

ETSI TS 128 707 V15.0.0 (2018-06)



**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 15.0.0 Release 15)**



---

Reference

RTS/TSGS-0528707vf00

---

Keywords

LTE,UMTS

**ETSI**

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

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

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

---

**Important notice**

The present document can be downloaded from:

<http://www.etsi.org/standards-search>

The present document may be made available in electronic versions and/or in print. The content of any electronic and/or print versions of the present document shall not be modified without the prior written authorization of ETSI. In case of any existing or perceived difference in contents between such versions and/or in print, the only prevailing document is the print of the Portable Document Format (PDF) version kept on a specific network drive within ETSI Secretariat.

Users of the present document should be aware that the document may be subject to revision or change of status.

Information on the current status of this and other ETSI documents is available at

<https://portal.etsi.org/TB/ETSIDeliverableStatus.aspx>

If you find errors in the present document, please send your comment to one of the following services:

<https://portal.etsi.org/People/CommiteeSupportStaff.aspx>

---

**Copyright Notification**

No part may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm except as authorized by written permission of ETSI.

The content of the PDF version shall not be modified without the written authorization of ETSI.

The copyright and the foregoing restriction extend to reproduction in all media.

© ETSI 2018.

All rights reserved.

**DECT™**, **PLUGTESTS™**, **UMTS™** and the ETSI logo are trademarks of ETSI registered for the benefit of its Members.

**3GPP™** and **LTE™** are trademarks of ETSI registered for the benefit of its Members and of the 3GPP Organizational Partners.

**oneM2M** logo is protected for the benefit of its Members.

**GSM®** and the GSM logo are trademarks registered and owned by the GSM Association.

---

# Intellectual Property Rights

## Essential patents

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

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

## Trademarks

The present document may include trademarks and/or tradenames which are asserted and/or registered by their owners. ETSI claims no ownership of these except for any which are indicated as being the property of ETSI, and conveys no right to use or reproduce any trademark and/or tradename. Mention of those trademarks in the present document does not constitute an endorsement by ETSI of products, services or organizations associated with those trademarks.

---

# Foreword

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

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

The cross reference between GSM, UMTS, 3GPP and ETSI identities can be found under <http://webapp.etsi.org/key/queryform.asp>.

---

# Modal verbs terminology

In the present document "**shall**", "**shall not**", "**should**", "**should not**", "**may**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the [ETSI Drafting Rules](#) (Verbal forms for the expression of provisions).

"**must**" and "**must not**" are **NOT** allowed in ETSI deliverables except when used in direct citation.

---

# Contents

Intellectual Property Rights .....	2
Foreword.....	2
Modal verbs terminology.....	2
Foreword.....	4
Introduction .....	4
1 Scope .....	5
2 References .....	5
3 Definitions and abbreviations.....	5
3.1 Definitions .....	5
3.2 Abbreviations .....	6
4 Requirements.....	7
4.1 General Requirement.....	7
4.2 Business Level Requirement .....	7
<b>Annex A (informative): Change history .....</b>	<b>8</b>
History .....	9

---

# Foreword

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

The contents of the present document are subject to continuing work within the TSG and may change following formal TSG approval. Should the TSG modify the contents of the present document, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

Version x.y.z

where:

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

---

# Introduction

The present document is part of a TS-family covering the 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".

---

# 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.

---

## 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".
- [8] 3GPP TS 37.340: "NR; Multi-connectivity; Overall description; Stage 2".

---

## 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:

5GS	5G System
CM	Configuration Management
EDGE	Enhanced Data Rate for GSM Evolution
E-MBMS	Evolved Multimedia Broadcast Multicast Service
EN-DC	E-UTRA-NR Dual Connectivity
EPC	Evolved Packet Core
EPS	Evolved Packet System
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
NR	New Radio
NRM	Network Resource Model
OS	Operations System
UTRAN	Universal Terrestrial Radio Access Network

---

## 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 (including E-UTRAN and EN-DC (see 3GPP TS 37.340 [8])), trusted non-3GPP access and untrusted non-3GPP access.
- 5) The Network Resource Model defined by this IRP shall contain EPC specific IOCs and related interaction relation definition, supporting the EPS/5GS interworking management in EPC side.



---

## Annex A (informative): Change history

Date	Meeting	TDoc	CR	Rev	Cat	Subject/Comment	New version
2014-06	SA#64	SP-140360	0001	F		remove the feature support statements	11.1.0
2014-10	-	-	-	-		Update to Rel-12 version (MCC)	12.0.0
2016-01	-	-	-	-		Update to Rel-13 version (MCC)	13.0.0
2017-03	SA#75	-	-	-		Promotion to Release 14 without technical change	14.0.0
2018-06	SA#80	SP-180421	0003	-	B	Add requirements to support management of EN-DC and 5G interworking in EPC side	15.0.0

---

# History

<b>Document history</b>		
V15.0.0	June 2018	Publication