# Nnrf_NFManagement

The Network Repository Function uses the Nnrf_NFManagement service to manage the create, update, and delete an NF.


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# OpenAPI

OpenAPI Version: 3.0.0

# Info

```
Version: '1.0.0'
Title: 'NRF NFManagement Service'
Description: 'NRF NFManagement Service'
```

# Servers

```
URL: '{apiRoot}/nnrf-nfm/v1'
Variables:
  API Root:
    Default: https://example.com
    Description: apiRoot as defined in subclause subclause 4.4 of 3GPP TS 29.501
```

# Security

```
- {}
- oAuth2ClientCredentials:
    - nnrf-nfm
```

# Paths

## /nf-instances

```
  get:
    Summary: Retrieves a collection of NF Instances
    Operation ID: GetNFInstances

    Tags:
      - NF Instances (Store)

    Parameters:
      - Name: nf-type
        In: query
        Description: Type of NF
        Required/Optional: false
        Schema:
          Reference: '#/components/schemas/NFType'
      - Name: limit
        In: query
        Description: How many items to return at one time
        Required/Optional: false
        Schema:
          Type: integer

    Responses:
      '200':
        Description: Expected response to a valid request
        Content:
          application/3gppHal+json:
            Schema:
              Type: object
              Properties:
                _links:
                  Type: object
                 Description: 'List of the URI of NF instances. It has two members whose
 names are item and self. The item one contains an array of URIs.'
                  additionalProperties:
                    Reference:
'TS29571_CommonData.yaml#/components/schemas/LinksValueSchema'
              minProperties: 1
```

```
    '400':
      Reference: 'TS29571_CommonData.yaml#/components/responses/400'
    '403':
      Reference: 'TS29571_CommonData.yaml#/components/responses/403'
    '404':
      Reference: 'TS29571_CommonData.yaml#/components/responses/404'
    '411':
      Reference: 'TS29571_CommonData.yaml#/components/responses/411'
    '413':
      Reference: 'TS29571_CommonData.yaml#/components/responses/413'
    '415':
      Reference: 'TS29571_CommonData.yaml#/components/responses/415'
    '500':
      Reference: 'TS29571_CommonData.yaml#/components/responses/500'
    '501':
      Reference: 'TS29571_CommonData.yaml#/components/responses/501'
    '503':
      Reference: 'TS29571_CommonData.yaml#/components/responses/503'
    Default:
      Reference: 'TS29571_CommonData.yaml#/components/responses/default'
```

# /nf-instances/{nfInstanceID}

```
get:
  Summary: Read the profile of a given NF Instance
  Operation ID: GetNFInstance

  Tags:
    - NF Instance ID (Document)

  Parameters:
    - Name: nfInstanceID
      In: path
      Description: Unique ID of the NF Instance
      Required/Optional: true
      Schema:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/NfInstanceId'

  Responses:
    '200':
      Description: Expected response to a valid request
      Content:
        Application/JSON:
          Schema:
            Reference: '#/components/schemas/NFProfile'
    '400':
      Reference: 'TS29571_CommonData.yaml#/components/responses/400'
    '403':
      Reference: 'TS29571_CommonData.yaml#/components/responses/403'
    '404':
      Reference: 'TS29571_CommonData.yaml#/components/responses/404'
```

```
      '411':
        Reference: 'TS29571_CommonData.yaml#/components/responses/411'
      '413':
        Reference: 'TS29571_CommonData.yaml#/components/responses/413'
      '415':
        Reference: 'TS29571_CommonData.yaml#/components/responses/415'
      '500':
        Reference: 'TS29571_CommonData.yaml#/components/responses/500'
      '501':
        Reference: 'TS29571_CommonData.yaml#/components/responses/501'
      '503':
        Reference: 'TS29571_CommonData.yaml#/components/responses/503'
      Default:
        Reference: 'TS29571_CommonData.yaml#/components/responses/default'
  put:
    Summary: Register a new NF Instance
    Operation ID: RegisterNFInstance

    Tags:
      - NF Instance ID (Document)

    Parameters:
      - Name: nfInstanceID
        In: path
        Required/Optional: true
        Description: Unique ID of the NF Instance to register
        Schema:
          Reference: 'TS29571_CommonData.yaml#/components/schemas/NfInstanceId'
    Request Body:
      Content:
        Application/JSON:
          Schema:
            Reference: '#/components/schemas/NFProfile'
      Required/Optional: true

    Responses:
      '200':
        Description: OK (Profile Replacement)
        Content:
          Application/JSON:
            Schema:
              Reference: '#/components/schemas/NFProfile'
      '201':
        Description: Expected response to a valid request
        Content:
          Application/JSON:
            Schema:
              Reference: '#/components/schemas/NFProfile'
        Headers:
          Location:
            description: 'Contains the URI of the newly created resource,
  according to the structure: {apiRoot}/nnrf-nfm/v1/nf-instances/{nfInstanceId}'
```

```
        Required/Optional: true
        Schema:
          Type: string
    '400':
      Reference: 'TS29571_CommonData.yaml#/components/responses/400'
    '403':
      Reference: 'TS29571_CommonData.yaml#/components/responses/403'
    '404':
      Reference: 'TS29571_CommonData.yaml#/components/responses/404'
    '411':
      Reference: 'TS29571_CommonData.yaml#/components/responses/411'
    '413':
      Reference: 'TS29571_CommonData.yaml#/components/responses/413'
    '415':
      Reference: 'TS29571_CommonData.yaml#/components/responses/415'
    '500':
      Reference: 'TS29571_CommonData.yaml#/components/responses/500'
    '501':
      Reference: 'TS29571_CommonData.yaml#/components/responses/501'
    '503':
      Reference: 'TS29571_CommonData.yaml#/components/responses/503'
    Default:
      Reference: 'TS29571_CommonData.yaml#/components/responses/default'
patch:
  Summary: Update NF Instance profile
  Operation ID: UpdateNFInstance

  Tags:
    - NF Instance ID (Document)

  Parameters:
    - Name: nfInstanceID
      In: path
      Required/Optional: true
      Description: Unique ID of the NF Instance to update
      Schema:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/NfInstanceId'
  Request Body:
    Content:
      application/json-patch+json:
        Schema:
          Type: array
          Items:
            Reference: 'TS29571_CommonData.yaml#/components/schemas/PatchItem'
          Min Items: 1
    Required/Optional: true

  Responses:
    '200':
      Description: Expected response to a valid request
      Content:
        Application/JSON:
```

```
          Schema:
            Reference: '#/components/schemas/NFProfile'
        '204':
          Description: Expected response with empty body
        '400':
          Reference: 'TS29571_CommonData.yaml#/components/responses/400'
        '403':
          Reference: 'TS29571_CommonData.yaml#/components/responses/403'
        '404':
          Reference: 'TS29571_CommonData.yaml#/components/responses/404'
        '411':
          Reference: 'TS29571_CommonData.yaml#/components/responses/411'
        '413':
          Reference: 'TS29571_CommonData.yaml#/components/responses/413'
        '415':
          Reference: 'TS29571_CommonData.yaml#/components/responses/415'
        '500':
          Reference: 'TS29571_CommonData.yaml#/components/responses/500'
        '501':
          Reference: 'TS29571_CommonData.yaml#/components/responses/501'
        '503':
          Reference: 'TS29571_CommonData.yaml#/components/responses/503'
       Default:
          Reference: 'TS29571_CommonData.yaml#/components/responses/default'
    delete:
      Summary: Deregisters a given NF Instance
      Operation ID: DeregisterNFInstance

      Tags:
        - NF Instance ID (Document)

      Parameters:
        - Name: nfInstanceID
          In: path
          Required/Optional: true
          Description: Unique ID of the NF Instance to deregister
          Schema:
            Reference: 'TS29571_CommonData.yaml#/components/schemas/NfInstanceId'

      Responses:
        '204':
          Description: Expected response to a successful deregistration
```

# /subscriptions

```
    Method: Post
      Summary: Create a new subscription
      Operation ID: CreateSubscription

      Tags:
        - Subscriptions (Collection)
```

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

    Responses:
      '201':
        Description: Expected response to a valid request
        Content:
          Application/JSON:
            Schema:
              Reference: '#/components/schemas/SubscriptionData'
        Headers:
          Location:
            description: 'Contains the URI of the newly created resource,
according to the structure: {apiRoot}/nnrf-nfm/v1/subscriptions/{subscriptionId}'
            Required/Optional: true
            Schema:
              Type: string
      '400':
        Reference: 'TS29571_CommonData.yaml#/components/responses/400'
      '403':
        Reference: 'TS29571_CommonData.yaml#/components/responses/403'
      '404':
        Reference: 'TS29571_CommonData.yaml#/components/responses/404'
      '411':
        Reference: 'TS29571_CommonData.yaml#/components/responses/411'
      '413':
        Reference: 'TS29571_CommonData.yaml#/components/responses/413'
      '415':
        Reference: 'TS29571_CommonData.yaml#/components/responses/415'
      '500':
        Reference: 'TS29571_CommonData.yaml#/components/responses/500'
      '501':
        Reference: 'TS29571_CommonData.yaml#/components/responses/501'
      '503':
        Reference: 'TS29571_CommonData.yaml#/components/responses/503'
      Default:
        Reference: 'TS29571_CommonData.yaml#/components/responses/default'
    Callbacks:
      onNFStatusEvent:
        '{$request.body#/nfStatusNotificationUri}':
          Method: Post
            Request Body:
              Description: Notification Payload
              Content:
                Application/JSON:
                  Schema:
                    Reference: '#/components/schemas/NotificationData'
```

```
      Responses:
        '204':
          Description: Expected response to a successful callback processing
        '400':
          Reference: 'TS29571_CommonData.yaml#/components/responses/400'
        '403':
          Reference: 'TS29571_CommonData.yaml#/components/responses/403'
        '404':
          Reference: 'TS29571_CommonData.yaml#/components/responses/404'
        '411':
          Reference: 'TS29571_CommonData.yaml#/components/responses/411'
        '413':
          Reference: 'TS29571_CommonData.yaml#/components/responses/413'
        '415':
          Reference: 'TS29571_CommonData.yaml#/components/responses/415'
        '500':
          Reference: 'TS29571_CommonData.yaml#/components/responses/500'
        '501':
          Reference: 'TS29571_CommonData.yaml#/components/responses/501'
        '503':
          Reference: 'TS29571_CommonData.yaml#/components/responses/503'
        Default:
          Reference: 'TS29571_CommonData.yaml#/components/responses/default'
```

# /subscriptions/{subscriptionID}

```
patch:
  Summary: Updates a subscription
  Operation ID: UpdateSubscription

  Tags:
    - Subscription ID (Document)

  Parameters:
    - Name: subscriptionID
      In: path
      Required/Optional: true
      Description: Unique ID of the subscription to update
      Schema:
        Type: string
        pattern: '^([0-9]{5,6}-)?[^-]+$'
  Request Body:
    Content:
      application/json-patch+json:
        Schema:
          Type: array
          Items:
            Reference: 'TS29571_CommonData.yaml#/components/schemas/PatchItem'
    Required/Optional: true

  Responses:
```

```
    '200':
      Description: Expected response to a valid request
      Content:
        Application/JSON:
          Schema:
            Reference: '#/components/schemas/SubscriptionData'
    '204':
      Description: No Content
    '400':
      Reference: 'TS29571_CommonData.yaml#/components/responses/400'
    '403':
      Reference: 'TS29571_CommonData.yaml#/components/responses/403'
    '404':
      Reference: 'TS29571_CommonData.yaml#/components/responses/404'
    '411':
      Reference: 'TS29571_CommonData.yaml#/components/responses/411'
    '413':
      Reference: 'TS29571_CommonData.yaml#/components/responses/413'
    '415':
      Reference: 'TS29571_CommonData.yaml#/components/responses/415'
    '500':
      Reference: 'TS29571_CommonData.yaml#/components/responses/500'
    '501':
      Reference: 'TS29571_CommonData.yaml#/components/responses/501'
    '503':
      Reference: 'TS29571_CommonData.yaml#/components/responses/503'
    Default:
      Reference: 'TS29571_CommonData.yaml#/components/responses/default'
delete:
  Summary: Deletes a subscription
  Operation ID: RemoveSubscription

  Tags:
    - Subscription ID (Document)

  Parameters:
    - Name: subscriptionID
      In: path
      Required/Optional: true
      Description: Unique ID of the subscription to remove
      Schema:
        Type: string
        pattern: '^([0-9]{5,6}-)?[^-]+$'

  Responses:
    '204':
      Description: Expected response to a successful subscription removal
    '400':
      Reference: 'TS29571_CommonData.yaml#/components/responses/400'
    '403':
      Reference: 'TS29571_CommonData.yaml#/components/responses/403'
    '404':
```

```
      Reference: 'TS29571_CommonData.yaml#/components/responses/404'
    '411':
      Reference: 'TS29571_CommonData.yaml#/components/responses/411'
    '413':
      Reference: 'TS29571_CommonData.yaml#/components/responses/413'
    '415':
      Reference: 'TS29571_CommonData.yaml#/components/responses/415'
    '500':
      Reference: 'TS29571_CommonData.yaml#/components/responses/500'
    '501':
      Reference: 'TS29571_CommonData.yaml#/components/responses/501'
    '503':
      Reference: 'TS29571_CommonData.yaml#/components/responses/503'
    Default:
      Reference: 'TS29571_CommonData.yaml#/components/responses/default'
```

# Components

```
securitySchemes:
  oAuth2ClientCredentials:
    Type: oauth2
    Flows:
      clientCredentials:
        tokenUrl: '/oauth2/token'
        scopes:
          nnrf-nfm: Access to the Nnrf_NFManagement API

schemas:
  NFProfile:
    Type: object
    Required:
      - nfInstanceId
      - nfType
      - nfStatus
    anyOf:
      - required: [ fqdn ]
      - required: [ ipv4Addresses ]
      - required: [ ipv6Addresses ]
    Properties:
      nfInstanceId:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/NfInstanceId'
      nfType:
        Reference: '#/components/schemas/NFType'
      nfStatus:
        Reference: '#/components/schemas/NFStatus'
      heartBeatTimer:
        Type: integer
      plmnList:
        Type: array
        Items:
```

```
    Reference: 'TS29571_CommonData.yaml#/components/schemas/PlmnId'
  minItems: 1
sNssais:
  Type: array
  Items:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/Snssai'
  minItems: 1
nsiList:
  Type: array
  Items:
    Type: string
  minItems: 1
fqdn:
  Reference: '#/components/schemas/Fqdn'
interPlmnFqdn:
  Reference: '#/components/schemas/Fqdn'
ipv4Addresses:
  Type: array
  Items:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/Ipv4Addr'
  minItems: 1
ipv6Addresses:
  Type: array
  Items:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/Ipv6Addr'
  minItems: 1
allowedPlmns:
  Type: array
  Items:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/PlmnId'
  minItems: 1
allowedNfTypes:
  Type: array
  Items:
    Reference: '#/components/schemas/NFType'
  minItems: 1
allowedNfDomains:
  Type: array
  Items:
    Type: string
  minItems: 1
allowedNssais:
  Type: array
  Items:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/Snssai'
  minItems: 1
priority:
  Type: integer
  Minimum: 0
  Maximum: 65535
capacity:
```

```
      Type: integer
      Minimum: 0
      Maximum: 65535
    load:
      Type: integer
      Minimum: 0
      Maximum: 100
    locality:
      Type: string
    udrInfo:
      Reference: '#/components/schemas/UdrInfo'
    udmInfo:
      Reference: '#/components/schemas/UdmInfo'
    ausfInfo:
      Reference: '#/components/schemas/AusfInfo'
    amfInfo:
      Reference: '#/components/schemas/AmfInfo'
    smfInfo:
      Reference: '#/components/schemas/SmfInfo'
    upfInfo:
      Reference: '#/components/schemas/UpfInfo'
    pcfInfo:
      Reference: '#/components/schemas/PcfInfo'
    bsfInfo:
      Reference: '#/components/schemas/BsfInfo'
    chfInfo:
      Reference: '#/components/schemas/ChfInfo'
    nrfInfo:
      Reference: '#/components/schemas/NrfInfo'
    customInfo:
      Type: object
    recoveryTime:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/DateTime'
    nfServicePersistence:
      Type: boolean
      Default: false
    nfServices:
      Type: array
      Items:
        Reference: '#/components/schemas/NFService'
      minItems: 1
NFService:
  Type: object
  Required:
    - serviceInstanceId
    - serviceName
    - versions
    - scheme
    - nfServiceStatus
  Properties:
    serviceInstanceId:
      Type: string
```

```
serviceName:
  Reference: '#/components/schemas/ServiceName'
versions:
  Type: array
  Items:
    Reference: '#/components/schemas/NFServiceVersion'
  minItems: 1
scheme:
  Reference: 'TS29571_CommonData.yaml#/components/schemas/UriScheme'
nfServiceStatus:
  Reference: '#/components/schemas/NFServiceStatus'
fqdn:
  Reference: '#/components/schemas/Fqdn'
interPlmnFqdn:
  Reference: '#/components/schemas/Fqdn'
ipEndPoints:
  Type: array
  Items:
    Reference: '#/components/schemas/IpEndPoint'
  minItems: 1
apiPrefix:
  Type: string
defaultNotificationSubscriptions:
  Type: array
  Items:
    Reference: '#/components/schemas/DefaultNotificationSubscription'
  minItems: 1
allowedPlmns:
  Type: array
  Items:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/PlmnId'
  minItems: 1
allowedNfTypes:
  Type: array
  Items:
    Reference: '#/components/schemas/NFType'
  minItems: 1
allowedNfDomains:
  Type: array
  Items:
    Type: string
  minItems: 1
allowedNssais:
  Type: array
  Items:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/Snssai'
  minItems: 1
priority:
  Type: integer
  Minimum: 0
  Maximum: 65535
```

```
    capacity:
      Type: integer
      Minimum: 0
      Maximum: 65535
    load:
      Type: integer
      Minimum: 0
      Maximum: 100
    recoveryTime:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/DateTime'
    chfServiceInfo:
      Reference: '#/components/schemas/ChfServiceInfo'
    supportedFeatures:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/SupportedFeatures'
NFType:
  anyOf:
    - type: string
      enum:
        - NRF
        - UDM
        - AMF
        - SMF
        - AUSF
        - NEF
        - PCF
        - SMSF
        - NSSF
        - UDR
        - LMF
        - GMLC
        - 5G_EIR
        - SEPP
        - UPF
        - N3IWF
        - AF
        - UDSF
        - BSF
        - CHF
        - NWDAF
    - type: string
Fqdn:
  Type: string
IpEndPoint:
  Type: object
  Properties:
    ipv4Address:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Ipv4Addr'
    ipv6Address:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Ipv6Addr'
    transport:
      Reference: '#/components/schemas/TransportProtocol'
    port:
      Type: integer
      Minimum: 0
      Maximum: 65535
SubscriptionData:
```

```
    Type: object
    Required:
      - nfStatusNotificationUri
      - subscriptionId
    Properties:
      nfStatusNotificationUri:
        Type: string
      subscrCond:
        oneOf:
          - $ref: '#/components/schemas/NfInstanceIdCond'
          - $ref: '#/components/schemas/NfTypeCond'
          - $ref: '#/components/schemas/ServiceNameCond'
          - $ref: '#/components/schemas/AmfCond'
          - $ref: '#/components/schemas/GuamiListCond'
          - $ref: '#/components/schemas/NetworkSliceCond'
          - $ref: '#/components/schemas/NfGroupCond'
      subscriptionId:
        Type: string
        Pattern: '^([0-9]{5,6}-)?[^-]+$'
        readOnly: true
      validityTime:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/DateTime'
      reqNotifEvents:
        Type: array
        Items:
          Reference: '#/components/schemas/NotificationEventType'
        minItems: 1
      plmnId:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/PlmnId'
      notifCondition:
         Reference: '#/components/schemas/NotifCondition'
      reqNfType:
        Reference: '#/components/schemas/NFType'
      reqNfFqdn:
        Reference: '#/components/schemas/Fqdn'
  NfInstanceIdCond:
    Type: object
    Required:
      - nfInstanceId
    Properties:
      nfInstanceId:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/NfInstanceId'
  NfTypeCond:
    Type: object
    Required:
      - nfType
    Properties:
      nfType:
        Reference: '#/components/schemas/NFType'
  ServiceNameCond:
    Type: object
    Required:
      - serviceName
    Properties:
```

```
    serviceName:
      Reference: '#/components/schemas/ServiceName'
AmfCond:
  Type: object
  anyOf:
    - required: [ amfSetId ]
    - required: [ amfRegionId ]
  Properties:
    amfSetId:
      Type: string
    amfRegionId:
      Type: string
GuamiListCond:
  Type: object
  Required:
    - guamiList
  Properties:
    guamiList:
      Type: array
      Items:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/Guami'
NetworkSliceCond:
  Type: object
  Required:
    - snssaiList
  Properties:
    snssaiList:
      Type: array
      Items:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/Snssai'
    nsiList:
      Type: array
      Items:
        Type: string
NfGroupCond:
  Type: object
  Required:
    - nfType
    - nfGroupId
  Properties:
    nfType:
      Type: string
      enum:
        - UDM
        - AUSF
        - UDR
    nfGroupId:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/NfGroupId'
NotifCondition:
  Type: object
  not:
    Required: [ monitoredAttributes, unmonitoredAttributes ]
  Properties:
```

```
    monitoredAttributes:
      Type: array
      Items:
        Type: string
      minItems: 1
    unmonitoredAttributes:
      Type: array
      Items:
        Type: string
      minItems: 1
UdrInfo:
  Type: object
  Properties:
    groupId:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/NfGroupId'
    supiRanges:
      Type: array
      Items:
        Reference: '#/components/schemas/SupiRange'
      minItems: 1
    gpsiRanges:
      Type: array
      Items:
        Reference: '#/components/schemas/IdentityRange'
      minItems: 1
    externalGroupIdentifiersRanges:
      Type: array
      Items:
        Reference: '#/components/schemas/IdentityRange'
      minItems: 1
    supportedDataSets:
      Type: array
      Items:
        Reference: '#/components/schemas/DataSetId'
      minItems: 1
SupiRange:
  Type: object
  Properties:
    start:
      Type: string
      Pattern: '^[0-9]+$'
    end:
      Type: string
      Pattern: '^[0-9]+$'
    Pattern:
      Type: string
IdentityRange:
  Type: object
  Properties:
    start:
      Type: string
```

```
      Pattern: '^[0-9]+$'
    end:
      Type: string
      Pattern: '^[0-9]+$'
    Pattern:
      Type: string
DataSetId:
  anyOf:
    - type: string
      enum:
        - SUBSCRIPTION
        - POLICY
        - EXPOSURE
        - APPLICATION
    - type: string
UdmInfo:
  Type: object
  Properties:
    groupId:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/NfGroupId'
    supiRanges:
      Type: array
      Items:
        Reference: '#/components/schemas/SupiRange'
      minItems: 1
    gpsiRanges:
      Type: array
      Items:
        Reference: '#/components/schemas/IdentityRange'
      minItems: 1
    externalGroupIdentifiersRanges:
      Type: array
      Items:
        Reference: '#/components/schemas/IdentityRange'
      minItems: 1
    routingIndicators:
      Type: array
      Items:
        Type: string
        Pattern: '^[0-9]{1,4}$'
      minItems: 1
AusfInfo:
  Type: object
  Properties:
    groupId:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/NfGroupId'
    supiRanges:
      Type: array
      Items:
        Reference: '#/components/schemas/SupiRange'
      minItems: 1
    routingIndicators:
      Type: array
```

```
      Items:
        Type: string
        Pattern: '^[0-9]{1,4}$'
      minItems: 1
AmfInfo:
  Type: object
  Required:
    - amfSetId
    - amfRegionId
    - guamiList
  Properties:
    amfSetId:
      Type: string
    amfRegionId:
      Type: string
    guamiList:
      Type: array
      Items:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/Guami'
      minItems: 1
    taiList:
      Type: array
      Items:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/Tai'
      minItems: 1
    taiRangeList:
      Type: array
      Items:
        Reference: '#/components/schemas/TaiRange'
      minItems: 1
    backupInfoAmfFailure:
      Type: array
      Items:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/Guami'
      minItems: 1
    backupInfoAmfRemoval:
      Type: array
      Items:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/Guami'
      minItems: 1
    n2InterfaceAmfInfo:
      Reference: '#/components/schemas/N2InterfaceAmfInfo'
SmfInfo:
  Type: object
  Required:
    - sNssaiSmfInfoList
  Properties:
    sNssaiSmfInfoList:
      Type: array
      Items:
        Reference: '#/components/schemas/SnssaiSmfInfoItem'
      minItems: 1
```

```
    taiList:
      Type: array
      Items:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/Tai'
      minItems: 1
    taiRangeList:
      Type: array
      Items:
        Reference: '#/components/schemas/TaiRange'
      minItems: 1
    pgwFqdn:
      Reference: '#/components/schemas/Fqdn'
    accessType:
      Type: array
      Items:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/AccessType'
      minItems: 1
SnssaiSmfInfoItem:
  Type: object
  Required:
    - sNssai
    - dnnSmfInfoList
  Properties:
    sNssai:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Snssai'
    dnnSmfInfoList:
      Type: array
      Items:
        Reference: '#/components/schemas/DnnSmfInfoItem'
      minItems: 1
DnnSmfInfoItem:
  Type: object
  Required:
    - dnn
  Properties:
    dnn:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Dnn'
UpfInfo:
  Type: object
  Required:
    - sNssaiUpfInfoList
  Properties:
    sNssaiUpfInfoList:
      Type: array
      Items:
        Reference: '#/components/schemas/SnssaiUpfInfoItem'
      minItems: 1
    smfServingArea:
      Type: array
      Items:
        Type: string
      minItems: 1
```

```
    interfaceUpfInfoList:
      Type: array
      Items:
        Reference: '#/components/schemas/InterfaceUpfInfoItem'
      minItems: 1
    iwkEpsInd:
      Type: boolean
      Default: false
SnssaiUpfInfoItem:
  Type: object
  Required:
    - sNssai
    - dnnUpfInfoList
  Properties:
    sNssai:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Snssai'
    dnnUpfInfoList:
      Type: array
      Items:
        Reference: '#/components/schemas/DnnUpfInfoItem'
      minItems: 1
DnnUpfInfoItem:
  Type: object
  Required:
    - dnn
  Properties:
    dnn:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Dnn'
    dnaiList:
      Type: array
      Items:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/Dnai'
      minItems: 1
InterfaceUpfInfoItem:
  Type: object
  Required:
    - interfaceType
  Properties:
    interfaceType:
      Reference: '#/components/schemas/UPInterfaceType'
    ipv4EndpointAddresses:
      Type: array
      Items:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/Ipv4Addr'
      minItems: 1
    ipv6EndpointAddresses:
      Type: array
      Items:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/Ipv6Addr'
      minItems: 1
    endpointFqdn:
        Reference: '#/components/schemas/Fqdn'
```

```
    networkInstance:
      Type: string
UPInterfaceType:
  anyOf:
    - type: string
      enum:
        - N3
        - N6
        - N9
    - type: string
PcfInfo:
  Type: object
  Properties:
    dnnList:
      Type: array
      Items:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/Dnn'
      minItems: 1
    supiRanges:
      Type: array
      Items:
        Reference: '#/components/schemas/SupiRange'
      minItems: 1
    rxDiamHost:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/DiameterIdentity'
    rxDiamRealm:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/DiameterIdentity'
BsfInfo:
  Type: object
  Properties:
    dnnList:
      Type: array
      Items:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/Dnn'
      minItems: 1
    ipDomainList:
      Type: array
      Items:
        Type: string
      minItems: 1
    ipv4AddressRanges:
      Type: array
      Items:
        Reference: '#/components/schemas/Ipv4AddressRange'
      minItems: 1
    ipv6PrefixRanges:
      Type: array
      Items:
        Reference: '#/components/schemas/Ipv6PrefixRange'
      minItems: 1
ChfInfo:
  Type: object
```

```
  Properties:
    supiRangeList:
      Type: array
      Items:
        Reference: '#/components/schemas/SupiRange'
      minItems: 1
    gpsiRangeList:
      Type: array
      Items:
        Reference: '#/components/schemas/IdentityRange'
      minItems: 1
    plmnRangeList:
      Type: array
      Items:
        Reference: '#/components/schemas/PlmnRange'
      minItems: 1
Ipv4AddressRange:
  Type: object
  Properties:
    start:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/Ipv4Addr'
    end:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/Ipv4Addr'
Ipv6PrefixRange:
  Type: object
  Properties:
    start:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/Ipv6Prefix'
    end:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/Ipv6Prefix'
DefaultNotificationSubscription:
  Type: object
  Required:
    - notificationType
    - callbackUri
  Properties:
    notificationType:
      Reference: '#/components/schemas/NotificationType'
    callbackUri:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Uri'
    n1MessageClass:
      Reference: 'TS29518_Namf_Communication.yaml#/components/schemas/N1MessageClass'
    n2InformationClass:
     Reference: 'TS29518_Namf_Communication.yaml#/components/schemas/N2InformationClass'

NotificationType:
  anyOf:
    - type: string
      enum:
        - N1_MESSAGES
        - N2_INFORMATION
        - LOCATION_NOTIFICATION
        - DATA_REMOVAL_NOTIFICATION
```

```
        - DATA_CHANGE_NOTIFICATION
    - type: string
TransportProtocol:
  anyOf:
    - type: string
      enum:
        - TCP
    - type: string
NotificationEventType:
  anyOf:
    - type: string
      enum:
        - NF_REGISTERED
        - NF_DEREGISTERED
        - NF_PROFILE_CHANGED
    - type: string
NotificationData:
  Type: object
  Required:
    - event
    - nfInstanceUri
  allOf:
    - anyOf:
      - not:
          Properties:
            event:
              Type: string
              enum:
                - NF_PROFILE_CHANGED
      - oneOf:
          - required: [ nfProfile ]
          - required: [ profileChanges ]
    - anyOf:
      - not:
          Properties:
            event:
              Type: string
              enum:
                - NF_REGISTERED
      - required: [ nfProfile ]
  Properties:
    event:
      Reference: '#/components/schemas/NotificationEventType'
    nfInstanceUri:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Uri'
    nfProfile:
      allOf:
        - $ref: '#/components/schemas/NFProfile'
        - not:
            Required: [ interPlmnFqdn ]
        - properties:
            nfServices:
              Type: array
              Items:
                allOf:
                  - $ref: '#/components/schemas/NFService'
                  - not:
```

```
                    Required: [ interPlmnFqdn ]
                - not:
                    Required: [ allowedPlmns ]
                - not:
                    Required: [ allowedNfTypes ]
                - not:
                    Required: [ allowedNfDomains ]
                - not:
                    Required: [ allowedNssais ]
    profileChanges:
      Type: array
      Items:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/ChangeItem'
      minItems: 1
NFStatus:
  anyOf:
    - type: string
      enum:
        - REGISTERED
        - SUSPENDED
    - type: string
NFServiceVersion:
  Type: object
  Required:
    - apiVersionInUri
    - apiFullVersion
  Properties:
    apiVersionInUri:
      Type: string
    apiFullVersion:
      Type: string
    expiry:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/DateTime'
ServiceName:
  anyOf:
    - type: string
      enum:
        - nnrf-nfm
        - nnrf-disc
        - nudm-sdm
        - nudm-uecm
        - nudm-ueau
        - nudm-ee
        - nudm-pp
        - namf-comm
        - namf-evts
        - namf-mt
        - namf-loc
        - nsmf-pdusession
        - nsmf-event-exposure
        - nausf-auth
        - nausf-sorprotection
        - nnef-pfdmanagement
        - npcf-am-policy-control
        - npcf-smpolicycontrol
        - npcf-policyauthorization
        - npcf-bdtpolicycontrol
        - npcf-eventexposure
```

```
        - npcf-ue-policy-control
        - nsmsf-sms
        - nnssf-nsselection
        - nnssf-nssaiavailability
        - nudr-dr
        - nlmf-loc
        - n5g-eir-eic
        - nbsf-management
        - nchf-spendinglimitcontrol
        - nchf-convergedcharging
        - nnwdaf-eventssubscription
        - nnwdaf-analyticsinfo
    - type: string
N2InterfaceAmfInfo:
  Type: object
  Properties:
    ipv4EndpointAddress:
      Type: array
      Items:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/Ipv4Addr'
      minItems: 1
    ipv6EndpointAddress:
      Type: array
      Items:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/Ipv6Addr'
      minItems: 1
    amfName:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/AmfName'
NFServiceStatus:
  anyOf:
    - type: string
      enum:
        - REGISTERED
        - SUSPENDED
    - type: string
TaiRange:
  Type: object
  Required:
    - plmnId
    - tacRangeList
  Properties:
    plmnId:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/PlmnId'
    tacRangeList:
      Type: array
      Items:
        Reference: '#/components/schemas/TacRange'
      minItems: 1
TacRange:
  Type: object
  Properties:
    start:
      Type: string
      Pattern: '^([A-Fa-f0-9]{4}|[A-Fa-f0-9]{6})$'
    end:
```

```
      Type: string
      Pattern: '^([A-Fa-f0-9]{4}|[A-Fa-f0-9]{6})$'
    Pattern:
      Type: string
ChfServiceInfo:
  Type: object
  not:
    Required: [ primaryChfServiceInstance, secondaryChfServiceInstance ]
  Properties:
    primaryChfServiceInstance:
      Type: string
    secondaryChfServiceInstance:
      Type: string
PlmnRange:
  Type: object
  Properties:
    start:
      Type: string
      Pattern: '^[0-9]{3}[0-9]{2,3}$'
    end:
      Type: string
      Pattern: '^[0-9]{3}[0-9]{2,3}$'
    Pattern:
      Type: string
NrfInfo:
  Type: object
  Properties:
    servedUdrInfo:
      Type: object
      additionalProperties:
        Reference: '#/components/schemas/UdrInfo'
      minProperties: 1
    servedUdmInfo:
      Type: object
      additionalProperties:
        Reference: '#/components/schemas/UdmInfo'
      minProperties: 1
    servedAusfInfo:
      Type: object
      additionalProperties:
        Reference: '#/components/schemas/AusfInfo'
      minProperties: 1
    servedAmfInfo:
      Type: object
      additionalProperties:
        Reference: '#/components/schemas/AmfInfo'
      minProperties: 1
    servedSmfInfo:
      Type: object
      additionalProperties:
        Reference: '#/components/schemas/SmfInfo'
```

```
    minProperties: 1
  servedUpfInfo:
    Type: object
    additionalProperties:
      Reference: '#/components/schemas/UpfInfo'
    minProperties: 1
  servedPcfInfo:
    Type: object
    additionalProperties:
      Reference: '#/components/schemas/PcfInfo'
    minProperties: 1
  servedBsfInfo:
    Type: object
    additionalProperties:
      Reference: '#/components/schemas/BsfInfo'
    minProperties: 1
  servedChfInfo:
    Type: object
    additionalProperties:
      Reference: '#/components/schemas/ChfInfo'
    minProperties: 1
```

# External Docs

```
Description: 3GPP TS 29.510 V15.2.0; 5G System; Network Function Repository Services;
Stage 3
URL: 'http://www.3gpp.org/ftp/Specs/archive/29_series/29.510/'
```