TSGS#25(04)0585

Source: SA5 (Telecom Management)

Title: 3 Rel-4/5/6 CR 32.642 Align with the IRP IS template in 32.102/32.151 and IRP IS UML repertoire (32.152)

Document for: Approval

Agenda Item: 7.5.3

Doc-1st-Level	Doc-2nd-Level	Spec	CR	Rev	Phase	Subject	Cat	Ver-Cur	Wi
SP-040585	S5-048715	32.642	024	--	Rel-4	Align with the IRP IS template in 32.102 Telecommunication management; Architecture	F	4.4.0	OAM-CM
SP-040585	S5-048716	32.642	025	--	Rel-5	Align with the IRP IS template in 32.102 Telecommunication management; Architecture	A	5.4.0	OAM-NIM
SP-040585	S5-048717	32.642	026	--	Rel-6	Align with the IRP IS template (32.151) and IRP IS UML repertoire (32.152)	A	6.1.0	OAM-NIM

CR-Form-v7

CHANGE REQUEST

⌘	32.642	CR	024	⌘	rev	-	⌘	Current version:	4.4.0	⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network [X] Core Network ☐

Title:	⌘	Align with the IRP IS template in 32.102 Telecommunication management; Architecture
Source:	⌘	**SA5** (robert.petersen@ericsson.com)
Work item code:	⌘	OAM-CM **Date:** ⌘ 20/08/2004
Category:	⌘	**F** **Release:** ⌘ Rel-4

Use one of the following categories:
- ***F*** *(correction)*
- ***A*** *(corresponds to a correction in an earlier release)*
- ***B*** *(addition of feature),*
- ***C*** *(functional modification of feature)*
- ***D*** *(editorial modification)*

Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	The specification is not aligned with the IRP IS template in 32.102 The specification should not contain information about Interface IRPs. The information about imported entities are missing. The containment diagrams are messy, as one contain a large number of IOCs in one figure and another only contains two IOCs. The relation attributes for UtranRelation is missing in Table 6.9.
Summary of change:	⌘	The UML diagrams have been updated. They have also been split into more readable figures. Release dependant information is made general for all releases. Information valid for interface IRPs are removed. The information about the imported entiteis are added. The split of the containment diagrams has been changed. The missing attributes in UtranRelation are added.
Consequences if not approved:	⌘	The specification would not be complete and could lead to incorrect implementations.

Clauses affected:	⌘	2, 4, 6 and Annex A.

Other specs affected: ⌘

Y	N		
	X	Other core specifications	⌘
	X	Test specifications	
X		O&M Specifications	Rel-5/6 32.642

Other comments:	⌘	Rel-5/6 32.642 Mirror CRs in S5-048716/7.

Change in Clause 2

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 23.003: "Numbering, addressing and identification".

[4] 3GPP TS 25.401: "UTRAN Overall Description"

[5] 3GPP TS 25.433: "UTRAN Iub Interface NBAP Signalling"

[6] 3GPP TS 25.423: "UTRAN Iur Interface RNSAP Signalling"

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

[8] 3GPP TS 32.652: "Telecommunication management; Configuration Management (CM); GERAN network resources Integration Reference Point (IRP): Network Resource Model (NRM)". ~~Void~~

[9] 3GPP TS 25.331: Radio Resource Control (RRC); Protocol Specification

[10] Void

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

[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 CM Integration Reference Point (IRP) information service".

[18] 3GPP TS 32.612: "Telecommunication management; Configuration Management (CM); Bulk CM Integration Reference Point (IRP): Information service".

End of Change in Clause 2

Change in Clause 4

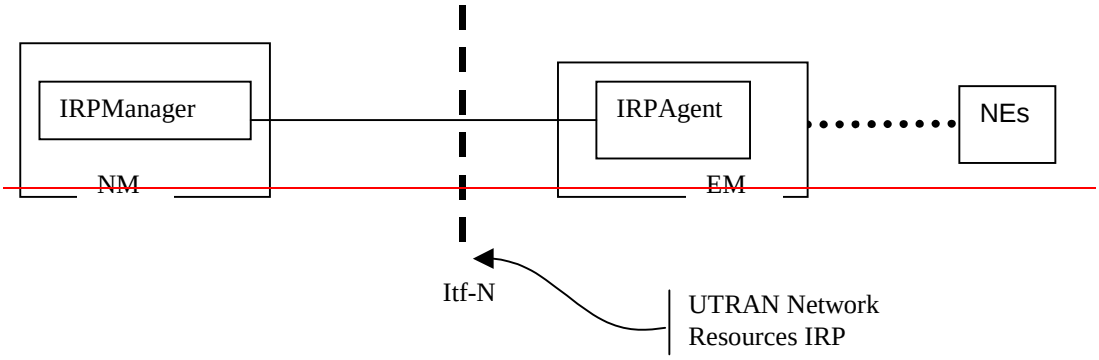
4 System overview

4.1 ~~System context~~Void

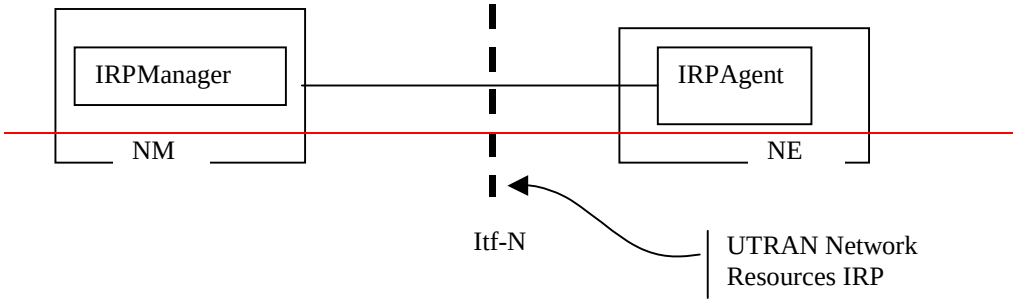
~~Figure 4.1 and 4.2 identify system contexts of the IRP defined by the present document in terms of its implementation called IRPAgent and the user of the IRPAgent, called IRPManager. For a definition of IRPManager and IRPAgent, see 3GPP TS 32.102 [2].~~

~~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 [2] clause 8). In the former case, the interface (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 ~~MOC~~ IOC attributes and associations between ~~MOCs~~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 ~~managed~~ information object classes, attributes~~,~~ and 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 recognised 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.

End of Change in Clause 4

Change in Clause 6

6 Information Object Classes~~IRP Information Model~~

6.1 Introduction

Void.~~As already introduced in the previous clause, the present clause defines the UTRAN Network Resources IRP: Network Resource Model. That is, this model defines UTRAN specific MOCs that shall be contained by the generic MOCs defined in [16].~~

~~The managed object classes in this NRM are protocol environment neutral and the model does not define the syntax or encoding of the operations and parameters.~~

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

~~The Information Service(s) to access managed objects of this NRM is defined elsewhere.~~

~~The corresponding Solution Set specifications provide protocol dependent definitions. They provide the actual realization of the operations and notifications defined in this clause in each protocol environment. One may find that the class/attribute definitions in the protocol neutral model differ from those defined in the Solution Sets (e.g. due to mappings to existing standard models that are applicable for a specific Solution Set).~~

6.1A Information entities imported and local labels

Label reference	Local label
3GPP TS 32.111-2 [11], notification, notifyAckStateChanged	notifyAckStateChanged
3GPP TS 32.111-2 [11], notification, notifyAlarmListRebuilt	notifyAlarmListRebuilt
3GPP TS 32.111-2 [11], notification, notifyChangedAlarm	notifyChangedAlarm
3GPP TS 32.111-2 [11], notification, notifyClearedAlarm	notifyClearedAlarm
3GPP TS 32.111-2 [11], notification, notifyComments	notifyComments
3GPP TS 32.111-2 [11], notification, notifyNewAlarm	notifyNewAlarm
3GPP TS 32.622 [16], IOC, ManagedElement	ManagedElement
3GPP TS 32.622 [16], IOC, ManagedFunction	ManagedFunction
3GPP TS 32.622 [16], IOC, MeContext	MeContext
3GPP TS 32.622 [16], IOC, SubNetwork	SubNetwork
3GPP TS 32.622 [16], IOC, VsDataContainer	VsDataContainer
3GPP TS 32.652 [6], IOC, ExternalGSMCell	ExternalGSMCell
3GPP TS32.652 [6], IOC, GsmCell	GsmCell
3GPP TS32.652 [6], IOC, GsmRelation	GsmRelation
3GPP TS32.652 [6], relation, ExternalGsmNeighbourCellRelation	ExternalGsmNeighbourCellRelation
3GPP TS32.652 [6], relation, GsmNeighbourCellRelation	GsmNeighbourCellRelation
3GPP TS 32.662 [17], notification, notifyAttributeValueChange	notifyAttributeValueChange
3GPP TS 32.662 [17], notification, notifyObjectCreation	notifyObjectCreation
3GPP TS 32.662 [17], notification, notifyObjectDeletion	notifyObjectDeletion

6.2 ~~Managed Object Class (MOC) diagrams~~Void

~~A general note regarding all the notification tables defined for each MOC below: Each MOC may potentially send the notifications listed in the notification table for the MOC. The notifications with qualifier (M) shall be supported by the MOC, and the notifications with qualifier (O) may be supported by the MOC.~~
~~For example: If Notification notifyObjectCreation defined in Basic CM IRP has the qualifier (M), then if a MOC is defined such that it emits such a notification, this notification shall be emitted when appropriate (i.e. when a new object is created). If Notification notifyChangedAlarm has the qualifier (O) in Alarm IRP (see 3GPP TS 32.111-2 [11]), then if a MOC is defined such that it emits such a notification, this notification may or may not be emitted when appropriate. Further, if a notification in the qualifier column (of the MOC notification tables) has a reference to another specification, it means that the qualifier for the notification is specified in the referred specification.~~

~~6.2.1 Inheritance hierarchy~~

~~Figure 6.1 shows the inheritance hierarchy for the UTRAN NRM.~~

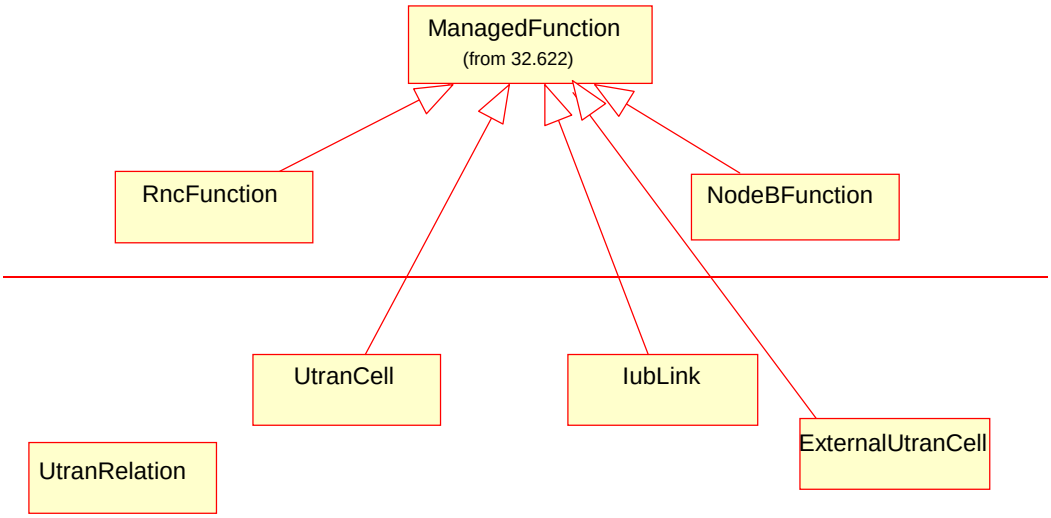
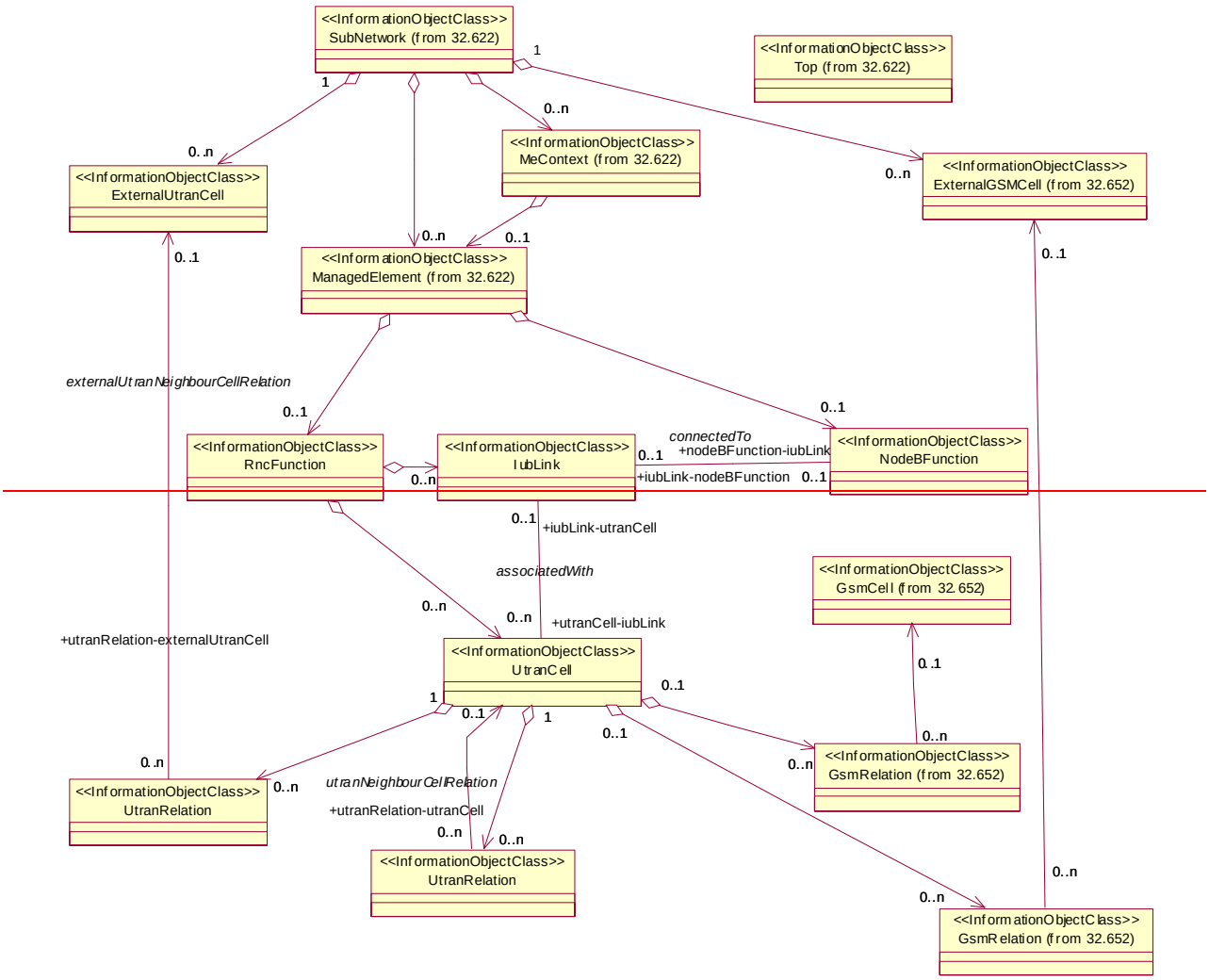


Figure 6.1: UTRAN NRM Inheritance Hierarchy

6.2.2 Containment/Naming and Association diagrams

Figure 6.2 and 6.3 show the containment/naming hierarchy and the associations of the UTRAN NRM.

NOTE: The Managed Object containment/naming relationships are in the diagram(s) below indicated by UML "Aggregation by reference" ("hollow diamonds").



~~NOTE 1: The listed cardinality numbers represent transient as well as steady-state numbers, and reflect all managed object creation and deletion scenarios.~~

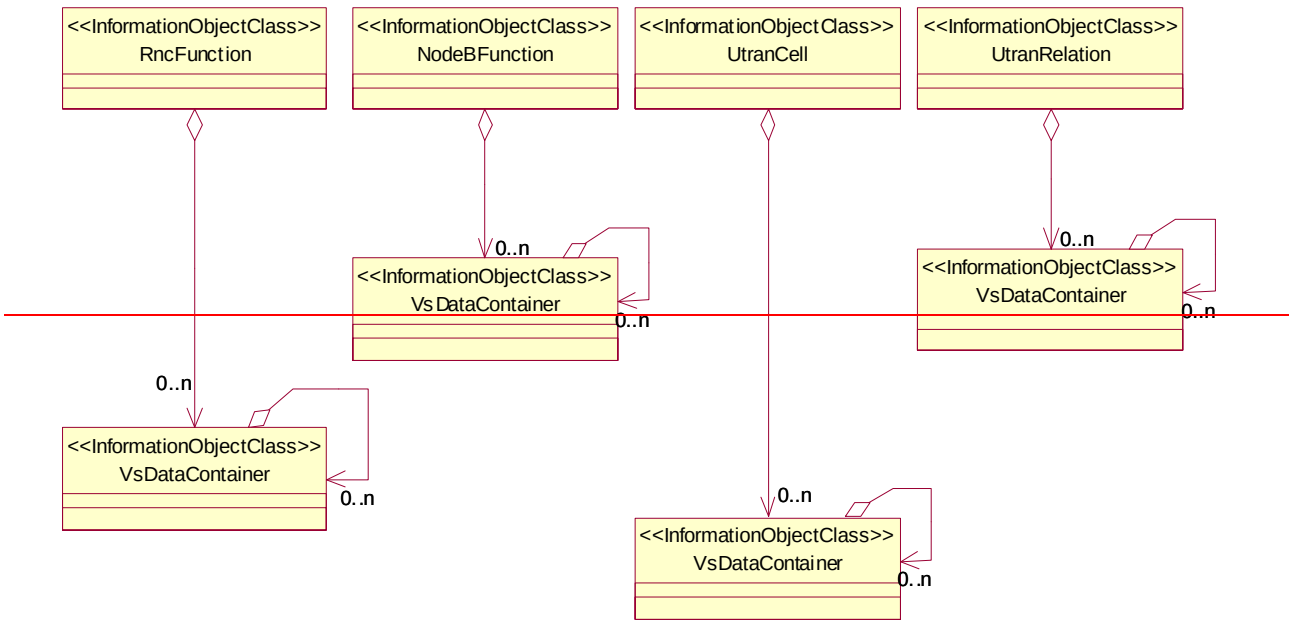
~~NOTE 2: The association between GsmRelation and GsmCell is optional. It may be valid if both the UtranCell and the GsmCell are managed by the same management node.~~

~~NOTE 3: The UtranRelation and GsmRelation can be contained under MOCs defined in other NRMs.~~

~~Figure 6.2: UTRAN NRM Containment/Naming and Association diagram~~

~~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=RNC-Gbg-1, RncFunction=RF-1,UtranCell=Gbg-1.~~



~~NOTE 1: The listed cardinality numbers represent transient as well as steady-state numbers, and reflect all managed object creation and deletion scenarios.~~

~~NOTE 2: Each instance of the vsDataContainer shall only be contained under one MOC. The vsDataContainer can be contained under MOCs defined in other NRMs.~~

~~Figure 6.3: vsDataContainer Containment/Naming and Association in UTRAN NRM diagram~~

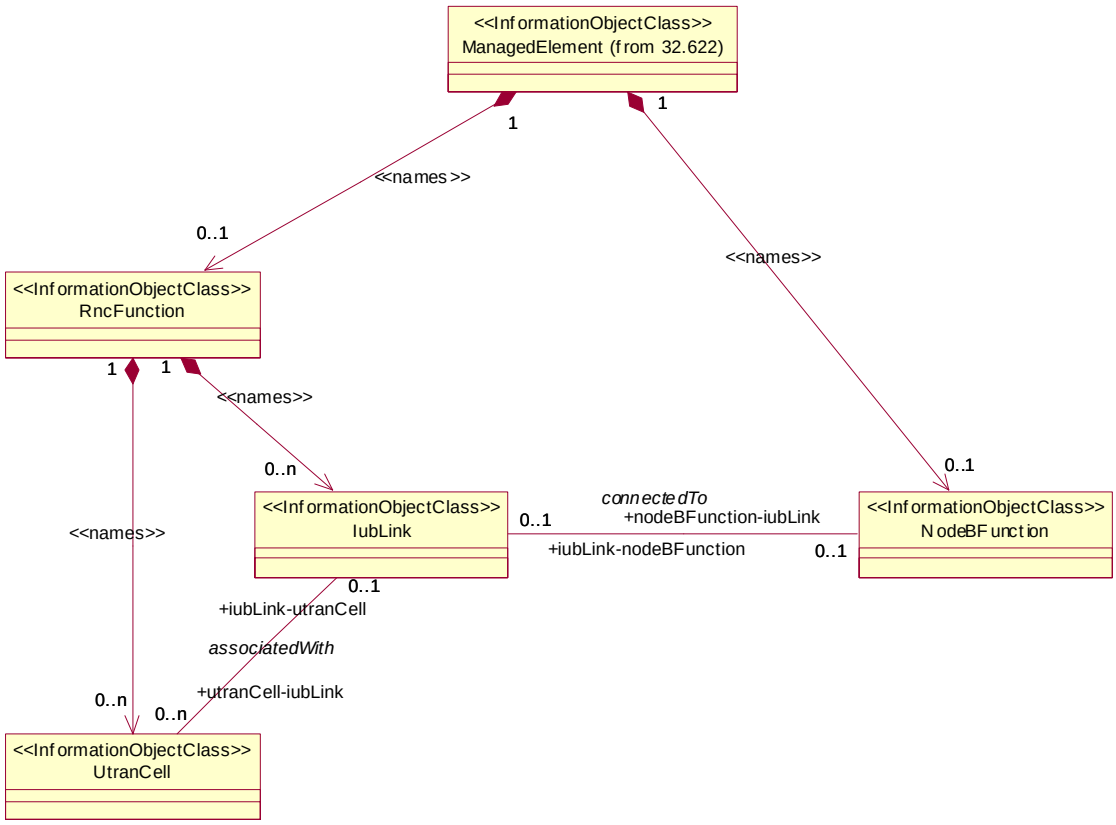
~~The vsDataContainer is only used for the Bulk CM IRP.~~

6.2A Class diagram

6.2A.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.

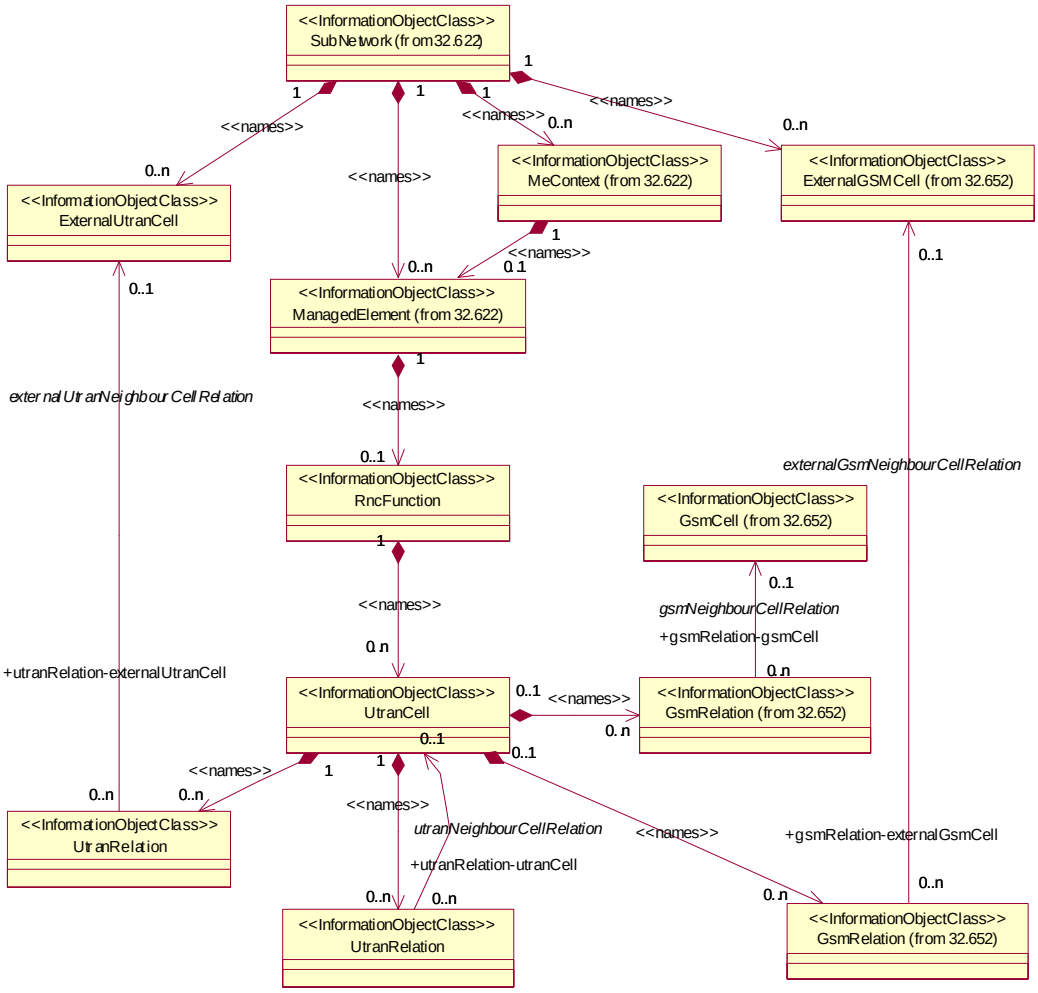
Figures 6.1, 6.2 and 6.3 shows the containment/naming hierachy and the associations of the information object classes defined in the present document. They are split in 3 only for a readability purpose.



NOTE 1: The listed cardinality numbers represent transient as well as steady state numbers, and reflect all managed object creation and deletion scenarios.

NOTE 2: Each instance of the VsDataContainer shall only be contained under one IOC. The VsDataContainer can be contained under IOCs defined in other NRMs.

Figure 6.1: Transport view UTRAN NRM Containment/Naming and Association diagram



NOTE 1: The listed cardinality numbers represent transient as well as steady state numbers, and reflect all managed object creation and deletion scenarios.

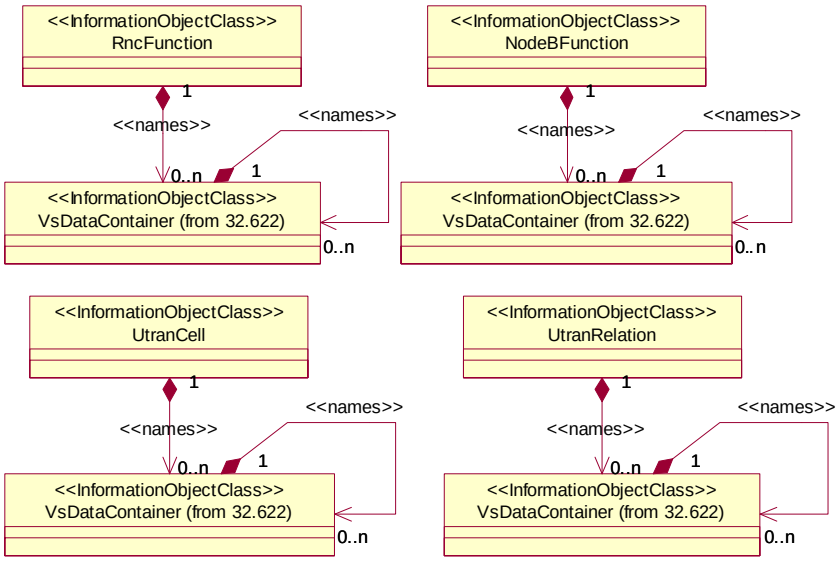
NOTE 2: The relation between GsmRelation and GsmCell is optional. It may be present if both the UtranCell and the GsmCell are managed by the same management node.

NOTE 3: The UtranRelation and GsmRelation can be name-contained under IOCs defined in other NRMs.

Figure 6.2: Cell view UTRAN NRM Containment/Naming and Association diagram

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=RNC-Gbg-1, RncFunction=RF-1,UtranCell=Gbg-1.



NOTE 1: The listed cardinality numbers represent transient as well as steady-state numbers, and reflect all managed object creation and deletion scenarios.
NOTE 2: Each instance of the VsDataContainer shall only be contained under one ~~MOC~~IOC. The VsDataContainer can be contained under ~~MOC~~IOCs defined in other NRMs.

Figure 6.3: VsDataContainer Containment/Naming and Association in UTRAN NRM diagram

The VsDataContainer is only used for the Bulk CM IRP.

6.2A.2 Inheritance

This clause depicts the inheritance relationships that exist between IOCs.

Figure 6.4 shows the inheritance hierarchy for the UTRAN NRM.

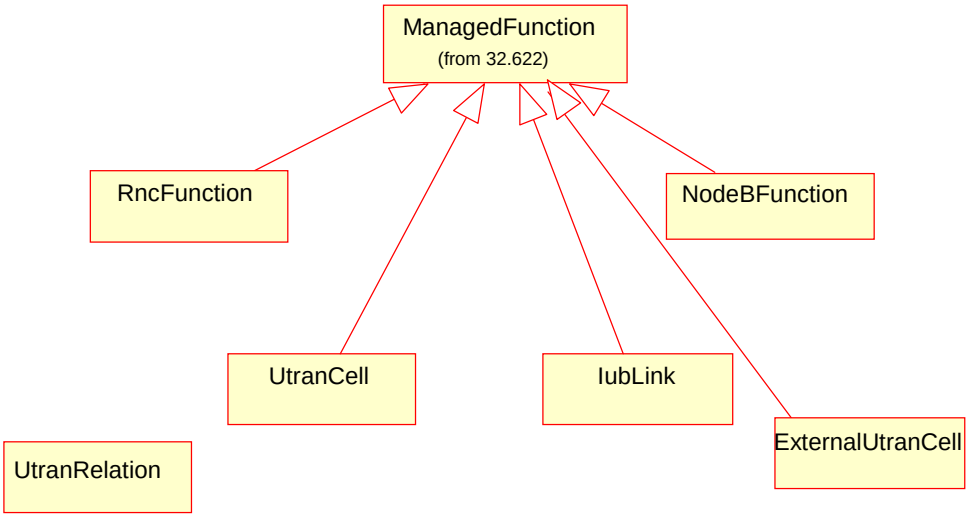


Figure 6.4: UTRAN NRM Inheritance Hierarchy

6.3 Information ~~Managed O~~object ~~C~~class ~~(MOC)~~ definitions

6.3.1 ~~MOC~~ RncFunction

6.3.1.1 Definition

This ~~Managed~~ Information Object Class represents RNC functionality. For more information about the RNC, see 3GPP TS 23.002 [15].

~~It inherits from ManagedFunction.~~6.3.1.2 Attributes

Table 6.1: Attributes of RncFunction

Name	Support Qualifier	~~Description~~
rncFunctionId	READ-ONLY, M	~~An attribute whose "name+value" can be used as an RDN when naming an instance of this object class. This RDN uniquely identifies the object instance within the scope of its containing (parent) object instance.~~
userLabel	READ-WRITE, M	~~A user-friendly (and user assigned) name of the associated object. Inherited from ManagedFunction.~~
mcc	READ-WRITE, M	~~Mobile Country Code, MCC. It is a part of the PLMN Id (Ref. 3GPP TS 23.003 [3]).~~
mnc	READ-WRITE, M	~~Mobile Network Code, MNC. It is a part of the PLMN Id (Ref. 3GPP TS 23.003 [3]).~~
rncId	READ-WRITE, M	~~Unique RNC ID (Ref. 3GPP TS 23.003 [3])~~

6.3.1.6 Notifications

Table 6.2: Notifications of RncFunction

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])	

6.3.2 ~~MOC~~ NodeBFunction

6.3.2.1 Definition

This ~~Managed~~ Information Object Class represents NodeB functionality. For more information about the NodeB, see 3GPP TS 23.002 [15].

~~It inherits from ManagedFunction.~~6.3.2.2 Attributes

Table 6.3: Attributes of NodeBFunction

Name	Support Qualifier	~~Description~~
nodeBFunctionId	READ-ONLY, M	~~An attribute whose "name+value" can be used as an RDN when naming an instance of this object class. This RDN uniquely identifies the object instance within the scope of its containing (parent) object instance.~~
userLabel	READ-WRITE, M	~~A user-friendly (and user assigned) name of the associated object. Inherited from ManagedFunction.~~
nodeBFunction-IubLink	READ-ONLY, M	~~The value of this attribute shall be the DN of the related IubLink instance. This is a reference attribute modelling the role (of the association ConnectedTo) that this NodeBFunction is connected to 0-1 IubLink.~~

6.3.2.6 Notifications

Table 6.4: Notifications of NodeBFunction

Name	Qualifier	Notes
notifyAckStateChanged	M, 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])	

6.3.3 ~~MOC~~ UtranCell

6.3.3.1 Definition

This ~~Managed~~ Information Object Class represents a radio cell controlled by the RNC. For more information about radio cells, see 3GPP TS 23.002 [15].

~~It inherits from ManagedFunction.~~

6.3.3.2 Attributes

Table 6.5: Attributes of UtranCell

Name	Support Qualifier	~~Description~~
utranCellId	READ-ONLY, M	~~An attribute whose "name+value" can be used as an RDN when naming an instance of this object class. This RDN uniquely identifies the object instance within the scope of its containing (parent) object instance.~~
userLabel	READ-WRITE, M	~~A user-friendly (and user-assigned) name of the associated object. Inherited from ManagedFunction.~~
cId	READ-WRITE,M	~~Cid is the identifier of a cell in one RNC (Ref. 3GPP TS 25.401 [4]).~~
localCellId	READ-WRITE,M	~~Local Cell id is used to uniquely identify the set of resources defined in a Node B to support a cell (as defined by a Cid Ref. 3GPP TS 25.401 [4]). It must be unique in Node B at a minimum, but may be unique in UTRAN. It can be used to tie the cell in the RNC to a specific set of resources in the Node B.~~
uarfcnUl	READ-WRITE, M	~~The UL UTRA absolute Radio Frequency Channel number, UARFCN (Ref. 3GPP TS 25.433 [5]).~~
uarfcnDl	READ-WRITE, M	~~The DL UTRA absolute Radio Frequency Channel number, UARFCN (Ref. 3GPP TS 25.433 [5]).~~
primaryScramblingCode	READ-WRITE, M	~~The primary DL scrambling code used by the cell (Ref. 3GPP TS 25.433 [5]).~~
primaryCpichPower	READ-WRITE, M	~~The power of the primary CPICH channel in the cell (Ref. 3GPP TS 25.433 [5]).~~
maximumTransmissionPower	READ-WRITE, M	~~The maximum transmission power of a cell. It is the maximum power for all downlink channels added together, that is allowed to be used simultaneously in a cell. (Ref. 3GPP TS 25.433 [5]).~~
primarySchPower	READ-WRITE, M	~~The power of the primary synchronisation channel in the cell, DL Power (Ref. 3GPP TS 25.433 [5]).~~
secondarySchPower	READ-WRITE, M	~~The power of the secondary synchronisation channel in the cell, DL Power (Ref. 3GPP TS 25.433 [5]).~~
bchPower	READ-WRITE, M	~~The power of the broadcast channel in the cell (Ref. 3GPP TS 25.433 [5]).~~
lac	READ-WRITE, M	~~Location Area Code, LAC (Ref. 3GPP TS 23.003 [3])~~
rac	READ-WRITE, M	~~Routing Area Code, RAC (Ref. 3GPP TS 23.003 [3])~~
sac	READ-WRITE, M	~~Service Area Code, SAC (Ref. 3GPP TS 23.003 [3]).~~
uraList	READ-WRITE, M	~~A list of UTRAN Registration Area, URA (Ref. 3GPP TS 25.331(clause 10.3.10) [9]).~~
utranCell-IubLink	READ-ONLY, M	~~The value of this attribute shall be the DN of the related IubLink instance. This is a reference attribute modelling the role (of the association AssociatedWith) that this UtranCell is associated with 0-1 IubLink.~~

6.3.3.6 Notifications

Table 6.6: Notifications of UtranCell

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])	

6.3.4 ~~MOC~~ IubLink

6.3.4.1 Definition

The "Iub link" managed object is the logical link to a NodeB as seen from the RNC. For more information about the RNC, see 3GPP TS 23.002 [15].

~~It inherits from ManagedFunction.~~

6.3.4.2 Attributes

Table 6.7: Attributes of IubLink

Name	Support Qualifier	~~Description~~
iubLinkId	READ-ONLY, M	~~An attribute whose "name+value" can be used as an RDN when naming an instance of this object class. This RDN uniquely identifies the object instance within the scope of its containing (parent) object instance.~~
userLabel	READ-WRITE, M	~~A user-friendly (and user assigned) name of the associated object. Inherited from ManagedFunction.~~
iubLink-UtranCell	READ-WRITE, M	~~The value of this attribute shall be a list of the DN(s) of the related UtranCell instance(s). This is a reference attribute modelling the role (of the association AssociatedWith) that this IubLink is associated with 0-N UtranCells.~~
iubLink-NodeBFunction	READ-ONLY, M	~~The value of this attribute shall be the DN of the related NodeBFunction instance. This is a reference attribute modelling the role (of the association ConnectedTo) that this IubLink is connected to 0-1 NodeBFunction.~~

6.3.4.6 Notifications

Table 6.8: Notifications of IubLink

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])	

6.3.5 ~~MOC~~ UtranRelation

6.3.5.1 Definition

The "UtranRelation" managed object contains radio network related parameters for the relation to the "UtranCell" or "ExternalUtranCell" managed object.

NOTE: In handover relation terms, the cell containing the UTRAN Relation object is the source cell for the handover. The cell referred to in the UTRAN relation object is the target cell for the handover. This defines a one-way handover relation where the direction is *from* source cell *to* target cell.

6.3.5.2 Attributes

Table 6.9: Attributes of UtranRelation

Name	Support Qualifier	~~Description~~
utranRelationId	READ-ONLY, M	~~An attribute whose "name+value" can be used as an RDN when naming an instance of this object class. This RDN uniquely identifies the object instance within the scope of its containing (parent) object instance.~~
adjacentCell	READ-WRITE,M	~~Pointer to UTRAN cell or external UTRAN cell. Distinguished name of the corresponding object.~~
uarfcnUl	READ-ONLY, O	~~The UL UTRA absolute Radio Frequency Channel number for another UTRAN cell or the external UTRAN cell, that is broadcast in System Information in the Cell, UARFCN (Ref. 3GPP TS 25.433 [5]).~~ ~~See Note for the optional condition.~~
uarfcnDl	READ-ONLY, O	~~The DL UTRA absolute Radio Frequency Channel number for another UTRAN cell or the external UTRAN cell, that is broadcast in System Information in the Cell, UARFCN (Ref. 3GPP TS 25.433 [5]).~~ ~~See Note for the optional condition.~~
primaryScramblingCode	READ-ONLY, O	~~The primary DL scrambling code for another UTRAN cell or the external UTRAN cell, that is broadcast in System Information in the Cell (Ref. 3GPP TS 25.433 [5]).~~ ~~See Note for the optional condition.~~
primaryCpichPower	READ-ONLY, O	~~The power of the primary CPICH channel for another UTRAN cell or the external UTRAN cell, that is broadcast in System Information in the Cell (Ref. 3GPP TS 25.433 [5]).~~ ~~See Note for the optional condition.~~
lac	READ-ONLY, O See Note	~~Location Area Code, LAC (Ref. 3GPP TS 23.003 [3]), for another UTRAN cell or the external UTRAN cell, that is broadcast in System Information in the Cell.~~ ~~See Note for the optional condition.~~
utranRelation-utranNeighbourCell	READ-WRITE,O	
utranRelation-externalUtranNeighbourCell	READ-WRITE,O	

NOTE: This attribute shall be included if the EM does not guarantee consistency between the cell definition and what is broadcast on system information.

6.3.5.6 Notifications

Table 6.10: Notifications of UtranRelation

Name	Qualifier	Notes
notifyAttributeValueChange	O	
notifyObjectCreation	O	
notifyObjectDeletion	O	

6.3.6 ~~MOC~~ ExternalUtranCell

6.3.6.1 Definition

This ~~Managed~~ Information Object Class represents a radio cell controlled by another IRPAgent. This ~~MOC~~ IOC has necessary attributes for inter-system handover. It contains a subset of the attributes of related ~~MOCs~~ IOCs controlled by another IRPAgent. The way to maintain consistency between the attribute values of these two ~~MOCs~~ IOCs is outside the scope of this document.

6.3.6.2 Attributes

Table 6.11: Attributes of ExternalUtranCell

Name	Qualifier	~~Description~~
externalUtranCellId	READ-ONLY, M	~~An attribute whose "name+value" can be used as an RDN when naming an instance of this object class. This RDN uniquely identifies the object instance within the scope of its containing (parent) object instance.~~
userLabel	READ-WRITE, M	~~A user-friendly (and user assigned) name of the associated object.~~
cId	READ-WRITE, M	~~Cid is the identifier of a cell in one RNC (Ref. 3GPP TS 25.401 [4]).~~
mcc	READ-WRITE, M	~~Mobile Country Code, MCC (part of the PLMN Id, Ref. 3GPP TS 23.003 [3]).~~
mnc	READ-WRITE, M	~~Mobile Network Code, MNC (part of the PLMN Id, Ref. 3GPP TS 23.003 [3]).~~
rncId	READ-WRITE, M	~~Unique RNC ID for the drift RNC (Ref. 3GPP TS 23.003 [3]).~~
uarfcnUl	READ-WRITE, M	~~The UL UTRA absolute Radio Frequency Channel number, UARFCN (Ref. 3GPP TS 25.433 [5]).~~
uarfcnDl	READ-WRITE, M	~~The DL UTRA absolute Radio Frequency Channel number, UARFCN (Ref. 3GPP TS 25.433 [5]).~~
primaryScramblingCode	READ-WRITE, M	~~The primary DL scrambling code used by the cell (Ref. 3GPP TS 25.433 [5]).~~
primaryCpichPower	READ-WRITE, M	~~The power of the primary CPICH channel in the cell (Ref. 3GPP TS 25.433 [5]).~~
lac	READ-WRITE, M	~~Location Area Code, LAC (Ref. 3GPP TS 23.003 [3]).~~
rac	READ-WRITE, M	~~Routing Area Code, RAC (Ref. 3GPP TS 23.003 [3]).~~

6.3.6.6 Notifications

Table 6.12: Notifications of ExternalUtranCell

Name	Qualifier	Notes
notifyAttributeValueChange	O	
notifyObjectCreation	O	
notifyObjectDeletion	O	

6.4 Information relationships definition~~Associations~~

6.4.1 ~~Association~~ ConnectedTo (M)

6.4.1.1 Definition

This bi-directional association models the relationship between the IubLink and NodeB (through the NodeBFunction). The role of the relation shall be mapped to a reference attribute of the IOC. The names of the reference attribute and the role are the same~~It has two roles, named IubLink_NodeBFunction and NodeBFunction_IubLink. These two roles model each MOC's association with the other MOC. Each role is in the MOC definition mapped to a reference attribute with the same name~~.

6.4.1.2 Roles

Table 6.13: Roles of the relation ConnectedTo

Name	Definition
iubLink-nodeBFunction	This role (when present) represents IubLink capability to identify one NodeBFunction. When the role is absent, the IubLink.iubLink-nodeBFunction shall contain no information. When present, it shall contain one NodeBFunction DN.
nodeBFunction-iubLink	This role (when present) represents NodeBFunction capability to identify one IubLink. When the role is absent, the NodeBFunction.nodeBFunction-iubLink shall contain no information. When present, it shall contain one IubLink DN.

6.4.1.3 Constraints

When a particular IubLink identifies a particular NodeBFunction, that particular NodeBFunction must identify the particular IubLink.

6.4.2 Association AssociatedWith (M)

6.4.2.1 Definition

This bi-directional association models the relationship between the IubLink and UtranCell. 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.~~It has two roles, named IubLink-UtranCell and UtranCell-IubLink. These two roles model each MOC's association with the other MOC. Each role is in the MOC definition mapped to a reference attribute with the same name.~~

6.4.2.2 Roles

Table 6.14: Roles of the relation AssociatedWith

Name	Definition
iubLink-utranCell	This role (when present) represents `IubLink` capability to identify the set of related UtranCell. IubLink.iubLink-utranCell shall carry the set of UtranCell DN(s).
utranCell-iubLink	This role (when present) represents `UtranCell` capability to identify one related IubLink. When the role is absent, the UtranCell.utranCell-iubLink shall contain no information. When it is present, it shall contain one IubLink DN.

6.4.2.3 Constraints

When a particular IubLink identifies a particular UtranCell, that particular UtranCell must have identified the particular IubLink.

6.4.3 `ExternalUtranNeighbourCellRelation` (M)

6.4.3.1 Definition

This represents a unidirectional relation from `UtranRelation` to the `ExternalUtranCell`. The role of the relation shall be mapped to a reference attribute, named `adjacentCell`, of the IOC.

6.4.3.2 Roles

Table 6.15: Roles of the relation `ExternalUtranNeighbourCellRelation`

Name	Definition
`utranRelation-externalUtranNeighbourCell`	This role (when present) represents `UtranRelation` capability to identify one `ExternalUtranCell`. When this role is present, the `UtranRelation.adjacentCell` shall contain one `ExternalUtranNeighbourCell` DN.

6.4.3.3 Constraints

This role (for a particular `UtranRelation`) shall be present if the `UtranNeighbourCellRelation` of this particular `UtranRelation` is absent. This role shall be absent if the `UtranNeighbourCellRelation` of this particular `UtranRelation` is present.

6.4.4 `UtranNeighbourCellRelation` (M)

6.4.4.1 Definition

This represents the unidirectional relation from the `UtranRelation` to `UtranCell`. The role of the relation shall be mapped to a reference attribute, named `adjacentCell`, of the IOC.

6.4.4.2 Roles

Table 6.16: Roles of the relation `UtranNeighbourCellRelation`

Name	Definition
`utranRelation-utranNeighbourCell`	This role (when present) represents `UtranRelation` capability to identify one `UtranCell`. When this role is present, the `UtranRelation.adjacentCell` shall contain one `UtranCell` DN.

6.4.4.3 Constraints

This role (for a particular `UtranRelation`) shall be present if the `ExternalUtranNeighbourCellRelation` of this particular `UtranRelation` is absent. This role shall be absent if the `ExternalUtranNeighbourCellRelation` of this particular `UtranRelation` is present.

6.5 Information attributes definition

6.5.1 Definition and legal values

Table 6.17 defines the attributes that are present in several ~~Managed~~Information Object Classes (~~MOC~~IOCs) of the present document.

Table 6.17: Attributes

Attribute Name	Definition	Legal Values
adjacentCell	It carries the DN of the UtranCell or the ExternalUtranCell.	
bchPower	The power of the broadcast channel in the cell (Ref. 3GPP TS 25.433 [5]).	Type: Numeric value Range: (-35..+15 dB) Steps of 0.1dB
cId	The attribute is the identifier of a cell in one RNC (Ref. 3GPP TS 25.401 [4]), 3GPP TS 25.433 [5]).	Type: Integral numeric value Range: (0..65535)
externalUtranCellId	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.	
iubLinkId	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.	
lac	IOCs **UtranCell** and **ExternalUtranCell**: Location Area Code, LAC (Ref. 3GPP TS 23.003 [3]). IOC **UtranRelation**: Location Area Code, LAC (Ref. 3GPP TS 23.003 [3]), for another UTRAN cell or the external UTRAN Cell that is broadcast in the system information in the Cell.	Type: Integral numeric value Range: (1.. 65533, 65535)
localCellId	Local Cell id is used to uniquely identify the set of resources defined in a Node B to support a cell (as defined by a Cid Ref. 3GPP TS 25.401 [4]), 3GPP TS 25.433 [5]). It must be unique in Node B at a minimum, but may be unique in UTRAN. It can be used to tie the cell in the RNC to a specific set of resources in the Node B.	Type: Integral numeric value Range: (0..268435455)
maximumTransmissionPower	The maximum transmission power of a cell. It is the maximum power for all downlink channels added together, that is allowed to be used simultaneously in a cell. (Ref. 3GPP TS 25.433 [5]).	Type: Numeric value Range: (0,.50 dBm) Steps of 0.1 dB
mcc	Mobile Country Code, MCC (part of the PLMN Id, Ref. 3GPP TS 23.003 [3]).	
mnc	Mobile Network Code, MNC (part of the PLMN Id, Ref. 3GPP TS 23.003 [3]).	
nodeBFunctionId	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.	
primaryCpichPower	IOCs **UtranCell** and **ExternalUtranCell**: The power of the primary CPICH channel in the cell (Ref. 3GPP TS 25.433 [5]). IOC **UtranRelation**: The power of the primary CPICH channel in the cell (Ref. 3GPP TS 25.433 [5]), for another UTRAN cell or the external UTRAN cell that is broadcast in the system information in the cell.	Type: Numeric value Range: (-10,.50 dBm) Steps of 0.1 dB
primarySchPower	The power of the primary synchronisation channel in the cell, DL Power (Ref. 3GPP TS 25.433 [5]).	Type: Numeric value Range: (-35..+15 dB) Steps of 0.1dB
primaryScramblingCode	IOCs **UtranCell** and **ExternalUtranCell**: The primary DL scrambling code used by the cell (Ref. 3GPP TS 25.433 [5]). IOC **UtranRelation**: The primary DL scrambling code used by the cell (Ref. 3GPP TS 25.433 [5]), for another UTRAN cell or the external UTRAN cell that is broadcast in the system information in the cell.	Type: Integral numeric value Range: (0..511)
rac	Routing Area Code, RAC (Ref. 3GPP TS 23.003 [3]).	Type: Integral numeric value Range: (0..255)

rncFunctionId	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.	
rncId	IOC **ExternalUtranCell**: Unique RNC ID for the associated RNC (Ref. 3GPP TS 23.003 [3]). IOC **RncFunction**: Unique RNC ID (Ref. 3GPP TS 23.003 [3]).	
sac	Service Area Code, SAC (Ref. 3GPP TS 23.003 [3]).	Type: Integral numeric value Range: (0..65535)
secondarySchPower	The power of the secondary synchronisation channel in the cell, DL Power (Ref. 3GPP TS 25.433 [5]).	Type: Numeric value Range: (-35..+15 dB) Steps of 0.1dB
uarfcnDl	IOCs **UtranCell** and **ExternalUtranCell**: The DL UTRA absolute Radio Frequency Channel number for a cell, UARFCN (Ref. 3GPP TS 25.433 [5]). IOC **UtranRelation**: The DL UTRA absolute Radio Frequency Channel number for a cell, UARFCN (Ref. 3GPP TS 25.433 [5]), for another UTRAN cell or the external UTRAN cell that is broadcast in the system information in the Cell.	Type: Integral numeric value Range: (0..16383)
uarfcnUl	IOCs **UtranCell** and **ExternalUtranCell**: The UL UTRA absolute Radio Frequency Channel number for a cell, UARFCN (Ref. 3GPP TS 25.433 [5]). IOC **UtranRelation**: The UL UTRA absolute Radio Frequency Channel number for a cell, UARFCN (Ref. 3GPP TS 25.433 [5]) for another UTRAN cell or the external UTRAN cell that is broadcast in the system information in the Cell.	Type: Integral numeric value Range: (0..16383)
uraList	A list of UTRAN Registration Area, URA (Ref. 3GPP TS 25.331 (subclause 10.3.10)[9]), that a UtranCell can belong to.	Type: A list of Integral numeric values Range: (0..65535) for each integral numeric value.
userLabel	A user friendly (and user assigned) name of the associated object.	xxx
utranCellId	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.	
utranRelationId	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.

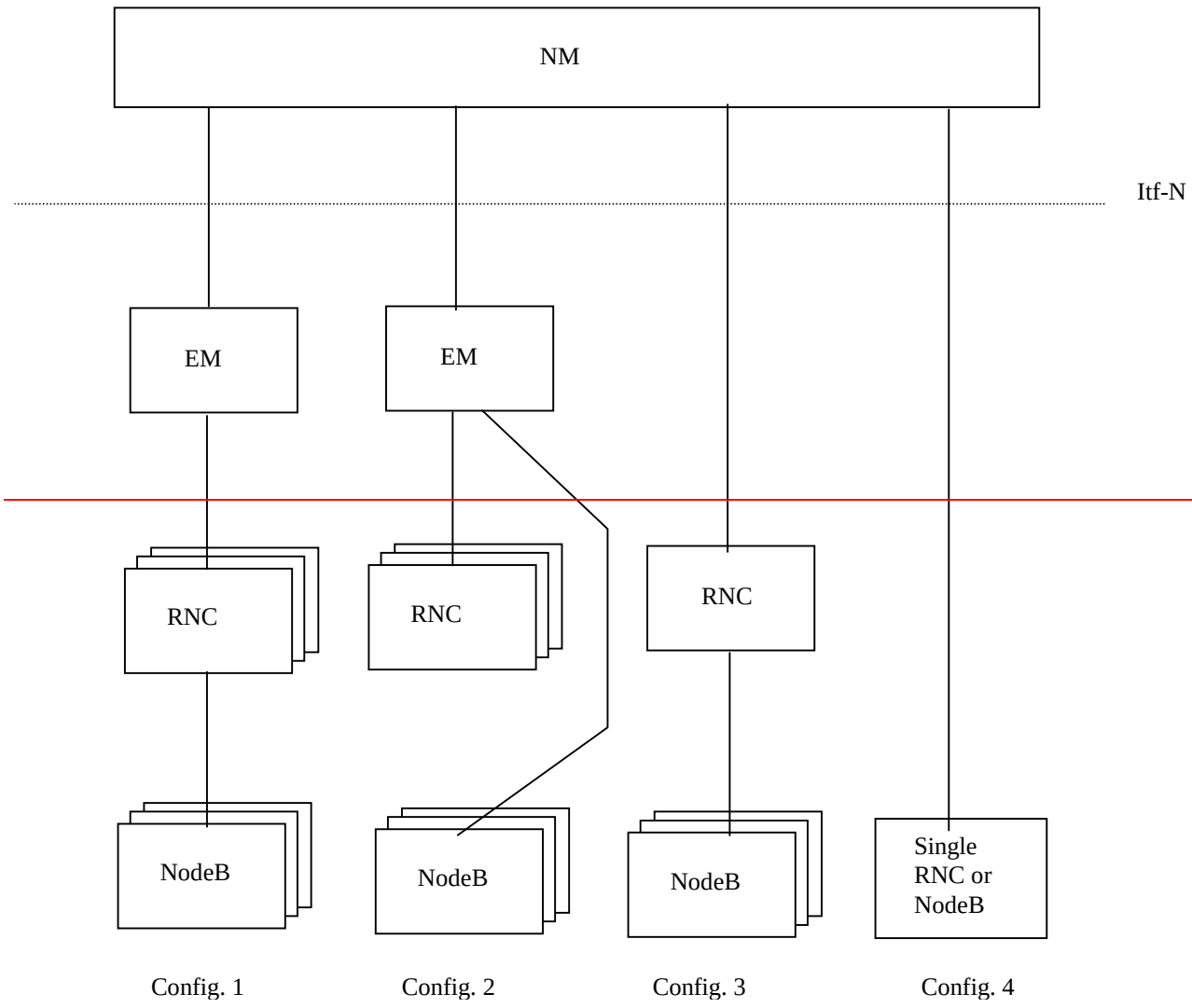
End of Change in Clause 6
End of Document

Change in Annex A

Annex A (informative):

~~Supported UTRAN network configurations~~Void

~~Figure A.1 depicts four typical network configurations, which are supported by the UTRAN NRM over the Itf-N. However, this does not preclude support for other configurations.~~



~~Figure A.1: Typical network configurations supported by the UTRAN NRM~~

~~Table A.1 shows the possible number of instances for each network configuration (counted from left to right in figure A.1.):~~

~~**Table A.1: Number of instances for each example configuration in figure A.1**~~

~~MOC~~	~~Config. 1~~	~~Config. 2~~	~~Config. 3~~	~~Config. 4~~
~~SubNetwork~~	~~1~~	~~1~~	~~1~~	~~0..1~~
~~ManagementNode~~	~~1~~	~~1~~	~~0~~	~~0~~
~~ManagedElement~~	~~1..N~~	~~1..N~~	~~1..N~~	~~1~~
~~MeContext~~	~~0..M~~	~~0..M~~	~~0..M~~	~~0..1~~
~~RncFunction~~	~~0..P~~	~~0..P~~	~~0..1~~	~~0..1~~
~~NodeBFunction~~	~~0..Q~~	~~0..Q~~	~~0..(N-1)~~	~~0..1~~
~~IubLink~~	~~0..Q~~	~~0..Q~~	~~0..(N-1)~~	~~0~~
~~UtranCell~~	~~0..R~~	~~0..R~~	~~0..R~~	~~0..R~~
~~IRPAgent~~	~~1~~	~~1~~	~~1~~	~~1~~
~~NotificationIRP~~	~~1~~	~~1~~	~~1~~	~~1~~
~~AlarmIRP~~	~~0..1~~	~~0..1~~	~~0..1~~	~~0..1~~
~~BasicCmIRP~~	~~0..1~~	~~0..1~~	~~0..1~~	~~0..1~~

End of Change in Annex A
End of Document

Annex B (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
Jun 2002	S_16	SP-020303	001	--	Corrections of reference in figure 6.2 and of attribute descriptions in UtranRelation in 32.642 (UTRAN network resources IRP: NRM)	4.0.0	4.1.0
Jun 2002	S_16	SP-020304	002	--	Correction of supported IRP in system context	4.0.0	4.1.0
Sep 2002	S_17	SP-020490	003	--	UML corrections	4.1.0	4.2.0
Jun 2003	S_20	SP-030282	007	--	Add missing notifications from all managed objects (notifyComments, notifyAlarmListRebuilt)	4.2.0	4.3.0
Jun 2003	S_20	SP-030282	009	--	Correction of UML diagram vsDataContainer Containment/Naming and Association in UTRAN NRM	4.2.0	4.3.0
Jun 2003	S_20	SP-030283	011	--	Deletion of UTRAN attribute relationType	4.2.0	4.3.0
Dec 2003	S_22	SP-030715	013	--	Correction in attribute description for ìmaximumTransmissionPowerî to remove dual interpretation ñ Align with RAN3ís TS 25.433	4.3.0	4.4.0
Dec 2003	S_22	SP-030646	015	--	Correction of the number of possible URAs from 1 to 8	4.3.0	4.4.0

CR-Form-v7

CHANGE REQUEST

⌘	32.642	CR	025	⌘ rev	-	⌘	Current version:	5.4.0	⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☒ Core Network ☐

Title:	⌘	Align with the IRP IS template in 32.102 Telecommunication management; Architecture
Source:	⌘	**SA5** (robert.petersen@ericsson.com)
Work item code:	⌘	OAM-NIM
Date:	⌘	20/08/2004
Category:	⌘	**A**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	The specification is not aligned with the IRP IS template in 32.102. ISes shall contain IOCs not MOCs. The support of NRM versions for State Management IRP is out of control for vendors. The specification should not contain information about Interface IRPs. The information about imported entities are missing. The containment diagrams are messy, as one contain a large number of IOCs in one figure and another only contains two IOCs. The relation attributes for UtranRelation is missing in Table 6.10.
Summary of change:	⌘	The UML diagrams have been updated according to the UML repertoire. They have also been split into more readable figures. Managed object classes are changed to information object classes. The information about the support of NRM versions for State Management IRP is deleted. Release dependant information is made general for all releases. Information valid for interface IRPs are removed. The information about the imported entiteis are added. The split of the containment diagrams has been changed. The missing attributes in UtranRelation are added.
Consequences if not approved:	⌘	The specification would not be complete and it would be ambiguous.

Clauses affected:	⌘	1, 2, 3.1, 4, 6, 6.1, 6.2, 6.3 and Annex A.

Other specs affected:	⌘	Y	N	
			X	Other core specifications
			X	Test specifications
			X	O&M Specifications

Other comments:	⌘	Rel-5 32.642 Mirror CR of S5-048715.

Change in Clause 1

1 Scope

The present document is part of an Integration Reference Point (IRP) named "UTRAN 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 UTRAN resources. The "UTRAN 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

1. specifies the protocol neutral UTRAN Network Resources IRP: Network Resource Model. It reuses relevant parts of the generic NRM in TS 32.622 [16], either by direct reuse or sub-classing, and in addition to that defines UTRAN specific Information ~~Managed~~ Object Classes.

The Configuration Management (CM) area is very large. The intention is to split the specification of the related interfaces in several IRPs ñ 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.

To summarize, the present document has the following main purpose:

(1) to define the applied UTRAN specific Network Resource Model, based on the generic NRM in TS 32.622 [16].

In order to access the information defined by this NRM, an IRP Information Service (IS) is needed, such as the Basic CM IRP: IS (TS 32.602 [17]) or the Bulk CM IRP: IS (TS 32.612 [18]). However, which Information Service that is applicable is outside the scope of this document.

~~Regarding the support of the State Management IRP: IS (TS 32.672 [8]), all NRMs of one release shall support the same State Management IRP version.~~

This NRM specification is related to 3GPP TS 32.672 V5.0.X.

End of Change in Clause 1

Change in Clause 2

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 23.003: "Numbering, addressing and identification".

[4] 3GPP TS 25.401: "UTRAN Overall Description"

[5] 3GPP TS 25.433: "UTRAN Iub Interface NBAP Signalling"

[6] 3GPP TS 32.652: "Telecommunication management; Configuration Management (CM); GERAN network resources Integration Reference Point (IRP): Network Resource Model (NRM)". ~~Void.~~

[7] Void.

[8] 3GPP TS 32.672: "Telecommunication management; Configuration Management (CM); State Management Integration Reference Point (IRP): Information Service (IS)".

[9] 3GPP TS 25.331: "Radio Resource Control (RRC) protocol specification".

[10] Void

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

[18] 3GPP TS 32.612: "Telecommunication management; Configuration Management (CM); Bulk CM Integration Reference Point (IRP): Information Service (IS)".

End of Change in Clause 2

Change in Clause 3.1

3.1 Definitions

For the purposes of the present document, the following terms and definitions apply. For terms and definitions not found here, please refer to 3GPP TS 32.101 [1], 3GPP TS 32.102 [2] and 3GPP TS 32.600 [14].

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 Information ~~Managed~~ Object Class ManagedElement defined in [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 ñ 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 the 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.

End of Change in Clause 3.1

Change in Clause 4

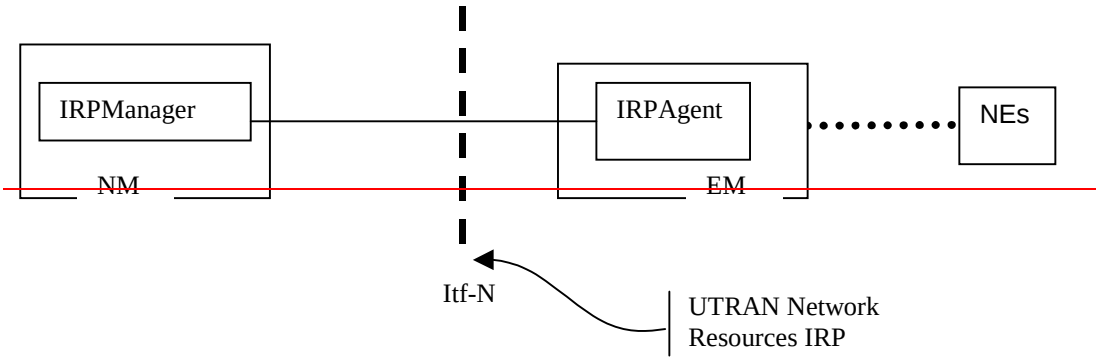
4 System overview

4.1 System context

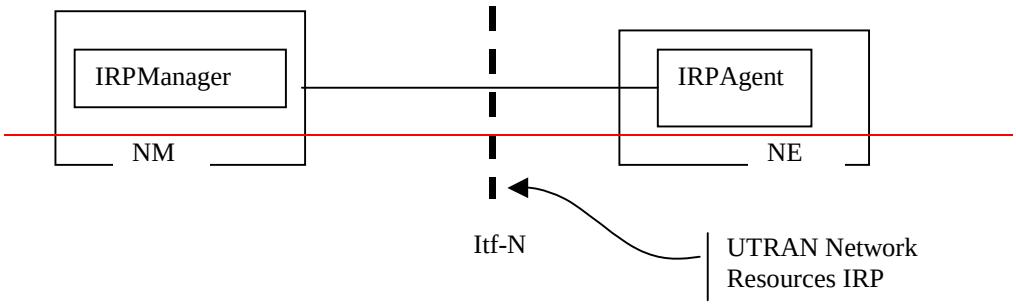
Void.~~Figure 4.1 and 4.2 identify system contexts of the IRP defined by the present document in terms of its implementation called IRPAgent and the user of the IRPAgent, called IRPManager. For a definition of IRPManager and IRPAgent, see 3GPP TS 32.102 [2].~~

~~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 [2] clause 8). In the former case, the interface (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 ~~managed~~ object classes, attributes~~,~~ and 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 recognised 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.

End of Change in Clause 4

Change in Clause 6

6 Information Object Classes (IOCs)~~IRP Information Model~~

End of Change in Clause 6

Change in Clause 6.1

6.1 Information entities imported and local labels

~~None.~~

Label reference	Local label
3GPP TS 32.111-2 [11], notification, notifyAckStateChanged	notifyAckStateChanged
3GPP TS 32.111-2 [11], notification, notifyAlarmListRebuilt	notifyAlarmListRebuilt
3GPP TS 32.111-2 [11], notification, notifyChangedAlarm	notifyChangedAlarm
3GPP TS 32.111-2 [11], notification, notifyClearedAlarm	notifyClearedAlarm
3GPP TS 32.111-2 [11], notification, notifyComments	notifyComments
3GPP TS 32.111-2 [11], notification, notifyNewAlarm	notifyNewAlarm
3GPP TS 32.111-2 [11], notification, notifyPotentialFaultyAlarmList	notifyPotentialFaultyAlarmList
3GPP TS 32.622 [16], IOC, ManagedElement	ManagedElement
3GPP TS 32.622 [16], IOC, ManagedFunction	ManagedFunction
3GPP TS 32.622 [16], IOC, MeContext	MeContext
3GPP TS 32.622 [16], IOC, SubNetwork	SubNetwork
3GPP TS 32.622 [16], IOC, Top	Top
3GPP TS 32.622 [16], IOC, VsDataContainer	VsDataContainer
3GPP TS 32.652 [6], IOC, ExternalGSMCell	ExternalGSMCell
3GPP TS32.652 [6], IOC, GsmCell	GsmCell
3GPP TS32.652 [6], IOC, GsmRelation	GsmRelation
3GPP TS32.652 [6], relation, ExternalGsmNeighbourCellRelation	ExternalGsmNeighbourCellRelation
3GPP TS32.652 [6], relation, GsmNeighbourCellRelation	GsmNeighbourCellRelation
3GPP TS 32.662 [17], notification, notifyAttributeValueChange	notifyAttributeValueChange
3GPP TS 32.662 [17], notification, notifyObjectCreation	notifyObjectCreation
3GPP TS 32.662 [17], notification, notifyObjectDeletion	notifyObjectDeletion
3GPP TS32.672 [8], attribute, operationalState	operationalState

End of Change in Clause 6.1

Change in Clause 6.2

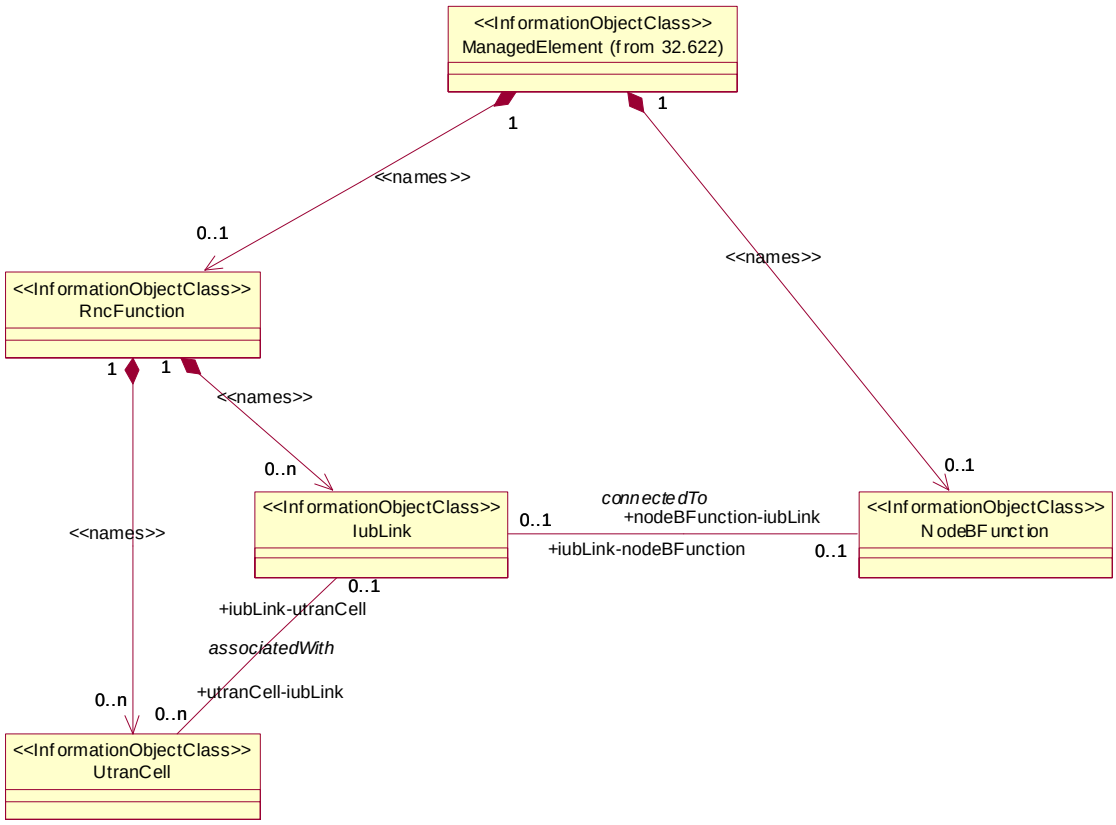
6.2 Class diagram

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 6.1, 6.2 and 6.3 shows the ~~name~~ containment ~~relation and other types of relations of the UTRAN NRM.~~/naming hierarchy and the associations of the information object classes defined in the present document. They are split in 3 only for a readability purpose

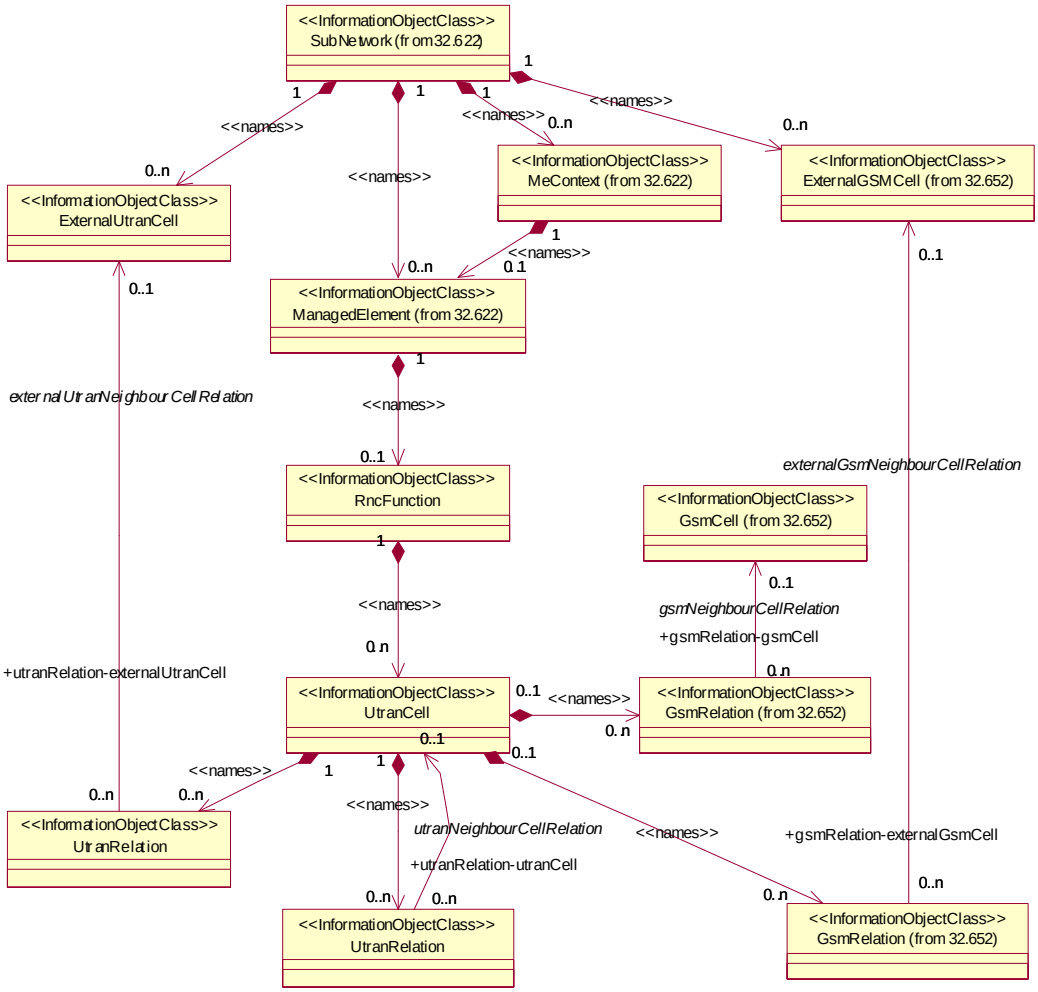
~~NOTE: The name containment relations between IOCs are indicated by UML "unidirectional aggregation by reference" ("hollow diamonds").~~

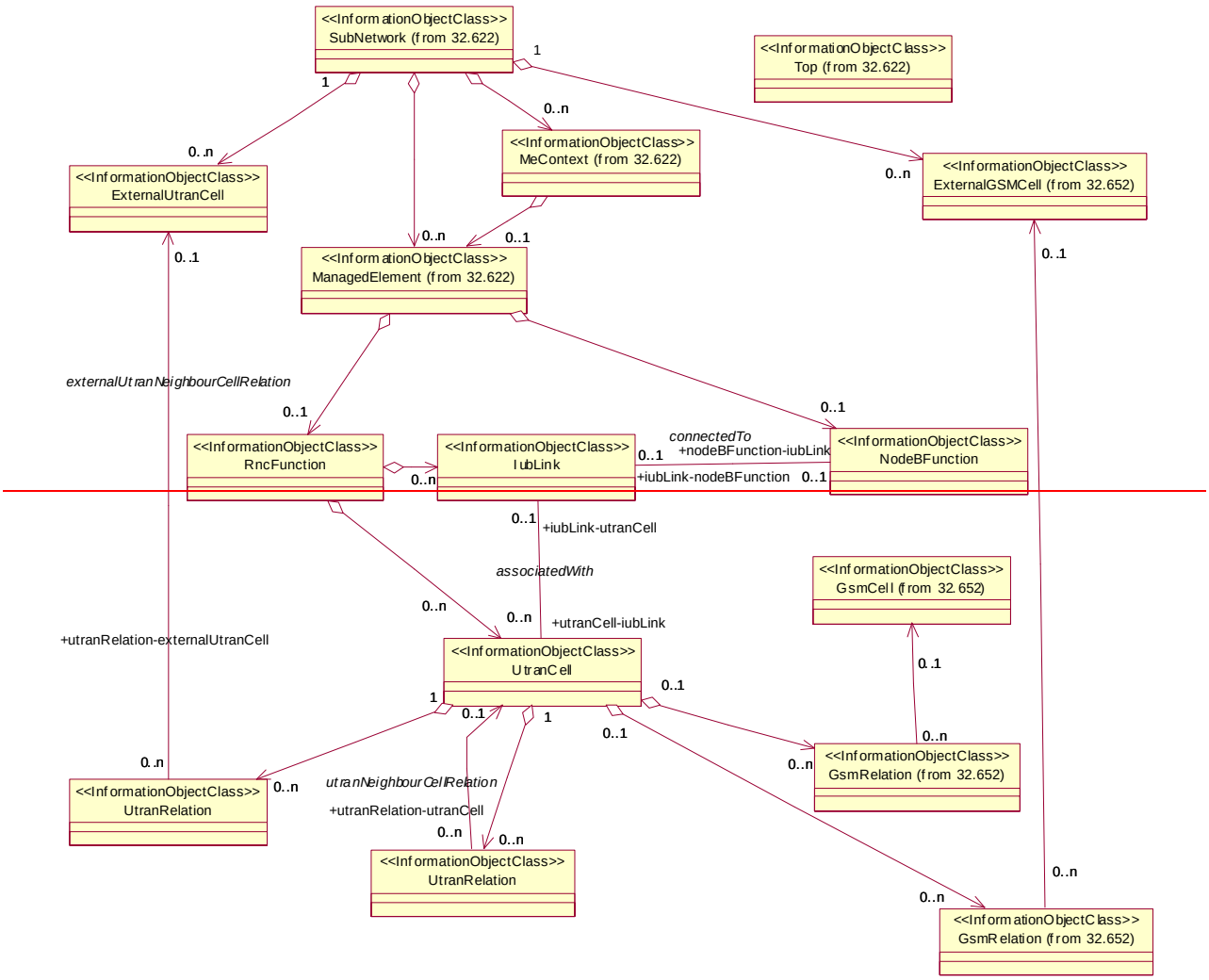


NOTE 1: The listed cardinality numbers represent transient as well as steady state numbers, and reflect all managed object creation and deletion scenarios.

NOTE 2: Each instance of the `VsDataContainer` shall only be contained under one IOC. The `VsDataContainer` can be contained under IOCs defined in other NRMs.

Figure 6.1: Transport view UTRAN NRM Containment/Naming and Association diagram


<<InformationObjectClass>>
SubNetwork (from 32.622)
<<InformationObjectClass>>
ExternalUtranCell
<<InformationObjectClass>>
MeContext (from 32.622)
<<InformationObjectClass>>
ExternalGSMCell (from 32.652)
<<InformationObjectClass>>
ManagedElement (from 32.622)
<<InformationObjectClass>>
RncFunction
<<InformationObjectClass>>
GsmCell (from 32.652)
<<InformationObjectClass>>
UtranCell
<<InformationObjectClass>>
GsmRelation (from 32.652)
<<InformationObjectClass>>
UtranRelation
<<InformationObjectClass>>
UtranRelation
<<InformationObjectClass>>
GsmRelation (from 32.652)
<<names>>
externalUtranNeighbourCellRelation
externalGsmNeighbourCellRelation
gsmNeighbourCellRelation
+gsmRelation-gsmCell
+utranRelation-externalUtranCell
utranNeighbourCellRelation
+utranRelation-utranCell
+gsmRelation-externalGsmCell
1
0..n
0..1

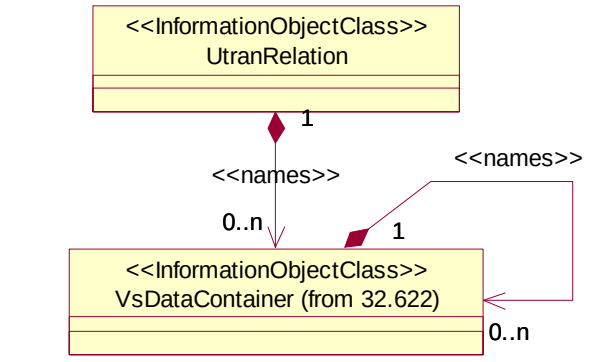


NOTE 1: The listed cardinality numbers represent transient as well as steady state numbers, and reflect all managed object creation and deletion scenarios.

NOTE 2: The relation between GsmRelation and GsmCell is optional. It may be present if both the UtranCell and the GsmCell are managed by the same management node.

NOTE 3: The UtranRelation and GsmRelation can be name-contained under IOCs defined in other NRMs.

Figure 6.~~1~~2: Cell view UTRAN NRM Containment/Naming and Association diagram



NOTE 1: The listed cardinality numbers represent transient as well as steady state numbers, and reflect all managed object creation and deletion scenarios.
NOTE 2: Each instance of the `VsDataContainer` shall only be contained under one IOC. The `VsDataContainer` can be contained under IOCs defined in other NRMs.

Figure 6.3: `VsDataContainer` Containment/Naming and Association in UTRAN NRM diagram

The `VsDataContainer` is only used for the Bulk CM IRP.

Each IOC 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 an IOC representing a cell could have a format like:

SubNetwork=Sweden, MeContext=MEC-Gbg-1,ManagedElement=RNC-Gbg-1, RncFunction=RF-1,UtranCell=Gbg-1.

6.2.2 Inheritance

This clause depicts the inheritance relationships that exist between IOCs.

Figure 6.~~2~~4 shows the inheritance hierarchy for the UTRAN NRM.

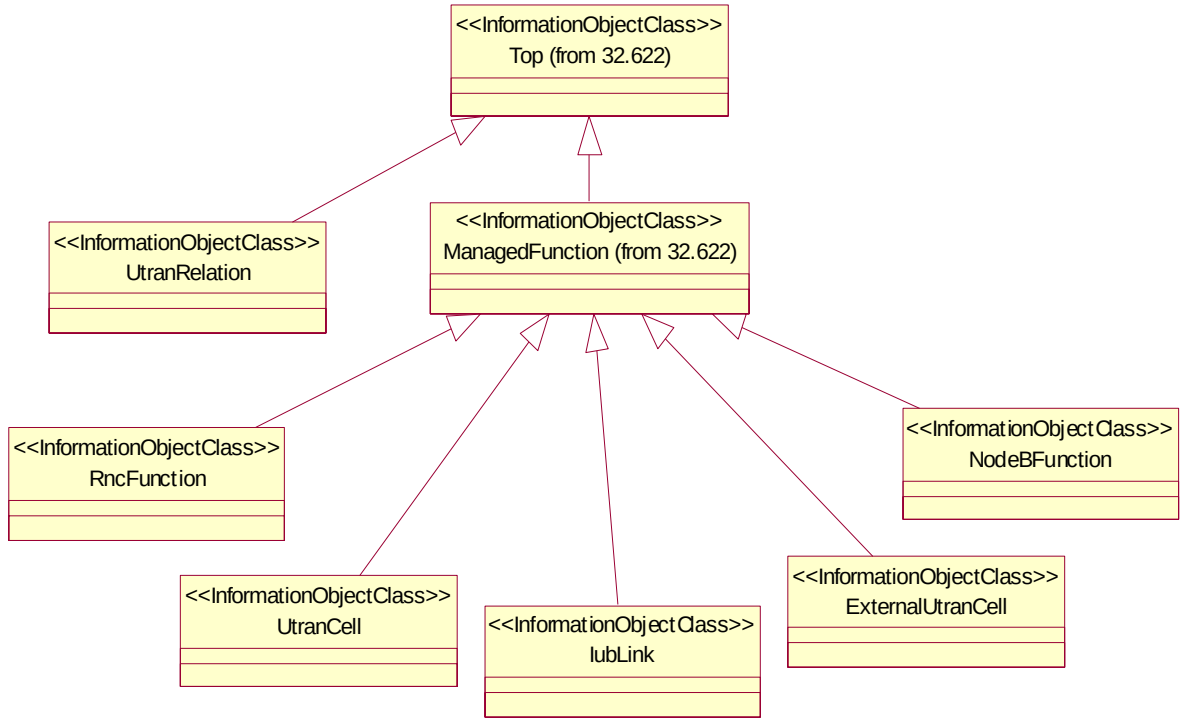
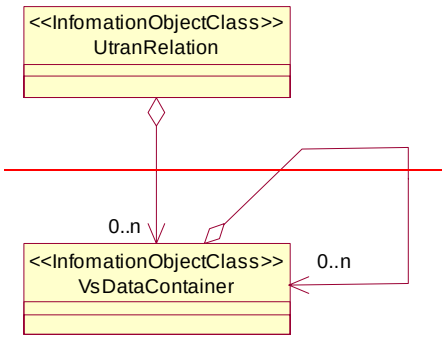


Figure 6.~~2~~4: UTRAN NRM Inheritance Hierarchy



~~NOTE 1: The listed cardinality numbers represent transient as well as steady state numbers, and reflect all managed object creation and deletion scenarios.~~
~~NOTE 2: Each instance of the vsDataContainer shall only be contained under one IOC. The vsDataContainer can be contained under IOCs defined in other NRMs.~~

~~Figure 6.3: vsDataContainer Containment/Naming and Association in UTRAN NRM diagram~~

~~The vsDataContainer is only used for the Bulk CM IRP.~~

End of Change in Clause 6.2

Change in Clause 6.3

6.3 Information object classes definition

6.3.1 RncFunction

6.3.1.1 Definition

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

6.3.1.2 Attributes

Table 6.1: Attributes of RncFunction

Attribute name	Visibility	Support Qualifier	Read Qualifier	Write Qualifier
rncFunctionId	+	M	M	-
userLabel	+	M	M	M
mcc	+	M	M	M
mnc	+	M	M	M
rncId	+	M	M	M

6.3.1.6 Notifications

Table 6.2: Notifications of `RncFunction`

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 NodeBFunction

6.3.2.1 Definition

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

6.3.2.2 Attributes

Table 6.3: Attributes of NodeBFunction

Attribute name	Visibility	Support Qualifier	Read Qualifier	Write Qualifier
nodeBFunctionId	+	M	M	-
userLabel	+	M	M	M
nodeBFunction-IubLink	+	M	M	-

6.3.2.6 Notifications

Table 6.4 Notifications of `NodeBFunction`

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 UtranCell

6.3.3.1 Definition

This IOC represents a radio cell controlled by the RNC. For more information about radio cells, see 3GPP TS 23.002 [15].

6.3.3.2 Attributes

Table 6.5: Attributes of UtranCell

Attribute name	Visibility	Support Qualifier	Read Qualifier	Write Qualifier
utranCellId	+	M	M	-
userLabel	+	M	M	M
cId	+	M	M	M
localCellId	+	M	M	M
uarfcnUl	+	M	M	M
uarfcnDl	+	M	M	M
primaryScramblingCode	+	M	M	M
primaryCpichPower	+	M	M	M
maximumTransmissionPower	+	M	M	M
primarySchPower	+	M	M	M
secondarySchPower	+	M	M	M
bchPower	+	M	M	M
lac	+	M	M	M
rac	+	M	M	M
sac	+	M	M	M
uraList	+	M	M	M
utranCell-IubLink	+	M	M	-

Table 6.6: Additional attributes of UtranCell for the support of the State Management IRP

Attribute Name	Support Qualifier	READ	WRITE
operationalState	O	M	_
NOTE: No state propagation shall be implied.			

6.3.3.6 Notifications

Table 6.7: Notifications of `UtranCell`

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 IubLink

6.3.4.1 Definition

This IOC represents the logical link to a Node B as seen from the RNC. For more information about the RNC, see 3GPP TS 23.002 [15].

6.3.4.2 Attributes

Table 6.8: Attributes of IubLink

Attribute name	Visibility	Support Qualifier	Read Qualifier	Write Qualifier
iubLinkId	+	M	M	-
userLabel	+	M	M	M
iubLink-UtranCell	+	M	M	M
iubLink-NodeBFunction	+	M	M	-

6.3.4.6 Notifications

Table 6.9: Notifications of `IubLink`

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 UtranRelation

6.3.5.1 Definition

The "UtranRelation" IOC contains radio network related parameters for the relation to the "UtranCell" or "ExternalUtranCell" IOC.

NOTE: In handover relation terms, the cell containing the UTRAN Relation object is the source cell for the handover. The cell referred to in the UTRAN relation object is the target cell for the handover. This defines a one-way handover relation where the direction is *from* source cell *to* target cell.

6.3.5.2 Attributes

Table 6.10: Attributes of UtranRelation

Attribute name	Visibility	Support Qualifier	Read Qualifier	Write Qualifier
utranRelationId	+	M	M	-
adjacentCell	+	M	M	M
uarfcnUl	+	O	M	-
uarfcnDl	+	O	M	-
primaryScramblingCode	+	O	M	-
primaryCpichPower	+	O	M	-
lac	+	O	M	-

~~**Table 6.11: Notifications of `UtranRelation`**~~

~~Name~~	~~Qualifier~~	~~Notes~~
~~notifyAttributeValueChange~~	~~O~~	
~~notifyObjectCreation~~	~~O~~	
~~notifyObjectDeletion~~	~~O~~	

6.3.5.3 Attribute constraints

The optionally attributes uarfcnUl, uarfcnDl, primaryScramblingCode, primaryCpichPower and lac shall be included if the EM does not guarantee consistency between the cell definition and what is broadcast on system information. Otherwise they shall not be included.

6.3.5.6 Notifications

Table 6.11: Notifications of `UtranRelation`

Name	Qualifier	Notes
notifyAttributeValueChange	O	
notifyObjectCreation	O	
notifyObjectDeletion	O	

6.3.6 ExternalUtranCell

6.3.6.1 Definition

This IOC represents a radio cell controlled by another IRPAgent. This IOC has necessary attributes for inter-system handover. It contains a subset of the attributes of related IOCs controlled by another IRPAgent. The way to maintain consistency between the attribute values of these two IOCs is outside the scope of this document.

6.3.6.2 Attributes

Table 6.12: Attributes of ExternalUtranCell

Attribute name	Visibility	Support Qualifier	Read Qualifier	Write Qualifier
externalUtranCellId	+	M	M	-
userLabel	+	M	M	M
cId	+	M	M	M
mcc	+	M	M	M
mnc	+	M	M	M
rncId	+	M	M	M
uarfcnUl	+	M	M	M
uarfcnDl	+	M	M	M
primaryScramblingCode	+	M	M	M
primaryCpichPower	+	M	M	M
lac	+	M	M	M
rac	+	M	M	M

6.3.6.6 Notifications

Table 6.13: Notifications of `ExternalUtranCell`

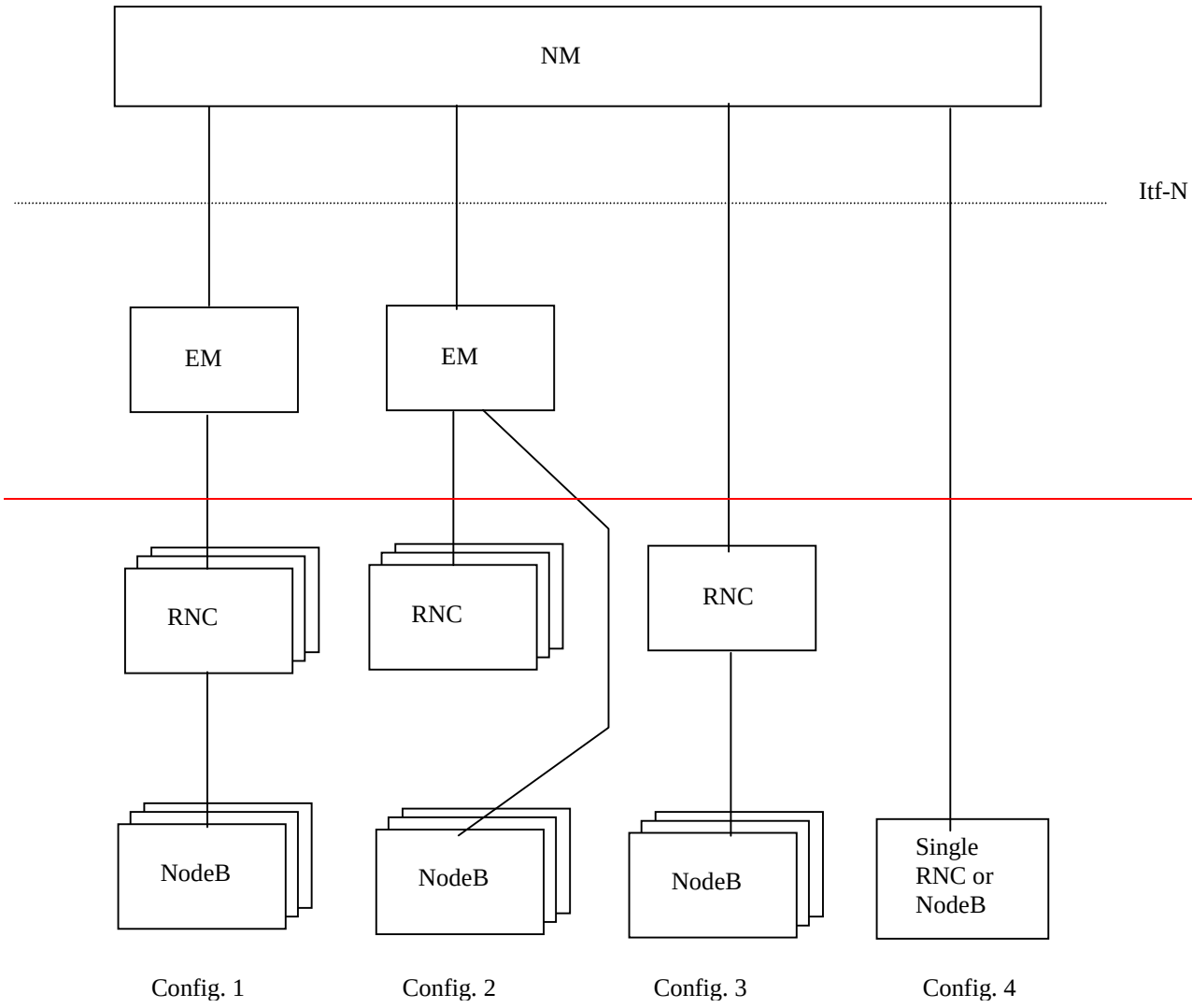
Name	Qualifier	Notes
notifyAttributeValueChange	O	
notifyObjectCreation	O	
notifyObjectDeletion	O	

End of Change in Clause 6.3
End of Document

Change in Annex A

Annex A (informative): Supported UTRAN network configurations

Void. ~~Figure A.1 depicts four typical network configurations, which are supported by the UTRAN NRM over the Itf-N. However, this does not preclude support for other configurations.~~



~~Figure A.1: Typical network configurations supported by the UTRAN NRM~~

~~Table A.1 shows the possible number of instances for each network configuration (counted from left to right in figure A.1.):~~

Table A.1: Number of instances for each example configuration in figure A.1

IOC	Config. 1	Config. 2	Config. 3	Config. 4
SubNetwork	1	1	1	0..1
ManagementNode	1	1	0	0
ManagedElement	1..N	1..N	1..N	1
MeContext	0..M	0..M	0..M	0..1
RncFunction	0..P	0..P	0..1	0..1
NodeBFunction	0..Q	0..Q	0..(N-1)	0..1
IubLink	0..Q	0..Q	0..(N-1)	0
UtranCell	0..R	0..R	0..R	0..R
IRPAgent	1	1	1	1
NotificationIRP	1	1	1	1
AlarmIRP	0..1	0..1	0..1	0..1
BasicCmIRP	0..1	0..1	0..1	0..1

End of Change in Annex A
End of Document

Annex B (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
Jun 2002	S_16	SP-020303	001	--	Corrections of reference in figure 6.2 and of attribute descriptions in UtranRelation in 32.642 (UTRAN network resources IRP: NRM)	4.0.0	4.1.0
Jun 2002	S_16	SP-020304	002	--	Correction of supported IRP in system context	4.0.0	4.1.0
Sep 2002	S_17	SP-020490	003	--	UML corrections	4.1.0	4.2.0
Sep 2002	S_17	SP-020492	004	--	Add the new IRP IS methodology defined in 32.102	4.2.0	5.0.0
Sep 2002	S_17	SP-020492	005	--	Add State Management	4.2.0	5.0.0
Dec 2002	S_18	SP-020748	006	--	Inclusion of valid values and ranges for UTRAN Cell parameters	5.0.0	5.1.0
Jan 2003	--	--	--	--	Accepted all revision marks	5.1.0	5.1.1
Jun 2003	S_20	SP-030282	008	--	Include notification tables	5.1.1	5.2.0
Jun 2003	S_20	SP-030282	010	--	Correction of UML diagram vsDataContainer Containment/Naming and Association in UTRAN NRM	5.1.1	5.2.0
Jun 2003	S_20	SP-030283	012	--	Deletion of UTRAN attribute relationType	5.1.1	5.2.0
Dec 2003	S_22	SP-030715	014	--	Correction in attribute description for ìmaximumTransmissionPowerî to remove dual interpretation - Align with RAN3's 25.433	5.2.0	5.3.0
Dec 2003	S_22	SP-030646	016	--	Correction of the number of possible URAs from 1 to 8	5.2.0	5.3.0
Dec 2003	S_22	SP-030641	017	--	Add missing notification notifyPotentialFaultyAlarmlist	5.2.0	5.3.0
Dec 2003	S_22	SP-030643	018	--	Remove redundant VsDataContainer Containment UML - Now covered by 32.622	5.2.0	5.3.0
Jun 2004	S_24	SP-040254	020	--	Correction of the supported UMTS frequencies	5.3.0	5.4.0

CR-Form-v7

CHANGE REQUEST

⌘	32.642	CR	026	⌘	rev	-	⌘	Current version:	6.1.0	⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☒ Core Network ☐

Title:	⌘	Align with the IRP IS template (32.151) and IRP IS UML repertoire (32.152)
Source:	⌘	**SA5** (robert.petersen@ericsson.com)
Work item code:	⌘	OAM-NIM
Date:	⌘	20/08/2004
Category:	⌘	**A**
Release:	⌘	Rel-6

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	The specification is not aligned with the IRP IS template (32.151) and IRP IS UML repertoire (32.152). ISes shall contain IOCs not MOCs. The support of NRM versions for State Management IRP is out of control for vendors. The specification should not contain information about Interface IRPs. The information about imported entities are missing. The containment diagrams are messy, as one contain a large number of IOCs in one figure and another only contains two IOCs. The relation attributes for UtranRelation is missing in Table 6.10.
Summary of change:	⌘	The fonts of classes, attributes etc. have been changed according to the IS template. The UML diagrams have been updated according to the UML repertoire. They have also been split into more readable figures. Managed object classes are changed to information object classes. The information about the support of NRM versions for State Management IRP is deleted. Release dependant information is made general for all releases. Information valid for interface IRPs are removed. The information about the imported entiteis are added. The split of the containment diagrams has been changed. The missing attributes in UtranRelation are added.
Consequences if not approved:	⌘	The specification would not be complete and it would be ambiguous.

Clauses affected:	⌘	1, 2, 3.1, 4, 6 and Annex A.

		Y	N		
Other specs affected:	⌘		X	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	

Other comments:	⌘	Rel-6 32.642 Mirror CR of S5-048715.

Change in Clause 1

1 Scope

The present document is part of an Integration Reference Point (IRP) named "UTRAN 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 UTRAN resources. The "UTRAN 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 UTRAN Network Resources IRP: Network Resource Model. It reuses relevant parts of the generic NRM in TS 32.622 [16], either by direct reuse or sub-classing, and in addition to that defines UTRAN specific Information ~~Managed~~ Object Classes.

The Configuration Management (CM) area is very large. The intention is to split the specification of the related interfaces in several IRPs ñ 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 UTRAN specific NRM, based on the generic NRM in 3GPP TS 32.622 [16].

In order to access the information defined by this NRM, an IRP IS is needed, such as the Basic CM IRP IS (3GPP TS 32.602 [17]) or the Bulk CM IRP IS (3GPP TS 32.612 [18]). However, which IS that is applicable is outside the scope of the present document.

~~Regarding the support of the State Management IRP IS (TS 32.672 [8]), all NRMs of one release shall support the same State Management IRP version.~~

The present document (NRM specification) is related to the IS in 3GPP TS 32.672 V6.0.X [8].

End of Change in Clause 1

Change in Clause 2

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 23.003: "Numbering, addressing and identification".

[4] 3GPP TS 25.401: "UTRAN Overall Description".

[5] 3GPP TS 25.433: "UTRAN Iub Interface NBAP Signalling".

[6] 3GPP TS 32.652: "Telecommunication management; Configuration Management (CM); GERAN network resources Integration Reference Point (IRP): Network Resource Model (NRM)". ~~Void.~~

[7] Void.

[8] 3GPP TS 32.672: "Telecommunication management; Configuration Management (CM); State Management Integration Reference Point (IRP): Information Service (IS)".

[9] 3GPP TS 25.331: "Radio Resource Control (RRC) protocol specification".

[10] Void.

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

[18] 3GPP TS 32.612: "Telecommunication management; Configuration Management (CM); Bulk CM Integration Reference Point (IRP): Information Service (IS)".

End of Change in Clause 2

Change in Clause 3.1

3.1 Definitions

For the purposes of the present document, the following terms and definitions apply. For terms and definitions not found here, please refer to 3GPP TS 32.101 [1], 3GPP TS 32.102 [2] and 3GPP TS 32.600 [14].

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~~ Information Object Class `ManagedElement` defined in [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 ñ 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 the 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.

End of Change in Clause 3.1

Change in Clause 4

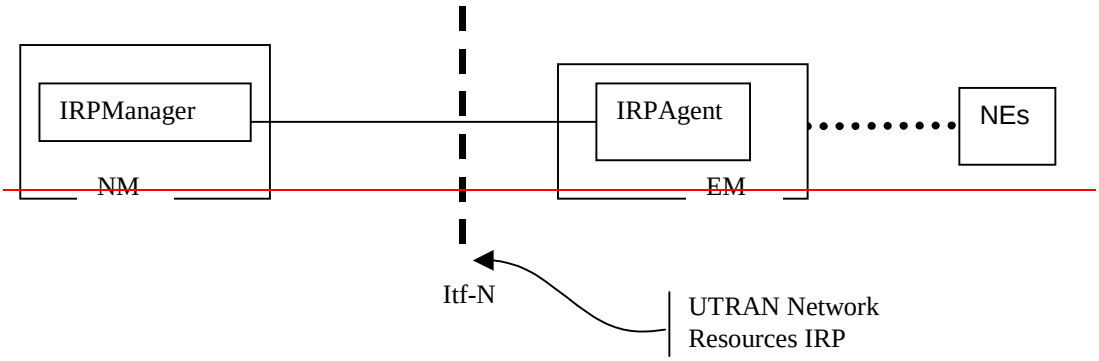
4 System overview

4.1 ~~System context~~Void

~~Figure 4.1 and 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 [2] clause 8). In the former case, the interface (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**~~

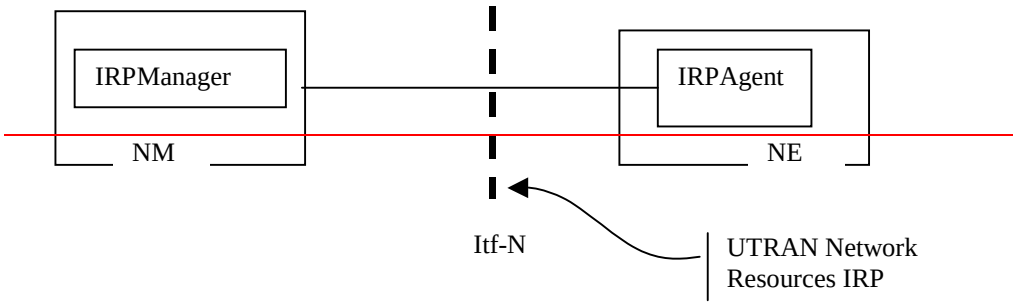


Figure 4.2: System Context B

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 Managed Object Classes, attributes, and 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 recognised 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.

End of Change in Clause 4

Change in Clause 6

6 Information Object ClassesIRP Information Model

6.1 Imported information entities and local labels

None.

Label reference	Local label
3GPP TS 32.111-2 [11], notification, notifyAckStateChanged	notifyAckStateChanged
3GPP TS 32.111-2 [11], notification, notifyAlarmListRebuilt	notifyAlarmListRebuilt
3GPP TS 32.111-2 [11], notification, notifyChangedAlarm	notifyChangedAlarm
3GPP TS 32.111-2 [11], notification, notifyClearedAlarm	notifyClearedAlarm
3GPP TS 32.111-2 [11], notification, notifyComments	notifyComments
3GPP TS 32.111-2 [11], notification, notifyNewAlarm	notifyNewAlarm
3GPP TS 32.111-2 [11], notification, notifyPotentialFaultyAlarmList	notifyPotentialFaultyAlarmList
3GPP TS 32.622 [16], IOC, ManagedElement	ManagedElement
3GPP TS 32.622 [16], IOC, ManagedFunction	ManagedFunction
3GPP TS 32.622 [16], IOC, MeContext	MeContext
3GPP TS 32.622 [16], IOC, SubNetwork	SubNetwork
3GPP TS 32.622 [16], IOC, Top	Top
3GPP TS 32.622 [16], IOC, VsDataContainer	VsDataContainer
3GPP TS 32.652 [6], IOC, ExternalGSMCell	ExternalGSMCell
3GPP TS32.652 [6], IOC, GsmCell	GsmCell
3GPP TS32.652 [6], IOC, GsmRelation	GsmRelation
3GPP TS32.652 [6], relation, ExternalGsmNeighbourCellRelation	ExternalGsmNeighbourCellRelation
3GPP TS32.652 [6], relation, GsmNeighbourCellRelation	GsmNeighbourCellRelation
3GPP TS 32.662 [17], notification, notifyAttributeValueChanged	notifyAttributeValueChanged
3GPP TS 32.662 [17], notification, notifyObjectCreation	notifyObjectCreation
3GPP TS 32.662 [17], notification, notifyObjectDeletion	notifyObjectDeletion
3GPP TS32.672 [8], attribute, operationalState	operationalState

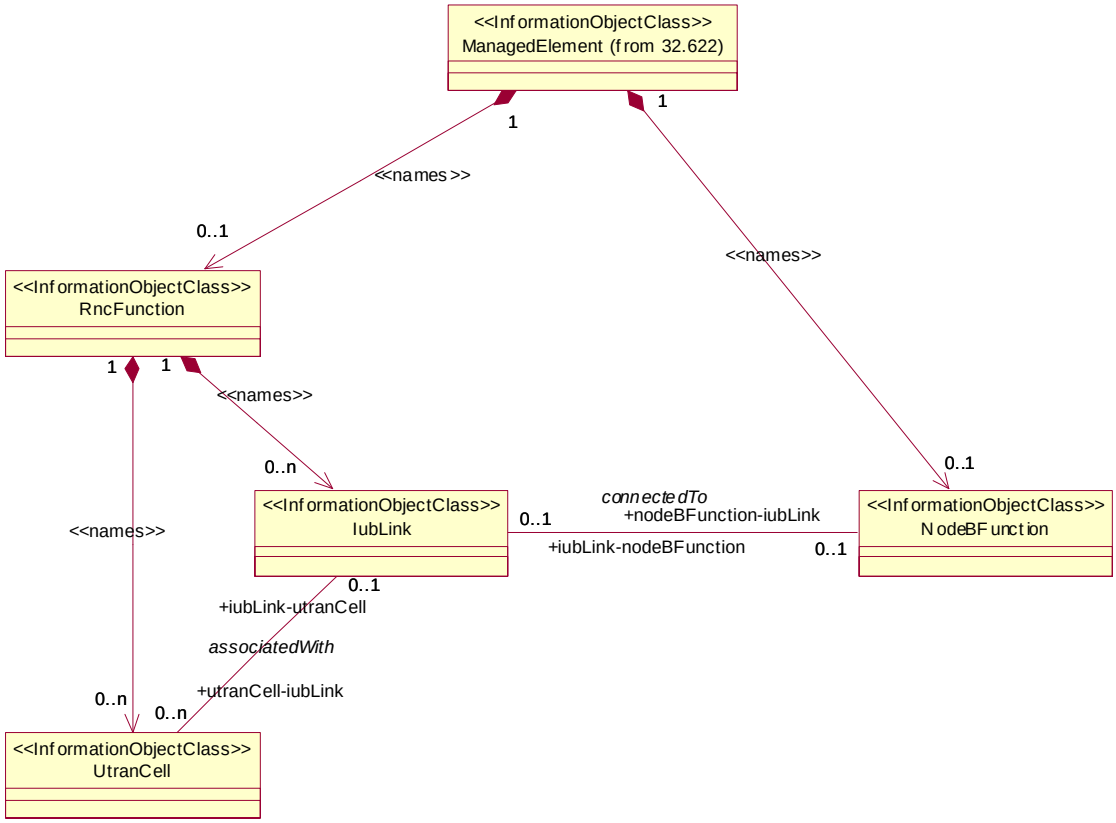
6.2 Class diagram

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 6.1, 6.2 and 6.3 shows the ~~name-~~containment/naming hierarchy and the associations of the information object classes defined in the present document ~~relation and other types of relations of the UTRAN NRM~~. They are split in 3 only for a readability purpose.

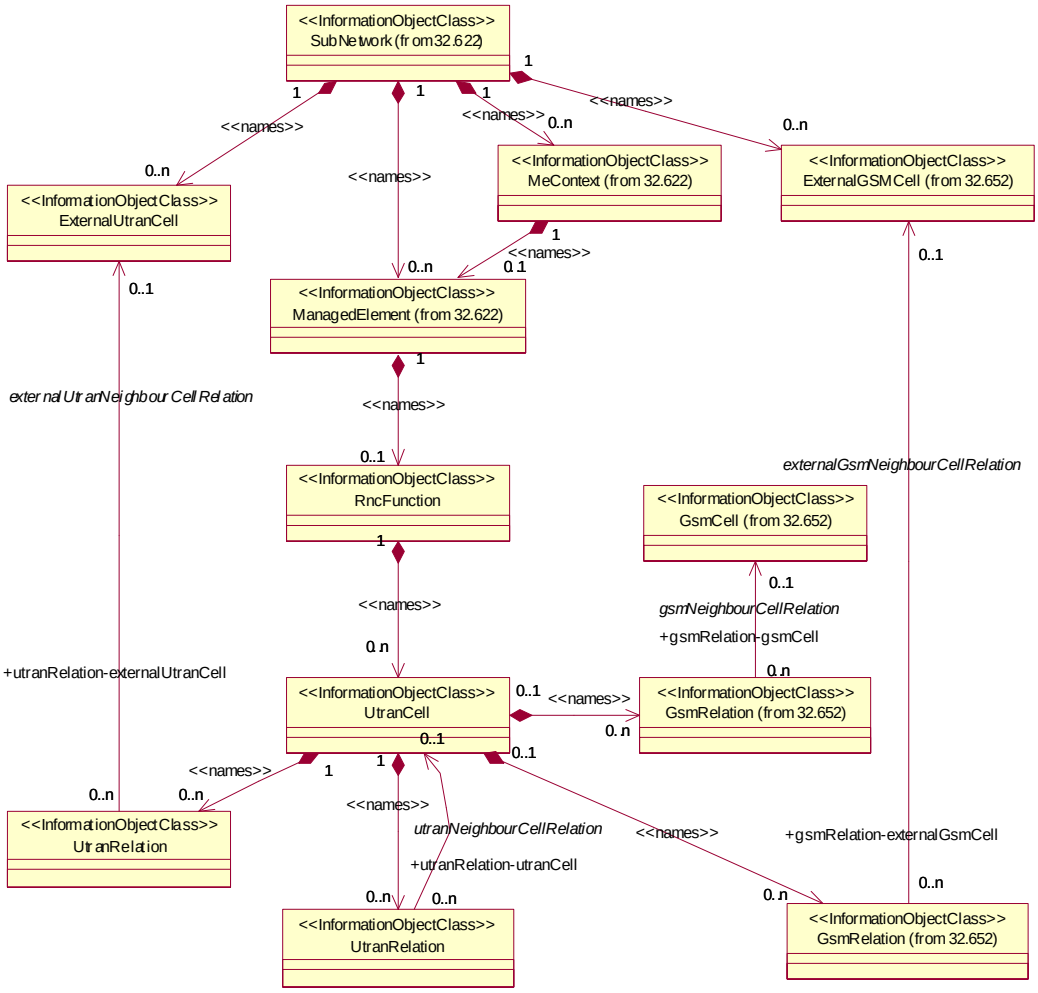
~~NOTE: The name-containment relations between IOCs are indicated by UML "unidirectional aggregation by reference" ("hollow diamonds").~~



NOTE 1: The listed cardinality numbers represent transient as well as steady state numbers, and reflect all managed object creation and deletion scenarios.

NOTE 2: Each instance of the `VsDataContainer` shall only be contained under one IOC. The `VsDataContainer` can be contained under IOCs defined in other NRMs.

Figure 6.1: Transport view UTRAN NRM Containment/Naming and Association diagram

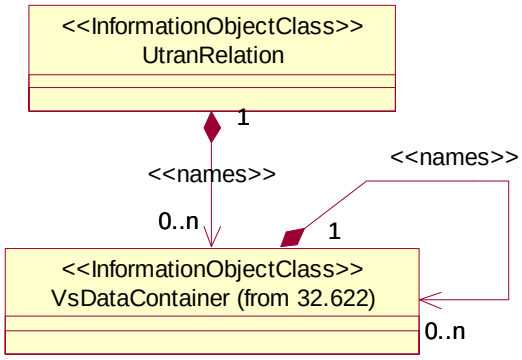


NOTE 1: The listed cardinality numbers represent transient as well as steady state numbers, and reflect all managed object creation and deletion scenarios.

NOTE 2: The relation between `GsmRelation` ~~GsmRelation~~ and `GsmCell` ~~GsmCell~~ is optional. It may be present if both the `UtranCell` ~~UtranCell~~ and the `GsmCell` ~~GsmCell~~ are managed by the same management node.

NOTE 3: The `UtranRelation` ~~UtranRelation~~ and `GsmRelation` ~~GsmRelation~~ can be name-contained under IOCs defined in other NRMs.

Figure 6.~~1~~2: Cell view UTRAN NRM Containment/Naming and Association diagram



NOTE 1: The listed cardinality numbers represent transient as well as steady state numbers, and reflect all managed object creation and deletion scenarios.
NOTE 2: Each instance of the `VsDataContainer` shall only be contained under one IOC. The `VsDataContainer` can be contained under IOCs defined in other NRMs.

Figure 6.3: `VsDataContainer` Containment/Naming and Association in UTRAN NRM diagram

The `VsDataContainer` is only used for the Bulk CM IRP.

Each IOC 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 an IOC representing a cell could have a format like:

SubNetwork=Sweden, MeContext=MEC-Gbg-1,ManagedElement=RNC-Gbg-1, RncFunction=RF-1,UtranCell=Gbg-1.

6.2.2 Inheritance

This clause depicts the inheritance relationships that exist between IOCs.

Figure 6.~~2~~4 shows the inheritance hierarchy for the UTRAN NRM.

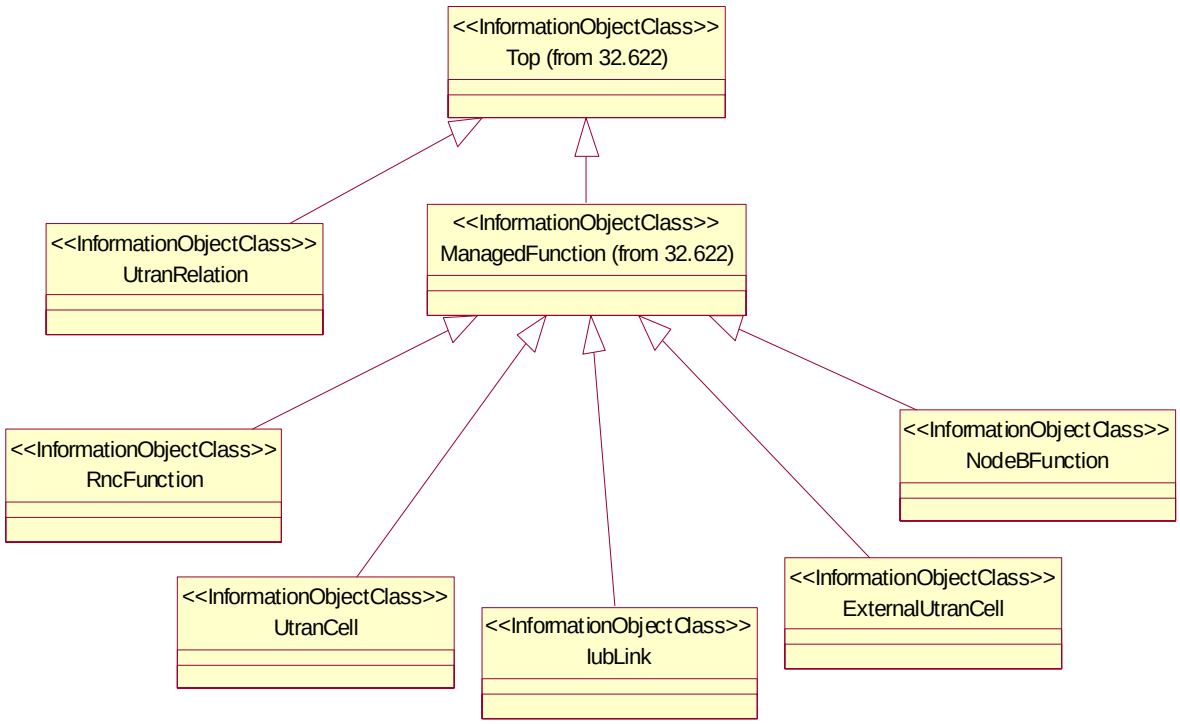
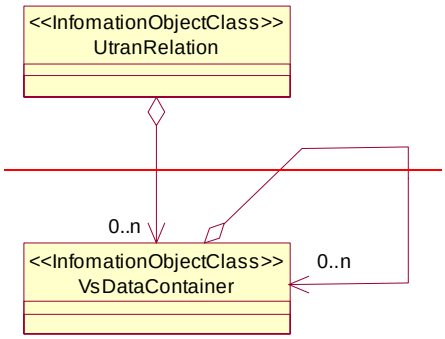


Figure 6.~~2~~4: UTRAN NRM Inheritance Hierarchy



~~**NOTE 1: The listed cardinality numbers represent transient as well as steady state numbers, and reflect all managed object creation and deletion scenarios.**~~

~~NOTE 2: Each instance of the `vsDataContainer` shall only be contained under one IOC. The `vsDataContainer` can be contained under IOCs defined in other NRMs.~~

~~**Figure 6.3: `vsDataContainer` Containment/Naming and Association in UTRAN NRM diagram**~~

~~The `vsDataContainer` is only used for the Bulk CM IRP.~~

6.3 Information Object Classes definitions

6.3.1 RncFunction

6.3.1.1 Definition

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

6.3.1.2 Attributes

Table 6.1: Attributes of RncFunction

Attribute name	Visibility	Support Qualifier	Read Qualifier	Write Qualifier
rncFunctionId	+	M	M	-
userLabel	+	M	M	M
mcc	+	M	M	M
mnc	+	M	M	M
rncId	+	M	M	M

6.3.1.6 Notifications

Table 6.2: Notifications of RncFunction

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 NodeBFunction

6.3.2.1 Definition

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

6.3.2.2 Attributes

Table 6.3: Attributes of `NodeBFunction`

Attribute name	Visibility	Support Qualifier	Read Qualifier	Write Qualifier
nodeBFunctionIdnodeBFunctionId	+	M	M	-
userLabel	+	M	M	M
nodeBFunction-IubLinknodeBFunction-IubLink	+	M	M	-

6.3.2.6 Notifications

Table 6.4 Notifications of NodeBFunctionNodeBFunction

Name	Qualifier	Notes
notifyAckStateChangednotifyAckStateChanged	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAttributeValueChangenotifyAttributeValueChange	O	
notifyChangedAlarmnotifyChangedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyClearedAlarmnotifyClearedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyNewAlarmnotifyNewAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyObjectCreationnotifyObjectCreation	O	
notifyObjectDeletionnotifyObjectDeletion	O	
notifyCommentsnotifyComments	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAlarmListRebuiltnotifyAlarmListRebuilt	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyPotentialFaultyAlarmListnotifyPotentialFaultyAlarmList	See Alarm IRP (3GPP TS 32.111-2 [11])	

6.3.3 UtranCellUtranCell

6.3.3.1 Definition

This IOC represents a radio cell controlled by the RNC. For more information about radio cells, see 3GPP TS 23.002 [15].

The cell may be an FDD mode cell, a 1.28 Mcps TDD mode cell or a 3.84 Mcps TDD mode cell.

6.3.3.2 Attributes

Table 6.5: Attributes of UtranCell~~UtranCell~~

Attribute name	Visibility	Support Qualifier	Read Qualifier	Write Qualifier
utranCellId~~utranCellId~~	+	M	M	-
userLabel	+	M	M	M
cId~~cId~~	+	M	M	M
localCellId~~localCellId~~	+	M	M	M
uarfcnUl~~uarfcnUl~~	+	O	M	M
uarfcnDl~~uarfcnDl~~	+	O	M	M
primaryScramblingCode~~primaryScramblingCode~~	+	O	M	M
primaryCpichPower~~primaryCpichPower~~	+	O	M	M
maximumTransmissionPower~~maximumTransmissionPower~~	+	M	M	M
primarySchPower~~primarySchPower~~	+	O	M	M
secondarySchPower~~secondarySchPower~~	+	O	M	M
bchPower~~bchPower~~	+	O	M	M
cellMode~~cellMode~~	+	M	M	-
uarfcn~~uarfcn~~	+	O	M	M
cellParameterId~~cellParameterId~~	+	O	M	M
primaryCcpchPower~~primaryCcpchPower~~	+	O	M	M
dwPchPower~~dwPchPower~~	+	O	M	M
timeSlotList~~timeSlotList~~	+	O	M	M
schPower~~schPower~~	+	O	M	M
lac~~lac~~	+	M	M	M
rac~~rac~~	+	M	M	M
sac~~rac~~	+	M	M	M
uraList~~uraList~~	+	M	M	M
utranCell-IubLink~~utranCell-IubLink~~	+	M	M	-

Table 6.6: Additional attributes of UtranCell ~~UtranCell~~ for the support of the State Management IRP

Attribute Name	Support Qualifier	READ	WRITE
operationalState~~operationalState~~	O	M	–
NOTE: No state propagation shall be implied.			

~~Table 6.7: Notifications of UtranCell~~

~~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])~~	

6.3.3.3 Attribute constraints

The following optional attributes shall be supported for corresponding modes as described below:

for FDD mode only: uarfcnUl, uarfcnDl, primaryScramblingCode, primaryCpichPower, primarySchPower, secondSchPower, bchPower~~uarfcnUl, uarfcnDl, primaryScramblingCode, primaryCpichPower, primarySchPower, secondSchPower, bchPower~~;

for 1.28 Mcps TDD mode only: uarfcn, cellParameterId, primaryCcpchPower, timeSlotList , dwPchPower~~uarfcn, cellParameterId, primaryCcpchPower, timeSlotList , dwPchPower~~;

for 3.84 Mcps TDD mode only: uarfcn, cellParameterId, primaryCcpchPower, timeSlotList , schPower~~uarfcn, cellParameterId, primaryCcpchPower, timeSlotList , schPower~~.

6.3.3.6 Notifications

Table 6.7: Notifications of UtranCell

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 IubLink~~IubLink~~

6.3.4.1 Definition

This IOC represents the logical link to a Node B as seen from the RNC. For more information about the RNC, see 3GPP TS 23.002 [15].

6.3.4.2 Attributes

Table 6.8: Attributes of IubLink~~IubLink~~

Attribute name	Visibility	Support Qualifier	Read Qualifier	Write Qualifier
iubLinkId~~iubLinkId~~	+	M	M	-
userLabel	+	M	M	M
iubLink-UtranCell~~iubLink-UtranCell~~	+	M	M	M
iubLink-NodeBFunction~~iubLink-NodeBFunction~~	+	M	M	-

6.3.4.6 Notifications

Table 6.9: Notifications of IubLinkIubLink

Name	Qualifier	Notes
notifyAckStateChangednotifyAckStateChanged	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAttributeValueChangenotifyAttributeValueChange	O	
notifyChangedAlarmnotifyChangedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyClearedAlarmnotifyClearedAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyNewAlarmnotifyNewAlarm	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyObjectCreationnotifyObjectCreation	O	
notifyObjectDeletionnotifyObjectDeletion	O	
notifyCommentsnotifyComments	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyAlarmListRebuiltnotifyAlarmListRebuilt	See Alarm IRP (3GPP TS 32.111-2 [11])	
notifyPotentialFaultyAlarmListnotifyPotentialFaultyAlarmList	See Alarm IRP (3GPP TS 32.111-2 [11])	

6.3.5 UtranRelationUtranRelation

6.3.5.1 Definition

The UtranRelation UtranRelation IOC contains radio network related parameters for the relation to the UtranCell UtranCell or ExternalUtranCell ExternalUtranCell IOC. The UtranCell UtranCell and the ExternalUtranCell ExternalUtranCell may be an FDD mode cell, a 1.28 Mcps TDD mode cell or a 3.84 Mcps TDD mode cell.

NOTE: In handover relation terms, the cell containing the UTRAN Relation object is the source cell for the handover. The cell referred to in the UTRAN relation object is the target cell for the handover. This defines a one-way handover relation where the direction is *from* source cell *to* target cell.

6.3.5.2 Attributes

Table 6.10: Attributes of UtranRelationUtranRelation

Attribute name	Visibility	Support Qualifier	Read Qualifier	Write Qualifier
utranRelationIdutranRelationId	+	M	M	-
adjacentCelladjacentCell	+	M	M	M
cellModecellMode	+	M	M	-
uarfcnUluarfcnUl	+	O	M	-
uarfcnDluarfcnDl	+	O	M	-
primaryScramblingCodeprimaryScramblingCode	+	O	M	-
primaryCpichPowerprimaryCpichPower	+	O	M	-
laclac	+	O	M	-
uarfcnuarfcn	+	O	M	-
cellParameterIdcellParameterId	+	O	M	-
primaryCcpchPowerprimaryCcpchPower	+	O	M	-
utranRelation-utranNeighbourCell	+	O	M	M
utranRelation-externalUtranNeighbourCell	+	O	M	M

~~**Table 6.11: Notifications of UtranRelation**~~

~~Name~~	~~Qualifier~~	~~Notes~~
~~notifyAttributeValueChange~~	~~O~~	
~~notifyObjectCreation~~	~~O~~	
~~notifyObjectDeletion~~	~~O~~	

6.3.5.3 Attribute constraints

The optional attributes should be included as described below according to each mode, only when the EM can not guarantee consistency between the cell definition and what is broadcast on system information. Otherwise they shall not be included.

The attributes for FDD mode are: uarfcnUl, uarfcnDl, primaryScramblingCode, primaryCpichPower, lac~~uarfcnUl, uarfcnDl, primaryScramblingCode, primaryCpichPower, lac~~.

The attributes for 1.28 Mcps TDD mode and 3.84 Mcps TDD are: uarfcn, cellParameterId, primaryCcpchPower, lac~~uarfcn, cellParameterId, primaryCcpchPower, lac~~.

6.3.5.6 Notifications

Table 6.11: Notifications of UtranRelation

Name	Qualifier	Notes
notifyAttributeValueChange	O	
notifyObjectCreation	O	
notifyObjectDeletion	O	

6.3.6 ExternalUtranCell~~ExternalUtranCell~~

6.3.6.1 Definition

This IOC represents a radio cell controlled by another IRPAgent. This IOC has necessary attributes for inter-system and intra-system handover. The external cell may be an FDD mode cell or a TDD mode cell. It contains a subset of the attributes of related IOCs controlled by another IRPAgent. The way to maintain consistency between the attribute values of these two IOCs is outside the scope of the present document.

6.3.6.2 Attributes

Table 6.12: Attributes of ExternalUtranCell~~ExternalUtranCell~~

Attribute name	Visibility	Support Qualifier	Read Qualifier	Write Qualifier
externalUtranCellId~~externalUtranCellId~~	+	M	M	-
userLabel	+	M	M	M
cId~~cId~~	+	M	M	M
mcc~~mcc~~	+	M	M	M
mnc~~mnc~~	+	M	M	M
rncId~~rncId~~	+	M	M	M
cellMode~~cellMode~~	+	M	M	-
uarfcnUl~~uarfcnUl~~	+	O	M	M
uarfcnDl~~uarfcnDl~~	+	O	M	M
primaryScramblingCode~~primaryScramblingCode~~	+	O	M	M
primaryCpichPower~~primaryCpichPower~~	+	O	M	M
uarfcn~~uarfcn~~	+	O	M	M
cellParameterId~~cellParameterId~~	+	O	M	M
primaryCcpchPower~~primaryCcpchPower~~	+	O	M	M
lac~~lac~~	+	M	M	M
rac~~rac~~	+	M	M	M

~~**Table 6.13: Notifications of ExternalUtranCell**~~

~~Name~~	~~Qualifier~~	~~Notes~~
~~notifyAttributeValueChange~~	~~O~~	
~~notifyObjectCreation~~	~~O~~	
~~notifyObjectDeletion~~	~~O~~	

6.3.6.3 Attribute constraints

The following optional attributes shall be supported for corresponding modes as described below:

for FDD mode only: uarfcnUl, uarfcnDl, primaryScramblingCode, primaryCpichPower~~uarfcnUl, uarfcnDl, primaryScramblingCode, primaryCpichPower~~;

for 1.28 Mcps TDD mode and 3.84 Mcps TDD mode: uarfcn, cellParameterId, primaryCcpchPower~~uarfcn, cellParameterId, primaryCcpchPower~~.

6.3.6.6 Notifications

Table 6.13: Notifications of ExternalUtranCell

Name	Qualifier	Notes
notifyAttributeValueChange	O	
notifyObjectCreation	O	
notifyObjectDeletion	O	

6.4 Information relationship~~s~~ definition~~s~~

6.4.1 ConnectedTo ~~ConnectedTo~~ (M)

6.4.1.1 Definition

This represents a bi-directional relationship between the IubLink ~~IubLink~~ and Node B (through the NodeBFunction~~NodeBFunction~~).
The role of the relation shall be mapped to a reference attribute of the IOC. The names of the reference attribute and the role are the same.

6.4.1.2 Roles

Table 6.14: Roles of the relation ConnectedTo~~ConnectedTo~~

Name	Definition
iubLink-nodeBFunction~~iubLink-nodeBFunction~~	This role (when present) represents IubLink ~~IubLink~~ capability to identify one NodeBFunction~~NodeBFunction~~. When the role is absent, the IubLink.iubLink-nodeBFunction ~~IubLink.iubLink-nodeBFunction~~ shall contain no information. When present, it shall contain one NodeBFunction ~~NodeBFunction~~ DN.
nodeBFunction-iubLink~~nodeBFunction-iubLink~~	This role (when present) represents NodeBFunction ~~NodeBFunction~~ capability to identify one IubLink~~IubLink~~. When the role is absent, the NodeBFunction.nodeBFunction-iubLink ~~NodeBFunction.nodeBFunction-iubLink~~ shall contain no information. When present, it shall contain one IubLink ~~IubLink~~ DN.

6.4.1.3 Constraints

When a particular IubLink ~~IubLink~~ identifies a particular NodeBFunction~~NodeBFunction~~, that particular NodeBFunction ~~NodeBFunction~~ must identify the particular IubLink~~IubLink~~.

6.4.2 AssociatedWith ~~AssociatedWith~~ (M)

6.4.2.1 Definition

This represents a bi-directional relation between the IubLink ~~IubLink~~ and UtranCell~~UtranCell~~. 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 6.15: Roles of the relation AssociatedWith~~AssociatedWith~~

Name	Definition
iubLink-utranCell~~iubLink-utranCell~~	This role (when present) represents IubLink ~~IubLink~~ capability to identify the set of related UtranCell~~UtranCell~~. IubLink.iubLink-utranCell ~~IubLink.iubLink-utranCell~~ shall carry the set of UtranCell ~~UtranCell~~ DN(s).
utranCell-iubLink~~utranCell-iubLink~~	This role (when present) represents UtranCell ~~UtranCell~~ capability to identify one related IubLink~~IubLink~~. When the role is absent, the UtranCell.utranCell-iubLink ~~UtranCell.utranCell-iubLink~~ shall contain no information. When it is present, it shall contain one IubLink ~~IubLink~~ DN.

6.4.2.3 Constraints

When a particular IubLink ~~IubLink~~ identifies a particular UtranCell~~UtranCell~~, that particular UtranCell ~~UtranCell~~ must have identified the particular IubLink~~IubLink~~.

6.4.3 ExternalUtranNeighbourCellRelation ~~ExternalUtranNeighbourCellRelation~~ (M)

6.4.3.1 Definition

This represents a unidirectional relation from UtranRelation ~~UtranRelation~~ to the ExternalUtranCell~~ExternalUtranCell~~. The role of the relation shall be mapped to a reference attribute, named adjacentCell~~adjacentCell~~, of the IOC.

6.4.3.2 Roles

Table 6.16: Roles of the relation ExternalUtranNeighbourCellRelation~~ExternalUtranNeighbourCellRelation~~

Name	Definition
utranRelation-externalUtranNeighbourCell~~utranRelation-externalUtranNeighbourCell~~	This role (when present) represents UtranRelation ~~UtranRelation~~ capability to identify one ExternalUtranCell~~ExternalUtranCell~~. When this role is present, the UtranRelation.adjacentCell ~~UtranRelation.adjacentCell~~ shall contain one ExternalUtranNeighbourCell ~~ExternalUtranNeighbourCell~~ DN.

6.4.3.3 Constraints

This role (for a particular UtranRelation~~UtranRelation~~) shall be present if the UtranNeighbourCellRelation ~~UtranNeighbourCellRelation~~ of this particular UtranRelation ~~UtranRelation~~ is absent. This role shall be absent if the UtranNeighbourCellRelation ~~UtranNeighbourCellRelation~~ of this particular UtranRelation ~~UtranRelation~~ is present.

6.4.4 UtranNeighbourCellRelation ~~UtranNeighbourCellRelation~~ (M)

6.4.4.1 Definition

This represents the unidirectional relation from the UtranRelation ~~UtranRelation~~ to UtranCell~~UtranCell~~. The role of the relation shall be mapped to a reference attribute, named adjacentCell~~adjacentCell~~, of the IOC.

6.4.4.2 Roles

Table 6.17: Roles of the relation UtranNeighbourCellRelation~~UtranNeighbourCellRelation~~

Name	Definition
utranRelation-utranNeighbourCell~~utranRelation-utranNeighbourCell~~	This role (when present) represents UtranRelation ~~UtranRelation~~ capability to identify one UtranCell~~UtranCell~~. When this role is present, the UtranRelation.adjacentCell ~~UtranRelation.adjacentCell~~ shall contain one UtranCell ~~UtranCell~~ DN.

6.4.4.3 Constraints

This role (for a particular UtranRelation~~UtranRelation~~) shall be present if the ExternalUtranNeighbourCellRelation ~~ExternalUtranNeighbourCellRelation~~ of this particular UtranRelation ~~UtranRelation~~ is absent. This role shall be absent if the ExternalUtranNeighbourCellRelation ~~ExternalUtranNeighbourCellRelation~~ of this particular UtranRelation ~~UtranRelation~~ is present.

6.5 Information attributes definitions

6.5.1 Definition and legal values

Table 6.18 defines the attributes that are present in several Information Object Classes (IOCs) of the present document.

Table 6.18: Attributes

Attribute Name	Definition	Legal Values
adjacentCell	It carries the DN of the UtranCell or the ExternalUtranCell.	
bchPower	The power of the broadcast channel in the FDD mode cell (Ref. 3GPP TS 25.433 [5]).	Type: Numeric value Range: (-35..+15 dB) Steps of 0.1dB
cellMode	An attribute that identifies the cell mode.	Type: Enumerated value Range: (ìFDD modeî, ì1.28McpsTDD modeî, ì3.84McpsTDD modeî)
cellParameterId	For IOCs **UtranCell** and **ExternalUtranCell**,this attribute identifies unambiguously the TDD mode cell (see ref. TS 25.433 [5]): • 3.84 Mcps TDD - Code Groups, Scrambling Codes, Midambles and Toffset • 1.28 Mcps TDD - SYNC-DL and SYNC-UL sequences, the scrambling codes and the midamble codes For IOC **UtranRelation**, this parameter will be broadcast in the system information of associated cell. The associated cell can be: • another UTRAN TDD cell (1.28 Mcps TDD or 3.84 Mcps TDD) • the external UTRAN TDD cell (1.28 Mcps TDD or 3.84 Mcps TDD).	Type: Integral numeric value Range: (0..Ö127)
cId	The attribute is the identifier of a cell in one RNC (Ref. 3GPP TS 25.401 [4]), 3GPP TS 25.433 [5]).	Type: Integral numeric value Range: (0..Ö65535)
dwPchPower	DwPCH Power is the power that shall be used for transmitting the DwPCH in a 1.28 Mcps TDD cell. (Ref. 3 GPP TS 25.433 [5]).	Type: Numeric value Range: (-15..Ö+40 dBm) Steps of 0.1dB
externalUtranCellId	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.	
iubLinkId	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.	
lac	IOCs **UtranCell** and **ExternalUtranCell**: Location Area Code, LAC (Ref. 3GPP TS 23.003 [3]). IOC **UtranRelation**: Location Area Code, LAC (Ref. 3GPP TS 23.003 [3]), for another UTRAN cell or the external UTRAN Cell that is broadcast in the system information in the Cell.	Type: Integral numeric value Range: (1.. 65533,- 65535)
localCellId	Local Cell id is used to uniquely identify the set of resources defined in a Node B to support a cell (as defined by a Cid Ref. 3GPP TS 25.401 [4]), 3GPP TS 25.433 [5]). It must be unique in Node B at a minimum, but may be unique in UTRAN. It can be used to tie the cell in the RNC to a specific set of resources in the Node B.	Type: Integral numeric value Range: (0..Ö268435455)
maximumTransmissionPower	The maximum transmission power of a cell. It is the maximum power for all downlink channels added together, that is allowed to be used simultaneously in a cell. (Ref. 3GPP TS 25.433 [5]).	Type: Numeric value Range: (0,.-50 dBm) Steps of -0.1 dB
mcc	Mobile Country Code, MCC (part of the PLMN Id, Ref. 3GPP TS 23.003 [3]).	

mncmnc	Mobile Network Code, MNC (part of the PLMN Id, Ref. 3GPP TS 23.003 [3]).	
primaryCcpchPowerprimaryCcpchPower	IOCs **UtranCell** **UtranCell** and **ExternalUtranCell****ExternalUtranCell**: The power of the primary CCPCH channel in the TDD cell (Ref. 3 GPP TS 25.433 [5]). IOC **UtranRelation****UtranRelation**: The power of the primary CCPCH channel in the TDD cell (Ref. 3 GPP TS 25.433 [5]), for another UTRAN TDD cell or the external UTRAN TDD Cell that is broadcast in the system information in the Cell.	Type: Numeric value Range: (-15..+40 dBm) Steps of 0.1dB
nodeBFunctionIdnodeBFunctionId	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.	
primaryCpichPowerprimaryCpichPower	IOCs **UtranCell** **UtranCell** and **ExternalUtranCell****ExternalUtranCell**: The power of the primary CPICH channel in the FDD mode cell (Ref. 3GPP TS 25.433 [5]). IOC **UtranRelation****UtranRelation**: The power of the primary CPICH channel in the FDD mode cell (Ref. 3GPP TS 25.433 [5]), for another UTRAN FDD mode cell or the external UTRAN FDD mode cell that is broadcast in the system information in the cell.	Type: Numeric value Range: (-10,..50 dBm) Steps of 0.1 dB
primarySchPowerprimarySchPower	The power of the primary synchronisation channel in the FDD mode cell, DL Power (Ref. 3GPP TS 25.433 [5]).	Type: Numeric value Range: (-35..+15 dB) Steps of 0.1dB
primaryScramblingCodeprimaryScramblingCode	IOCs **UtranCell** **UtranCell** and **ExternalUtranCell****ExternalUtranCell**: The primary DL scrambling code used by the FDD mode cell (Ref. 3GPP TS 25.433 [5]). IOC **UtranRelation****UtranRelation**: The primary DL scrambling code used by the FDD mode cell (Ref. 3GPP TS 25.433 [5]), for another UTRAN FDD mode cell or the external UTRAN FDD mode cell that is broadcast in the system information in the cell.	Type: Integral numeric value Range: (0..ñ 511)
racrac	Routing Area Code, RAC (Ref. 3GPP TS 23.003 [3]).	Type: Integral numeric value Range: (0..255)
rncFunctionIdrncFunctionId	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.	
rncIdrncId	IOC **ExternalUtranCell****ExternalUtranCell**: Unique RNC ID for the associated RNC (Ref. 3GPP TS 23.003 [3]). IOC **RncFunction****RncFunction**: Unique RNC ID (Ref. 3GPP TS 23.003 [3]).	
sacsac	Service Area Code, SAC (Ref. 3GPP TS 23.003 [3]).	Type: Integral numeric value Range: (0..65535)
schPowerschPower	The power of the synchronisation channel in 3.84 Mcps TDD cell (Ref. 3GPP TS 25.433 [5]).	Type: Numeric Value Range: (-35..+15 dB) Steps of 0.1dB
secondarySchPowersecondarySchPower	The power of the secondary synchronisation channel in the cell, DL Power (Ref. 3GPP TS 25.433 [5]).	Type: Numeric value Range: (-35..+15 dB) Steps of 0.1dB

timeSlotList~~timeSlotList~~	This attribute defines the time slot configuration information in the TDD cell. It is a list, which contains 7 (for 1.28 Mcps TDD cell) or 15 (for 3.84 Mcps TDD cell) items. Within each item there are three parts: timeSlotId, timeSlotDirection, timeSlotStatus (Ref. 3GPP TS 25.433 [5]).	timeSlotId: when applied to1.28 Mcps TDD cell: Type: Integral numeric value Range: (0~~Ö~~..6); when applied to 3.84 Mcps TDD cell: Type: Integral numeric value Rang: (0~~Ö~~..14); timeSlotDirection: Type: Enumerated value Range: (Ul, Dl); timeSlotStatus: Type: Enumerated value Range: (Active, Not active)
uarfcn~~uarfcn~~	IOCs **UtranCell**~~**UtranCell**~~ and **ExternalUtranCell**~~**ExternalUtranCell**~~: The UTRA absolute Radio Frequency Channel number for TDD mode cell, UARFCN (ref. 3 GPP TS 25.433 [5]). IOC **UtranRelation**~~**UtranRelation**~~: The UTRA absolute Radio Frequency Channel number for TDD mode cell, UARFCN (ref. 3 GPP TS 25.433 [5]), for another UTRAN TDD mode cell or the external UTRAN TDD mode Cell that is broadcast in the system information in the Cell.	Type~~-~~: Integral numeric Value (0..~~–~~16383)
uarfcnDl~~uarfcnDl~~	IOCs **UtranCell**~~**UtranCell**~~ and **ExternalUtranCell**~~**ExternalUtranCell**~~: The DL UTRA absolute Radio Frequency Channel number for FDD mode cell, UARFCN (Ref. 3GPP TS 25.433 [5]). IOC **UtranRelation**~~**UtranRelation**~~: The DL UTRA absolute Radio Frequency Channel number for FDD mode cell, UARFCN (Ref. 3GPP TS 25.433 [5]), for another UTRAN FDD mode cell or the external UTRAN FDD mode cell that is broadcast in the system information in the Cell.	Type: Integral numeric value Range: (0..~~–~~16383)
uarfcnUl~~uarfcnUl~~	IOCs **UtranCell**~~**UtranCell**~~ and **ExternalUtranCell**~~**ExternalUtranCell**~~: The UL UTRA absolute Radio Frequency Channel number for FDD mode cell, UARFCN (Ref. 3GPP TS 25.433 [5]). IOC **UtranRelation**~~**UtranRelation**~~: The UL UTRA absolute Radio Frequency Channel number for FDD mode cell, UARFCN (Ref. 3GPP TS 25.433 [5]) for another UTRAN FDD mode cell or the external UTRAN FDD mode cell~~,~~ that is broadcast in the system information in the Cell.	Type: Integral numeric value Range: (0..~~–~~16383)
uraList~~uraList~~	A list of UTRAN Registration Area, URA (Ref. 3GPP TS 25.331 (subclause 10.3.10)[9]), that a UtranCell can belong to.	Type: A list of Integral numeric values Range: (0..65535) for each integral numeric value.
userLabel~~userLabel~~	A user-friendly (and user assigned) name of the associated object. Inherited from `ManagedFunction`.	
utranCellId~~utranCellId~~	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.	
utranRelationId~~utranRelationId~~	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.

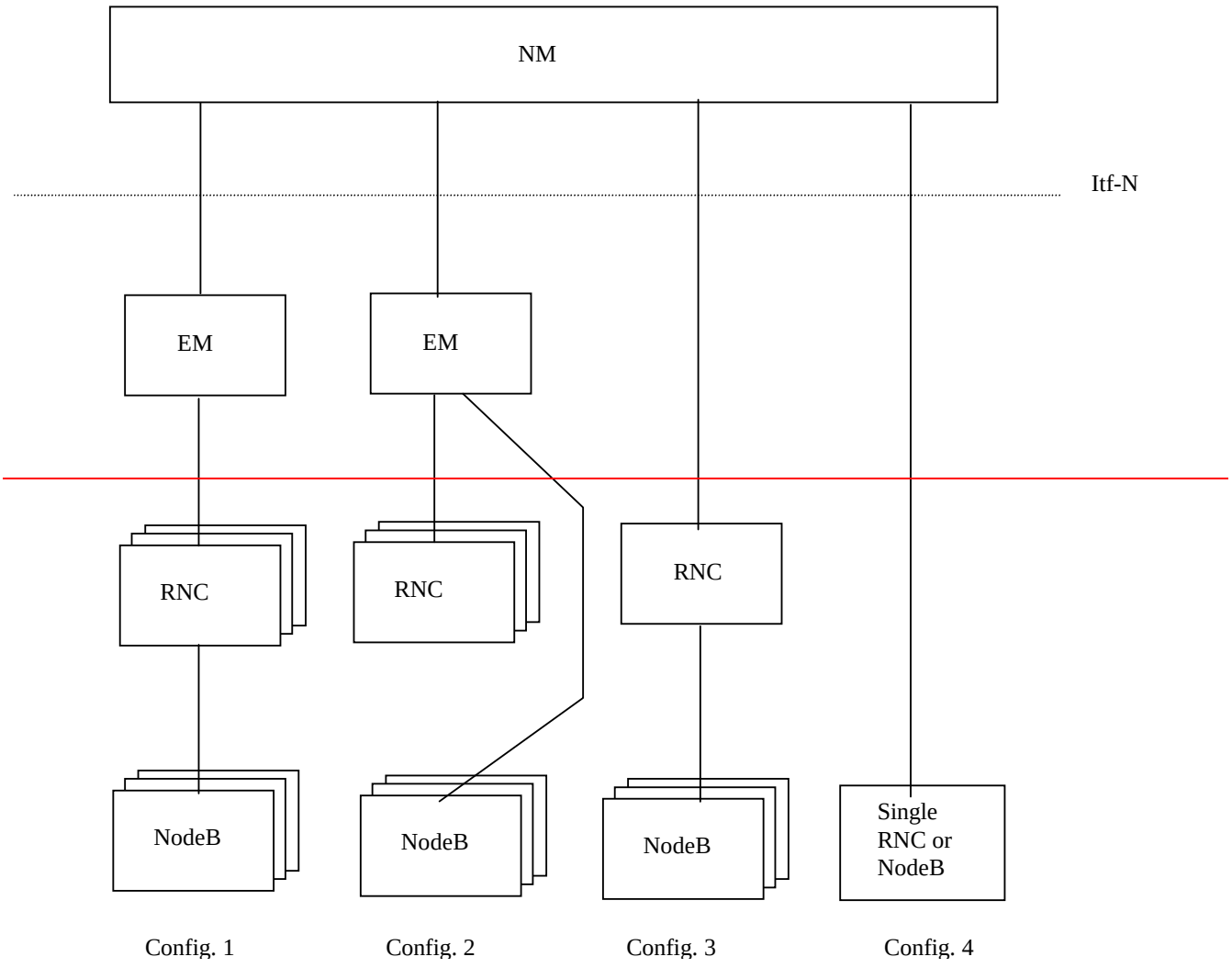
End of Change in Clause 6

Change in Annex A

Annex A (informative):

~~Supported UTRAN network configurations~~Void

~~Figure A.1 depicts four typical network configurations, which are supported by the UTRAN NRM over the Itf-N. However, this does not preclude support for other configurations.~~



~~Figure A.1: Typical network configurations supported by the UTRAN NRM~~

~~Table A.1 shows the possible number of instances for each network configuration (counted from left to right in figure A.1.):~~

~~Table A.1: Number of instances for each example configuration in figure A.1~~

~~IOC~~	~~Config. 1~~	~~Config. 2~~	~~Config. 3~~	~~Config. 4~~
~~SubNetwork~~	~~1~~	~~1~~	~~1~~	~~0..1~~
~~ManagementNode~~	~~1~~	~~1~~	~~0~~	~~0~~
~~ManagedElement~~	~~1..N~~	~~1..N~~	~~1..N~~	~~1~~
~~MeContext~~	~~0..M~~	~~0..M~~	~~0..M~~	~~0..1~~
~~RncFunction~~	~~0..P~~	~~0..P~~	~~0..1~~	~~0..1~~
~~NodeBFunction~~	~~0..Q~~	~~0..Q~~	~~0..(N-1)~~	~~0..1~~
~~IubLink~~	~~0..Q~~	~~0..Q~~	~~0..(N-1)~~	~~0~~
~~UtranCell~~	~~0..R~~	~~0..R~~	~~0..R~~	~~0..R~~
~~IRPAgent~~	~~1~~	~~1~~	~~1~~	~~1~~
~~NotificationIRP~~	~~1~~	~~1~~	~~1~~	~~1~~
~~AlarmIRP~~	~~0..1~~	~~0..1~~	~~0..1~~	~~0..1~~
~~BasicCmIRP~~	~~0..1~~	~~0..1~~	~~0..1~~	~~0..1~~

End of Change in Annex A
End of Document

Annex B (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
Jun 2002	S_16	SP-020303	001	--	Corrections of reference in figure 6.2 and of attribute descriptions in UtranRelation in 32.642 (UTRAN network resources IRP: NRM)	4.0.0	4.1.0
Jun 2002	S_16	SP-020304	002	--	Correction of supported IRP in system context	4.0.0	4.1.0
Sep 2002	S_17	SP-020490	003	--	UML corrections	4.1.0	4.2.0
Sep 2002	S_17	SP-020492	004	--	Add the new IRP IS methodology defined in 32.102	4.2.0	5.0.0
Sep 2002	S_17	SP-020492	005	--	Add State Management	4.2.0	5.0.0
Dec 2002	S_18	SP-020748	006	--	Inclusion of valid values and ranges for UTRAN Cell parameters	5.0.0	5.1.0
Jan 2003	--	--	--	--	Accepted all revision marks	5.1.0	5.1.1
Jun 2003	S_20	SP-030282	008	--	Include notification tables	5.1.1	5.2.0
Jun 2003	S_20	SP-030282	010	--	Correction of UML diagram vsDataContainer Containment/Naming and Association in UTRAN NRM	5.1.1	5.2.0
Jun 2003	S_20	SP-030283	012	--	Deletion of UTRAN attribute relationType	5.1.1	5.2.0
Dec 2003	S_22	SP-030715	014	--	Correction in attribute description for ìmaximumTransmissionPowerî to remove dual interpretation - Align with RAN3's 25.433	5.2.0	5.3.0
Dec 2003	S_22	SP-030646	016	--	Correction of the number of possible URAs from 1 to 8	5.2.0	5.3.0
Dec 2003	S_22	SP-030641	017	--	Add missing notification notifyPotentialFaultyAlarmlist	5.2.0	5.3.0
Dec 2003	S_22	SP-030643	018	--	Remove redundant VsDataContainer Containment UML - Now covered by 32.622	5.2.0	5.3.0
Mar 2004	S_23	SP-040129	019	--	Addition of new attributes for support of both FDD and TDD modes	5.3.0	6.0.0
Jun 2004	S_24	SP-040254	021	--	Correction of the supported UMTS frequencies	6.0.0	6.1.0