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TECHNICAL SPECIFICATION

**Universal Mobile Telecommunications System (UMTS);  
LTE;  
Telecommunication management;  
Evolved Packet Core (EPC) Network Resource Model (NRM)  
Integration Reference Point (IRP);  
Requirements  
(3GPP TS 28.707 version 11.1.0 Release 11)**



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## Foreword

This Technical Specification has been produced by the 3<sup>rd</sup> Generation Partnership Project (3GPP).

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Version x.y.z

where:

- x the first digit:
  - 1 presented to TSG for information;
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  - 3 or greater indicates TSG approved document under change control.
- y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.
- z the third digit is incremented when editorial only changes have been incorporated in the document.

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## Introduction

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

- 28.707: "Evolved Packet Core (EPC) Network Resource Model (NRM) Integration Reference Point (IRP); Requirements"**
- 28.708: "Evolved Packet Core (EPC) Network Resource Model (NRM) Integration Reference Point (IRP); Information Service (IS)"
- 28.709: "Evolved Packet Core (EPC) Network Resource Model (NRM) Integration Reference Point (IRP); Solution Set (SS) definitions"

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# 1 Scope

The present document defines, in addition to the requirements defined in [1], [2] and [3], the Requirements for the EPC Network Resource Model (NRM) IRP.

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# 2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

- [1] 3GPP TS 32.101: "Telecommunication management; Principles and high level requirements".
- [2] 3GPP TS 32.102: "Telecommunication management; Architecture".
- [3] 3GPP TS 32.600: "Telecommunication management; Configuration Management (CM); Concept and high-level requirements".
- [4] 3GPP TS 32.150: "Telecommunication management; Integration Reference Point (IRP) Concept and definitions".
- [5] 3GPP TS 32.107: "Telecommunication management; Fixed Mobile Convergence (FMC) Federated Network Information Model (FNIM)".
- [6] 3GPP TS 28.620: "Telecommunication management; Fixed Mobile Convergence (FMC) Federated Network Information Model (FNIM) Umbrella Information Model (UIM)".
- [7] 3GPP TS 28.622: "Telecommunication management; Generic Network Resource Model (NRM) Integration Reference Point (IRP); Information Service".

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# 3 Definitions and abbreviations

## 3.1 Definitions

For the purposes of the present document, the following terms and definitions apply.

**Data:** is any information or set of information required to give software or equipment or combinations thereof a specific state of functionality.

**Element Manager (EM):** provides a package of end-user functions for management of a set of closely related types of Network Elements (NEs). These functions can be divided into two main categories:

- *Element Management Functions* for management of NEs on an individual basis. These are basically the same functions as supported by the corresponding local terminals.
- *Sub-Network Management Functions* that are related to a network model for a set of NEs constituting a clearly defined sub-network, which may include relations between the NEs. This model enables additional functions on the

sub-network level (typically in the areas of network topology presentation, alarm correlation, service impact analysis and circuit provisioning).

**Information Object Class (IOC):** See definition in TS 28.622 [7].

**Integration Reference Point (IRP):** See 3GPP TS 32.150 [4].

**Information Service (IS):** See 3GPP TS 32.150 [4].

**Solution Set (SS):** See 3GPP TS 32.150 [4].

**IRP Solution Set:** See 3GPP TS 32.101 [1].

**Managed Object (MO):** an abstract entity, which may be accessed through an open interface between two or more systems, and representing a Network Resource (NR) for the purpose of management. The Managed Object (MO) is an instance of a Managed Object Class (MOC) as defined in a Management Information Model (MIM). The MIM does not define how the MO or NR is implemented; only what can be seen in the interface.

**Managed Object Class (MOC):** a description of all the common characteristics for a number of MOs, such as their attributes, operations, notifications and behaviour.

**Management Information Model (MIM):** also referred to as NRM – see the definition below. There is a slight difference between the meaning of MIM and NRM – the term MIM is generic and can be used to denote any type of management model, while NRM denotes the model of the actual managed telecommunications Network Resources (NRs).

**Network Element (NE):** is a discrete telecommunications entity, which can be, managed over a specific interface e.g. the RNC.

**Network Manager (NM):** provides a package of end-user functions with the responsibility for the management of a network, mainly as supported by the EM(s) but it may also involve direct access to the NEs. All communication with the network is based on open and well-standardised interfaces supporting management of multi-vendor and multi-technology NEs.

**Network Resource (NR):** is a component of a NE, which can be identified as a discrete separate entity and is in an object oriented environment for the purpose of management represented by an abstract entity called Managed Object (MO).

**Network Resource Model (NRM):** See definition in TS 28.622 [7].

**Object Management Group (OMG):** see <http://www.omg.org>.

**Operations System (OS):** indicates a generic management system, independent of its location level within the management hierarchy.

## 3.2 Abbreviations

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

CM	Configuration Management
EDGE	Enhanced Data Rate for GSM Evolution
E-MBMS	Evolved Multimedia Broadcast Multicast Service
EPC	Evolved Packet Core
E-UTRAN	Evolved Universal Terrestrial Radio Access Network
GERAN	GSM/EDGE Radio Access Network
IOC	Information Object Class
IRP	Integration Reference Point
IS	Information Service (see [1])
MME	Mobility Management Entity
MOC	Managed Object Class
NE	Network Element
NRM	Network Resource Model
OS	Operations System
UTRAN	Universal Terrestrial Radio Access Network

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## 4 Requirements

### 4.1 General Requirement

The following general requirements apply for the present IRP:

- a) IRP-related requirements in 3GPP TS 32.101 [1].
- b) IRP-related requirements in 3GPP TS 32.102 [2].
- c) IRP-related requirements in 3GPP TS 32.600 [3].

The NRM defined by this IRP:

- d) Shall support communications for telecommunication network management purposes, including management of converged networks.
- e) Is a member of the Federated Network Information Model (FNIM) [5] and its information is derived from FNIM Umbrella Information Model (UIM) [6].

### 4.2 Business Level Requirement

In addition to the general requirement, the following more specific requirements apply:

- 1) The Network Resource Model defined by this IRP shall contain EPC specific IOCs and related definitions, supporting EPC Network entities in the 3GPP Release.
- 2) The Network Resource Model defined by this IRP shall contain MME pool management specific IOCs and related definitions.
- 3) The Network Resource Model defined by this IRP shall contain E-MBMS specific IOCs and related definitions.
- 4) The Network Resource Model defined by this IRP shall contain EPC specific IOCs and related interaction relation definition, supporting the management of communication between EPC and 3GPP access, trusted non-3GPP access and untrusted non-3GPP access.



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## Annex A (informative): Change history

Change history								
Date	TSG #	TSG Doc.	CR	R	Subject/Comment	Cat	Old	New
2014-06	SA#64	SP-140360	001	-	remove the feature support statements	F	11.0.0	11.1.0

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# History

<b>Document history</b>		
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