# 8 Message functional definitions and contents

## 8.1 Overview

## 8.2 5GS mobility management messages

### 8.2.1 Authentication request

#### 8.2.1.1 Message definition

The AUTHENTICATION REQUEST message is sent by the AMF to the UE to initiate authentication of the UE identity. See table 8.2.1.1.1.

Message type: AUTHENTICATION REQUEST

Significance: dual

Direction: network to UE

Table 8.2.1.1.1: AUTHENTICATION REQUEST message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Extended protocol discriminator | Extended protocol discriminator  9.2 | M | V | 1 |
|  | Security header type | Security header type  9.3 | M | V | 1/2 |
|  | Spare half octet | Spare half octet  9.5 | M | V | 1/2 |
|  | Authentication request message identity | Message type  9.7 | M | V | 1 |
|  | ngKSI | NAS key set identifier  9.11.3.32 | M | V | 1/2 |
|  | Spare half octet | Spare half octet  9.5 | M | V | 1/2 |
|  | ABBA | ABBA  9.11.3.10 | M | LV | 3-n |
| 21 | Authentication parameter RAND (5G authentication challenge) | Authentication parameter RAND  9.11.3.16 | O | TV | 17 |
| 20 | Authentication parameter AUTN (5G authentication challenge) | Authentication parameter AUTN  9.11.3.15 | O | TLV | 18 |
| 78 | EAP message | EAP message  9.11.2.2 | O | TLV-E | 7-1503 |

#### 8.2.1.2 Authentication parameter RAND

Authentication parameter RAND IE is included if the AUTHENTICATION REQUEST message is used in a 5G AKA authentication procedure.

#### 8.2.1.3 Authentication parameter AUTN

Authentication parameter AUTN IE is included if the AUTHENTICATION REQUEST message is used in a 5G AKA authentication procedure.

#### 8.2.1.4 Void

#### 8.2.1.5 EAP message

EAP message IE is included if the AUTHENTICATION REQUEST message is used in an EAP based primary authentication and key agreement procedure.

### 8.2.2 Authentication response

#### 8.2.2.1 Message definition

The AUTHENTICATION RESPONSE message is sent by the UE to the AMF to deliver a calculated authentication response to the network. See table 8.2.2.1.1.

Message type: AUTHENTICATION RESPONSE

Significance: dual

Direction: UE to network

Table 8.2.2.1.1: AUTHENTICATION RESPONSE message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Extended protocol discriminator | Extended protocol discriminator  9.2 | M | V | 1 |
|  | Security header type | Security header type  9.3 | M | V | 1/2 |
|  | Spare half octet | Spare half octet  9.5 | M | V | 1/2 |
|  | Authentication response message identity | Message type  9.7 | M | V | 1 |
| 2D | Authentication response parameter | Authentication response parameter  9.11.3.17 | O | TLV | 18 |
| 78 | EAP message | EAP message  9.11.2.2 | O | TLV-E | 7-1503 |

#### 8.2.2.2 Authentication response parameter

This IE is included if the message is sent in a 5G AKA based primary authentication and key agreement procedure.

#### 8.2.2.3 EAP message

EAP message IE is included if the EAP message received in a related AUTHENTICATION REQUEST message was an EAP-request.

### 8.2.3 Authentication result

#### 8.2.3.1 Message definition

The AUTHENTICATION RESULT message is sent by the AMF to the UE to provide result of EAP authentication of the UE identity. See table 8.2.3.1.1.

Message type: AUTHENTICATION RESULT

Significance: dual

Direction: network to UE

Table 8.2.3.1.1: AUTHENTICATION RESULT message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Extended protocol discriminator | Extended protocol discriminator  9.2 | M | V | 1 |
|  | Security header type | Security header type  9.3 | M | V | 1/2 |
|  | Spare half octet | Spare half octet  9.5 | M | V | 1/2 |
|  | Authentication result message identity | Message type  9.7 | M | V | 1 |
|  | ngKSI | NAS key set identifier  9.11.3.32 | M | V | 1/2 |
|  | Spare half octet | Spare half octet  9.5 | M | V | 1/2 |
|  | EAP message | EAP message  9.11.2.2 | M | LV-E | 6-1502 |
| 38 | ABBA | ABBA  9.11.3.10 | O | TLV | 4-n |

#### 8.2.3.2 ABBA

This IE shall be included if the message contains an EAP message IE with an EAP-success message.

### 8.2.4 Authentication failure

#### 8.2.4.1 Message definition

The AUTHENTICATION FAILURE message is sent by the UE to the AMF to indicate that authentication of the network has failed. See table 8.2.4.1.1.

Message type: AUTHENTICATION FAILURE

Significance: dual

Direction: UE to network

Table 8.2.4.1.1: AUTHENTICATION FAILURE message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Extended protocol discriminator | Extended protocol discriminator  9.2 | M | V | 1 |
|  | Security header type | Security header type  9.3 | M | V | 1/2 |
|  | Spare half octet | Spare half octet  9.5 | M | V | 1/2 |
|  | Authentication failure message identity | Message type  9.7 | M | V | 1 |
|  | 5GMM cause | 5GMM cause  9.11.3.2 | M | V | 1 |
| 30 | Authentication failure parameter | Authentication failure parameter  9.11.3.14 | O | TLV | 16 |

#### 8.2.4.2 Authentication failure parameter

This IE shall be included in a 5G AKA based primary authentication and key agreement procedure if and only if the 5GMM cause was #21 "synch failure". It shall include the response to the authentication challenge from the USIM, which is made up of the AUTS parameter (see 3GPP TS 33.501 [24]).

### 8.2.5 Authentication reject

#### 8.2.5.1 Message definition

The AUTHENTICATION REJECT message is sent by the AMF to the UE to indicate that the authentication procedure has failed and that the UE shall abort all activities. See table 8.2.5.1.1.

Message type: AUTHENTICATION REJECT

Significance: dual

Direction: network to UE

Table 8.2.5.1.1: AUTHENTICATION REJECT message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Extended protocol discriminator | Extended protocol discriminator  9.2 | M | V | 1 |
|  | Security header type | Security header type  9.3 | M | V | 1/2 |
|  | Spare half octet | Spare half octet  9.5 | M | V | 1/2 |
|  | Authentication reject message identity | Message type  9.7 | M | V | 1 |
| 78 | EAP message | EAP message  9.11.2.2 | O | TLV-E | 7-1503 |

#### 8.2.5.2 EAP message

EAP message IE is included if the AUTHENTICATION REJECT message is used to convey EAP-failure message.

### 8.2.6 Registration request

#### 8.2.6.1 Message definition

The REGISTRATION REQUEST message is sent by the UE to the AMF. See table 8.2.6.1.1.

Message type: REGISTRATION REQUEST

Significance: dual

Direction: UE to network

Table 8.2.6.1.1: REGISTRATION REQUEST message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Extended protocol discriminator | Extended Protocol discriminator  9.2 | M | V | 1 |
|  | Security header type | Security header type  9.3 | M | V | 1/2 |
|  | Spare half octet | Spare half octet  9.5 | M | V | 1/2 |
|  | Registration request message identity | Message type  9.7 | M | V | 1 |
|  | 5GS registration type | 5GS registration type  9.11.3.7 | M | V | 1/2 |
|  | ngKSI | NAS key set identifier  9.11.3.32 | M | V | 1/2 |
|  | 5GS mobile identity | 5GS mobile identity  9.11.3.4 | M | LV-E | 6-n |
| C- | Non-current native NAS key set identifier | NAS key set identifier  9.11.3.32 | O | TV | 1 |
| 10 | 5GMM capability | 5GMM capability  9.11.3.1 | O | TLV | 3-15 |
| 2E | UE security capability | UE security capability  9.11.3.54 | O | TLV | 4-10 |
| 2F | Requested NSSAI | NSSAI  9.11.3.37 | O | TLV | 4-74 |
| 52 | Last visited registered TAI | 5GS tracking area identity  9.11.3.8 | O | TV | 7 |
| 17 | S1 UE network capability | S1 UE network capability  9.11.3.48 | O | TLV | 4-15 |
| 40 | Uplink data status | Uplink data status  9.11.3.57 | O | TLV | 4-34 |
| 50 | PDU session status | PDU session status  9.11.3.44 | O | TLV | 4-34 |
| B- | MICO indication | MICO indication  9.11.3.31 | O | TV | 1 |
| 2B | UE status | UE status  9.11.3.56 | O | TLV | 3 |
| 77 | Additional GUTI | 5GS mobile identity  9.11.3.4 | O | TLV-E | 14 |
| 25 | Allowed PDU session status | Allowed PDU session status  9.11.3.13 | O | TLV | 4-34 |
| 18 | UE's usage setting | UE's usage setting  9.11.3.55 | O | TLV | 3 |
| 51 | Requested DRX parameters | 5GS DRX parameters  9.11.3.2A | O | TLV | 3 |
| 70 | EPS NAS message container | EPS NAS message container  9.11.3.24 | O | TLV-E | 4-n |
| 74 | LADN indication | LADN indication  9.11.3.29 | O | TLV-E | 3-811 |
| 7B | Payload container | Payload container  9.11.3.39 | O | TLV-E | 4-65538 |
| 9- | Network slicing indication | Network slicing indication  9.11.3.36 | O | TV | 1 |
| 53 | 5GS update type | 5GS update type  9.11.3.9A | O | TLV | 3 |
| 71 | NAS message container | NAS message container  9.11.3.33 | O | TLV-E | 4-n |

#### 8.2.6.2 Non-current native NAS key set identifier

The UE shall include this IE if the UE has a valid non-current native 5G NAS security context when the UE performs a inter-system change from S1 mode to N1 mode in 5GMM-CONNECTED mode and the UE uses a mapped 5G NAS security context to protect the REGISTRATION REQUEST message.

#### 8.2.6.3 5GMM capability

The UE shall include this IE, unless the UE performs a periodic registration updating procedure.

#### 8.2.6.4 UE security capability

The UE shall include this IE, unless the UE performs a periodic registration updating procedure.

#### 8.2.6.5 Requested NSSAI

This IE shall be included by the UE when performing the registration procedure if the 5GS registration type IE:

a) indicates "initial registration" or "mobility registration updating", and:

1) the UE has a configured NSSAI for the current PLMN;

2) the UE has an allowed NSSAI for the current PLMN; or

3) the UE has neither allowed NSSAI for the current PLMN nor configured NSSAI for the current PLMN and has a default configured NSSAI.

#### 8.2.6.6 Last visited registered TAI

This IE shall be included if the UE holds a valid last visited registered TAI.

#### 8.2.6.7 S1 UE network capability

A UE supporting S1 mode shall include this IE, unless the UE performs a periodic registration updating procedure.

#### 8.2.6.8 Uplink data status

This IE shall be included if the UE has uplink user data pending to be sent.

#### 8.2.6.9 PDU session status

This IE shall be included if the UE wants to indicate the PDU sessions associated with the access type the message is sent over that are active within the UE.

#### 8.2.6.10 MICO indication

The UE may include this IE to request the use of MICO mode.

#### 8.2.6.11 UE status

This IE shall be included if the UE in single-registration mode performs the registration procedure due to inter-system change from S1 mode to N1 mode or if the UE in dual-registration mode and EMM state EMM-REGISTERED performs initial registration.

#### 8.2.6.12 Additional GUTI

This IE shall be included if the UE performs the registration procedure due to inter-system change from S1 mode to N1 mode, the UE operates in single-registration mode and the UE has a 5G-GUTI.

#### 8.2.6.13 Allowed PDU session status

This IE shall be included if the REGISTRATION REQUEST message is sent as a response to paging with the access type indicating non-3GPP access and the UE wants to indicate the user-plane resources of PDU session(s) associated with non-3GPP access allowed to be re-established over 3GPP access.

#### 8.2.6.14 UE's usage setting

This IE shall be included if the UE supports IMS voice.

#### 8.2.6.15 Requested DRX parameters

If the UE wants to use or change the UE specific DRX parameters, the UE shall include the Requested DRX parameters IE in the REGISTRATION REQUEST message.

#### 8.2.6.16 EPS NAS message container

The UE operating in the single-registration mode shall include this information element if the UE performs mobility from S1 mode to N1 mode. The content of this message container is the complete integrity protected TRACKING AREA UPATE REQUEST message, using EPS NAS security context.

#### 8.2.6.17 LADN indication

The UE shall include this information element if the UE wants LADN information for specific LADN DNN(s) or to indicate a request for LADN information.

#### 8.2.6.18 Payload container

This IE shall be included if the UE has one or more stored UE policy sections identified by a UPSI with the PLMN ID part indicating the HPLMN or the selected PLMN for the registration procedure for mobility and periodic registration update due to inter-system change from S1 mode to N1 mode of a UE operating in the single-registration mode or for the registration procedure for initial registration.

#### 8.2.6.19 Network slicing indication

This IE shall be included when a requested NSSAI is included in the REGISTRATION REQUEST message and the requested NSSAI is created from the default configured NSSAI.

#### 8.2.6.20 5GS update type

This IE shall be included when the UE is performing the registration procedure to indicate any of the following:

a) the UE requests the use of SMS over NAS or there is a change in the UE's requirements to use SMS over NAS; or

b) a change in the UE's radio capability for NG-RAN.

#### 8.2.6.21 NAS message container

This IE shall be included if the UE is sending a REGISTRATION REQUEST message as an initial NAS message and the UE needs to send non-cleartext IEs.

### 8.2.7 Registration accept

#### 8.2.7.1 Message definition

The REGISTRATION ACCEPT message is sent by the AMF to the UE. See table 8.2.7.1.1.

Message type: REGISTRATION ACCEPT

Significance: dual

Direction: network to UE

Table 8.2.7.1.1: REGISTRATION ACCEPT message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Extended protocol discriminator | Extended protocol discriminator  9.2 | M | V | 1 |
|  | Security header type | Security header type  9.3 | M | V | 1/2 |
|  | Spare half octet | Spare half octet  9.5 | M | V | 1/2 |
|  | Registration accept message identity | Message type  9.7 | M | V | 1 |
|  | 5GS registration result | 5GS registration result  9.11.3.6 | M | LV | 2 |
| 77 | 5G-GUTI | 5GS mobile identity  9.11.3.4 | O | TLV-E | 14 |
| 4A | Equivalent PLMNs | PLMN list  9.11.3.45 | O | TLV | 5-47 |
| 54 | TAI list | 5GS tracking area identity list  9.11.3.9 | O | TLV | 9-114 |
| 15 | Allowed NSSAI | NSSAI  9.11.3.37 | O | TLV | 4-74 |
| 11 | Rejected NSSAI | Rejected NSSAI  9.11.3.46 | O | TLV | 4-42 |
| 31 | Configured NSSAI | NSSAI  9.11.3.37 | O | TLV | 4-146 |
| 21 | 5GS network feature support | 5GS network feature support  9.11.3.5 | O | TLV | 3-5 |
| 50 | PDU session status | PDU session status  9.11.3.44 | O | TLV | 4-34 |
| 26 | PDU session reactivation result | PDU session reactivation result  9.11.3.42 | O | TLV | 4-32 |
| 72 | PDU session reactivation result error cause | PDU session reactivation result error cause  9.11.3.43 | O | TLV-E | 5-515 |
| 79 | LADN information | LADN information  9.11.3.30 | O | TLV-E | 12-1715 |
| B- | MICO indication | MICO indication  9.11.3.31 | O | TV | 1 |
| 9- | Network slicing indication | Network slicing indication  9.11.3.36 | O | TV | 1 |
| 27 | Service area list | Service area list  9.11.3.49 | O | TLV | 6-114 |
| 5E | T3512 value | GPRS timer 3  9.11.2.5 | O | TLV | 3 |
| 5D | Non-3GPP de-registration timer value | GPRS timer 2  9.11.2.4 | O | TLV | 3 |
| 16 | T3502 value | GPRS timer 2  9.11.2.4 | O | TLV | 3 |
| 34 | Emergency number list | Emergency number list  9.11.3.23 | O | TLV | 5-50 |
| 7A | Extended emergency number list | Extended emergency number list  9.11.3.26 | O | TLV-E | 7-65538 |
| 73 | SOR transparent container | SOR transparent container  9.11.3.51 | O | TLV-E | 20-2048 |
| 78 | EAP message | EAP message  9.11.2.2 | O | TLV-E | 7-1503 |
| A- | NSSAI inclusion mode | NSSAI inclusion mode  9.11.3.37A | O | TV | 1 |
| 76 | Operator-defined access category definitions | Operator-defined access category definitions  9.11.3.38 | O | TLV-E | 3-TBD |
| 51 | Negotiated DRX parameters | 5GS DRX parameters  9.11.3.2A | O | TLV | 3 |

#### 8.2.7.2 5G-GUTI

This IE may be included to assign a 5G-GUTI to a UE.

#### 8.2.7.3 Equivalent PLMNs

This IE may be included in order to assign a new equivalent PLMNs list to a UE.

#### 8.2.7.4 TAI list

This IE may be included to assign a TAI list to a UE.

#### 8.2.7.5 Allowed NSSAI

This IE shall be included:

a) if the network allows one or more S-NSSAIs received in the requested NSSAI of the REGISTRATION REQUEST message; or

b) if the requested NSSAI was not included in the REGISTRATION REQUEST message or none of the requested NSSAI are present in the subscribed S-NSSAIs and the network has one or more subscribed S-NSSAIs marked as default that are available.

#### 8.2.7.6 Rejected NSSAI

The network may include this IE to inform the UE of the S-NSSAIs that were included in the requested NSSAI in the REGISTRATION REQUEST message but were rejected by the network.

#### 8.2.7.7 Configured NSSAI

The network may include this IE if the network needs to provide the UE with a new configured NSSAI for the current PLMN.

#### 8.2.7.8 5GS network feature support

The network may include this IE to inform the UE of the support of certain features. If this IE is not included then the UE shall interpret this as a receipt of an information element with all bits of the value part coded as zero.

#### 8.2.7.9 PDU session status

This IE shall be included if the network wants to indicate the PDU sessions associated with the access type the message is sent over that are active in the network.

#### 8.2.7.10 PDU session reactivation result

This IE shall be included:

- if the Uplink data status IE is included in the REGISTRATION REQUEST message;

- if the Allowed PDU session status IE is included in the REGISTRATION REQUEST message and there is at least one PDU session indicated in the Allowed PDU session status IE for which the user-plane resources can be re-established over 3GPP access.

#### 8.2.7.11 PDU session reactivation result error cause

This IE may be included, if the PDU session reactivation result IE is included and there exist one or more PDU sessions for which the user-plane resources cannot be re-established, to indicate the cause of failure to re-establish the user-plane resources

#### 8.2.7.12 LADN information

The network shall include this IE if there are valid LADN service area(s) for the subscribed DNN(s) of the UE in the current registration area.

#### 8.2.7.13 MICO indication

The network shall include the MICO indication IE if:

a)- the UE included the MICO indication IE in the REGISTRATION REQUEST message; and

b) the network supports and accepts the use of MICO mode.

#### 8.2.7.14 Network slicing indication

This IE shall be included if the user's network slicing subscription has changed in the UDM.

#### 8.2.7.15 Service area list

This IE may be included to assign new service area restrictions to the UE.

#### 8.2.7.16 T3512 value

The AMF shall include this IE during the initial registration procedure over 3GPP access. The AMF may include this IE during the mobility and periodic registration update procedure over 3GPP access.

#### 8.2.7.17 Non-3GPP de-registration timer value

This IE may be included if the network wants to indicate to the UE registered over non-3GPP access the value of a non-3GPP de-registration timer value.

#### 8.2.7.18 T3502 value

This IE may be included to indicate a value for timer T3502.

#### 8.2.7.19 Emergency number list

This IE may be sent by the network. If this IE is sent, the contents of this IE indicates a list of emergency numbers valid within the same country as in the PLMN from which this IE is received.

#### 8.2.7.20 Extended emergency number list

This IE may be sent by the network. If this IE is sent, the contents of this IE indicates a list of emergency numbers (with URN information) valid within the same country as in the PLMN from which this IE is received or valid only in the PLMN from which this IE is received.

#### 8.2.7.21 SOR transparent container

This IE may be sent by the network. If this IE is sent, the contents of this IE includes the list of preferred PLMN/access technology combinations (or HPLMN indication that 'no change of the "Operator Controlled PLMN Selector with Access Technology" list stored in the UE is needed and thus no list of preferred PLMN/access technology combinations is provided') (see 3GPP TS 23.122 [5] annex C) and optional acknowledgement request.

#### 8.2.7.22 EAP message

EAP message IE is included if the REGISTRATION ACCEPT message is sent as part of registration for emergency services and is used to convey EAP-failure message.

#### 8.2.7.23 NSSAI inclusion mode

This IE shall be included if required by operatory policy.

#### 8.2.7.24 Operator-defined access category definitions

This IE may be included to assign new operator-defined access category definitions to the UE or delete the operator-defined access category definitions at the UE side.

#### 8.2.7.25 Negotiated DRX parameters

The network shall include this IE if the Requested DRX parameters IE was included in the REGISTRATION REQUEST message.

### 8.2.8 Registration complete

#### 8.2.8.1 Message definition

The REGISTRATION COMPLETE message is sent by the UE to the AMF. See table 8.2.8.1.1.

Message type: REGISTRATION COMPLETE

Significance: dual

Direction: UE to network

Table 8.2.8.1.1: REGISTRATION COMPLETE message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Extended protocol discriminator | Extended protocol discriminator  9.2 | M | V | 1 |
|  | Security header type | Security header type  9.3 | M | V | 1/2 |
|  | Spare half octet | Spare half octet  9.5 | M | V | 1/2 |
|  | Registration complete message identity | Message type  9.7 | M | V | 1 |
| 73 | SOR transparent container | SOR transparent container  9.11.3.51 | O | TLV-E | 20-2048 |

#### 8.2.8.2 SOR transparent container

This IE may be sent by the UE. If this IE is sent, the contents of this IE indicates the UE acknowledgement of successful reception of the SOR transparent container IE in the REGISTRATION ACCEPT message.

### 8.2.9 Registration reject

#### 8.2.9.1 Message definition

The REGISTRATION REJECT message is sent by the AMF to the UE. See table 8.2.9.1.1.

Message type: REGISTRATION REJECT

Significance: dual

Direction: network to UE

Table 8.2.9.1.1: REGISTRATION REJECT message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Extended protocol discriminator | Extended protocol discriminator  9.2 | M | V | 1 |
|  | Security header type | Security header type  9.3 | M | V | 1/2 |
|  | Spare half octet | Spare half octet  9.5 | M | V | 1/2 |
|  | Registration reject message identity | Message type  9.7 | M | V | 1 |
|  | 5GMM cause | 5GMM cause  9.11.3.2 | M | V | 1 |
| 5F | T3346 value | GPRS timer 2  9.11.2.4 | O | TLV | 3 |
| 16 | T3502 value | GPRS timer 2  9.11.2.4 | O | TLV | 3 |
| 78 | EAP message | EAP message  9.11.2.2 | O | TLV-E | 7-1503 |

#### 8.2.9.2 T3346 value

The AMF may include this IE when the general NAS level mobility management congestion control is active

#### 8.2.9.3 T3502 value

This IE may be included to indicate a value for timer T3502 during the initial registration.

#### 8.2.9.4 EAP message

EAP message IE is included if the REGISTRATION REJECT message is used to convey EAP-failure message.

### 8.2.10 UL NAS transport

#### 8.2.10.1 Message definition

The UL NAS TRANSPORT message transports message payload and associated information to the AMF. See table 8.2.10.1.1.

Message type: UL NAS TRANSPORT

Significance: dual

Direction: UE to network

Table 8.2.10.1.1: UL NAS TRANSPORT message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Extended protocol discriminator | Extended protocol discriminator  9.2 | M | V | 1 |
|  | Security header type | Security header type  9.3 | M | V | 1/2 |
|  | Spare half octet | Spare half octet  9.5 | M | V | 1/2 |
|  | UL NAS TRANSPORT message identity | Message type  9.7 | M | V | 1 |
|  | Payload container type | Payload container type  9.11.3.40 | M | V | 1/2 |
|  | Spare half octet | Spare half octet  9.5 | M | V | 1/2 |
|  | Payload container | Payload container  9.11.3.39 | M | LV-E | 3-65537 |
| 12 | PDU session ID | PDU session identity 2  9.11.3.41 | C | TV | 2 |
| 59 | Old PDU session ID | PDU session identity 2  9.11.3.41 | O | TV | 2 |
| 8- | Request type | Request type  9.11.3.47 | O | TV | 1 |
| 22 | S-NSSAI | S-NSSAI  9.11.2.8 | O | TLV | 3-10 |
| 25 | DNN | DNN  9.11.3.21 | O | TLV | 3-102 |
| 24 | Additional information | Additional information  9.11.2.1 | O | TLV | 3-n |

#### 8.2.10.2 PDU session ID

The UE shall include this IE when the Payload container type IE is set to "N1 SM information".

#### 8.2.10.3 Old PDU session ID

The UE shall include this IE if the UL NAS TRANSPORT message transports a PDU SESSION ESTABLISHMENT REQUEST message upon receiving the PDU SESSION MODIFICATION COMMAND message with the 5GSM cause IE set to #39 "reactivation requested".

#### 8.2.10.4 Request type

The UE shall include this IE when the PDU session ID IE is included and the Payload container IE contains the PDU SESSION ESTABLISHMENT REQUEST message or the PDU SESSION MODIFICATION REQUEST.

#### 8.2.10.5 S-NSSAI

The UE may include this IE when the Request type IE is set to "initial request" or "existing PDU session".

#### 8.2.10.6 DNN

The UE may include this IE when the Request type IE is set to "initial request" or "existing PDU session".

#### 8.2.10.7 Additional information

The UE may include this IE when the Payload container type IE is set to "LTE Positioning Protocol (LPP) message container".

### 8.2.11 DL NAS transport

#### 8.2.11.1 Message definition

The DL NAS TRANSPORT message transports message payload and associated information to the UE. See table 8.2.11.1.1.

Message type: DL NAS TRANSPORT

Significance: dual

Direction: network to UE

Table 8.2.11.1.1: DL NAS TRANSPORT message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Extended protocol discriminator | Extended protocol discriminator  9.2 | M | V | 1 |
|  | Security header type | Security header type  9.3 | M | V | 1/2 |
|  | Spare half octet | Spare half octet  9.5 | M | V | 1/2 |
|  | DL NAS TRANSPORT message identity | Message type  9.7 | M | V | 1 |
|  | Payload container type | Payload container type  9.11.3.40 | M | V | 1/2 |
|  | Spare half octet | Spare half octet  9.5 | M | V | 1/2 |
|  | Payload container | Payload container  9.11.3.39 | M | LV-E | 3-65537 |
| 12 | PDU session ID | PDU session identity 2  9.11.3.41 | C | TV | 2 |
| 24 | Additional information | Additional information  9.11.2.1 | O | TLV | 3-n |
| 58 | 5GMM cause | 5GMM cause  9.11.3.2 | O | TV | 2 |
| 37 | Back-off timer value | GPRS timer 3  9.11.2.5 | O | TLV | 3 |

#### 8.2.11.2 PDU session ID

The AMF shall include this IE when the Payload container type IE is set to "N1 SM information".

#### 8.2.11.3 Additional information

The AMF may include this IE when the Payload container type IE is set to "LTE Positioning Protocol (LPP) message container".

#### 8.2.11.4 5GMM cause

The AMF shall include this IE when the Payload container IE contains an uplink payload which was not forwarded.

#### 8.2.11.5 Back-off timer value

The AMF shall include this IE when the Payload container IE contains an uplink 5GSM message which was not forwarded due to DNN based congestion control, S-NSSAI and DNN based congestion control or S-NSSAI only based congestion control.

### 8.2.12 De-registration request (UE originating de-registration)

#### 8.2.12.1 Message definition

The DEREGISTRATION REQUEST message is sent by the UE to the AMF. See table 8.2.12.1.1.

Message type: DEREGISTRATION REQUEST

Significance: dual

Direction: UE to network

Table 8.2.12.1.1: DEREGISTRATION REQUEST message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Extended protocol discriminator | Extended protocol discriminator  9.2 | M | V | 1 |
|  | Security header type | Security header type  9.3 | M | V | 1/2 |
|  | Spare half octet | Spare half octet  9.5 | M | V | 1/2 |
|  | De-registration request message identity | Message type  9.7 | M | V | 1 |
|  | De-registration type | De-registration type  9.11.3.20 | M | V | 1/2 |
|  | ngKSI | NAS key set identifier  9.11.3.32 | M | V | 1/2 |
|  | 5GS mobile identity | 5GS mobile identity  9.11.3.4 | M | LV-E | 6-n |

### 8.2.13 De-registration accept (UE originating de-registration)

#### 8.2.13.1 Message definition

The DEREGISTRATION ACCEPT message is sent by the AMF to the UE. See table 8.2.13.1.1.

Message type: DEREGISTRATION ACCEPT

Significance: dual

Direction: network to UE

Table 8.2.13.1.1: DEREGISTRATION ACCEPT message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Extended protocol discriminator | Extended protocol discriminator  9.2 | M | V | 1 |
|  | Security header type | Security header type  9.3 | M | V | 1/2 |
|  | Spare half octet | Spare half octet  9.5 | M | V | 1/2 |
|  | De-registration accept message identity | Message type  9.7 | M | V | 1 |

### 8.2.14 De-registration request (UE terminated de-registration)

#### 8.2.14.1 Message definition

The DEREGISTRATION REQUEST message is sent by the AMF to the UE. See table 8.2.14.1.1.

Message type: DEREGISTRATION REQUEST

Significance: dual

Direction: network to UE

Table 8.2.14.1.1: DEREGISTRATION REQUEST message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Extended protocol discriminator | Extended protocol discriminator  9.2 | M | V | 1 |
|  | Security header type | Security header type  9.3 | M | V | 1/2 |
|  | Spare half octet | Spare half octet  9.5 | M | V | 1/2 |
|  | De-registration request message identity | Message type  9.7 | M | V | 1 |
|  | De-registration type | De-registration type  9.11.3.20 | M | V | 1/2 |
|  | Spare half octet | Spare half octet  9.5 | M | V | 1/2 |
| 58 | 5GMM cause | 5GMM cause  9.11.3.2 | O | TV | 2 |
| 5F | T3346 value | GPRS timer 2  9.11.2.4 | O | TLV | 3 |

#### 8.2.14.2 5GMM cause

This information element is included if a 5GMM cause is provided.

#### 8.2.14.3 T3346 value

The AMF may include this IE when the general NAS level mobility management congestion control is active.

### 8.2.15 De-registration accept (UE terminated de-registration)

#### 8.2.15.1 Message definition

The DEREGISTRATION ACCEPT message is sent by the UE to the AMF. See table 8.2.15.1.1.

Message type: DEREGISTRATION ACCEPT

Significance: dual

Direction: UE to network

Table 8.2.15.1.1.1: DEREGISTRATION ACCEPT message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Extended protocol discriminator | Extended protocol discriminator  9.2 | M | V | 1 |
|  | Security header type | Security header type  9.3 | M | V | 1/2 |
|  | Spare half octet | Spare half octet  9.5 | M | V | 1/2 |
|  | De-registration accept message identity | Message type  9.7 | M | V | 1 |

### 8.2.16 Service request

#### 8.2.16.1 Message definition

The SERVICE REQUEST message is sent by the UE to the AMF in order to request the establishment of an N1 NAS signalling connection and/or to request the establishment of user-plane resources for PDU sessions which are established without user-plane resources. See table 8.2.16.1.1.

Message type: SERVICE REQUEST

Significance: dual

Direction: UE to network

Table 8.2.16.1.1: SERVICE REQUEST message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Extended protocol discriminator | Extended protocol discriminator  9.2 | M | V | 1 |
|  | Security header type | Security header type  9.3 | M | V | 1/2 |
|  | Spare half octet | Spare half octet  9.5 | M | V | 1/2 |
|  | Service request message identity | Message type  9.7 | M | V | 1 |
|  | ngKSI | NAS key set identifier  9.11.3.32 | M | V | 1/2 |
|  | Service type | Service type  9.11.3.50 | M | V | 1/2 |
|  | 5G-S-TMSI | 5GS mobile identity  9.11.3.4 | M | LV-E | 8 |
| 40 | Uplink data status | Uplink data status  9.11.3.57 | O | TLV | 4-34 |
| 50 | PDU session status | PDU session status  9.11.3.44 | O | TLV | 4-34 |
| 25 | Allowed PDU session status | Allowed PDU session status  9.11.3.13 | O | TLV | 4-34 |
| 71 | NAS message container | NAS message container  9.11.3.33 | O | TLV-E | 4-n |

#### 8.2.16.2 Uplink data status

This IE shall be included if the UE has uplink user data pending to be sent.

#### 8.2.16.3 PDU session status

This IE shall be included if the UE wants to indicate the PDU sessions associated with the access type the message is sent over that are active within the UE.

#### 8.2.16.4 Allowed PDU session status

This IE shall be included if the SERVICE REQUEST message is sent as a response to paging or notification via 3GPP access for PDU session(s) associated with non-3GPP access and the UE wants to indicate the user-plane resources of PDU session(s) associated with non-3GPP access allowed to be re-established over 3GPP access or if there is no PDU session(s) for which the UE allows the user-plane resources to be re-established over 3GPP access.

#### 8.2.16.5 NAS message container

This IE shall be included if the UE is sending a SERVICE REQUEST message as an initial NAS message and the UE needs to send non-cleartext IEs.

### 8.2.17 Service accept

#### 8.2.17.1 Message definition

The SERVICE ACCEPT message is sent by the AMF to the UE in order to accept the service request procedure. See table 8.2.17.1.1.

Message type: SERVICE ACCEPT

Significance: dual

Direction: network to UE

Table 8.2.17.1.1: SERVICE ACCEPT message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Extended protocol discriminator | Extended protocol discriminator  9.2 | M | V | 1 |
|  | Security header type | Security header type  9.3 | M | V | 1/2 |
|  | Spare half octet | Spare half octet  9.5 | M | V | 1/2 |
|  | Service accept message identity | Message type  9.7 | M | V | 1 |
| 50 | PDU session status | PDU session status  9.11.3.44 | O | TLV | 4-34 |
| 26 | PDU session reactivation result | PDU session reactivation result  9.11.3.42 | O | TLV | 4-32 |
| 72 | PDU session reactivation result error cause | PDU session reactivation result error cause  9.11.3.43 | O | TLV-E | 5-515 |
| 78 | EAP message | EAP message  9.11.2.2 | O | TLV-E | 7-1503 |

#### 8.2.17.2 PDU session status

This IE shall be included if the network wants to indicate the PDU sessions associated with the access type the message is sent over that are active within the network.

#### 8.2.17.3 PDU session reactivation result

This IE shall be included:

- if the Uplink data status IE is included in the SERVICE REQUEST message;

- if the Allowed PDU session status IE is included in the SERVICE REQUEST message and there is at least one PDU session indicated in the Allowed PDU session status IE for which user-plane resources can be re-established over 3GPP access.

#### 8.2.17.4 PDU session reactivation result error cause

This IE may be included if the PDU session reactivation result IE is included and there exist one or more PDU sessions for which the user-plane resources cannot be re-established, to indicate the cause of failure to re-establish the user-plane resources.

#### 8.2.17.5 EAP message

EAP message IE is included if the SERVICE ACCEPT message is sent to a UE registered for emergency services and is used to convey EAP-failure message.

### 8.2.18 Service reject

#### 8.2.18.1 Message definition

The SERVICE REJECT message is sent by the AMF to the UE in order to reject the service request procedure. See table 8.2.18.1.1.

Message type: SERVICE REJECT

Significance: dual

Direction: network to UE

Table 8.2.18.1.1: SERVICE REJECT message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Extended protocol discriminator | Extended protocol discriminator  9.2 | M | V | 1 |
|  | Security header type | Security header type  9.3 | M | V | 1/2 |
|  | Spare half octet | Spare half octet  9.5 | M | V | 1/2 |
|  | Service reject message identity | Message type  9.7 | M | V | 1 |
|  | 5GMM cause | 5GMM cause  9.11.3.2 | M | V | 1 |
| 50 | PDU session status | PDU session status  9.11.3.44 | O | TLV | 4-34 |
| 5F | T3346 value | GPRS timer 2  9.11.2.4 | O | TLV | 3 |
| 78 | EAP message | EAP message  9.11.2.2 | O | TLV-E | 7-1503 |

#### 8.2.18.2 PDU session status

This IE shall be included if the network wants to indicate the PDU sessions associated with the access type the message is sent over that are active within the network.

#### 8.2.18.3 T3346 value

The AMF may include this IE when the general NAS level mobility management congestion control is active.

#### 8.2.18.4 EAP message

EAP message IE is included if the SERVICE REJECT message is used to convey EAP-failure message.

### 8.2.19 Configuration update command

#### 8.2.19.1 Message definition

The CONFIGURATION UPDATE COMMAND message is sent by the AMF to the UE. See table 8.2.19.1.1.

Message type: CONFIGURATION UPDATE COMMAND

Significance: dual

Direction: network to UE

Table 8.2.19.1.1: CONFIGURATION UPDATE COMMAND message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Extended protocol discriminator | Extended protocol discriminator  9.2 | M | V | 1 |
|  | Security header type | Security header type  9.3 | M | V | 1/2 |
|  | Spare half octet | Spare half octet  9.5 | M | V | 1/2 |
|  | Configuration update command message identity | Message type  9.7 | M | V | 1 |
| D- | Configuration update indication | Configuration update indication  9.11.3.18 | O | TV | 1 |
| 77 | 5G-GUTI | 5GS mobile identity  9.11.3.4 | O | TLV-E | 14 |
| 54 | TAI list | 5GS tracking area identity list  9.11.3.9 | O | TLV | 9-114 |
| 15 | Allowed NSSAI | NSSAI  9.11.3.37 | O | TLV | 4-74 |
| 27 | Service area list | Service area list  9.11.3.49 | O | TLV | 6-114 |
| 43 | Full name for network | Network name  9.11.3.35 | O | TLV | 3-n |
| 45 | Short name for network | Network name  9.11.3.35 | O | TLV | 3-n |
| 46 | Local time zone | Time zone  9.11.3.52 | O | TV | 2 |
| 47 | Universal time and local time zone | Time zone and time  9.11.3.53 | O | TV | 8 |
| 49 | Network daylight saving time | Daylight saving time  9.11.3.19 | O | TLV | 3 |
| 79 | LADN information | LADN information  9.11.3.30 | O | TLV-E | 3-1715 |
| B- | MICO indication | MICO indication  9.11.3.31 | O | TV | 1 |
| 9- | Network slicing indication | Network slicing indication  9.11.3.36 | O | TV | 1 |
| 31 | Configured NSSAI | NSSAI  9.11.3.37 | O | TLV | 4-146 |
| 11 | Rejected NSSAI | Rejected NSSAI  9.11.3.46 | O | TLV | 4-42 |
| 76 | Operator-defined access category definitions | Operator-defined access category definitions  9.11.3.38 | O | TLV-E | 3-TBD |
| F- | SMS indication | SMS indication  9.10.3.50A | O | TV | 1 |

#### 8.2.19.2 Configuration update indication

The AMF shall include this IE if the AMF wants to request an acknowledgement or a registration procedure from the UE.

#### 8.2.19.3 5G-GUTI

This IE may be included to assign a new 5G GUTI to the UE.

#### 8.2.19.4 TAI list

This IE may be included to assign a new TAI list to the UE.

#### 8.2.19.5 Allowed NSSAI

This IE may be included to assign a new allowed NSSAI to the UE.

#### 8.2.19.6 Service area list

This IE may be included to assign a new service area list to the UE.

#### 8.2.19.7 Full name for network

This IE may be included to assign a new full name for network to the UE.

#### 8.2.19.8 Short name for network

This IE may be included to assign a new short name for network to the UE.

#### 8.2.19.9 Local time zone

This IE may be included to assign a new local time zone to the UE.

#### 8.2.19.10 Universal time and local time zone

This IE may be included to assign new universal time and local time zone to the UE.

#### 8.2.19.11 Network daylight saving time

This IE may be included to assign new network daylight saving time to the UE.

#### 8.2.19.12 LADN information

This IE may be included to assign new LADN information to the UE or delete the LADN information at the UE side.

#### 8.2.19.13 MICO indication

This IE may be included to request the UE to re-negotiate MICO mode.

#### 8.2.19.14 Network slicing indication

This IE shall be included if the user's network slicing subscription has changed in the UDM.

#### 8.2.19.15 Configured NSSAI

The AMF shall include this IE if the AMF wants to provide the UE with a new configured NSSAI for the current PLMN.

#### 8.2.19.16 Rejected NSSAI

The network may include this IE to inform the UE of the S-NSSAIs that were previously sent to the UE in the allowed NSSAI, but are now considered to be rejected by the network.

#### 8.2.19.17 Operator-defined access category definitions

This IE may be included to assign new operator-defined access category definitions to the UE or delete the operator-defined access category definitions at the UE side.

#### 8.2.19.18 SMS indication

This IE may be included to indicate that the ability for the UE to use SMS over NAS has changed.

### 8.2.20 Configuration update complete

#### 8.2.20.1 Message definition

The CONFIGURATION UPDATE COMPLETE message is sent by the UE to the AMF. See table 8.2.20.1.1.

Message type: CONFIGURATION UPDATE COMPLETE

Significance: dual

Direction: UE to network

Table 8.2.20.1.1: CONFIGURATION UPDATE COMPLETE message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Extended protocol discriminator | Extended protocol discriminator  9.2 | M | V | 1 |
|  | Security header type | Security header type  9.3 | M | V | 1/2 |
|  | Spare half octet | Spare half octet  9.5 | M | V | 1/2 |
|  | Configuration update complete message identity | Message type  9.7 | M | V | 1 |

### 8.2.21 Identity request

#### 8.2.21.1 Message definition

The IDENTITY REQUEST message is sent by the AMF to the UE to request the UE to provide specified identity. See table 8.2.21.1.1

Message type: IDENTITY REQUEST

Significance: dual

Direction: AMF to UE

Table 8.2.21.1.1: IDENTITY REQUEST message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Extended protocol discriminator | Extended protocol discriminator  9.2 | M | V | 1 |
|  | Security header type | Security header type  9.3 | M | V | 1/2 |
|  | Spare half octet | Spare half octet  9.5 | M | V | 1/2 |
|  | Identity request message identity | Message type  9.7 | M | V | 1 |
|  | Identity type | 5GS identity type  9.11.3.3 | M | V | 1/2 |
|  | Spare half octet | Spare half octet  9.5 | M | V | 1/2 |

### 8.2.22 Identity response

#### 8.2.22.1 Message definition

The IDENTITY RESPONSE message is sent by the UE to the AMF to provide the requested identity. See table 8.2.22.1.

Message type: IDENTITY RESPONSE

Significance: dual

Direction: UE to AMF

Table 8.2.22.1.1: IDENTITY RESPONSE message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Extended protocol discriminator | Extended protocol discriminator  9.2 | M | V | 1 |
|  | Security header type | Security header type  9.3 | M | V | 1/2 |
|  | Spare half octet | Spare half octet  9.5 | M | V | 1/2 |
|  | Identity response message identity | Message type  9.7 | M | V | 1 |
|  | Mobile identity | 5GS mobile identity  9.11.3.4 | M | LV-E | 3-n |

### 8.2.23 Notification

#### 8.2.23.1 Message definition

The NOTIFICATION message is sent by the AMF to the UE to notify the UE to initiate a service request procedure. See table 8.2.23.1.1.

Message type: NOTIFICATION

Significance: dual

Direction: network to UE

Table 8.2.23.1.1: NOTIFICATION message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Extended protocol discriminator | Extended protocol discriminator  9.2 | M | V | 1 |
|  | Security header type | Security header type  9.3 | M | V | 1/2 |
|  | Spare half octet | Spare half octet  9.5 | M | V | 1/2 |
|  | Notification message identity | Message type  9.7 | M | V | 1 |
|  | Access type | Access type  9.11.3.11 | M | V | 1/2 |
|  | Spare half octet | Spare half octet  9.5 | M | V | 1/2 |

### 8.2.24 Notification response

#### 8.2.24.1 Message definition

The NOTIFICATION RESPONSE message is sent by the UE to the AMF to notify the failure to initiate the service request procedure as a response of notification. See table 8.2.24.1.1.

Message type: NOTIFICATION RESPONSE

Significance: dual

Direction: UE to network

Table 8.2.2341.1: NOTIFICATION RESPONSE message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Extended protocol discriminator | Extended protocol discriminator  9.2 | M | V | 1 |
|  | Security header type | Security header type  9.3 | M | V | 1/2 |
|  | Spare half octet | Spare half octet  9.5 | M | V | 1/2 |
|  | Notification response message identity | Message type  9.7 | M | V | 1 |
| 50 | PDU session status | PDU session status  9.11.3.44 | O | TLV | 4-34 |

#### 8.2.24.2 PDU session status

This information element shall be included if the UE wants to indicate over non-3GPP access type the PDU sessions associated with the 3GPP access type that are active within the UE.

### 8.2.25 Security mode command

#### 8.2.25.1 Message definition

The SECURITY MODE COMMAND message is sent by the AMF to the UE to establish NAS signalling security. See table 8.2.25.1.1.

Message type: SECURITY MODE COMMAND

Significance: dual

Direction: network to UE

Table 8.2.25.1.1: SECURITY MODE COMMAND message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Extended protocol discriminator | Extended protocol discriminator  9.2 | M | V | 1 |
|  | Security header type | Security header type  9.3 | M | V | 1/2 |
|  | Spare half octet | Spare half octet  9.5 | M | V | 1/2 |
|  | Security mode command message identity | Message type  9.7 | M | V | 1 |
|  | Selected NAS security algorithms | NAS security algorithms  9.11.3.34 | M | V | 1 |
|  | ngKSI | NAS key set identifier  9.11.3.32 | M | V | 1/2 |
|  | Spare half octet | Spare half octet  9.5 | M | V | 1/2 |
|  | Replayed UE security capabilities | UE security capability  9.11.3.54 | M | LV | 3-9 |
| E- | IMEISV request | IMEISV request  9.11.3.28 | O | TV | 1 |
| 57 | Selected EPS NAS security algorithms | EPS NAS security algorithms  9.11.3.25 | O | TV | 2 |
| 36 | Additional 5G security information | Additional 5G security information  9.11.3.12 | O | TLV | 3 |
| 78 | EAP message | EAP message  9.11.2.2 | O | TLV-E | 7 |
| 38 | ABBA | ABBA  9.11.3.10 | O | TLV | 4-n |
| 19 | Replayed S1 UE security capabilities | S1 UE security capability  9.11.3.48A | O | TLV | 4-7 |

#### 8.2.25.2 IMEISV request

The AMF may include this information element to request the UE to send its IMEISV with the corresponding SECURITY MODE COMPLETE message.

#### 8.2.25.3 Void

#### 8.2.25.4 Selected EPS NAS security algorithms

This IE shall be included if the AMF supports N26 interface and the UE set the S1 mode bit to "S1 mode supported" in the 5GMM capability IE of the REGISTRATION REQUEST message.

#### 8.2.25.5 Additional 5G security information

The network shall include this IE if:

a) the network needs to provide the UE with horizontal derivation parameter; or

b) the initial NAS message (i.e. REGISTRATION REQUEST or SERVICE REQUEST) does not successfully pass the integrity check at the AMF (see subclause 5.4.2.2).

#### 8.2.25.6 EAP message

This IE is included when the EAP Success message is sent as part of the EAP based primary authentication and key agreement procedure, as specified in subclause 5.4.1.2.

#### 8.2.25.7 ABBA

This IE shall be included if the message contains an EAP message IE with an EAP-success message.

#### 8.2.25.8 Replayed S1 UE security capabilities

This IE shall be included if the Selected EPS NAS security algorithms information element is included.

### 8.2.26 Security mode complete

#### 8.2.26.1 Message definition

The SECURITY MODE COMPLETE message is sent by the UE to the AMF in response to a SECURITY MODE COMMAND message. See table 8.2.26.1.1.

Message type: SECURITY MODE COMPLETE

Significance: dual

Direction: UE to network

Table 8.2.26.1.1: SECURITY MODE COMPLETE message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Extended protocol discriminator | Extended protocol discriminator  9.2 | M | V | 1 |
|  | Security header type | Security header type  9.3 | M | V | 1/2 |
|  | Spare half octet | Spare half octet  9.5 | M | V | 1/2 |
|  | Security mode complete message identity | Message type  9.6 | M | V | 1 |
| 77 | IMEISV | 5G mobile identity  9.11.3.4 | O | TLV-E | 11 |
| 71 | NAS message container | NAS message container  9.11.3.33 | O | TLV-E | 4-n |

#### 8.2.26.2 IMEISV

The UE shall include this information element, if the IMEISV was requested within the corresponding SECURITY MODE COMMAND message.

#### 8.2.26.3 NAS message container

The UE shall include this information element:

a) if during an ongoing registration procedure or service request procedure, the AMF included the Additional 5G security information with the RINMR bit set to "Retransmission of the initial NAS message requested" in the SECURITY MODE COMMAND message as described in 3GPP TS 33.501 [24]; and

b) if during an ongoing registration procedure, the UE does not have a valid 5G NAS security context and the UE needs to send non-cleartext IEs.

### 8.2.27 Security mode reject

#### 8.6.27.1 Message definition

The SECURITY MODE REJECT message is sent by the UE to the AMF to indicate that the corresponding security mode command has been rejected. See table 8.2.27.1.1.

Message type: SECURITY MODE REJECT

Significance: dual

Direction: UE to network

Table 8.2.27.1.1: SECURITY MODE REJECT message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Extended protocol discriminator | Extended protocol discriminator  9.2 | M | V | 1 |
|  | Security header type | Security header type  9.3 | M | V | 1/2 |
|  | Spare half octet | Spare half octet  9.5 | M | V | 1/2 |
|  | Security mode reject message identity | Message type  9.6 | M | V | 1 |
|  | 5GMM cause | 5GMM cause  9.11.3.2 | M | V | 1 |

### 8.2.28 Security protected 5GS NAS message

#### 8.2.28.1 Message definition

This message is sent by the UE or the network to transfer a plain 5GS NAS message together with the sequence number and the message authentication code protecting the message. See table 8.2.28.1.1.

Message type: SECURITY PROTECTED 5GS NAS MESSAGE

Significance: dual

Direction: both

Table 8.2.28.1.1: SECURITY PROTECTED 5GS NAS MESSAGE message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Extended protocol discriminator | Extended protocol discriminator  9.2 | M | V | 1 |
|  | Security header type | Security header type  9.3 | M | V | 1/2 |
|  | Spare half octet | Spare half octet  9.4 | M | V | 1/2 |
|  | Message authentication code | Message authentication code  9.8 | M | V | 4 |
|  | Sequence number | Sequence number  9.10 | M | V | 1 |
|  | Plain 5GS NAS message | Plain 5GS NAS message  9.9 | M | V | 3-n |

### 8.2.29 5GMM status

#### 8.2.29.1 Message definition

The 5GMM STATUS message is sent by the UE or by the AMF at any time to report certain error conditions. See table 8.2.28.1.1.

Message type: 5GMM STATUS

Significance: local

Direction: both

Table 8.2.29.1.1: 5GMM STATUS message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Extended protocol discriminator | Extended protocol discriminator  9.2 | M | V | 1 |
|  | Security header type | Security header type  9.3 | M | V | 1/2 |
|  | Spare half octet | Spare half octet  9.5 | M | V | 1/2 |
|  | 5GMM STATUS message identity | Message type  9.7 | M | V | 1 |
|  | 5GMM cause | 5GMM cause  9.11.3.2 | M | V | 1 |

## 8.3 5GS session management messages

### 8.3.1 PDU session establishment request

#### 8.3.1.1 Message definition

The PDU SESSION ESTABLISHMENT REQUEST message is sent by the UE to the SMF to initiate establishment of a PDU session. See table 8.3.1.1.1.

Message type: PDU SESSION ESTABLISHMENT REQUEST

Significance: dual

Direction: UE to network

Table 8.3.1.1.1: PDU SESSION ESTABLISHMENT REQUEST message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Extended protocol discriminator | Extended protocol discriminator  9.2 | M | V | 1 |
|  | PDU session ID | PDU session identity  9.4 | M | V | 1 |
|  | PTI | Procedure transaction identity  9.6 | M | V | 1 |
|  | PDU SESSION ESTABLISHMENT REQUEST message identity | Message type  9.7 | M | V | 1 |
|  | Integrity protection maximum data rate | Integrity protection maximum data rate  9.11.4.7 | M | V | 2 |
| 9- | PDU session type | PDU session type  9.11.4.11 | O | TV | 1 |
| A- | SSC mode | SSC mode  9.11.4.16 | O | TV | 1 |
| 28 | 5GSM capability | 5GSM capability  9.11.4.1 | O | TLV | 3-15 |
| 55 | Maximum number of supported packet filters | Maximum number of supported packet filters  9.11.4.9 | O | TV | 3 |
| B- | Always-on PDU session requested | Always-on PDU session requested  9.11.4.4 | O | TV | 1 |
| 39 | SM PDU DN request container | SM PDU DN request container  9.11.4.15 | O | TLV | 3-255 |
| 7B | Extended protocol configuration options | Extended protocol configuration options  9.11.4.6 | O | TLV-E | 4-65538 |

#### 8.3.1.2 PDU session type

This IE is included in the message when the UE requests to establish a new PDU session with a DN and requests a PDU session type.

#### 8.3.1.3 SSC mode

This IE is included in the message when the UE requests to establish a new PDU session with a DN and requests an SSC mode.

#### 8.3.1.4 Maximum number of supported packet filters

This IE shall be included in the message when the selected PDU session type is "IPv4", "IPv6", "IPv4v6" or "Ethernet" and the UE can support more than 16 packet filters for this PDU session.

#### 8.3.1.5 5GSM capability

This IE is included in the message when:

a) the UE requests to establish a new PDU session of "IPv4", "IPv6", "IPv4v6" or "Ethernet" PDU session type and the UE supports Reflective QoS;

b) the UE requests to establish a new PDU session of "IPv6" or "IPv4v6" PDU session type and the UE supports multi-homed IPv6 PDU session;

c) the UE requests to transfer an existing PDN connection of "IPv4", "IPv6", "IPv4v6" or "non-IP" PDN type mapping to "Ethernet" PDU session type in the EPS to the 5GS and the UE supports Reflective QoS;

d) the UE requests to transfer an existing PDN connection of "IPv4", "IPv6" or "IPv4v6" PDN type in an untrusted non-3GPP access connected to the EPC to the 5GS and the UE supports Reflective QoS; or

e) the UE requests to transfer an existing PDN connection of "IPv6" or "IPv4v6" PDN type in the EPS or in an untrusted non-3GPP access connected to the EPC to the 5GS and the UE supports multi-homed IPv6 PDU session.

#### 8.3.1.6 Void

#### 8.3.1.7 Always-on PDU session requested

The UE shall include this IE if the UE requests to establish a PDU session as an always-on PDU session.

#### 8.3.1.8 SM PDU DN request container

This IE is included in the message when the UE requests to establish a new PDU session with a DN and needs to provide information for the PDU session authentication and authorization by the external DN.

#### 8.3.1.9 Extended protocol configuration options

This IE is included in the message when the UE wants to transmit (protocol) data (e.g. configuration parameters, error codes or messages/events) to the network.

### 8.3.2 PDU session establishment accept

#### 8.3.2.1 Message definition

The PDU SESSION ESTABLISHMENT ACCEPT message is sent by the SMF to the UE in response to PDU SESSION ESTABLISHMENT REQUEST message and indicates successful establishment of a PDU session. See table 8.3.2.1.1.

Message type: PDU SESSION ESTABLISHMENT ACCEPT

Significance: dual

Direction: network to UE

Table 8.3.2.1.1: PDU SESSION ESTABLISHMENT ACCEPT message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Extended protocol discriminator | Extended protocol discriminator  9.2 | M | V | 1 |
|  | PDU session ID | PDU session identity  9.4 | M | V | 1 |
|  | PTI | Procedure transaction identity  9.6 | M | V | 1 |
|  | PDU SESSION ESTABLISHMENT ACCEPT message identity | Message type  9.7 | M | V | 1 |
|  | Selected PDU session type | PDU session type  9.11.4.11 | M | V | 1/2 |
|  | Selected SSC mode | SSC mode  9.11.4.16 | M | V | 1/2 |
|  | Authorized QoS rules | QoS rules  9.11.4.13 | M | LV-E | 7-65538 |
|  | Session AMBR | Session-AMBR  9.11.4.14 | M | LV | 7 |
| 59 | 5GSM cause | 5GSM cause  9.11.4.2 | O | TV | 2 |
| 29 | PDU address | PDU address  9.11.4.10 | O | TLV | 7, 11 or 15 |
| 56 | RQ timer value | GPRS timer  9.11.2.3 | O | TV | 2 |
| 22 | S-NSSAI | S-NSSAI  9.11.2.8 | O | TLV | 3-10 |
| 8- | Always-on PDU session indication | Always-on PDU session indication  9.11.4.3 | O | TV | 1 |
| 75 | Mapped EPS bearer contexts | Mapped EPS bearer contexts  9.11.4.8 | O | TLV-E | 7-65538 |
| 78 | EAP message | EAP message  9.11.2.2 | O | TLV-E | 7-1503 |
| 79 | Authorized QoS flow descriptions | QoS flow descriptions  9.11.4.12 | O | TLV-E | 5-65538 |
| 7B | Extended protocol configuration options | Extended protocol configuration options  9.11.4.6 | O | TLV-E | 4-65538 |
| 25 | DNN | DNN  9.11.2.1A | O | TLV | 3-102 |

#### 8.3.2.2 5GSM cause

This IE is included when the selected PDU session type is different from the PDU session type requested by the UE.

#### 8.3.2.3 PDU address

This IE is included when the selected PDU session type is "IPv4", "IPv6" or "IPv4v6".

#### 8.3.2.4 RQ timer value

This IE is included when the network wants to provide the RQ timer value.

#### 8.3.2.5 S-NSSAI

This IE shall be included in the message when the SMF received from the AMF an S-NSSAI together with the PDU SESSION ESTABLISHMENT REQUEST message, and the PDU session is a non-emergency PDU session.

#### 8.3.2.6 Always-on PDU session indication

The network shall include this IE if the network decides to inform the UE whether the PDU session is established as an always-on PDU session.

#### 8.3.2.7 Mapped EPS bearer contexts

This IE is included when interworking with EPS is supported for the PDU session.

#### 8.3.2.8 EAP message

This IE is included when the external DN successfully performed authentication and authorization of the UE using EAP.

#### 8.3.2.9 Authorized QoS flow descriptions

This IE is included when the network wants to provide authorized QoS flow descriptions.

#### 8.3.2.10 Extended protocol configuration options

This IE is included in the message when the network wants to transmit (protocol) data (e.g. configuration parameters, error codes or messages/events) to the UE.

#### 8.3.2.11 DNN

The IE shall be included in the message when the SMF received from the AMF a DNN together with the PDU SESSION ESTABLISHMENT REQUEST message, and the PDU session is a non-emergency PDU session.

### 8.3.3 PDU session establishment reject

#### 8.3.3.1 Message definition

The PDU SESSION ESTABLISHMENT REJECT message is sent by the SMF to the UE in response to PDU SESSION ESTABLISHMENT REQUEST message and indicates unsuccessful establishment of a PDU session. See table 8.3.3.1.1.

Message type: PDU SESSION ESTABLISHMENT REJECT

Significance: dual

Direction: network to UE

Table 8.3.3.1.1: PDU SESSION ESTABLISHMENT REJECT message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Extended protocol discriminator | Extended protocol discriminator  9.2 | M | V | 1 |
|  | PDU session ID | PDU session identity  9.4 | M | V | 1 |
|  | PTI | Procedure transaction identity  9.6 | M | V | 1 |
|  | PDU SESSION ESTABLISHMENT REJECT message identity | Message type  9.7 | M | V | 1 |
|  | 5GSM cause | 5GSM cause  9.11.4.2 | M | V | 1 |
| 37 | Back-off timer value | GPRS timer 3  9.11.2.5 | O | TLV | 3 |
| F- | Allowed SSC mode | Allowed SSC mode  9.11.4.5 | O | TV | 1 |
| 78 | EAP message | EAP message  9.11.2.2 | O | TLV-E | 7-1503 |
| 7B | Extended protocol configuration options | Extended protocol configuration options  9.11.4.6 | O | TLV-E | 4-65538 |

#### 8.3.3.2 Back-off timer value

The network may include this IE to request a minimum time interval before procedure retry is allowed.

#### 8.3.3.3 Allowed SSC mode

This IE is included when the network rejects the PDU SESSION ESTABLISHMENT REQUEST with cause #68 "not supported SSC mode.

#### 8.3.3.4 EAP message

This IE is included when the external DN unsuccessfully performed authentication and authorization of the UE using EAP.

#### 8.3.3.5 Extended protocol configuration options

This IE is included in the message when the network wants to transmit (protocol) data (e.g. configuration parameters, error codes or messages/events) to the UE.

### 8.3.4 PDU session authentication command

#### 8.3.4.1 Message definition

The PDU SESSION AUTHENTICATION COMMAND message is sent by the SMF to the UE for authentication of the UE establishing the PDU session or of the UE participating in the PDU session. See table 8.3.4.1.1.

Message type: PDU SESSION AUTHENTICATION COMMAND

Significance: dual

Direction: network to UE

Table 8.3.4.1.1: PDU SESSION AUTHENTICATION COMMAND message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Extended protocol discriminator | Extended protocol discriminator  9.2 | M | V | 1 |
|  | PDU session ID | PDU session identity  9.4 | M | V | 1 |
|  | PTI | Procedure transaction identity  9.6 | M | V | 1 |
|  | PDU SESSION AUTHENTICATION COMMAND message identity | Message type  9.7 | M | V | 1 |
|  | EAP message | EAP message  9.11.2.2 | M | LV-E | 6-1502 |
| 7B | Extended protocol configuration options | Extended protocol configuration options  9.11.4.6 | O | TLV-E | 4-65538 |

#### 8.3.4.2 Extended protocol configuration options

This IE is included in the message when the network wants to transmit (protocol) data (e.g. configuration parameters, error codes or messages/events) to the UE.

### 8.3.5 PDU session authentication complete

#### 8.3.5.1 Message definition

The PDU SESSION AUTHENTICATION COMPLETE message is sent by the UE to the SMF in response to the PDU SESSION AUTHENTICATION COMMAND message and indicates acceptance of the PDU SESSION AUTHENTICATION COMMAND message. See table 8.3.5.1.1.

Message type: PDU SESSION AUTHENTICATION COMPLETE

Significance: dual

Direction: UE to network

Table 8.3.5.1.1: PDU SESSION AUTHENTICATION COMPLETE message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Extended protocol discriminator | Extended protocol discriminator  9.2 | M | V | 1 |
|  | PDU session ID | PDU session identity  9.4 | M | V | 1 |
|  | PTI | Procedure transaction identity  9.6 | M | V | 1 |
|  | PDU SESSION AUTHENTICATION COMPLETE message identity | Message type  9.7 | M | V | 1 |
|  | EAP message | EAP message  9.11.2.2 | M | LV-E | 6-1502 |
| 7B | Extended protocol configuration options | Extended protocol configuration options  9.11.4.6 | O | TLV-E | 4-65538 |

#### 8.3.5.2 Extended protocol configuration options

This IE is included in the message when the UE wants to transmit (protocol) data (e.g. configuration parameters, error codes or messages/events) to the network.

### 8.3.6 PDU session authentication result

#### 8.3.6.1 Message definition

The PDU SESSION AUTHENTICATION RESULT message is sent by the SMF to the UE for indication of successful result of authentication of the UE participating in the PDU session. See table 8.3.6.1.1.

Message type: PDU SESSION AUTHENTICATION RESULT

Significance: dual

Direction: network to UE

Table 8.3.6.1.1: PDU SESSION AUTHENTICATION RESULT message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Extended protocol discriminator | Extended protocol discriminator  9.2 | M | V | 1 |
|  | PDU session ID | PDU session identity  9.4 | M | V | 1 |
|  | PTI | Procedure transaction identity  9.6 | M | V | 1 |
|  | PDU SESSION AUTHENTICATION RESULT message identity | Message type  9.7 | M | V | 1 |
| 78 | EAP message | EAP message  9.11.2.2 | O | TLV-E | 7-1503 |
| 7B | Extended protocol configuration options | Extended protocol configuration options  9.11.4.6 | O | TLV-E | 4-65538 |

#### 8.3.6.2 EAP message

This IE is included when the external DN performs authentication and authorization of the UE using EAP and it completes successfully.

#### 8.3.6.3 Extended protocol configuration options

This IE is included in the message when the network wants to transmit (protocol) data (e.g. configuration parameters, error codes or messages/events) to the UE.

### 8.3.7 PDU session modification request

#### 8.3.7.1 Message definition

The PDU SESSION MODIFICATION REQUEST message is sent by the UE to the SMF to request a modification of a PDU session. See table 8.3.7.1.1.

Message type: PDU SESSION MODIFICATION REQUEST

Significance: dual

Direction: UE to network

Table 8.3.7.1.1: PDU SESSION MODIFICATION REQUEST message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Extended protocol discriminator | Extended protocol discriminator  9.2 | M | V | 1 |
|  | PDU session ID | PDU session identity  9.4 | M | V | 1 |
|  | PTI | Procedure transaction identity  9.6 | M | V | 1 |
|  | PDU SESSION MODIFICATION REQUEST message identity | Message type  9.7 | M | V | 1 |
| 28 | 5GSM capability | 5GSM capability  9.11.4.1 | O | TLV | 3-15 |
| 59 | 5GSM cause | 5GSM cause  9.11.4.2 | O | TV | 2 |
| 55 | Maximum number of supported packet filters | Maximum number of supported packet filters  9.11.4.9 | O | TV | 3 |
| B- | Always-on PDU session requested | Always-on PDU session requested  9.11.4.4 | O | TV | 1 |
| 13 | Integrity protection maximum data rate | Integrity protection maximum data rate  9.11.4.7 | O | TV | 3 |
| 7A | Requested QoS rules | QoS rules  9.11.4.13 | O | TLV-E | 7-65538 |
| 79 | Requested QoS flow descriptions | QoS flow descriptions  9.11.4.12 | O | TLV-E | 5-65538 |
| 7F | Mapped EPS bearer contexts | Mapped EPS bearer contexts  9.11.4.8 | O | TLV-E | 7-65538 |
| 7B | Extended protocol configuration options | Extended protocol configuration options  9.11.4.6 | O | TLV-E | 4-65538 |

#### 8.3.7.2 5GSM capability

This IE is included in the message after inter-system change from S1 mode to N1 mode:

a) if the PDU session is of "IPv4", "IPv6", "IPv4v6" or "Ethernet" PDU session type, and the UE supports reflective QoS or revokes the previously indicated support of reflective QoS; or

b) if the PDU session is of "IPv6" or "IPv4v6" PDU session type, and the UE supports multi-homed IPv6 PDU session.

#### 8.3.7.3 5GSM cause

This IE is included in the message when the UE releases the PDU session due to semantic or syntactical errors in QoS operations, or due to semantic or syntactical errors in packet filters.

#### 8.3.7.4 Maximum number of supported packet filters

This IE shall be included in the message when the selected PDU session type is "IPv4", "IPv6", "IPv4v6" or "Ethernet", the UE can support more than 16 packet filters for this PDU session, and the UE is sending the message after an inter-system change from S1 mode to N1 mode.

#### 8.3.7.5 Always-on PDU session requested

The UE shall include this IE if the UE requests to establish a PDU session as an always-on PDU session.

#### 8.3.7.6 Integrity protection maximum data rate

This IE shall be included in the message for a PDN connection established when in S1 mode, after the first inter-system change from S1 mode to N1 mode, if the UE is operating in single-registration mode in the network supporting N26 interface.

#### 8.3.7.7 Requested QoS rules

This IE is included in the message when the UE requests a specific QoS handling.

#### 8.3.7.8 Requested QoS flow descriptions

This IE is included in the message when the UE requests a specific QoS flow descriptions.

#### 8.3.7.5 Extended protocol configuration options

This IE is included in the message when the UE wants to transmit (protocol) data (e.g. configuration parameters, error codes or messages/events) to the network.

#### 8.3.7.6 Mapped EPS bearer contexts

This IE is included when the UE requests to delete one or more mapped EPS bearer contexts.

### 8.3.8 PDU session modification reject

#### 8.3.8.1 Message definition

The PDU SESSION MODIFICATION REJECT message is sent by the SMF to the UE to indicate rejection of the PDU SESSION MODIFICATION REQUEST. See table 8.3.8.1.1.

Message type: PDU SESSION MODIFICATION REJECT

Significance: dual

Direction: network to UE

Table 8.3.8.1.1: PDU SESSION MODIFICATION REJECT message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Extended protocol discriminator | Extended protocol discriminator  9.2 | M | V | 1 |
|  | PDU session ID | PDU session identity  9.4 | M | V | 1 |
|  | PTI | Procedure transaction identity  9.6 | M | V | 1 |
|  | PDU SESSION MODIFICATION REJECT message identity | Message type  9.7 | M | V | 1 |
|  | 5GSM cause | 5GSM cause  9.11.4.2 | M | V | 1 |
| 37 | Back-off timer value | GPRS timer 3  9.11.2.5 | O | TLV | 3 |
| 7B | Extended protocol configuration options | Extended protocol configuration options  9.11.4.6 | O | TLV-E | 4-65538 |

#### 8.3.8.2 Back-off timer value

The network may include this IE to request a minimum time interval before procedure retry is allowed.

#### 8.3.8.3 Extended protocol configuration options

This IE is included in the message when the network wants to transmit (protocol) data (e.g. configuration parameters, error codes or messages/events) to the UE.

### 8.3.9 PDU session modification command

#### 8.3.9.1 Message definition

The PDU SESSION MODIFICATION COMMAND message is sent by the SMF to the UE to indicate a modification of a PDU session. See table 8.3.9.1.1

Message type: PDU SESSION MODIFICATION COMMAND

Significance: dual

Direction: network to UE

Table 8.3.9.1.1: PDU SESSION MODIFICATION COMMAND message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Extended protocol discriminator | Extended protocol discriminator  9.2 | M | V | 1 |
|  | PDU session ID | PDU session identity  9.4 | M | V | 1 |
|  | PTI | Procedure transaction identity  9.6 | M | V | 1 |
|  | PDU SESSION MODIFICATION COMMAND message identity | Message type  9.7 | M | V | 1 |
| 59 | 5GSM cause | 5GSM cause  9.11.4.2 | O | TV | 2 |
| 2A | Session AMBR | Session-AMBR  9.11.4.14 | O | TLV | 8 |
| 56 | RQ timer value | GPRS timer  9.11.2.3 | O | TV | 2 |
| 8- | Always-on PDU session indication | Always-on PDU session indication  9.11.4.3 | O | TV | 1 |
| 7A | Authorized QoS rules | QoS rules  9.11.4.13 | O | TLV-E | 7-65538 |
| 7F | Mapped EPS bearer contexts | Mapped EPS bearer contexts  9.11.4.8 | O | TLV-E | 7-65538 |
| 79 | Authorized QoS flow descriptions | QoS flow descriptions  9.11.4.12 | O | TLV-E | 6-65538 |
| 7B | Extended protocol configuration options | Extended protocol configuration options  9.11.4.6 | O | TLV-E | 4-65538 |

#### 8.3.9.2 5GSM cause

This IE is included when the network performs the PDU session anchor relocation for SSC mode 3.

#### 8.3.9.3 Session-AMBR

This IE is included when the session-AMBR of the PDU session is modified.

#### 8.3.9.4 RQ timer value

This IE is included when the network wants to provide the RQ timer value.

#### 8.3.9.5 Always-on PDU session indication

The network shall include this IE if the network decides to inform the UE whether the PDU session is an always-on PDU session.

#### 8.3.9.6 Authorized QoS rules

This IE is included when the authorized QoS rules of the PDU session are modified.

#### 8.3.9.7 Mapped EPS bearer contexts

This IE is included when interworking with EPS is supported for the PDU session and the mapped EPS bearer contexts is modified.

#### 8.3.9.8 Authorized QoS flow descriptions

This IE is included when the authorized QoS flow descriptions of the PDU session are modified.

#### 8.3.9.9 Extended protocol configuration options

This IE is included in the message when the network wants to transmit (protocol) data (e.g. configuration parameters, error codes or messages/events) to the UE.

### 8.3.10 PDU session modification complete

#### 8.3.10.1 Message definition

The PDU SESSION MODIFICATION COMPLETE message is sent by the UE to the SMF in response to the PDU SESSION MODIFICATION COMMAND message and indicates an acceptance of the PDU SESSION MODIFICATION COMMAND message. See table 8.3.10.1.1.

Message type: PDU SESSION MODIFICATION COMPLETE

Significance: dual

Direction: UE to network

Table 8.3.10.1.1: PDU SESSION MODIFICATION COMPLETE message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Extended protocol discriminator | Extended protocol discriminator  9.2 | M | V | 1 |
|  | PDU session ID | PDU session identity  9.4 | M | V | 1 |
|  | PTI | Procedure transaction identity  9.6 | M | V | 1 |
|  | PDU SESSION MODIFICATION COMPLETE message identity | Message type  9.7 | M | V | 1 |
| 7B | Extended protocol configuration options | Extended protocol configuration options  9.11.4.6 | O | TLV-E | 4-65538 |

#### 8.3.10.2 Extended protocol configuration options

This IE is included in the message when the UE wants to transmit (protocol) data (e.g. configuration parameters, error codes or messages/events) to the network.

### 8.3.11 PDU session modification command reject

#### 8.3.11.1 Message definition

The PDU SESSION MODIFICATION COMMAND REJECT message is sent by the UE to the SMF to indicate rejection of the PDU SESSION MODIFICATION COMMAND message. See table 8.3.11.1.1.

Message type: PDU SESSION MODIFICATION COMMAND REJECT

Significance: dual

Direction: UE to network

Table 8.3.11.1.1: PDU SESSION MODIFICATION COMMAND REJECT message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Extended protocol discriminator | Extended protocol discriminator  9.2 | M | V | 1 |
|  | PDU session ID | PDU session identity  9.4 | M | V | 1 |
|  | PTI | Procedure transaction identity  9.6 | M | V | 1 |
|  | PDU SESSION MODIFICATION COMMAND REJECT message identity | Message type  9.7 | M | V | 1 |
|  | 5GSM cause | 5GSM cause  9.11.4.2 | M | V | 1 |
| 7B | Extended protocol configuration options | Extended protocol configuration options  9.11.4.6 | O | TLV-E | 4-65538 |

#### 8.3.11.2 Extended protocol configuration options

This IE is included in the message when the UE wants to transmit (protocol) data (e.g. configuration parameters, error codes or messages/events) to the network.

### 8.3.12 PDU session release request

#### 8.3.12.1 Message definition

The PDU SESSION RELEASE REQUEST message is sent by the UE to the SMF to request a release of a PDU session. See table 8.3.12.1.1.

Message type: PDU SESSION RELEASE REQUEST

Significance: dual

Direction: UE to network

Table 8.3.12.1.1: PDU SESSION RELEASE REQUEST message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Extended protocol discriminator | Extended protocol discriminator  9.2 | M | V | 1 |
|  | PDU session ID | PDU session identity  9.4 | M | V | 1 |
|  | PTI | Procedure transaction identity  9.6 | M | V | 1 |
|  | PDU SESSION RELEASE REQUEST message identity | Message type  9.7 | M | V | 1 |
| 59 | 5GSM cause | 5GSM cause  9.11.4.2 | O | TV | 2 |
| 7B | Extended protocol configuration options | Extended protocol configuration options  9.11.4.6 | O | TLV-E | 4-65538 |

#### 8.3.12.2 5GSM cause

This IE is included in the message when the UE releases the PDU session due to semantic or syntactical errors in QoS operations, or due to semantic or syntactical errors in packet filters.

#### 8.3.12.3 Extended protocol configuration options

This IE is included in the message when the UE wants to transmit (protocol) data (e.g. configuration parameters, error codes or messages/events) to the network.

### 8.3.13 PDU session release reject

#### 8.3.13.1 Message definition

The PDU SESSION RELEASE REJECT message is sent by the SMF to the UE to indicate rejection of request a release of a PDU session. See table 8.3.13.1.1.

Message type: PDU SESSION RELEASE REJECT

Significance: dual

Direction: network to UE

Table 8.3.13.1.1: PDU SESSION RELEASE REJECT message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Extended protocol discriminator | Extended protocol discriminator  9.2 | M | V | 1 |
|  | PDU session ID | PDU session identity  9.4 | M | V | 1 |
|  | PTI | Procedure transaction identity  9.6 | M | V | 1 |
|  | PDU SESSION RELEASE REJECT message identity | Message type  9.7 | M | V | 1 |
|  | 5GSM cause | 5GSM cause  9.11.4.2 | M | V | 1 |
| 7B | Extended protocol configuration options | Extended protocol configuration options  9.11.4.6 | O | TLV-E | 4-65538 |

#### 8.3.13.2 Extended protocol configuration options

This IE is included in the message when the network wants to transmit (protocol) data (e.g. configuration parameters, error codes or messages/events) to the UE.

### 8.3.14 PDU session release command

#### 8.3.14.1 Message definition

The PDU SESSION RELEASE COMMAND message is sent by the SMF to the UE to indicate a release of a PDU session. See table 8.3.14.1.1.

Message type: PDU SESSION RELEASE COMMAND

Significance: dual

Direction: network to UE

Table 8.3.14.1.1: PDU SESSION RELEASE COMMAND message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Extended protocol discriminator | Extended protocol discriminator  9.2 | M | V | 1 |
|  | PDU session ID | PDU session identity  9.4 | M | V | 1 |
|  | PTI | Procedure transaction identity  9.6 | M | V | 1 |
|  | PDU SESSION RELEASE COMMAND message identity | Message type  9.7 | M | V | 1 |
|  | 5GSM cause | 5GSM cause  9.11.4.2 | M | V | 1 |
| 37 | Back-off timer value | GPRS timer 3  9.11.2.5 | O | TLV | 3 |
| 78 | EAP message | EAP message  9.11.2.2 | O | TLV-E | 7-1503 |
| 7B | Extended protocol configuration options | Extended protocol configuration options  9.11.4.6 | O | TLV-E | 4-65538 |

#### 8.3.14.2 Back-off timer value

The network may include this IE to request a minimum time interval before procedure retry is allowed.

#### 8.3.14.3 EAP message

This IE is included when the external DN performs re-authentication and re-authorization of the UE using EAP and it completes unsuccessfully.

#### 8.3.14.4 Extended protocol configuration options

This IE is included in the message when the network wants to transmit (protocol) data (e.g. configuration parameters, error codes or messages/events) to the UE.

### 8.3.15 PDU session release complete

#### 8.3.15.1 Message definition

The PDU SESSION RELEASE COMPLETE message is sent by the UE to the SMF in response to the PDU SESSION RELEASE COMMAND message and indicates an acceptance of a release of the PDU session. See table 8.3.15.1.1.

Message type: PDU SESSION RELEASE COMPLETE

Significance: dual

Direction: UE to network

Table 8.3.15.1.1: PDU SESSION RELEASE COMPLETE message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Extended protocol discriminator | Extended protocol discriminator  9.2 | M | V | 1 |
|  | PDU session ID | PDU session identity  9.4 | M | V | 1 |
|  | PTI | Procedure transaction identity  9.6 | M | V | 1 |
|  | PDU SESSION RELEASE COMPLETE message identity | Message type  9.7 | M | V | 1 |
| 59 | 5GSM cause | 5GSM cause  9.11.4.2 | O | TV | 2 |
| 7B | Extended protocol configuration options | Extended protocol configuration options  9.11.4.6 | O | TLV-E | 4-65538 |

#### 8.3.15.2 5GSM cause

This IE is included in the message when the UE wants to indicate to the network that a PDU session ID was received in the PDU SESSION RELEASE COMMAND message and PDU session ID belongs to any PDU session in state PDU SESSION INACTIVE in the UE.

#### 8.3.15.3 Extended protocol configuration options

This IE is included in the message when the UE wants to transmit (protocol) data (e.g. configuration parameters, error codes or messages/events) to the network.

### 8.3.16 5GSM status

#### 8.3.16.1 Message definition

The 5GSM STATUS message is sent by the SMF or the UE to pass information on the status of the indicated PDU session and report certain error conditions. See table 8.3.16.1.1.

Message type: 5GSM STATUS

Significance: dual

Direction: both

Table 8.3.16.1.1: 5GSM STATUS message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Extended protocol discriminator | Extended protocol discriminator  9.2 | M | V | 1 |
|  | PDU session ID | PDU session identity  9.4 | M | V | 1 |
|  | PTI | Procedure transaction identity  9.6 | M | V | 1 |
|  | 5GSM STATUS message identity | Message type  9.7 | M | V | 1 |
|  | 5GSM cause | 5GSM cause  9.11.4.2 | M | V | 1 |