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Technical Specification

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Universal Mobile Telecommunications System (UMTS);
Telecommunication management;
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Generic network resources: Integration Reference Point (IRP)
CMIP solution set
(3GPP TS 32.624 version 5.0.0 Release 5)

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Foreword

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Contents

Foreword

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Introduction

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.

This Solution Set specification is related to 3GPP TS 32.622 V5.0.x.

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.

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: "3G Telecom Management principles and high level requirements".

[2] 3GPP TS 32.102: "3G Telecom Management architecture".

[3] 3GPP TS 32.304: "Telecommunication Management; Notificaion Management; Part 4: Notification Integration Reference Point; CMIP Solution Set".

[4] 3GPP TS 32.622: "Telecommunication Management; Configuration Management: Generic Network Resource Integration Reference Point: Network Resource Model".

[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".

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 and 3GPP TS 32.622 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 is defined in 3GPP TS 32.622 for 3G networks. This document provides an implementation of this generic network resource model by using CMIP technology.

4.2 Allowed Alarms of MOCs

Table 1 defines the allowed alarms of each MOCs for this CMIP Solution Set. The MOCs, which do not appear in table 1, may not issue any alarm except the alarms that are defined as allowed for its super-class MOC(s) in the inheritance tree.

Table 1: Allowed alarms of MOCs

MOCs	Legal Alarms
subNetwork	EnvironmentalAlarm
managedElement	environmentalAlarm equipmentAlarm communicationsAlarm processingErrorAlarm
managementNode	environmentalAlarm equipmentAlarm communicationsAlarm processingErrorAlarm
managedFunction	communicationsAlarm processingErrorAlarm QualityofServiceAlarm
irpAgent	communicationsAlarm processingErrorAlarm

4.3 Mapping

The semantic of the Generic Network Resource Model is defined in 3GPP TS 32.622. 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

Table 2 maps the information object classes defined in the Generic Network Resource Model onto the equivalent MOCs of the CMIP Solution Set.

Table 2: Mapping of MOCs

Information Objects of the Generic NR IRP NRM	MOCs of this CMIP SS
ManagedElement	managedElement
SubNetwork	subNetwork
IRPAgent	irpAgent
ManagedFunction	managedFunction
ManagementNode	managementNode
MeContext	meContext
GenericIRP	no equivalence
VsDataContainer	no equivalence
Top	top (ITU-T X.721)

4.3.2 Mapping of Attributes

Table 3: Mapping of Attributes

Attribute defined in 3GPP TS 32.622	Attribute defined in this CMIP SS
DnPrefix	systemTitle (ITU-T Recommendation X.721: 1992)
ManagedElementId	managedElementId
SubNetworkId	subNetworkId
IrpAgentId	irpAgentId
LocationName	locationName (ITU-T Recommendation M.3100: 1995)
ManagedElementType	managedElementType
ManagementNodeId	managementNodeId
irpId	No equivalence
MeContextId	meContextId
SystemDN	No equivalence
UserDefinedState	userDefinedState
UserLabel	userLabel (ITU-T Recommendation M.3100: 1995)
VendorName	vendorName (ITU-T Recommendation M.3100: 1995)
VsDataContainerId	No equivalence
VsDataType	No equivalence
VsData	No equivalence
VsDataFormatVersion	No equivalence
ObjectClass	objectClass (ITU-T Recommendation X.721: 1992)
ObjectInstance	objectInstance (ITU-T Recommendation X.721: 1992)
UserDefinedNetworkType	userDefinedNetworkType
SwVersion	swVersion

5 GDMO Definitions

5.1 Managed Object Classes

5.1.1 subNetwork

```
subNetwork MANAGED OBJECT CLASS
  DERIVED FROM      "Recommendation X.721: 1992":top;
  CHARACTERIZED BY
    subNetworkBasicPackage;
  CONDITIONAL PACKAGES
     "Recommendation M.3100: 1995":attributeValueChangeNotificationPackage  PRESENT IF
       "the attributeValueChange notifications defined in Recommendation X.721
        are supported by an instance of this class.",
    "Recommendation M.3100: 1995":environmentalAlarmPackage  PRESENT IF
       "the environmentalAlarm notifications defined in Recommendation X.721
        are 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;
  CONDITIONAL PACKAGES
    rootOptionalPackage PRESENT IF
        “An instance of managedElement is the accessing root of a MIB.”,
    "Recommendation M.3100: 1995":createDeleteNotificationsPackage  PRESENT IF
      "the objectCreation and the objectDeletion defined in Recommendation
       X.721 are supported by an instance of this class.",
    "Recommendation M.3100: 1995":attributeValueChangeNotificationPackage PRESENT IF
      "the attributeValueChange notifications defined in Recommendation X.721
     are supported by an instance of this class.",
    "Recommendation M.3100: 1995":processingErrorAlarmPackage  PRESENT IF
      "the processingErrorAlarm notifications defined in Recommendation X.721
       are supported by an instance of this class.",
    "Recommendation M.3100: 1995":environmentalAlarmPackage  PRESENT IF
      "the environmentalAlarm notifications defined in Recommendation X.721
       are supported by an instance of this class.",
    communicationsAlarmPackage  PRESENT IF
      "the communicationsAlarm notifications defined in Recommendation X.721
       are supported by an instance of this class.",
    equipmentAlarmPackage  PRESENT IF
      "the equipmentAlarm notifications defined in Recommendation X.721
       are 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;
  CONDITIONAL PACKAGES
    "Recommendation M.3100: 1995":createDeleteNotificationsPackage  PRESENT IF
      "the objectCreation and the objectDeletion defined in Recommendation
     X.721 are supported by an instance of this class.",
    "Recommendation M.3100: 1995":attributeValueChangeNotificationPackage  PRESENT IF
      "the attributeValueChange notifications defined in Recommendation X.721
     are supported by an instance of this class.",
    "Recommendation M.3100: 1995":processingErrorAlarmPackage  PRESENT IF
      "the processingErrorAlarm notifications defined in Recommendation X.721
     are supported by an instance of this class.",
    "Recommendation M.3100: 1995":environmentalAlarmPackage  PRESENT IF
      "the environmentalAlarm notifications defined in Recommendation X.721
     are supported by an instance of this class.",
    communicationsAlarmPackage  PRESENT IF
      "the communicationsAlarm notifications defined in Recommendation X.721
```

```
      are supported by an instance of this class.",
     equipmentAlarmPackage  PRESENT IF
       "the equipmentAlarm notifications defined in Recommendation X.721
      are supported by an instance of this class.";
REGISTERED AS {ts32-624ObjectClass 3};
```

5.1.4 irpAgent

```
irpAgent MANAGED OBJECT CLASS
DERIVED FROM      "Recommendation X.721: 1992":top;
  CHARACTERIZED BY
    irpAgentBasicPackage;
  CONDITIONAL PACKAGES
   "Recommendation M.3100: 1995":processingErrorAlarmPackage  PRESENT IF
      "the processingErrorAlarm notifications defined in Recommendation X.721
     are supported by an instance of this class.",
    communicationsAlarmPackage  PRESENT IF
      "the communicationsAlarm notifications defined in Recommendation X.721
     are supported by an instance of this class.";
REGISTERED AS {ts32-624ObjectClass 4};
```

5.1.5 managedFunction

```
managedFunction MANAGED OBJECT CLASS
  DERIVED FROM      "Recommendation X.721: 1992":top;
  CHARACTERIZED BY
    managedFunctionBasicPackage;
  CONDITIONAL PACKAGES
    "Recommendation M.3100: 1995":createDeleteNotificationsPackage  PRESENT IF
      "the objectCreation and the objectDeletion defined in Recommendation
     X.721 are supported by an instance of this class.",
    "Recommendation M.3100: 1995":attributeValueChangeNotificationPackage  PRESENT IF
      "the attributeValueChange notifications defined in Recommendation X.721
     are supported by an instance of this class.",
    "Recommendation M.3100: 1995":processingErrorAlarmPackage  PRESENT IF
      "the processingErrorAlarm notifications defined in Recommendation X.721
     are supported by an instance of this class.",
    communicationsAlarmPackage  PRESENT IF
      "the communicationsAlarm notifications defined in Recommendation X.721
     are supported by an instance of this class.",
    qualityOfServiceAlarmPackage  PRESENT IF
      "the qualityOfServiceAlarm notifications defined in Recommendation X.721
     are supported by an instance of this class.";
REGISTERED AS {ts32-624ObjectClass 5};
```

5.1.6 meContext

meContext MANAGED OBJECT CLASS
DERIVED FROM "Recommendation X.721: 1992":top;
CHARACTERIZED BY
meContextBasicPackage;
CONDITIONAL PACKAGES
rootOptionalPackage PRESENT IF
"An instance of meContext is the accessing root of a MIB.",
"Recommendation M.3100: 1995":createDeleteNotificationsPackage PRESENT IF
"the objectCreation and the objectDeletion defined in Recommendation
X.721 are supported by an instance of this class.";
REGISTERED AS {ts32-624ObjectClass 6};

5.2 Packages

5.2.1 subNetworkBasicPackage

subNetworkBasicPackage PACKAGE
BEHAVIOUR
subNetworkBasicPackageBehaviour;
ATTRIBUTES
subNetworkId GET,
"Recommendation X.721: 1992": systemTitle 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,
userDefinedState GET-REPLACE,
"Recommendation M.3100: 1995" : userLabel GET-REPLACE,
"Recommendation M.3100: 1995" : vendorName GET,

"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 managementNodeBasicPackage

managementNodeBasicPackage PACKAGE
ATTRIBUTES
managementNodeId GET,
userDefinedState GET-REPLACE,
"Recommendation M.3100: 1995" : userLabel GET-REPLACE,
"Recommendation M.3100: 1995" : vendorName GET,
"Recommendation M.3100: 1995" : locationName GET,
swVersion GET;
REGISTERED AS {ts32-624Package 4};

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.";

5.2.5 managementNodeAssociationPackage

managementNodeAssociationPackage PACKAGE
  BEHAVIOUR
    managementNodeAssociationPackageBehaviour;
  ATTRIBUTES
    mnManagesList GET;
REGISTERED AS {ts32-624Package 5};

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.";

5.2.6 irpAgentBasicPackage

irpAgentBasicPackage PACKAGE
  BEHAVIOUR
    irpAgentBasicPackageBehaviour;
  ATTRIBUTES
    irpAgentId GET,
    "Recommendation M.3100: 1995" : userLabel GET-REPLACE,
    supportedIRPs GET;
REGISTERED AS {ts32-624Package 6};

irpAgentBasicPackageBehaviour BEHAVIOUR
  DEFINED AS
    "irpAgent may have only one instance in R99 and R4. The instance of this MOC represents
     the behavior of an IRP Agent which implements one or more IRPs";

5.2.7 managedFunctionBasicPackage

managedFunctionBasicPackage PACKAGE
  BEHAVIOUR
    managedFunctionBasicPackageBehaviour;
  ATTRIBUTES
    "Recommendation M.3100: 1995" : userLabel GET-REPLACE;
REGISTERED AS {ts32-624Package 7};

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.";

5.2.8 meContextBasicPackage

meContextBasicPackage PACKAGE
BEHAVIOUR
meContextBasicPackageBehaviour;
ATTRIBUTES
meContextId GET;
REGISTERED AS {ts32-624Package 8};

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.";

5.2.9 communicationsAlarmPackage

communicationsAlarmPackage PACKAGE
NOTIFICATIONS
"Recommendation X.721:1992": communicationsAlarm;
REGISTERED AS {ts32-624Package 9};

5.2.10 equipmentAlarmPackage

equipmentAlarmPackage PACKAGE
NOTIFICATIONS
"Recommendation X.721:1992": equipmentAlarm;
REGISTERED AS {ts32-624Package 10};

5.2.11 qualityOfServiceAlarmPackage

qualityOfServiceAlarmPackage PACKAGE
NOTIFICATIONS
"Recommendation X.721:1992": qualityofServiceAlarm;
REGISTERED AS {ts32-624Package 11};

5.2.12 rootOptionalPackage

rootOptionalPackage PACKAGE
BEHAVIOUR
rootOptionalPackageBehaviour;
ATTRIBUTES
"Recommendation X.721: 1992" : systemTitle GET;
REGISTERED AS {ts32-624Package 12};

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.";

5.3 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 userDefinedNetworkType

userDefinedNetworkType ATTRIBUTE
WITH ATTRIBUTE SYNTAX TS32-624TypeModule.UserDefinedNetworkType;
MATCHES FOR EQUALITY;
BEHAVIOUR
userDefinedNetworkTypeBehaviour;
REGISTERED AS {ts32-624Attribute 3};

userDefinedNetworkTypeBehaviour BEHAVIOUR
DEFINED AS
"Textual information regarding the type of network, e.g. UTRAN.";

5.3.4 swVersion

swVersion ATTRIBUTE
WITH ATTRIBUTE SYNTAX TS32-624TypeModule.SwVersion;
MATCHES FOR EQUALITY;
BEHAVIOUR
swVersionBehaviour;
REGISTERED AS {ts32-624Attribute 4};

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).";

5.3.5 managedElementId

managedElementId ATTRIBUTE
WITH ATTRIBUTE SYNTAX TS32-624TypeModule .GeneralObjectId;
MATCHES FOR EQUALITY;
BEHAVIOUR
managedElementIdBehaviour;
REGISTERED AS {ts32-624Attribute 5};

managedElementIdBehaviour BEHAVIOUR
DEFINED AS
"This attribute names an instance of the '3gManagedElement' object class.";

5.3.6 userDefinedState

userDefinedState ATTRIBUTE
  WITH ATTRIBUTE SYNTAX TS32-624TypeModule.UserDefinedState;
  MATCHES FOR EQUALITY;
  BEHAVIOUR
    userDefinedStateBehaviour;
REGISTERED AS {ts32-624Attribute 6};

userDefinedStateBehaviour BEHAVIOUR
  DEFINED AS
    "This attribute specifies an operator defined state for operator specific usage.";

5.3.7 meManagedBy

meManagedBy ATTRIBUTE
  WITH ATTRIBUTE SYNTAX TS32-624TypeModule.GeneralObjectPointer;
  MATCHES FOR EQUALITY;
  BEHAVIOUR
    meManagedByBehaviour;
REGISTERED AS {ts32-624Attribute 7};

meManagedByBehaviour BEHAVIOUR
  DEFINED AS
    "This attribute points to the managementNode instance which manages the
    related 3gManagedElement instance.";

5.3.8 managementNodeId

managementNodeId ATTRIBUTE
  WITH ATTRIBUTE SYNTAX TS32-624TypeModule.GeneralObjectId;
  MATCHES FOR EQUALITY;
  BEHAVIOUR
    managmentNodeIdBehaviour;
REGISTERED AS {ts32-624Attribute 8};

managmentNodeIdBehaviour BEHAVIOUR
  DEFINED AS
    "This attribute names an instance of the 'managmentNode' object class.";

5.3.9 mnManagesList

mnManagesList ATTRIBUTE
  WITH ATTRIBUTE SYNTAX TS32-624TypeModule.GeneralObjectPointerList;
  MATCHES FOR EQUALITY;
  BEHAVIOUR

```
    mnManagesListBehaviour;
REGISTERED AS {ts32-624Attribute 9};

mnManagesListBehaviour BEHAVIOUR
  DEFINED AS
    "This attribute points to all 3gManagedElement instances which this
    3gManagmentNode instance manages.";
```

5.3.10 irpAgentId

```
irpAgentId ATTRIBUTE
  WITH ATTRIBUTE SYNTAX    TS32-624TypeModule.GeneralObjectId;
  MATCHES FOR EQUALITY;
  BEHAVIOUR
    irpAgentIdBehaviour;
REGISTERED AS {ts32-624Attribute 10};

irpAgentIdBehaviour BEHAVIOUR
  DEFINED AS
    "This attribute identifies an irpAgent instance.";
```

5.3.11 supportedIRPs

```
supportedIRPs ATTRIBUTE
WITH ATTRIBUTE SYNTAX    TS32-624TypeModule.SupportedIRPs;
  MATCHES FOR EQUALITY;
  BEHAVIOUR
    supportedIRPsBehaviour;
REGISTERED AS {ts32-624Attribute 11};

supportedIRPsBehaviour BEHAVIOUR
  DEFINED AS
    "This attribute provides the information about IRPs an IRPAgent supports.";
```

5.3.12 meContextId

```
meContextId ATTRIBUTE
  WITH ATTRIBUTE SYNTAX    TS32-624TypeModule.GeneralObjectId;
  MATCHES FOR EQUALITY;
  BEHAVIOUR
    meContextIdBehaviour;
REGISTERED AS {ts32-624Attribute 12};

meContextIdBehaviour BEHAVIOUR
  DEFINED AS
```

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

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 subNetwork - subNetwork

subNetwork-subNetwork NAME BINDING
SUBORDINATE OBJECT CLASS **subNetwork**;
NAMED BY SUPERIOR OBJECT CLASS **subNetwork**;
WITH ATTRIBUTE **subNetworkId**;
BEHAVIOUR
subNetwork-subNetwork Behaviour;
CREATE WITH-REFERENCE-OBJECT, WITH-AUTOMATIC-INSTANCE-NAMING;
DELETE ONLY-IF-NO-CONTAINED-OBJECTS;
REGISTERED AS {ts32-624NameBinding 4};

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 left as a local matter.";

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.";
```

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)};


-- 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
IRPNames::= SET OF ENUMERATED
{
notificationIRP     (1),
alarmIRP            (2),
basicCmIRP          (3),
bulkCmIRP           (4),
genericNRM          (5),
cnNRM               (6),
```

```
utranNRM        (7),
geranNRM        (8)
}
SupportedIRPs ::= SET OF IRPNames
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

History

Document history		
V5.0.0	September 2002	Publication