



Network Functions Virtualisation (NFV) Release 5; Protocols and Data Models; RESTful protocols specification for the Ve-Vnfm Reference Point

[ETSI GS NFV-SOL 002 V5.3.1 \(2025-08\)](https://standards.iteh.ai/catalog/standards/etsi/2483374c-c7c4-409d-ac58-4d4d38acfa9a/etsi-gs-nfv-sol-002-v5-3-1-2025-08)

<https://standards.iteh.ai/catalog/standards/etsi/2483374c-c7c4-409d-ac58-4d4d38acfa9a/etsi-gs-nfv-sol-002-v5-3-1-2025-08>

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

RGS/NFV-SOL002ed531

Keywords

API, NFV, protocol

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 - 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	17
Foreword.....	17
Modal verbs terminology.....	17
1 Scope	18
2 References	18
2.1 Normative references	18
2.2 Informative references.....	19
3 Definition of terms, symbols and abbreviations.....	19
3.1 Terms.....	19
3.2 Symbols.....	20
3.3 Abbreviations	20
4 General aspects.....	21
4.1 Overview	21
4.2 Void.....	22
4.3 Void.....	22
4.4 Common data types.....	22
4.4.1 Structured data types.....	22
4.4.1.1 Introduction.....	22
4.4.1.2 Void.....	22
4.4.1.3 Void.....	22
4.4.1.3a Void.....	22
4.4.1.4 Void.....	22
4.4.1.5 Type: VnfInstanceSubscriptionFilter	22
4.4.1.6 Void.....	23
4.4.1.7 MonitoringConnection	23
4.4.2 Simple data types and enumerations.....	24
4.4.2.1 Introduction.....	24
4.4.2.2 Simple data types	24
4.4.2.3 Enumerations	24
4.4.2.3.1 Introduction	24
4.4.2.3.2 Enumeration: LcmCoordResultType.....	24
4.5 Void.....	24
4.6 Void.....	24
4.7 Void.....	24
4.8 HTTP conditional requests	25
5 VNF Lifecycle Management interface.....	25
5.1 Description	25
5.1a API version.....	27
5.2 Resource structure and methods.....	27
5.3 Sequence diagrams (informative).....	30
5.3.1 Flow of the creation of a VNF instance resource.....	30
5.3.2 Flow of the deletion of a VNF instance resource.....	31
5.3.3 Flow of VNF lifecycle management operations triggered by task resources.....	31
5.3.4 Flow of automatic invocation of VNF scaling and VNF healing.....	33
5.3.5 Flow of the Query VNF operation	35
5.3.6 Flow of the Modify VNF Information operation	36
5.3.7 Flow of the Get Operation Status operation.....	38
5.3.8 Flow of managing subscriptions	39
5.3.9 Flow of sending notifications.....	40
5.3.10 Flow of retrying a VNF lifecycle management operation.....	41
5.3.11 Flow of rolling back a VNF lifecycle management operation	42
5.3.12 Flow of failing a VNF lifecycle management operation.....	44
5.3.13 Flow of cancelling a VNF lifecycle management operation.....	45
5.3.14 Flow of creation of a VNF snapshot resource.....	47

5.3.15	Flow of the Query VNF Snapshot operation	47
5.3.16	Flow of the deletion of a VNF snapshot resource	48
5.4	Resources	48
5.4.1	Introduction.....	48
5.4.1.1	Overview.....	48
5.4.1.2	Task resources that trigger VNF LCM operations	49
5.4.1a	Resource: API versions.....	50
5.4.2	Resource: VNF instances.....	50
5.4.2.1	Description.....	50
5.4.2.2	Resource definition	51
5.4.2.3	Resource methods	51
5.4.2.3.1	POST	51
5.4.2.3.2	GET	52
5.4.2.3.3	PUT	54
5.4.2.3.4	PATCH.....	54
5.4.2.3.5	DELETE	54
5.4.3	Resource: Individual VNF instance	54
5.4.3.1	Description.....	54
5.4.3.2	Resource definition	54
5.4.3.3	Resource methods	54
5.4.3.3.1	POST	54
5.4.3.3.2	GET	54
5.4.3.3.3	PUT	55
5.4.3.3.4	PATCH.....	55
5.4.3.3.5	DELETE	56
5.4.4	Resource: Instantiate VNF task	57
5.4.4.1	Description.....	57
5.4.4.2	Resource definition	57
5.4.4.3	Resource methods	57
5.4.4.3.1	POST	57
5.4.4.3.2	GET	58
5.4.4.3.3	PUT	58
5.4.4.3.4	PATCH.....	59
5.4.4.3.5	DELETE	59
5.4.5	Resource: Scale VNF task	59
5.4.5.1	Description.....	59
5.4.5.2	Resource definition	59
5.4.5.3	Resource methods	59
5.4.5.3.1	POST	59
5.4.5.3.2	GET	60
5.4.5.3.3	PUT	60
5.4.5.3.4	PATCH.....	60
5.4.5.3.5	DELETE	61
5.4.6	Resource: Scale VNF to Level task	61
5.4.6.1	Description.....	61
5.4.6.2	Resource definition	61
5.4.6.3	Resource methods	61
5.4.6.3.1	POST	61
5.4.6.3.2	GET	62
5.4.6.3.3	PUT	62
5.4.6.3.4	PATCH.....	62
5.4.6.3.5	DELETE	63
5.4.7	Resource: Change VNF Flavour task	63
5.4.7.1	Description.....	63
5.4.7.2	Resource definition	63
5.4.7.3	Resource methods	63
5.4.7.3.1	POST	63
5.4.7.3.2	GET	65
5.4.7.3.3	PUT	65
5.4.7.3.4	PATCH.....	66
5.4.7.3.5	DELETE	66
5.4.8	Resource: Terminate VNF task.....	66

5.4.8.1	Description	66
5.4.8.2	Resource definition	66
5.4.8.3	Resource methods	66
5.4.8.3.1	POST	66
5.4.8.3.2	GET	67
5.4.8.3.3	PUT	67
5.4.8.3.4	PATCH	67
5.4.8.3.5	DELETE	67
5.4.9	Resource: Heal VNF task	67
5.4.9.1	Description	67
5.4.9.2	Resource definition	68
5.4.9.3	Resource methods	68
5.4.9.3.1	POST	68
5.4.9.3.2	GET	69
5.4.9.3.3	PUT	69
5.4.9.3.4	PATCH	69
5.4.9.3.5	DELETE	70
5.4.10	Resource: Operate VNF task	70
5.4.10.1	Description	70
5.4.10.2	Resource definition	70
5.4.10.3	Resource methods	70
5.4.10.3.1	POST	70
5.4.10.3.2	GET	71
5.4.10.3.3	PUT	72
5.4.10.3.4	PATCH	72
5.4.10.3.5	DELETE	72
5.4.11	Resource: Change external VNF connectivity task	72
5.4.11.1	Description	72
5.4.11.2	Resource definition	72
5.4.11.3	Resource methods	73
5.4.11.3.1	POST	73
5.4.11.3.2	GET	74
5.4.11.3.3	PUT	74
5.4.11.3.4	PATCH	74
5.4.11.3.5	DELETE	74
5.4.11a	Resource: Change current VNF package task	74
5.4.11a.1	Description	74
5.4.11a.2	Resource definition	75
5.4.11a.3	Resource methods	75
5.4.11a.3.1	POST	75
5.4.11a.3.2	GET	77
5.4.11a.3.3	PUT	77
5.4.11a.3.4	PATCH	78
5.4.11a.3.5	DELETE	78
5.4.11b	Resource: Select VNF deployable modules task	78
5.4.11b.1	Description	78
5.4.11b.2	Resource definition	78
5.4.11b.3	Resource methods	78
5.4.11b.3.1	POST	78
5.4.11b.3.2	GET	79
5.4.11b.3.3	PUT	79
5.4.11b.3.4	PATCH	79
5.4.11b.3.5	DELETE	80
5.4.12	Resource: VNF LCM operation occurrences	80
5.4.12.1	Description	80
5.4.12.2	Resource definition	80
5.4.12.3	Resource methods	80
5.4.12.3.1	POST	80
5.4.12.3.2	GET	80
5.4.12.3.3	PUT	82
5.4.12.3.4	PATCH	82
5.4.12.3.5	DELETE	82

5.4.13	Resource: Individual VNF LCM operation occurrence	82
5.4.13.1	Description	82
5.4.13.2	Resource definition	82
5.4.13.3	Resource methods	82
5.4.13.3.1	POST	82
5.4.13.3.2	GET	83
5.4.13.3.3	PUT	83
5.4.13.3.4	PATCH	83
5.4.13.3.5	DELETE	83
5.4.14	Resource: Retry operation task	83
5.4.14.1	Description	83
5.4.14.2	Resource definition	83
5.4.14.3	Resource methods	84
5.4.14.3.1	POST	84
5.4.14.3.2	GET	85
5.4.14.3.3	PUT	85
5.4.14.3.4	PATCH	85
5.4.14.3.5	DELETE	85
5.4.15	Resource: Rollback operation task	86
5.4.15.1	Description	86
5.4.15.2	Resource definition	86
5.4.15.3	Resource methods	86
5.4.15.3.1	POST	86
5.4.15.3.2	GET	87
5.4.15.3.3	PUT	87
5.4.15.3.4	PATCH	87
5.4.15.3.5	DELETE	87
5.4.16	Resource: Fail operation task	88
5.4.16.1	Description	88
5.4.16.2	Resource definition	88
5.4.16.3	Resource methods	88
5.4.16.3.1	POST	88
5.4.16.3.2	GET	89
5.4.16.3.3	PUT	89
5.4.16.3.4	PATCH	89
5.4.16.3.5	DELETE	89
5.4.17	Resource: Cancel operation task	90
5.4.17.1	Description	90
5.4.17.2	Resource definition	90
5.4.17.3	Resource methods	90
5.4.17.3.1	POST	90
5.4.17.3.2	GET	91
5.4.17.3.3	PUT	91
5.4.17.3.4	PATCH	91
5.4.17.3.5	DELETE	91
5.4.18	Resource: Subscriptions	92
5.4.18.1	Description	92
5.4.18.2	Resource definition	92
5.4.18.3	Resource methods	92
5.4.18.3.1	POST	92
5.4.18.3.2	GET	93
5.4.18.3.3	PUT	94
5.4.18.3.4	PATCH	94
5.4.18.3.5	DELETE	94
5.4.19	Resource: Individual subscription	94
5.4.19.1	Description	94
5.4.19.2	Resource definition	95
5.4.19.3	Resource methods	95
5.4.19.3.1	POST	95
5.4.19.3.2	GET	95
5.4.19.3.3	PUT	95
5.4.19.3.4	PATCH	95

5.4.19.3.5	DELETE	96
5.4.20	Resource: Notification endpoint	96
5.4.20.1	Description	96
5.4.20.2	Resource definition	96
5.4.20.3	Resource methods	96
5.4.20.3.1	POST	96
5.4.20.3.2	GET	97
5.4.20.3.3	PUT	97
5.4.20.3.4	PATCH	98
5.4.20.3.5	DELETE	98
5.4.21	Resource: Create VNF snapshot task	98
5.4.21.1	Description	98
5.4.21.2	Resource definition	98
5.4.21.3	Resource methods	98
5.4.21.3.1	POST	98
5.4.21.3.2	GET	100
5.4.21.3.3	PUT	100
5.4.21.3.4	PATCH	100
5.4.21.3.5	DELETE	100
5.4.22	Resource: Revert to VNF snapshot task	100
5.4.22.1	Description	100
5.4.22.2	Resource definition	101
5.4.22.3	Resource methods	101
5.4.22.3.1	POST	101
5.4.22.3.2	GET	102
5.4.22.3.3	PUT	102
5.4.22.3.4	PATCH	103
5.4.22.3.5	DELETE	103
5.4.23	Resource: VNF snapshots	103
5.4.23.1	Description	103
5.4.23.2	Resource definition	103
5.4.23.3	Resource methods	103
5.4.23.3.1	POST	103
5.4.23.3.2	GET	104
5.4.23.3.3	PUT	105
5.4.23.3.4	PATCH	105
5.4.23.3.5	DELETE	105
5.4.24	Resource: Individual VNF snapshot	105
5.4.24.1	Description	105
5.4.24.2	Resource definition	106
5.4.24.3	Resource methods	106
5.4.24.3.1	POST	106
5.4.24.3.2	GET	106
5.4.24.3.3	PUT	106
5.4.24.3.4	PATCH	107
5.4.24.3.5	DELETE	107
5.5	Data model	107
5.5.1	Introduction	107
5.5.2	Resource and notification data types	107
5.5.2.1	Introduction	107
5.5.2.2	Type: VnfInstance	108
5.5.2.3	Type: CreateVnfRequest	114
5.5.2.4	Type: InstantiateVnfRequest	115
5.5.2.5	Type: ScaleVnfRequest	116
5.5.2.6	Type: ScaleVnfToLevelRequest	117
5.5.2.7	Type: ChangeVnfFlavourRequest	117
5.5.2.8	Type: TerminateVnfRequest	119
5.5.2.9	Type: HealVnfRequest	119
5.5.2.10	Type: OperateVnfRequest	120
5.5.2.11	Type: ChangeExtVnfConnectivityRequest	120
5.5.2.11a	Type: ChangeCurrentVnfPkgRequest	122
5.5.2.11b	Type: SelectVnfDeployableModulesRequest	123