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Technical Specification

Digital cellular telecommunications system (Phase 2+);
Universal Mobile Telecommunications System (UMTS);
Telecommunication management;
Configuration Management (CM);
Generic network resources: Integration Reference Point (IRP):
Common Management Information Protocol (CMIP)
Solution Set (SS)
(3GPP TS 32.624 version 6.1.0 Release 6)

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Foreword

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The cross reference between GSM, UMTS, 3GPP and ETSI identities can be found under http://webapp.etsi.org/key/queryform.asp .

Contents

Foreword

This Technical Specification has been produced by the 3rd Generation Partnership Project (3GPP).

The contents of the present document are subject to continuing work within the TSG and may change following formal TSG approval. Should the TSG modify the contents of the present document, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

Version x.y.z

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- x the first digit:
  - 1 presented to TSG for information;
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- y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.
- z the third digit is incremented when editorial only changes have been incorporated in the document.

Introduction

The present document is part of a TS-family covering the 3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; Telecommunication management; Configuration Management (CM), as identified below:

32.621: "Generic network resources Integration Reference Point (IRP): Requirements".

32.622: "Generic network resources Integration Reference Point (IRP): Network Resource Model (NRM)".

32.623: "Generic network resources Integration Reference Point (IRP): Common Object Request Broker Architecture (CORBA) Solution Set (SS)";

32.624: "Generic network resources: Integration Reference Point (IRP): Common Management Information Protocol (CMIP) Solution Set (SS)".

32.625: "Generic network resources Integration Reference Point (IRP): Bulk CM eXtensible Markup Language (XML) file format definition".

The interface Itf-N, defined in 3GPP TS 32.102 [2], is built up by a number of Integration Reference Points (IRPs) and a related Name Convention, which realise the functional capabilities over this interface. The basic structure of the IRPs is defined in 3GPP TS 32.101 [1] and 3GPP TS 32.102 [2].

1 Scope

The present document specifies the Common Management Information Protocol (CMIP) Solution Set (SS) for the Generic Network Resource Integration Reference Point (IRP): Network Resource Model defined in 3GPP TS 32.622 [4].

In detail:

- Clause 4 contains an introduction to some concepts that are the base for some specific aspects of the CMIP interfaces.
- Clause 5 contains the GDMO definitions for the Alarm Management over the CMIP interfaces
- Clause 6 contains the ASN.1 definitions supporting the GDMO definitions provided in clause 5.

This Solution Set specification is related to 3GPP TS 32.622 V6.3.X [4].

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document.*

[1] 3GPP TS 32.101: "Telecommunication management; Principles and high level requirements".

[2] 3GPP TS 32.102: "Telecommunication management; Architecture".

[3] Void.

[4] 3GPP TS 32.622: "Telecommunication management; Configuration Management (CM); Generic network resources Integration Reference Point (IRP): Network Resource Model (NRM)".

[5] ITU-T Recommendation X.710 (1991): "Common Management Information Service Definition for CCITT Applications".

[6] ITU-T Recommendation X.721 (02/92): "Information Technology - Open Systems Interconnection – Structure of Management Information: Definition of Management Information".

[7] ITU-T Recommendation X.730 (01/92): "Information Technology - Open Systems Interconnection – Systems Management: Object Management Function".

[8] ITU-T Recommendation X.733 (02/92): "Information Technology - Open Systems Interconnection - Alarm Reporting Function".

[9] ITU-T Recommendation M.3100 (07/95): "Maintenance Telecommunications Management Network – Generic Network Information Model".

[10] 3GPP TS 32.600: "Telecommunication management; Configuration Management (CM); Concept and high-level requirements".

[11] Void.

3 Definitions, symbols and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in 3GPP TS 32.600 [10] and 3GPP TS 32.622 [4] apply.

3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

CMIP	Common Management Information Protocol
DN	Distinguished Name
GDMO	Guidelines for the Definition of Managed Objects
IDL	Interface Definition Language
IEC	International Electro-technical Commission
ISO	International Standards Organization
ITU-T	International Telecommunication Union, Telecommunication Sector
MIB	Management Information Base
MIM	Management Information Model
MIT	Management Information Tree (or Naming Tree)
MOC	Managed Object Class
MOI	Managed Object Instance
NE	Network Element
NR	Network Resource
NRM	Network Resource Model
TMN	Telecommunications Management Network

4 Basic aspects

4.1 Explanation

A technology independent generic Network Resource Model (NRM) is defined in 3GPP TS 32.622 [4] for 3G networks. The present document provides an implementation of this generic NRM by using CMIP technology.

4.2 Allowed Alarms of MOCs

Void.

4.3 Mapping

The semantic of the Generic NRM is defined in 3GPP TS 32.622 [4]. The specification of the information object classes defined there is independent of any implementation technology and protocol.
This subclause maps these technology and protocol independent definitions onto the equivalencies of the CMIP Solution Set of the Generic Network Resource IRP.

4.3.1 Mapping from IOCs to MOCs

The following table maps the Information Object Classes defined in the Generic NRM onto the equivalent MOCs of the CMIP Solution Set.

Table : Mapping of MOCs

IS IOC	CMIP SS MOC
ManagedElement	managedElement
SubNetwork	subNetworkR60
IRPAgent	irpAgent
ManagedFunction	managedFunction
ManagementNode	managementNode
MeContext	meContext
GenericIRP	genericIRP
VsDataContainer	no equivalence
Top	top (ITU-T Rec. X.721 [6])

4.3.2 Mapping of Attributes

This clause depicts the mapping of the attributes defined in 3GPP TS 32.622 [4] on the corresponding attributes of the CMIP Solution Set.

4.3.2.1 Attribute Mapping of the IOC *IRPAgent*

IS Attribute	CMIP SS Attribute	Support Qualifier	Read Qualifier	Read Qualifier
iRPAgentId	irpAgentId	M	M	--
systemDN	This IS parameter is not used in the CMIP SS.	--	--	--

4.3.2.2 Attribute Mapping of the IOC *ManagedElement*

IS Attribute	CMIP SS Attribute	Support Qualifier	Read Qualifier	Write Qualifier
managedElementId	managedElementId	M	M	--
dnPrefix	systemTitle (ITU-T Rec. X.721 [6])	M	M	--
managedElementType	managedElementType	M	M	--
userLabel	userLabel (ITU-T Rec. M.3100 [9])	M	M	M
vendorName	vendorName (ITU-T Rec. M.3100 [9])	M	M	--
userDefinedState	userDefinedState	M	M	M
locationName	locationName (ITU-T Rec. M.3100 [9])	M	M	--
swVersion	swVersion	M	M	--
managedBy	meManagedBy	M	M	--

4.3.2.3 Attribute Mapping of the IOC *ManagedFunction*

IS Attribute	CMIP SS Attribute	Support Qualifier	Read Qualifier	Write Qualifier
userLabel	userLabel (ITU-T Rec. M.3100 [9])	M	M	M

4.3.2.4 Attribute Mapping of the IOC *ManagementNode*

IS Attribute	CMIP SS Attribute	Support Qualifier	Read Qualifier	Write Qualifier
managementNodeId	managementNodeId	M	M	--
userLabel	userLabel (ITU-T Rec. M.3100 [9])	M	M	M
vendorName	vendorName (ITU-T Rec. M.3100 [9])	M	M	--
userDefinedState	userDefinedState	M	M	M
locationName	locationName (ITU-T Rec. M.3100 [9])	M	M	--
swVersion	swVersion	M	M	--
managedElements	mnManagesList	M	M	--

4.3.2.5 Attribute Mapping of the IOC *MeContext*

IS Attribute	CMIP SS Attribute	Support Qualifier	Read Qualifier	Write Qualifier
meContextId	meContextId	M	M	--
dnPrefix	systemTitle (ITU-T Rec. X.721 [6])	M	M	--

4.3.2.6 Attribute Mapping of the IOC *SubNetwork*

IS Attribute	CMIP SS Attribute	Support Qualifier	Read Qualifier	Write Qualifier
subNetworkId	subNetworkId	M	M	--
dnPrefix	systemTitle (ITU-T Rec. X.721 [6])	M	M	--
userLabel	userLabel (ITU-T Rec. M.3100 [9])	M	M	M
userDefinedNetworkType	userDefinedNetworkType	M	M	--
setOfMcc	setOfMcc	M	M	--

4.3.2.7 Attribute mapping of the IOC *genericIRP*

IS Attribute	CMIP SS Attribute	Support Qualifier	Read Qualifier	Write Qualifier
iRPId	irpId	M	M	--

-- 5 GDMO Definitions

--Please do not remove the '—' in front of the headline numbering, as it is the CMIP code

--for a comment. This way the whole chapter can be put directly into a compiler.

-- 5.1 Managed Object Classes

-- 5.1.1 subNetwork

subNetwork **MANAGED OBJECT CLASS**

DERIVED FROM

"Recommendation X.721: 1992":top;

CHARACTERIZED BY

subNetworkBasicPackage,

"3GPP TS 32.111-4 Release 5": x721AlarmNotificationsPackage;

CONDITIONAL PACKAGES

rootOptionalPackage

PRESENT IF

"An instance of subNetwork is the accessing root of a MIB.",

"Rec. M.3100: 1995":createDeleteNotificationsPackage

PRESENT IF

"the objectCreation and the objectDeletion notifications defined in

ITU-T Rec. X.721 are supported by an instance of this class.",

"Rec. M.3100: 1995":attributeValueChangeNotificationPackage

PRESENT IF

"the attributeValueChange notification defined in ITU-T Rec. X.721

is supported by an instance of this class.";

REGISTERED AS {ts32-624ObjectClass 1};

-- 5.1.2 managedElement

managedElement **MANAGED OBJECT CLASS**

DERIVED FROM

"Recommendation X.721: 1992":top;

CHARACTERIZED BY

managedElementBasicPackage,

managedElementAssociationPackage,

"3GPP TS 32.111-4 Release 5": x721AlarmNotificationsPackage;

CONDITIONAL PACKAGES

rootOptionalPackage

PRESENT IF

"An instance of managedElement is the accessing root of a MIB.",

"Rec. M.3100: 1995":createDeleteNotificationsPackage

PRESENT IF

"the objectCreation and the objectDeletion notifications defined in ITU-T Rec. X.721 are supported by an instance of this class.",

"Rec. M.3100: 1995":attributeValueChangeNotificationPackage

PRESENT IF

"the attributeValueChange notification defined in ITU-T Rec. X.721 is supported by an instance of this class.";

REGISTERED AS {ts32-624ObjectClass 2};

-- 5.1.3 managementNode

managementNode **MANAGED OBJECT CLASS**

DERIVED FROM

"Recommendation X.721: 1992":top;

CHARACTERIZED BY

managementNodeBasicPackage,

managementNodeAssociationPackage,

"3GPP TS 32.111-4 Release 5": x721AlarmNotificationsPackage;

CONDITIONAL PACKAGES

"Rec. M.3100: 1995":createDeleteNotificationsPackage

PRESENT IF

"the objectCreation and the objectDeletion notifications defined in ITU-T Rec. X.721 are supported by an instance of this class.",

"Rec. M.3100: 1995":attributeValueChangeNotificationPackage

PRESENT IF

"the attributeValueChange notification defined in ITU-T Rec. X.721 is supported by an instance of this class.";

REGISTERED AS {ts32-624ObjectClass 3};

-- 5.1.4 vsDataContainer

Void

-- 5.1.5 bulkCmControl

Void

-- 5.1.6 irpAgent

irpAgent **MANAGED OBJECT CLASS**

DERIVED FROM

"Recommendation X.721: 1992":top;

CHARACTERIZED BY

irpAgentBasicPackage,

"3GPP TS 32.111-4 Release 5": x721AlarmNotificationsPackage;

CONDITIONAL PACKAGES

"Rec. M.3100: 1995":createDeleteNotificationsPackage

PRESENT IF

"the objectCreation and the objectDeletion notifications defined in ITU-T Rec. X.721 are supported by an instance of this class.",

"Rec. M.3100: 1995":attributeValueChangeNotificationPackage

PRESENT IF

"the attributeValueChange notification defined in ITU-T Rec. X.721 is supported by an instance of this class.";

REGISTERED AS {ts32-624ObjectClass 6};

-- 5.1.7 managedFunction

managedFunction **MANAGED OBJECT CLASS**

DERIVED FROM

"Recommendation X.721: 1992":top;

CHARACTERIZED BY

managedFunctionBasicPackage;

REGISTERED AS {ts32-624ObjectClass 7};

-- 5.1.8 meContext

meContext **MANAGED OBJECT CLASS**

DERIVED FROM

"Recommendation X.721: 1992":top;

CHARACTERIZED BY

meContextBasicPackage,

"3GPP TS 32.111-4 Release 5": x721AlarmNotificationsPackage;

CONDITIONAL PACKAGES

rootOptionalPackage

PRESENT IF

"An instance of meContext is the accessing root of a MIB.",

"Rec. M.3100: 1995":createDeleteNotificationsPackage

PRESENT IF

"the objectCreation and the objectDeletion notifications defined in ITU-T Rec. X.721 are supported by an instance of this class.",

"Rec. M.3100: 1995":attributeValueChangeNotificationPackage

PRESENT IF

"the attributeValueChange notification defined in ITU-T Rec. X.721 is supported by an instance of this class.";

REGISTERED AS {ts32-624ObjectClass 8};

-- 5.1.9 bcmControl

Void.

-- 5.1.10subNetworkR60

subNetworkR60 **MANAGED OBJECT CLASS**

DERIVED FROM

"Recommendation X.721: 1992":top;

CHARACTERIZED BY

subNetworkBasicPackage,

"3GPP TS 32.111-4 Release 5": x721AlarmNotificationsPackage;

CONDITIONAL PACKAGES

rootOptionalPackage

PRESENT IF

"An instance of subNetworkR60 is the accessing root of a MIB.",

subNetworkSetOfMccPackage

PRESENT IF

"the attribute setOfMcc is supported by an instance of this class.",

"Rec. M.3100: 1995":createDeleteNotificationsPackage

PRESENT IF

"the objectCreation and the objectDeletion notifications defined in

ITU-T Rec. X.721 are supported by an instance of this class.",

"Rec. M.3100: 1995":attributeValueChangeNotificationPackage

PRESENT IF

"the attributeValueChange notification defined in ITU-T Rec. X.721

is supported by an instance of this class.";

REGISTERED AS {ts32-624ObjectClass 10};

-- 5.1.11genericIRP

genericIRP **MANAGED OBJECT CLASS**

DERIVED FROM

"Rec. X.721 | ISO/IEC 10165-2 : 1992":top;

CHARACTERIZED BY

irpIdPackage;

REGISTERED AS {ts32-624ObjectClass 110600};

--this object class is only defined for inheritance purposes. It shall not be instantiated.

-- 5.2 Packages

-- 5.2.1 subNetworkBasicPackage

subNetworkBasicPackage **PACKAGE**

BEHAVIOUR

subNetworkBasicPackageBehaviour;

ATTRIBUTES

subNetworkId GET,

"Recommendation M.3100: 1995" : userLabel GET-REPLACE,

userDefinedNetworkType GET;

REGISTERED AS {ts32-624Package 1};

subNetworkBasicPackageBehaviour **BEHAVIOUR**

DEFINED AS

"This managed object class represents collections of interconnected telecommunications and management objects (logical or physical) capable of exchanging information. A network may be nested within another (larger) network, thereby forming a containment relationship.";

-- 5.2.2 managedElementBasicPackage

managedElementBasicPackage **PACKAGE**

BEHAVIOUR

managedElementBasicPackageBehaviour;

ATTRIBUTES

managedElementId GET,

managedElementType GET,

"Recommendation M.3100: 1995" : userLabel GET-REPLACE,

"Recommendation M.3100: 1995" : vendorName GET,

userDefinedState GET-REPLACE,

"Recommendation M.3100: 1995" : locationName GET,

swVersion GET;

REGISTERED AS {ts32-624Package 2};

managedElementBasicPackageBehaviour **BEHAVIOUR**

DEFINED AS

"This managed object class represents telecommunications equipment within the telecommunications network that performs managed element functions, i.e. provides support and/or service to the subscriber. A managed element communicates with a manager (directly or indirectly) over one or more standard interfaces for the purpose of being monitored and/or controlled. A managed element contains equipment that may or may not be geographically distributed. A Managed Element is often referred to as a 'node' or a 'network element'.";

-- 5.2.3 managedElementAssociationPackage

managedElementAssociationPackage **PACKAGE**

BEHAVIOUR

managedElementAssociationPackageBehaviour;

ATTRIBUTES

meManagedBy GET;

REGISTERED AS {ts32-624Package 3};

managedElementAssociationPackageBehaviour **BEHAVIOUR**

DEFINED AS

"The attribute 'meManagedBy' points to the managmentNode instance which manages this managedElement instance. It implements the attribute managedBy of MOC ManagedElement defined in TS32.622.";

-- 5.2.4 vsDataContainerBasicPackage

Void.

-- 5.2.5 bulkCmControlBasicPackage

Void.

-- 5.2.6 bulkCmControlActionPackage

Void

-- 5.2.7 bulkCmControlNotificationPackage

Void.

-- 5.2.8 managementNodeBasicPackage

managementNodeBasicPackage **PACKAGE**

BEHAVIOUR

managementNodeBasicPackageBehaviour;

ATTRIBUTES

managementNodeId GET,

"Recommendation M.3100: 1995" : userLabel GET-REPLACE,

"Recommendation M.3100: 1995" : vendorName GET,

userDefinedState GET-REPLACE,

"Recommendation M.3100: 1995" : locationName GET,

swVersion GET;

REGISTERED AS {ts32-624Package 8};

managementNodeBasicPackageBehaviour **BEHAVIOUR**

DEFINED AS

"This managed object class represents a telecommunications management system (EM or NM) within the TMN, that manages a number of Managed Elements. The management system communicates with the MEs directly or indirectly over one or more standard interfaces for the purpose of monitoring and/or controlling these MEs.";

-- 5.2.9 managementNodeAssociationPackage

managementNodeAssociationPackage **PACKAGE**

BEHAVIOUR

managementNodeAssociationPackageBehaviour;

ATTRIBUTES

mnManagesList GET;

REGISTERED AS {ts32-624Package 9};

managementNodeAssociationPackageBehaviour **BEHAVIOUR**

DEFINED AS

"The attribute 'mnManagesList' points to all managedElement instances which this managementNode instance manages. It implements the attribute manages of MOC ManagementNode defined in TS32.622.";

-- 5.2.10irpAgentBasicPackage

irpAgentBasicPackage **PACKAGE**

BEHAVIOUR

irpAgentBasicPackageBehaviour;

ATTRIBUTES

irpAgentId GET;

REGISTERED AS {ts32-624Package 10};

irpAgentBasicPackageBehaviour **BEHAVIOUR**

DEFINED AS

"The instance of this MOC represents the behavior of an IRP Agent

which implements one or more IRPs";

-- 5.2.11managedFunctionBasicPackage

managedFunctionBasicPackage **PACKAGE**

BEHAVIOUR

managedFunctionBasicPackageBehaviour;

ATTRIBUTES

"Recommendation M.3100: 1995" : userLabel GET-REPLACE;

REGISTERED AS {ts32-624Package 11};

managedFunctionBasicPackageBehaviour **BEHAVIOUR**

DEFINED AS

"This Managed Object class corresponds to the class gsmManagedFunction defined in GSM 12.20 0 and is provided for sub-classing only. It provides the attributes that are common to functional MO classes. Note that a managed element may contain several managed functions. The ManagedFunction may be extended in the future if more common characteristics to functional objects are identified.";

-- 5.2.12meContextBasicPackage

meContextBasicPackage **PACKAGE**

BEHAVIOUR

meContextBasicPackageBehaviour;

ATTRIBUTES

meContextId GET;

REGISTERED AS {ts32-624Package 12};

meContextBasicPackageBehaviour **BEHAVIOUR**

DEFINED AS

"This managed object class represents the Managed Element from the network perspective. It can be used to hold surveillance status information, and also

planning status information for the case when the managed element is part of a planned configuration in a management system, before it has been taken into service. It can also support unambiguous naming in all cases, also for scenarios when the Managed Elements have been pre-configured where some of them may have equal names (to avoid necessary administration to make all of them globally unique at creation/installation time). Thus, by means of globally unique names for the MEContext instances, and by using these in the DN, the DNs for all MEs (and MOIs contained in them) can be assured to be globally unique, even in such a scenario as described above.";

-- 5.2.13bcmControlBasicPackage

Void.

-- 5.2.14bcmIRPVersionPackage

Void.

-- 5.2.15communicationsAlarmPackage

Void.

-- 5.2.16equipmentAlarmPackage

Void.

-- 5.2.17qualityOfServiceAlarmPackage

Void.

-- 5.2.18rootOptionalPackage

rootOptionalPackage **PACKAGE**

BEHAVIOUR

rootOptionalPackageBehaviour;

ATTRIBUTES

"Recommendation X.721: 1992" : systemTitle GET;

REGISTERED AS {ts32-624Package 18};

rootOptionalPackageBehaviour **BEHAVIOUR**

DEFINED AS

"This package shall be present in an instance of meContext or managedElement when it is the accessing point (root) of a MIB.";

-- 5.2.19subNetworkSetOfMccPackage

subNetworkSetOfMccPackage **PACKAGE**

BEHAVIOUR

subNetworkSetOfMccPackageBehaviour;

ATTRIBUTES

setOfMcc GET;

REGISTERED AS {ts32-624Package 19};

subNetworkSetOfMccPackageBehaviour **BEHAVIOUR**

DEFINED AS

"This package shall be present in an instance of subNetwork if the attribute setOfMcc may contain more than one value. Otherwise it is optional.";

-- 5.2.20irpIdPackage

irpIdPackage **PACKAGE**

BEHAVIOUR

irpIdPackageBehaviour;

ATTRIBUTES

irpId GET;

REGISTERED AS {ts32-624Package 200600};

irpIdPackageBehaviour **BEHAVIOUR**

DEFINED AS

"An instance of the subclasses of MOC *genericIRP* is identified by the value of the attribute *irpId*.";

-- 5.3.21irpId

irpId **ATTRIBUTE**

WITH ATTRIBUTE SYNTAX

TS32-624TypeModule.GeneralObjectId;

MATCHES FOR

EQUALITY;

BEHAVIOUR

irpIdBehaviour;

REGISTERED AS {ts32-624Attribute 210600};

irpIdBehaviour **BEHAVIOUR**

DEFINED AS

"This attribute names an instance of the subclasses of MOC *genericIRP*.";

-- 5.3 Attributes

-- 5.3.1 managedElementType

managedElementType **ATTRIBUTE**

WITH ATTRIBUTE SYNTAX

TS32-624TypeModule.ManagedElementType;

MATCHES FOR

EQUALITY;

BEHAVIOUR

managedElementTypeBehaviour;

REGISTERED AS {ts32-624Attribute 1};

managedElementTypeBehaviour **BEHAVIOUR**

DEFINED AS

"This attribute specifies which managed functions a managed element contains.";

-- 5.3.2 subNetworkId

subNetworkId **ATTRIBUTE**

WITH ATTRIBUTE SYNTAX

TS32-624TypeModule.GeneralObjectId;

MATCHES FOR

EQUALITY;

BEHAVIOUR

subNetworkIdBehaviour;

REGISTERED AS {ts32-624Attribute 2};

subNetworkIdBehaviour **BEHAVIOUR**

DEFINED AS

"This attribute identifies a subNetwork instance.";

-- 5.3.3 VsDataContainerId

Void.

-- 5.3.4 vsDataType

Void.

-- 5.3.5 vsData

Void

-- 5.3.6 vsDataFormatVersion

Void.

-- 5.3.7 bulkCmControlId

Void.

-- 5.3.8 irpVersion

Void.

-- 5.3.9 userDefinedNetworkType

userDefinedNetworkType **ATTRIBUTE**

WITH ATTRIBUTE SYNTAX

TS32-624TypeModule.UserDefinedNetworkType;

MATCHES FOR

EQUALITY;

BEHAVIOUR

userDefinedNetworkTypeBehaviour;

REGISTERED AS {ts32-624Attribute 8};

userDefinedNetworkTypeBehaviour **BEHAVIOUR**

DEFINED AS

"Textual information regarding the type of network, e.g. UTRAN.";

-- 5.3.10swVersion

swVersion **ATTRIBUTE**

WITH ATTRIBUTE SYNTAX

TS32-624TypeModule.SwVersion;

MATCHES FOR

EQUALITY;

BEHAVIOUR

swVersionBehaviour;

REGISTERED AS {ts32-624Attribute 9};

swVersionBehaviour **BEHAVIOUR**

DEFINED AS

"The software version of the managed element (this is used for determin which version of the vendor specific information that is valid for the managed element).";

-- 5.3.11managedElementId

managedElementId **ATTRIBUTE**

WITH ATTRIBUTE SYNTAX

TS32-624TypeModule.GeneralObjectId;

MATCHES FOR

EQUALITY;

BEHAVIOUR

managedElementIdBehaviour;

REGISTERED AS {ts32-624Attribute 10};

managedElementIdBehaviour **BEHAVIOUR**

DEFINED AS

"This attribute names an instance of the '3gManagedElement' object class.";

-- 5.3.12userDefinedState

userDefinedState **ATTRIBUTE**

WITH ATTRIBUTE SYNTAX

TS32-624TypeModule.UserDefinedState;

MATCHES FOR

EQUALITY;

BEHAVIOUR

userDefinedStateBehaviour;

REGISTERED AS {ts32-624Attribute 11};

userDefinedStateBehaviour **BEHAVIOUR**

DEFINED AS

"This attribute specifies an operator defined state for operator specific usage.";

-- 5.3.13meManagedBy

meManagedBy **ATTRIBUTE**

WITH ATTRIBUTE SYNTAX

TS32-624TypeModule.GeneralObjectPointer;

MATCHES FOR

EQUALITY;

BEHAVIOUR

meManagedByBehaviour;

REGISTERED AS {ts32-624Attribute 12};

meManagedByBehaviour **BEHAVIOUR**

DEFINED AS

"This attribute points to the managementNode instance which manages the

related 3gManagedElement instance.";

-- 5.3.14managementNodeId

managementNodeId **ATTRIBUTE**

WITH ATTRIBUTE SYNTAX

TS32-624TypeModule.GeneralObjectId;

MATCHES FOR

EQUALITY;

BEHAVIOUR

managmentNodeIdBehaviour;

REGISTERED AS {ts32-624Attribute 13};

managmentNodeIdBehaviour **BEHAVIOUR**

DEFINED AS

"This attribute names an instance of the 'managmentNode' object class.";

-- 5.3.15mnManagesList

mnManagesList **ATTRIBUTE**

WITH ATTRIBUTE SYNTAX

TS32-624TypeModule.GeneralObjectPointerList;

MATCHES FOR

EQUALITY;

BEHAVIOUR

mnManagesListBehaviour;

REGISTERED AS {ts32-624Attribute 14};

mnManagesListBehaviour **BEHAVIOUR**

DEFINED AS

"This attribute points to all ManagedElement instances which this

ManagmentNode instance manages.";

-- 5.3.16irpAgentId

irpAgentId **ATTRIBUTE**

WITH ATTRIBUTE SYNTAX

TS32-624TypeModule.GeneralObjectId;

MATCHES FOR

EQUALITY;

BEHAVIOUR

irpAgentIdBehaviour;

REGISTERED AS {ts32-624Attribute 15};

irpAgentIdBehaviour **BEHAVIOUR**

DEFINED AS

"This attribute identifies an irpAgent instance.";

-- 5.3.17supportedIRPs

Void.

-- 5.3.18meContextId

meContextId **ATTRIBUTE**

WITH ATTRIBUTE SYNTAX

TS32-624TypeModule.GeneralObjectId;

MATCHES FOR

EQUALITY;

BEHAVIOUR

meContextIdBehaviour;

REGISTERED AS {ts32-624Attribute 17};

meContextIdBehaviour **BEHAVIOUR**

DEFINED AS

"This attribute identifies an meContext instance.";

-- 5.3.19bcmControlId

Void.

-- 5.3.20setOfMcc

setOfMcc **ATTRIBUTE**

WITH ATTRIBUTE SYNTAX

TS32-624TypeModule.SetOfMcc;

MATCHES FOR

EQUALITY;

BEHAVIOUR

setOfMccBehaviour;

REGISTERED AS {ts32-624Attribute 19};

setOfMccBehaviour **BEHAVIOUR**

DEFINED AS

"This multi-valued attribute holds a list containing all the MCC values in subordinate object instances to this SubNetwork instance.";

-- 5.4 Name Binding

-- 5.4.1 managedElement - meContext

managedElement-meContext **NAME BINDING**

SUBORDINATE OBJECT CLASS

managedElement;

NAMED BY SUPERIOR OBJECT CLASS

meContext;

WITH ATTRIBUTE

managedElementId;

BEHAVIOUR

managedElement-meContextBehaviour;

CREATE

WITH-REFERENCE-OBJECT, WITH-AUTOMATIC-INSTANCE-NAMING;

DELETE

ONLY-IF-NO-CONTAINED-OBJECTS;

REGISTERED AS {ts32-624NameBinding 1};

managedElement-meContextBehaviour **BEHAVIOUR**

DEFINED AS

"The name binding represents a relationship in which a meContext contains and controls a managedElement. When automatic instance naming is used, the choice of name bindings left as a local matter.";

-- 5.4.2 managedElement - subNetwork

managedElement-subNetwork **NAME BINDING**

SUBORDINATE OBJECT CLASS

managedElement;

NAMED BY SUPERIOR OBJECT CLASS

subNetwork;

WITH ATTRIBUTE

managedElementId;

BEHAVIOUR

managedElement-subNetworkBehaviour;

CREATE

WITH-REFERENCE-OBJECT, WITH-AUTOMATIC-INSTANCE-NAMING;

DELETE

ONLY-IF-NO-CONTAINED-OBJECTS;

REGISTERED AS {ts32-624NameBinding 2};

managedElement-subNetworkBehaviour **BEHAVIOUR**

DEFINED AS

"The name binding represents a relationship in which a subNetwork contains and controls a managedElement. When automatic instance naming is used, the choice of name bindings left as a local matter.";

-- 5.4.3 meContext - subNetwork

meContext-subNetwork **NAME BINDING**

SUBORDINATE OBJECT CLASS

meContext;

NAMED BY SUPERIOR OBJECT CLASS

subNetwork;

WITH ATTRIBUTE

meContextId;

BEHAVIOUR

meContext-subNetworkBehaviour;

CREATE

WITH-REFERENCE-OBJECT, WITH-AUTOMATIC-INSTANCE-NAMING;

DELETE

ONLY-IF-NO-CONTAINED-OBJECTS;

REGISTERED AS {ts32-624NameBinding 3};

meContext-subNetworkBehaviour **BEHAVIOUR**

DEFINED AS

"The name binding represents a relationship in which a subNetwork contains and controls a meContext. When automatic instance naming is used, the choice of name bindings left as a local matter.";

-- 5.4.4 bulkCmControl - irpAgent

Void.

-- 5.4.5 irpAgent - subNetwork

irpAgent-subNetwork **NAME BINDING**

SUBORDINATE OBJECT CLASS

irpAgent;

NAMED BY SUPERIOR OBJECT CLASS

subNetwork;

WITH ATTRIBUTE

irpAgentId;

BEHAVIOUR

irpAgent-subNetworkBehaviour;

CREATE

WITH-REFERENCE-OBJECT, WITH-AUTOMATIC-INSTANCE-NAMING;

DELETE

ONLY-IF-NO-CONTAINED-OBJECTS;

REGISTERED AS {ts32-624NameBinding 5};

irpAgent-subNetworkBehaviour **BEHAVIOUR**

DEFINED AS

"The name binding represents a relationship in which a subNetwork contains and controls a irpAgent. When automatic instance naming is used, the choice of name bindings left as a local matter.";

-- 5.4.6 irpAgent - managementNode

irpAgent-managementNode **NAME BINDING**

SUBORDINATE OBJECT CLASS

irpAgent;

NAMED BY SUPERIOR OBJECT CLASS

managementNode;

WITH ATTRIBUTE

irpAgentId;

BEHAVIOUR

irpAgent-managementNodeBehaviour;

CREATE

WITH-REFERENCE-OBJECT, WITH-AUTOMATIC-INSTANCE-NAMING;

DELETE

ONLY-IF-NO-CONTAINED-OBJECTS;

REGISTERED AS {ts32-624NameBinding 6};

irpAgent-managementNodeBehaviour **BEHAVIOUR**

DEFINED AS

"The name binding represents a relationship in which a managedNode contains and controls a irpAgent. When automatic instance naming is used, the choice of name bindings left as a local matter.";

-- 5.4.7 managementNode - subNetwork

managementNode-subNetwork **NAME BINDING**

SUBORDINATE OBJECT CLASS

managementNode;

NAMED BY SUPERIOR OBJECT CLASS

subNetwork;

WITH ATTRIBUTE

managementNodeId;

BEHAVIOUR

managementNode-subNetworkBehaviour;

CREATE WITH-REFERENCE-OBJECT, WITH-AUTOMATIC-INSTANCE-NAMING;

DELETE ONLY-IF-NO-CONTAINED-OBJECTS;

REGISTERED AS {ts32-624NameBinding 7};

managementNode-subNetworkBehaviour **BEHAVIOUR**

DEFINED AS

"The name binding represents a relationship in which a subNetwork contains and controls a managementNode. When automatic instance naming is used, the choice of name bindings left as a local matter.";

-- 5.4.8 irpAgent - managedElement

irpAgent-managedElement NAME BINDING
SUBORDINATE OBJECT CLASS irpAgent;
NAMED BY SUPERIOR OBJECT CLASS managedElement;
WITH ATTRIBUTE irpAgentId;
BEHAVIOUR
irpAgent-managedElementBehaviour;
CREATE WITH-REFERENCE-OBJECT, WITH-AUTOMATIC-INSTANCE-NAMING;
DELETE ONLY-IF-NO-CONTAINED-OBJECTS;
REGISTERED AS {ts32-624NameBinding 8};

irpAgent-managedElementBehaviour BEHAVIOUR
DEFINED AS
"The name binding represents a relationship in which a managedElement contains and controls an irpAgent. When automatic instance naming is used, the choice of name bindings left as a local matter.";

-- 5.4.9 bcmControl - irpAgent

Void.

-- 5.4.10vsDataContainer - vsDataContainer

Void.

-- 5.4.11subNetwork - subNetwork

subNetwork-subNetwork **NAME BINDING**
SUBORDINATE OBJECT CLASS
subNetwork;
NAMED BY SUPERIOR OBJECT CLASS
subNetwork;
WITH ATTRIBUTE

subNetworkId;

BEHAVIOUR

subNetwork-subNetworkBehaviour;

CREATE

WITH-REFERENCE-OBJECT, WITH-AUTOMATIC-INSTANCE-NAMING;

DELETE

ONLY-IF-NO-CONTAINED-OBJECTS;

REGISTERED AS {ts32-624NameBinding 11};

subNetwork-subNetworkBehaviour **BEHAVIOUR**

DEFINED AS

"The name binding represents a relationship in which a subNetwork contains and controls another subNetwork. When automatic instance naming is used, the choice of name bindings is left as a local matter.";

-- 5.4.12notificationControl - irpAgent

Void.

-- 5.4.13alarmControl - irpAgent

Void.

-- 5.4.14subNetwork – subNetwork – R54

subNetwork-subNetwork-R54 **NAME BINDING**

SUBORDINATE OBJECT CLASS

subNetwork AND SUBCLASSES;

NAMED BY SUPERIOR OBJECT CLASS

subNetwork AND SUBCLASSES;

WITH ATTRIBUTE

subNetworkId;

BEHAVIOUR

subNetwork-subNetwork-R54Behaviour;

CREATE

WITH-REFERENCE-OBJECT, WITH-AUTOMATIC-INSTANCE-NAMING;

DELETE

ONLY-IF-NO-CONTAINED-OBJECTS;

REGISTERED AS {ts32-624NameBinding 14};

subNetwork-subNetwork-R54Behaviour **BEHAVIOUR**

DEFINED AS

"The name binding represents a relationship in which a subNetwork contains and controls another subNetwork. When automatic instance naming is used, the choice of name bindings is left as a local matter.";

-- 5.4.14subNetwork – subNetwork – R54

subNetwork-subNetwork-R54 **NAME BINDING**

SUBORDINATE OBJECT CLASS

subNetwork AND SUBCLASSES;

NAMED BY SUPERIOR OBJECT CLASS

subNetwork AND SUBCLASSES;

WITH ATTRIBUTE

subNetworkId;

BEHAVIOUR

subNetwork-subNetwork-R54Behaviour;

CREATE

WITH-REFERENCE-OBJECT, WITH-AUTOMATIC-INSTANCE-NAMING;

DELETE

ONLY-IF-NO-CONTAINED-OBJECTS;

REGISTERED AS {ts32-624NameBinding 14};

subNetwork-subNetwork-R54Behaviour **BEHAVIOUR**

DEFINED AS

"The name binding represents a relationship in which a subNetwork contains and controls another subNetwork. When automatic instance naming is used, the choice of name bindings is left as a local matter.";

-- 5.4.15managedElement – subNetworkR60

managedElement-subNetworkR60 **NAME BINDING**

SUBORDINATE OBJECT CLASS

managedElement;

NAMED BY SUPERIOR OBJECT CLASS

subNetworkR60;

WITH ATTRIBUTE

managedElementId;

BEHAVIOUR

managedElement-subNetworkR60Behaviour;

CREATE

WITH-REFERENCE-OBJECT, WITH-AUTOMATIC-INSTANCE-NAMING;

DELETE

ONLY-IF-NO-CONTAINED-OBJECTS;

REGISTERED AS {ts32-624NameBinding 15};

managedElement-subNetworkR60Behaviour **BEHAVIOUR**

DEFINED AS

"The name binding represents a relationship in which a subNetworkR60 contains and controls a managedElement. When automatic instance naming is used, the choice of name bindings left as a local matter.";

-- 5.4.16meContext – subNetworkR60

meContext-subNetworkR60 **NAME BINDING**

SUBORDINATE OBJECT CLASS

meContext;

NAMED BY SUPERIOR OBJECT CLASS

subNetworkR60;

WITH ATTRIBUTE

meContextId;

BEHAVIOUR

meContext-subNetworkR60Behaviour;

CREATE

WITH-REFERENCE-OBJECT, WITH-AUTOMATIC-INSTANCE-NAMING;

DELETE

ONLY-IF-NO-CONTAINED-OBJECTS;

REGISTERED AS {ts32-624NameBinding 16};

meContext-subNetworkR60Behaviour **BEHAVIOUR**

DEFINED AS

"The name binding represents a relationship in which a subNetworkR60 contains and controls a meContext. When automatic instance naming is used, the choice

of name bindings left as a local matter.";

-- 5.4.17irpAgent – subNetworkR60

irpAgent-subNetworkR60 **NAME BINDING**

SUBORDINATE OBJECT CLASS

irpAgent;

NAMED BY SUPERIOR OBJECT CLASS

subNetworkR60;

WITH ATTRIBUTE

irpAgentId;

BEHAVIOUR

irpAgent-subNetworkR60Behaviour;

CREATE

WITH-REFERENCE-OBJECT, WITH-AUTOMATIC-INSTANCE-NAMING;

DELETE

ONLY-IF-NO-CONTAINED-OBJECTS;

REGISTERED AS {ts32-624NameBinding 17};

irpAgent-subNetworkR60Behaviour **BEHAVIOUR**

DEFINED AS

"The name binding represents a relationship in which a subNetworkR60 contains and controls a irpAgent. When automatic instance naming is used, the choice of name bindings left as a local matter.";

-- 5.4.18managementNode – subNetworkR60

managementNode-subNetworkR60 **NAME BINDING**

SUBORDINATE OBJECT CLASS

managementNode;

NAMED BY SUPERIOR OBJECT CLASS

subNetworkR60;

WITH ATTRIBUTE

managementNodeId;

BEHAVIOUR

managementNode-subNetworkR60Behaviour;

CREATE WITH-REFERENCE-OBJECT, WITH-AUTOMATIC-INSTANCE-NAMING;

DELETE ONLY-IF-NO-CONTAINED-OBJECTS;

REGISTERED AS {ts32-624NameBinding 18};

managementNode-subNetworkR60Behaviour **BEHAVIOUR**

DEFINED AS

"The name binding represents a relationship in which a subNetworkR60 contains and controls a managementNode. When automatic instance naming is used, the choice of name bindings left as a local matter.";

-- 5.4.19subNetworkR60 – subNetworkR60 – R54

subNetworkR60-subNetworkR60-R54 **NAME BINDING**

SUBORDINATE OBJECT CLASS

subNetworkR60 AND SUBCLASSES;

NAMED BY SUPERIOR OBJECT CLASS

subNetworkR60 AND SUBCLASSES;

WITH ATTRIBUTE

subNetworkId;

BEHAVIOUR

subNetworkR60-subNetworkR60-R54Behaviour;

CREATE

WITH-REFERENCE-OBJECT, WITH-AUTOMATIC-INSTANCE-NAMING;

DELETE

ONLY-IF-NO-CONTAINED-OBJECTS;

REGISTERED AS {ts32-624NameBinding 19};

subNetworkR60-subNetworkR60-R54Behaviour **BEHAVIOUR**

DEFINED AS

"The name binding represents a relationship in which a subNetworkR60 contains and controls another subNetworkR60. When automatic instance naming is used, the choice of name bindings is left as a local matter.";

-- 5.4.20genericIRP – irpAgent

genericIRP-irpAgent **NAME BINDING**

SUBORDINATE OBJECT CLASS

genericIRP AND SUBCLASSES;

NAMED BY SUPERIOR OBJECT CLASS

"3GPP TS 32.624": irpAgent AND SUBCLASSES;

WITH ATTRIBUTE

irpId;

BEHAVIOUR

genericIRP-irpAgentBehaviour;

CREATE

WITH-REFERENCE-OBJECT, WITH-AUTOMATIC-INSTANCE-NAMING;

DELETE

ONLY-IF-NO-CONTAINED-OBJECTS;

REGISTERED AS {ts32-624NameBinding 200600};

genericIRP-irpAgentBehaviour **BEHAVIOUR**

DEFINED AS

"The name binding represents a relationship in which an irpAgent contains a subclass of genericIRP. When automatic instance naming is used, the choice of name bindings is left as a local matter.";

6 ASN.1 Definitions

TS32-624TypeModule {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0) umts-Operation-Maintenance(3) ts32-624(624) informationModel(0) asn1Module(2) version1(1)}

```
DEFINITIONS IMPLICIT TAGS ::=
BEGIN

--EXPORTS everything

IMPORTS

ObjectInstance
  FROM CMIP-1 {joint-iso-ccitt ms(9) cmip(1) modules(0) protocol(3)}

MobileCountryCode
  FROM GSM1220TypeModule {ccitt(0) identified-organization(4) etsi(0) mobileDomain(0)
  gsm-Operation-Maintenance(3) gsm-12-20(20) informationModel(0) asn1Module(2)
  asn1TypeModule(0)};


-- 3GPP TS 32.624 related Object Identifiers

baseNodeUMTS          OBJECT IDENTIFIER ::= {itu-t(0) identified-organization(4)
                            etsi(0) mobileDomain(0)
                            umts-Operation-Maintenance(3)}

ts32-624              OBJECT IDENTIFIER ::= {baseNodeUMTS ts32-624(624)}
ts32-624InfoModel     OBJECT IDENTIFIER ::= {ts32-624 informationModel(0)}

ts32-624ObjectClass   OBJECT IDENTIFIER ::= {ts32-624InfoModel managedObjectClass(3)}
ts32-624Package       OBJECT IDENTIFIER ::= {ts32-624InfoModel package(4)}
ts32-624Parameter     OBJECT IDENTIFIER ::= {ts32-624InfoModel parameter(5)}
ts32-624NameBinding   OBJECT IDENTIFIER ::= {ts32-624InfoModel nameBinding(6)}
ts32-624Attribute     OBJECT IDENTIFIER ::= {ts32-624InfoModel attribute(7)}
```

```
ts32-624Action        OBJECT IDENTIFIER ::= {ts32-624InfoModel action(9)}
ts32-624Notification  OBJECT IDENTIFIER ::= {ts32-624InfoModel notification(10)}

-- Start of 3GPP SA5 own definitions

ManagedElementType::= GraphicString

GeneralObjectId ::= INTEGER

UserDefinedState ::= GraphicString

GeneralObjectPointer ::= ObjectInstance

GeneralObjectPointerList ::= SEQUENCE OF ObjectInstance

SetOfMcc ::= SET OF MobileCountryCode

UserDefinedNetworkType ::= GraphicString

SwVersion ::= GraphicString

END -- of TS32-624TypeModule
```

Annex A (informative): Change history

Change history							
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Old**	**New**
Jun 2001	S_12	SP-010283	--	--	Approved at TSG SA #12 and placed under Change Control	2.0.0	4.0.0
Sep 2001	S_13	SP-010478	001	--	Correction due to TS renumbering	4.0.0	4.1.0
Sep 2001	S_13	SP-010479	002	--	Change the attribute 'systemTitle' from mandatory to optional	4.0.0	4.1.0
Dec 2001	S_14	SP-010648	003	--	Change to Read/Write the attribute 'userDefinedState' in MOC 'ManagementNode'	4.1.0	4.2.0
Mar 2002	S_15	SP-020021	004	--	Removal of redundant GDMO/ASN.1 Code	4.2.0	4.3.0
Mar 2002	S_15	SP-020021	005	--	Making "elementType" consistent	4.2.0	4.3.0
Mar 2002	S_15	SP-020021	006	--	Change the attribute "userLabel" from Read-Only to Read-Write	4.2.0	4.3.0
Jun 2002	S_16	SP-020300	007	--	Making 32.624 (CMIP SS) consistent with 32.622 (IS) and 32.623 (CORBA SS)	4.3.0	4.4.0
Jun 2002	S_16	SP-020300	008	--	Align with 32.622 (IS) by changing "userDefinedState" from read-only to read-write	4.3.0	4.4.0
Sep 2002	S_17	SP-020488	009	--	Upgrade the NRM CMIP Solution Set to Rel-5	4.4.0	5.0.0
Sep 2003	S_21	SP-030417	011	--	Rel-4/5 alignment of OIDs of some attributes and name bindings	5.0.0	5.1.0
Dec 2003	S_22	SP-030642	012	--	Remove notifications from MOC managedFunction - Align with 32.622 (IS)	5.1.0	5.2.0
Mar 2004	S_23	SP-040130	013	--	Correction of OIDs and alignment of notification support with the IS 32.622	5.2.0	5.3.0
Jun 2004	S_24	SP-040252	014	--	Add missing mappings for the attributes of the managementScope association – Align with the IS 32.622	5.3.0	5.4.0
Jun 2004	S_24	SP-040250	017	--	Add missing capability for instances of a subclassed MOC subNetwork to contain itself – Align with the IS 32.622	5.3.0	5.4.0
Jun 2004	S_24	SP-040251	018	--	Correction of legal values for managedElementType attribute	5.3.0	5.4.0
Jun 2004	S_24	SP-040253	015	--	Add the attribute SetOfMcc to the MOC SubNetwork -Align with IS 32.622	5.4.0	6.0.0
Dec 2004	S_26	SP-040808	020	--	Add missing definition of attribute meContextId	6.0.0	6.1.0
Dec 2004	S_26	SP-040808	021	--	Add definitions for genericIRP	6.0.0	6.1.0

History

Document history		
V6.1.0	December 2004	Publication