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Technical Specification

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Universal Mobile Telecommunications System (UMTS);
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Telecommunication management;
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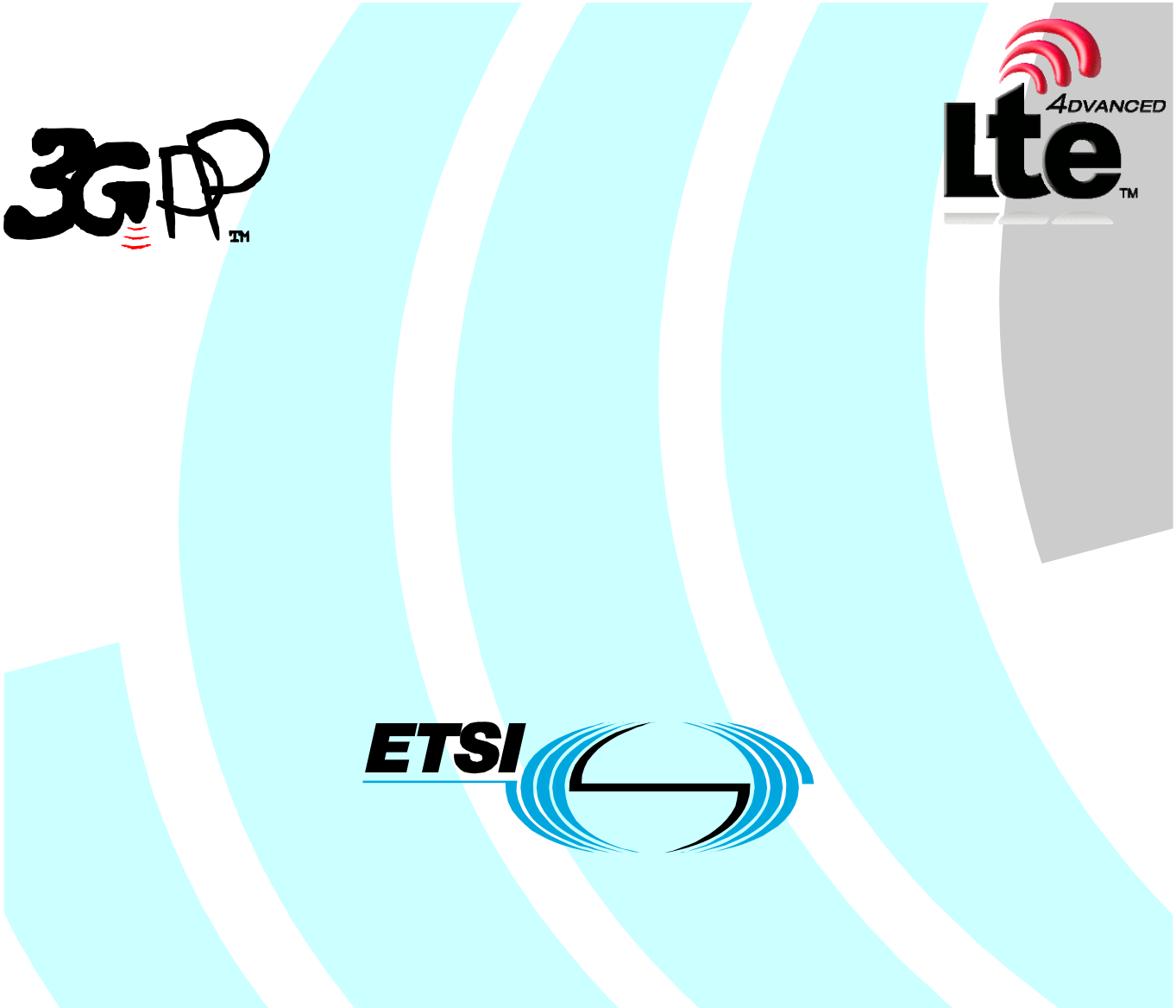
Kernel CM Requirements
(3GPP TS 32.661 version 10.0.0 Release 10)



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Foreword

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

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

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

Contents

Foreword

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

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

Version x.y.z

where:

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

Introduction

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

32.661	**Configuration Management (CM); Kernel CM Requirements**
32.662	Configuration Management (CM); Kernel CM Information Service (IS)
32.666:	Configuration Management (CM); Kernel CM Integration Reference Point (IRP); Solution Set (SS) definitions

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

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

1 Scope

The present document defines, in addition to the requirements defined in [1], [2] and [3], the requirements for the present IRP: Kernel Configuration Management IRP. It is the intent of Kernel Configuration Management to provide an IRP that contains the configuration management functionality that is basic and minimal. It is the functionality that is common to and required by both Basic CM and Bulk CM. While neither the Basic CM IRP nor Bulk CM IRP requires the other, they each require the Kernel CM 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 32.622: "Telecommunication management; Configuration Management (CM); Generic network resources Integration Reference Point (IRP): Network Resource Model (NRM)".

[5] 3GPP TS 32.632: "Telecommunication management; Configuration Management (CM); Core Network Resources Integration Reference Point (IRP): Network Resource Model (NRM)".

[6] 3GPP TS 32.642: "Telecommunication management; Configuration Management (CM): UTRAN network resources Integration Reference Point (IRP): Network Resource Model (NRM)".

[7] 3GPP TS 32.652: "Telecommunication management; Configuration Management (CM); GERAN network resources Integration Reference Point (IRP): Network Resource Model (NRM)".

[8] 3GPP TS 32.662: "Telecommunication management; Configuration Management (CM); Kernel CM Information Service (IS)".

[9] 3GPP TS 32.742: "Telecommunication management; Configuration Management (CM); Signalling Transport Network (STN) Interface 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:

data: 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).

IRP: See 3GPP TS 32.101 [1].

IRP Information Model: See 3GPP TS 32.101 [1].

IRP Information Service: See 3GPP TS 32.101 [1].

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

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

Managed Object Instance (MOI): instance of a MOC, which is the same as a MO as described above

Management Information Base (MIB): set of existing managed objects in a management domain, together with their attributes, constitutes that management domain's MIB. The MIB may be distributed over several OS/NEs.

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): 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): 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): model representing the actual managed telecommunications Network Resources (NRs) that a System is providing through the subject IRP. An NRM describes Managed Object Classes (MOC), their associations, attributes and operations. The NRM is also referred to as "MIM" (see above) which originates from the ITU-T TMN.

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

3.3 Abbreviations

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

CM	Configuration Management
EM	Element Manager
FM	Fault Management

IRP	Integration Reference Point
IS	Information Service (see 3GPP TS 32.101 [1])
ITU-T	International Telecommunication Union, Telecommunication Standardisation Sector
MIB	Management Information Base
MIM	Management Information Model
MOC	Managed Object Class
MOI	Managed Object Instance
NE	Network Element
NM	Network Manager
NR	Network Resource
NRM	Network Resource Model
OMG	Object Management Group
OS	Operations System
PM	Performance Management
TM	Telecom Management
UML	Unified Modelling Language (OMG)
UMTS	Universal Mobile Telecommunications System

4 Requirements

4.1 General Requirements

This requirements specification defines requirements for the IS for this IRP. As such, capabilities specified here as being required in the IS are not necessarily required in the product implementation. That which is required in the product implementation will be specified in the IS itself.

The following general and high-level 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].

In addition to the above, the following more specific requirements apply:

1. The IS defined by this IRP shall enable an NM to operate on (access) any NRMs defined in any NRM IRPs, such as those defined in [4], [5], [6], [7] and [8].

2. The IS defined by this IRP shall as far as possible be independent of any specific definitions of MOCs, attributes etc. in the NRMs referred to in item 1.

4.2 Kernel CM Requirements

The IS defined by this IRP shall include the following operations that may be invoked by the IRP Manager to retrieve management information from the IRPAgent:

- An operation to retrieve the Network Resource IRP SS document versions (IRPVersions) of the NRM Solution Sets that are supported by each Network Resource IRP present in the subject implementation.

The IS defined by this IRP shall include a notification capability by which the IRPAgent sends management information to the IRPManager whenever an event of a specific type occurs. Whether these notifications are mandatory or optional is specified in the Information Service (3GPP TS 32.662 [8]). Specifically, the following types of notifications shall be supported:

- A notification that identifies the instance of a managed object that was created.
- A notification that identifies one or more instances of a managed object that were deleted.
- A notification that identifies the values of one or more attributes of a managed object instance that were changed.
- A notification that enables reporting of state and status changes of a managed object instance.
- A notification which identifies that part of or the whole configuration information of managed system should be synchronized.

Annex A (informative): Change history

Change history							
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Old**	**New**
Mar 2002	S_15	SP-020034	--	--	Submitted to TSG SA #15 for Information	1.0.0	
Sep 2002	S_17	SP-020464	--	--	Submitted to TSG SA #17 for Approval	2.0.0	5.0.0
Dec 2002	S_18	SP-020750	001	--	Clarification regarding optionality of notifications	5.0.0	5.1.0
Mar 2003	S_19	SP-030145	002	--	Add requirement for the emission of notifyCMSynchronizationRecommended notification	5.1.0	6.0.0
Jun 2004	S_24	SP-040260	003	--	Add State Management Support to Kernel CM IRP Requirements	6.0.0	6.1.0
Dec 2004	S_26	SP-040812	004	--	Add Signalling Transport Network (STN) NRM IRP in KernelCM IRP Requirements	6.1.0	6.2.0
Feb 2005	--	--	--	--	History box clean-up to show only the 32661 Dec 2004 CRs	6.2.0	6.2.1
Jun 2007	SA_36	--	--	--	Automatic upgrade to Rel-7 (no CR) at freeze of Rel-7. Deleted reference to CMIP SS, discontinued from R7 onwards.	6.2.1	7.0.0
Dec 2008	SA_42	--	--	--	Upgrade to Release 8	7.0.0	8.0.0
Sep 2009	SA_45	SP-090534	005	--	Add missing NRMs into scope of Kernel CM IRP	8.0.0	8.1.0
Dec 2009	--	--	--	--	Change history correction	8.1.0	8.1.1
Dec 2009	-	-	-	-	Update to Rel-9 version	8.1.1	9.0.0
2011-03	-	-	-	-	Update to Rel-10 version (MCC)	9.0.0	10.0.0

History

Document history		
V10.0.0	April 2011	Publication