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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).

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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.

In the present document, modal verbs have the following meanings:

- shall** indicates a mandatory requirement to do something
- shall not** indicates an interdiction (prohibition) to do something

The constructions "shall" and "shall not" are confined to the context of normative provisions, and do not appear in Technical Reports.

The constructions "must" and "must not" are not used as substitutes for "shall" and "shall not". Their use is avoided insofar as possible, and they are not used in a normative context except in a direct citation from an external, referenced, non-3GPP document, or so as to maintain continuity of style when extending or modifying the provisions of such a referenced document.

- should** indicates a recommendation to do something
- should not** indicates a recommendation not to do something
- may** indicates permission to do something
- need not** indicates permission not to do something

The construction "may not" is ambiguous and is not used in normative elements. The unambiguous constructions "might not" or "shall not" are used instead, depending upon the meaning intended.

- can** indicates that something is possible
- cannot** indicates that something is impossible

The constructions "can" and "cannot" are not substitutes for "may" and "need not".

- will** indicates that something is certain or expected to happen as a result of action taken by an agency the behaviour of which is outside the scope of the present document
- will not** indicates that something is certain or expected not to happen as a result of action taken by an agency the behaviour of which is outside the scope of the present document

might indicates a likelihood that something will happen as a result of action taken by some agency the behaviour of which is outside the scope of the present document

might not indicates a likelihood that something will not happen as a result of action taken by some agency the behaviour of which is outside the scope of the present document

In addition:

is (or any other verb in the indicative mood) indicates a statement of fact

is not (or any other negative verb in the indicative mood) indicates a statement of fact

The constructions "is" and "is not" do not indicate requirements.

1 Scope

The present document contains requirements and test cases that are specific to the NWDAF network product class. It refers to the Catalogue of General Security Assurance Requirements and formulates specific adaptations of the requirements and test cases, as well as specifying requirements and test cases unique to the NWDAF network product class.

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 23.288: "Architecture enhancements for 5G System (5GS) to support network data analytics services".
- [3] 3GPP TS 33.117: "Catalogue of general security assurance requirements".
- [4] 3GPP TR 33.926: "Security Assurance Specification (SCAS) threats and critical assets in 3GPP network product classes".

3 Definitions of terms, symbols and abbreviations

3.1 Terms

For the purposes of the present document, the terms given in TR 21.905 [1] and the following apply. A term defined in the present document takes precedence over the definition of the same term, if any, in TR 21.905 [1].

3.2 Symbols

Void

3.3 Abbreviations

For the purposes of the present document, the abbreviations given in TR 21.905 [1] 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 [1].

4 NWDAF-specific security requirements and related test cases

4.1 Introduction

NWDAF specific security requirements include both requirements derived from NWDAF-specific security functional requirements in relevant specifications as well as security requirements introduced in the present document derived from the threats specific to NWDAF as described in TR 33.926 [4].

4.2 NWDAF-specific security functional requirements and related test cases

4.2.1 Technical baseline

4.2.1.1 General

The present clause provides baseline technical requirements.

4.2.1.2 Protecting data and information

4.2.1.2.1 Protecting data and information – general

There are no NWDAF-specific additions to clause 4.2.3.2.1 of TS 33.117 [3].

4.2.1.2.2 Protecting data and information – Confidential System Internal Data

There are no NWDAF-specific additions to clause 4.2.3.2.2 of TS 33.117 [3].

4.2.1.2.3 Protecting data and information in storage

There are no NWDAF-specific additions to clause 4.2.3.2.3 of TS 33.117 [3].

4.2.1.2.4 Protecting data and information in transfer

There are no NWDAF-specific additions to clause 4.2.3.2.4 of TS 33.117 [3].

4.2.1.2.5 Logging access to personal data

There are no NWDAF-specific additions to clause 4.2.3.2.5 of TS 33.117 [3].

4.2.1.2.6 Protecting data and information – Data masking on integration analysis

Requirement Name: Data masking on integration analysis about personal data

Requirement Reference: TBA.

Requirement Description: NWDAF can collect data from UE, NF, OAM, etc. used for analytics. Personal data of the UE's user are involved also. When NWDAF uses such personal data in analytics with other information together, such data correlation operation could bind more personal information with the user's identity. Thus, privacy information about that specific user could be revealed to the person who is allowed to operate data correlation for analytics but not allowed to know the privacy information as the result of data correlation. Therefore, applicable measures (e.g. data masking) shall be applied to mitigate such privacy violation risk.

Threat References: TR 33.926 [4], clause 5.3.6.7, Personal Identification Information Violation

Test Name: TC_DATA_MASKING

Purpose:

Verify that no privacy information of operators' users is revealed to the party who is not allowed to have.

Pre-Condition:

The vendor shall provide the documentation describing how to create an account for accessing the analytics results.

Privacy information list (should be specified based on local policy, regulation and others).

Execution Steps:

1. Review the documentation provided by the vendor describing how to create the account for accessing the analytics results provided by the NWDAF.
2. The tester creates the account, and retrieves the analytics results from the NWDAF using the account.

Expected Results:

The tester can create the account, and the account does not reveal subscriber permanent identifier.

Expected format of evidence:

Evidence suitable for the interface, e.g. screenshot containing the results.

4.2.2 Finding the right NF instance are serving the UE

Requirement Name: Finding the right NF instance are serving the UE

Requirement Reference: TS 23.288 [2], clause 6.2.2.1.

Requirement Description: To retrieve data related to a specific UE, the NWDAF shall first determine which NF instances are serving this UE as stated in table 4.2.2.1-2 unless the NWDAF has already obtained this information due to recent operations related to this UE.

Table 4.2.2.1-2: NF Services consumed by NWDAF to determine which NF instances are serving a UE

Type of NF instance (serving the UE) to determine	NF to be contacted by NWDAF	Service	Reference in TS 23.502 [3]
UDM	NRF	Nnrf_NFDiscovery	5.2.7.3
AMF	UDM	Nudm_UECM	5.2.3.2
SMF	UDM	Nudm_UECM	5.2.3.2
BSF	NRF	Nnrf_NFDiscovery	5.2.7.3
PCF	BSF	Nbsf_Management	5.2.13.2
NEF	NRF	Nnrf_NFDiscovery	5.2.7.3

"as specified in TS 23.288 [2], clause 6.2.2.1.

Threat Reference: TS 33.926 [4], **clause X.Y.**

Test Name: TC_NWDAF_FIND_NF_SRVING_UE

Purpose:

Verify that the NWDAF always find a recent NF from operations related to the UE.

Editor's Note: Purpose of test to be clarified.

Pre-Conditions:

Test environment with UE, source AMF, and target AMF and UDM. UE, source AMF, target AMF and UDM may be simulated.

The UE is registered on the source AMF and the UDM, and the NWDAF subscribes analytics A which needs to collect the UE's information on the source AMF.

Execution Steps:

Expected Results:

Expected format of evidence:

4.3 NWDAF-specific adaptations of hardening requirements and related test cases

4.3.1 Introduction

The present clause contains NWDAF-specific adaptations of hardening requirements and related test cases.

4.3.2 Technical baseline

There are no NWDAF-specific additions to clause 4.3.2 of TS 33.117 [3].

4.3.3 Operating systems

There are no NWDAF-specific additions to clause 4.3.3 of TS 33.117 [3].

4.3.4 Web servers

There are no NWDAF-specific additions to clause 4.3.4 of TS 33.117 [3].

4.3.5 Network devices

There are no NWDAF-specific additions to clause 4.3.5 of TS 33.117 [3].

4.3.6 Network functions in service-based architecture

There are no NWDAF-specific additions to clause 4.3.6 in TS 33.117 [3].

4.4 NWDAF-specific adaptations of basic vulnerability testing requirements and related test cases

There are no NWDAF-specific additions to clause 4.4 of TS 33.117 [3].

Annex A (informative): Change history

Change history							
Date	Meeting	TDoc	CR	Rev	Cat	Subject/Comment	New version
2021-06	SA#92e	SP-210427				Presented for information and approval	1.0.0
2021-06	SA#92e					EditHelp review and upgrade to change control version	17.0.0
2021-09	SA#93e	SP-210898	0002	1	F	Clarification on Data Masking on Integration Analysis	17.1.0

History

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