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Application of the NG Application Protocol (NGAP)
to non-3GPP access
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Contents

Intellectual Property Rights	2
Foreword.....	2
Modal verbs terminology.....	2
Foreword.....	4
1 Scope	5
2 References	5
3 Abbreviations	5
4 Principles for the use of NGAP for non-3GPP access	5
4.1 General	5
5 Non-3GPP access	5
5.1 Use of the NGAP for non-3GPP access	5
5.2 NGAP messages used for non-3GPP access	6
5.3 Exceptions for NGAP message contents and information element coding when used for non-3GPP access.....	7
5.4 Handling of NGAP messages not specified to be applicable between the N3IWF and AMF.....	9
Annex A (informative): Change history	10
History	11

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- z the third digit is incremented when editorial only changes have been incorporated in the document.

1 Scope

The present document describes the applicability of NG Application Protocol (NGAP) messages and procedures, defined in 3GPP TS 38.413 [2], to non-3GPP access. A general description for non-3GPP access can be found in 3GPP TS 23.501 [3] and 3GPP TS 23.502 [4].

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.
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- [1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".
 - [2] 3GPP TS 38.413: "NG-RAN; NG Application Protocol (NGAP)".
 - [3] 3GPP TS 23.501: "System Architecture for the 5G System".
 - [4] 3GPP TS 23.502: "Procedures for the 5G System".
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3 Abbreviations

For the purposes of the present document, the abbreviations given in 3GPP 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 3GPP TR 21.905 [1].

N3IWF	Non-3GPP InterWorking Function
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4 Principles for the use of NGAP for non-3GPP access

4.1 General

TS 23.501 [3] specifies the NGAP used between the Non-3GPP InterWorking Function (N3IWF) and the AMF. NGAP is used as specified in TS 38.413 [2] with clarifications or additions as specified in Clause 5.

5 Non-3GPP access

5.1 Use of the NGAP for non-3GPP access

The following NGAP procedures are used between the N3IWF and the AMF:

- PDU Session Management Procedures
 - PDU Session Resource Setup
 - PDU Session Resource Release
 - PDU Session Resource Modify
 - PDU Session Resource Notify

- UE Context Management Procedures
 - Initial Context Setup
 - UE Context Release Request
 - UE Context Release
 - UE Context Modification
- Transport of NAS Messages Procedures
 - Initial UE Message
 - Downlink NAS Transport
 - Uplink NAS Transport
 - NAS Non Delivery Indication
 - Reroute NAS Request
- Interface Management Procedures
 - NG Setup
 - RAN Configuration Update
 - AMF Configuration Update
 - NG Reset
 - Error Indication
 - AMF Status Indication

For the NGAP procedures used between the N3IWF and the AMF, the N3IWF fulfils the behaviour of the NG-RAN node as specified in clause 8 of TS 38.413 [2], with clarifications as specified in Clause 5.3. The text in clause 8 of TS 38.413 [2] referring to Uu should be understood as referring to the Y2 reference point as specified in TS 23.501 [3].

5.2 NGAP messages used for non-3GPP access

The list given below shows the NGAP messages, as specified in TS 38.413 [2] subclause 9.2 (tabular format) and 9.4 (ASN.1 notation) that are used between the N3IWF and the AMF.

- PDU SESSION RESOURCE SETUP REQUEST
- PDU SESSION RESOURCE SETUP RESPONSE
- PDU SESSION RESOURCE RELEASE COMMAND
- PDU SESSION RESOURCE RELEASE RESPONSE
- PDU SESSION RESOURCE MODIFY REQUEST
- PDU SESSION RESOURCE MODIFY RESPONSE
- PDU SESSION RESOURCE NOTIFY
- INITIAL CONTEXT SETUP REQUEST
- INITIAL CONTEXT SETUP RESPONSE
- INITIAL CONTEXT SETUP FAILURE
- UE CONTEXT RELEASE REQUEST
- UE CONTEXT RELEASE COMMAND

- UE CONTEXT RELEASE COMPLETE
- UE CONTEXT MODIFICATION REQUEST
- UE CONTEXT MODIFICATION RESPONSE
- UE CONTEXT MODIFICATION FAILURE
- INITIAL UE MESSAGE
- DOWNLINK NAS TRANSPORT
- UPLINK NAS TRANSPORT
- NAS NON DELIVERY INDICATION
- REROUTE NAS REQUEST
- NG SETUP REQUEST
- NG SETUP RESPONSE
- NG SETUP FAILURE
- RAN CONFIGURATION UPDATE
- RAN CONFIGURATION UPDATE ACKNOWLEDGE
- RAN CONFIGURATION UPDATE FAILURE
- AMF CONFIGURATION UPDATE
- AMF CONFIGURATION UPDATE ACKNOWLEDGE
- AMF CONFIGURATION UPDATE FAILURE
- NG RESET
- NG RESET ACKNOWLEDGE
- ERROR INDICATION
- AMF STATUS INDICATION

5.3 Exceptions for NGAP message contents and information element coding when used for non-3GPP access

For the NGAP messages transferred between the N3IWF and the AMF, the following exceptions to the specification in TS 38.413 [2] shall be applied:

PDU SESSION RESOURCE SETUP REQUEST message:

- the following IEs shall be ignored, when received:
 - *RAN Paging Priority IE*

PDU SESSION RESOURCE RELEASE COMMAND message:

- the following IEs shall be ignored, when received:
 - *RAN Paging Priority IE*

PDU SESSION RESOURCE MODIFY REQUEST message:

- the following IEs shall be ignored, when received:
 - *RAN Paging Priority IE*

INITIAL CONTEXT SETUP REQUEST message:

- the following IEs shall be ignored, when received:
 - *RRC Inactive Assistance Information IE*
 - *Trace Activation IE*
 - *Handover Restriction List IE*
 - *UE Radio Capability IE*
 - *Index to RAT/Frequency Selection Priority IE*
 - *Emergency Fallback Indicator IE*

UE CONTEXT RELEASE COMMAND message:

- the following IEs shall be ignored, when received:
 - *RAN Paging Priority IE*

UE CONTEXT RELEASE COMPLETE message:

- the following IEs shall be ignored, when received:
 - *Information on Recommended Cells and RAN Nodes for Paging IE*

UE CONTEXT MODIFICATION REQUEST message:

- the following IEs shall be ignored, when received:
 - *RAN Paging Priority IE*
 - *Index to RAT/Frequency Selection Priority IE*
 - *RRC Inactive Assistance Information IE*
 - *Emergency Fallback Indicator IE*

INITIAL UE MESSAGE message:

- *RRC Establishment Cause IE*: the information given within this IE is to indicate the establishment cause as specified in TS 23.502 [4].

DOWNLINK NAS TRANSPORT message:

- the following IEs shall be ignored, when received:
 - *RAN Paging Priority IE*
 - *Handover Restriction List IE*
 - *Index to RAT/Frequency Selection Priority IE*

NG SETUP REQUEST message:

- the following IEs shall be ignored, when received:
 - *Default Paging DRX IE*

The *Global RAN Node ID IE* in the applicable NGAP messages includes the Global N3IWF ID as specified in TS 38.413 [2].

The *User Location Information IE* in the applicable NGAP messages includes the IP address and port number as specified in TS 38.413 [2].

5.4 Handling of NGAP messages not specified to be applicable between the N3IWF and AMF

If the N3IWF or the AMF receive an NGAP message not listed in section 5.2 as being applicable between the N3IWF and AMF, the receiving node shall act according to the criticality defined for the elementary procedure and ignore the message or discard the message and send an ERROR INDICATION message indicating that the procedure is not supported, as specified in in TS 38.413 [2].

Annex A (informative): Change history

Change history							
Date	Meeting	TDoc	CR	Rev	Cat	Subject/Comment	New version
2018-04	R3#99bis	R3-181817	-	-	-	TS skeleton	0.0.1
2018-04	R3#99bis	R3-182522	-	-	-	covering agreements of RAN3#99Bis	0.1.0
2018-05	RAN#100	R3-183589	-	-	-	covering agreements of RAN3#100	0.2.0
2018-06	RAN#80	RP-180755	-	-	-	For approval	1.0.0
2018-06	RAN#80		-	-	-	Specification approved at TSG-RAN and placed under change control	15.0.0

History

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