

ETSI TS 132 502 V14.1.1 (2019-10)



**Universal Mobile Telecommunications System (UMTS);
LTE;
Telecommunication management;
Self-configuration of network elements
Integration Reference Point (IRP);
Information Service (IS)
(3GPP TS 32.502 version 14.1.1 Release 14)**



Reference

RTS/TSGS-0532502ve11

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 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.....	7
Introduction	7
1 Scope	8
2 References	8
3 Definitions and abbreviations.....	9
3.1 Definitions	9
3.2 Abbreviations	9
4 Stage 2 descriptions.....	10
4.1 General	10
4.2 Management and Monitoring of Self-Configuration	10
4.2.1 Usage of Itf-N	10
4.2.1.1 Usage of alarmIRP	10
4.2.1.1.2 Usage of information object classes	10
4.2.1.1.2 Usage of notifications	10
4.2.1.1.3 Usage of notifications	10
4.2.1.1.3.1 Usage of notifyNewAlarm	10
4.2.1.1.3.2 Usage of notifyObjectCreation/-deletion/-attributeValueChange	10
4.3 Inventory Update.....	10
4.3.1 Usage of Itf-N	10
4.3.1.1 Usage of Inventory Management IRP NRM (32.69n)	10
5 Information Object Classes	11
5.1 Imported information entities and local labels	11
5.2 Class diagram	11
5.2.1 Attributes and relationships	11
5.2.2 Inheritance	13
5.3 Information object class definitions	15
5.3.1 ScManagementCapability	15
5.3.1.1 Definition	15
5.3.1.2 Attributes.....	15
5.3.1.3 Notifications.....	15
5.3.2 ScManagementProfile.....	15
5.3.2.1 Definition	15
5.3.2.2 Attributes.....	16
5.3.2.3 Notifications.....	16
5.3.3 ScProcess.....	16
5.3.3.1 Definition	16
5.3.3.2 Attributes.....	17
5.3.3.3 Notifications.....	17
5.3.4 SelfConfigurationIRP.....	17
5.3.4.1 Definition	17
5.3.4.2 Attributes.....	17
5.3.4.3 Notifications.....	17
5.3.5 ENBLevelArcfData	17
5.3.5.1 Definition	17
5.3.5.2 Attributes.....	17
5.3.5.3 Notifications.....	17
5.3.6 EUTranCellLevelArcfData	18
5.3.6.1 Definition	18
5.3.6.2 Attributes.....	18

5.3.6.3	Notifications.....	18
5.3.7	AntennaLevelArcfData.....	18
5.3.7.1	Definition	18
5.3.7.2	Attributes.....	18
5.3.7.3	Notifications.....	18
5.4	Information relationship definitions	18
5.4.1	relation-SelfConfigurationIRP-scManagementCapability (M).....	18
5.4.1.1	Definition	18
5.4.1.2	Roles	19
5.4.1.3	Constraints	19
5.4.2	relation-SelfConfigurationIRP-scManagementProfile (M).....	19
5.4.2.1	Definition	19
5.4.2.2	Roles	19
5.4.2.3	Constraints	19
5.4.3	relation-SelfConfigurationIRP-scProcess (M).....	19
5.4.3.1	Definition	19
5.4.3.2	Roles	19
5.4.3.3	Constraints	19
5.4.4	relation-ScManagementCapabilites-scManagementProfile (M).....	20
5.4.4.1	Definition	20
5.4.4.2	Roles	20
5.4.4.3	Constraints	20
5.4.5	relation scManagementProfile-scProcess (M).....	20
5.4.5.1	Definition	20
5.4.5.2	Roles	20
5.4.5.3	Constraints	20
5.5	Information attribute definitions.....	20
5.5.1	Definition and legal values	21
5.5.2	Constraints	23
5.6	Common Notifications	23
5.7	Void.....	23
6	IRP descriptions: Interface Definitions	23
6.1	Imported information entities and local labels.....	23
6.2	Class diagram representing interfaces.....	24
6.3	Generic rules	24
6.4	SCManagementOperations_1 Interface (M).....	24
6.4.1	Operation listScManagementCapabilities (M).....	24
6.4.1.1	Definition	24
6.4.1.2	Input parameters.....	25
6.4.1.3	Output parameters.....	25
6.4.1.4	Pre-condition.....	25
6.4.1.5	Post-condition	25
6.4.1.6	Exceptions.....	25
6.4.2	Operation listScManagementProfiles (M).....	26
6.4.2.1	Definition	26
6.4.2.2	Input parameters.....	26
6.4.2.3	Output parameters.....	26
6.4.2.4	Pre-condition.....	26
6.4.2.5	Post-condition	26
6.4.2.6	Exceptions.....	26
6.4.2.6.1	exceptionName.....	26
6.4.3	Operation createScManagementProfile (M).....	26
6.4.3.1	Definition	26
6.4.3.2	Input parameters.....	27
6.4.3.3	Output parameters.....	27
6.4.3.4	Pre-condition.....	27
6.4.3.5	Post-condition	27
6.4.3.6	Exceptions.....	27
6.4.3.6.1	exceptionName.....	27
6.4.4	Operation deleteScManagementProfile (M).....	27

6.4.4.1	Definition	27
6.4.4.2	Input parameters.....	27
6.4.4.3	Output parameters	27
6.4.4.4	Pre-condition.....	27
6.4.4.5	Post-condition	28
6.4.4.6	Exceptions	28
6.4.4.6.1	exceptionName.....	28
6.4.5	Operation listScProcesses (M).....	28
6.4.5.1	Definition	28
6.4.5.2	Input parameters.....	28
6.4.5.3	Output parameters.....	28
6.4.5.4	Pre-condition.....	28
6.4.5.5	Post-condition	28
6.4.5.6	Exceptions	28
6.4.5.6.1	exceptionName.....	28
6.4.	Operation resumeScProcess (M).....	28
6.4.6.1	Definition	28
6.4.6.2	Input parameters.....	29
6.4.6.3	Output parameters	29
6.4.6.4	Pre-condition.....	29
6.4.6.5	Post-condition	29
6.4.6.6	Exceptions	29
6.4.6.6.1	exceptionName.....	29
6.4.7	Operation terminateScProcess (M).....	29
6.4.7.1	Definition	29
6.4.7.2	Input parameters.....	29
6.4.7.3	Output parameters.....	29
6.4.7.4	Pre-condition.....	30
6.4.7.5	Post-condition	30
6.4.7.6	Exceptions	30
6.4.7.6.1	exceptionName.....	30
6.4.8	Operation resumeScProcessWithArcfData (M).....	30
6.4.8.1.1	Definition.....	30
6.4.8.1.2	Input parameters	30
6.4.8.1.3	Output parameters	30
6.4.8.1.4	Pre-condition	31
6.4.8.1.5	Post-condition.....	31
6.4.8.1.6	Exceptions	31
6.5	SCManagementOperations_2 Interface (O).....	32
6.5.1	Operation changeScManagementProfile (O).....	32
6.5.1.1	Definition	32
6.5.1.2	Input parameters.....	32
6.5.1.3	Output parameters.....	32
6.5.1.4	Pre-condition.....	32
6.5.1.5	Post-condition	32
6.5.1.6	Exceptions	32
6.5.1.6.1	exceptionName.....	32
6.6	SCManagementNotification_1 Interface (M).....	32
6.6.1	Notification notifyScManagementProfileCreation (M).....	32
6.6.1.1	Definition	32
6.6.1.2	Input parameters.....	33
6.6.1.3	Triggering event.....	33
6.6.1.3.1	From state	33
6.6.1.3.2	To state	33
6.6.2	Notification notifyScManagementProfileDeletion (M).....	33
6.6.2.1	Definition	33
6.6.2.2	Input parameters.....	33
6.6.2.3	Triggering event.....	33
6.6.2.3.1	From state	33
6.6.2.3.2	To state	33
6.6.3	Notification notifyScProcessCreation (M).....	33

6.6.3.1	Definition	33
6.6.3.2	Input parameters.....	34
6.6.3.3	Triggering event.....	34
6.6.3.3.1	From state	34
6.6.3.3.2	To state	34
6.6.4	Notification notifyScProcessStage (M).....	34
6.6.4.1	Definition	34
6.6.4.2	Input parameters.....	34
6.6.4.3	Triggering event.....	35
6.6.4.3.1	From state	35
6.6.4.3.2	To state	35
6.6.5	Notification notifyScProcessDeletion (M).....	35
6.6.5.1	Definition	35
6.6.5.2	Input parameters.....	36
6.6.5.3	Triggering event.....	36
6.6.5.3.1	From state	36
6.6.5.3.2	To state	36
6.6.6	Notification notifyNewScManagementCapabilityAvailability (M).....	37
6.6.6.1	Definition	37
6.6.6.2	Input parameters.....	37
6.6.6.3	Triggering event.....	37
6.6.6.3.1	From state	37
6.6.6.3.2	To state	37
6.7	SCManagementNotification_2 Interface (O)	38
6.7.1	Notification notifyScManagementProfileChange (O).....	38
6.7.1.1	Definition	38
6.7.1.2	Input parameters.....	38
6.7.1.3	Triggering event.....	38
6.7.1.3.1	From state	38
6.7.1.3.2	To state	38
6.8	Operations to transport ARCF data (M).....	39
6.8.1	Operation resumeScProcessWithArcefData (O)	39
6.8.2	Re-use of bulk CM IRP (O).....	39
6.8.3	Re-use of FT IRP (O).....	39
Annex A (informative): Change history		40
History		41

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:

- 32.501: Self-Configuration of Network Elements; Concepts and Integration Reference Point (IRP) Requirements
- 32.502: Self-Configuration of Network Elements Integration Reference Point (IRP); Information Service (IS)**
- 32.503: Self-Configuration of Network Elements Integration Reference Point (IRP); Common Object Request Broker Architecture (CORBA) Solution Set (SS)

1 Scope

The present document defines the Information Service (IS) part of the Self-Configuration IRP (SCIRP). It describes the semantics of the information and the interactions visible across Itf-N in a protocol independent way. The information is specified by means of Information Object Classes (IOCs) and the interactions by means of operations and notifications. The present document does not specify the syntax (encoding) of the information.

The scope of this version of the TS is restricted to self-configuration of eNBs.

The present documents also describes how already defined Itf-N functionalities are used in the context of Self-Configuration.

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 TR 21.905: "Vocabulary for 3GPP Specifications".
- [2] 3GPP TS 32.101: "Telecommunication management; Principles and high level requirements".
- [3] 3GPP TS 32.102: "Telecommunication management; Architecture".
- [4] Void.
- [5] 3GPP TR 32.816: "Telecommunication management; Study on Management of Evolved Universal Terrestrial Radio Access Network (E-UTRAN) and Evolved Packet Core (EPC)".
- [6] 3GPP TS 32.501: "Telecommunication management; Self-Configuration of Network Elements; Concepts and Requirements".
- [7] 3GPP TS 32.532: "Telecommunication management; Software management Integration Reference Point (IRP); Information Service (IS)".
- [8] 3GPP TS 32.622: "Telecommunication management; Generic network resources Integration Reference Point (IRP); Network Resource Model (NRM)".
- [9] 3GPP TS 32.312: "Telecommunication management; Generic Integration Reference Point (IRP) management: Information Services".
- [10] 3GPP TS 32.612: "Telecommunication management; Configuration Management (CM); Bulk CM Integration Reference Point (IRP): Information Services (IS)".
- [11] 3GPP TS 32.642: "Telecommunication management; Configuration Management (CM); UTRAN network resources Integration Reference Point (IRP): Information Network Resource Model (NRM)".
- [12] 3GPP TS 32.342: "Telecommunication management; File Transfer (FT) Integration Reference Point (IRP): Information Service (IS)".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in TS 32.101 [2], TS 32.102 [3] and TR 21.905 [1], 32.501 [6] and the following apply. A term defined in the present document takes precedence over the definition of the same term, if any, in TS 32.501 [6], TS 32.101 [2], TS 32.102 [3] and TS 21.905 [1], in that order.

3.2 Abbreviations

For the purposes of the present document, the abbreviations given in TR 21.905 [4], TS 32.501 [6] and the following apply. An abbreviation defined in the present document takes precedence over the definition of the same abbreviation, if any, in TR 21.905 [4] and TS 32.501 [6].

DNS	Domain Name System
-----	--------------------

iTeh STANDARD PREVIEW
(standards.iteh.ai)
Full standard:
<https://standards.iteh.ai/catalog/standards/sist/bde9cad4-9f0a-46e0-baf1-7e68a01be0be/etsi-ts-132-502-v14.1.1-2019-10>

4 Stage 2 descriptions

4.1 General

For the logical/Physical architecture of functional blocs and their interactions see in TR 32.816 [5] and TS 32.501 [6].

4.2 Management and Monitoring of Self-Configuration

4.2.1 Usage of Itf-N

For specifically defined interface see 6.4.1.

4.2.1.1 Usage of alarmIRP

AlarmIRP is re-used for alarm reporting of self-establishment.

Specific definitions:

4.2.1.1.2 Usage of information object classes

No specific definitions.

4.2.1.1.2 Usage of notifications

No specific definitions.

4.2.1.1.3 Usage of notifications

For notification without sub-clause no specific definitions exist.

4.2.1.1.3.1 Usage of notifyNewAlarm

The parameter “probableCause” shall use one of the values “softwareDownloadFailure” (already defined), “softwareInstallationError” or “softwareFallbackError” (the latter two values need to be introduced)

For parameter alarmType the value “ProcessingErrorAlarm” should be used.

Parameters trendIndication and thresholdInfo should not be used.

4.2.1.1.3.2 Usage of notifyObjectCreation/-deletion/-attributeValueChange

For notifyObjectCreation/-deletion/-attributeValueChange notifications which are triggered by a self-configuration functionality the value SON_operation shall be used for parameter sourceIndicator. The parameter additionalInformation may indicate that this was triggered by self-configuration.

4.3 Inventory Update

4.3.1 Usage of Itf-N

4.3.1.1 Usage of Inventory Management IRP NRM (32.69n)

The Inventory Management NRM IRP shall be used.

5 Information Object Classes

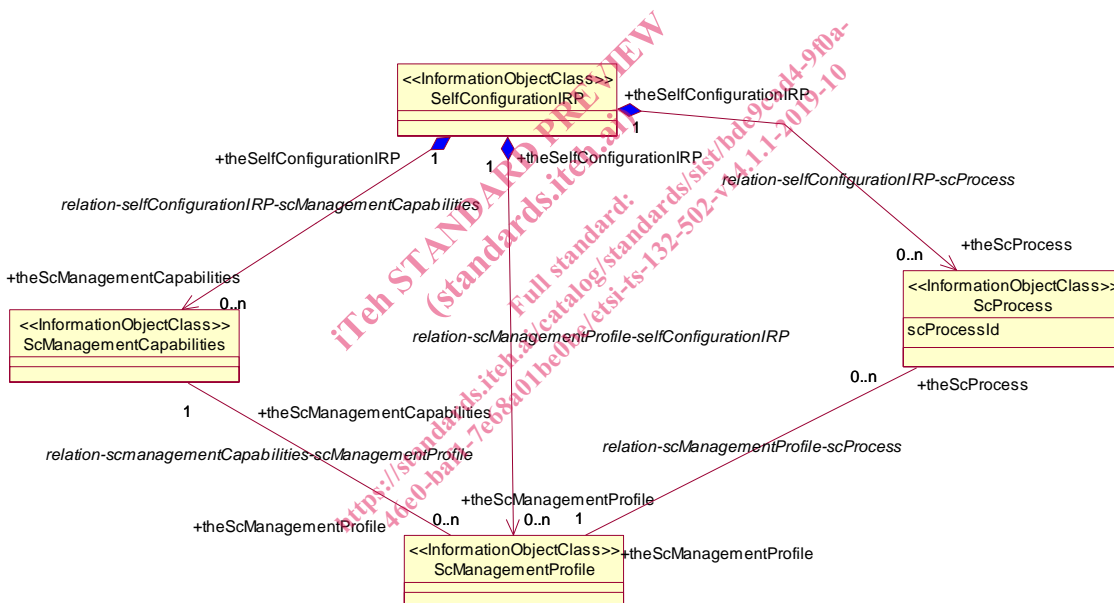
5.1 Imported information entities and local labels

Label reference	Local label
32.532 [7], information object class, SwMCapabilities	SwMCapabilities
32.532 [7], information object class, SwMProfile	SwMProfile
32.532 [7], information object class, SwMProcess	SwMProcess
3GPP TS 32.622 [8], information object class, Top	Top
3GPP TS 32.312 [9], information object class, ManagedGenericIRP	ManagedGenericIRP

5.2 Class diagram

5.2.1 Attributes and relationships

The diagram reflects the definitions in the text of the following clauses. In case of conflict text takes precedence.



The following UML diagram describes the objects required for ARCF.