

ETSI TS 132 606 V15.1.0 (2019-10)



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

LTE;

Telecommunication management;

Configuration Management (CM);

Basic CM Integration Reference Point (IRP);

Solution Set (SS) definitions

(3GPP TS 32.606 version 15.1.0 Release 15)



ReferenceRTS/TSGS-0532606v10

KeywordsGSM,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 IRP document version number string	8
A.1.3 Filter language	8
A.2 Mapping	9
A.2.1 General mappings.....	9
A.2.2 Operation mapping	9
A.2.3 Operation parameter mapping	10
A.3 Solution Set definitions	13
A.3.1 IDL definition structure.....	13
A.3.2 IDL specification "BasicCMIRPConstDefs.idl"	14
A.3.3 IDL specification "BasicCMIRPSysSystem.idl"	17
Annex B (normative): SOAP Solution Set	23
B.1 Architectural features	23
B.1.1 Syntax for Distinguished Names and Versions	23
B.1.2 Supported W3C specifications	23
B.1.3 Prefixes and namespaces	23
B.1.4 Filter language	23
B.2 Mapping	24
B.2.1 General mappings.....	24
B.2.2 Operation mapping	24
B.2.3 Operation parameter mapping	25
B.2.3.1 Operation getMoAttributes.....	25
B.2.3.1.1 Input parameters.....	25
B.2.3.1.2 Output parameters	25
B.2.3.1.3 Fault definition.....	26
B.2.3.2 Operation getContainment	26
B.2.3.2.1 Input parameters.....	26
B.2.3.2.2 Output parameters	26
B.2.3.2.3 Fault definition.....	27
B.2.3.3 Operation createMO	27
B.2.3.3.1 Input parameters.....	27
B.2.3.3.2 Output parameters	27
B.2.3.3.3 Fault definition.....	28
B.2.3.4 Operation deleteMO	28
B.2.3.4.1 Input parameters.....	28

B.2.3.4.2 Output parameters28
B.2.3.4.3 Fault definition29
B.2.3.5 Operation setMOAttributes29
B.2.3.5.1 Input parameters29
B.2.3.5.2 Output parameters30
B.2.3.5.3 Fault definition30
B.3 Solution Set definitions31
B.3.1 WSDL definition structure31
B.3.2 Graphical Representation31
B.3.3 WSDL specification “BasicCMIRPSystem.wsdl”32
Annex C (informative): Change history39
History40

iTeh STANDARD PREVIEW
(standards.iteh.ai)
Full standard:
<https://standards.iteh.ai/catalog/standards/sist/451dad68-e4fd-4b23-8fbd-b785160d5853/etsi-ts-132-606-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:

32.601: "Configuration Management (CM); Basic CM Integration Reference Point (IRP); Requirements"

32.602: "Configuration Management (CM); Basic CM Integration Reference Point (IRP); Information Service (IS)"

32.606: "Configuration Management (CM); Basic 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 purpose of this document is to define the mapping of the Basic CM IRP: IS (see 3GPP TS 32.602 [8]) to the protocol specific details necessary for implementation of this IRP in a CORBA/IDL environment and in a SOAP/WSDL environment.

This document defines NRM independent data types and methods.

This Solution Set specification is related to 3GPP TS 32.602 [8].

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 32.300: "Telecommunication management; Configuration Management (CM); Name convention for Managed Objects".
- [4] 3GPP TS 32.306: "Telecommunication management; Configuration Management (CM); Notification Integration Reference Point (IRP): Solution Set (SS) definitions".
- [5] 3GPP TS 32.311: "Telecommunication management; Generic Integration Reference Point (IRP) management; Requirement".
- [6] 3GPP TS 32.312: "Telecommunication management; Generic Integration Reference Point (IRP) management; Information Service (IS)".
- [7] 3GPP TS 32.600: "Telecommunication management; Configuration Management (CM); Concept and high-level requirements".
- [8] 3GPP TS 32.602: "Telecommunication management; Configuration Management (CM); Basic CM Integration Reference Point (IRP) Information Service (IS)".
- [9] 3GPP TS 32.666: "Telecommunication management; Configuration Management (CM); Kernel CM Integration Reference Point (IRP): Solution Set (SS) definitions".
- [10] OMG Notification Service, Version 1.0.
- [11] W3C SOAP 1.1 specification (<http://www.w3.org/TR/2000/NOTE-SOAP-20000508/>).
- [12] W3C WSDL 1.1 specification (<http://www.w3.org/TR/2001/NOTE-wsdl-20010315>).
- [13] W3C XPath 1.0 specification (<http://www.w3.org/TR/1999/REC-xpath-19991116>).
- [14] W3C SOAP 1.2 specification (<http://www.w3.org/TR/soap12-part1/>).
- [15] 3GPP TS 28.622: "Telecommunication management; Generic Network Resource Model (NRM) Integration Reference Point (IRP); Information Service (IS)".
- [16] 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 [16], 3GPP TS 32.101 [1], 3GPP TS 32.102 [2] and 3GPP TS 32.600 [7], 3GPP TS 32.602 [8] 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 [16], 3GPP TS 32.101 [1], 3GPP TS 32.102 [2], 3GPP TS 32.600 [7] and 3GPP TS 32.602 [8].

IRP document version number string: The IRP document version number (sometimes called "IRPVersion" or "SS version number") string is used to identify this specification.

NOTE1: The string is derived using a rule described in 3GPP TS 32.311 [5]. This string (or sequence of strings, if more than one version is supported) is returned in `getBasicCmIRPVersion` method.

Network resource: See definition in TS 28.622 [15].

Network Resource Model (NRM): See definition in TS 28.622 [15].

3.2 Abbreviations

For the purposes of the present document, the abbreviations given in 3GPP TR 21.905 [16] 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 [16].

DN	Distinguished Name
MO	Managed Object
MOC	Managed Object Class
OMG	Object Management Group
SS	Solution Set
WSDL	Web Service Description Language

4 Solution Set Definitions

This specification defines the following 3GPP Basic CM IRP Solution Set Definitions:

Annex A provides the CORBA Solution Set.

Annex B provides the SOAP Solution Set.

Annex A (normative): CORBA Solution Set

This annex specifies the CORBA Solution Set for the IRP whose semantics are specified in 3GPP TS 32.602 [8].

A.1 Architectural features

The overall architectural feature of Basic Configuration Management IRP is specified in 3GPP TS 32.602 [8]. 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 [3].

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

A.1.2 IRP document version number string

The IRP document version number (sometimes called "IRPVersion" or "SS version number") string is used to identify this specification. The string is derived using a rule described in 3GPP TS 32.312: [6].

This string (or sequence of strings, if more than one version is supported) is returned in getBasicCmIRPVersion method.

A.1.3 Filter language

The filter language used in the SS is the Extended Trader Constraint Language (see OMG Notification Service [10]). IRPAgents may throw a FilterComplexityLimit exception when a given filter is too complex. However, for 3GPP Release 99 an "empty filter" shall be used i.e. a filter that satisfies all MOs of a scoped search (this does not affect the filter for notifications as defined in the Notification IRP – see 3GPP TS 32.306 [4]).

A.2 Mapping

A.2.1 General mappings

The IS parameter name `managedObjectInstance` is mapped into DN.

Attributes modelling associations as defined in the NRM (here also called "reference attributes") are in this SS mapped to attributes. The names of the reference attributes in the NRM are mapped to the corresponding attribute names in the MOC. When the cardinality for an association is 0..1 or 1..1 the datatype for the reference attribute is defined as an `MOReference`. The value of an MO reference contains the distinguished name of the associated MO. When the cardinality for an association allows more than one referred MO, the reference attribute will be of type `MOReferenceSet`, which contains a sequence of MO references.

If a reference attribute is changed, an `AttributeValueChange` notification (see TS 32.666 [9]) is emitted.

A.2.2 Operation mapping

The Basic CM IRP: IS (see 3GPP TS 32.602 [8]) defines semantics of operation visible across the Basic Configuration Management IRP. Table A.2.2 indicates mapping of these operations to their equivalents defined in this SS.

Table A.2.2: Mapping from IS Operation to SS equivalents

IS Operation (3GPP TS 32.602 [8])	SS Method	Qualifier
<code>getMoAttributes</code>	<code>BasicCmIrpOperations::find_managed_objects</code> <code>BasicCmInformationIterator::next_basic_cm_informations</code>	M
<code>getContainment</code>	<code>BasicCmIrpOperations::find_managed_objects</code> <code>BasicCmInformationIterator::next_basic_cm_informations</code>	O
<code>cancelOperation</code>	<code>BasicCmInformationIterator::destroy</code>	O
<code>createMo</code>	<code>BasicCmIrpOperations::create_managed_object</code>	O
<code>deleteMo</code>	<code>BasicCmIrpOperations::delete_managed_objects</code> <code>DeleteResultIterator::next_basic_cm_informations</code> <code>DeleteResultIterator::next_delete_errors</code>	O
<code>setMoAttributes</code>	<code>BasicCmIrpOperations::modify_managed_objects</code> <code>ModifyResultIterator::next_basic_cm_informations</code> <code>ModifyResultIterator::next_modification_errors</code>	O

A.2.3 Operation parameter mapping

The Basic CM IRP: IS (see 3GPP TS 32.602 [8]) defines semantics of parameters carried in operations across the Basic Configuration Management IRP. Tables A.2.3.1 through A.2.3.6 indicate the mapping of these parameters, as per operation, to their equivalents defined in this SS.

The SS operation find_managed_objects is equivalent to the IS operation getMoAttributes when called with ResultContents set to NAMES_AND_ATTRIBUTES. Iterating the BasicCmInformationIterator is used to fetch the result.

Table A.2.3.1: Mapping from IS getMoAttributes parameters to SS equivalents

IS Operation parameter	SS Method parameter	Qualifier
invokelIdentifier	- (No equivalence)	-
invokelIdentifierOut	Return value of type BasicCmInformationIterator	M
baseObjectInstance	GenericIRPManagementConstDefs::DN base_object	M
scope	SearchControl search_control (SearchControl.type and SearchControl.level)	M
filter	SearchControl search_control (SearchControl.filter)	M
attributeListIn	AttributeNameSet requested_attributes	M
managedObjectClass managedObjectInstance attributeListOut	Return value of type BasicCmInformationIterator - parameter out ResultSet fetched_elements of method next_basic_cm_informations	M
status	Exceptions: FindManagedObjects, GenericIRPManagementSystem::InvalidParameter, UndefinedMOException, IllegalDNFormatException, UndefinedScopeException, IllegalScopeTypeException, IllegalScopeLevelException, IllegalFilterFormatException, FilterComplexityLimit	M

The SS operation find_managed_objects is equivalent to the IS operation getContainment when called with ResultContents set to NAMES. Iterating the BasicCmInformationIterator is used to fetch the result.

Table A.2.3.2: Mapping from IS getContainment parameters to SS equivalents

IS Operation parameter	SS Method parameter	Qualifier
invokeldentifier	- (No equivalence)	-
invokeldentifierOut	Return value of type BasicCmInformationIterator	M
baseObjectInstance	GenericIRPManagementConstDefs::DN base_object	M
scope	SearchControl search_control (SearchControl.type and SearchControl.level)	O
Not specified in IS	SearchControl search_control (SearchControl.filter)	M
containment	Return value of type BasicCmInformationIterator - parameter out ResultSet fetched_elements of method next_basic_cm_informations	M
status	Exceptions: FindManagedObjects, GenericIRPManagementSystem::OperationNotSupported, GenericIRPManagementSystem::ParameterNotSupported, GenericIRPManagementSystem::InvalidParameter, GenericIRPManagementSystem::ValueNotSupported, UndefinedMOException, IllegalDNFormatException, UndefinedScopeException, IllegalScopeTypeException, IllegalScopeLevelException, IllegalFilterFormatException, FilterComplexityLimit	M

Table A.2.3.3: Mapping from IS cancelOperation parameters to SS equivalents

IS Operation parameter	SS Method parameter	Qualifier
invokeldentifier	- (Not applicable, the BasicCmInformationIterator instance identifies the ongoing operation)	M
status	Exceptions: GenericIRPManagementSystem::OperationNotSupported, DestroyException	M

Table A.2.3.4: Mapping from IS createMo parameters to SS equivalents

IS Operation parameter	SS Method parameter	Qualifier
managedObjectClass managedObjectInstance	GenericIRPManagementConstDefs::DN object_name	M
referenceObjectInstance	GenericIRPManagementConstDefs::DN reference_object	O
attributeListIn attributeListOut	GenericIRPManagementConstDefs::MoAttributeSet attributes	M
status	AttributeErrorSeq attribute_errors Exceptions: CreateManagedObject, GenericIRPManagementSystem::OperationNotSupported, GenericIRPManagementSystem::ParameterNotSupported, GenericIRPManagementSystem::InvalidParameter, UndefinedMOException, IllegalDNFormatException, DuplicateMO, CreateNotAllowed, ObjectClassMismatch, NoSuchObjectClass, ParentObjectDoesNotExist	M