



Network Functions Virtualisation (NFV) Release 5; Security; Security Assurance Specification (SCAS) for VIM

Document Preview

[ETSI GS NFV-SEC 029 V5.2.1 \(2025-03\)](https://standards.iteh.ai/catalog/standards/etsi/46dcd5b3-e705-42d7-9454-8eb6fb850c00/etsi-gs-nfv-sec-029-v5-2-1-2025-03)

<https://standards.iteh.ai/catalog/standards/etsi/46dcd5b3-e705-42d7-9454-8eb6fb850c00/etsi-gs-nfv-sec-029-v5-2-1-2025-03>

Disclaimer

The present document has been produced and approved by the Network Functions Virtualisation (NFV) ETSI Industry Specification Group (ISG) and represents the views of those members who participated in this ISG.
It does not necessarily represent the views of the entire ETSI membership.

Reference

DGS/NFV-SEC029

Keywords

assurance, MANO; NFV, SCAS, security requirements, test, VIM

ETSI650 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 - APE 7112B
Association à but non lucratif enregistrée à la
Sous-Préfecture de Grasse (06) N° w061004871

Important notice

The present document can be downloaded from the
[ETSI Search & Browse Standards](#) application.

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 on [ETSI deliver](#) repository.

Users should be aware that the present document may be revised or have its status changed, this information is available in the [Milestones listing](#).

If you find errors in the present document, please send your comments to the relevant service listed under [Committee Support Staff](#).

If you find a security vulnerability in the present document, please report it through our [Coordinated Vulnerability Disclosure \(CVD\)](#) program.

Notice of disclaimer & limitation of liability

The information provided in the present deliverable is directed solely to professionals who have the appropriate degree of experience to understand and interpret its content in accordance with generally accepted engineering or other professional standard and applicable regulations.

No recommendation as to products and services or vendors is made or should be implied.

No representation or warranty is made that this deliverable is technically accurate or sufficient or conforms to any law and/or governmental rule and/or regulation and further, no representation or warranty is made of merchantability or fitness for any particular purpose or against infringement of intellectual property rights.

In no event shall ETSI be held liable for loss of profits or any other incidental or consequential damages.

Any software contained in this deliverable is provided "AS IS" with no warranties, express or implied, including but not limited to, the warranties of merchantability, fitness for a particular purpose and non-infringement of intellectual property rights and ETSI shall not be held liable in any event for any damages whatsoever (including, without limitation, damages for loss of profits, business interruption, loss of information, or any other pecuniary loss) arising out of or related to the use of or inability to use the software.

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 2025.
All rights reserved.

Contents

Intellectual Property Rights	4
Foreword.....	4
Modal verbs terminology.....	4
1 Scope	5
2 References	5
2.1 Normative references	5
2.2 Informative references.....	5
3 Definition of terms, symbols and abbreviations.....	5
3.1 Terms.....	5
3.2 Symbols.....	6
3.3 Abbreviations	6
4 Catalogue of security requirements and related test cases for VIM product.....	6
4.1 Introduction	6
4.2 Security functional requirements and related test cases	6
4.2.1 Introduction.....	6
4.2.2 Security functional requirements deriving from ETSI specifications and related test cases.....	6
4.2.2.1 Verification of VM software image integrity and authenticity during instantiation	6
4.3 Security requirements and related test cases related to hardening.....	8
4.3.1 Introduction.....	8
4.4 Baseline vulnerability testing requirements	10
4.4.1 Introduction.....	10
Annex A (informative): Aspects specific to the network product class VIM.....	11
A.1 Network product class description for the VIM	11
A.1.1 Introduction	11
A.1.2 Minimum set of functions defining the VIM network product class.....	11
A.2 Assets and threats specific to the VIM.....	11
A.2.1 Critical assets.....	11
A.2.2 Threats related to management procedures	11
Annex B (informative): Change History	13
History	14

Intellectual Property Rights

Essential patents

IPRs essential or potentially essential to normative deliverables may have been declared to ETSI. The declarations pertaining to these essential IPRs, if any, are 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 IPR online database](#).

Pursuant to the ETSI Directives including the ETSI IPR Policy, no investigation regarding the essentiality of IPRs, 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.

DECT™, **PLUGTESTS™**, **UMTS™** and the ETSI logo are trademarks of ETSI registered for the benefit of its Members. **3GPP™**, **LTE™** and **5G™** logo 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.

Foreword

This Group Specification (GS) has been produced by ETSI Industry Specification Group (ISG) Network Functions Virtualisation (NFV).

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.

1 Scope

The present document defines the security assurance of VIM products, which is part of MANO system. The outcome of the present document expects the security assets, security threats, security requirements and test cases for evaluating the security VIM products. In the present document, the security assurance methodology introduced in 3GPP specifications will be leveraged. Security test cases including testing goals, testing steps, and evidence of testing results will be produced for evaluating whether the security requirements are implemented by VIM based products.

2 References

2.1 Normative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

Referenced documents which are not found to be publicly available in the expected location might be found at [ETSI docbox](#).

NOTE: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long term validity.

The following referenced documents are necessary for the application of the present document.

- [1] [ETSI GS NFV-SEC 028](#): "Network Functions Virtualisation (NFV) Release 5; Security; Security Assurance Specification (SCAS) for Generic NFV-MANO".
- [2] [ETSI GS NFV-IFA 010](#): "Network Functions Virtualisation (NFV) Release 5; Management and Orchestration; Functional requirements specification".
- [3] [ETSI GS NFV-SEC 021](#): "Network Functions Virtualisation (NFV) Release 4; Security; VNF Package Security Specification".

2.2 Informative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

NOTE: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long term validity.

The following referenced documents are not necessary for the application of the present document but they assist the user with regard to a particular subject area.

- [i.1] ETSI GS NFV 003: "Network Functions Virtualisation (NFV); Terminology for Main Concepts in NFV".

3 Definition of terms, symbols and abbreviations

3.1 Terms

For the purposes of the present document, the terms given in ETSI GS NFV 003 [i.1] apply.

3.2 Symbols

Void.

3.3 Abbreviations

For the purposes of the present document, the abbreviations given in ETSI GS NFV 003 [i.1] apply.

4 Catalogue of security requirements and related test cases for VIM product

4.1 Introduction

The present clause describes security functional requirements and the corresponding test cases for VIM products.

4.2 Security functional requirements and related test cases

4.2.1 Introduction

All test cases in clause 4.2 of ETSI GS NFV-SEC 028 [1] can be applied to VIM products with the exceptions listed in the following clauses.

4.2.2 Security functional requirements deriving from ETSI specifications and related test cases

4.2.2.1 Verification of VM software image integrity and authenticity during instantiation

Requirement Name:

Verification of VM software image integrity and authenticity during instantiation

Requirement Reference:

ETSI GS NFV-IFA 010 [2], clause 8.5

Requirement Description:

"The VIM shall support the capability to verify the integrity and authenticity of the VM software images". As specified in ETSI GS NFV-IFA 010 [2], clause 8.5, Vim.Sim.002.

Threat Reference:

ETSI GS NFV-SEC 028 [1], clause B.3.4.1, Software Tampering

Test case:

Test Name: TC_VERIFICATION_VM_SOFTWARE_IMAGE_INTEGRITY_AUTHENTICATION

Purpose:

To test whether VIM under test will verify the integrity and authenticity of the VM software image during instantiation.