Nausf_UEAuthentication

The Authentication Server Function (AUSF) acts as NF Service Producer. It provides UE authentication service to the requester NF. The NF Service Consumer is the AMF.

For this service, the following service operations are defined

- Authenticate

This service permits to authenticate the UE and to provide one or more master keys which are used by the AMF to derived subsequent keys.

Reference: 3GPP TS 33.501 v15.5.0

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OpenAPI

OpenAPI Version: 3.0.0

Info

Version: 1.0.0
Title: AUSF API
Description: OpenAPI specification for AUSF

Servers

URL: '{apiRoot}/nausf-auth/v1'

```
  Variables:
    API Root:
      Default: https://example.com
      Description: apiRoot as defined in subclause subclause 4.4 of 3GPP TS 29.501.
```

Security

```
- {}
- oAuth2ClientCredentials:
    - nausf-auth
```

Paths

/ue-authentications

```
  Method: Post
    Request Body:
      Content:
        Application/JSON:
          Schema:
            Reference: '#/components/schemas/AuthenticationInfo'
      Required/Optional: true

    Responses:
      '201':
        Description: UEAuthenticationCtx
        Content:
          application/3gppHal+json:
            Schema:
              Reference: '#/components/schemas/UEAuthenticationCtx'
        Headers:
          Location:
            description: 'Contains the URI of the newly created resource
according to the structure: {apiRoot}/nausf-auth/v1/ue-authentications/{authCtxId}'
            Required/Optional: true
            Schema:
              Type: string
      '400':
        Description: Bad Request from the AMF
        Content:
          application/problem+json:
            Schema:
              Reference: 'TS29571_CommonData.yaml#/components/schemas/ProblemDetails'
      '403':
        Description: Fordidden due to serving network not authorized
        Content:
```

```
      application/problem+json:
        Schema:
          Reference: 'TS29571_CommonData.yaml#/components/schemas/ProblemDetails'
    '500':
      Description: Internal Server Error
      Content:
        application/problem+json:
          Schema:
            Reference: 'TS29571_CommonData.yaml#/components/schemas/ProblemDetails'
```

/ue-authentications/{authCtxId}/5g-aka-confirmation

```
put:

  Parameters:
    - Name: authCtxId
      In: path
      Required/Optional: true
      Schema:
        Type: string
  Request Body:
    Content:
      Application/JSON:
        Schema:
          Reference: '#/components/schemas/ConfirmationData'

  Responses:
    '200':
      Description: Request processed (EAP success or Failure)
      Content:
        Application/JSON:
          Schema:
            Reference: '#/components/schemas/ConfirmationDataResponse'
    '400':
      Description: Bad Request
      Content:
        application/problem+json:
          Schema:
            Reference: 'TS29571_CommonData.yaml#/components/schemas/ProblemDetails'
    '500':
      Description: Internal Server Error
      Content:
        application/problem+json:
          Schema:
            Reference: 'TS29571_CommonData.yaml#/components/schemas/ProblemDetails'
```

/ue-authentications/{authCtxId}/eap-session

```
Method: Post
```

```
Operation ID: EapAuthMethod

Parameters:
  - Name: authCtxId
    In: path
    Required/Optional: true
    Schema:
      Type: string
Request Body:
  Content:
    Application/JSON:
      Schema:
        Reference: '#/components/schemas/EapSession'

Responses:
  '200':
    Description: Use to handle or close the EAP session
    Content:
      Application/JSON:
        Schema:
          Reference: '#/components/schemas/EapSession'
      application/3gppHal+json:
        Schema:
          Type: object
          Properties:
            eapPayload:
              Reference: '#/components/schemas/EapPayload'
            _links:
              Type: object
              description: 'URI : /{eapSessionUri}'
              additionalProperties:
                Reference:
'TS29571_CommonData.yaml#/components/schemas/LinksValueSchema'
              minProperties: 1
          Required/Optional:
            - eapPayload
            - _links
    '400':
      Description: Bad Request
      Content:
        application/problem+json:
          Schema:
            Reference: 'TS29571_CommonData.yaml#/components/schemas/ProblemDetails'
    '500':
      Description: Internal Server Error
      Content:
        application/problem+json:
          Schema:
            Reference: 'TS29571_CommonData.yaml#/components/schemas/ProblemDetails'
```

Components

```
securitySchemes:
  oAuth2ClientCredentials:
    Type: oauth2
    Flows:
      clientCredentials:
        tokenUrl: '{nrfApiRoot}/oauth2/token'
        scopes:
          nausf-auth: Access to Nausf_UEAuthentication API

schemas:
  AuthenticationInfo:
    Type: object
    Properties:
      supiOrSuci:
        Reference: 'TS29503_Nudm_UEAU.yaml#/components/schemas/SupiOrSuci'
      servingNetworkName:
        Reference: 'TS29503_Nudm_UEAU.yaml#/components/schemas/ServingNetworkName'
      resynchronizationInfo:
        Reference: 'TS29503_Nudm_UEAU.yaml#/components/schemas/ResynchronizationInfo'
      traceData:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/TraceData'
    Required:
      - supiOrSuci
      - servingNetworkName
  UEAuthenticationCtx:
    Type: object
    Properties:
      authType:
        Reference: '#/components/schemas/AuthType'
      5gAuthData:
        oneOf:
          - $ref: '#/components/schemas/Av5gAka'
          - $ref: '#/components/schemas/EapPayload'
      _links:
        Type: object
        additionalProperties:
          Reference: 'TS29571_CommonData.yaml#/components/schemas/LinksValueSchema'
      servingNetworkName:
        Reference: 'TS29503_Nudm_UEAU.yaml#/components/schemas/ServingNetworkName'
    Required:
      - authType
      - 5gAuthData
      - _links
  Av5gAka:
    Type: object
    Required:
      - rand
      - hxresStar
      - autn
```

```
    Properties:
      rand:
        Reference: 'TS29503_Nudm_UEAU.yaml#/components/schemas/Rand'
      hxresStar:
        Reference: '#/components/schemas/HxresStar'
      autn:
        Reference: 'TS29503_Nudm_UEAU.yaml#/components/schemas/Autn'
  ConfirmationData:
    Type: object
    Required:
      - resStar
    Properties:
      resStar:
        Reference: '#/components/schemas/ResStar'
  ConfirmationDataResponse:
    Type: object
    Properties:
      authResult:
        Reference: '#/components/schemas/AuthResult'
      supi:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/Supi'
      kseaf:
        Reference: '#/components/schemas/Kseaf'
    Required:
      - authResult
  EapSession:
    Type: object
    Properties:
      eapPayload:
        Reference: '#/components/schemas/EapPayload'
      kSeaf:
        Reference: '#/components/schemas/Kseaf'
      _links:
        Type: object
        additionalProperties:
          Reference: 'TS29571_CommonData.yaml#/components/schemas/LinksValueSchema'
      authResult:
        Reference: '#/components/schemas/AuthResult'
      supi:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/Supi'
    Required:
      - eapPayload
  AuthResult:
    Type: string
    enum:
      - AUTHENTICATION_SUCCESS
      - AUTHENTICATION_FAILURE
      - AUTHENTICATION_ONGOING
  EapPayload:
    Type: string
    format: base64
    Description: contains an EAP packet
  Kseaf:
```

```
  Type: string
  Pattern: '[A-Fa-f0-9]{64}'
ResStar:
  Type: string
  Pattern: '[A-Fa-f0-9]{32}'
HxresStar:
  Type: string
  Pattern: "[A-Fa-f0-9]{32}"
AuthType:
  anyOf:
    - type: string
      enum:
        - 5G_AKA
        - EAP_AKA_PRIME
        - EAP_TLS
    - type: string
```

External Docs

Description: 3GPP TS 29.509 V15.2.0; 5G System; 3GPP TS Authentication Server services.
URL: http://www.3gpp.org/ftp/Specs/archive/29_series/29.509