATTRIBUTE

WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.GtTranslationType;

MATCHES FOR EQUALITY;

BEHAVIOUR newTranslationTypeBhv BEHAVIOUR DEFINED AS

"This attribute specifies the new TT.";;

REGISTERED AS { sccpAttribute 55 };

nrOfRestrictionLevels

nrOfRestrictionLevels ATTRIBUTE

WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.NrOfRestrictionLevels;

MATCHES FOR EQUALITY;

BEHAVIOUR nrOfRestrictionLevelsBhv BEHAVIOUR DEFINED AS

"This attribute models the congestion control parameter N, as described in 5.2.7/Q.714.";;

REGISTERED AS { sccpAttribute 56 };

nrOfSubLevels

nrOfSubLevels ATTRIBUTE

WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.NrOfSubLevels;

MATCHES FOR EQUALITY;

BEHAVIOUR nrOfSubLevelsBhv BEHAVIOUR DEFINED AS

"This attribute models the congestion control parameter M, as described in 5.2.7/Q.714.";;

REGISTERED AS { sccpAttribute 57 };

nSRVT

nSRVT ATTRIBUTE

WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.NSRVT;

MATCHES FOR EQUALITY;

BEHAVIOUR nSRVTBhv BEHAVIOUR DEFINED AS

"This attribute equals to the value of N_{SRVT} as described in 3.2.2.5/Q.753.";;

REGISTERED AS { sccpAttribute 58 };

p

p ATTRIBUTE

WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.P;

MATCHES FOR EQUALITY;

BEHAVIOUR pBhv BEHAVIOUR DEFINED AS

"This attribute models the congestion control parameter P, as described in 5.2.7/Q.714.";;

REGISTERED AS { sccpAttribute 59 };

remoteSCCPList

remoteSCCPList ATTRIBUTE

WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.RemoteSCCPList;
MATCHES FOR EQUALITY, SET-COMPARISON, SET-INTERSECTION;
BEHAVIOUR remoteSCCPListBhv BEHAVIOUR DEFINED AS

"This attribute models a list of remote MTP Access Points all belonging to the same MTP network.";;

REGISTERED AS { sccpAttribute 60 };

rLM

rLM ATTRIBUTE

WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.RLM;
MATCHES FOR EQUALITY;
BEHAVIOUR rLMBhv BEHAVIOUR DEFINED AS

"This attribute models the restriction level parameter RLM as defined in 5.2.4/Q.714.";;

REGISTERED AS { sccpAttribute 61 };

rSLM

rSLM ATTRIBUTE

WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.RSLM;
MATCHES FOR EQUALITY;
BEHAVIOUR rSLMBhv BEHAVIOUR DEFINED AS

"This attribute models the restriction sub-level parameter RSLM as defined in 5.2.4/Q.714.";;

REGISTERED AS { sccpAttribute 62 };

sccpAccessPointName

sccpAccessPointName ATTRIBUTE

WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.AdditionalName;
MATCHES FOR EQUALITY;

REGISTERED AS { sccpAttribute 63 };

sccpEntitySetId

sccpEntitySetId ATTRIBUTE

WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.SimpleNameType;
MATCHES FOR EQUALITY;
BEHAVIOUR sccpEntitySetIdBhv BEHAVIOUR DEFINED AS

"This attribute is used for naming instances.";;

REGISTERED AS { sccpAttribute 64 };

sccpEntitySetPointer

sccpEntitySetPointer ATTRIBUTE

WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.Pointer;
MATCHES FOR EQUALITY;
BEHAVIOUR sccpEntitySetPointerBhv BEHAVIOUR DEFINED AS

"The sccpEntitySetPointer attribute refers to the SCCP entity set resulting from the global title translation.";;

REGISTERED AS { sccpAttribute 65 };

sccpLinkageId

sccpLinkageId ATTRIBUTE

WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.SimpleNameType;
MATCHES FOR EQUALITY;
BEHAVIOUR sccpLinkageIdBhv BEHAVIOUR DEFINED AS

"This attribute is used for naming instances.";;

REGISTERED AS { sccpAttribute 66 };

sccpLinkageName

sccpLinkageName ATTRIBUTE

WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.AdditionalName;
MATCHES FOR EQUALITY;

REGISTERED AS { sccpAttribute 67 };

sccpLinkagePointer

sccpLinkagePointer ATTRIBUTE
WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.Pointer;
MATCHES FOR EQUALITY;
REGISTERED AS { sccpAttribute 68 };

sccpName

sccpName ATTRIBUTE
WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.AdditionalName;
MATCHES FOR EQUALITY;
REGISTERED AS { sccpAttribute 69 };

sccpRouteTestId

sccpRouteTestId ATTRIBUTE
WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.SimpleNameType;
MATCHES FOR EQUALITY;
BEHAVIOUR sccpRouteTestIdBhv BEHAVIOUR DEFINED AS
"This attribute is used for naming instances.";;
REGISTERED AS { sccpAttribute 70 };

sccpVersion

sccpVersion ATTRIBUTE
WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.SccpVersion;
MATCHES FOR EQUALITY, SUBSTRINGS;
BEHAVIOUR sccpVersionBhv BEHAVIOUR DEFINED AS
"This attribute is single-valued. It refers to the recommendation on which the SCCP
implementation is based.";;
REGISTERED AS { sccpAttribute 71 };

sclcName

sclcName ATTRIBUTE
WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.AdditionalName;
MATCHES FOR EQUALITY;
REGISTERED AS { sccpAttribute 72 };

scocName

scocName ATTRIBUTE
WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.AdditionalName;
MATCHES FOR EQUALITY;
REGISTERED AS { sccpAttribute 73 };

scrcId

scrcId ATTRIBUTE
WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.SimpleNameType;
MATCHES FOR EQUALITY;
BEHAVIOUR scrcIdBhv BEHAVIOUR DEFINED AS
"This attribute is used for naming instances.";;
REGISTERED AS { sccpAttribute 74 };

scrcName

scrcName ATTRIBUTE
WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.AdditionalName;
MATCHES FOR EQUALITY;
REGISTERED AS { sccpAttribute 75 };

sharingMode

sharingMode ATTRIBUTE

WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.SharingMode;

MATCHES FOR EQUALITY;

BEHAVIOUR sharingModeBhv **BEHAVIOUR DEFINED AS**

"This attribute models the sharing mode of the SCCP Entity Set. Possible values are: solitary, duplicated-replacement, duplicated-dominant, and duplicated-loadshared.";;

REGISTERED AS { sccpAttribute 76 };

srvtName

srvtName ATTRIBUTE

WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.AdditionalName;

MATCHES FOR EQUALITY;

REGISTERED AS { sccpAttribute 77 };

ssAvailableAfterSpRestart

ssAvailableAfterSpRestart ATTRIBUTE

WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.SsAvailableAfterSpRestart;

MATCHES FOR EQUALITY;

REGISTERED AS { sccpAttribute 78 };

ssn

ssn ATTRIBUTE

WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.SSN;

MATCHES FOR EQUALITY;

BEHAVIOUR ssnBhv **BEHAVIOUR DEFINED AS**

"The ssn attribute represents the subsystem number.";;

REGISTERED AS { sccpAttribute 79 };

upperLimitForSegmentation

upperLimitForSegmentation ATTRIBUTE

WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.UpperLimitForSegmentation;

MATCHES FOR EQUALITY;

BEHAVIOUR upperLimitForSegmentationBhv **BEHAVIOUR DEFINED AS**

"This attribute represents a number of octets. If the length of the user data exceeds this length then the message is always segmented. The attribute corresponds to the parameter Y as described in 4.1.1.1.1/Q.714. The value of this attribute shall obey the relation $\text{lowerLimitForSegmentation} \leq \text{upperLimitForSegmentation} \leq 3952$, as described in 4.1.1.1.1/Q.714.";;

REGISTERED AS { sccpAttribute 80 };

7.5 Action definitions

startSccpRouteTest ACTION

WITH INFORMATION SYNTAX

SCCPDefinedTypesModule.ConfirmedAction;

WITH REPLY SYNTAX

SCCPDefinedTypesModule.ConfirmedAction;

REGISTERED AS { sccpAction 1 };

7.6 Notification definitions

sccpRouteTestResult NOTIFICATION

BEHAVIOUR mtpRouteTestResultBhv **BEHAVIOUR DEFINED AS**

"This notification carries the result of an SCCP route verification test, as described in 3.2/Q.753.";;

WITH INFORMATION SYNTAX SCCPDefinedTypesModule.EventReport;

REGISTERED AS { sccpNotification 1 };

7.7 Naming binding definitions

NOTE – The names of the namebindings are composed by concatenation of the names of the involved classes in the following order: superior-subordinate. This order might differ from that of other GDMO based models.

gtTranslator-gtRule

```
gtTranslator-gtRule NAME BINDING
  SUBORDINATE OBJECT CLASS    gtRule AND SUBCLASSES;
  NAMED BY
  SUPERIOR OBJECT CLASS      gtTranslator AND SUBCLASSES;
  WITH ATTRIBUTE gtRuleId;
  CREATE;
  DELETE;
REGISTERED AS { sccpNameBinding 1 };
```

managedElement-managedSwitchingElement

```
managedElement-managedSwitchingElement NAME BINDING
  SUBORDINATE OBJECT CLASS    "ITU-T Recommendation Q.751.1
(1995)":managedSwitchingElement AND SUBCLASSES;
  NAMED BY
  SUPERIOR OBJECT CLASS      "ITU-T Rec. M.3100 (1995)":managedElement AND SUBCLASSES;
  WITH ATTRIBUTE "ITU-T Rec. M.3100 (1995)":managedElementId;
  CREATE;
  DELETE;
REGISTERED AS { sccpNameBinding 2 };
```

--NOTE 1 – As an alternative to using this name binding, one could consider global (location transparent) naming. It is left to the users of this model to define additional name bindings that accomplish this.

managedSwitchingElement-sccp

```
managedSwitchingElement-sccp NAME BINDING
  SUBORDINATE OBJECT CLASS    sccp AND SUBCLASSES;
  NAMED BY
  SUPERIOR OBJECT CLASS      "ITU-T Recommendation Q.751.1 (1995)":managedSwitchingElement
AND SUBCLASSES;
  WITH ATTRIBUTE "ITU-T Rec. X.723 (1993)":communicationsEntityId;
  CREATE;
  DELETE;
REGISTERED AS { sccpNameBinding 3 };
```

sccp-sclc

```
sccp-sclc NAME BINDING
  SUBORDINATE OBJECT CLASS    sclc AND SUBCLASSES;
  NAMED BY
  SUPERIOR OBJECT CLASS      sccp AND SUBCLASSES;
  WITH ATTRIBUTE "ITU-T Rec. X.283 (1993) | ISO/IEC 10733 : 1992":clProtocolMachineId;
  BEHAVIOUR sccp-sclc-B BEHAVIOUR
  DEFINED AS
    "This name binding shall be used when the sclc MO is created automatically by the operation of the
    system and when the sclc MO is created by management operations.";;
  CREATE;
  DELETE;
REGISTERED AS { sccpNameBinding 4 };
```

sccp-scoc

sccp-scoc NAME BINDING

SUBORDINATE OBJECT CLASS **scoc AND SUBCLASSES;**

NAMED BY

SUPERIOR OBJECT CLASS **sccp AND SUBCLASSES;**

WITH ATTRIBUTE "ITU-T Rec. X.283 (1993) | ISO/IEC 10733 : 1992":coProtocolMachineId;

BEHAVIOUR sccp-scoc-B **BEHAVIOUR**

DEFINED AS

"This name binding shall be used when the scoc MO is created automatically by the operation of the system and when the scoc MO is created by management operations.";;

CREATE;

DELETE;

REGISTERED AS { sccpNameBinding 5 };

sccp-scrs

sccp-scrs NAME BINDING

SUBORDINATE OBJECT CLASS **scrsc AND SUBCLASSES;**

NAMED BY

SUPERIOR OBJECT CLASS **sccp AND SUBCLASSES;**

WITH ATTRIBUTE scrscId;

CREATE;

DELETE;

REGISTERED AS { sccpNameBinding 6 };

sccp-srvt

sccp-srvt NAME BINDING

SUBORDINATE OBJECT CLASS **srvt AND SUBCLASSES;**

NAMED BY

SUPERIOR OBJECT CLASS **sccp AND SUBCLASSES;**

WITH ATTRIBUTE sccpRouteTestId;

CREATE;

DELETE;

REGISTERED AS { sccpNameBinding 7 };

scrsc-concernedArea

scrsc-concernedArea NAME BINDING

SUBORDINATE OBJECT CLASS **concernedArea AND SUBCLASSES;**

NAMED BY

SUPERIOR OBJECT CLASS **scrsc AND SUBCLASSES;**

WITH ATTRIBUTE concernedAreaId;

CREATE;

DELETE;

REGISTERED AS { sccpNameBinding 8 };

--NOTE 2 – The number of concernedArea instances is implementation-dependent.

scrsc-gtConversionRule

scrsc-gtConversionRule NAME BINDING

SUBORDINATE OBJECT CLASS **gtConversionRule AND SUBCLASSES;**

NAMED BY

SUPERIOR OBJECT CLASS **scrsc AND SUBCLASSES;**

WITH ATTRIBUTE gtConversionRuleId;

CREATE;

DELETE;

REGISTERED AS { sccpNameBinding 9 };

src-gtTranslator

```
src-gtTranslator NAME BINDING
  SUBORDINATE OBJECT CLASS    gtTranslator AND SUBCLASSES;
  NAMED BY
  SUPERIOR OBJECT CLASS      src AND SUBCLASSES;
  WITH ATTRIBUTE gtTranslatorId;
  CREATE;
  DELETE;
REGISTERED AS { sccpNameBinding 10 };
```

src-sccpAccessPoint

```
src-sccpAccessPoint NAME BINDING
  SUBORDINATE OBJECT CLASS    sccpAccessPoint AND SUBCLASSES;
  NAMED BY
  SUPERIOR OBJECT CLASS      src AND SUBCLASSES;
  WITH ATTRIBUTE "ITU-T Rec. X.723 (1993)":sapId;
  CREATE;
  DELETE;
REGISTERED AS { sccpNameBinding 11 };
```

src-sccpEntitySet

```
src-sccpEntitySet NAME BINDING
  SUBORDINATE OBJECT CLASS    sccpEntitySet AND SUBCLASSES;
  NAMED BY
  SUPERIOR OBJECT CLASS      src AND SUBCLASSES;
  WITH ATTRIBUTE sccpEntitySetId;
  CREATE;
  DELETE;
REGISTERED AS { sccpNameBinding 12 };
```

src-sccpLinkage

```
src-sccpLinkage NAME BINDING
  SUBORDINATE OBJECT CLASS    sccpLinkage AND SUBCLASSES;
  NAMED BY
  SUPERIOR OBJECT CLASS      src AND SUBCLASSES;
  WITH ATTRIBUTE sccpLinkageId;
  CREATE;
  DELETE;
REGISTERED AS { sccpNameBinding 13 };
```

7.8 Abstract syntax productions

SCCPDefinedTypesModule

```
{itu-t(0) recommendation q(17) omap(751) sccp(2) informationModel(0) asn1Modules(2)
sccpDefinedTypesModule(0)}
```

DEFINITIONS IMPLICIT TAGS ::= BEGIN

IMPORTS

```
ProbableCause, SimpleNameType FROM Attribute-ASN1Module { joint-iso-itu-t ms(9) smi(3) part2(2)
asn1Module(2) 1}
Pointer, PointerOrNull FROM ASN1DefinedTypesModule { itu-t recommendation m gnm(3100)
informationModel(0) asn1Modules(2) asn1DefinedTypesModule(0)}
AdditionalName FROM MTPDefinedTypesModule {itu-t (0) recommendation q(17) omap(751) mtp(1)
informationModel(0) asn1Modules(2) mtpDefinedTypesModule(0)}
ConfirmedAction, EventReport FROM MP {itu-t (0) recommendation q(17) (753) mp (0) version1 (1) };
```

--EXPORTS EVERYTHING

```

sccpInformationModel OBJECT IDENTIFIER ::= {itu-t recommendation q(17) omap(751) sccp(2)
informationModel(0)}
sccpObjectClass OBJECT IDENTIFIER ::= {sccpInformationModel managedObjectClass(3)}
sccpPackage OBJECT IDENTIFIER ::= {sccpInformationModel package(4)}
sccpParameter OBJECT IDENTIFIER ::= {sccpInformationModel parameter(5)}
sccpAttribute OBJECT IDENTIFIER ::= {sccpInformationModel attribute(7)}
sccpNameBinding OBJECT IDENTIFIER ::= {sccpInformationModel nameBinding(6)}
sccpAction OBJECT IDENTIFIER ::= {sccpInformationModel action(9)}
sccpNotification OBJECT IDENTIFIER ::= {sccpInformationModel notification(10)}
sccpSpecificExtensions OBJECT IDENTIFIER ::= { sccpInformationModel specificExtensions(0) }

AttackTimerValue ::= INTEGER --milliseconds

CLS ::= INTEGER

cLSDefault CLS ::= 8

CongestionTimerValue ::= INTEGER --milliseconds

--
-- Probable Causes used in combination with communicationsAlarm
-- for on occurrence measurements.
--
hopCounterViolation ProbableCause::= globalValue: { sccpSpecificExtensions 1 }
localSubsystemProhibited ProbableCause::= globalValue: { sccpSpecificExtensions 2 }
localSccpUnAvailable ProbableCause::= globalValue: { sccpSpecificExtensions 3 }
noReassemblySpace ProbableCause::= globalValue: { sccpSpecificExtensions 4 }
noRuleForAddress ProbableCause::= globalValue: { sccpSpecificExtensions 5 }
noSegmentationSupport ProbableCause::= globalValue: { sccpSpecificExtensions 6 }
noTranslatorForAddress ProbableCause::= globalValue: { sccpSpecificExtensions 7 }
pointCodeCongested ProbableCause::= globalValue: { sccpSpecificExtensions 8 }
pointCodeNotAvailable ProbableCause::= globalValue: { sccpSpecificExtensions 9 }
reassemblyFailure ProbableCause::= globalValue: { sccpSpecificExtensions 10 }
reassemblyTimeout ProbableCause::= globalValue: { sccpSpecificExtensions 11 }
routingFailureNoReasonOrUnqualified ProbableCause::= globalValue: { sccpSpecificExtensions 12 }
sccpCongested ProbableCause::= globalValue: { sccpSpecificExtensions 13 }
segmentationFailure ProbableCause::= globalValue: { sccpSpecificExtensions 14 }
segmentOutOfOrder ProbableCause::= globalValue: { sccpSpecificExtensions 15 }
subsystemCongested ProbableCause::= globalValue: { sccpSpecificExtensions 16 }
subsystemOoDenied ProbableCause::= globalValue: { sccpSpecificExtensions 17 }
subsystemOoSGranted ProbableCause::= globalValue: { sccpSpecificExtensions 18 }
subsystemProhibited ProbableCause::= globalValue: { sccpSpecificExtensions 19 }
subsystemUnavailable ProbableCause::= globalValue: { sccpSpecificExtensions 20 }
syntaxErrorDetected ProbableCause::= globalValue: { sccpSpecificExtensions 21 }
tooLargeForSegmentation ProbableCause::= globalValue: { sccpSpecificExtensions 22 }
unequippedSubsystem ProbableCause::= globalValue: { sccpSpecificExtensions 23 }

sccpProtocolClass0 OBJECT IDENTIFIER ::= { sccpSpecificExtensions 24} -- basic connectionless
sccpProtocolClass1 OBJECT IDENTIFIER ::= { sccpSpecificExtensions 25} -- sequenced connectionless
sccpProtocolClass2 OBJECT IDENTIFIER ::= { sccpSpecificExtensions 26} -- basic connection-oriented
sccpProtocolClass3 OBJECT IDENTIFIER ::= { sccpSpecificExtensions 27} -- flow control connection oriented

CongestionLevel ::= INTEGER

DecayTimerValue ::= INTEGER --milliseconds

AddressInfoConversionRule ::= SEQUENCE OF Operation

AddressElement ::= INTEGER (0 ..15)
-- The choice for INTEGER type arbitrary. Recommendation Q.715 does not restrict the type,
-- all types are allowed in network implementations.

```

DSRVT ::= INTEGER -- *milliseconds*

EntitySetSapPointer ::= SET SIZE (2) OF SAPPoInter
-- *see behaviour description for sccpEntitySet managed object class.*

GtAddressInformation ::= SEQUENCE OF BIT STRING

GtEncodingScheme ::= CHOICE{
 notUsedOrNoOverwrite NULL,
 gtES ENUMERATED
 { **unknown** (0),
 bCDODD (1),
 bCDEVEN (2),
 nationalSpecific (3)
 }}

GtIndicator ::= ENUMERATED
 { **noGlobalTitle** (0),
 nOAonly (1),
 tTonly (2),
 tT-NP-ES (3),
 tT-NP-ES-NOA (4)
 }

GtNatureOfAddress ::= CHOICE{
 notUsedOrNoOverwrite NULL,
 gtNoA ENUMERATED
 { **unknown** (0),
 subscriber (1),
 national (3),
 international (4)
 }}

GtNumberingPlan ::= CHOICE{
 notUsedOrNoOverwrite NULL,
 gtNP ENUMERATED
 { **unknown** (0),
 iSDNTNP (1),
 genericNumberingPlan (2),
 dNP (3),
 tNP (4),
 mMNP (5),
 IMNP (6),
 iSDNMNP (7),
 privateNumberingPlan (14)
 }}

GtTranslationType ::= CHOICE{
 notUsedOrNoOverwrite NULL,
 gtTT ENUMERATED
 { **unknown** (0),
 iTCC (1),
 genericNumberingPlan (14),
 iEES (17)
 }}

ImportanceLevel ::= SEQUENCE {
 defaultImportance INTEGER,
 maxImportance INTEGER **}**
-- *For recommended values, see 2.6.2/Q.714.*

InitialValueReassTimer ::= INTEGER -- *milliseconds*

LowerLimitForSegmentation ::= INTEGER

LUdTandLUDTSSupported ::= BOOLEAN

MaxStatInfoTimer ::= INTEGER -- *seconds, recommended value 600 .. 1200, see 5.3.4.2/Q.714.*

NrOfAddressElements ::= INTEGER

NrOfRestrictionLevels ::= INTEGER

nrOfRestrictionLevelsDefault NrOfRestrictionLevels ::= 8

NrOfSubLevels ::= INTEGER

nrOfSubLevelsDefault NrOfSubLevels ::= 4

NSRVT ::= INTEGER

Operation ::= CHOICE {
 insert **[0] AddressElement,**
 replace **[1] AddressElement,**
 passTransparently **[2] NrOfAddressElements,**
 delete **[3] NrOfAddressElements,**
 stop **[4] NULL,**
 copyRemain **[5] NULL }**

P ::= INTEGER -- *See congestion handling 5.2.7/Q.714.*

pDefault P ::= 8

PrimaryOrBackup ::= ENUMERATED {
 equal **(0),**
 primary **(1),**
 backup **(2) }**

-- *see behaviour description for sccpEntitySet managed object class.*

RemoteSCCPList ::= SET OF Pointer -- *The maximum size is implementation-dependent.*

RLM ::= INTEGER

RSLM ::= INTEGER

SAPPointer ::= SEQUENCE {
 primaryOrBackup **PrimaryOrBackup,**
 sap **Pointer }**

-- *see behaviour description for sccpEntitySet managed object class.*

SccpSyntaxErrorList ::= INTEGER {
 unknownMessageType (0),
 invalidValueOfProtocolClass (1),
 invalidValueOfGTI (2),
 invalidValueForEncodingScheme (3),
 invalidParameterLength (4),
 invalidPointerToOptionalParameter (5),
 optionalParameterTooLong (6),
 pointerInconsistentWithLengths (7),
 incompatibleAddressLength (8),
 expectedSSNnotFound (9) }

SccpVersion ::= PrintableString

-- localSCCPUnavailabilityDuration ATTRIBUTE.

Seconds ::= INTEGER

SharingMode ::= ENUMERATED

{ **solitary** **(0),**
 dupliDominant **(1),**
 dupliReplacement **(2),**
 dupliLoadShared **(3)**
}

SsAvailableAfterSpRestart ::= BOOLEAN

ssAvailableAfterSpRestartDefault SsAvailableAfterSpRestart ::= TRUE

SSN ::= INTEGER(0..255)

TcoordChg ::= INTEGER *-- seconds, recommended value 60 .. 120, see 5.3.5.2/Q.714.*

TignoreSST ::= INTEGER *-- seconds, see 5.3.5.2/Q.714.*

UpperLimitForSegmentation ::= INTEGER

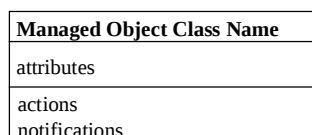
END

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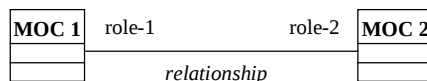
OMT Notation

(F. RUMBAUGH *et al.*: Object Oriented Modelling and Design, *Prentice Hall*, 1991)

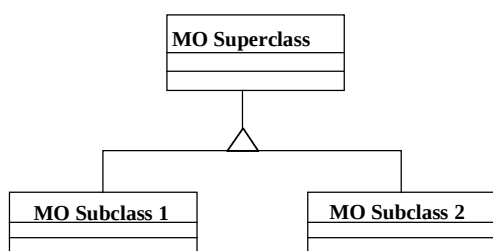
Managed Object Class:



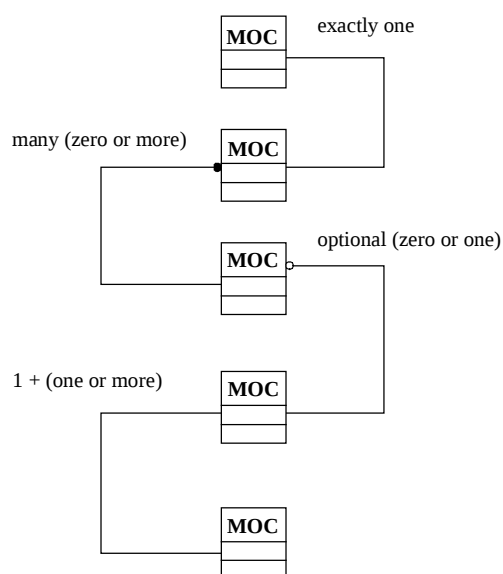
Relationship between object classes:



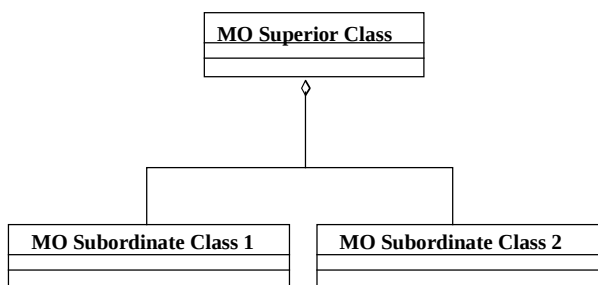
Inheritance between managed object classes:



Cardinality of roles in relationship:



Name binding between managed object classes:



T1181670-96

ANNEX B

Analysis of SCCP

This Annex analyses the routing model of the SCCP, i.e. the Global Title Translation from Recommendation Q.714. The management information model described in the main body of this Recommendation has been based on this Annex.

B.1 Global Title Translation Model

The global title translation information model describes the managed entities and relationships that are relevant to the translation of global titles. The information model presented in this subclause describes the information stored in the signalling point as well as the information that is contained in an SCCP message. Figure B.1 shows the corresponding functional model.

The Global Title has to be translated if no Destination Point Code (DPC) is known. Therefore, the translation of a Global Title should always result in a DPC. If necessary, a new Global Title (GT) and/or a new SubSystem Number (SSN) can be generated. A new GT or a new SSN always replaces the old GT or SSN.

The Global Title Indicator is part of the Address Indicator. The value of the Global Title indicator indicates the format of the Global Title. The following formats have been identified:

- nature of address only;
- translation type only;
- translation type, numbering plan, and encoding scheme;
- translation type, numbering plan, encoding scheme and nature of address indicator.

The use is explained using the Global Title Translation Functional Model in Figure B.1. The Global Title Translator is selected by the Translator Selector based on a combination of the values of the Nature of Address Indicator, the Translation Type, and the Numbering Plan (if available). As a consequence, the Global Title Translator is modelled as a class with three characteristic attributes: Nature of Address, Translation Type, and Numbering Plan. If for a given combination no Global Title Translator exists, a Routing Failure notification with the reason "NoTranslatorForAddress" alarm (Q.752 measurement 7.1) is emitted by the SCRC. Although it may seem that many Global Title Translators can exist, there will be, in practice, only a small number of translators.

The Global Title Translator contains a set of Global Title Rules as indicated by the aggregate relationship. A Global Title Rule consists of matching Global Title Address Information and is associated with an entity set and possibly a Global Title Conversion Rule. Application of the Global Title Rule results in an Entity Set. The Global Title Rule is selected by the Rule Selector based on the (matching) Global Title Address Information and possible the Encoding Scheme. If there is no matching translation rule for a given Global Title, then a Routing Failure occurs with the reason "NoTranslationForAddress" (Q.752 measurement 7.2).

The Global Title Conversion Rules can produce a new Global Title using the old Global Title. This algorithm also (implicitly) sets the Routing Indicator.

The SCCP entity set is made up by one or two entities. An SCCP Entity can be either an SCCP Access Point or an MTP Access Point. The SCCP Entity Set can be in the following modes: solitary, duplicated-replacement, duplicated-dominant and duplicated-loadshared. Solitary implies that there is no replica access point. Duplicated-dominant indicates that the primary access point is chosen if available. Duplicated-loadshared indicates that there will be a loadsharing algorithm for distributing traffic between the primary and secondary subsystem/signalling point.

The selection of an SCCP Access Point depends on the values of the attributes Subsystem Status and Signalling Point Status of the corresponding Signalling Point and Subsystem. The selection of the MTP Access Point depends on the value of the attribute SP Status.

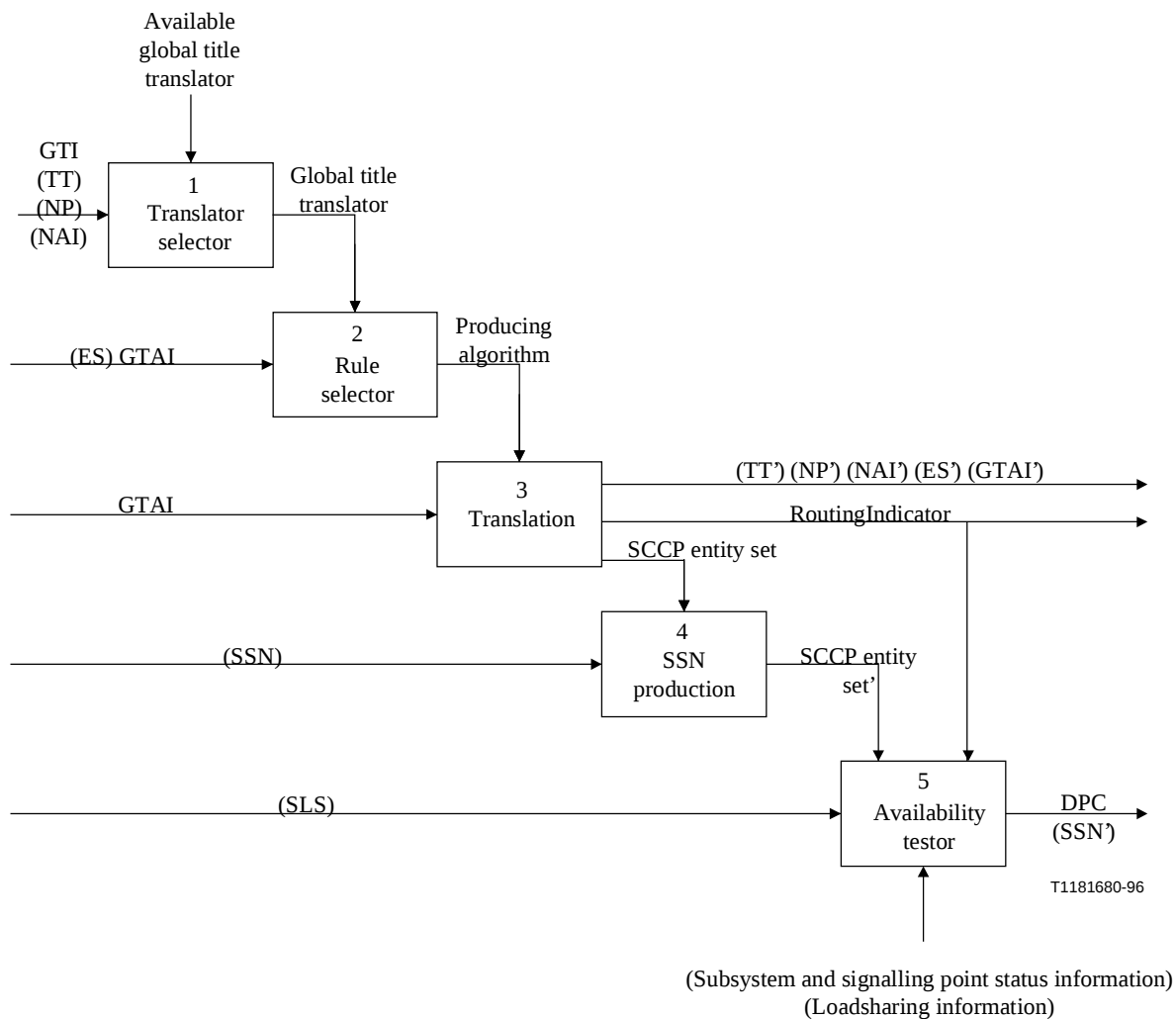


Figure B.1/Q.751.2 – Global Title Translation functional model

ANNEX C

Measurements

This Annex contains GDMO templates for modelling measurements for the SCCP. These measurements are described in Tables 7 to 9/Q.752. This Annex is based on both the 1993 and the 1997 versions of Recommendation Q.752. Subclause C.1 contains tables that indicate the relationship with the modelling done in this Annex to the descriptions in Recommendation Q.752. Subclause C.2 contains the inheritance tree and naming schema for the managed object classes that model the SCCP measurements. Subclause C.3 contains the GDMO templates. The ASN.1 descriptions for attributes defined in this Annex are included in the main body of this Recommendation.

C.1 Relationship with Recommendation Q.752

See Table C.1.

**Table C.1/Q.751.2 – Relationship of Q.752 with Q.751 attributes,
notifications and managed object classes**

Q.752 (93) Meas.	Q.752 (97) Meas.	Represented By	With Name	With Syntax	In Managed Object Class
7.1	7.1	attribute notification	noTranslForNatureAddress X.721:qualityofServiceAlarm	X.721:counter ProbableCause = NoTranslatorForAddress PerceivedSeverity = Major/Minor/Warning	routingFailureData scrc
7.2	7.2	attribute notification	noTranslForSpecificAddress X.721:qualityofServiceAlarm	X.721:counter ProbableCause = NoRuleForAddress PerceivedSeverity = Major/Minor/Warning	routingFailureData scrc
7.3	7.3	attribute notification	noPointCodeAvailable X.721:qualityofServiceAlarm	X.721:counter ProbableCause = PointCodeNotAvailable PerceivedSeverity = Major/Minor/Warning	routingFailureData scrc
7.4	7.4	attribute notification	networkCongestion X.721:qualityofServiceAlarm	X.721:counter ProbableCause = PointCodeCongested PerceivedSeverity = Major/Minor/Warning	routingFailureData scrc
7.5	7.5	attribute notification	subSystemFailure X.721:qualityofServiceAlarm	X.721:counter ProbableCause = SubsystemUnavailable PerceivedSeverity = Major/Minor/Warning	routingFailureData scrc
7.6	7.6	attribute notification	subSystemCongestion X.721:qualityofServiceAlarm	X.721:counter ProbableCause = SubsystemCongested PerceivedSeverity = Major/Minor/Warning	routingFailureData scrc
7.7	7.7	attribute notification	userUnequipped X.721:qualityofServiceAlarm	X.721:counter ProbableCause = UnequippedSubsystem PerceivedSeverity = Major/Minor/Warning	routingFailureData scrc
7.8	7.8	attribute notification	sccpSyntaxErrorList X.721:qualityofServiceAlarm	SccpSyntaxErrorList ProbableCause = SyntaxErrorDetected PerceivedSeverity = Major/Minor/Warning	sccpSyntaxErrorData scrc
7.9	7.9	attribute notification	unknownOrUnqualified RoutingFailure X.721:qualityofServiceAlarm	X.721:counter ProbableCause = RoutingFailureNoReasonOr Unqualified PerceivedSeverity = Major/Minor/Warning	routingFailureData scrc

**Table C.1/Q.751.2 – Relationship of Q.752 with Q.751 attributes,
notifications and managed object classes (continued)**

Q.752 (93) Meas.	Q.752 (97) Meas.	Represented By	With Name	With Syntax	In Managed Object Class
	7.10	attribute notification first and interval attribute	reassemblyTimerExpired X.721:qualityofServiceAlarm Q.751.1:ss7FirstAndInterval ThresholdValue	X.721:counter ProbableCause = ReassemblyTimeOut PerceivedSeverity = Major/Minor/Warning Events with value 1	reassemblyErrorData sclc Q.751.1:ss7FirstAnd IntervalThreshold
	7.11	attribute notification first and interval attribute	segmentReceivedOutOfSequenc e X.721:qualityofServiceAlarm Q.751.1:ss7FirstAndInterval ThresholdValue	X.721:counter ProbableCause = SegmentOutOfOrder PerceivedSeverity = Major/Minor/Warning Events with value 1	reassemblyErrorData sclc Q.751.1:ss7FirstAnd IntervalThreshold
	7.12	attribute notification first and interval attribute	noReassemblyResources X.721:qualityofServiceAlarm Q.751.1:ss7FirstAndInterval ThresholdValue	X.721:counter ProbableCause = NoReassemblySpace PerceivedSeverity = Major/Minor/Warning Events with value 1	reassemblyErrorData sclc Q.751.1:ss7FirstAnd IntervalThreshold
	7.13	attribute notification first and interval attribute	violationOfHopCounter X.721:qualityofServiceAlarm Q.751.1:ss7FirstAndInterval ThresholdValue	X.721:counter ProbableCause = HopCounterViolation PerceivedSeverity = Major/Minor/Warning Events with value 1	routingFailureData srcrc Q.751.1:ss7FirstAnd IntervalThreshold
	7.14	attribute notification first and interval attribute	messageTooLarge X.721:qualityofServiceAlarm Q.751.1:ss7FirstAndInterval ThresholdValue	X.721:counter ProbableCause = TooLargeForSegmentation PerceivedSeverity = Major/Minor/Warning Events with value 1	segmentationImpossibleData sccpAccessPoint Q.751.1:ss7FirstAnd IntervalThreshold
	7.19	attribute notification	segmentationNotSupported X.721:qualityofServiceAlarm	X.721:counter ProbableCause = NoSegmentationSupport PerceivedSeverity = Major/Minor/Warning	segmentationErrorData sclc
		first and interval attribute	Q.751.1:ss7FirstAndInterval ThresholdValue	Events with value 1	Q.751.1:ss7FirstAnd IntervalThreshold

**Table C.1/Q.751.2 – Relationship of Q.752 with Q.751 attributes,
notifications and managed object classes (continued)**

Q.752 (93) Meas.	Q.752 (97) Meas.	Represented By	With Name	With Syntax	In Managed Object Class
	7.20	attribute notification first and interval attribute	segmentationFailed X.721:qualityofServiceAlarm Q.751.1:ss7FirstAndInterval ThresholdValue	X.721:counter ProbableCause = SegmentationFailure PerceivedSeverity = Major/Minor/Warning Events with value 1	segmentationErrorData sclc Q.751.1:ss7FirstAnd IntervalThreshold
	7.21	attribute notification first and interval attribute	reassemblyFailed X.721:qualityofServiceAlarm Q.751.1:ss7FirstAndInterval ThresholdValue	X.721:counter ProbableCause = ReassemblyFailure PerceivedSeverity = Major/Minor/Warning Events with value 1	reassemblyErrorData sclc Q.751.1:ss7FirstAnd IntervalThreshold
8.1	8.1	notification	X.721:communicationsAlarm	ProbableCause = LocalSccpUnavailable SpecificProblems = Failure PerceivedSeverity = Major/Minor/Warning	sccp
8.2	8.2	notification	X.721:communicationsAlarm	ProbableCause = LocalSccpUnavailable SpecificProblems = Maintenance PerceivedSeverity = Major/Minor/Warning	sccp
8.3	8.3	notification	X.721:communicationsAlarm	ProbableCause = LocalSccpUnavailable SpecificProblems = Congestion PerceivedSeverity = Major/Minor/Warning	sccp
8.4	8.4	notification	X.721:communicationsAlarm	ProbableCause = LocalSccpUnavailable PerceivedSeverity = Cleared	sccp
8.6	8.6	notification	X.721:communicationsAlarm	ProbableCause = SubsystemOoSGranted PerceivedSeverity = Major/Minor/Warning	sccp
8.7	8.7	notification	X.721:communicationsAlarm	ProbableCause = SubsystemOoSDenied PerceivedSeverity = Major/Minor/Warning	sccp
-	8.8	notification	X.721:communicationsAlarm	ProbableCause = SCCPCongested PerceivedSeverity = Major/Minor/Warning	sccpAccessPoint

**Table C.1/Q.751.2 – Relationship of Q.752 with Q.751 attributes,
notifications and managed object classes (continued)**

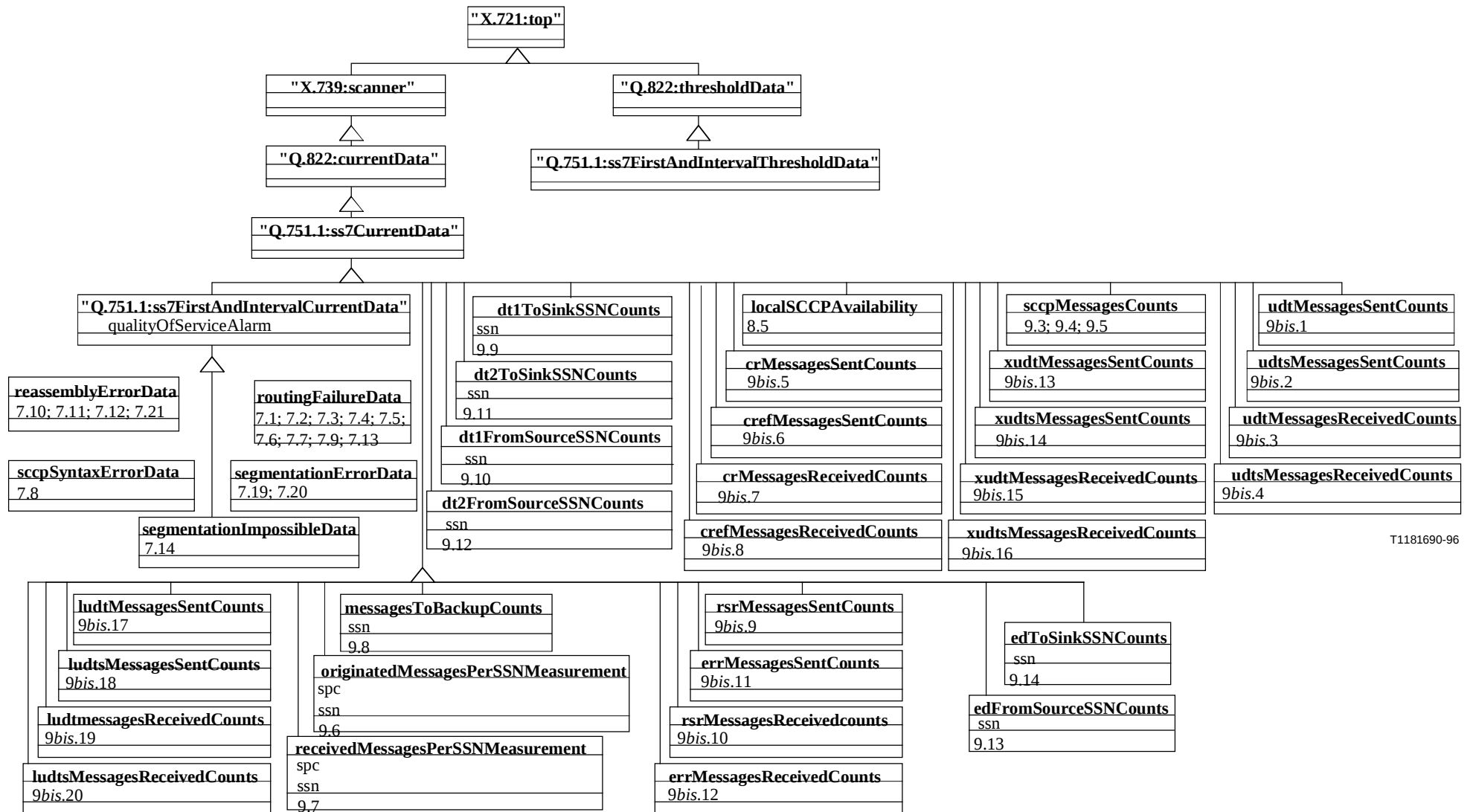
Q.752 (93) Meas.	Q.752 (97) Meas.	Represented By	With Name	With Syntax	In Managed Object Class
-	8.9	notification	X.721:communicationsAlarm	ProbableCause = localSubsystemProhibited PerceivedSeverity = Major/Minor/Warning	sccpAccessPoint (local only)
-	8.10	notification	X.721:communicationsAlarm	ProbableCause = localSubsystemProhibited PerceivedSeverity = Cleared	sccpAccessPoint (local only)
-	8.11	attribute notification first and interval attribute	subsystemProhibited X.721:qualityofServiceAlarm Q.751.1:ss7FirstAndInterval ThresholdValue	X.721:counter ProbableCause = SubsystemProhibited PerceivedSeverity = Major/Minor/Warning Events with value 1	subsystemProhibited Data sccpAccessPoint (remote only) Q.751.1:ss7FirstAnd IntervalThreshold
-	8.12	notification	X.721:qualityofServiceAlarm	PerceivedSeverity = Cleared	sccpAccessPoint (remote only)
9.3	9.3	attribute	messagesHandled	X.721:counter	sccpMessagesCounts
9.4	9.4	attribute	messagesForLocalSubsystems	X.721:counter	sccpMessagesCounts
9.5	9.5	attribute	messagesRequiringGT Translation	X.721:counter	sccpMessagesCounts
9.6	9.6	attribute	messagesOriginatedPerSSN-SPC	X.721:counter	originatedMessagesPer SSNMeasurement
9.7	9.7	attribute	messagesReceivedOr TerminatedPerSSN-SPC	X.721:counter	receivedMessagesPer SSNMeasurement
9.8	9.8	attribute	messagesToBackupSSN	X.721:counter	messagesToBackupSSN Counts
9.9	9.9	attribute	dt1ToSinkSSN	X.721:counter	dt1ToSinkSSNCounts
9.10	9.10	attribute	dt1FromSourceSSN	X.721:counter	dt1FromSourceSSN Counts
9.11	9.11	attribute	dt2ToSinkSSN	X.721:counter	dt2ToSinkSSNCounts
9.12	9.12	attribute	dt2FromSourceSSN	X.721:counter	dt2FromSourceSSN Counts
9.13	9.13	attribute	edFromSourceSSN	X.721:counter	edFromSourceSSN Counts
9.14	9.14	attribute	edToSinkSSN	X.721:counter	edToSinkSSNCounts
9bis.1	9bis.1	attribute	udtMessagesSent	X.721:counter	udtMessagesSentCounts
9bis.2	9bis.2	attribute	udtsMessagesSent	X.721:counter	udtsMessagesSent Counts
9bis.3	9bis.3	attribute	udtMessagesReceived	X.721:counter	udtMessagesReceived Counts
9bis.4	9bis.4	attribute	udtsMessagesReceived	X.721:counter	udtsMessagesReceivedCounts
9bis.5	9bis.5	attribute	crMessagesSent	X.721:counter	crMessagesSentCounts

**Table C.1/Q.751.2 – Relationship of Q.752 with Q.751 attributes,
notifications and managed object classes (concluded)**

Q.752 (93) Meas.	Q.752 (97) Meas.	Represented By	With Name	With Syntax	In Managed Object Class
9bis.6	9bis.6	attribute	cresMessagesSent	X.721:counter	cresMessagesSent Counts
9bis.7	9bis.7	attribute	crMessagesReceived	X.721:counter	crMessagesReceived Counts
9bis.8	9bis.8	attribute	cresMessagesReceived	X.721:counter	cresMessagesReceived Counts
9bis.9	9bis.9	attribute	rsrMessagesSent	X.721:counter	rsrMessagesSentCounts
9bis.10	9bis.10	attribute	rsrMessagesReceived	X.721:counter	rsrMessagesReceived Counts
9bis.11	9bis.11	attribute	errMessagesSent	X.721:counter	errMessagesSentCounts
9bis.12	9bis.12	attribute	errMessagesReceived	X.721:counter	errMessagesReceived Counts
9bis.13	9bis.13	attribute	xudtMessagesSent	X.721:counter	xudtMessagesSent Counts
9bis.14	9bis.14	attribute	xudtsMessagesSent	X.721:counter	xudtsMessagesSent Counts
9bis.15	9bis.15	attribute	xudtMessagesReceived	X.721:counter	xudtMessagesReceived Counts
9bis.16	9bis.16	attribute	xudtsMessagesReceived	X.721:counter	xudtsMessagesReceived Counts
	9bis.17	attribute	ludtMessagesSent	X.721:counter	ludtMessagesSent Counts
	9bis.18	attribute	ludtsMessagesSent	X.721:counter	ludtsMessagesSent Counts
	9bis.19	attribute	ludtMessagesReceived	X.721:counter	ludtMessagesReceived Counts
	9bis.20	attribute	ludtsMessagesReceived	X.721:counter	ludtsMessagesReceived Counts
NOTE – The modelling of the Q.752 (97) measurements 7.15 to 7.18 is for further study. These measurements are related to the scoc managed object class that is also for further study.					

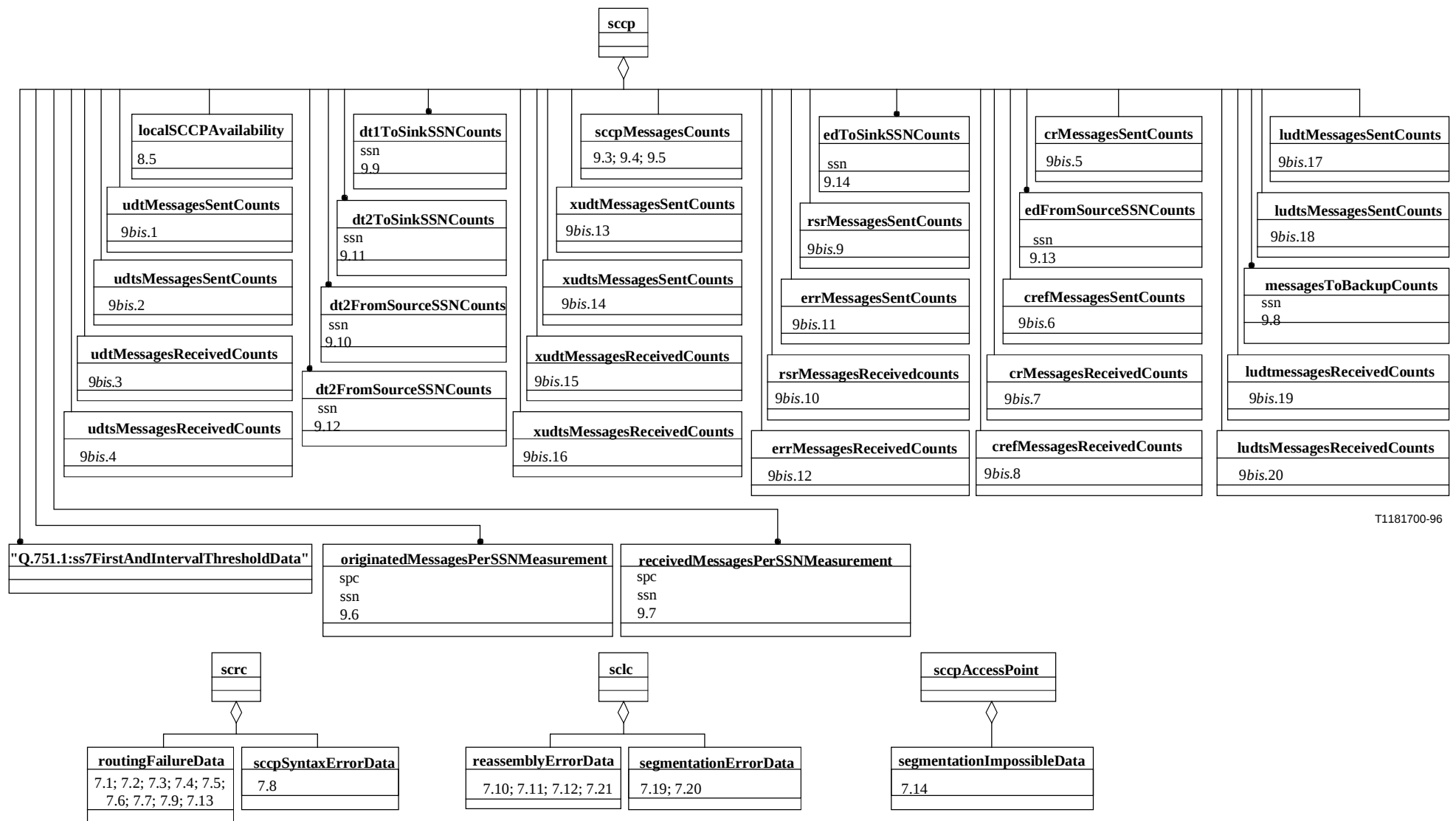
C.2 Diagrams of managed object classes for measurements

The following two diagrams (see Figures C.1 and C.2) provide an overview of the inheritance and naming relations between the managed object classes defined for the SCCP measurements.



T1181690-96

Figure C.1/Q.751.2 – Inheritance tree for managed object classes representing SCCP measurements



T1181700-96

Figure C.2/Q.751.2 – Naming schema for managed object classes representing SCCP measurements

C.3 Managed Object Class definitions

crefMessagesReceivedCounts

crefMessagesReceivedCounts MANAGED OBJECT CLASS

DERIVED FROM "ITU-T Recommendation Q.751.1 (1995)":ss7CurrentData;

CHARACTERIZED BY crefMessagesReceivedCountsPkg PACKAGE

BEHAVIOUR crefMessagesReceivedCountsBhv BEHAVIOUR DEFINED AS

"This measurement counts the CREF messages received from MTP. The preferred granularityPeriods are 5 minutes and 30 minutes.";;

ATTRIBUTES

crefMessagesReceived GET SET-BY-CREATE; -- Measurement Q.752/9bis.8

;;

REGISTERED AS { sccpObjectClass 16 };

crefMessagesSentCounts

crefMessagesSentCounts MANAGED OBJECT CLASS

DERIVED FROM "ITU-T Recommendation Q.751.1 (1995)":ss7CurrentData;

CHARACTERIZED BY crefMessagesSentCountsPkg PACKAGE

BEHAVIOUR crefMessagesSentCountsBhv BEHAVIOUR DEFINED AS

"This measurement counts the CREF messages sent to MTP. The preferred granularityPeriods are 5 minutes and 30 minutes.";;

ATTRIBUTES

crefMessagesSent GET SET-BY-CREATE; -- Measurement Q.752/9bis.6

;;

REGISTERED AS { sccpObjectClass 17 };

crMessagesReceivedCounts

crMessagesReceivedCounts MANAGED OBJECT CLASS

DERIVED FROM "ITU-T Recommendation Q.751.1 (1995)":ss7CurrentData;

CHARACTERIZED BY crMessagesReceivedCountsPkg PACKAGE

BEHAVIOUR crMessagesReceivedCountsBhv BEHAVIOUR DEFINED AS

"This measurement counts the CR messages received from MTP plus ISDN-UP embedded CRs. The preferred granularityPeriods are 5 minutes and 30 minutes.";;

ATTRIBUTES

crMessagesReceived ; -- Measurement Q.752/9bis.7

;;

REGISTERED AS { sccpObjectClass 18 };

crMessagesSentCounts

crMessagesSentCounts MANAGED OBJECT CLASS

DERIVED FROM "ITU-T Recommendation Q.751.1 (1995)":ss7CurrentData;

CHARACTERIZED BY crMessagesSentCountsPkg PACKAGE

BEHAVIOUR crMessagesSentCountsBhv BEHAVIOUR DEFINED AS

"This measurement counts the CR messages sent to MTP plus ISDN-UP embedded CRs. The preferred granularityPeriods are 5 minutes and 30 minutes.";;

ATTRIBUTES

crMessagesSent GET SET-BY-CREATE; -- Measurement Q.752/9bis.5

;;

REGISTERED AS { sccpObjectClass 19 };

dt1FromSourceSSNCounts

dt1FromSourceSSNCounts MANAGED OBJECT CLASS

DERIVED FROM "ITU-T Recommendation Q.751.1 (1995)":ss7CurrentData;

CHARACTERIZED BY dt1FromSourceSSNCountsPkg PACKAGE

BEHAVIOUR dt1FromSourceSSNCountsBhv BEHAVIOUR DEFINED AS

"This measurement counts the DT1 messages sent to MTP per source SSN. The preferred granularityPeriods are 5 minutes and 30 minutes.";;

```

    ATTRIBUTES
        ssn                                GET SET-BY-CREATE,
        dt1MessagesFromSourceSSN          GET SET-BY-CREATE; -- Measurement Q.752/9.10
    ;;
REGISTERED AS { sccpObjectClass 20 };

dt1ToSinkSSNCounts
dt1ToSinkSSNCounts MANAGED OBJECT CLASS
    DERIVED FROM "ITU-T Recommendation Q.751.1 (1995)":ss7CurrentData;
    CHARACTERIZED BY dt1ToSinkSSNCountsPkg PACKAGE
    BEHAVIOUR dt1ToSinkSSNCountsBhv BEHAVIOUR DEFINED AS
        "This measurement counts the DT1 messages received from MTP per sink SSN. The
        preferred granularityPeriods are 5 minutes and 30 minutes.";;
    ATTRIBUTES
        ssn                                GET SET-BY-CREATE,
        dt1MessagesToSinkSSN              GET SET-BY-CREATE; -- Measurement Q.752/9.9
    ;;
REGISTERED AS { sccpObjectClass 21 };

dt2FromSourceSSNCounts
dt2FromSourceSSNCounts MANAGED OBJECT CLASS
    DERIVED FROM "ITU-T Recommendation Q.751.1 (1995)":ss7CurrentData;
    CHARACTERIZED BY dt2FromSourceSSNCountsPkg PACKAGE
    BEHAVIOUR dt2FromSourceSSNCountsBhv BEHAVIOUR DEFINED AS
        "This measurement counts the DT1 messages sent to MTP per source SSN. The preferred
        granularityPeriods are 5 minutes and 30 minutes.";;
    ATTRIBUTES
        ssn                                GET SET-BY-CREATE,
        dt2MessagesFromSourceSSN          GET SET-BY-CREATE; -- Measurement Q.752/9.12
    ;;
REGISTERED AS { sccpObjectClass 22 };

dt2ToSinkSSNCounts
dt2ToSinkSSNCounts MANAGED OBJECT CLASS
    DERIVED FROM "ITU-T Recommendation Q.751.1 (1995)":ss7CurrentData;
    CHARACTERIZED BY dt2ToSinkSSNCountsPkg PACKAGE
    BEHAVIOUR dt2ToSinkSSNCountsBhv BEHAVIOUR DEFINED AS
        "This measurement counts the DT1 messages received from MTP per sink SSN. The
        preferred granularityPeriods are 5 minutes and 30 minutes.";;
    ATTRIBUTES
        ssn                                GET SET-BY-CREATE,
        dt2MessagesToSinkSSN              GET SET-BY-CREATE; -- Measurement Q.752/9.11
    ;;
REGISTERED AS { sccpObjectClass 23 };

edFromSourceSSNCounts
edFromSourceSSNCounts MANAGED OBJECT CLASS
    DERIVED FROM "ITU-T Recommendation Q.751.1 (1995)":ss7CurrentData;
    CHARACTERIZED BY edFromSourceSSNCountsPkg PACKAGE
    BEHAVIOUR edFromSourceSSNCountsBhv BEHAVIOUR DEFINED AS
        "This measurement counts the ED messages sent to MTP per source SSN. The preferred
        granularityPeriods are 5 minutes and 30 minutes.";;
    ATTRIBUTES
        ssn                                GET SET-BY-CREATE,
        edMessagesFromSourceSSN           GET SET-BY-CREATE; -- Measurement Q.752/9.13
    ;;
REGISTERED AS { sccpObjectClass 24 };

edToSinkSSNCounts
edToSinkSSNCounts MANAGED OBJECT CLASS
    DERIVED FROM "ITU-T Recommendation Q.751.1 (1995)":ss7CurrentData;

```

```

    CHARACTERIZED BY edToSinkSSNCountsPkg PACKAGE
    BEHAVIOUR edToSinkSSNCountsBhv BEHAVIOUR DEFINED AS
        "This measurement counts the ED messages received from MTP per sink SSN. The preferred
        granularityPeriods are 5 minutes and 30 minutes.";;
    ATTRIBUTES
        ssn                                GET SET-BY-CREATE,
        edMessagesToSinkSSN                GET SET-BY-CREATE; -- Measurement Q.752/9.14
        ;;
REGISTERED AS { sccpObjectClass 25 };

errMessagesReceivedCounts
errMessagesReceivedCounts MANAGED OBJECT CLASS
    DERIVED FROM "ITU-T Recommendation Q.751.1 (1995)":ss7CurrentData;
    CHARACTERIZED BY errMessagesReceivedCountsPkg PACKAGE
    BEHAVIOUR errMessagesReceivedCountsBhv BEHAVIOUR DEFINED AS
        "This measurement counts the ERR messages received from MTP. The preferred
        granularityPeriods are 5 minutes and 30 minutes.";;
    ATTRIBUTES
        errMessagesReceived                GET SET-BY-CREATE; -- Measurement Q.752/9bis.12
        ;;
REGISTERED AS { sccpObjectClass 26 };

errMessagesSentCounts
errMessagesSentCounts MANAGED OBJECT CLASS
    DERIVED FROM "ITU-T Recommendation Q.751.1 (1995)":ss7CurrentData;
    CHARACTERIZED BY errMessagesSentCountsPkg PACKAGE
    BEHAVIOUR errMessagesSentCountsBhv BEHAVIOUR DEFINED AS
        "This measurement counts the ERR messages sent to MTP. The preferred granularityPeriods
        are 5 minutes and 30 minutes.";;
    ATTRIBUTES
        errMessagesSent                    GET SET-BY-CREATE; -- Measurement Q.752/9bis.11
        ;;
REGISTERED AS { sccpObjectClass 27 };

localSCCPAvailability
localSCCPAvailability MANAGED OBJECT CLASS
    DERIVED FROM "ITU-T Recommendation Q.751.1 (1995)":ss7CurrentData;
    CHARACTERIZED BY localSCCPAvailabilityPkg PACKAGE
    BEHAVIOUR localSCCPAvailabilityBhv BEHAVIOUR DEFINED AS
        "This managed object class provides information on the availability of the local SCCP. The
        preferred granularityPeriod of this permanent measurement is 30 minutes. The attribute
        localSCCPUnavailabilityDuration provides the duration of the local SCCP unavailability
        situation (all reasons). Start of an unavailability situation is notified by the
        localSCCPUnavailability notification, which is contained in the sccp managed object class.";;
    ATTRIBUTES
        localSCCPUnavailabilityDuration    GET SET-BY-CREATE; -- Measurement Q.752/8.5
        ;;
REGISTERED AS { sccpObjectClass 28 };

ludtMessagesReceivedCounts
ludtMessagesReceivedCounts MANAGED OBJECT CLASS
    DERIVED FROM "ITU-T Recommendation Q.751.1 (1995)":ss7CurrentData;
    CHARACTERIZED BY ludtMessagesReceivedCountsPkg PACKAGE
    BEHAVIOUR ludtMessagesReceivedCountsBhv BEHAVIOUR DEFINED AS
        "This measurement counts the LUDT messages Received. The preferred granularityPeriods
        are 5 minutes and 30 minutes.";;
    ATTRIBUTES
        ludtMessagesReceived                GET SET-BY-CREATE; -- Measurement Q.752/9bis.19
        ;;
REGISTERED AS { sccpObjectClass 29 };

```

ludtMessagesSentCounts

ludtMessagesSentCounts MANAGED OBJECT CLASS

DERIVED FROM "ITU-T Recommendation Q.751.1 (1995)":ss7CurrentData;

CHARACTERIZED BY ludtMessagesSentCountsPkg PACKAGE

BEHAVIOUR ludtMessagesSentCountsBhv BEHAVIOUR DEFINED AS

"This measurement counts the LUDT messages sent. The preferred granularityPeriods are 5 minutes and 30 minutes.";;

ATTRIBUTES

ludtMessagesSent

GET SET-BY-CREATE; -- Measurement Q.752/9bis.17

;;

REGISTERED AS { sccpObjectClass 30 };

ludtsMessagesReceivedCounts

ludtsMessagesReceivedCounts MANAGED OBJECT CLASS

DERIVED FROM "ITU-T Recommendation Q.751.1 (1995)":ss7CurrentData;

CHARACTERIZED BY ludtsMessagesReceivedCountsPkg PACKAGE

BEHAVIOUR ludtsMessagesReceivedCountsBhv BEHAVIOUR DEFINED AS

"This measurement counts the LUDTS messages received. The preferred granularityPeriods are 5 minutes and 30 minutes.";;

ATTRIBUTES

ludtsMessagesReceived

GET SET-BY-CREATE; -- Measurement Q.752/9bis.20

;;

REGISTERED AS { sccpObjectClass 31 };

ludtsMessagesSentCounts

ludtsMessagesSentCounts MANAGED OBJECT CLASS

DERIVED FROM "ITU-T Recommendation Q.751.1 (1995)":ss7CurrentData;

CHARACTERIZED BY ludtsMessagesSentCountsPkg PACKAGE

BEHAVIOUR ludtsMessagesSentCountsBhv BEHAVIOUR DEFINED AS

"This measurement counts the LUDTS messages sent. The preferred granularityPeriods are 5 minutes and 30 minutes.";;

ATTRIBUTES

ludtsMessagesSent

GET SET-BY-CREATE; -- Measurement Q.752/9bis.18

;;

REGISTERED AS { sccpObjectClass 32 };

messagesToBackupCounts

messagesToBackupCounts MANAGED OBJECT CLASS

DERIVED FROM "ITU-T Recommendation Q.751.1 (1995)":ss7CurrentData;

CHARACTERIZED BY messagesToBackupCountsPkg PACKAGE

BEHAVIOUR messagesToBackupCountsBhv BEHAVIOUR DEFINED AS

"This measurement counts the messages sent to a back-up subsystem (attribute SSN). The preferred granularityPeriods are 5 minutes and 30 minutes. Instances of this class are created for every ssn. This measurement refers only to those messages which would normally have been routed to a sub-system but because of a change in the translation process (e.g. due to a routing failure towards that sub-system), are directed to a back-up sub-system. The measurement is only applicable at replicated nodes with translation capabilities.";;

ATTRIBUTES

ssn

GET SET-BY-CREATE,

messagesToBackupSSN

GET SET-BY-CREATE; -- Measurement Q.752/9.8

;;

REGISTERED AS { sccpObjectClass 33 };

originatedMessagesPerSSNMeasurement

originatedMessagesPerSSNMeasurement MANAGED OBJECT CLASS

DERIVED FROM "ITU-T Recommendation Q.751.1 (1995)":ss7CurrentData;

CHARACTERIZED BY originatedMessagesPerSSNMeasurementPkg PACKAGE

BEHAVIOUR originatedMessagesPerSSNMeasurementBhv BEHAVIOUR DEFINED AS

"This obligated, permanent measurement counts the total number of messages for a given protocol class (spc attribute, values 0 and 1 only) originating from a given subsystem (ssn attribute). Instances of this class are created for every spc-ssn value combinations. The

preferred granularityPeriods are 5 minutes and 30 minutes. The total number of messages is independent from the fact whether the message could be handled or not.";;

ATTRIBUTES

"ITU-T Recommendation Q.751.1 (1995)": pointCode GET SET-BY-CREATE,
 ssn GET SET-BY-CREATE,
 messagesOriginatedPerSSN-SPC GET SET-BY-CREATE; -- Measurement Q.752/9.6
 ;;

REGISTERED AS { sccpObjectClass 34 };

reassemblyErrorData

reassemblyErrorData MANAGED OBJECT CLASS

DERIVED FROM "ITU-T Recommendation Q.751.1 (1995)":ss7FirstandIntervalCurrentData;

CHARACTERIZED BY reassemblyErrorDataPkg PACKAGE

BEHAVIOUR reassemblyErrorDataBhv BEHAVIOUR DEFINED AS

"This managed object class contains the reassembly error data. The preferred granularityPeriod is 30 minutes. The attributes are read-only. The attributes are related to the qualityofServiceAlarm in the slc managed object class. An attribute is incremented if a qualityofServiceAlarm happens with the corresponding value for the probableCause.";;

ATTRIBUTES

reassemblyTimerExpired GET SET-BY-CREATE, -- Measurement Q.752/7.10
 segmentReceivedOutOfSequence GET SET-BY-CREATE, -- Measurement Q.752/7.11
 noReassemblyResources GET SET-BY-CREATE, -- Measurement Q.752/7.12
 reassemblyFailed GET SET-BY-CREATE; -- Measurement Q.752/7.21
 ;;

REGISTERED AS { sccpObjectClass 35 };

receivedMessagesPerSSNMeasurement

receivedMessagesPerSSNMeasurement MANAGED OBJECT CLASS

DERIVED FROM "ITU-T Recommendation Q.751.1 (1995)":ss7CurrentData;

CHARACTERIZED BY receivedMessagesPerSSNMeasurementPkg PACKAGE

BEHAVIOUR receivedMessagesPerSSNMeasurementBhv BEHAVIOUR DEFINED AS

"This obligated, permanent measurement counts the total number of messages for a given protocol class (spc attribute, values 0 and 1 only) to be delivered to a given subsystem (ssn attribute). Instances of this class are created for every spc-ssn value combinations. The preferred granularityPeriods are 5 minutes and 30 minutes. The total number of messages is independent from the fact whether the message could be handled or not.";;

ATTRIBUTES

"ITU-T Recommendation Q.751.1 (1995)": pointCode GET SET-BY-CREATE,
 ssn GET SET-BY-CREATE,
 messagesReceivedOrTerminatedPerSSN-SPC GET SET-BY-CREATE;
 -- Measurement Q.752/9.7
 ;;

REGISTERED AS { sccpObjectClass 36 };

routingFailureData

routingFailureData MANAGED OBJECT CLASS

DERIVED FROM "ITU-T Recommendation Q.751.1 (1995)":ss7FirstandIntervalCurrentData;

CHARACTERIZED BY oblRoutingFailureDataPkg PACKAGE

BEHAVIOUR oblRoutingFailureDataBhv BEHAVIOUR DEFINED AS

"This managed object class contains the obligated routing failure data. The preferred granularityPeriod is 30 minutes. The attributes are read-only. The attributes are related to the qualityofServiceAlarm in the src managed object class. An attribute is incremented if a qualityofServiceAlarm happens with the corresponding value for the probableCause.";;

ATTRIBUTES

noTranslForNatureAddress GET SET-BY-CREATE, -- Measurement Q.752/7.1
 noTranslForSpecificAddress GET SET-BY-CREATE, -- Measurement Q.752/7.2
 noPointCodeAvailable GET SET-BY-CREATE, -- Measurement Q.752/7.3
 networkCongestion GET SET-BY-CREATE, -- Measurement Q.752/7.4
 subSystemFailure GET SET-BY-CREATE, -- Measurement Q.752/7.5
 subSystemCongestion GET SET-BY-CREATE, -- Measurement Q.752/7.6
 userUnequipped GET SET-BY-CREATE, -- Measurement Q.752/7.7

```

        unknownOrUnqualifiedRoutingFailure GET SET-BY-CREATE, -- Measurement Q.752/7.9
        violationOfHopCounter             GET SET-BY-CREATE; -- Measurement Q.752/7.13
    ;;
REGISTERED AS { sccpObjectClass 37 };

rsrMessagesReceivedCounts
rsrMessagesReceivedCounts MANAGED OBJECT CLASS
    DERIVED FROM "ITU-T Recommendation Q.751.1 (1995)":ss7CurrentData;
    CHARACTERIZED BY rsrMessagesReceivedCountsPkg PACKAGE
        BEHAVIOUR rsrMessagesReceivedCountsBhv BEHAVIOUR DEFINED AS
            "This measurement counts the RSR messages received from MTP. The preferred
            granularityPeriods are 5 minutes and 30 minutes.";;
        ATTRIBUTES
            rsrMessagesReceived             GET SET-BY-CREATE; -- Measurement Q.752/9bis.10
    ;;
REGISTERED AS { sccpObjectClass 38 };

rsrMessagesSentCounts
rsrMessagesSentCounts MANAGED OBJECT CLASS
    DERIVED FROM "ITU-T Recommendation Q.751.1 (1995)":ss7CurrentData;
    CHARACTERIZED BY rsrMessagesSentCountsPkg PACKAGE
        BEHAVIOUR rsrMessagesSentCountsBhv BEHAVIOUR DEFINED AS
            "This measurement counts the RSR messages sent to MTP. The preferred granularityPeriods
            are 5 minutes and 30 minutes.";;
        ATTRIBUTES
            rsrMessagesSent                 GET SET-BY-CREATE; -- Measurement Q.752/9bis.9
    ;;
REGISTERED AS { sccpObjectClass 39 };

sccpMessagesCounts
sccpMessagesCounts MANAGED OBJECT CLASS
    DERIVED FROM "ITU-T Recommendation Q.751.1 (1995)":ss7CurrentData;
    CHARACTERIZED BY sccpMessageCountsPkg PACKAGE
        BEHAVIOUR sccpMessagesCountsBhv BEHAVIOUR DEFINED AS
            "This measurement counts sccp messages as received by scrc. The preferred
            granularityPeriods are 5 minutes and 30 minutes. The total number of messages is
            independent from the fact whether the message could be delivered or not.";;
        ATTRIBUTES
            messagesHandled                 GET SET-BY-CREATE, -- Measurement Q.752/9.3
            messagesForLocalSubsystems     GET SET-BY-CREATE, -- Measurement Q.752/9.4
            messagesRequiringGTTranslation GET SET-BY-CREATE; -- Measurement Q.752/9.5
    ;;
REGISTERED AS { sccpObjectClass 40 };

sccpSyntaxErrorData
sccpSyntaxErrorData MANAGED OBJECT CLASS
    DERIVED FROM "ITU-T Recommendation Q.751.1 (1995)":ss7FirstandIntervalCurrentData;
    CHARACTERIZED BY sccpSyntaxErrorDataPkg PACKAGE
        BEHAVIOUR sccpSyntaxErrorDataBhv BEHAVIOUR DEFINED AS
            "This managed object class contains the obligated syntax error data. The preferred
            granularityPeriod is 30 minutes. The attribute is read-only.";;
        ATTRIBUTES
            sccpSyntaxErrorList             GET SET-BY-CREATE; -- Measurement Q.752/7.8
    ;;
REGISTERED AS { sccpObjectClass 41 };

segmentationErrorData
segmentationErrorData MANAGED OBJECT CLASS
    DERIVED FROM "ITU-T Recommendation Q.751.1 (1995)":ss7FirstandIntervalCurrentData;
    CHARACTERIZED BY segmentationErrorDataPkg PACKAGE
        BEHAVIOUR segmentationErrorDataBhv BEHAVIOUR DEFINED AS

```

"This managed object class contains segmentation error data. The preferred granularityPeriod is 30 minutes. The attributes are read-only. The attributes are related to the qualityofServiceAlarm in the sccp managed object class. An attribute is incremented if a qualityofServiceAlarm happens with the corresponding value for the probableCause.";;

ATTRIBUTES

segmentationNotSupported	GET SET-BY-CREATE; -- <i>Measurement Q.752/7.19</i>
segmentationFailed	GET SET-BY-CREATE; -- <i>Measurement Q.752/7.20</i>
;;	

REGISTERED AS { sccpObjectClass 42 };

segmentationImpossibleData

segmentationImpossibleData MANAGED OBJECT CLASS

DERIVED FROM "ITU-T Recommendation Q.751.1 (1995)":ss7FirstandIntervalCurrentData;

CHARACTERIZED BY segmentationImpossibleDataPkg PACKAGE

BEHAVIOUR segmentationImpossibleDataBhv BEHAVIOUR DEFINED AS

"This managed object class contains segmentation error data. The preferred granularityPeriod is 30 minutes. The attributes are read-only. The attributes are related to the qualityofServiceAlarm in the sccpAccessPoint managed object class. An attribute is incremented if a qualityofServiceAlarm happens with the corresponding value for the probableCause.";;

ATTRIBUTES

messageTooLarge	GET SET-BY-CREATE; -- <i>Measurement Q.752/7.14</i>
;;	

REGISTERED AS { sccpObjectClass 43 };

subsystemProhibitedData

subsystemProhibitedData MANAGED OBJECT CLASS

DERIVED FROM "ITU-T Recommendation Q.751.1 (1995)":ss7FirstandIntervalCurrentData;

CHARACTERIZED BY subsystemProhibitedDataPkg PACKAGE

BEHAVIOUR subsystemProhibitedDataBhv BEHAVIOUR DEFINED AS

"This managed object class contains the subsystem error data. The preferred granularityPeriod is 30 minutes. The attributes are read-only. The attributes are related to the qualityofServiceAlarm in the sccpAccessPoint managed object class. An attribute is incremented if a qualityofServiceAlarm happens with the corresponding value for the probableCause.";;

ATTRIBUTES

subsystemProhibited	GET SET-BY-CREATE; -- <i>Measurement Q.752/8.11</i>
;;	

REGISTERED AS { sccpObjectClass 44 };

udtMessagesReceivedCounts

udtMessagesReceivedCounts MANAGED OBJECT CLASS

DERIVED FROM "ITU-T Recommendation Q.751.1 (1995)":ss7CurrentData;

CHARACTERIZED BY udtMessagesReceivedCountsPkg PACKAGE

BEHAVIOUR udtMessagesReceivedCountsBhv BEHAVIOUR DEFINED AS

"This measurement counts the UDT messages received. The preferred granularityPeriods are 5 minutes and 30 minutes.";;

ATTRIBUTES

udtMessagesReceived	GET SET-BY-CREATE; -- <i>Measurement Q.752/9bis.3</i>
;;	

REGISTERED AS { sccpObjectClass 45 };

udtMessagesSentCounts

udtMessagesSentCounts MANAGED OBJECT CLASS

DERIVED FROM "ITU-T Recommendation Q.751.1 (1995)":ss7CurrentData;

CHARACTERIZED BY udtMessagesSentCountsPkg PACKAGE

BEHAVIOUR udtMessagesSentCountsBhv BEHAVIOUR DEFINED AS

"This measurement counts the UDT messages sent. The preferred granularityPeriods are 5 minutes and 30 minutes.";;

```

    ATTRIBUTES
        udtMessagesSent                GET SET-BY-CREATE; -- Measurement Q.752/9bis.1
    ;;
REGISTERED AS { sccpObjectClass 46 };

udtsMessagesReceivedCounts
udtsMessagesReceivedCounts MANAGED OBJECT CLASS
    DERIVED FROM "ITU-T Recommendation Q.751.1 (1995)":ss7CurrentData;
    CHARACTERIZED BY udtsMessagesReceivedCountsPkg PACKAGE
        BEHAVIOUR udtsMessagesReceivedCountsBhv BEHAVIOUR DEFINED AS
            "This measurement counts the UDTs messages received. The preferred granularityPeriods
            are 5 minutes and 30 minutes.";;
    ATTRIBUTES
        udtMessagesReceived            GET SET-BY-CREATE; -- Measurement Q.752/9bis.4
    ;;
REGISTERED AS { sccpObjectClass 47 };

udtsMessagesSentCounts
udtsMessagesSentCounts MANAGED OBJECT CLASS
    DERIVED FROM "ITU-T Recommendation Q.751.1 (1995)":ss7CurrentData;
    CHARACTERIZED BY udtsMessagesSentCountsPkg PACKAGE
        BEHAVIOUR udtsMessagesSentCountsBhv BEHAVIOUR DEFINED AS
            "This measurement counts the UDTs messages sent. The preferred granularityPeriods are
            5 minutes and 30 minutes.";;
    ATTRIBUTES
        udtMessagesSent                GET SET-BY-CREATE; -- Measurement Q.752/9bis.2
    ;;
REGISTERED AS { sccpObjectClass 48 };

xudtMessagesReceivedCounts
xudtMessagesReceivedCounts MANAGED OBJECT CLASS
    DERIVED FROM "ITU-T Recommendation Q.751.1 (1995)":ss7CurrentData;
    CHARACTERIZED BY xudtMessagesReceivedCountsPkg PACKAGE
        BEHAVIOUR xudtMessagesReceivedCountsBhv BEHAVIOUR DEFINED AS
            "This measurement counts the XUDT messages Received. The preferred granularityPeriods
            are 5 minutes and 30 minutes.";;
    ATTRIBUTES
        xudtMessagesReceived            GET SET-BY-CREATE; -- Measurement Q.752/9bis.15
    ;;
REGISTERED AS { sccpObjectClass 49 };

xudtMessagesSentCounts
xudtMessagesSentCounts MANAGED OBJECT CLASS
    DERIVED FROM "ITU-T Recommendation Q.751.1 (1995)":ss7CurrentData;
    CHARACTERIZED BY xudtMessagesSentCountsPkg PACKAGE
        BEHAVIOUR xudtMessagesSentCountsBhv BEHAVIOUR DEFINED AS
            "This measurement counts the XUDT messages sent. The preferred granularityPeriods are 5
            minutes and 30 minutes.";;
    ATTRIBUTES
        xudtMessagesSent                GET SET-BY-CREATE; -- Measurement Q.752/9bis.13
    ;;
REGISTERED AS { sccpObjectClass 50 };

xudtsMessagesReceivedCounts
xudtsMessagesReceivedCounts MANAGED OBJECT CLASS
    DERIVED FROM "ITU-T Recommendation Q.751.1 (1995)":ss7CurrentData;
    CHARACTERIZED BY xudtsMessagesReceivedCountsPkg PACKAGE
        BEHAVIOUR xudtsMessagesReceivedCountsBhv BEHAVIOUR DEFINED AS
            "This measurement counts the XUDTs messages Received. The preferred granularityPeriods
            are 5 minutes and 30 minutes.";;

```

```

    ATTRIBUTES
        xudtsMessagesReceived          GET SET-BY-CREATE; -- Measurement Q.752/9bis.16
    ;;
REGISTERED AS { sccpObjectClass 51 };

xudtsMessagesSentCounts
xudtsMessagesSentCounts MANAGED OBJECT CLASS
    DERIVED FROM "ITU-T Recommendation Q.751.1 (1995)":ss7CurrentData;
    CHARACTERIZED BY xudtsMessagesSentCountsPkg PACKAGE
        BEHAVIOUR xudtsMessagesSentCountsBhv BEHAVIOUR DEFINED AS
            "This measurement counts the XUDTS messages sent. The preferred granularityPeriods are
            5 minutes and 30 minutes.";;
    ATTRIBUTES
        xudtsMessagesSent              GET SET-BY-CREATE; -- Measurement Q.752/9bis.14
    ;;
REGISTERED AS { sccpObjectClass 52 };

```

C.4 Attribute definitions

crefMessagesReceived

```

crefMessagesReceived ATTRIBUTE
    DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;
    BEHAVIOUR crefMessagesReceivedBhv BEHAVIOUR DEFINED AS
        "This attribute represents measurement Q.752/9bis.8: the total number of CREF messages received.
        See also 3.2/Q.714.";;
REGISTERED AS { sccpAttribute 81 };

```

crefMessagesSent

```

crefMessagesSent ATTRIBUTE
    DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;
    BEHAVIOUR crefMessagesSentBhv BEHAVIOUR DEFINED AS
        "This attribute represents measurement Q.752/9bis.6: the total number of CREF messages sent. See
        also 3.2/Q.714.";;
REGISTERED AS { sccpAttribute 82 };

```

crMessagesReceived

```

crMessagesReceived ATTRIBUTE
    DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;
    BEHAVIOUR crMessagesReceivedBhv BEHAVIOUR DEFINED AS
        "This attribute represents measurement Q.752/9bis.7: the total number of CR messages received. See
        also 3.1/Q.714.";;
REGISTERED AS { sccpAttribute 83 };

```

crMessagesSent

```

crMessagesSent ATTRIBUTE
    DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;
    BEHAVIOUR crMessagesSentBhv BEHAVIOUR DEFINED AS
        "This attribute represents measurement Q.752/9bis.5: the total number of CR messages sent. See
        also 3.1/Q.714.";;
REGISTERED AS { sccpAttribute 84 };

```

dt1MessagesFromSourceSSN

```

dt1MessagesFromSourceSSN ATTRIBUTE
    DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;
    BEHAVIOUR dt1MessagesFromSourceSSNBhv BEHAVIOUR DEFINED AS
        "This attribute represents measurement Q.752/9.10: the total number of DT1 messages sent to per
        source SSN. See also 3.5/Q.714.";;
REGISTERED AS { sccpAttribute 85 };

```

dt1MessagesToSinkSSN

dt1MessagesToSinkSSN ATTRIBUTE

DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;

BEHAVIOUR dt1MessagesToSinkSSNBhv BEHAVIOUR DEFINED AS

"This attribute represents measurement Q.752/9.9: the total number of DT1 received from MTP per sink SSN. See also 3.5/Q.714.";;

REGISTERED AS { sccpAttribute 86 };

dt2MessagesFromSourceSSN

dt2MessagesFromSourceSSN ATTRIBUTE

DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;

BEHAVIOUR dt2MessagesFromSourceSSNBhv BEHAVIOUR DEFINED AS

"This attribute represents measurement Q.752/9.12: the total number DT2 sent to per source SSN. See also 3.5/Q.714.";;

REGISTERED AS { sccpAttribute 87};

dt2MessagesToSinkSSN

dt2MessagesToSinkSSN ATTRIBUTE

DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;

BEHAVIOUR dt2MessagesToSinkSSNBhv BEHAVIOUR DEFINED AS

"This attribute represents measurement Q.752/9.11: the total number DT2 messages received from MTP per sink SSN. See also 3.5/Q.714.";;

REGISTERED AS { sccpAttribute 88 };

edMessagesFromSourceSSN

edMessagesFromSourceSSN ATTRIBUTE

DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;

BEHAVIOUR edMessagesFromSourceSSNBhv BEHAVIOUR DEFINED AS

"This attribute represents measurement Q.752/9.13: the total number of ED messages sent to per source SSN. See also 3.6/Q.714.";;

REGISTERED AS { sccpAttribute 89 };

edMessagesToSinkSSN

edMessagesToSinkSSN ATTRIBUTE

DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;

BEHAVIOUR edMessagesToSinkSSNBhv BEHAVIOUR DEFINED AS

"This attribute represents measurement Q.752/9.14: the total number of ED messages received from MTP per sink SSN. See also 3.6/Q.714.";;

REGISTERED AS { sccpAttribute 90 };

errMessagesReceived

errMessagesReceived ATTRIBUTE

DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;

BEHAVIOUR errMessagesReceivedBhv BEHAVIOUR DEFINED AS

"This attribute represents measurement Q.752/9bis.12: the total number of ERR messages received. See also 3.10/Q.714.";;

REGISTERED AS { sccpAttribute 91 };

errMessagesSent

errMessagesSent ATTRIBUTE

DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;

BEHAVIOUR errMessagesSentBhv BEHAVIOUR DEFINED AS

"This attribute represents measurement Q.752/9bis.11: the total number of ERR messages sent. See also 3.10/Q.714.";;

REGISTERED AS { sccpAttribute 92 };

localSCCPUnavailabilityDuration

localSCCPUnavailabilityDuration ATTRIBUTE

WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.Seconds;

MATCHES FOR EQUALITY;

BEHAVIOUR localSCCPUnavailabilityDurationBhv BEHAVIOUR DEFINED AS

"This attribute represents measurement Q.752/8.5";;
REGISTERED AS { sccpAttribute 93 };

ludtMessagesReceived

ludtMessagesReceived ATTRIBUTE
DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;
BEHAVIOUR ludtMessagesReceivedBhv BEHAVIOUR DEFINED AS
"This attribute represents measurement Q.752/9bis.19: the total number of LUDT messages received. See also 4.1/Q.714.";;
REGISTERED AS { sccpAttribute 94 };

ludtMessagesSent

ludtMessagesSent ATTRIBUTE
DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;
BEHAVIOUR ludtMessagesSentBhv BEHAVIOUR DEFINED AS
"This attribute represents measurement Q.752/9bis.17: the total number of LUDT messages sent. See also 4.1/Q.714.";;
REGISTERED AS { sccpAttribute 95 };

ludtsMessagesReceived

ludtsMessagesReceived ATTRIBUTE
DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;
BEHAVIOUR ludtsMessagesReceivedBhv BEHAVIOUR DEFINED AS
"This attribute represents measurement Q.752/9bis.20: the total number of LUDTS messages sent. See also 4.2/Q.714.";;
REGISTERED AS { sccpAttribute 96 };

ludtsMessagesSent

ludtsMessagesSent ATTRIBUTE
DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;
BEHAVIOUR ludtsMessagesSentBhv BEHAVIOUR DEFINED AS
"This attribute represents measurement Q.752/9bis.18: the total number of LUDTS messages sent. See also 4.2/Q.714.";;
REGISTERED AS { sccpAttribute 97 };

messagesForLocalSubsystems

messagesForLocalSubsystems ATTRIBUTE
DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;
BEHAVIOUR messagesForLocalSubsystemsBhv BEHAVIOUR DEFINED AS
"This attribute represents measurement Q.752/9.4: the total number of messages intended for local subsystems. See also 2.3/Q.714.";;
REGISTERED AS { sccpAttribute 98 };

messagesHandled

messagesHandled ATTRIBUTE
DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;
BEHAVIOUR messagesHandledBhv BEHAVIOUR DEFINED AS
"This attribute represents measurement Q.752/9.3: the total number of messages handled from local or remote systems. It is assumed that a message transiting an SCCP relay point is counted only once. See also 2.3/Q.714.";;
REGISTERED AS { sccpAttribute 99 };

messagesOriginatedPerSSN-SPC

messagesOriginatedPerSSN-SPC ATTRIBUTE
DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;
BEHAVIOUR messagesOriginatedPerSSN-SPCBhv BEHAVIOUR DEFINED AS
"This attribute represents measurement Q.752/9.6. See also 1.1.2/Q.714.";;
REGISTERED AS { sccpAttribute 100 };

messagesReceivedOrTerminatedPerSSN-SPC

messagesReceivedOrTerminatedPerSSN-SPC ATTRIBUTE

DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;

BEHAVIOUR messagesReceivedOrTerminatedPerSSN-SPCBhv BEHAVIOUR DEFINED AS

"This attribute represents measurement Q.752/9.7. See also 1.1.2/Q.714.";;

REGISTERED AS { sccpAttribute 101 };

messagesRequiringGTTranslation

messagesRequiringGTTranslation ATTRIBUTE

DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;

BEHAVIOUR messagesRequiringGTTranslationBhv BEHAVIOUR DEFINED AS

"This attribute represents measurement Q.752/9.5: the total number of messages that require global title translation. The total number of messages is independent from the fact whether the global title in the message could be translated or not. This measurement is only required at SCCP nodes with global title translation capabilities. See also 2.3/Q.714.";;

REGISTERED AS { sccpAttribute 102 };

messagesToBackupSSN

messagesToBackupSSN ATTRIBUTE

DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;

BEHAVIOUR messagesToBackupSSNBhv BEHAVIOUR DEFINED AS

"This attribute represents measurement Q.752/9.8: the total number of messages that have been sent to a back-up subsystem. See also 5.3.2/Q.714.";;

REGISTERED AS { sccpAttribute 103 };

messageTooLarge

messageTooLarge ATTRIBUTE

DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;

BEHAVIOUR messageTooLargeBhv BEHAVIOUR DEFINED AS

"This attribute represents measurement Q.752/7.14. It counts the segmentation errors caused by user data that is too large to be segmented. See also 4.1.1.1.1/Q.714.";;

REGISTERED AS { sccpAttribute 104 };

networkCongestion

networkCongestion ATTRIBUTE

DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;

BEHAVIOUR networkCongestionBhv BEHAVIOUR DEFINED AS

"This attribute represents measurement Q.752/7.4. See also 2.4/Q.714.";;

REGISTERED AS { sccpAttribute 105 };

noPointCodeAvailable

noPointCodeAvailable ATTRIBUTE

DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;

BEHAVIOUR noPointCodeAvailableBhv BEHAVIOUR DEFINED AS

"This attribute represents measurement Q.752/7.3. See also 2.4/Q.714.";;

REGISTERED AS { sccpAttribute 106 };

noReassemblyResources

noReassemblyResources ATTRIBUTE

DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;

BEHAVIOUR noReassemblyResourcesBhv BEHAVIOUR DEFINED AS

"This attribute represents measurement Q.752/7.12. It counts the failed reassembly processes that result from a lack of resources. See also 4.1.1.2.3.4/Q.714.";;

REGISTERED AS { sccpAttribute 107 };

noTranslForNatureAddress

noTranslForNatureAddress ATTRIBUTE

DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;

BEHAVIOUR noTranslForNatureAddressBhv BEHAVIOUR DEFINED AS

"This attribute represents measurement Q.752/7.1. It counts the failed Global Title translations that result from the fact that the type of address is unknown to the translation function. This

measurement is only required at SCCP nodes with global title translation capabilities. See also 2.4/Q.714.";;

REGISTERED AS { sccpAttribute 108 };

noTranslForSpecificAddress

noTranslForSpecificAddress ATTRIBUTE

DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;

BEHAVIOUR noTranslForSpecificAddressBhv BEHAVIOUR DEFINED AS

"This attribute represents measurement Q.752/7.2. It counts the failed Global Title translations that result from the fact that although the type of address is known to the translation function, this specific address is not. This measurement is only required at SCCP nodes with global title translation capabilities. See also 2.4/Q.714.";;

REGISTERED AS { sccpAttribute 109 };

reassembleFailed

reassembleFailed ATTRIBUTE

DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;

BEHAVIOUR reassembleFailedBhv BEHAVIOUR DEFINED AS

"This attribute represents measurement Q.752/7.21. See also 4.1.1.1/Q.714.";;

REGISTERED AS { sccpAttribute 110 };

reassembleTimerExpired

reassembleTimerExpired ATTRIBUTE

DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;

BEHAVIOUR reassembleTimerExpiredBhv BEHAVIOUR DEFINED AS

"This attribute represents measurement Q.752/7.10. It counts the failed reassembly processes caused by the expiration of the reassembly timer. See also 4.1.1.2.3.2/Q.714.";;

REGISTERED AS { sccpAttribute 111 };

rsrMessagesReceived

rsrMessagesReceived ATTRIBUTE

DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;

BEHAVIOUR rsrMessagesReceivedBhv BEHAVIOUR DEFINED AS

"This attribute represents measurement Q.752/9bis.10: the total number of RSR messages received. See also 3.7/Q.714.";;

REGISTERED AS { sccpAttribute 112 };

rsrMessagesSent

rsrMessagesSent ATTRIBUTE

DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;

BEHAVIOUR rsrMessagesSentBhv BEHAVIOUR DEFINED AS

"This attribute represents measurement Q.752/9bis.9: the total number of RSR messages sent. See also 3.7/Q.714.";;

REGISTERED AS { sccpAttribute 113 };

sccpSyntaxErrorList

sccpSyntaxErrorList ATTRIBUTE

WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.SccpSyntaxErrorList;

MATCHES FOR EQUALITY;

BEHAVIOUR sccpSyntaxErrorListBhv BEHAVIOUR DEFINED AS

"This attribute represents measurement Q.752/7.8: the syntax errors as identified in section 3.10/X.714. See also 4.3/Q.714.";;

REGISTERED AS { sccpAttribute 114 };

segmentationFailed

segmentationFailed ATTRIBUTE

DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;

BEHAVIOUR segmentationFailedBhv BEHAVIOUR DEFINED AS

"This attribute represents measurement Q.752/7.20. See also 4.1.1.1/Q.714.";;

REGISTERED AS { sccpAttribute 115 };

segmentationNotSupported

segmentationNotSupported ATTRIBUTE

DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;

BEHAVIOUR segmentationNotSupportedBhv BEHAVIOUR DEFINED AS

"This attribute represents measurement Q.752/7.19. See also 4.1.1.1/Q.714.";;

REGISTERED AS { sccpAttribute 116 };

segmentReceivedOutOfSequence

segmentReceivedOutOfSequence ATTRIBUTE

DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;

BEHAVIOUR segmentReceivedOutOfSequenceBhv BEHAVIOUR DEFINED AS

"This attribute represents measurement Q.752/7.11. It counts the data segments that are not received in sequence. See also 4.1.1.2.3.2/Q.714.";;

REGISTERED AS { sccpAttribute 117 };

subSystemCongestion

subSystemCongestion ATTRIBUTE

DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;

BEHAVIOUR subSystemCongestionBhv BEHAVIOUR DEFINED AS

"This attribute represents measurement Q.752/7.6 (this measurement is for further study). See also 2.4/Q.714.";;

REGISTERED AS { sccpAttribute 118 };

subSystemFailure

subSystemFailure ATTRIBUTE

DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;

BEHAVIOUR subSystemFailureBhv BEHAVIOUR DEFINED AS

"This attribute represents measurement Q.752/7.5. See also 2.4/Q.714.";;

REGISTERED AS { sccpAttribute 119 };

subsystemProhibited

subsystemProhibited ATTRIBUTE

DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;

BEHAVIOUR subsystemProhibitedBhv BEHAVIOUR DEFINED AS

"This attribute represents measurement Q.752/8.11.";;

REGISTERED AS { sccpAttribute 120 };

udtMessagesReceived

udtMessagesReceived ATTRIBUTE

DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;

BEHAVIOUR udtMessagesReceivedBhv BEHAVIOUR DEFINED AS

"This attribute represents measurement Q.752/9bis.3: the total number of UDT messages received. See also 4.1/Q.714.";;

REGISTERED AS { sccpAttribute 121 };

udtMessagesSent

udtMessagesSent ATTRIBUTE

DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;

BEHAVIOUR udtMessagesSentBhv BEHAVIOUR DEFINED AS

"This attribute represents measurement Q.752/9bis.1: the total number of UDT messages sent. See also 4.1/Q.714.";;

REGISTERED AS { sccpAttribute 122 };

udtsMessagesReceived

udtsMessagesReceived ATTRIBUTE

DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;

BEHAVIOUR udtsMessagesReceivedBhv BEHAVIOUR DEFINED AS

"This attribute represents measurement Q.752/9bis.4: the total number of UDTS messages sent. See also 4.2/Q.714.";;

REGISTERED AS { sccpAttribute 123 };

udtsMessagesSent

udtsMessagesSent ATTRIBUTE

DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;

BEHAVIOUR udtsMessagesSentBhv BEHAVIOUR DEFINED AS

"This attribute represents measurement Q.752/9bis.2: the total number of UDTs messages sent. See also 4.2/Q.714.";;

REGISTERED AS { sccpAttribute 124 };

unknownOrUnqualifiedRoutingFailure

unknownOrUnqualifiedRoutingFailure ATTRIBUTE

DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;

BEHAVIOUR unknownOrUnqualifiedRoutingFailureBhv BEHAVIOUR DEFINED AS

"This attribute represents measurement Q.752/7.9. See also 2.4/Q.714.";;

REGISTERED AS { sccpAttribute 125 };

userUnequipped

userUnequipped ATTRIBUTE

DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;

BEHAVIOUR userUnequippedBhv BEHAVIOUR DEFINED AS

"This attribute represents measurement Q.752/7.7. See also 2.4/Q.714.";;

REGISTERED AS { sccpAttribute 126 };

violationOfHopCounter

violationOfHopCounter ATTRIBUTE

DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;

BEHAVIOUR violationOfHopCounterBhv BEHAVIOUR DEFINED AS

"This attribute represents measurement Q.752/7.13. It counts the routing failures caused by the expiration of the Hop Counter. See also 2.3.1.3/Q.714.";;

REGISTERED AS { sccpAttribute 127 };

xudtMessagesReceived

xudtMessagesReceived ATTRIBUTE

DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;

BEHAVIOUR xudtMessagesReceivedBhv BEHAVIOUR DEFINED AS

"This attribute represents measurement Q.752/9bis.15: the total number of XUDT messages received. See also 4.1/Q.714.";;

REGISTERED AS { sccpAttribute 128 };

xudtMessagesSent

xudtMessagesSent ATTRIBUTE

DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;

BEHAVIOUR xudtMessagesSentBhv BEHAVIOUR DEFINED AS

"This attribute represents measurement Q.752/9bis.13: the total number of XUDT messages sent. See also 4.1/Q.714.";;

REGISTERED AS { sccpAttribute 129 };

xudtsMessagesReceived

xudtsMessagesReceived ATTRIBUTE

DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;

BEHAVIOUR xudtsMessagesReceivedBhv BEHAVIOUR DEFINED AS

"This attribute represents measurement Q.752/9bis.16: the total number of XUDTS messages received. See also 4.2/Q.714.";;

REGISTERED AS { sccpAttribute 130 };

xudtsMessagesSent

xudtsMessagesSent ATTRIBUTE

DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":counter;

BEHAVIOUR xudtsMessagesSentBhv BEHAVIOUR DEFINED AS

"This attribute represents measurement Q.752/9bis.14: the total number of XUDTS messages sent. See also 4.2/Q.714.";;

REGISTERED AS { sccpAttribute 131 };

C.5 Naming binding definitions

sccp-localSCCPAvailability

sccp-localSCCPAvailability NAME BINDING
SUBORDINATE OBJECT CLASS localSCCPAvailability;
NAMED BY
SUPERIOR OBJECT CLASS sccp;
WITH ATTRIBUTE "ITU-T Rec. X.739 (1993) | ISO/IEC 10164-11 : 1993":scannerId;
REGISTERED AS { sccpNameBinding 14 };

sccpAccessPoint-segmentationImpossibleData

sccpAccessPoint-segmentationImpossibleData NAME BINDING
SUBORDINATE OBJECT CLASS segmentationImpossibleData;
NAMED BY
SUPERIOR OBJECT CLASS sccpAccessPoint;
WITH ATTRIBUTE "ITU-T Rec. X.739 (1993) | ISO/IEC 10164-11 : 1993":scannerId;
REGISTERED AS { sccpNameBinding 15 };

sccpAccessPoint-subsystemProhibitedData

sccpAccessPoint-subsystemProhibitedData NAME BINDING
SUBORDINATE OBJECT CLASS subsystemProhibitedData ;
NAMED BY
SUPERIOR OBJECT CLASS sccpAccessPoint;
WITH ATTRIBUTE "ITU-T Rec. X.739 (1993) | ISO/IEC 10164-11 : 1993":scannerId;
REGISTERED AS { sccpNameBinding 16 };

sclc-originatedMessagesPerSSNMeasurement

sclc-originatedMessagesPerSSNMeasurement NAME BINDING
SUBORDINATE OBJECT CLASS originatedMessagesPerSSNMeasurement;
NAMED BY
SUPERIOR OBJECT CLASS sclc;
WITH ATTRIBUTE "ITU-T Rec. X.739 (1993) | ISO/IEC 10164-11 : 1993":scannerId;
REGISTERED AS { sccpNameBinding 17 };

sclc-reassemblyErrorData

sclc-reassemblyErrorData NAME BINDING
SUBORDINATE OBJECT CLASS reassemblyErrorData;
NAMED BY
SUPERIOR OBJECT CLASS sclc;
WITH ATTRIBUTE "ITU-T Rec. X.739 (1993) | ISO/IEC 10164-11 : 1993":scannerId;
REGISTERED AS { sccpNameBinding 18 };

sclc-receivedMessagesPerSSNMeasurement

sclc-receivedMessagesPerSSNMeasurement NAME BINDING
SUBORDINATE OBJECT CLASS receivedMessagesPerSSNMeasurement;
NAMED BY
SUPERIOR OBJECT CLASS sclc;
WITH ATTRIBUTE "ITU-T Rec. X.739 (1993) | ISO/IEC 10164-11 : 1993":scannerId;
REGISTERED AS { sccpNameBinding 19 };

sclc-segmentationErrorData

sclc-segmentationErrorData NAME BINDING
SUBORDINATE OBJECT CLASS segmentationErrorData;
NAMED BY
SUPERIOR OBJECT CLASS sclc;
WITH ATTRIBUTE "ITU-T Rec. X.739 (1993) | ISO/IEC 10164-11 : 1993":scannerId;
REGISTERED AS { sccpNameBinding 20 };

scoc-dt1FromSourceSSNCounts

scoc-dt1FromSourceSSNCounts NAME BINDING
SUBORDINATE OBJECT CLASS dt1FromSourceSSNCounts;

NAMED BY
 SUPERIOR OBJECT CLASS scoc;
 WITH ATTRIBUTE "ITU-T Rec. X.739 (1993) | ISO/IEC 10164-11 : 1993":scannerId;
 REGISTERED AS { sccpNameBinding 21 };

scoc-dt1ToSinkSSNCounts

scoc-dt1ToSinkSSNCounts NAME BINDING
 SUBORDINATE OBJECT CLASS dt1ToSinkSSNCounts;
 NAMED BY
 SUPERIOR OBJECT CLASS scoc;
 WITH ATTRIBUTE "ITU-T Rec. X.739 (1993) | ISO/IEC 10164-11 : 1993":scannerId;
 REGISTERED AS { sccpNameBinding 22 };

scoc-dt2FromSourceSSNCounts

scoc-dt2FromSourceSSNCounts NAME BINDING
 SUBORDINATE OBJECT CLASS dt2FromSourceSSNCounts;
 NAMED BY
 SUPERIOR OBJECT CLASS scoc;
 WITH ATTRIBUTE "ITU-T Rec. X.739 (1993) | ISO/IEC 10164-11 : 1993":scannerId;
 REGISTERED AS { sccpNameBinding 23 };

scoc-dt2ToSinkSSNCounts

scoc-dt2ToSinkSSNCounts NAME BINDING
 SUBORDINATE OBJECT CLASS dt2ToSinkSSNCounts;
 NAMED BY
 SUPERIOR OBJECT CLASS scoc;
 WITH ATTRIBUTE "ITU-T Rec. X.739 (1993) | ISO/IEC 10164-11 : 1993":scannerId;
 REGISTERED AS { sccpNameBinding 24 };

scoc-edFromSourceSSNCounts

scoc-edFromSourceSSNCounts NAME BINDING
 SUBORDINATE OBJECT CLASS edFromSourceSSNCounts;
 NAMED BY
 SUPERIOR OBJECT CLASS scoc;
 WITH ATTRIBUTE "ITU-T Rec. X.739 (1993) | ISO/IEC 10164-11 : 1993":scannerId;
 REGISTERED AS { sccpNameBinding 25 };

scoc-edToSinkSSNCounts

scoc-edToSinkSSNCounts NAME BINDING
 SUBORDINATE OBJECT CLASS edToSinkSSNCounts;
 NAMED BY
 SUPERIOR OBJECT CLASS scoc;
 WITH ATTRIBUTE "ITU-T Rec. X.739 (1993) | ISO/IEC 10164-11 : 1993":scannerId;
 REGISTERED AS { sccpNameBinding 26 };

scrc-crefMessagesReceivedCounts

scrc-crefMessagesReceivedCounts NAME BINDING
 SUBORDINATE OBJECT CLASS crefMessagesReceivedCounts ;
 NAMED BY
 SUPERIOR OBJECT CLASS scrc;
 WITH ATTRIBUTE "ITU-T Rec. X.739 (1993) | ISO/IEC 10164-11 : 1993":scannerId;
 REGISTERED AS { sccpNameBinding 27 };

scrc-crefMessagesSentCounts

scrc-crefMessagesSentCounts NAME BINDING
 SUBORDINATE OBJECT CLASS crefMessagesSentCounts ;
 NAMED BY
 SUPERIOR OBJECT CLASS scrc;
 WITH ATTRIBUTE "ITU-T Rec. X.739 (1993) | ISO/IEC 10164-11 : 1993":scannerId;
 REGISTERED AS { sccpNameBinding 28 };

scrc-crMessagesReceivedCounts
scrc-crMessagesReceivedCounts NAME BINDING
SUBORDINATE OBJECT CLASS crMessagesReceivedCounts ;
NAMED BY
SUPERIOR OBJECT CLASS scrc;
WITH ATTRIBUTE "ITU-T Rec. X.739 (1993) | ISO/IEC 10164-11 : 1993":scannerId;
REGISTERED AS { sccpNameBinding 29 };

scrc-crMessagesSentCounts
scrc-crMessagesSentCounts NAME BINDING
SUBORDINATE OBJECT CLASS crMessagesSentCounts ;
NAMED BY
SUPERIOR OBJECT CLASS scrc;
WITH ATTRIBUTE "ITU-T Rec. X.739 (1993) | ISO/IEC 10164-11 : 1993":scannerId;
REGISTERED AS { sccpNameBinding 30 };

scrc-errMessagesReceivedCounts
scrc-errMessagesReceivedCounts NAME BINDING
SUBORDINATE OBJECT CLASS errMessagesReceivedCounts ;
NAMED BY
SUPERIOR OBJECT CLASS scrc;
WITH ATTRIBUTE "ITU-T Rec. X.739 (1993) | ISO/IEC 10164-11 : 1993":scannerId;
REGISTERED AS { sccpNameBinding 31 };

scrc-errMessagesSentCounts
scrc-errMessagesSentCounts NAME BINDING
SUBORDINATE OBJECT CLASS errMessagesSentCounts ;
NAMED BY
SUPERIOR OBJECT CLASS scrc;
WITH ATTRIBUTE "ITU-T Rec. X.739 (1993) | ISO/IEC 10164-11 : 1993":scannerId;
REGISTERED AS { sccpNameBinding 32 };

scrc-ludtMessagesReceivedCounts
scrc-ludtMessagesReceivedCounts NAME BINDING
SUBORDINATE OBJECT CLASS ludtMessagesReceivedCounts ;
NAMED BY
SUPERIOR OBJECT CLASS scrc;
WITH ATTRIBUTE "ITU-T Rec. X.739 (1993) | ISO/IEC 10164-11 : 1993":scannerId;
REGISTERED AS { sccpNameBinding 33 };

scrc-ludtMessagesSentCounts
scrc-ludtMessagesSentCounts NAME BINDING
SUBORDINATE OBJECT CLASS ludtMessagesSentCounts ;
NAMED BY
SUPERIOR OBJECT CLASS scrc;
WITH ATTRIBUTE "ITU-T Rec. X.739 (1993) | ISO/IEC 10164-11 : 1993":scannerId;
REGISTERED AS { sccpNameBinding 34 };

scrc-ludtsMessagesReceivedCounts
scrc-ludtsMessagesReceivedCounts NAME BINDING
SUBORDINATE OBJECT CLASS ludtsMessagesReceivedCounts ;
NAMED BY
SUPERIOR OBJECT CLASS scrc;
WITH ATTRIBUTE "ITU-T Rec. X.739 (1993) | ISO/IEC 10164-11 : 1993":scannerId;
REGISTERED AS { sccpNameBinding 35 };

scrc-ludtsMessagesSentCounts
scrc-ludtsMessagesSentCounts NAME BINDING
SUBORDINATE OBJECT CLASS ludtsMessagesSentCounts ;
NAMED BY
SUPERIOR OBJECT CLASS scrc;

WITH ATTRIBUTE "ITU-T Rec. X.739 (1993) | ISO/IEC 10164-11 : 1993":scannerId;
REGISTERED AS { sccpNameBinding 36 };

scrc-messagesToBackupCounts

scrc-messagesToBackupCounts NAME BINDING
SUBORDINATE OBJECT CLASS messagesToBackupCounts;
NAMED BY
SUPERIOR OBJECT CLASS scrc;
WITH ATTRIBUTE "ITU-T Rec. X.739 (1993) | ISO/IEC 10164-11 : 1993":scannerId;
REGISTERED AS { sccpNameBinding 37 };

scrc-routingFailureData

scrc-RoutingFailureData NAME BINDING
SUBORDINATE OBJECT CLASS routingFailureData;
NAMED BY
SUPERIOR OBJECT CLASS scrc;
WITH ATTRIBUTE "ITU-T Rec. X.739 (1993) | ISO/IEC 10164-11 : 1993":scannerId;
REGISTERED AS { sccpNameBinding 38 };

scrc-rsrMessagesReceivedCounts

scrc-rsrMessagesReceivedCounts NAME BINDING
SUBORDINATE OBJECT CLASS rsrMessagesReceivedCounts ;
NAMED BY
SUPERIOR OBJECT CLASS scrc;
WITH ATTRIBUTE "ITU-T Rec. X.739 (1993) | ISO/IEC 10164-11 : 1993":scannerId;
REGISTERED AS { sccpNameBinding 39 };

scrc-rsrMessagesSentCounts

scrc-rsrMessagesSentCounts NAME BINDING
SUBORDINATE OBJECT CLASS rsrMessagesSentCounts ;
NAMED BY
SUPERIOR OBJECT CLASS scrc;
WITH ATTRIBUTE "ITU-T Rec. X.739 (1993) | ISO/IEC 10164-11 : 1993":scannerId;
REGISTERED AS { sccpNameBinding 40 };

scrc-sccpMessagesCounts

scrc-sccpMessagesCounts NAME BINDING
SUBORDINATE OBJECT CLASS sccpMessagesCounts;
NAMED BY
SUPERIOR OBJECT CLASS scrc;
WITH ATTRIBUTE "ITU-T Rec. X.739 (1993) | ISO/IEC 10164-11 : 1993":scannerId;
REGISTERED AS { sccpNameBinding 41 };

scrc-sccpSyntaxErrorData

scrc-sccpSyntaxErrorData NAME BINDING
SUBORDINATE OBJECT CLASS sccpSyntaxErrorData;
NAMED BY
SUPERIOR OBJECT CLASS scrc;
WITH ATTRIBUTE "ITU-T Rec. X.739 (1993) | ISO/IEC 10164-11 : 1993":scannerId;
REGISTERED AS { sccpNameBinding 42 };

scrc-udtMessagesReceivedCounts

scrc-udtMessagesReceivedCounts NAME BINDING
SUBORDINATE OBJECT CLASS udtMessagesReceivedCounts ;
NAMED BY
SUPERIOR OBJECT CLASS scrc;
WITH ATTRIBUTE "ITU-T Rec. X.739 (1993) | ISO/IEC 10164-11 : 1993":scannerId;
REGISTERED AS { sccpNameBinding 43 };

scrc-udtMessagesSentCounts

scrc-udtMessagesSentCounts NAME BINDING
SUBORDINATE OBJECT CLASS udtMessagesSentCounts ;

NAMED BY
 SUPERIOR OBJECT CLASS scrc;
 WITH ATTRIBUTE "ITU-T Rec. X.739 (1993) | ISO/IEC 10164-11 : 1993":scannerId;
 REGISTERED AS { sccpNameBinding 44 };

scrc-udtsMessagesReceivedCounts

scrc-udtsMessagesReceivedCounts NAME BINDING
 SUBORDINATE OBJECT CLASS udtsMessagesReceivedCounts ;
 NAMED BY
 SUPERIOR OBJECT CLASS scrc;
 WITH ATTRIBUTE "ITU-T Rec. X.739 (1993) | ISO/IEC 10164-11 : 1993":scannerId;
 REGISTERED AS { sccpNameBinding 45 };

scrc-udtsMessagesSentCounts

scrc-udtsMessagesSentCounts NAME BINDING
 SUBORDINATE OBJECT CLASS udtsMessagesSentCounts ;
 NAMED BY
 SUPERIOR OBJECT CLASS scrc;
 WITH ATTRIBUTE "ITU-T Rec. X.739 (1993) | ISO/IEC 10164-11 : 1993":scannerId;
 REGISTERED AS { sccpNameBinding 46 };

scrc-xudtMessagesReceivedCounts

scrc-xudtMessagesReceivedCounts NAME BINDING
 SUBORDINATE OBJECT CLASS xudtMessagesReceivedCounts;
 NAMED BY
 SUPERIOR OBJECT CLASS scrc;
 WITH ATTRIBUTE "ITU-T Rec. X.739 (1993) | ISO/IEC 10164-11 : 1993":scannerId;
 REGISTERED AS { sccpNameBinding 47 };

scrc-xudtMessagesSentCounts

scrc-xudtMessagesSentCounts NAME BINDING
 SUBORDINATE OBJECT CLASS xudtMessagesSentCounts;
 NAMED BY
 SUPERIOR OBJECT CLASS scrc;
 WITH ATTRIBUTE "ITU-T Rec. X.739 (1993) | ISO/IEC 10164-11 : 1993":scannerId;
 REGISTERED AS { sccpNameBinding 48 };

scrc-xudtsMessagesReceivedCounts

scrc-xudtsMessagesReceivedCounts NAME BINDING
 SUBORDINATE OBJECT CLASS xudtsMessagesReceivedCounts;
 NAMED BY
 SUPERIOR OBJECT CLASS scrc;
 WITH ATTRIBUTE "ITU-T Rec. X.739 (1993) | ISO/IEC 10164-11 : 1993":scannerId;
 REGISTERED AS { sccpNameBinding 49 };

scrc-xudtsMessagesSentCounts

scrc-xudtsMessagesSentCounts NAME BINDING
 SUBORDINATE OBJECT CLASS xudtsMessagesSentCounts;
 NAMED BY
 SUPERIOR OBJECT CLASS scrc;
 WITH ATTRIBUTE "ITU-T Rec. X.739 (1993) | ISO/IEC 10164-11 : 1993":scannerId;
 REGISTERED AS { sccpNameBinding 50 };

APPENDIX I

SCCP Managed Objects for further study

This Appendix lists managed objects that were taken out of the main body of this Recommendation because they were felt insufficiently stable for publication. They are maintained in this Appendix as baseline text for the next revision of this Recommendation.

Figure I.1 shows the naming schema for the managed objects listed in this Appendix.

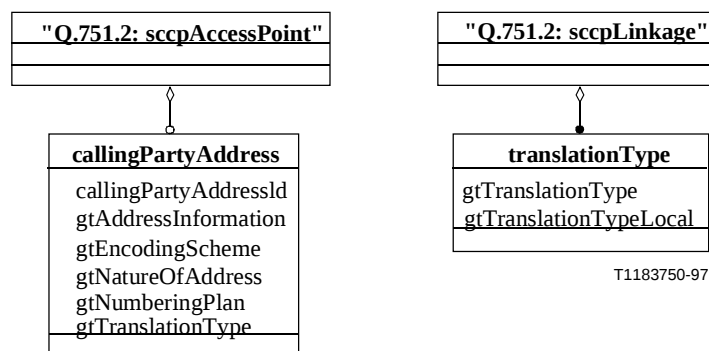


Figure I.1/Q.751.2 – Naming schema

I.1 CallingPartyAddress

I.1.1 callingPartyAddress managed object class (informal part)

Attributes	Notifications	Actions
callingPartyAddressPackage		
callingPartyAddressId		
gtAddressInformation		
gtEncodingScheme		
gtNatureOfAddress		
gtNumberingPlan		
gtTranslationType		
"ITU-T Rec. M.3100 (1995)": createDeleteNotificationsPackage (O)		
	objectCreation	
	objectDeletion	
callingPartyAddressNamePackage (O)		
callingPartyAddressName		

This managed object defines the Global Title Address for the Calling Party Address (CGA) that can optionally be associated to a local SCCP Access Point. This GT address is only used for the generation of the CGA, if the SCCP user does not specify the GT Address himself.

I.1.2 callingPartyAddress (formal part)

callingPartyAddress MANAGED OBJECT CLASS

DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":top;

CHARACTERIZED BY callingPartyAddressPackage PACKAGE

BEHAVIOUR callingPartyAddressBhv BEHAVIOUR DEFINED AS

"This managed object defines the Global Title Address for the Calling Party Address (CGA) that can optionally be associated to a local SCCP Access Point. This GT address is only used for the generation of the CGA, if the SCCP user does not specify the GT Address himself.";;

ATTRIBUTES

callingPartyAddressId	GET SET-BY-CREATE,
gtAddressInformation	GET SET-BY-CREATE,
gtEncodingScheme	GET SET-BY-CREATE,
gtNatureOfAddress	GET SET-BY-CREATE,
gtNumberingPlan	GET SET-BY-CREATE,
gtTranslationType	GET SET-BY-CREATE;;;

CONDITIONAL PACKAGES

"ITU-T Rec. M.3100 (1995)":createDeleteNotificationsPackage PRESENT IF "the objectCreation and objectDeletion notifications defined in 'ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992' are supported by an instance of this class",
callingPartyAddressNamePackage PRESENT IF "an instance supports it";

REGISTERED AS { sccpObjectClass 53 };

callingPartyAddressNamePackage PACKAGE

ATTRIBUTES

callingPartyAddressName	GET-REPLACE;
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REGISTERED AS { sccpPackage 23 };

callingPartyAddressId

callingPartyAddressId ATTRIBUTE

WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.SimpleNameType;

MATCHES FOR EQUALITY;

REGISTERED AS { sccpAttribute 132 };

callingPartyAddressName

callingPartyAddressName ATTRIBUTE

WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.AdditionalName;

MATCHES FOR EQUALITY;

REGISTERED AS { sccpAttribute 133 };

I.2 Translation Type

I.2.1 translationType managed object class (informal part)

Attributes	Notifications	Actions
translationTypePackage		
gtTranslationType		
gtTranslationTypeLocal		
"ITU-T Rec. M.3100 (1995)": createDeleteNotificationsPackage (O)		
	objectCreation	
	objectDeletion	
translationTypeNamePackage(O)		
translationTypeName		

This object class allows the association of a generic gtTranslationType (contained in the gtTranslator) with a gtTranslationTypeLocal, that is, a GT translation type that is valid only in a single network (if contained by a local sccpLinkage) or for a specific mtp access point only (if contained by remote sccpLinkage). In the case where a conflicting translation type association exists for both a local sccpLinkage and a remote sccpLinkage, the remote sccpLinkage association prevails.

NOTE – The gtConversionRule managed object also offers a mechanism to modify global title translation types. That mechanism should not be used in parallel with the translationType managed object.

sccpAccessPoint-callingPartyAddress

sccpAccessPoint-callingPartyAddress NAME BINDING

SUBORDINATE OBJECT CLASS callingPartyAddress AND SUBCLASSES;

NAMED BY

SUPERIOR OBJECT CLASS sccpAccessPoint AND SUBCLASSES;

WITH ATTRIBUTE callingPartyAddressId;

CREATE;

DELETE;

REGISTERED AS { sccpNameBinding 51};

I.2.2 translationType (formal part)

translationType MANAGED OBJECT CLASS

DERIVED FROM "ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":top;

CHARACTERIZED BY translationTypePackage PACKAGE

BEHAVIOUR translationTypeBhv BEHAVIOUR DEFINED AS

"This object class allows to associate a generic gtTranslationType (contained in the gtTranslator) with a gtTranslationTypeLocal, that is, a GT translation type that is valid only in a single network (if contained by a local sccpLinkage) or for a specific mtp access point only (if contained by remote sccpLinkage). In the case where a conflicting translation type association exists for both a local sccpLinkage and a remote sccpLinkage, the remote sccpLinkage association prevails.";;

ATTRIBUTES

gtTranslationType GET SET-BY-CREATE,

gtTranslationTypeLocal GET SET-BY-CREATE;;;

CONDITIONAL PACKAGES

"ITU-T Rec. M.3100 (1995)":createDeleteNotificationsPackage PRESENT IF "the objectCreation and objectDeletion notifications defined in 'ITU-T Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992' are supported by an instance of this class",
translationTypeNamePackage PRESENT IF "an instance supports it";

REGISTERED AS { sccpObjectClass 54};

--NOTE – The gtConversionRule managed object also offers a mechanism to modify global title translation types. That mechanism should not be used in parallel with the translationType managed object.

translationTypeNamePackage PACKAGE

ATTRIBUTES

translatorTypeName

GET-REPLACE;

REGISTERED AS { sccpPackage 24 };

gtTranslationTypeLocal

gtTranslationTypeLocal ATTRIBUTE

WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.GtTranslationType;

MATCHES FOR EQUALITY;

BEHAVIOUR gtTranslationTypeLocalBhv BEHAVIOUR DEFINED AS

"The translation type attribute is single valued. ";;

REGISTERED AS { sccpAttribute 134 };

translatorTypeName

translatorTypeName ATTRIBUTE

WITH ATTRIBUTE SYNTAX SCCPDefinedTypesModule.AdditionalName;

MATCHES FOR EQUALITY;

REGISTERED AS { sccpAttribute 135 };

sccpLinkage-translationType

sccpLinkage-translationType NAME BINDING

SUBORDINATE OBJECT CLASS

translationType AND SUBCLASSES;

NAMED BY

SUPERIOR OBJECT CLASS

sccpLinkage AND SUBCLASSES;

WITH ATTRIBUTE gtTranslationType;

CREATE;

DELETE;

REGISTERED AS { sccpNameBinding 52 };

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