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TECHNICAL SPECIFICATION

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Network Resource Model (NRM)
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Information Service (IS)
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Forward

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Introduction

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

28.654: GSM/EDGE Radio Access Network (GERAN) Network Resource Model (NRM) Integration Reference Point (IRP); Requirements

28.655: GSM/EDGE Radio Access Network (GERAN) Network Resource Model (NRM) Integration Reference Point (IRP); Information Service (IS)

28.656: GSM/EDGE Radio Access Network (GERAN) Network Resource Model (NRM) Integration Reference Point (IRP); Solution Set (SS) definitions

1 Scope

The present document specifies the GERAN Network Resource Model (NRM) that can be communicated between an IRPAgent and IRPManagers for telecommunication network management purposes, including management of converged networks.

This document specifies the semantics and behaviour of class attributes and relations visible across the reference point in a protocol and technology neutral way. It does not define their syntax and encoding.

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 24.008: "Mobile radio interface Layer 3 specification; Core network protocols; Stage 3".

[4] 3GPP TS 44.018: "Mobile radio interface layer 3 specification; Radio Resource Control (RRC) protocol".

[5] 3GPP TS 45.008: "Radio subsystem link control".

[6] 3GPP TS 45.002: "Multiplexing and multiple access on the radio path".

[7] 3GPP TS 23.002: "Network architecture".

[8] 3GPP TS 23.003: "Numbering, Addressing and Identification".

[9] 3GPP TS 28.652: "Telecommunication management; Configuration Management (CM); UTRAN Network Resource Model (NRM) Integration Reference Point (IRP); Information Service (IS)".

[10] 3GPP TS 28.658: "Telecommunication management; Evolved Universal Terrestrial Radio Access Network (E-UTRAN) Network Resource Model (NRM) Integration Reference Point (IRP); Information Service (IS)".

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

[12] 3GPP TS 28.662: "Telecommunication management; Generic Radio Access Network (RAN) Network Resource Model (NRM) Integration Reference Point (IRP); Information Service (IS) ".

[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 32.302: "Telecommunication management; Configuration Management (CM); Notification Integration Reference Point (IRP): Information Service (IS)".

[16] 3GPP TS 28.622: "Telecommunication management; Generic Network Resource Model (NRM) Integration Reference Point (IRP): Information Service (IS)".

3 Definitions and abbreviations

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: See definition in TS 28.622 [16].

Managed Element (ME): See definition in TS 28.622 [16].

Network Resource Model (NRM): See definition in TS 28.622 [16].

3.2 Abbreviations

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

DN	Distinguished Name (see 3GPP TS 32.300 [13])
EM	Element Manager
GERAN	GSM-EDGE Radio Access Network
GPRS	General Packet Radio System
IOC	Information Object Class
IRP	Integration Reference Point
ME	Managed Element
NE	Network Element
NR	Neighbour cell Relation
NRM	Network Resource Model
RDN	Relative Distinguished Name (see 3GPP TS 32.300 [13])
RNC	Radio Network Controller
UML	Unified Modelling Language

4 Model

4.1 Imported information entities and local labels

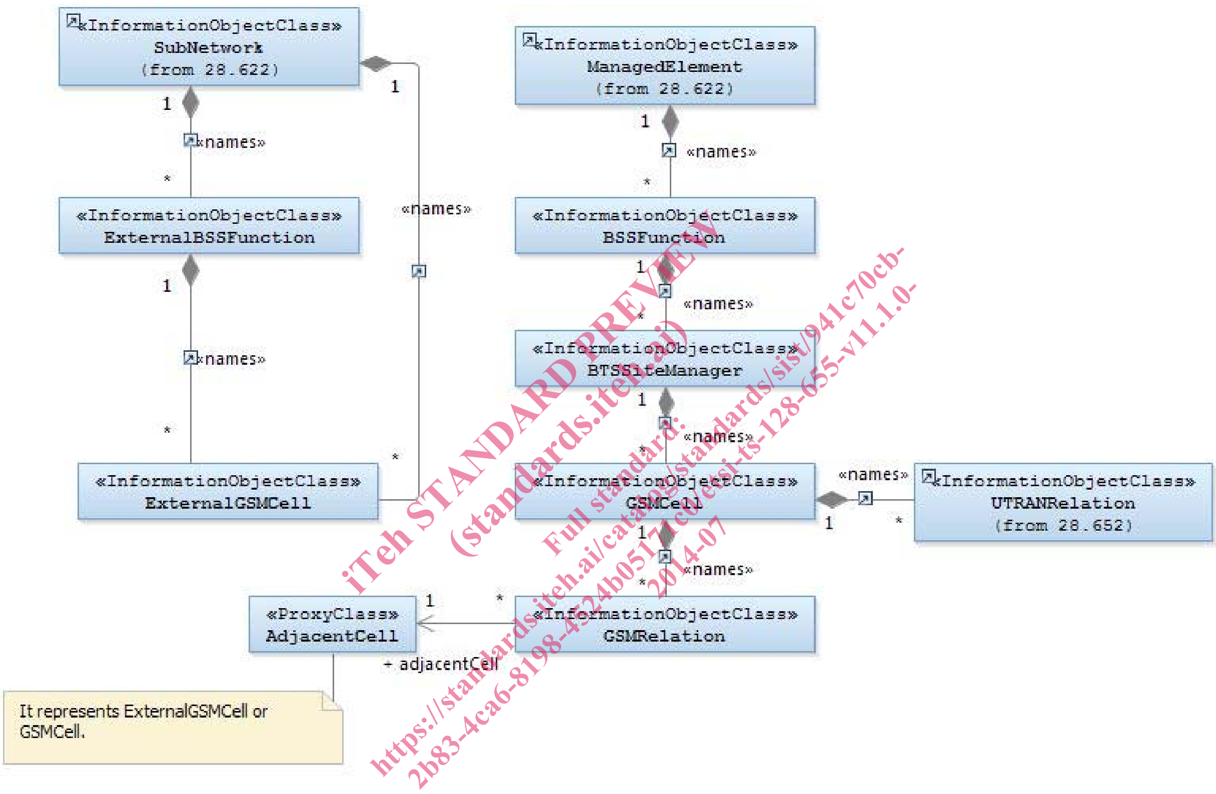
Label reference	Local label
3GPP TS 28.622 [16], information object class, `ManagedElement`	`ManagedElement`
3GPP TS 28.622 [16], information object class, `ManagedFunction`	`ManagedFunction`
3GPP TS 28.622 [16], information object class, `SubNetwork`	`SubNetwork`
3GPP TS 28.622 [16], information object class, `Top`	`Top`
3GPP TS 28.622 [16], information object class, `VsDataContainer`	`VsDataContainer`
3GPP TS 28.652 [9], information object class, `UTRANRelation`	`UTRANRelation`
3GPP TS 28.658 [10], information object class, `EUTRANRelation`	`EUTRANRelation`

4.2 Class diagram

4.2.1 Relationships

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

The figures below show the containment/naming hierarchy and the associations of the GERAN NRM.



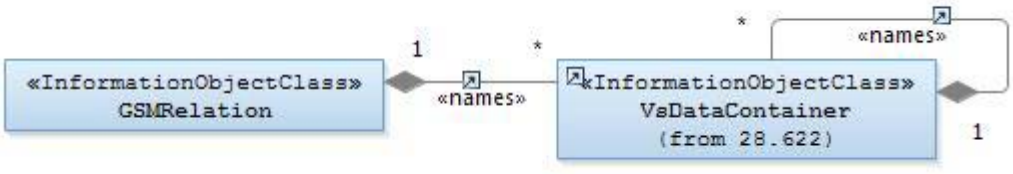
NOTE 1: The listed cardinality numbers represent transient as well as steady-state numbers, and reflect all managed object creation and deletion scenarios.

NOTE 2: The `ExternalBSSFunction` is used in the Core Network NRM.

Figure 4.2.1-1: GERAN 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 an IOC representing a cell could have a format like:

`SubNetwork` =Sweden, `MeContext` =MEC-Gbg-1, `ManagedElement` =RNC-Gbg-1, `BSSFunction`=BSS1.



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 4.2.1-2: GERAN NRM Containment/Naming and Association diagram

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

4.2.2 Inheritance

This clause depicts the inheritance relationships that exist between IOCs.

Figure 6.3 shows the inheritance hierarchy for the GERAN NRM.

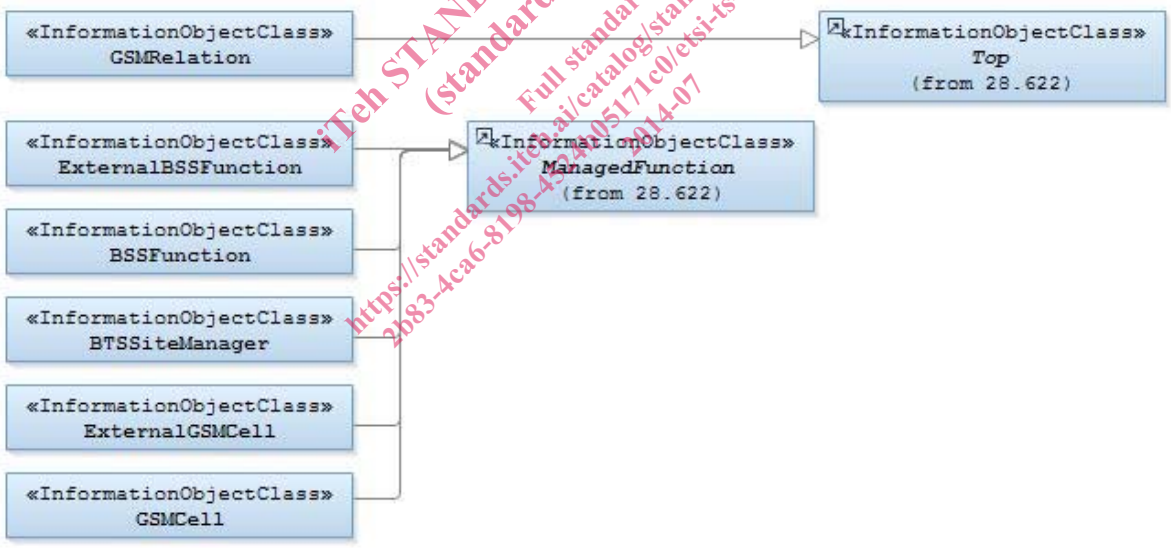


Figure 4.2.2-1: GERAN NRM Inheritance Hierarchy

4.3 Class definitions

4.3.1 BSSFunction

4.3.1.1 Definition

This IOC represents BSS functionality. For more information about the BSS, see Ref 3GPP TS 23.002 [7].

4.3.1.2 Attributes

None.

4.3.1.3 Attribute constraints

None.

4.3.1.4 Notifications

The common notifications defined in subclause 4.5.1 are valid for this IOC, without exceptions or additions.

4.3.2 BTSSiteMgr

4.3.2.1 Definition

This IOC contains site specific information for a BTS site.

4.3.2.2 Attributes

Attribute name	Support Qualifier	isReadable	isWritable	isInvariant	isNotifyable
latitude	O	M	M	-	O
longitude	O	M	M	-	O
operationalState	CM	M	-	-	M

4.3.2.3 Attribute constraints

Name	Definition
operationalState CM support qualifier	The State Management IRP is supported. NOTE: No state propagation shall be implied

4.3.2.4 Notifications

The common notifications defined in subclause 4.5 are valid for this IOC, without exceptions or additions.

4.3.3 GSMCell

4.3.3.1 Definition

This IOC represents the GSM radio cell. The applicability of instantiation of this class is depending on the ME type. It may only be instantiated under ME of type BSC.