



## Network Functions Virtualisation (NFV) Release 2; Information Modeling; Papyrus Guidelines

*STANDARD UNDER PREVIEW*  
(standards.it-eu-api)  
Full standard/catalog/standards/scls/etsi-gr-nfv-ifa-016-v2-4-1-18-02  
<https://standards.iteh.ai/catalog/standards/scls/etsi-gr-nfv-ifa-016-v2-4-1-18-02>

### *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**

RGR/NFV-IFA016ed241

---

**Keywords**

information model, model, NFV

**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 2018.

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.

# 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 Abbreviations .....	5
4 Overview .....	6
5 Getting Papyrus running.....	6
5.1 Introduction .....	6
5.2 Downloading Papyrus .....	6
5.3 Papyrus overview .....	9
5.4 Installing Gendoc plugin .....	9
5.5 Importing a model .....	11
5.6 Deleting a Project.....	16
6 Using Papyrus .....	16
6.1 Illustrative Profile and Model.....	16
6.2 Papyrus file structure.....	18
6.3 Submitting a modified model.....	18
6.4 Generating model documentation.....	20
6.5 Using Class Diagrams .....	21
6.6 Applying a stereotype to an element .....	22
6.7 Changing the value of a stereotype attribute .....	24
<b>Annex A: Authors &amp; contributors.....</b>	<b>25</b>
History .....	26

<https://standards.ietf.org/catalog/standards/sxi/1e0069a-d15b-4f78-897a-48b2434046/etsi-gr-nfv-ifa-016-v2.4.1-2018-02>  
 IETF STANDARD PREVIEW  
 standards.ietf.org

---

# 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.

---

# Foreword

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

---

# Modal verbs terminology

In the present document **"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 gives guidelines for the use of Papyrus [i.1] when creating or maintaining NFV UML® [i.2] information model.

---

## 2 References

### 2.1 Normative references

Normative references are not applicable in the present document.

### 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] Papyrus Eclipse™ UML® Modeling Tool.

NOTE: Available at <https://www.eclipse.org/papyrus/>.

[i.2] Eclipse™ Modeling Tools.

NOTE: Available at <https://www.eclipse.org/downloads/packages/eclipse-modeling-tools/marsr/>.

[i.3] OMG™ Unified Modeling Language™ (UML®) specifications 2.5.0.

NOTE: Available at <http://www.omg.org/spec/UML/>.

[i.4] ONF™ TR-515: "Open Networking Foundation Papyrus Guidelines 1.2" September 2016.

[i.5] ETSI GR NFV-IFA 017: "Network Functions Virtualisation (NFV) Release 2; Information Modeling; UML Modeling Guidelines".

[i.6] Eclipse™ Gendoc website.

NOTE: Available at <http://www.eclipse.org/gendoc/>.

[i.7] ETSI GR NFV-IFA 015: "Network Functions Virtualisation (NFV) Release 2; Management and Orchestration; Report on NFV Information Model".

[i.8] ETSI GR NFV-IFA 024: "Network Function Virtualisation (NFV) Release 2; Information Modeling; Report on External Touchpoints related to NFV Information Model".

---

## 3 Abbreviations

For the purposes of the present document, the following abbreviations apply:

IDE	Integrated Development Environment
JVM	Java Virtual Machine
MS	Microsoft®
ONF™	Open Networking Foundation

---

## 4 Overview

The present document provides information for putting in operation and for using the Open Source tool Papyrus [i.1] and the Gendoc plugin [i.6].

The Papyrus tool is used to edit the NFV Information Model and Gendoc [i.6] is an Eclipse™ plug-in integrated with Papyrus that allows generating MS Word documentation of a model from a template.

The UML Modeling Guidelines are defined in ETSI GR NFV-IFA 017 [i.5].

The ONF™ Papyrus Guidelines (see ONF™ TR-515 [i.4]) have been used as a basis for these guidelines.

---

## 5 Getting Papyrus running

### 5.1 Introduction

The Open Source UML® tool Papyrus (see [i.1]) is a plug-in for the Open Source integrated development environment (IDE) Eclipse™.

Current tool versions:

- Papyrus version 2.0.x (V2.0.2)
- Gendoc version 0.6.x (V0.6.0)

This clause explains how to get Papyrus running and how to create a model.

### 5.2 Downloading Papyrus

The Papyrus plug-in comes together with Eclipse.

The latest version of Papyrus can be downloaded as a complete software package from the Papyrus homepage: <https://eclipse.org/papyrus/download.html>. The software package contains Papyrus and also the corresponding Eclipse software; i.e. Eclipse need not be available in advance on the target PC.

Papyrus is available for various platforms as shown in figure 5.2-1:

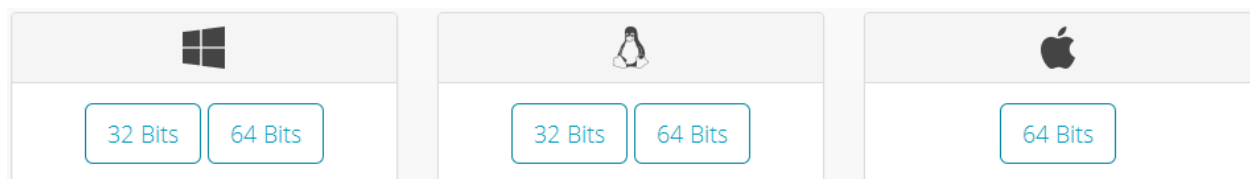
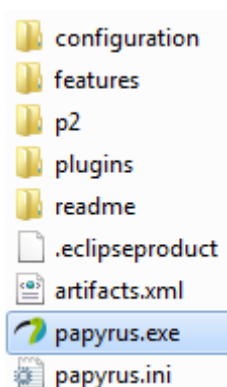




Figure 5.2-1: Papyrus Download Page

! Papyrus release 2.0.x requires a 1.8 compatible JVM. !

Once downloaded, just extract the downloaded zip-file as shown on figure 5.2-2:





**Figure 5.2-2: Content of the Papyrus Folder after Extracting the Zip-file**

Once extracted (un-zipped), the  **papyrus.exe** executable file should already exist, i.e. Papyrus (Eclipse) cannot be "installed" on the target PC. To launch Papyrus, double-click on the  **papyrus.exe** file. The initial Papyrus Welcome icon, shown in figure 5.2-3 appears.



**Figure 5.2-3: Initial Papyrus Welcome Icon**

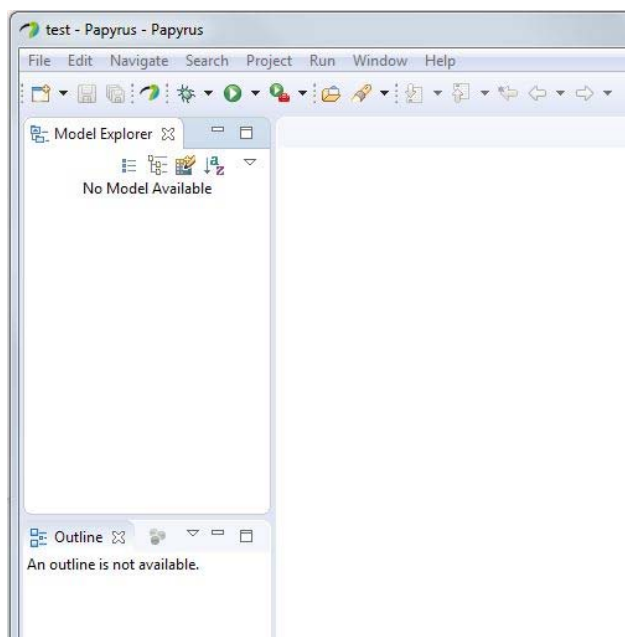
After launching Papyrus, a default  **workspace** folder is created in the home directory (.../users/<users name>/). The workspace configuration information is contained in the  **.metadata** folder (which is automatically created):

```

└─ workspace
  └─ .metadata

```

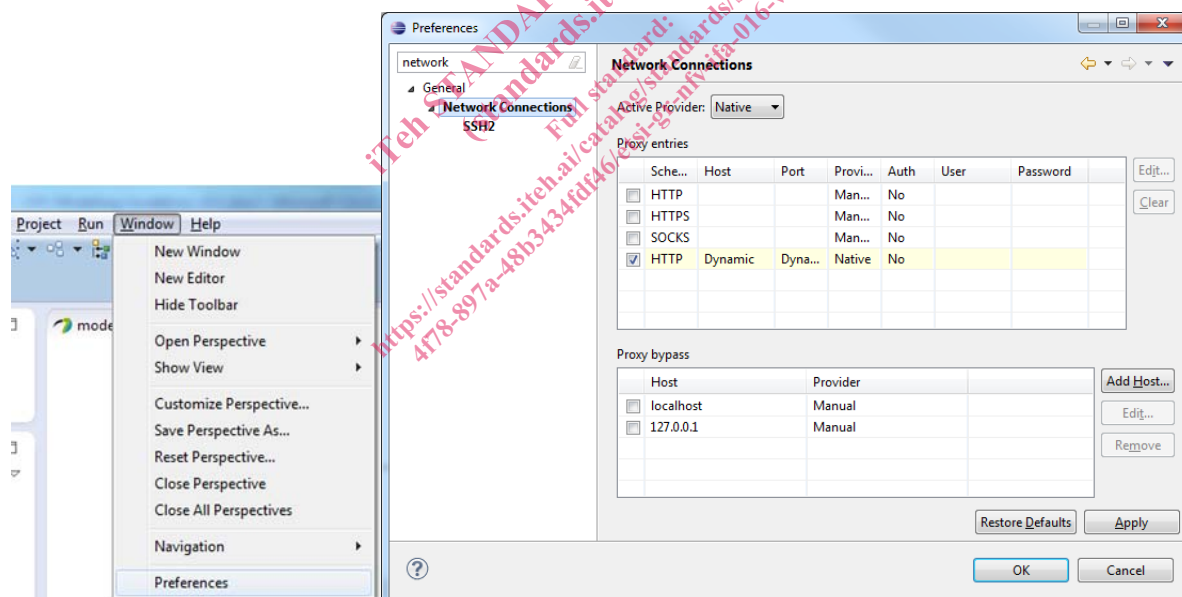
Any empty (need not be empty but is recommended) folder - anywhere - can be used as the workspace-folder. The workspace can be selected during the start of Papyrus.



**Figure 5.2-4: Initial Welcome page of Papyrus**

Figure 5.2-4 shows the initial welcome page of Papyrus.

If a proxy to access internet is needed, it can be configured under Windows, Preferences, then General, Network Connections as shown on figure 5.2-5.



**Figure 5.2-5: Proxy configuration**



## 5.3 Papyrus overview

The outline of the Papyrus Perspective presents different windows and toolbars as shown in figure 5.3-1.

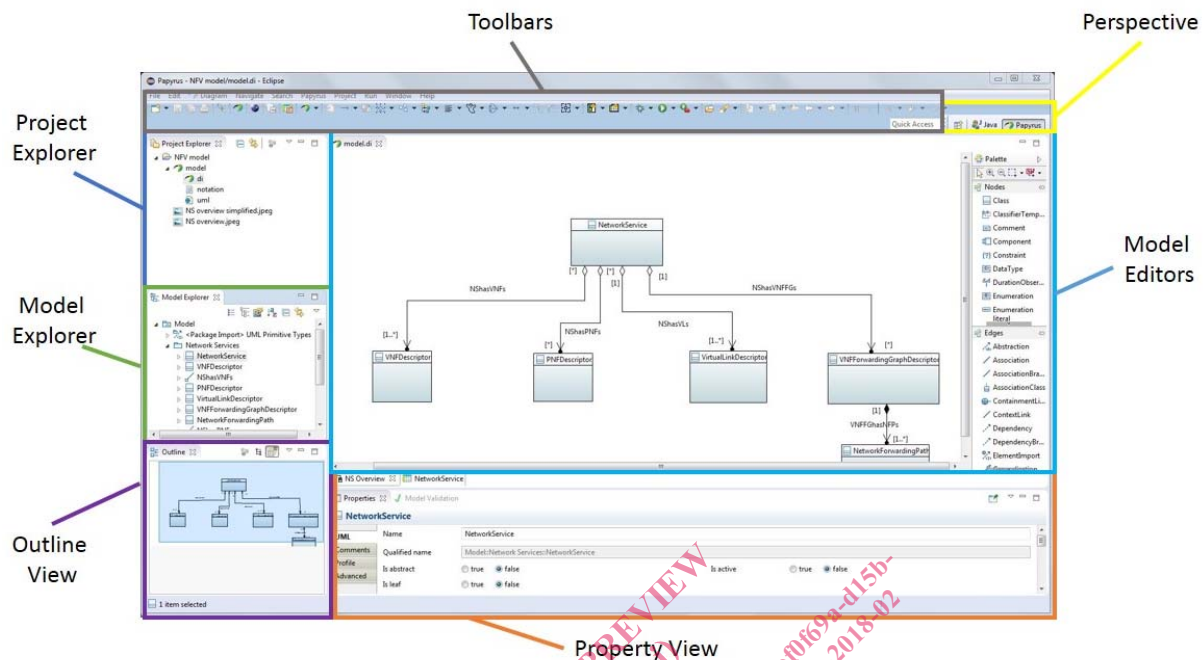


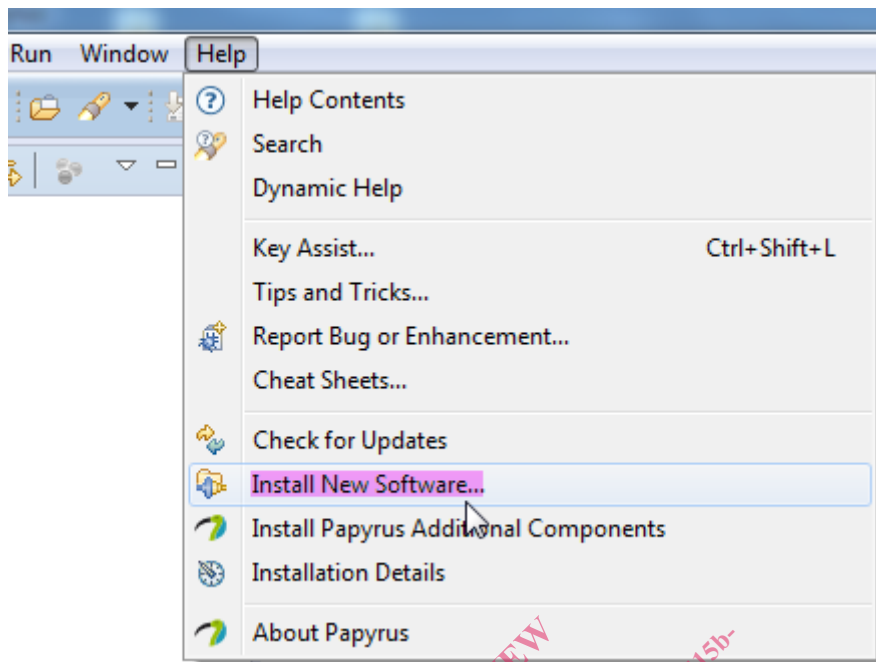
Figure 5.3-1: Outline of Papyrus perspective

- **Perspective:** it provides the modeling context and the layout of the windows, as well as the definition of the menus and toolbars. For using Papyrus, it is always set to "Papyrus".
- **Project Explorer:** it is used to manage Papyrus projects at system level. It provides a view on the model files in the workspace folder.
- **Model Explorer:** it provides the internal view of the model selected in the Project Explorer. It is a tree-based model editor for the whole model. If the Project Explorer contains several models, only one at a time can be selected to be edited in the Model Explorer.
- **Model Editors:** it allows graphic edition of the model via diagrams. Class diagrams are the only type of diagram mandated.
- **Property View:** it is a form-based editor allowing to view and edit the detailed property of a given element.
- **Outline View:** it provides a read-only view of the model presented in the Model Editor.

## 5.4 Installing Gendoc plugin

The Gendoc plugin is used in conjunction with a document template. The template contains instructions that enable generation of a Microsoft® Word® document. The document can include extracts from the model such as diagrams, class definitions, attribute definitions along with their stereotypes, etc. as well as figures and text directly entered into the template. This clause provides instructions on how to install Gendoc followed by guidance on construction of Gendoc templates along with example fragments of templates.

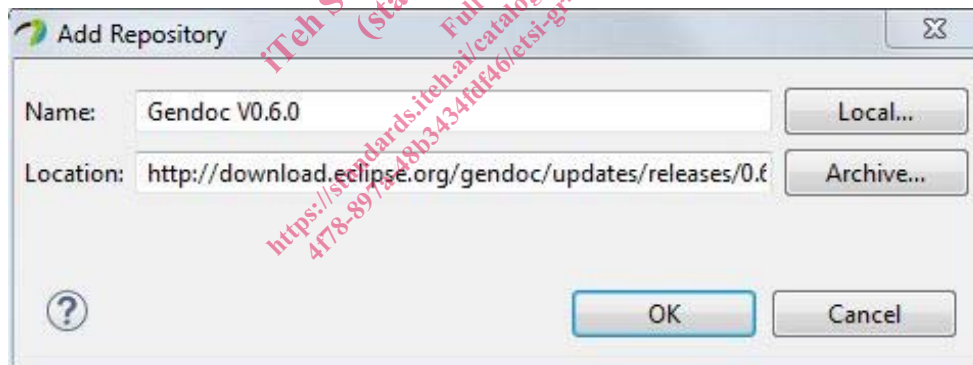
Click menu **Help** and then **Install New Software...** as shown in figure 5.4-1.



**Figure 5.4-1: Installing Gendoc (1)**

Click **Add...** and enter the Gendoc 0.6.0 update site as shown in figure 5.4-2:

- <http://download.eclipse.org/gendoc/updates/releases/0.6.0/>



**Figure 5.4-2: Installing Gendoc (2)**

Select Gendoc as shown in figure 5.4-3.