

# ETSI TS 128 510 V14.1.0 (2017-10)



**LTE;  
Telecommunication management;  
Configuration Management (CM) for mobile networks that  
include virtualized network functions;  
Requirements  
(3GPP TS 28.510 version 14.1.0 Release 14)**



---

**Reference**RTS/TSGS-0528510ve10

---

**Keywords**LTE

---

**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 2017.

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

IPRs essential or potentially essential to the present document 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.

---

## 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 Background and concepts.....	6
4.1 Configuration management in the context of NFV .....	6
5 Business level requirements .....	6
5.1 Requirements.....	6
5.2 Actor roles .....	7
5.3 Telecommunications resources .....	7
5.4 High-level use cases .....	7
5.4.1 Create Managed Object for Network Element in the context of NFV .....	7
5.4.2 Delete MOI(s) for Network Element in the context of NFV .....	7
5.4.3 Update the configuration parameters corresponding to the subject VNF instance (application part) after a VNF instance is scaled.....	8
5.4.4 Retrieve virtualized NE information by NM .....	8
6 Specification level requirements .....	8
6.1 Requirements.....	8
6.1.1 Requirements for Itf-N.....	8
6.1.2 Requirements for Os-Ma-nfvo.....	9
6.1.3 Requirements for Ve-Vnfm-em .....	9
6.1.4 Requirements for Ve-Vnfm-vnf.....	9
6.2 Actor roles .....	9
6.3 Telecommunication resources .....	9
6.4 Use cases .....	9
6.4.1 MOI creation related use cases .....	9
6.4.1.1 Introduction.....	9
6.4.1.2 Create MOI(s) after a VNF is instantiated (Triggered by NM).....	10
6.4.1.3 Create MOI(s) after a VNF is instantiated (Triggered by EM) .....	11
6.4.1.4 Create MOI(s) for a specified VNF instance (Triggered by NM).....	11
6.4.1.5 Associate MOI(s) with a VNF instance (Triggered by NM).....	12
6.4.1.6 Bulk MOIs creation.....	13
6.4.2 Configure VNF instance with Managed Object attributes .....	15
6.4.3 Delete the MOI(s) corresponding to a VNF instance (application part) .....	16
6.4.4 Update the MOI(s) corresponding to the subject VNF instance (application part) after a VNF instance is scaled (Triggered by NM) .....	16
6.4.5 Update the MOI(s) corresponding to the subject VNF instance (application part) after a VNF instance is scaled (Triggered by EM) .....	17
6.4.6 Void .....	17
6.4.7 Void .....	17
6.4.8 Void .....	17
6.4.9 Enable/disable the auto-scaling of the VNF instance(s) corresponding to an NE .....	17
6.4.10 VNF instance information synchronization .....	18
<b>Annex A (informative): Change history .....</b>	<b>19</b>
History .....	20

---

# 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:

**TS 28.510: Telecommunication management; Configuration Management (CM) for mobile networks that include virtualized network functions; Requirements.**

TS 28.511: Telecommunication management; Configuration Management (CM) for mobile networks that include virtualized network functions; Procedures.

TS 28.512: Telecommunication management; Configuration Management (CM) for mobile networks that include virtualized network functions; Stage 2.

TS 28.513: Telecommunication management; Configuration Management (CM) for mobile networks that include virtualized network functions; Stage 3.

---

# 1 Scope

The present document (together with the relevant requirements described in [1], [2], [3] and [4]) specifies the requirements applicable to Configuration Management (CM) of virtualized network functions which can be part of EPC or IMS.

---

# 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 32.102: "Telecommunication management; Architecture".
- [3] 3GPP TS 32.600: "Telecommunication management; Configuration Management (CM); Concept and high-level requirements".
- [4] 3GPP TS 28.500: "Telecommunication management; Management concept, architecture and requirements for mobile networks that include virtualized network functions".
- [5] ETSI GS NFV-IFA 008 (V2.1.1): "Network Function Virtualisation (NFV); Management and Orchestration; Ve-Vnfm reference point - Interface and Information Model Specification".
- [6] ETSI GS NFV-IFA 010 (V2.1.1): "Network Functions Virtualisation (NFV); Management and Orchestration; Functional requirements specification".
- [7] ETSI GS NFV-IFA 013 (V2.1.1): "Network Function Virtualisation (NFV); Management and Orchestration; Os-Ma-nfvo reference point - Interface and Information Model Specification".
- [8] 3GPP TS 28.525: "Telecommunication management; Life Cycle Management (LCM) for mobile networks that include virtualized network functions; Requirements".
- [9] 3GPP TS 32.612: "Telecommunication management; Configuration Management (CM); Bulk CM 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 3GPP TR 21.905 [1] and in 3GPP TS 28.500 [4] 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 [1] or in 3GPP TS 28.500 [4].

**VNF application specific parameters:** parameters for realizing the network element function.

NOTE: VNF application specific parameters are defined by 3GPP. Examples can be network element name, network element address, etc.

**VNF non-application specific parameters:** parameters for instantiating/scaling/terminating a VNF instance.