ETSI TS 132 632 V6.1.0 (2004-12)

Technical Specification

Digital cellular telecommunications system (Phase 2+);
Universal Mobile Telecommunications System (UMTS);
Telecommunication management;
Configuration Management (CM);
Core Network Resources Integration Reference Point (IRP):
Network Resource Model (NRM)
(3GPP TS 32.632 version 6.1.0 Release 6)

Reference
RTS/TSGS-0532632v610

Keywords
GSM, UMTS

ETSI

650 Route des Lucioles
F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - NAF 742 C
Association à but non lucratif enregistrée à la
Sous-Préfecture de Grasse (06) N° 7803/88

Intellectual Property Rights

IPRs essential or potentially essential to the present document may have been declared to ETSI. The information pertaining to these essential IPRs, if any, is publicly available for **ETSI members and non-members**, and can be found in ETSI SR 000 314: *"Intellectual Property Rights (IPRs); Essential, or potentially Essential, IPRs notified to ETSI in respect of ETSI standards"*, which is available from the ETSI Secretariat. Latest updates are available on the ETSI Web server (http://webapp.etsi.org/IPR/home.asp).

Pursuant to the ETSI IPR Policy, no investigation, including IPR searches, has been carried out by ETSI. No guarantee can be given as to the existence of other IPRs not referenced in ETSI SR 000 314 (or the updates on the ETSI Web server) which are, or may be, or may become, essential to the present document.

Foreword

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

The present document may refer to technical specifications or reports using their 3GPP identities, UMTS identities or GSM identities. These should be interpreted as being references to the corresponding ETSI deliverables.

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

where:

- x the first digit:
  - 1 presented to TSG for information;
  - 2 presented to TSG for approval;
  - 3 or greater indicates TSG approved document under change control.
- 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; as identified below:

32.631: "Configuration Management (CM); Core network resources Integration Reference Point (IRP): Requirements".

32.632: "Configuration Management (CM); Core network resources Integration Reference Point (IRP): Network Resource Model (NRM)".

32.633: "Configuration Management (CM); Core network resources Integration Reference Point (IRP): Common Object Request Broker Architecture (CORBA) Solution Set (SS)".

32.634: "Configuration Management (CM); Core network resources Integration Reference Point (IRP): Common Management Information Protocol (CMIP) Solution Set (SS)".

32.635: "Configuration Management (CM); Core network resources Integration Reference Point (IRP): Bulk CM eXtensible Markup Language (XML) file format definition".

Configuration Management (CM), in general, provides the operator with the ability to assure correct and effective operation of the 3G network as it evolves. CM actions have the objective to control and monitor the actual configuration on the Network Elements (NEs) and Network Resources (NRs), and they may be initiated by the operator or by functions in the Operations Systems (OSs) or NEs.

CM actions may be requested as part of an implementation programme (e.g. additions and deletions), as part of an optimization programme (e.g. modifications), and to maintain the overall Quality of Service (QoS). The CM actions are initiated either as single actions on single NEs of the 3G network, or as part of a complex procedure involving actions on many resources/objects in one or several NEs.

1 Scope

The present document is part of an Integration Reference Point (IRP) named "Core Network Resources IRP", through which an 'IRPAgent' (typically an Element Manager or Network Element) can communicate Configuration Management information to one or several 'IRPManagers' (typically Network Managers) concerning CN resources. This version of the IRP is mainly intended for "passive management" of high-level network configuration and status information as required by a Network Manager. The "Core Network Resources IRP" comprises a set of specifications defining Requirements, a protocol neutral Network Resource Model (NRM) and corresponding Solution Set(s).

The present document specifies the protocol neutral Core Network Resources IRP: Network Resource Model. It reuses relevant parts of the generic NRM in 3GPP TS 32.622 [16], either by direct reuse or sub-classing, and in addition to that defines CN specific Managed Object Classes. Release 6 introduces support for management of IMS entities addressed in 3GPP TS 23.228 [21].

The Configuration Management (CM) area is very large. The intention is to split the specification of the related interfaces in several IRPs - as described in the Introduction clause above. An important aspect of such a split is that the Network Resource Models (NRMs) defined in different IRPs containing NRMs are consistent, and that NRMs supported by an IRPAgent implementation can be accessed as one coherent model through one IRP Information Service (IS).

To summarize, the present document has the following main purpose: to define the applied CN specific Network Resource Model, based on the generic NRM in 3GPP TS 32.622 [16].

Finally, in order to access the information defined by this NRM, an IRP Information Service (IS) is needed, such as the Basic CM IRP: IS 3GPP TS 32.602 [17]. However, which Information Service that is applicable is outside the scope of the present document.

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] 3GPP TS 32.302: "Telecommunication management; Configuration Management (CM); Notification Integration Reference Point; Information Service (IS)".

[4] - [6] Void.

[7] ITU-T Recommendation X.710 (1991): "Common management information service definition for CCITT applications".

[8] - [10] Void.

[11] 3GPP TS 32.111-2: "Telecommunication management; Fault Management; Part 2: Alarm Integration Reference Point: Information Service (IS)".

[12] Void.

[13] 3GPP TS 32.300: "Telecommunication management; Configuration Management (CM); Name convention for Managed Objects".

[14] 3GPP TS 32.600: "Telecommunication management; Configuration Management (CM); Concept and high-level requirements".

[15] 3GPP TS 23.002: "Network architecture".

[16] 3GPP TS 32.622: "Telecommunication management; Configuration Management (CM); Generic network resources Integration Reference Point (IRP): Network Resource Model (NRM)".

[17] 3GPP TS 32.602: "Telecommunication management; Configuration Management (CM); Basic Configuration Management Integration Reference Point (IRP): Information Service (IS)".

[18] 3GPP TS 23.060: "General Packet Radio Service (GPRS) service description; Stage 2".

[19] 3GPP TS 23.003: "Numbering, addressing and identification".

[20] 3GPP TS 32.672: "Telecommunication Management; Configuration Management (CM); State Management Integration Reference Point (IRP): Information Service (IS)".

[21] 3GPP TS 23.228: "IP Multimedia Subsystem (IMS) Stage 2".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in 3GPP TS 32.101 [1], 3GPP TS 32.102 [2], 3GPP TS 32.600 [14] and the following apply:

Association: In general it is used to model relationships between Managed Objects. Associations can be implemented in several ways, such as:

(1) name bindings;

(2) reference attributes; and

(3) association objects.

This IRP stipulates that containment associations shall be expressed through name bindings, but it does not stipulate the implementation for other types of associations as a general rule. These are specified as separate entities in the object models (UML diagrams).

Managed Element (ME): an instance of the Managed Object Class Managed Element defined in 3GPP TS 32.622 [16].

Managed Object (MO): in the context of the present document, a Managed Object (MO) is a software object that encapsulates the manageable characteristics and behaviour of a particular Network Resource. The MO is instance of a MO class defined in a MIM/NRM. This class, called **Information Object Class (IOC)** has *attributes* that provide information used to characterize the objects that belong to the class (the term "attribute" is taken from TMN and corresponds to a "property" according to CIM). Furthermore, the IOC can have *operations* that represent the behaviour relevant for that class (the term "operation" is taken from TMN and corresponds to a "method" according to CIM). The IOC may support the emission of *notifications* that provide information about an event occurrence within a network resource.

Management Information Model (MIM): also referred to as NRM - see the definition below.

Network Resource Model (NRM): a model representing the actual managed telecommunications network resources that a System is providing through the subject IRP
An NRM identifies and describes IOCs, their associations, attributes and operations. The NRM is also referred to as "MIM" (see above), which originates from the ITU-T TMN.

Node B: a logical node responsible for radio transmission/reception in one or more cells to/from the User Equipment It terminates the Iub interface towards the RNC.

3.2 Abbreviations

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

AUC	AUthentication Centre
AS	Application Server
BG	Border Gateway
BGCF	Breakout Gateway Control Function
BS	Billing System
CBC	Cell Broadcast Center
CGF	Charging Gateway Functionality
CN	Core Network
DN	Distinguished Name (see 3GPP TS 32.300 [13])
EIR	Equipment Identity Register
EM	Element Manager
FM	Fault Management
FNR	Flexible Number Register
GDMO	Guidelines for the Definition of Managed Objects
GGSN	Gateway GPRS Support Node
GMLC	Gateway Mobile Location Center
GMSC Server	Gateway MSC Server
GMSC	Gateway MSC
GPRS	General Packet Radio System
ICSCF	Interrogating Call Session Control Function
IDL	Interface Definition Language
IMS	IP Multimedia Subsystem
IMSMGW	IMS Media Gateway
IOC	Information Object Class
IRP	Integration Reference Point
ISO	International Standards Organization
IWF	InterWorking Function
ME	Managed Element
MGCF	Media Gateway Control Function
MGW	Media GateWay
MIM	Management Information Model
MNP-SRF	Mobile Number Portability-Signalling Relay Function
MO	Managed Object
MOI	Managed Object Instance
MRFC	Multimedia Resource Function Controller
MRFP	Call Session Control Function Processor
MSC Server	Mobile Services Switching Centre Server
MSC	Mobile Services Switching Centre
NE	Network Element
NM	Network Manager
NPDB	Number Portability DataBase
NR	Network Resource
NRM	Network Resource Model
OSI	Open Systems Interconnection
PCSCF	Proxy Call Session Control Function
PM	Performance Management
RDN	Relative Distinguished Name (see 3GPP TS 32.300 [13])
SCF	Service Control Function
SCSCF	Serving Call Session Control Function
SGSN	Serving GPRS Support Node
SGW	Signalling GateWay
SLF	Subscription Locator Function
SMLC	Serving Mobile Location Center
SMS	Short Message Service

SMS-GMSC	SMS Gateway MSC
SMS-IWMSC	SMS InterWorking MSC
SRF	Specialized Resource Function
SSF	Service Switching Function
TMN	Telecommunications Management Network
UML	Unified Modelling Language
UMTS	Universal Mobile Telecommunications System
UTRAN	Universal Terrestrial Radio Access Network
VLR	Visitor Location Register

4 System overview

4.1 System context

Figure 4.1 and figure 4.2 identify system contexts of the IRP defined by the present document in terms of its implementation called IRPAgent and the user of the IRPAgent, called IRPManager. For a definition of IRPManager and IRPAgent, see 3GPP TS 32.102 [2].

The IRPAgent implements and supports this IRP. The IRPAgent can reside in an Element Manager (EM; for definition see 3GPP TS 32.101 [1]) or a Network Element (NE) (see also 3GPP TS 32.102 [2] clause 8). In the former case, the interfaces (represented by a thick dotted line) between the EM and the NEs is not the subject of this IRP.

An IRPManager using this IRP shall choose one of the two System Contexts defined here, for each NE. For instance, if an EM is responsible for managing a number of NEs, the NM shall access this IRP through the EM and not directly to those NEs. For another IRP though, the System Context may be different.

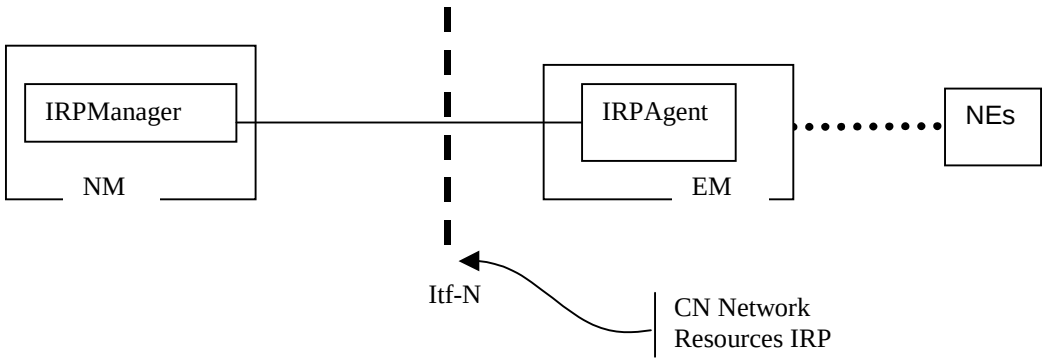


Figure 4.1: System Context A

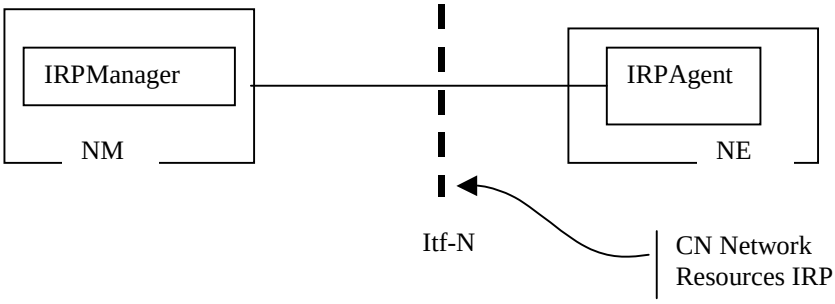


Figure 4.2: System Context B

4.2 Compliance rules

For general definitions of compliance rules related to qualifiers (Mandatory/Optional/Conditional) for *operations, notifications and parameters* (of operations and notifications) please refer to 3GPP TS 32.102 [2].

The following defines the meaning of Mandatory and Optional IOC attributes and associations between IOCs, in Solution Sets to the IRP defined by the present document:

- The IRPManager shall support all mandatory attributes/associations. The IRPManager shall be prepared to receive information related to mandatory as well as optional attributes/associations without failure; however the IRPManager does not have to support handling of the optional attributes/associations.
- The IRPAgent shall support all mandatory attributes/associations. It may support optional attributes/associations.

An IRPAgent that incorporates vendor-specific extensions shall support normal communication with a 3GPP SA5-compliant IRPManager with respect to all Mandatory and Optional information object classes, attributes, associations, operations, parameters and notifications without requiring the IRPManager to have any knowledge of the extensions.

Given that:

- rules for vendor-specific extensions remain to be fully specified; and
- many scenarios under which IRPManager and IRPAgent interwork may exist;

it is recognized that in Release 4/5 the IRPManager, even though it is not required to have knowledge of vendor-specific extensions, may be required to be implemented with an awareness that extensions can exist and behave accordingly.

5 Modelling approach

The modelling approach is described in the Generic Network Resources IRP: NRM (3GPP TS 32.622 [16]).

It should be noted that this model allows for combined managed element functionality, where more than one "function IOCs' (inherited from ManagedFunction) modelling more specific managed element functionality may be contained in the ManagedElement IOC.

6 IRP Information Model

6.1 Information entities imported and local labels

None.

6.2 Class diagrams

6.2.1 Attributes and relationships

This clause depicts the set of IOCs that encapsulate information relevant for this service. This clause provides the overview of all information object classes in UML. Subsequent clauses provide more detailed specification of various aspects of these information object classes.

Figures 6.2.1.1 to 6.2.1.4 show the name-containment relation and other types of relations of the CN NRM.

NOTE 1: The name-containment relations between IOCs are indicated by UML "unidirectional aggregation by reference" ("hollow diamonds").

NOTE 2: The listed cardinality numbers represent transient as well as steady-state numbers, and reflect all managed object creation and deletion scenarios.

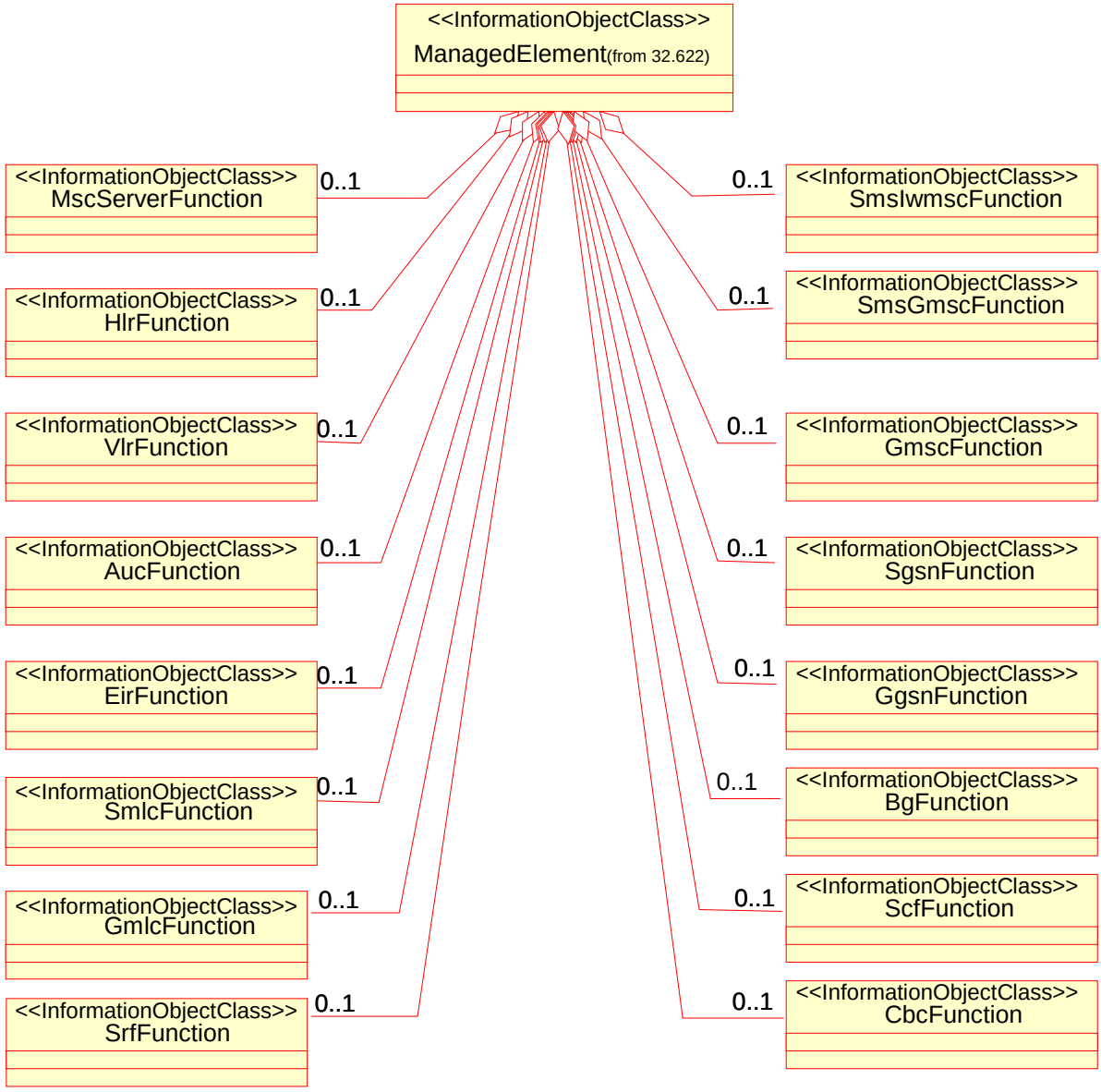


Figure 6.2.1.1: CN NRM Containment/Naming and Association

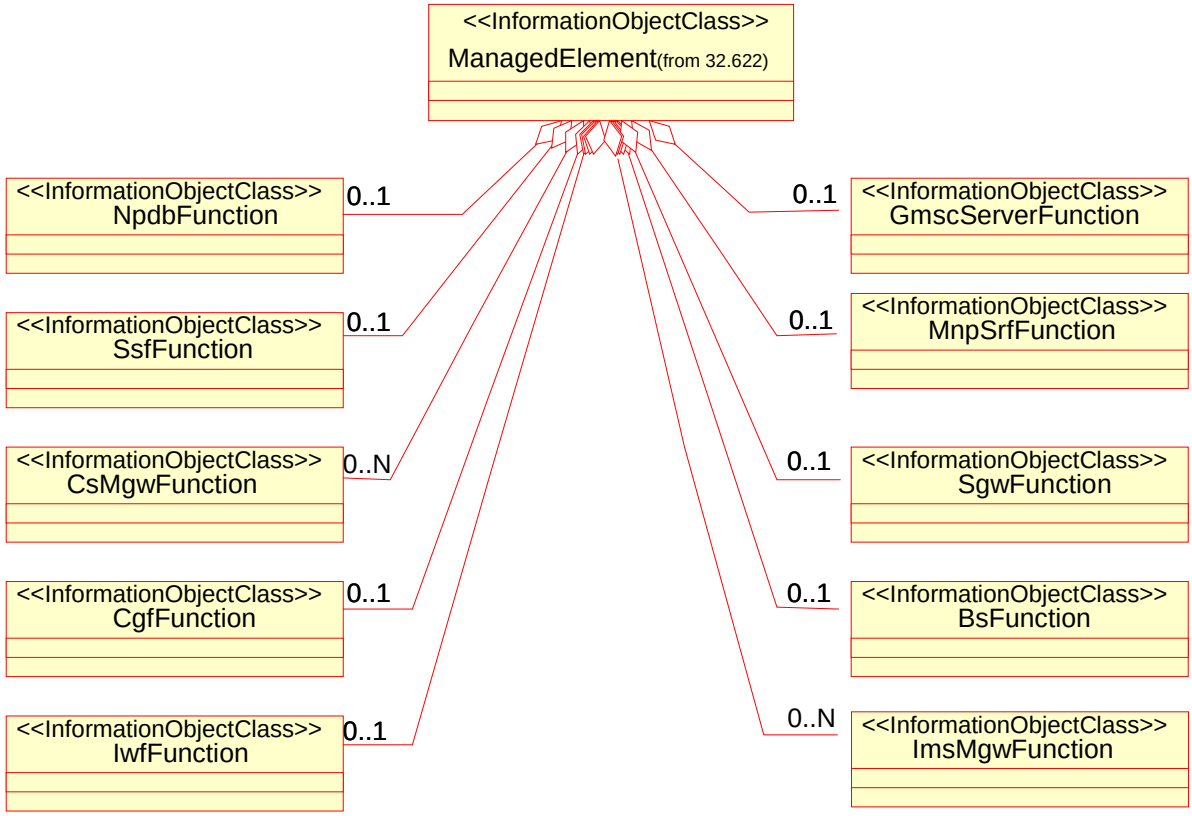


Figure 6.2.1.2: CN NRM Containment/Naming and Association

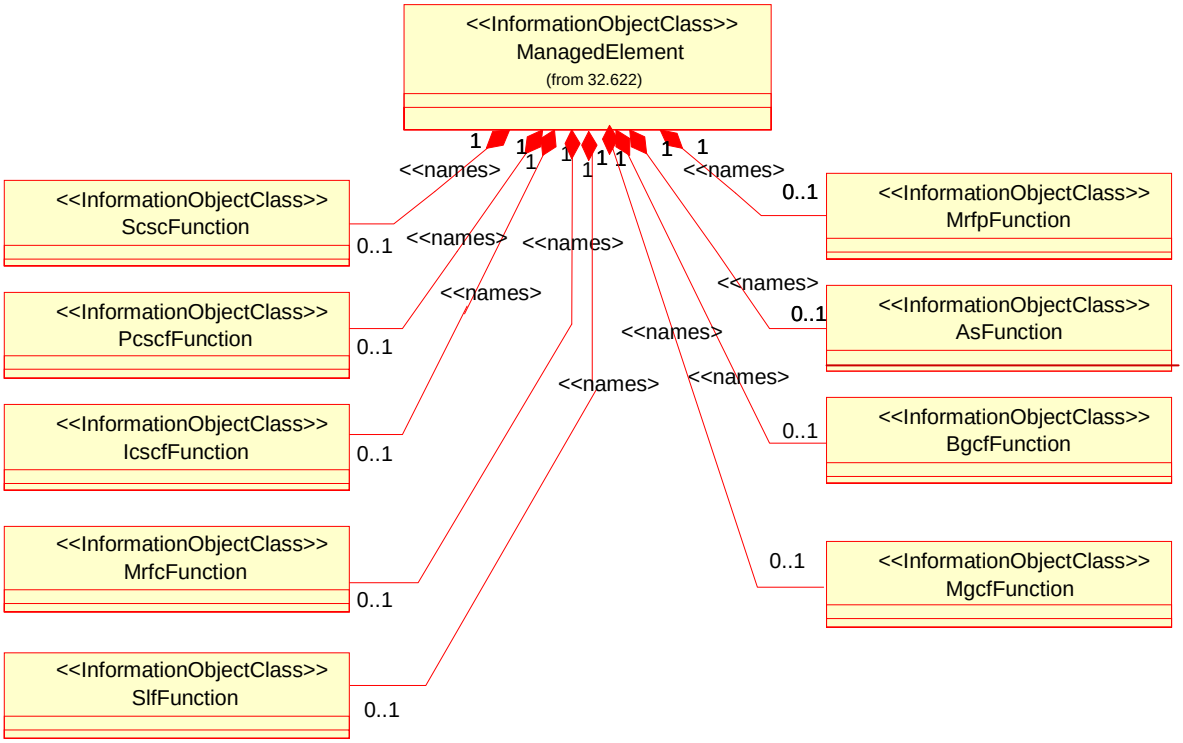


Figure 6.2.1.3: CN NRM Containment/Naming and Association

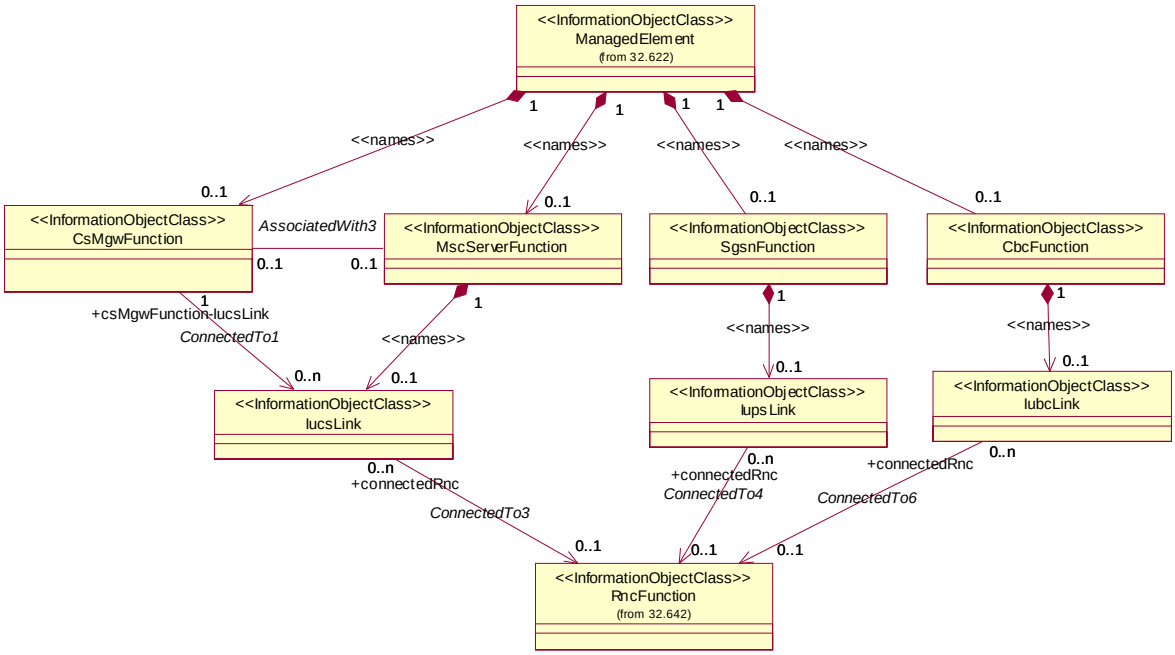
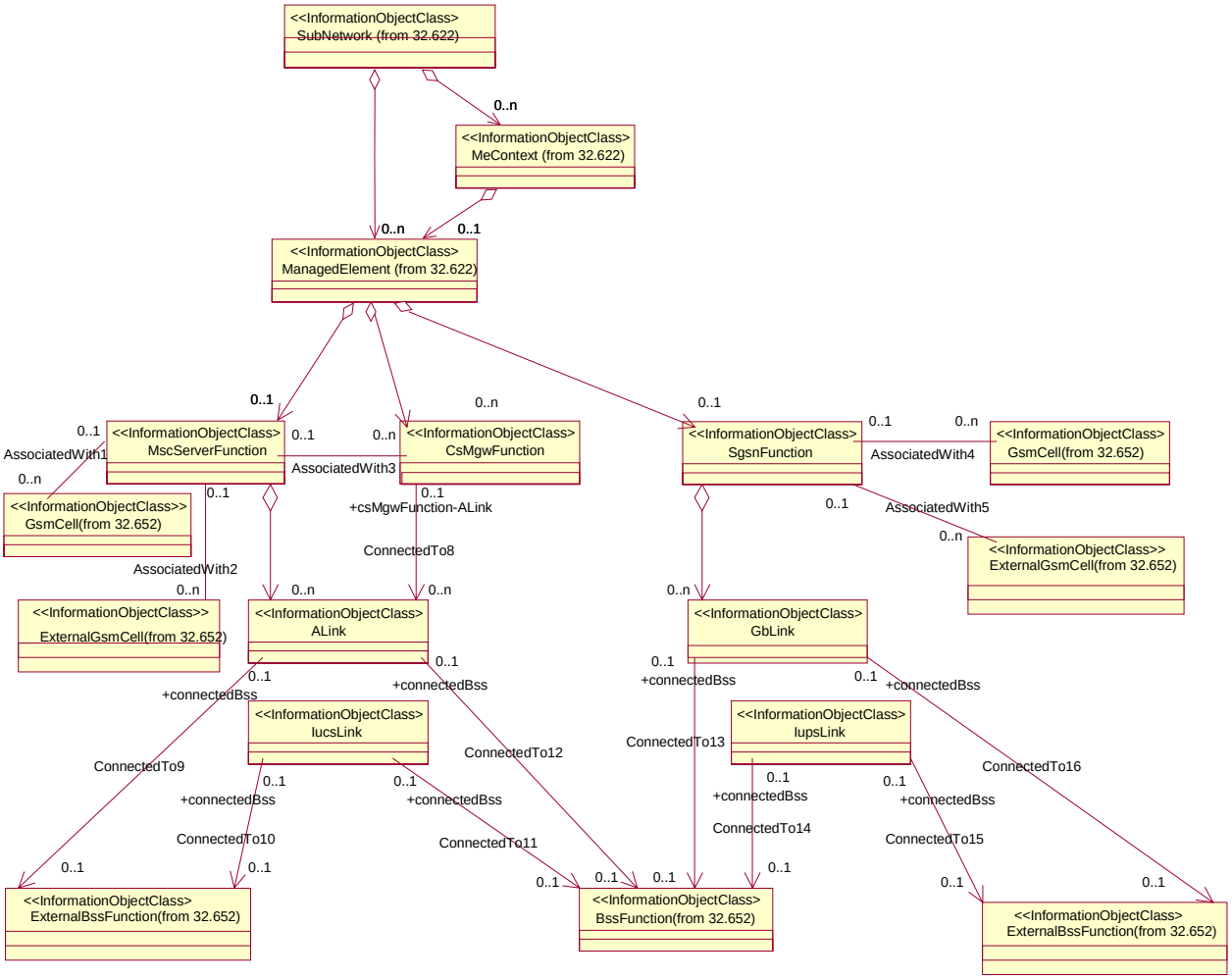


Figure 6.2.1.4: CN UTRAN NRM Containment/Naming and Association

NOTE 1: The association between MscServer and GsmCell, and SgsnFunction and GsmCell is optional. It may be valid if both the MscServer and GsmCell, or SgsnFunction and GsmCell are managed by the same management node.

NOTE 2: The association between MscServer and CsMgwFunction is optional and is only mandatory when they belong to different ManagedElements.

NOTE 3: IMS Entities (containing combinations of functions) like MGW, CSCF and MRF are not modelled. Instead, functionally specific entities like CS-MGW, IMS-MGW, P-CSCF, S-CSCF, I-CSCF, MRFC and MRFP have been modelled.



NOTE 1: The association between MscServer and GsmCell, and SgsnFunction and GsmCell is optional. It may be valid if both the MscServer and GsmCell, or SgsnFunction and GsmCell are managed by the same management node.

NOTE 2: The association between MscServer and CsMgwFunction is optional and is only mandatory when they belong to different ManagedElements.

Figure 6.2.1.5: CN GERAN NRM Containment/Naming and Association

Each Managed Object is identified with a Distinguished Name (DN) according to 3GPP TS 32.300 [13] that expresses its containment hierarchy. As an example, the DN of a Managed Object representing a cell could have a format like:

SubNetwork=Sweden,MeContext=MEC-Gbg-1,ManagedElement=MSC-Gbg-1,MscServerFunction=MSC-1.

6.2.2 Inheritance

This clause depicts the inheritance relationships that exist between IOCs.

The figures below show the inheritance hierarchy for the CN NRM.

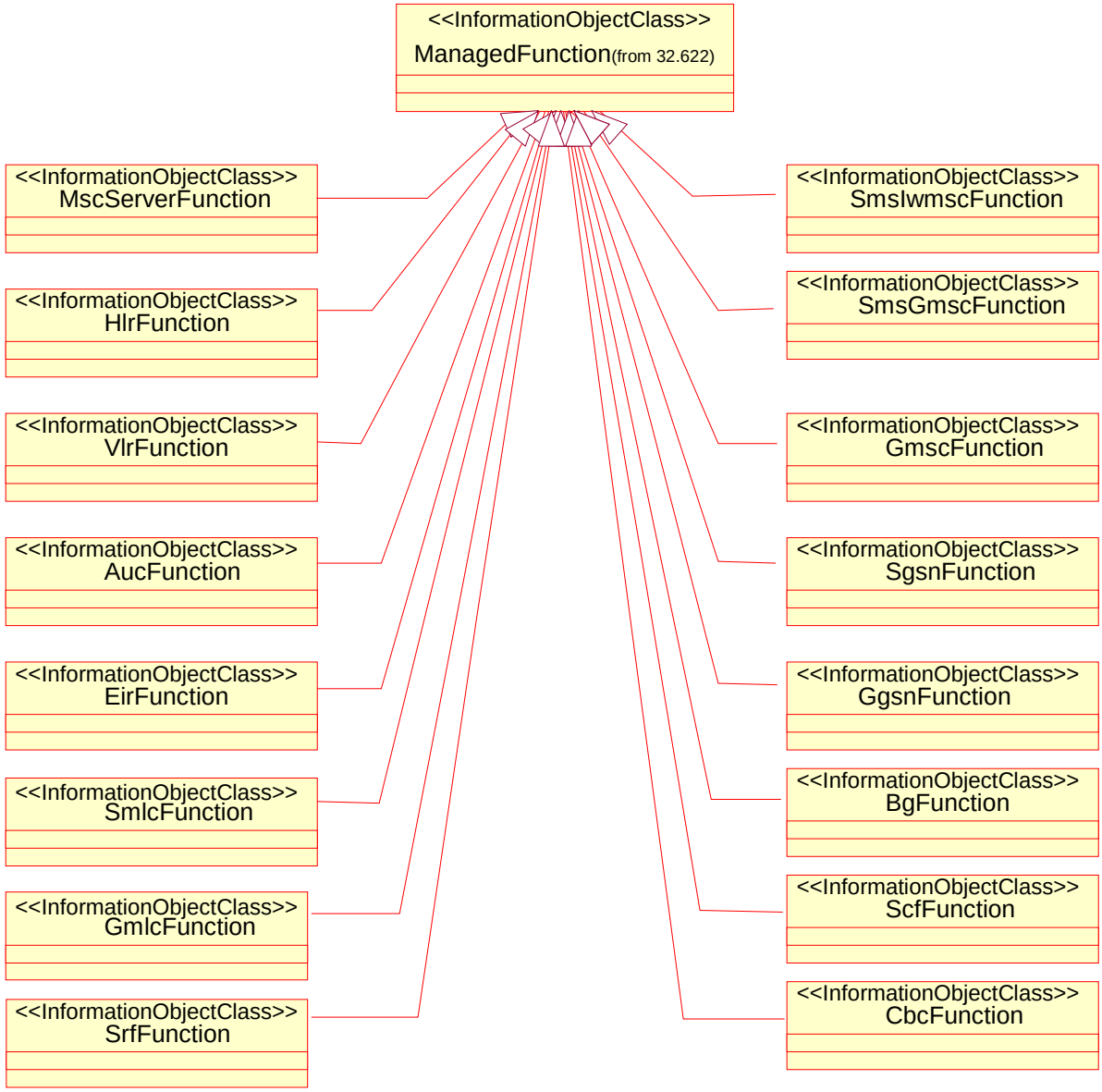


Figure 6.2.2.1: CN NRM Inheritance Hierarchy 1

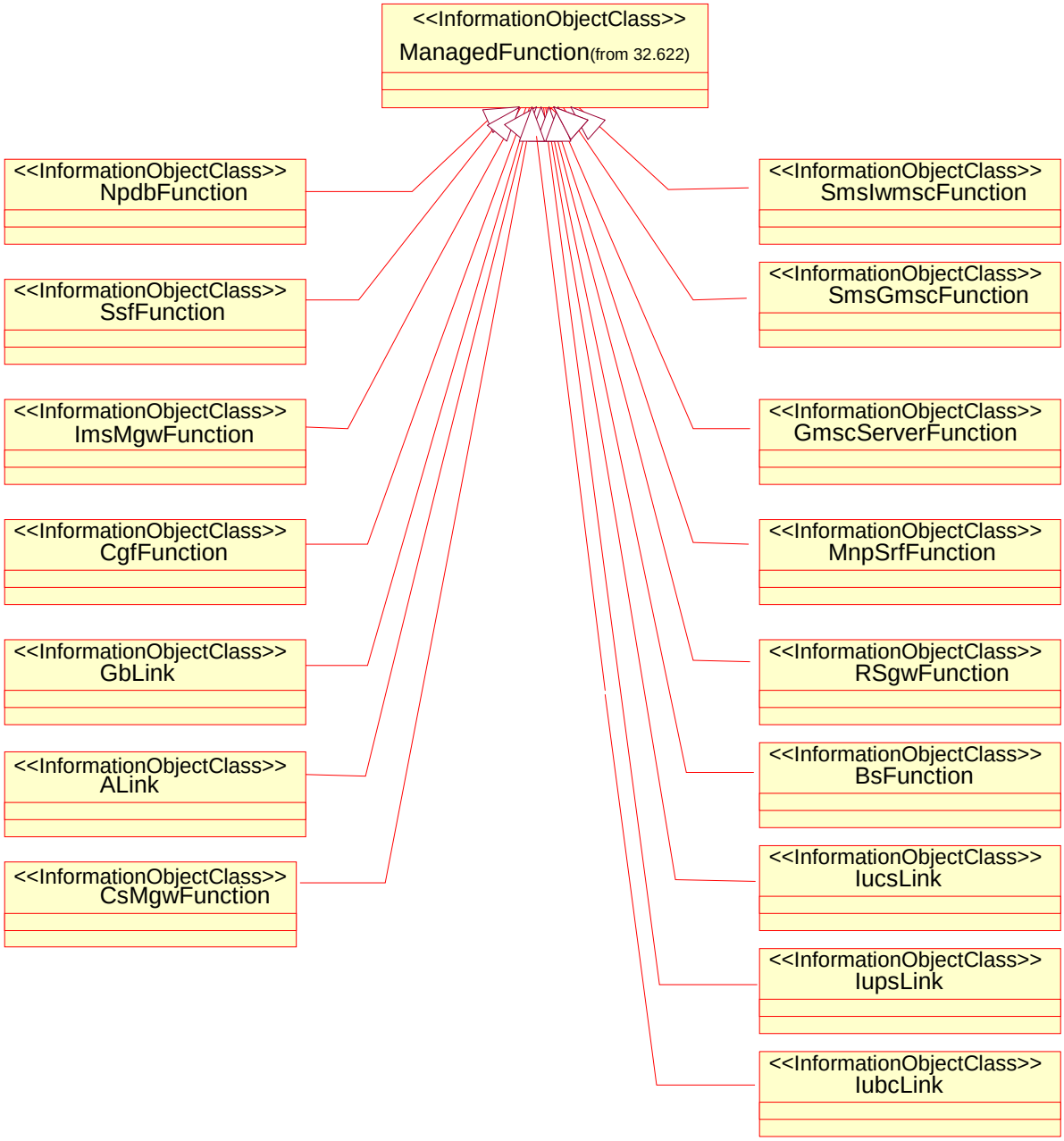


Figure 6.2.2.2: CN NRM Inheritance Hierarchy 2

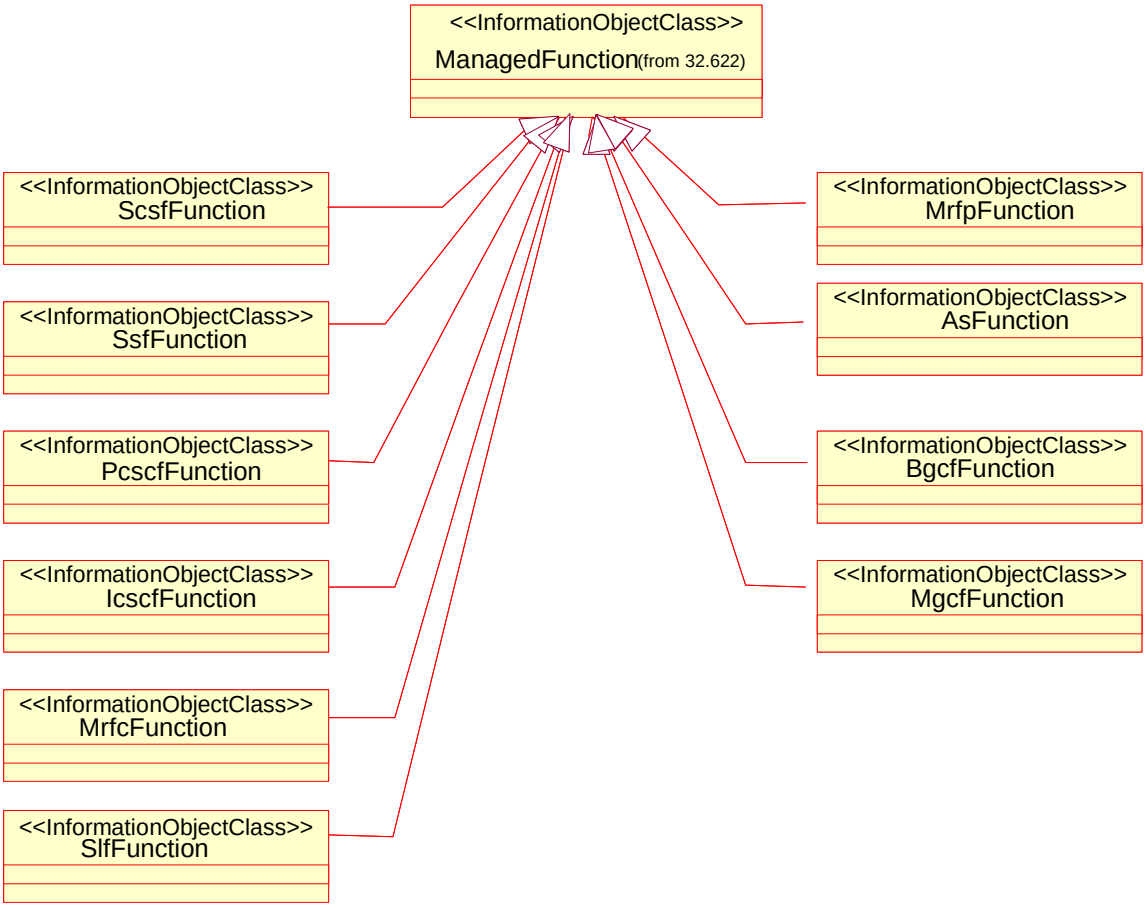


Figure 6.2.2.3: CN NRM Inheritance Hierarchy 3

6.3 Information Object Classes definition

6.3.1 MscServerFunction

6.3.1.1 Definition

This IOC represents MSCserver functionality. For more information about the MSC, see 3GPP TS 23.002 [15].

6.3.1.2 Attributes

Table 6.3.1.1: Attributes of MscServerFunction

Attribute name	Visibility	Support Qualifier	Read Qualifier	Write Qualifier
mscServerFunctionId	+	M	M	-
userLabel	+	M	M	M
mccList	+	M	M	M
mncList	+	M	M	M
lacList	+	M	M	M
sacList	+	M	M	M
gcaList	+	O	M	M
mscId	+	M	M	M
mscServerFunction-GSMcell	+	M	M	-
mscServerFunction-ExternalGSMcell	+	M	M	-
mscServerFunction-CsMgwFunction	+	M	M	-

Table 6.3.1.2: Notifications of MscServerFunction

Name	Qualifier	Notes
notifyAckStateChanged	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAttributeValueChange	O	
notifyChangedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyClearedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyNewAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyObjectCreation	O	
notifyObjectDeletion	O	
notifyComments	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAlarmListRebuilt	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyPotentialFaultyAlarmList	See Alarm IRP (3GPP TS 32.111-2 [11])	

6.3.2 HlrFunction

6.3.2.1 Definition

This IOC represents HLR functionality. For more information about the HLR, see 3GPP TS 23.002 [15].

6.3.2.2 Attributes

Table 6.3.2.1: Attributes of HlrFunction

Attribute name	Visibility	Support Qualifier	Read Qualifier	Write Qualifier
hlrFunctionId	+	M	M	-
userLabel	+	M	M	M

Table 6.3.2.2: Notifications of HlrFunction

Name	Qualifier	Notes
notifyAckStateChanged	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAttributeValueChange	O	
notifyChangedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyClearedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyNewAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyObjectCreation	O	
notifyObjectDeletion	O	
notifyComments	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAlarmListRebuilt	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyPotentialFaultyAlarmList	See Alarm IRP (3GPP TS 32.111-2 [11])	

6.3.3 VlrFunction

6.3.3.1 Definition

This IOC represents VLR functionality. For more information about the VLR, see 3GPP TS 23.002 [15].

6.3.3.2 Attributes

Table 6.3.3.1: Attributes of VlrFunction

Attribute name	Visibility	Support Qualifier	Read Qualifier	Write Qualifier
vlrFunctionId	+	M	M	-
userLabel	+	M	M	M

Table 6.3.3.2: Notifications of VlrFunction

Name	Qualifier	Notes
notifyAckStateChanged	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAttributeValueChange	O	
notifyChangedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyClearedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyNewAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyObjectCreation	O	
notifyObjectDeletion	O	
notifyComments	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAlarmListRebuilt	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyPotentialFaultyAlarmList	See Alarm IRP (3GPP TS 32.111-2 [11])	

6.3.4 AucFunction

6.3.4.1 Definition

This IOC represents AUC functionality. For more information about the AUC, see 3GPP TS 23.002 [15].

6.3.4.2 Attributes

Table 6.3.4.1: Attributes of AucFunction

Attribute name	Visibility	Support Qualifier	Read Qualifier	Write Qualifier
aucFunctionId	+	M	M	-
userLabel	+	M	M	M

Table 6.3.4.2: Notifications of AucFunction

Name	Qualifier	Notes
notifyAckStateChanged	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAttributeValueChange	O	
notifyChangedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyClearedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyNewAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyObjectCreation	O	
notifyObjectDeletion	O	
notifyComments	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAlarmListRebuilt	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyPotentialFaultyAlarmList	See Alarm IRP (3GPP TS 32.111-2 [11])	

6.3.5 EirFunction

6.3.5.1 Definition

This IOC represents EIR functionality. For more information about the EIR, see 3GPP TS 23.002 [15].

6.3.5.2 Attributes

Table 6.3.5.1: Attributes of EirFunction

Attribute name	Visibility	Support Qualifier	Read Qualifier	Write Qualifier
eirFunctionId	+	M	M	-
userLabel	+	M	M	M

Table 6.3.5.2: Notifications of EirFunction

Name	Qualifier	Notes
notifyAckStateChanged	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAttributeValueChange	O	
notifyChangedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyClearedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyNewAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyObjectCreation	O	
notifyObjectDeletion	O	
notifyComments	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAlarmListRebuilt	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyPotentialFaultyAlarmList	See Alarm IRP (3GPP TS 32.111-2 [11])	

6.3.6 SmsIwmscFunction

6.3.6.1 Definition

This IOC represents SMS-IWMSC functionality. For more information about the SMS-IWMSC, see 3GPP TS 23.002 [15].

6.3.6.2 Attributes

Table 6.3.6.1: Attributes of SmsIwmscFunction

Attribute name	Visibility	Support Qualifier	Read Qualifier	Write Qualifier
SmsIwmscFunctionId	+	M	M	-
userLabel	+	M	M	M

Table 6.3.6.2: Notifications of SmsIwmscFunction

Name	Qualifier	Notes
notifyAckStateChanged	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAttributeValueChange	O	
notifyChangedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyClearedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyNewAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyObjectCreation	O	
notifyObjectDeletion	O	
notifyComments	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAlarmListRebuilt	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyPotentialFaultyAlarmList	See Alarm IRP (3GPP TS 32.111-2 [11])	

6.3.7 SmsGmscFunction

6.3.7.1 Definition

This IOC represents SMS-GMSC functionality. For more information about the SMS-GMSC, see 3GPP TS 23.002 [15].

6.3.7.2 Attributes

Table 6.3.7.1: Attributes of SmsGmscFunction

Attribute name	Visibility	Support Qualifier	Read Qualifier	Write Qualifier
SmsGmscFunctionId	+	M	M	-
userLabel	+	M	M	M

Table 6.3.7.2: Notifications of SmsGmscFunction

Name	Qualifier	Notes
notifyAckStateChanged	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAttributeValueChange	O	
notifyChangedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyClearedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyNewAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyObjectCreation	O	
notifyObjectDeletion	O	
notifyComments	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAlarmListRebuilt	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyPotentialFaultyAlarmList	See Alarm IRP (3GPP TS 32.111-2 [11])	

6.3.8 GmscFunction

6.3.8.1 Definition

This IOC represents GMSC functionality. For more information about the GMSC, see 3GPP TS 23.002 [15].

6.3.8.2 Attributes

Table 6.3.8.1: Attributes of GmscFunction

Attribute name	Visibility	Support Qualifier	Read Qualifier	Write Qualifier
gmscFunctionId	+	M	M	-
userLabel	+	M	M	M

Table 6.3.8.2: Notifications of GmscFunction

Name	Qualifier	Notes
notifyAckStateChanged	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAttributeValueChange	O	
notifyChangedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyClearedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyNewAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyObjectCreation	O	
notifyObjectDeletion	O	
notifyComments	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAlarmListRebuilt	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyPotentialFaultyAlarmList	See Alarm IRP (3GPP TS 32.111-2 [11])	

6.3.9 SgsnFunction

6.3.9.1 Definitions

This IOC represents SGSN functionality. For more information about the SGSN, see 3GPP TS 23.002 [15].

6.3.9.2 Attributes

Table 6.3.9.1: Attributes of SgsnFunction

Attribute name	Visibility	Support Qualifier	Read Qualifier	Write Qualifier
sgsnFunctionId	+	M	M	-
userLabel	+	M	M	M
mccList	+	M	M	M
mncList	+	M	M	M
lacList	+	M	M	M
racList	+	M	M	M
sacList	+	M	M	M
sgsnId	+	M	M	M
sgsnFunction-GSMCell	+	M	M	-
sgsnFunction-ExternalGSMCell	+	M	M	-
proceduralStatus (Note)	%	O	-	-
NOTE This procedureStatus is not settable or readable via any Interface IRP except conveyed by notifyStateChange notifications.				

Table 6.3.9.2: Notifications of SgsnFunction

Name	Qualifier	Notes
notifyAckStateChanged	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAttributeValueChange	O	
notifyChangedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyClearedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyNewAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyObjectCreation	O	
notifyObjectDeletion	O	
notifyComments	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAlarmListRebuilt	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyPotentialFaultyAlarmList	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyStateChange	O	

6.3.10 GgsnFunction

6.3.10.1 Definitions

This IOC represents GGSN functionality. For more information about the GGSN, see 3GPP TS 23.002 [15].

It inherits from ManagedFunction.

6.3.10.2 Attributes

Table 6.3.10.1: Attributes of GgsnFunction

Attribute name	Visibility	Support Qualifier	Read Qualifier	Write Qualifier
ggsnFunctionId	+	M	M	-
userLabel	+	M	M	M
proceduralStatus (Note)	%	O	-	-
NOTE: This procedureStatus is not settable or readable via any Interface IRP except conveyed by notifyStateChange notifications.				

Table 6.3.10.2: Notifications of GgsnFunction

Name	Qualifier	Notes
notifyAckStateChanged	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAttributeValueChange	O	
notifyChangedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyClearedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyNewAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyObjectCreation	O	
notifyObjectDeletion	O	
notifyComments	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAlarmListRebuilt	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyPotentialFaultyAlarmList	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyStateChange	O	

6.3.11 BgFunction

6.3.11.1 Definitions

This IOC represents BG functionality. For more information about the BG, see 3GPP TS 23.002 [15].

6.3.11.2 Attributes

Table 6.3.11.1: Attributes of BgFunction

Attribute name	Visibility	Support Qualifier	Read Qualifier	Write Qualifier
bgFunctionId	+	M	M	-
userLabel	+	M	M	M

Table 6.3.11.2: Notifications of BgFunction

Name	Qualifier	Notes
notifyAckStateChanged	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAttributeValueChange	O	
notifyChangedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyClearedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyNewAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyObjectCreation	O	
notifyObjectDeletion	O	
notifyComments	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAlarmListRebuilt	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyPotentialFaultyAlarmList	See Alarm IRP (3GPP TS 32.111-2 [11])	

6.3.12 SmlcFunction

6.3.12.1 Definitions

This IOC represents SMLC functionality. For more information about the SMLC, see 3GPP TS 23.002 [15].

6.3.12.2 Attributes

Table 6.3.12.1: Attributes of SmlcFunction

Attribute name	Visibility	Support Qualifier	Read Qualifier	Write Qualifier
smlcFunctionId	+	M	M	-
userLabel	+	M	M	M

Table 6.3.12.2: Notifications of SmlcFunction

Name	Qualifier	Notes
notifyAckStateChanged	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAttributeValueChange	O	
notifyChangedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyClearedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyNewAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyObjectCreation	O	
notifyObjectDeletion	O	
notifyComments	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAlarmListRebuilt	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyPotentialFaultyAlarmList	See Alarm IRP (3GPP TS 32.111-2 [11])	

6.3.13 GmlcFunction

6.3.13.1 Definitions

This IOC represents GMLC functionality. For more information about the GMLC, see 3GPP TS 23.002 [15].

6.3.13.2 Attributes

Table 6.3.13.1: Attributes of GmlcFunction

Attribute name	Visibility	Support Qualifier	Read Qualifier	Write Qualifier
gmlcFunctionId	+	M	M	-
userLabel	+	M	M	M

Table 6.3.13.2: Notifications of GmlcFunction

Name	Qualifier	Notes
notifyAckStateChanged	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAttributeValueChange	O	
notifyChangedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyClearedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyNewAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyObjectCreation	O	
notifyObjectDeletion	O	
notifyComments	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAlarmListRebuilt	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyPotentialFaultyAlarmList	See Alarm IRP (3GPP TS 32.111-2 [11])	

6.3.14 ScfFunction

6.3.14.1 Definitions

This IOC represents SCF functionality (also referred to as gsmSCF). For more information about the SCF, see 3GPP TS 23.002 [15].

6.3.14.2 Attributes

Table 6.3.14.1: Attributes of ScfFunction

Attribute name	Visibility	Support Qualifier	Read Qualifier	Write Qualifier
scfFunctionId	+	M	M	-
userLabel	+	M	M	M

Table 6.3.14.2: Notifications of ScfFunction

Name	Qualifier	Notes
notifyAckStateChanged	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAttributeValueChange	O	
notifyChangedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyClearedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyNewAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyObjectCreation	O	
notifyObjectDeletion	O	
notifyComments	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAlarmListRebuilt	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyPotentialFaultyAlarmList	See Alarm IRP (3GPP TS 32.111-2 [11])	

6.3.15 SrfFunction

6.3.15.1 Definitions

This IOC represents SRF functionality (also referred to as gsmSRF). For more information about the SRF, see 3GPP TS 23.002 [15].

6.3.15.2 Attributes

Table 6.3.15.1: Attributes of SrfFunction

Attribute name	Visibility	Support Qualifier	Read Qualifier	Write Qualifier
srfFunctionId	+	M	M	-
userLabel	+	M	M	M

Table 6.3.15.2: Notifications of SrfFunction

Name	Qualifier	Notes
notifyAckStateChanged	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAttributeValueChange	O	
notifyChangedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyClearedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyNewAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyObjectCreation	O	
notifyObjectDeletion	O	
notifyComments	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAlarmListRebuilt	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyPotentialFaultyAlarmList	See Alarm IRP (3GPP TS 32.111-2 [11])	

6.3.16 CbcFunction

6.3.16.1 Definitions

This IOC represents CBC functionality. For more information about the CBC, see 3GPP TS 23.002 [15].

6.3.16.2 Attributes

Table 6.3.16.1: Attributes of CbcFunction

Attribute name	Visibility	Support Qualifier	Read Qualifier	Write Qualifier
cbcFunctionId	+	M	M	-
userLabel	+	M	M	M

Table 6.3.16.2: Notifications of CbcFunction

Name	Qualifier	Notes
notifyAckStateChanged	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAttributeValueChange	O	
notifyChangedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyClearedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyNewAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyObjectCreation	O	
notifyObjectDeletion	O	
notifyComments	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAlarmListRebuilt	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyPotentialFaultyAlarmList	See Alarm IRP (3GPP TS 32.111-2 [11])	

6.3.17 CgfFunction

6.3.17.1 Definitions

This IOC represents CGF functionality. For more information about the CGF, see 3GPP TS 23.060 [18].

6.3.17.2 Attributes

Table 6.3.17.1: Attributes of CgfFunction

Attribute name	Visibility	Support Qualifier	Read Qualifier	Write Qualifier
cgfFunctionId	+	M	M	-
userLabel	+	M	M	M

Table 6.3.17.2: Notifications of CgfFunction

Name	Qualifier	Notes
notifyAckStateChanged	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAttributeValueChange	O	
notifyChangedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyClearedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyNewAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyObjectCreation	O	
notifyObjectDeletion	O	
notifyComments	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAlarmListRebuilt	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyPotentialFaultyAlarmList	See Alarm IRP (3GPP TS 32.111-2 [11])	

6.3.18 ImsMgwFunction

6.3.18.1 Definitions

This IOC represents IMS-MGW functionality. For more information about IMS-MGW, see 3GPP TS 23.002 [15].

6.3.18.2 Attributes

Table 6.3.18.1: Attributes of ImsMgwFunction

Attribute name	Visibility	Support Qualifier	Read Qualifier	Write Qualifier
imsMgwFunctionId	+	M	M	-
userLabel	+	M	M	M

Table 6.3.18.2: Notifications of ImsMgwFunction

Name	Qualifier	Notes
notifyAckStateChanged	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAttributeValueChange	O	
notifyChangedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyClearedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyNewAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyObjectCreation	O	
notifyObjectDeletion	O	
notifyComments	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAlarmListRebuilt	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyPotentialFaultyAlarmList	See Alarm IRP (3GPP TS 32.111-2 [11])	

6.3.19 GmscServerFunction

6.3.19.1 Definitions

This IOC represents GMSCServer functionality. For more information about GMSCServer, see 3GPP TS 23.002 [15].

6.3.19.2 Attributes

Table 6.3.19.1: Attributes of GmscServerFunction

Attribute name	Visibility	Support Qualifier	Read Qualifier	Write Qualifier
gmscServerFunctionId	+	M	M	-
userLabel	+	M	M	M

Table 6.3.19.2: Notifications of GmscServerFunction

Name	Qualifier	Notes
notifyAckStateChanged	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAttributeValueChange	O	
notifyChangedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyClearedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyNewAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyObjectCreation	O	
notifyObjectDeletion	O	
notifyComments	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAlarmListRebuilt	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyPotentialFaultyAlarmList	See Alarm IRP (3GPP TS 32.111-2 [11])	

6.3.20 IwfFunction

6.3.20.1 Attributes

This IOC represents IWF functionality. For more information about IWF, see 3GPP TS 23.002 [15].

6.3.20.2 Attributes

Table 6.3.20.1: Attributes of IwfFunction

Attribute name	Visibility	Support Qualifier	Read Qualifier	Write Qualifier
iwfFunctionId	+	M	M	-
userLabel	+	M	M	M

Table 6.3.20.2: Notifications of IwfFunction

Name	Qualifier	Notes
notifyAckStateChanged	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAttributeValueChange	O	
notifyChangedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyClearedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyNewAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyObjectCreation	O	
notifyObjectDeletion	O	
notifyComments	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAlarmListRebuilt	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyPotentialFaultyAlarmList	See Alarm IRP (3GPP TS 32.111-2 [11])	

6.3.21 MnpSrfFunction

6.3.21.1 Definitions

This IOC represents MNP-SRF functionality (also known as FNR). For more information about MNP-SRF, see 3GPP TS 23.002 [15].

6.3.21.2 Attributes

Table 6.3.21.1: Attributes of MnpSrfFunction

Attribute name	Visibility	Support Qualifier	Read Qualifier	Write Qualifier
mnpSrfFunctionId	+	M	M	-
userLabel	+	M	M	M

Table 6.3.21.2: Notifications of MnpSrfFunction

Name	Qualifier	Notes
notifyAckStateChanged	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAttributeValueChange	O	
notifyChangedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyClearedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyNewAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyObjectCreation	O	
notifyObjectDeletion	O	
notifyComments	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAlarmListRebuilt	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyPotentialFaultyAlarmList	See Alarm IRP (3GPP TS 32.111-2 [11])	

6.3.22 NpdbFunction

6.3.22.1 Definitions

This IOC represents NPDB functionality. For more information about NPDB, see 3GPP TS 23.002 [15].

6.3.22.2 Attributes

Table 6.3.22.1: Attributes of NpdbFunction

Attribute name	Visibility	Support Qualifier	Read Qualifier	Write Qualifier
npdbFunctionId	+	M	M	-
userLabel	+	M	M	M

Table 6.3.22.2: Notifications of NpdbFunction

Name	Qualifier	Notes
notifyAckStateChanged	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAttributeValueChange	O	
notifyChangedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyClearedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyNewAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyObjectCreation	O	
notifyObjectDeletion	O	
notifyComments	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAlarmListRebuilt	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyPotentialFaultyAlarmList	See Alarm IRP (3GPP TS 32.111-2 [11])	

6.3.23 SgwFunction

6.3.23.1 Definitions

This IOC represents SGW functionality. For more information about SGW, see 3GPP TS 23.002 [15].

6.3.23.2 Attributes

Table 6.3.23.1: Attributes of SgwFunction

Attribute name	Visibility	Support Qualifier	Read Qualifier	Write Qualifier
sgwFunctionId	+	M	M	-
userLabel	+	M	M	M

Table 6.3.23.2: Notifications of SgwFunction

Name	Qualifier	Notes
notifyAckStateChanged	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAttributeValueChange	O	
notifyChangedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyClearedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyNewAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyObjectCreation	O	
notifyObjectDeletion	O	
notifyComments	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAlarmListRebuilt	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyPotentialFaultyAlarmList	See Alarm IRP (3GPP TS 32.111-2 [11])	

6.3.24 SsfFunction

6.3.24.1 Definitions

This IOC represents SSF functionality. For more information about SSF, see 3GPP TS 23.002 [15].

6.3.24.2 Attributes

Table 6.3.24.1: Attributes of SsfFunction

Attribute name	Visibility	Support Qualifier	Read Qualifier	Write Qualifier
ssfFunctionId	+	M	M	-
userLabel	+	M	M	M

Table 6.3.24.2: Notifications of SsfFunction

Name	Qualifier	Notes
notifyAckStateChanged	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAttributeValueChange	O	
notifyChangedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyClearedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyNewAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyObjectCreation	O	
notifyObjectDeletion	O	
notifyComments	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAlarmListRebuilt	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyPotentialFaultyAlarmList	See Alarm IRP (3GPP TS 32.111-2 [11])	

6.3.25 BsFunction

6.3.25.1 Definitions

This IOC represents BS functionality. For more information about BS, see 3GPP TS 23.060 [18].

6.3.25.2 Attributes

Table 6.3.25.1: Attributes of BsFunction

Attribute name	Visibility	Support Qualifier	Read Qualifier	Write Qualifier
bsFunctionId	+	M	M	-
userLabel	+	M	M	M

Table 6.3.25.2: Notifications of BsFunction

Name	Qualifier	Notes
notifyAckStateChanged	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAttributeValueChange	O	
notifyChangedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyClearedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyNewAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyObjectCreation	O	
notifyObjectDeletion	O	
notifyComments	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAlarmListRebuilt	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyPotentialFaultyAlarmList	See Alarm IRP (3GPP TS 32.111-2 [11])	

6.3.26 IucsLink

6.3.26.1 Definitions

This IOC represents a Iu-cs interface link connecting a MSCserver to the RNC or BSC. For more information about the Iu interface, see 3GPP TS 23.002 [15].

6.3.26.2 Attributes

Table 6.3.26.1: Attributes of IucsLink

Attribute name	Visibility	Support Qualifier	Read Qualifier	Write Qualifier
iucslinkId	+	M	M	-
userLabel	+	M	M	M
connectedRnc	+	M	M	-
connectedBss	+	M	M	-

Table 6.3.26.2: Notifications of IucsLink

Name	Qualifier	Notes
notifyAckStateChanged	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAttributeValueChange	O	
notifyChangedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyClearedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyNewAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyObjectCreation	O	
notifyObjectDeletion	O	
notifyComments	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAlarmListRebuilt	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyPotentialFaultyAlarmList	See Alarm IRP (3GPP TS 32.111-2 [11])	

6.3.27 IupsLink

6.3.27.1 Definitions

This IOC represents a Iu-ps interface link connecting a SGSN to the RNC or BSC. For more information about the Iu interface, see 3GPP TS 23.002 [15].

6.3.27.2 Attributes

Table 6.3.27.1: Attributes of IupsLink

Attribute name	Visibility	Support Qualifier	Read Qualifier	Write Qualifier
iupslinkId	+	M	M	-
userLabel	+	M	M	M
connectedRnc	+	O	M	-
connectedBss	+	O	M	-
NOTE: An instance of an IupsLink can only be connected to an RNC or a BSS.				

Table 6.3.27.2: Notifications of IupsLink

Name	Qualifier	Notes
notifyAckStateChanged	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAttributeValueChange	O	
notifyChangedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyClearedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyNewAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyObjectCreation	O	
notifyObjectDeletion	O	
notifyComments	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAlarmListRebuilt	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyPotentialFaultyAlarmList	See Alarm IRP (3GPP TS 32.111-2 [11])	

6.3.28 IubcLink

6.3.28.1 Definitions

This IOC represents a Iu-bc interface link connecting a CBC to the RNC. For more information about the Iu interface, see 3GPP TS 23.002 [15].

6.3.28.2 Attributes

Table 6.3.28.1: Attributes of IubcLink

Attribute name	Visibility	Support Qualifier	Read Qualifier	Write Qualifier
iubclinkId	+	M	M	-
userLabel	+	M	M	M
connectedRnc	+	M	M	-

Table 6.3.28.2: Notifications of IubcLink

Name	Qualifier	Notes
notifyAckStateChanged	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAttributeValueChange	O	
notifyChangedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyClearedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyNewAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyObjectCreation	O	
notifyObjectDeletion	O	
notifyComments	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAlarmListRebuilt	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyPotentialFaultyAlarmList	See Alarm IRP (3GPP TS 32.111-2 [11])	

6.3.29 ALink

6.3.29.1 Definitions

This IOC represents the A interface link connecting a MSC to the GERAN. For more information about the GERAN, see 3GPP TS 23.002 [15].

6.3.29.2 Attributes

Table 6.3.29.1: Attributes of Alink

Attribute name	Visibility	Support Qualifier	Read Qualifier	Write Qualifier
aLinkId	+	M	M	-
userLabel	+	M	M	M
connectedBss	+	M	M	-

Table 6.3.29.2: Notifications of ALink

Name	Qualifier	Notes
notifyAckStateChanged	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAttributeValueChange	O	
notifyChangedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyClearedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyNewAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyObjectCreation	O	
notifyObjectDeletion	O	
notifyComments	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAlarmListRebuilt	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyPotentialFaultyAlarmList	See Alarm IRP (3GPP TS 32.111-2 [11])	

6.3.30 GbLink

6.3.30.1 Definitions

This IOC represents the Gb interface link connecting a SGSN to the GERAN. For more information about the GERAN, see 3GPP TS 23.002 [15].

6.3.30.2 Attributes

Table 6.3.30.1: Attributes of GbLink

Attribute name	Visibility	Support Qualifier	Read Qualifier	Write Qualifier
gbLinkId	+	M	M	-
userLabel	+	M	M	M
connectedBss	+	M	M	-

Table 6.3.30.2: Notifications of GbLink

Name	Qualifier	Notes
notifyAckStateChanged	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAttributeValueChange	O	
notifyChangedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyClearedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyNewAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyObjectCreation	O	
notifyObjectDeletion	O	
notifyComments	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAlarmListRebuilt	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyPotentialFaultyAlarmList	See Alarm IRP (3GPP TS 32.111-2 [11])	

6.3.31 CsMgwFunction

6.3.31.1 Definitions

This IOC represents CS-MGW functionality. For more information about CS-MGW, see 3GPP TS 23.002 [15].

6.3.31.2 Attributes

Table 6.3.31.1: Attributes of CsMgwFunction

Attribute name	Visibility	Support Qualifier	Read Qualifier	Write Qualifier
csMgwFunctionId	+	M	M	-
userLabel	+	M	M	M
csMgwFunction- MscServerFunction	+	M	M	-
csMgwFunction- IucsLink	+	M	M	-
csMgwFunction- ALink	+	M	M	-

Table 6.3.31.2: Notifications of CsMgwFunction

Name	Qualifier	Notes
notifyAckStateChanged	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAttributeValueChange	O	
notifyChangedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyClearedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyNewAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyObjectCreation	O	
notifyObjectDeletion	O	
notifyComments	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAlarmListRebuilt	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyPotentialFaultyAlarmList	See Alarm IRP (3GPP TS 32.111-2 [11])	

6.3.32 ScscfFunction

6.3.32.1 Definitions

This IOC represents S-CSCF functionality. For more information about the S-CSCF, see 3GPP TS 23.002 [15].

6.3.32.2 Attributes

Table 6.3.32.1: Attributes of `ScscfFunction`

Attribute name	Visibility	Support Qualifier	Read Qualifier	Write Qualifier
`scscfFunctionId`	+	M	M	-
`userLabel`	+	M	M	M

6.3.32.3 Notifications

This subclause presents the list of notifications that can be emitted across the Itf-N, with "object class" and "object instance" parameters of the notification header of these notifications identifying an instance of the IOC ScscfFunction.

Table 6.3.32.2: Notifications of `ScscfFunction`

Name	Qualifier	Notes
`notifyAckStateChanged`	See Alarm IRP (3GPP TS 32.111-2 [11])	
`notifyAttributeValueChange`	O	
`notifyChangedAlarm`	See Alarm IRP (3GPP TS 32.111-2 [11])	
`notifyClearedAlarm`	See Alarm IRP (3GPP TS 32.111-2 [11])	
`notifyNewAlarm`	See Alarm IRP (3GPP TS 32.111-2 [11])	
`notifyObjectCreation`	O	
`notifyObjectDeletion`	O	
`notifyComments`	See Alarm IRP (3GPP TS 32.111-2 [11])	
`notifyAlarmListRebuilt`	See Alarm IRP (3GPP TS 32.111-2 [11])	
`notifyPotentialFaultyAlarmList`	See Alarm IRP (3GPP TS 32.111-2 [11])	

6.3.33 PcscfFunction

6.3.33.1 Definitions

This IOC represents P-CSCF functionality. For more information about the P-CSCF, see 3GPP TS 23.002 [15].

6.3.33.2 Attributes

Table 6.3.33.1: Attributes of `PcscfFunction`

Attribute name	Visibility	Support Qualifier	Read Qualifier	Write Qualifier
pcscfFunctionId	+	M	M	-
userLabel	+	M	M	M

6.3.33.3 Notifications

This subclause presents the list of notifications that can be emitted across the Itf-N, with "object class" and "object instance" parameters of the notification header of these notifications identifying an instance of the IOC `PcscfFunction`.

Table 6.3.33.2: Notifications of `PcscfFunction`

Name	Qualifier	Notes
notifyAckStateChanged	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAttributeValueChange	O	
notifyChangedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyClearedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyNewAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyObjectCreation	O	
notifyObjectDeletion	O	
notifyComments	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAlarmListRebuilt	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyPotentialFaultyAlarmList	See Alarm IRP (3GPP TS 32.111-2 [11])	

6.3.34 IcscfFunction

6.3.34.1 Definitions

This IOC represents I-CSCF functionality. For more information about the I-CSCF, see 3GPP TS 23.002 [15].

6.3.34.2 Attributes

Table 6.3.34.1: Attributes of `IcscfFunction`

Attribute name	Visibility	Support Qualifier	Read Qualifier	Write Qualifier
icscfFunctionId	+	M	M	-
userLabel	+	M	M	M

6.3.34.3 Notifications

This subclause presents the list of notifications that can be emitted across the Itf-N, with "object class" and "object instance" parameters of the notification header of these notifications identifying an instance of the IOC `IcscfFunction`.

Table 6.3.34.2: Notifications of IcscfFunction

Name	Qualifier	Notes
notifyAckStateChanged	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAttributeValueChange	O	
notifyChangedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyClearedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyNewAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyObjectCreation	O	
notifyObjectDeletion	O	
notifyComments	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAlarmListRebuilt	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyPotentialFaultyAlarmList	See Alarm IRP (3GPP TS 32.111-2 [11])	

6.3.35 SlfFunction

6.3.35.1 Definitions

This IOC represents SLF functionality. For more information about the SLF, see 3GPP TS 23.002 [15].

6.3.35.2 Attributes

Table 6.3.35.1: Attributes of SlfFunction

Attribute name	Visibility	Support Qualifier	Read Qualifier	Write Qualifier
slfFunctionId	+	M	M	-
userLabel	+	M	M	M

6.3.35.3 Notifications

This subclause presents the list of notifications that can be emitted across the Itf-N, with "object class" and "object instance" parameters of the notification header of these notifications identifying an instance of the IOC SlfFunction.

Table 6.3.35.2: Notifications of SlfFunction

Name	Qualifier	Notes
notifyAckStateChanged	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAttributeValueChange	O	
notifyChangedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyClearedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyNewAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyObjectCreation	O	
notifyObjectDeletion	O	
notifyComments	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAlarmListRebuilt	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyPotentialFaultyAlarmList	See Alarm IRP (3GPP TS 32.111-2 [11])	

6.3.36 BgcfFunction

6.3.36.1 Definitions

This IOC represents BGCF functionality. For more information about the BGCF, see 3GPP TS 23.002 [15].

6.3.36.2 Attributes

Table 6.3.36.1: Attributes of `BgcfFunction`

Attribute name	Visibility	Support Qualifier	Read Qualifier	Write Qualifier
bgcfFunctionId	+	M	M	-
userLabel	+	M	M	M

6.3.36.3 Notifications

This subclause presents the list of notifications that can be emitted across the Itf-N, with "object class" and "object instance" parameters of the notification header of these notifications identifying an instance of the IOC `BgcfFunction`.

Table 6.3.36.2: Notifications of `BgcfFunction`

Name	Qualifier	Notes
notifyAckStateChanged	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAttributeValueChange	O	
notifyChangedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyClearedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyNewAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyObjectCreation	O	
notifyObjectDeletion	O	
notifyComments	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAlarmListRebuilt	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyPotentialFaultyAlarmList	See Alarm IRP (3GPP TS 32.111-2 [11])	

6.3.37 MrfcFunction

6.3.37.1 Definitions

This IOC represents MRFC functionality. For more information about the MRFC, see 3GPP TS 23.002 [15].

6.3.37.2 Attributes

Table 6.3.37.1: Attributes of `MrfcFunction`

Attribute name	Visibility	Support Qualifier	Read Qualifier	Write Qualifier
mrfcFunctionId	+	M	M	-
userLabel	+	M	M	M

6.3.37.3 Notifications

This subclause presents the list of notifications that can be emitted across the Itf-N, with "object class" and "object instance" parameters of the notification header of these notifications identifying an instance of the IOC `MrfcFunction`.

Table 6.3.37.2: Notifications of MrfcFunction

Name	Qualifier	Notes
notifyAckStateChanged	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAttributeValueChange	O	
notifyChangedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyClearedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyNewAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyObjectCreation	O	
notifyObjectDeletion	O	
notifyComments	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAlarmListRebuilt	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyPotentialFaultyAlarmList	See Alarm IRP (3GPP TS 32.111-2 [11])	

6.3.38 MrfpFunction

6.3.38.1 Definitions

This IOC represents MRFP functionality. For more information about the MRFP, see 3GPP TS 23.002 [15].

6.3.38.2 Attributes

Table 6.3.38.1: Attributes of MrfpFunction

Attribute name	Visibility	Support Qualifier	Read Qualifier	Write Qualifier
mrfpFunctionId	+	M	M	-
userLabel	+	M	M	M

6.3.38.3 Notifications

This subclause presents the list of notifications that can be emitted across the Itf-N, with "object class" and "object instance" parameters of the notification header of these notifications identifying an instance of the IOC MrfpFunction.

Table 6.3.38.2: Notifications of MrfpFunction

Name	Qualifier	Notes
notifyAckStateChanged	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAttributeValueChange	O	
notifyChangedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyClearedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyNewAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyObjectCreation	O	
notifyObjectDeletion	O	
notifyComments	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAlarmListRebuilt	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyPotentialFaultyAlarmList	See Alarm IRP (3GPP TS 32.111-2 [11])	

6.3.39 AsFunction

6.3.39.1 Definitions

This IOC represents AS functionality. For more information about the AS, see 3GPP TS 23.002 [15].

6.3.39.2 Attributes

Table 6.3.39.1: Attributes of `AsFunction`

Attribute name	Visibility	Support Qualifier	Read Qualifier	Write Qualifier
asFunctionId	+	M	M	-
userLabel	+	M	M	M

6.3.39.3 Notifications

This subclause presents the list of notifications that can be emitted across the Itf-N, with "object class" and "object instance" parameters of the notification header of these notifications identifying an instance of the IOC `AsFunction`.

Table 6.3.39.2: Notifications of `AsFunction`

Name	Qualifier	Notes
notifyAckStateChanged	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAttributeValueChange	O	
notifyChangedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyClearedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyNewAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyObjectCreation	O	
notifyObjectDeletion	O	
notifyComments	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAlarmListRebuilt	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyPotentialFaultyAlarmList	See Alarm IRP (3GPP TS 32.111-2 [11])	

6.3.41 MgcfFunction

6.3.41.1 Definitions

This IOC represents MGCF functionality. For more information about the MGCF, see 3GPP TS 23.002 [15].

6.3.41.2 Attributes

Table 6.3.41.1: Attributes of `MgcfFunction`

Attribute name	Visibility	Support Qualifier	Read Qualifier	Write Qualifier
mgcfFunctionId	+	M	M	-
userLabel	+	M	M	M

6.3.41.3 Notifications

This subclause presents the list of notifications that can be emitted across the Itf-N, with "object class" and "object instance" parameters of the notification header of these notifications identifying an instance of the IOC `MgcfFunction`.

Table 6.3.41.2: Notifications of `MgcfFunction`

Name	Qualifier	Notes
notifyAckStateChanged	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAttributeValueChange	O	
notifyChangedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyClearedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyNewAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyObjectCreation	O	
notifyObjectDeletion	O	
notifyComments	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAlarmListRebuilt	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyPotentialFaultyAlarmList	See Alarm IRP (3GPP TS 32.111-2 [11])	

6.4 Information relationships definition

6.4.1 AssociatedWith1 (M)

6.4.1.1 Definition

This represents a bi-directional relation between the MscServerFunction and GSMCell.

The role of the relation shall be mapped to a reference attribute of the IOC. The name of the reference attribute shall be the role name.

6.4.1.2 Roles

Table 6.4.1: Roles of the relation AssociatedWith1

Name	Definition
mscServerFunction-Gsmcell	This role (when present) represents mscServerFunction capability to identify the set of related GSMcell. MscServerFunction-GSMcell shall carry the set of GSMcell"s DN(s).
gSMcell- MscServerFunction	This role (when present) represents GSMcell capability to identify one related mscServerFunction. When the role is absent, the gSMcell-mscServerFunction shall contain no information. When it is present, it shall contain one mscServerFunction DN.

6.4.1.3 Constraints

None.

6.4.2 AssociatedWith2 (M)

6.4.2.1 Definition

This represents a bi-directional relation between the MscServerFunction and ExternalGSMCell.

The role of the relation shall be mapped to a reference attribute of the IOC. The name of the reference attribute shall be the role name.

6.4.2.2 Roles

Table 6.4.2: Roles of the relation AssociatedWith2

Name	Definition
mscServerFunction-ExternalGSMcell	This role (when present) represents mscServerFunction capability to identify the set of related externalGSMcell. MscServerFunction-externalGSMcell shall carry the set of externalGSMcell"s DN(s).
externalGSMcell- MscServerFunction	This role (when present) represents externalGSMcell capability to identify one related mscServerFunction. When the role is absent, the externalGSMcell- mscServerFunction shall contain no information. When it is present, it shall contain one mscServerFunction DN.

6.4.2.3 Constraints

None.

6.4.3 AssociatedWith3 (M)

6.4.3.1 Definition

This represents a bi-directional relation between the MscServerFunction and CsMgwFunction.

The role of the relation shall be mapped to a reference attribute of the IOC. The name of the reference attribute shall be the role name.

6.4.3.2 Roles

Table 6.4.3: Roles of the relation AssociatedWith3

Name	Definition
mscServerFunction-CsMgwFunction	This role (when present) represents mscServerFunction capability to identify the related CsMgwFunction(s). MscServerFunction-CsMgwFunction shall carry the CsMgwFunction DN(s).
csMgwFunction - MscServerFunction	This role (when present) represents CsMgwFunction capability to identify one related mscServerFunction. When the role is absent, the CsMgwFunction - mscServerFunction shall contain no information. When it is present, it shall contain one MscServerFunction DN.

6.4.3.3 Constraints

None.

6.4.4 AssociatedWith4 (M)

6.4.4.1 Definition

This represents a bi-directional relation between the SgsnFunction and GsmCell.

The role of the relation shall be mapped to a reference attribute of the IOC. The name of the reference attribute shall be the role name.

6.4.4.2 Roles

Table 6.4.4: Roles of the relation AssociatedWith4

Name	Definition
sgsnFunction-GsmCell	This role (when present) represents sgsnFunction capability to identify the set of related GSMcell. sgsnFunction -GSMcell shall carry the set of GSMcell"s DN(s).
gsmCell - SgsnFunction	This role (when present) represents GSMcell capability to identify one related sgsnFunction. When the role is absent, the gSMcell- sgsnFunction shall contain no information. When it is present, it shall contain one sgsnFunction DN.

6.4.4.3 Constraints

None.

6.4.5 AssociatedWith5 (M)

6.4.5.1 Definition

This represents a bi-directional relation between the SgsnFunction and ExternalGsmCell.

The role of the relation shall be mapped to a reference attribute of the IOC. The name of the reference attribute shall be the role name.

6.4.5.2 Roles

Table 6.4.5: Roles of the relation AssociatedWith5

Name	Definition
sgsnFunction-ExternalGsmCell	This role (when present) represents sgsnFunction capability to identify the set of related externalGSMcell. sgsnFunction -externalGSMcell shall carry the set of externalGSMcell"s DN(s).
externalGsmCell - SgsnFunction	This role (when present) represents externalGSMcell capability to identify one related sgsnFunction. When the role is absent, the externalGsmcell-sgsnFunction shall contain no information. When it is present, it shall contain one sgsnFunction DN.

6.4.5.3 Constraints

None.

6.4.6 ConnectedTo1 (M)

6.4.6.1 Definition

This represents a uni-directional relation between the CsMgwFunction and IucsLink.

The role of the relation shall be mapped to a reference attribute of the IOC.

6.4.6.2 Roles

Table 6.4.6: Roles of the relation ConnectedTo1

Name	Definition
csMgwFunction- IucsLink	This role (when present) represents csMgwFunction capability to identify the set of connected IucsLinks. When the role is present, the csMgwFunction-IucsLink shall carry the set of IucsLink"s DN(s).

6.4.6.3 Constraints

None.

6.4.7 ConnectedTo2 (M)

6.4.7.1 Definition

This represents a uni-directional relation between the IucsLink and ExternalRncFunction.

The role of the relation shall be mapped to a reference attribute of the IOC.

6.4.7.2 Roles

Table 6.4.7: Roles of the relation ConnectedTo2

Name	Definition
connectedRnc	This role (when present) represents IOC IucsLink capability to identify one connected Rnc. When present, it shall contain one RNC DN.

6.4.7.3 Constraints

None.

6.4.8 ConnectedTo3 (M)

6.4.8.1 Definition

This represents a uni-directional relation between the IucsLink and RncFunction.

The role of the relation shall be mapped to a reference attribute of the IOC.

6.4.8.2 Roles

Table 6.4.8: Roles of the relation ConnectedTo3

Name	Definition
connectedRnc	This role (when present) represents IOC IucsLink capability to identify one connected Rnc. When present, it shall contain one RNC DN.

6.4.8.3 Constraints

None.

6.4.9 ConnectedTo4 (M)

6.4.9.1 Definition

This represents a uni-directional relation between the IupsLink and RncFunction.

The role of the relation shall be mapped to a reference attribute of the IOC.

6.4.9.2 Roles

Table 6.4.9: Roles of the relation ConnectedTo4

Name	Definition
connectedRnc	This role (when present) represents IOC IupsLink capability to identify one connected Rnc. When present, it shall contain one RNC DN.

6.4.9.3 Constraints

None.

6.4.10 ConnectedTo5 (M)

6.4.10.1 Definition

This represents a uni-directional relation between the IupsLink and ExternalRncFunction.

The role of the relation shall be mapped to a reference attribute of the IOC.

6.4.10.2 Roles

Table 6.4.10: Roles of the relation ConnectedTo5

Name	Definition
connectedRnc	This role (when present) represents IOC IupsLink capability to identify one connected Rnc. When present, it shall contain one RNC DN.

6.4.10.3 Constraints

None.

6.4.11 ConnectedTo6 (M)

6.4.11.1 Definition

This represents a uni-directional relation between the IubcLink and RncFunction.

The role of the relation shall be mapped to a reference attribute of the IOC.

6.4.11.2 Roles

Table 6.4.11: Roles of the relation ConnectedTo6

Name	Definition
connectedRnc	This role (when present) represents IOC IubcLink capability to identify one connected Rnc. When present, it shall contain one RNC DN.

6.4.11.3 Constraints

None.

6.4.12 ConnectedTo7 (M)

6.4.12.1 Definition

This represents a uni-directional relation between the IubcLink and ExternalRncFunction.

The role of the relation shall be mapped to a reference attribute of the IOC.

6.4.12.2 Roles

Table 6.4.12: Roles of the relation ConnectedTo7

Name	Definition
connectedRnc	This role (when present) represents IOC IubcLink capability to identify one connected Rnc. When present, it shall contain one RNC DN.

6.4.12.3 Constraints

None.

6.4.13 ConnectedTo8 (M)

6.4.13.1 Definition

This represents a uni-directional relation between the CsMgwFunction and Alink.

The role of the relation shall be mapped to a reference attribute of the IOC.

6.4.13.2 Roles

Table 6.4.13: Roles of the relation ConnectedTo8

Name	Definition
csMgwFunction-ALink	This role (when present) represents csMgwFunction capability to identify the set of connected ALinks. When the role is present, the csMgwFunction- ALink shall carry the set of ALink"s DN(s).

6.4.13.3 Constraints

None.

6.4.14 ConnectedTo9 (M)

6.4.14.1 Definition

This represents a uni-directional relation between the Alink and ExternalBssFunction.

The role of the relation shall be mapped to a reference attribute of the IOC.

6.4.14.2 Roles

Table 6.4.14: Roles of the relation ConnectedTo9

Name	Definition
connectedBss	This role (when present) represents IOC ALink capability to identify one connected Bss. When present, it shall contain one Bss DN.

6.4.14.3 Constraints

None.

6.4.15 ConnectedTo10 (M)

6.4.15.1 Definition

This represents a uni-directional relation between the Iucslink and ExternalBssFunction.

The role of the relation shall be mapped to a reference attribute of the IOC.

6.4.15.2 Roles

Table 6.4.15: Roles of the relation ConnectedTo10

Name	Definition
connectedBss	This role (when present) represents IOC IucsLink capability to identify one connected Bss. When present, it shall contain one Bss DN.

6.4.15.3 Constraints

None.

6.4.16 ConnectedTo11 (M)

6.4.16.1 Definition

This represents a uni-directional relation between the Iucslink and BssFunction.

The role of the relation shall be mapped to a reference attribute of the IOC.

6.4.16.2 Roles

Table 6.4.16: Roles of the relation ConnectedTo11

Name	Definition
connectedBss	This role (when present) represents IOC IucsLink capability to identify one connected Bss. When present, it shall contain one Bss DN.

6.4.16.3 Constraints

None.

6.4.17 ConnectedTo12 (M)

6.4.17.1 Definition

This represents a uni-directional relation between the Alink and BssFunction.

The role of the relation shall be mapped to a reference attribute of the IOC.

6.4.17.2 Roles

Table 6.4.17: Roles of the relation ConnectedTo12

Name	Definition
connectedBss	This role (when present) represents IOC Alink capability to identify one connected Bss. When present, it shall contain one Bss DN.

6.4.17.3 Constraints

None.

6.4.18 ConnectedTo13 (M)

6.4.18.1 Definition

This represents a uni-directional relation between the Gblink and BssFunction.

The role of the relation shall be mapped to a reference attribute of the IOC.

6.4.18.2 Roles

Table 6.4.18: Roles of the relation ConnectedTo13

Name	Definition
connectedBss	This role (when present) represents IOC GbLink capability to identify one connected Bss. When present, it shall contain one Bss DN.

6.4.18.3 Constraints

None.

6.4.19 ConnectedTo14 (M)

6.4.19.1 Definition

This represents a uni-directional relation between the Iupslink and BssFunction.

The role of the relation shall be mapped to a reference attribute of the IOC.

6.4.19.2 Roles

Table 6.4.19: Roles of the relation ConnectedTo14

Name	Definition
connectedBss	This role (when present) represents IOC IupsLink capability to identify one connected Bss. When present, it shall contain one Bss DN.

6.4.19.3 Constraints

None.

6.4.20 ConnectedTo15 (M)

6.4.20.1 Definition

This represents a uni-directional relation between the Iupslink and ExternalBssFunction.

The role of the relation shall be mapped to a reference attribute of the IOC.

6.4.20.2 Roles

Table 6.4.20: Roles of the relation ConnectedTo15

Name	Definition
connectedBss	This role (when present) represents IOC IupsLink capability to identify one connected Bss. When present, it shall contain one Bss DN.

6.4.20.3 Constraints

None.

6.4.21 ConnectedTo16 (M)

6.4.21.1 Definition

This represents a uni-directional relation between the Gblink and ExternalBssFunction.

The role of the relation shall be mapped to a reference attribute of the IOC.

6.4.21.2 Roles

Table 6.4.21: Roles of the relation ConnectedTo16

Name	Definition
connectedBss	This role (when present) represents IOC GbLink capability to identify one connected Bss. When present, it shall contain one Bss DN.

6.4.21.3 Constraints

None.

6.5 Information attributes definition

6.5.1 Definition and legal values

Table 6.5.1 defines the attributes that are present in several information object classes of the present document.

Table 6.5.1: Attributes

Attribute Name	Definition	Legal Values
aLinkId	An attribute whose "name+value" can be used as an RDN when naming an instance of the object class. This RDN uniquely identifies the object instance within the scope of its containing (parent) object instance.	
asFunctionId	An attribute whose "name+value" can be used as an RDN when naming an instance of the object class. This RDN uniquely identifies the object instance within the scope of its containing (parent) object instance	
aucFunctionId	An attribute whose "name+value" can be used as an RDN when naming an instance of the object class. This RDN uniquely identifies the object instance within the scope of its containing (parent) object instance.	
bgcfFunctionId	An attribute whose "name+value" can be used as an RDN when naming an instance of the object class. This RDN uniquely identifies the object instance within the scope of its containing (parent) object instance	
bgFunctionId	An attribute whose "name+value" can be used as an RDN when naming an instance of the object class. This RDN uniquely identifies the object instance within the scope of its containing (parent) object instance.	
bsFunctionId	An attribute whose "name+value" can be used as an RDN when naming an instance of the object class. This RDN uniquely identifies the object instance within the scope of its containing (parent) object instance.	
cbcFunctionId	An attribute whose "name+value" can be used as an RDN when naming an instance of the object class. This RDN uniquely identifies the object instance within the scope of its containing (parent) object instance.	
cgfFunctionId	An attribute whose "name+value" can be used as an RDN when naming an instance of the object class. This RDN uniquely identifies the object instance within the scope of its containing (parent) object instance.	
csmgwFunctionId	An attribute whose "name+value' can be used as an RDN when naming an instance of the object class. This RDN uniquely identifies the object instance within the scope of its containing (parent) object instance.	
eirFunctionId	An attribute whose "name+value" can be used as an RDN when naming an instance of the object class. This RDN uniquely identifies the object instance within the scope of its containing (parent) object instance.	
gbLinkId	An attribute whose "name+value" can be used as an RDN when naming an instance of the object class. This RDN uniquely identifies the object instance within the scope of its containing (parent) object instance.	
gcaList	List of Group Call Area (Ref. 3GPP TS 23.003 [19]).	
ggsnFunctionId	An attribute whose "name+value" can be used as an RDN when naming an instance of the object class. This RDN uniquely identifies the object instance within the scope of its containing (parent) object instance.	
gmlcFunctionId	An attribute whose "name+value" can be used as an RDN when naming an instance of the object class. This RDN uniquely identifies the object instance within the scope of its containing (parent) object instance.	
gmscFunctionId	An attribute whose "name+value" can be used as an RDN when naming an instance of the object class. This RDN uniquely identifies the object instance within the scope of its containing (parent) object instance.	
gmscServerFunctionId	An attribute whose "name+value" can be used as an RDN when naming an instance of the object class. This RDN uniquely identifies the object instance within the scope of its containing (parent) object instance.	
hlrFunctionId	An attribute whose "name+value" can be used as an RDN when naming an instance of the object class. This RDN uniquely identifies the object instance within the scope of its containing (parent) object instance.	

hlrFunctionId	An attribute whose "name+value" can be used as an RDN when naming an instance of the object class. This RDN uniquely identifies the object instance within the scope of its containing (parent) object instance.	
hlrFunctionId	An attribute whose "name+value" can be used as an RDN when naming an instance of the object class. This RDN uniquely identifies the object instance within the scope of its containing (parent) object instance.	
hlrFunctionId	An attribute whose "name+value" can be used as an RDN when naming an instance of the object class. This RDN uniquely identifies the object instance within the scope of its containing (parent) object instance.	
icscfFunctionId	An attribute whose "name+value" can be used as an RDN when naming an instance of the object class. This RDN uniquely identifies the object instance within the scope of its containing (parent) object instance	
iubclinkId	An attribute whose "name+value" can be used as an RDN when naming an instance of the object class. This RDN uniquely identifies the object instance within the scope of its containing (parent) object instance.	
iucslinkId	An attribute whose "name+value" can be used as an RDN when naming an instance of the object class. This RDN uniquely identifies the object instance within the scope of its containing (parent) object instance.	
iupslinkId	An attribute whose "name+value" can be used as an RDN when naming an instance of the object class. This RDN uniquely identifies the object instance within the scope of its containing (parent) object instance.	
lacList	List of Location Area Codes covered by MSC (Ref. 3GPP TS 23.003 [19]).	
mccList	List of Mobile Country Codes, MCC (part of the PLMN Id, Ref. 3GPP TS 23.003 [19]).	
mgcfFunctionId	An attribute whose "name+value" can be used as an RDN when naming an instance of the object class. This RDN uniquely identifies the object instance within the scope of its containing (parent) object instance	
mgwFunctionId	An attribute whose "name+value" can be used as an RDN when naming an instance of the object class. This RDN uniquely identifies the object instance within the scope of its containing (parent) object instance.	
mncList	List of Mobile Network Codes, MNC (part of the PLMN Id, Ref. 3GPP TS 23.003 [19]).	
mnpSrfFunctionId	An attribute whose "name+value" can be used as an RDN when naming an instance of the object class. This RDN uniquely identifies the object instance within the scope of its containing (parent) object instance.	
mrfcFunctionId	An attribute whose "name+value" can be used as an RDN when naming an instance of the object class. This RDN uniquely identifies the object instance within the scope of its containing (parent) object instance	
mrfpFunctionId	An attribute whose "name+value" can be used as an RDN when naming an instance of the object class. This RDN uniquely identifies the object instance within the scope of its containing (parent) object instance	
mscId	Unique MSC ID (Ref. 3GPP TS 23.002 [15]).	
mscServerFunctionId	An attribute whose "name+value" can be used as an RDN when naming an instance of the object class. This RDN uniquely identifies the object instance within the scope of its containing (parent) object instance.	
npdbFunctionId	An attribute whose "name+value" can be used as an RDN when naming an instance of the object class. This RDN uniquely identifies the object instance within the scope of its containing (parent) object instance.	
pcscfFunctionId	An attribute whose "name+value" can be used as an RDN when naming an instance of the object class. This RDN uniquely identifies the object instance within the scope of its containing (parent) object instance	

proceduralStatus	It indicates the procedural status of the object instance. This attribute provides a subset of capabilities of procedural status defined in [20]. There are two cases resulting in a status change to be reported: • Case 1: A notification may be generated to indicate that restart procedure is about to begin or has just begun but has not finished. - the value for this attribute indicates original state == 'notInitialized' and new state == 'initializing'. • Case 2: A notification shall be generated to indicate that restart procedure has completed successfully - the value for this attribute indicates original state == 'initializing' to new state == '' (empty set).	Subset of definitions from [20]: 'notInitialized', 'initializing', '' (empty set)
sacList	List of Service Area Codes covered by MSC (Ref. 3GPP TS 23.003 [19]).	
scfFunctionId	An attribute whose "name+value" can be used as an RDN when naming an instance of the object class. This RDN uniquely identifies the object instance within the scope of its containing (parent) object instance.	
scscfFunctionId	An attribute whose "name+value" can be used as an RDN when naming an instance of the object class. This RDN uniquely identifies the object instance within the scope of its containing (parent) object instance	
sgsnFunctionId	An attribute whose "name+value" can be used as an RDN when naming an instance of the object class. This RDN uniquely identifies the object instance within the scope of its containing (parent) object instance.	
sgsnId	Unique SGSN ID (Ref. 3GPP TS 23.002 [15]).	
sgwFunctionId	An attribute whose "name+value" can be used as an RDN when naming an instance of the object class. This RDN uniquely identifies the object instance within the scope of its containing (parent) object instance.	
slfFunctionId	An attribute whose "name+value" can be used as an RDN when naming an instance of the object class. This RDN uniquely identifies the object instance within the scope of its containing (parent) object instance	
smlcFunctionId	An attribute whose "name+value" can be used as an RDN when naming an instance of the object class. This RDN uniquely identifies the object instance within the scope of its containing (parent) object instance.	
smsGmscFunctionId	An attribute whose "name+value" can be used as an RDN when naming an instance of the object class. This RDN uniquely identifies the object instance within the scope of its containing (parent) object instance.	
smsIwmscFunctionId	An attribute whose "name+value" can be used as an RDN when naming an instance of the object class. This RDN uniquely identifies the object instance within the scope of its containing (parent) object instance.	
srfFunctionId	An attribute whose "name+value" can be used as an RDN when naming an instance of the object class. This RDN uniquely identifies the object instance within the scope of its containing (parent) object instance.	
ssfFunctionId	An attribute whose "name+value" can be used as an RDN when naming an instance of the object class. This RDN uniquely identifies the object instance within the scope of its containing (parent) object instance.	
userLabel	A user-friendly (and user assigned) name of the associated object. Inherited from ManagedFunction.	
vlrFunctionId	An attribute whose "name+value" can be used as an RDN when naming an instance of the object class. This RDN uniquely identifies the object instance within the scope of its containing (parent) object instance.	

6.5.2 Constraints

None.

6.6 Particular information configurations

Not applicable

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
Dec 2001	S_14	SP-010649	001	--	Removal of MOC FnrFunction from the diagrams	4.0.0	4.1.0
Jun 2002	S_16	SP-020302	002	--	Align with Rel-4 Network Architecture (23.002) by changing Roaming Signalling Gateway (R-SGW) to Signalling Gateway (SGW)	4.1.0	4.2.0
Sep 2002	S_17	SP-020489	003	--	Upgrade to Rel-5 the Network Resource Model for Core Network Management (add Managed Object Classes (MOCs)) [NOTE: Align with Rel-5 Network Architecture]	4.2.0	5.0.0
Dec 2002	S_18	SP-020747	004	--	Removal of faulty attribute uraList	5.0.0	5.1.0
Mar 2003	S_19	SP-030142	006	--	CN Network Resource Model changed to the New Methodology - alignment with 32.102 (Telecommunication management; Architecture)	5.1.0	5.2.0
Jun 2003	S_20	SP-030281	007	--	CN Network Resource Model changed to the New Methodology - alignment with 32.102	5.2.0	5.3.0
Sep 2003	S_21	SP-030419	009	--	Correction of Information Object Classes (IOCs) Notifications - Alignment with 32.102	5.3.0	5.4.0
Dec 2003	S_22	SP-030643	010	--	Remove redundant VsDataContainer Containment UML - Now Covered by 32.622	5.4.0	5.5.0
Sep 2004	S_25	SP-040582	011	--	Correction of modelling of Media GateWay (MGW) and of Class diagrams with respect to MSC and MGW functions	5.5.0	5.6.0
Sep 2004	S_25	SP-040541	--	--	Automatic upgrade to Rel- 6 (no CR) as per request in SP-040541 SA5_presentation_SA_25.ppt (slide 17)	5.6.0	6.0.0
Dec 2004	S_26	SP-040809	012	--	Add new IMS Entities to Rel-6 Core Network NRM	6.0.0	6.1.0
Dec 2004	S_26	SP-040809	013	--	Add restart notification to GSN objects using 'proceduralStatus' attribute and notifyStateChange notification	6.0.0	6.1.0

History

Document history		
V6.1.0	December 2004	Publication