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*Technical Specification*

**Digital cellular telecommunications system (Phase 2+) (GSM);  
Universal Mobile Telecommunications System (UMTS);  
Telecommunication Management;  
Configuration Management;  
Generic network resources: IRP CMIP solution set  
(3GPP TS 32.624 version 4.3.0 Release 4)**

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## Introduction

Due to the growing number of specifications to model new services and Resource Models for Configuration Management (CM), as well as the expected growth in size of each of them from 3GPP Release 4 onwards, a new structure of the specifications is already needed in Release 4. This structure is needed for several reasons, but mainly to enable more independent development and release for each part, as well as a simpler document identification and version handling. Another benefit would be that it becomes easier for bodies outside 3GPP, such as the ITU-T, to refer to telecom management specifications from 3GPP. The new structure of the specifications does not lose any information or functionality supported by the Release 1999. The restructuring also includes defining new IRPs for the Network Resource Model (NRM) parts of R99 Basic CM IRP (Generic, Core Network and UTRAN NRM). These IRPs are named "Network Resources IRP".

Further, the Notification IRP (in Release 1999: 32.106-1 to -4) and the Name convention for Managed Objects (in Release 1999: 32.106-8) have been moved to a separate number series used for specifications common between several management areas (e.g. CM, FM, PM).

Finally, in addition to the restructuring mentioned above, the need to define some new functionality and IRPs for CM compared to Release 1999, has also been identified. Firstly, a new Bulk CM IRP, and secondly an a GERAN Network Resources IRP, have been created. Thirdly, the Generic, UTRAN and GERAN Network Resources IRPs have been extended with support for GSM-UMTS Inter-system handover (ISH), and the 32.600 (Concept and High-level Requirements) has been modified to cover the high-level Bulk CM and ISH requirements.

Table: Mapping between Release '99 and the new specification numbering scheme

R99 Old no.	Old (R99) specification title	Rel-4 New no.	New (Rel-4) specification title
32.106-1	3G Configuration Management: Concept and Requirements	32.600	<b>3G Configuration Management: Concept and High-level Requirements</b>
32.106-1	<Notification IRP requirements from 32.106-1 and 32.106-2>	32.301	<b>Notification IRP: Requirements</b>
32.106-2	Notification IRP: IS	32.302	Notification IRP: Information Service
32.106-3	Notification IRP: CORBA SS	32.303	Notification IRP: CORBA SS
32.106-4	Notification IRP: CMIP SS	32.304	Notification IRP: CMIP SS
32.106-8	Name convention for Managed Objects	32.300	<b>Name Convention for Managed Objects</b>
32.106-1	<Basic CM IRP IS requirements from 32.106-1 and 32.106-5>	32.601	<b>Basic CM IRP: Requirements</b>
32.106-5	Basic CM IRP IM (Intro & IS part)	32.602	Basic CM IRP: Information Service
32.106-6	Basic CM IRP CORBA SS (IS related part)	32.603	Basic CM IRP: CORBA SS
32.106-7	Basic CM IRP CMIP SS (IS related part)	32.604	Basic CM IRP: CMIP SS
32.106-8	Name convention for Managed Objects	32.300	<b>Name Convention for Managed Objects</b>
-	-	32.611	<b>Bulk CM IRP: Requirements</b>
-	-	32.612	Bulk CM IRP: Information Service
-	-	32.613	Bulk CM IRP: CORBA SS
-	-	32.614	Bulk CM IRP: CMIP SS
		32.615	Bulk CM IRP: XML file format definition
32.106-1	<Basic CM IRP Generic NRM requirements from 32.106-1 and 32.106-5>	32.621	<b>Generic Network Resources IRP: Requirements</b>
32.106-5	Basic CM IRP IM (Generic NRM part)	32.622	Generic Network Resources IRP: NRM
32.106-6	Basic CM IRP CORBA SS (Generic NRM related part)	32.623	Generic Network Resources IRP: CORBA SS
32.106-7	Basic CM IRP CMIP SS (Generic NRM related part)	32.624	<b>Generic Network Resources IRP: CMIP SS</b>
32.106-1	<Basic CM IRP CN NRM requirements from 32.106-1 and 32.106-5>	32.631	<b>Core Network Resources IRP: Requirements</b>
32.106-5	Basic CM IRP IM (CN NRM part)	32.632	Core Network Resources IRP: NRM
32.106-6	Basic CM IRP CORBA SS (CN NRM related part)	32.633	Core Network Resources IRP: CORBA SS
32.106-7	Basic CM IRP CMIP SS (CN NRM related part)	32.634	Core Network Resources IRP: CMIP SS
32.106-1	<Basic CM IRP UTRAN NRM requirements from 32.106-1 and 32.106-5>	32.641	<b>UTRAN Network Resources IRP: Requirements</b>
32.106-5	Basic CM IRP IM (UTRAN NRM part)	32.642	UTRAN Network Resources IRP: NRM
32.106-6	Basic CM IRP CORBA SS (UTRAN NRM related part)	32.643	UTRAN Network Resources IRP: CORBA SS
32.106-7	Basic CM IRP CMIP SS (UTRAN NRM related part)	32.644	UTRAN Network Resources IRP: CMIP SS
		32.651	<b>GERAN Network Resources IRP: Requirements</b>
		32.652	GERAN Network Resources IRP: NRM
		32.653	GERAN Network Resources IRP: CORBA SS
		32.654	GERAN Network Resources IRP: CMIP SS

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# 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. 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.

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# 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; Notificaiion 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".

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# 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

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## 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
alarmControl (TS 32.111-4)	alarmListRebuiltAlarm

## 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 of MOCs

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

**Table 2: Mapping of MOCs**

Managed Objects of the Generic NR IRP NRM	MOCs of this CMIP SS
ManagedElement	managedElement
SubNetwork	subNetwork
IRPAgent	irpAgent
ManagedFunction	managedFunction
ManagementNode	managementNode
MeContext	meContext
BasicCmIRP	bcmControl
VsDataContainer	vsDataContainer
BulkCmIRP	bulkCmControl

### 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)
managedBy	meManagedBy
managedElementType	managedElementType
managementNodeId	managementNodeId
manages	mnManagesList
meContextId	meContextId
systemDN	not needed
userDefinedState	userDefinedState
userLabel	userLabel (ITU-T Recommendation M.3100: 1995)
vendorName	vendorName (ITU-T Recommendation M.3100: 1995)
vsDataContainerId	vsDataContainerId
vsDataType	vsDataType
vsData	vsData
vsDataFormatVersion	vsDataFormatVersion
bulkCmIrpId	bulkCmControlId
irpVersion	irpVersion
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 vsDataContainer

#### **vsDataContainer** MANAGED OBJECT CLASS

DERIVED FROM "Recommendation X.721: 1992":top;

CHARACTERIZED BY

vsDataContainerBasicPackage;

REGISTERED AS {ts32-624ObjectClass 4};

### 5.1.5 bulkCmControl

#### **bulkCmControl** MANAGED OBJECT CLASS

DERIVED FROM "Recommendation X.721: 1992":top;

CHARACTERIZED BY

bulkCmControlBasicPackage,  
bulkCmControlActionPackage,  
bulkCmControlNotificationPackage;

REGISTERED AS {ts32-624ObjectClass 5};

### 5.1.6 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 6};

### 5.1.7 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 7};

### 5.1.8 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 8};

## 5.1.9 bcmControl

**bcmControl** MANAGED OBJECT CLASS

DERIVED FROM "Recommendation X.721: 1992":top;

**CHARACTERIZED BY**

bcmControlBasicPackage,

bcmIRPVersionPackage;

REGISTERED AS {ts32-624ObjectClass 9};

## 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 managementNode instance which manages this managedElement instance. It implements the attribute *managedBy* of MOC ManagedElement defined in TS32.622.";

### 5.2.4 vsDataContainerBasicPackage

#### **vsDataContainerBasicPackage** PACKAGE

BEHAVIOUR

vsDataContainerBasicPackageBehaviour;

ATTRIBUTES

vsDataContainerId GET,

vsDataType GET,

vsData GET-REPLACE,

vsDataFormatVersion GET;

REGISTERED AS {ts32-624Package 4};

#### **vsDataContainerBasicPackageBehaviour** BEHAVIOUR

## DEFINED AS

"The 'VsDataContainer' managed object is a container for vendor specific data. The number of instances of the 'VsDataContainer' can differ from vendor to vendor. This MOC shall only be used by the Bulk CM IRP for the UTRAN and GERAN object models.";

## 5.2.5 bulkCmControlBasicPackage

### bulkCmControlBasicPackage PACKAGE

## BEHAVIOUR

bulkCmControlBasicPackageBehaviour;

## ATTRIBUTES

bulkCmControlId GET,

irpVersion GET;

REGISTERED AS {ts32-624Package 5};

### bulkCmControlBasicPackageBehaviour BEHAVIOUR

## DEFINED AS

"This Managed Object Class represents the Bulk CM IRP capability associated with each IRPagent. Restriction in Rel-4: Number of instances = 0..1.";

## 5.2.6 bulkCmControlActionPackage

### bulkCmControlActionPackage PACKAGE

## BEHAVIOUR

bulkCmControlActionPackageBehaviour;

## ACTIONS

"3GPP TS 32.614 Release 4": startSession,

"3GPP TS 32.614 Release 4": endSession,

"3GPP TS 32.614 Release 4": upload,

"3GPP TS 32.614 Release 4": download,

"3GPP TS 32.614 Release 4": activate,

"3GPP TS 32.614 Release 4": fallback,

"3GPP TS 32.614 Release 4": abortSessionOperation,

"3GPP TS 32.614 Release 4": getSessionIds,

"3GPP TS 32.614 Release 4": getSessionStatus,

"3GPP TS 32.614 Release 4": getSessionLog,

"3GPP TS 32.614 Release 4": getBulkCmIrpVersion;

REGISTERED AS {ts32-624Package 6};

### bulkCmControlActionPackageBehaviour BEHAVIOUR

## DEFINED AS

"This package specifies all actions a bulkCmControl shall provide.";



## 5.2.7 bulkCmControlNotificationPackage

### bulkCmControlNotificationPackage PACKAGE

#### BEHAVIOUR

bulkCmControlNotificationPackageBehaviour;

#### NOTIFICATIONS

“3GPP TS 32.614 Release 4”: sessionStateChanged,

“3GPP TS 32.614 Release 4”: getSessionLogEnded;

REGISTERED AS {ts32-624Package 7};

### bulkCmControlNotificationPackageBehaviour BEHAVIOUR

#### DEFINED AS

"This package specifies all notifications a bulkCmControl shall provide.";

## 5.2.8 managementNodeBasicPackage

### managementNodeBasicPackage PACKAGE

#### ATTRIBUTES

managementNodeId GET,

userDefinedState GET,

"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 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.";

## 5.2.10 irpAgentBasicPackage

### **irpAgentBasicPackage** PACKAGE

#### BEHAVIOUR

irpAgentBasicPackageBehaviour;

#### ATTRIBUTES

irpAgentId GET,

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

supportedIRPs GET;

REGISTERED AS {ts32-624Package 10};

### **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";

## 5.2.11 managedFunctionBasicPackage

### **managedFunctionBasicPackage** PACKAGE

#### BEHAVIOUR

managementFunctionBasicPackageBehaviour;

#### 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.";

## 5.2.12 meContextBasicPackage

### **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.";

### 5.2.13 bcmControlBasicPackage

#### **bcmControlBasicPackage** PACKAGE

BEHAVIOUR

bcmControlBasicPackageBehaviour;

ATTRIBUTES

bcmControlId GET;

REGISTERED AS {ts32-624Package 13};

#### **bcmControlBasicPackageBehaviour** BEHAVIOUR

DEFINED AS

"The object class bcmControl offers the functions defined in the CM IRP IS enabling to control the behaviour and to retrieve the management information related a Basic CM IRP agent.

An instance of the 'BCmControl' MOC is identified by the value of the attribute 'bcmControlId.';

### 5.2.14 bcmIRPVersionPackage

#### **bcmIRPVersionPackage** PACKAGE

BEHAVIOUR

bcmIRPVersionPackageBehaviour;

ATTRIBUTES

supportedBcmIRPVersions GET;

ACTIONS

"3GPP TS 32.604 Release 4":getBCmIRPVersion;

REGISTERED AS {ts32-624Package 14};

#### **bcmIRPVersionPackageBehaviour** BEHAVIOUR

DEFINED AS

"This package has been defined to allow the Manager to get information about the Basic CM IRP versions supported by the Agent.

The attribute 'supportedBCmIRPVersions' indicates all versions of the Basic IRP currently supported by the Agent. .

With the action 'getBasicCmIRPVersion' a manager can find out the versions of the Basic CM IRP CMIP solution sets the Agent supports.";

### 5.2.15 communicationsAlarmPackage

#### **communicationsAlarmPackage** PACKAGE

NOTIFICATIONS

"Recommendation X.721:1992": communicationsAlarm;

REGISTERED AS {ts32-624Package 15};

### 5.2.16 equipmentAlarmPackage

#### **equipmentAlarmPackage** PACKAGE

NOTIFICATIONS

"Recommendation X.721:1992": equipmentAlarm;

REGISTERED AS {ts32-624Package 16};

### 5.2.17 qualityOfServiceAlarmPackage

#### **qualityOfServiceAlarmPackage** PACKAGE

NOTIFICATIONS

"Recommendation X.721:1992": qualityofServiceAlarm;

REGISTERED AS {ts32-624Package 17};

### 5.2.18 rootOptionalPackage

#### **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.";

## 5.3 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

#### **vsDataContainerId** ATTRIBUTE

WITH ATTRIBUTE SYNTAX TS32-624TypeModule.GeneralObjectId;  
MATCHES FOR EQUALITY;  
BEHAVIOUR  
vsDataContainerIdBehaviour;  
REGISTERED AS {ts32-624Attribute 2};

#### **vsDataContainerIdBehaviour** BEHAVIOUR

DEFINED AS

"This attribute identifies a vsDataContainer instance.";

### 5.3.4 vsDataType

#### **vsDataType** ATTRIBUTE

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

vsDataTypeBehaviour;  
REGISTERED AS {ts32-624Attribute 3};

#### **vsDataTypeBehaviour** BEHAVIOUR

DEFINED AS

"Type of vendor specific data contained by this instance, e.g. relation specific algorithm parameters, cell specific parameters for power control or re-selection or a timer. The type itself is also vendor specific.";

### 5.3.5 vsData

#### **vsData** ATTRIBUTE

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

#### **vsDataBehaviour** BEHAVIOUR

DEFINED AS

"Vendor specific attributes of the type vsDataType. The attribute definitions including constraints (value ranges, data types, etc.) are specified in a vendor specific data format file.";

### 5.3.6 vsDataFormatVersion

#### **vsDataFormatVersion** ATTRIBUTE

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

#### **vsDataFormatVersionBehaviour** BEHAVIOUR

DEFINED AS

"Name of the data format file, including version.";

### 5.3.7 bulkCmControlId

#### **bulkCmControlId** ATTRIBUTE

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

#### **bulkCmControlIdBehaviour** BEHAVIOUR

DEFINED AS

"This attribute identifies a bulkCmControl instance.";

### 5.3.8 irpVersion

**irpVersion** ATTRIBUTE

WITH ATTRIBUTE SYNTAX TS32-624TypeModule.IrpVersion;

MATCHES FOR EQUALITY;

BEHAVIOUR

irpVersionBehaviour;

REGISTERED AS {ts32-624Attribute 7};

**irpVersionBehaviour** BEHAVIOUR

DEFINED AS

"One or more Bulk CM IRP version entries.";

### 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.";

### 5.3.10 swVersion

**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).";

### 5.3.11 managedElementId

**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.";

### 5.3.12 userDefinedState

**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.";

### 5.3.13 meManagedBy

**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.";

### 5.3.14 managementNodeId

**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.";

### 5.3.15 mnManagesList

#### **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 3gManagedElement instances which this  
3gManagmentNode instance manages.";

### 5.3.16 irpAgentId

#### **irpAgentId** ATTRIBUTE

WITH ATTRIBUTE SYNTAX TS32-624TypeModule.GeneralObjectId;

MATCHES FOR EQUALITY;

BEHAVIOUR

irpAgentIdBehaviour;

REGISTERED AS {ts32-624 Attribute 15};

#### **irpAgentIdBehaviour** BEHAVIOUR

DEFINED AS

"This attribute identifies an irpAgent instance.";

### 5.3.17 supportedIRPs

#### **supportedIRPs** ATTRIBUTE

WITH ATTRIBUTE SYNTAX TS32-624TypeModule.SupportedIRPs;

MATCHES FOR EQUALITY;

BEHAVIOUR

supportedIRPsBehaviour;

REGISTERED AS {ts32-624Attribute 16};

#### **supportedIRPsBehaviour** BEHAVIOUR

DEFINED AS

"This attribute provides the information about IRPs an IRP Agent supports.";

### 5.3.18 meContextId

#### **meContextId** ATTRIBUTE

WITH ATTRIBUTE SYNTAX TS32-624TypeModule.GeneralObjectId;

MATCHES FOR EQUALITY;

BEHAVIOUR

meContextIdBehaviour;

REGISTERED AS {ts32-624Attribute 17};

#### **meContextIdBehaviour** BEHAVIOUR

DEFINED AS

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

### 5.3.19 bcmControlId

#### **bcmControlId** ATTRIBUTE

WITH ATTRIBUTE SYNTAX TS32-624TypeModule.GeneralObjectId;

MATCHES FOR EQUALITY;

BEHAVIOUR

bcmControlIdBehaviour;

REGISTERED AS {ts32-624Attribute 18};

#### **bcmControlIdBehaviour** BEHAVIOUR

DEFINED AS

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

### 5.3.20 supportedBcmIRPVersions

#### **supportedBcmIRPVersions** ATTRIBUTE

WITH ATTRIBUTE SYNTAX TS32-624TypeModule.SupportedBCmIRPVersions;

MATCHES FOR EQUALITY;

BEHAVIOUR

supportedBCmIRPVersionsBehaviour;

REGISTERED AS {ts32-624Attribute 19};

#### **supportedBCmIRPVersionsBehaviour** BEHAVIOUR

DEFINED AS

"This attribute provides the information concerning the Basic CM IRP versions currently supported by the Agent.";

## 5.4 Actions

Void.

### 5.4.1 getBcmIRPVersion

Void.

## 5.5 Name Binding

### 5.5.1 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.";

### 5.5.2 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.";

### 5.5.3 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.";

**5.5.4 bulkCmControl - irpAgent****bulkCmControl-irpAgent NAME BINDING**

SUBORDINATE OBJECT CLASS bulkCmControl;  
NAMED BY SUPERIOR OBJECT CLASS irpAgent;  
WITH ATTRIBUTE bulkCmControlId;  
**BEHAVIOUR**  
bulkCmControl-irpAgentBehaviour;  
CREATE WITH-REFERENCE-OBJECT, WITH-AUTOMATIC-INSTANCE-NAMING;  
DELETE ONLY-IF-NO-CONTAINED-OBJECTS;  
REGISTERED AS {ts32-624NameBinding 4};

**bulkCmControl-irpAgentBehaviour BEHAVIOUR****DEFINED AS**

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

**5.5.5 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.";

### 5.5.6 irpAgent - managementNode

#### **irpAgent - managementNode** NAME BINDING

SUBORDINATE OBJECT CLASS irpAgent;

NAMED BY SUPERIOR OBJECT CLASS managementNode;

WITH ATTRIBUTE "3GPP TS 32.624: 6.2001": 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.";

### 5.5.7 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.";

### 5.5.8 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.";

### 5.5.9 bcmControl - irpAgent

#### **bcmControl-irpAgent** NAME BINDING

SUBORDINATE OBJECT CLASS bcmControl;  
NAMED BY SUPERIOR OBJECT CLASS irpAgent;  
WITH ATTRIBUTE bcmControlId;  
BEHAVIOUR  
bcmControl-irpAgentBehavior;  
CREATE WITH-AUTOMATIC-INSTANCE-NAMING;  
DELETE ONLY-IF-NO-CONTAINED-OBJECTS;  
REGISTERED AS {ts32-624NameBinding 9};

#### **bcmControl-irpAgentBehavior** BEHAVIOUR

DEFINED AS

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

### 5.5.10 vsDataContainer - vsDataContainer

#### **vsDataContainer-vsDataContainer** NAME BINDING

SUBORDINATE OBJECT CLASS vsDataContainer;  
NAMED BY SUPERIOR OBJECT CLASS vsDataContainer;  
WITH ATTRIBUTE vsDataContainerId;  
BEHAVIOUR  
vsDataContainer-vsDataContainerBehaviour;  
CREATE WITH-REFERENCE-OBJECT, WITH-AUTOMATIC-INSTANCE-NAMING;  
DELETE ONLY-IF-NO-CONTAINED-OBJECTS;  
REGISTERED AS {ts32-624NameBinding 10};

#### **vsDataContainer-vsDataContainerBehaviour** BEHAVIOUR

DEFINED AS

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

of name bindings is left as a local matter. This containment relation shall be used only with Bulk CM IRP CMIP SS defined in 3GPP TS 32.614.";

## 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 ::= INTEGER

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
VsDataType ::= GraphicString
VsData ::= GraphicString
VsDataFormatVersion ::= GraphicString
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

---

## History

<b>Document history</b>		
V4.0.0	June 2001	Publication
V4.1.0	September 2001	Publication
V4.2.0	December 2001	Publication
V4.3.0	March 2002	Publication