

ETSI TS 132 666 V15.1.0 (2019-10)



**Digital cellular telecommunications system (Phase 2+) (GSM);
Universal Mobile Telecommunications System (UMTS);**

LTE;

Telecommunication management;

Configuration Management (CM);

Kernel CM Integration Reference Point (IRP);

Solution Set (SS) definitions

(3GPP TS 32.666 version 15.1.0 Release 15)



Reference

RTS/TSGS-0532666vf10

Keywords

GSM,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 prevailing version of an ETSI deliverable is the one made publicly available in PDF format at www.etsi.org/deliver.

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 2019.
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 a trademark of ETSI registered for the benefit of its Members and of the oneM2M Partners.

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.

Legal Notice

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. These shall be interpreted as being references to the corresponding ETSI deliverables.

The cross reference between 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
Legal Notice	2
Modal verbs terminology.....	2
Foreword.....	5
Introduction	5
1 Scope	6
2 References	6
3 Definitions and abbreviations.....	7
3.1 Definitions	7
3.2 Abbreviations	7
4 Solution Set definitions	7
Annex A (normative): CORBA Solution Set	8
A.1 Architectural Features	8
A.1.1 Syntax for Distinguished Names and Versions	8
A.1.2 Notifications	8
A.1.3 Filter language	8
A.2 Mapping	8
A.2.1 Operation and Notification mapping	8
A.2.2 Operation parameter mapping	9
A.2.3 Notification attribute mapping	9
A.3 Use of OMG Structured Event	11
A.4 Rules for NRM extensions	17
A.4.1 Extensions not allowed.....	17
A.5 Solution Set definitions	17
A.5.1 IDL definition structure	17
A.5.2 IDL specification “KernelCmConstDefs.idl”	18
A.5.3 IDL specification “KernelCmIRPSystem.idl”	20
A.5.4 IDL specification “KernelCmIRPNotifications.idl”	21
Annex B (normative): XML definitions	24
B.1 Architectural features	24
B.1.1 Syntax for Distinguished Names	24
B.2 Mapping	24
B.3 Solution Set definitions	24
B.3.1 XML definition structure.....	24
B.3.2 Graphical Representation	24
B.3.3 XML Schema “kernelNtf.xsd”	27
Annex C (normative): SOAP Solution Set	30
C.1 Architectural Features	30
C.1.1 Syntax for Distinguished Names and versions	30
C.1.2 Notifications	30
C.1.3 IRP document version number string	30
C.2 Mapping	31
C.2.1 General mappings.....	31
C.2.2 Operation and Notification mapping	31

C.2.3 Operation parameter mapping32

C.2.3.1 Operation getNRMIRPVersion32

C.2.3.1.1 Input parameters32

C.2.3.1.2 Output parameters32

C.2.2.1.3 Fault definition32

C.3 Solution Set definitions33

C.3.1 WSDL definition structure33

C.3.2 Graphical Representation33

C.3.3 WSDL specification “KernelCMIRPSystem.wsdl”34

Annex D (informative): Change history37

History38

iTeh STANDARD PREVIEW
 (standards.iteh.ai)
 Full standard:
<https://standards.iteh.ai/catalog/standards/sist/0a706080-9f1b-409a-97cd-f49107c26f4a/etsi-ts-132-666-v15.1.0-2019-10>

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, 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 specifies the Solution Set definitions for the IRP whose semantics is specified in Kernel CM (Configuration Management) IRP: Information Service 3GPP TS 32.662 [7].

This Solution Set definitions specification is related to 3GPP TS 32.662 [7].

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 32.662: "Telecommunication management; Configuration Management (CM); Kernel CM: Information Service (IS)".
- [5] 3GPP TS 32.300: "Telecommunication management; Configuration Management (CM); Name convention for Managed Objects".
- [6] Object Management Group 98 (November 1998): "*Notification Service: Joint Revised Submission OMG TC Document telecom/98-11-01*".
- [7] OMG CORBA Services (November 1996): "Common Object Services Specification".
- [8] Void
- [9] 3GPP TS 32.306: "Telecommunication management; Configuration Management (CM); Notification Integration Reference Point (IRP): Solution Set (SS) definitions".
- [10] Void
- [11] Void
- [12] 3GPP TS 32.676: "Telecommunication management; Configuration Management (CM); State Management Integration Reference Point (IRP): Solution Set (SS) definitions".
- [13] 3GPP TS 32.311: "Telecommunication management; Generic Integration Reference Point (IRP) management: Requirements".
- [14] 3GPP TS 32.336: "Telecommunication management; Notification Log (NL) Integration Reference Point (IRP): Solution Set (SS) definitions".
- [15] 3GPP TS 32.331: "Telecommunication management; Notification Log (NL) Integration Reference Point (IRP): Requirements".
- [16] Void
- [17] Void

- [18] W3C SOAP 1.1 specification (<http://www.w3.org/TR/2000/NOTE-SOAP-20000508/>)
- [19] Void
- [20] Void
- [21] WS-I Basic Profile Version 1.1 (<http://www.ws-i.org/Profiles/BasicProfile-1.1-2004-08-24.html>)
- [22] W3C SOAP 1.2 specification (<http://www.w3.org/TR/soap12-part1/>).
- [23] 3GPP TS 28.622: "Telecommunication management; Generic Network Resource Model (NRM) Integration Reference Point (IRP); Information Service (IS)".
- [24] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in 3GPP TR 21.905 [24], 3GPP TS 32.101 [1], 3GPP TS 32.102 [2], 3GPP TS 32.600 [3], 3GPP TS 32.662 [4] and 3GPP TS 32.331[15], 3GPP TS 28.622 [23] and the following apply. A term defined in the present document takes precedence over the definition of the same term, if any, in 3GPP TR 21.905 [24], 3GPP TS 32.101 [1], 3GPP TS 32.102 [2], 3GPP TS 32.600 [3], 3GPP TS 32.662 [4] and 3GPP TS 32.331[15], 3GPP TS 28.622 [23].

IRP document version number string (or "IRPVersion"): See 3GPP TS 32.311 [13].

3.2 Abbreviations

For the purposes of the present document, the abbreviations given in 3GPP TR 21.905 [24] and the following apply. An abbreviation defined in the present document takes precedence over the definition of the same abbreviation, if any, in 3GPP TR 21.905 [24]

DN	Distinguished Name
MO	Managed Object
MOC	Managed Object Class
NL	Notification Log
SS	Solution Set
VSE	Vendor Specific Extensions

4 Solution Set definitions

This specification defines the following 3GPP Kernel CM IRP Solution Set definitions:

- 3GPP Kernel CM IRP CORBA SS (Annex A);
- 3GPP Kernel CM IRP XML definitions (Annex B);
- 3GPP Kernel CM IRP SOAP Solution Set (Annex C).

Annex A (normative): CORBA Solution Set

This annex contains the CORBA Solution Set for the IRP whose semantics is specified in Kernel CM IRP: Information Service (TS 32.662 [4]).

A.1 Architectural Features

The overall architectural feature of Kernel Configuration Management IRP is specified in 3GPP TS 32.662 [4].

This clause specifies features that are specific to the CORBA SS.

A.1.1 Syntax for Distinguished Names and Versions

The syntax of a Distinguished Name is defined in 3GPP TS 32.300 [5].

The version of this IRP is represented as a string (see also clause 3.1).

A.1.2 Notifications

Notifications are sent according to the Notification IRP: CORBA SS (see 3GPP TS 32.303 [9]).

The contents of the Kernel CM IRP notifications are defined in the present document.

A.1.3 Filter language

The filter language used in the SS is the Extended Trader Constraint Language (see OMG Notification Service [6]). IRP Agents may throw a FilterComplexityLimit exception when a given filter is too complex.

A.2 Mapping

A.2.1 Operation and Notification mapping

The Kernel CM IRP: IS (see 3GPP TS 32.662 [4]) defines semantics of operation and notification visible across the Kernel Configuration Management IRP. The following table in this subclause indicates mapping of these operations and notifications to their equivalents defined in this SS.

Table A.2.1: Mapping from IS Notification/Operation to SS equivalents

IS Operation/ notification (3GPP TS 32.662 [4])	SS Method	Qualifier
getNRMIRPVersion	get_nrm_irp_version	M
notifyObjectCreation	See Notification IRP: CORBA SS [9]	O
notifyObjectDeletion	See Notification IRP: CORBA SS [9]	O
notifyAttributeValueChange	See Notification IRP: CORBA SS [9]	O
notifyStateChange	See Notification IRP: CORBA SS [9]	O
getIRPVersion	get_kernel_cm_irp_versions	M
getOperationProfile	get_kernel_cm_irp_operations_profile	O
getNotificationProfile	get_kernel_cm_irp_notification_profile	O
notifyCMSynchronizationRecommended	See Notification IRP: CORBA SS [9]	O

A.2.2 Operation parameter mapping

The Kernel CM IRP: IS (see 3GPP TS 32.662 [4]) defines semantics of parameters carried in operations across the Kernel Configuration Management IRP. The following tables in this subclause indicate the mapping of these parameters, as per operation, to their equivalents defined in this SS.

Table A.2.2.1: Mapping from IS `getNRMIRPVersion` parameters to SS equivalents

IS Operation parameter	SS Method parameter	Qualifier
versionNumberList	ManagedGenericRPCConstDefs::VersionNumberSet version_number_list	M
vSEVersionNumberList	ManagedGenericRPCConstDefs::VersionNumberSet vse_version_number_list	M
status	Exceptions: GetNRMIRPVersion	M

Table A.2.2.2: Mapping from IS `getIRPVersion` parameters to SS equivalents

IS Operation parameter	SS Method parameter	Qualifier
versionNumberList	Return value of type ManagedGenericRPCConstDefs::VersionNumberSet	M
status	exception GetKernelCmIRPVersionsException	M

Table A.2.2.3: Mapping from IS `getOperationProfile` parameters to SS equivalents

IS Operation parameter	SS Method parameter	Qualifier
irpVersion	ManagedGenericRPCConstDefs::VersionNumber kernel_cm_irp_version	M
operationNameProfile, operationParameterProfile	Return value of type ManagedGenericRPCConstDefs::MethodList	M
status	Exceptions: GetKernelCMIRPOperationsProfileException, ManagedGenericRPSysyem::OperationNotSupported, ManagedGenericRPSysyem::InvalidParameter	M

Table A.2.2.4: Mapping from IS `getNotificationProfile` parameters to SS equivalents

IS Operation parameter	SS Method parameter	Qualifier
irpVersion	ManagedGenericRPCConstDefs::VersionNumber kernel_cm_irp_version	M
notificationNameProfile, notificationParameterProfile	Return value of type ManagedGenericRPCConstDefs::MethodList	M
status	Exceptions: GetKernelCMIRPNotificationProfileException, ManagedGenericRPSysyem::OperationNotSupported, ManagedGenericRPSysyem::InvalidParameter	M

A.2.3 Notification attribute mapping

The Kernel CM IRP: IS (see 3GPP TS 32.662 [4]) identifies and defines the semantics of attributes for `notifyObjectCreation`, `notifyObjectDeletion`, `notifyAttributeValueChange`, `notifyStateChange` and `notifyCMSynchronizationRecommended` for use for its IRP. The following table in this subclause shows the mapping of the IS notifications to SS equivalents.

Table A.2.3.1: Mapping from IS notifications to SS equivalents

IS notifications in 3GPP TS 32.662 [4]	SS notifications	Qualifier
NotifyObjectCreation	push_structured_event	O
NotifyObjectDeletion	push_structured_event	O
NotifyAttributeValueChange	push_structured_event	O
NotifyStateChange	push_structured_event	O
NotifyCMSynchronizationRecommended	push_structured_event	O

The Kernel CM IRP: IS (see 3GPP TS 32.662 [4]) also qualifies the attributes. The following tables in this subclause show the mapping of these IS attributes to SS equivalents.

Table A.2.3.2: Mapping from IS Notification Header attributes to SS equivalent

IS Attribute of Notification Header in 3GPP TS 32.662 [4]	SS Attribute	Qualifier
objectClass,objectInstance	NotificationIRPConstDefs::AttributeNameValue::MANAGED_OBJECT_INSTANCE	M
notificationId	NotificationIRPConstDefs::AttributeNameValue::NOTIFICATION_ID	M
eventTime	NotificationIRPConstDefs::AttributeNameValue::EVENT_TIME	M
systemDN	NotificationIRPConstDefs::AttributeNameValue::SYSTEM_DN	O
notificationType	--	M

Table A.2.3.3: Mapping from IS notifyObjectCreation attributes to SS equivalent OBJECT_CREATION

IS Attribute of notifyObjectCreation in 3GPP TS 32.662 [4]	SS Attribute	Qualifier
notificationHeader	See table A.2.3.2	M
correlatedNotifications	KernelCmNotifications::MOCreation::CORRELATED_NOTIFICATIONS	O
additionalText	KernelCmNotifications::MOCreation::ADDITIONAL_TEXT	O
sourceIndicator	KernelCmNotifications::MOCreation::SOURCE_INDICATOR	O
attributeList	KernelCmNotifications::MOCreation::InitialAttributeValues (contained in remainder_of_body)	O

Table A.2.3.4: Mapping from IS notifyObjectDeletion attributes to SS equivalent OBJECT_DELETION

IS Attribute of notifyObjectDeletion in 3GPP TS 32.662 [4]	SS Attribute	Qualifier
notificationHeader	See table A.2.3.2	M
correlatedNotifications	KernelCmNotifications::MODEletion::CORRELATED_NOTIFICATIONS	O
additionalText	KernelCmNotifications::MODEletion::ADDITIONAL_TEXT	O
sourceIndicator	KernelCmNotifications::MODEletion::SOURCE_INDICATOR	O
attributeList	KernelCmNotifications::MODEletion::AttributeValues (contained in remainder_of_body)	O

Table A.2.3.5: Mapping from IS notifyAttributeValueChange attributes to SS equivalent ATTRIBUTE_VALUE_CHANGE

IS Attribute of notifyAttributeValueChange in 3GPP TS 32.662 [4]	SS Attribute	Qualifier
notificationHeader	See table A.2.3.2	M
correlatedNotifications	KernelCmNotifications::AttributeValueChange::CORRELATED_NOTIFICATIONS	O
additionalText	KernelCmNotifications::AttributeValueChange::ADDITIONAL_TEXT	O
sourceIndicator	KernelCmNotifications::AttributeValueChange::SOURCE_INDICATOR	O