Nnrf_NFDiscovery

The Nnrf_NFDiscovery service allows a Network Function Instance to discover services offered by other Network Function Instances, by querying the local NRF.

It also allows an NRF in a PLMN to re-issue a discovery request towards an NRF in another PLMN (e.g., the HPLMN of a certain UE).

Reference: 3GPP TS 29.510 version 15.0.0 Release 15

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OpenAPI

OpenAPI Version: 3.0.0

Info

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

Servers

```
URL: '{apiRoot}/nnrf-disc/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-disc
```

Paths

/nf-instances

```
  get:
    Summary: Search a collection of NF Instances
    Operation ID: SearchNFInstances

    Tags:
      - NF Instances (Store)

    Parameters:
      - Name: target-nf-type
        In: query
        Description: Type of the target NF
        Required/Optional: true
        Schema:
          Reference: 'TS29510_Nnrf_NFManagement.yaml#/components/schemas/NFType'
      - Name: requester-nf-type
        In: query
        Description: Type of the requester NF
        Required/Optional: true
        Schema:
          Reference: 'TS29510_Nnrf_NFManagement.yaml#/components/schemas/NFType'
      - Name: service-names
        In: query
        Description: Name of the service offered by the NF
        Schema:
          Type: array
          Items:
            Type: string
          Min Items: 1
        Style: form
        Explode: false
      - Name: requester-nf-instance-fqdn
        In: query
        Description: FQDN of the requester NF
        Schema:
```

```
      Reference: 'TS29510_Nnrf_NFManagement.yaml#/components/schemas/Fqdn'
  - Name: target-plmn-list
    In: query
    Description: Id of the PLMN where the target NF is located
    Content:
      Application/JSON:
        Schema:
          Type: array
          Items:
            Reference: 'TS29571_CommonData.yaml#/components/schemas/PlmnId'
          Min Items: 1
  - Name: requester-plmn-list
    In: query
   Description: Id of the PLMN where the NF issuing the Discovery request is located

    Content:
      Application/JSON:
        Schema:
          Type: array
          Items:
            Reference: 'TS29571_CommonData.yaml#/components/schemas/PlmnId'
          Min Items: 1
  - Name: target-nf-instance-id
    In: query
    Description: Identity of the NF instance being discovered
    Schema:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/NfInstanceId'
  - Name: target-nf-fqdn
    In: query
    Description: FQDN of the NF instance being discovered
    Schema:
      Reference: 'TS29510_Nnrf_NFManagement.yaml#/components/schemas/Fqdn'
  - Name: hnrf-uri
    In: query
    Description: Uri of the home NRF
    Schema:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Uri'
  - Name: snssais
    In: query
    Description: Slice info of the target NF
    Content:
      Application/JSON:
        Schema:
          Type: array
          Items:
            Reference: 'TS29571_CommonData.yaml#/components/schemas/Snssai'
          Min Items: 1
  - Name: dnn
    In: query
    Description: Dnn supported by the BSF, SMF or UPF
    Schema:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/Dnn'
```

```
- Name: nsi-list
  In: query
  Description: NSI IDs that are served by the services being discovered
  Schema:
    Type: array
    Items:
      Type: string
    Min Items: 1
  Style: form
  Explode: false
- Name: smf-serving-area
  In: query
  Schema:
    Type: string
- Name: tai
  In: query
  Description: Tracking Area Identity
  Content:
    Application/JSON:
      Schema:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/Tai'
- Name: amf-region-id
  In: query
  Description: AMF Region Identity
  Schema:
    Type: string
- Name: amf-set-id
  In: query
  Description: AMF Set Identity
  Schema:
    Type: string
- Name: guami
  In: query
  Description: Guami used to search for an appropriate AMF
  Schema:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/Guami'
- Name: supi
  In: query
  Description: SUPI of the user
  Schema:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/Supi'
- Name: ue-ipv4-address
  In: query
  Description: IPv4 address of the UE
  Schema:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/Ipv4Addr'
- Name: ip-domain
  In: query
  Description: IP domain of the UE, which supported by BSF
  Schema:
    Type: string
```

```
- Name: ue-ipv6-prefix
  In: query
  Description: IPv6 prefix of the UE
  Schema:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/Ipv6Prefix'
- Name: pgw-ind
  In: query
  Description: Combined PGW-C and SMF or a standalone SMF
  Schema:
    Type: boolean
- Name: pgw
  In: query
  Description: PGW FQDN of a combined PGW-C and SMF
  Schema:
    Reference: 'TS29510_Nnrf_NFManagement.yaml#/components/schemas/Fqdn'
- Name: gpsi
  In: query
  Description: GPSI of the user
  Schema:
    Reference: 'TS29571_CommonData.yaml#/components/schemas/Gpsi'
- Name: external-group-identity
  In: query
  Description: external group identifier of the user
  Schema:
    Type: string
- Name: data-set
  In: query
  Description: data set supported by the NF
  Schema:
    Reference: 'TS29510_Nnrf_NFManagement.yaml#/components/schemas/DataSetId'
- Name: routing-indicator
  In: query
  Description: routing indicator in SUCI
  Schema:
    Type: string
    pattern: '^[0-9]{1,4}$'
- Name: group-id-list
  In: query
  Description: Group IDs of the NFs being discovered
  Schema:
    Type: array
    Items:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/NfGroupId'
    Min Items: 1
  Style: form
  Explode: false
- Name: dnai-list
  In: query
  Description: Data network access identifiers of the NFs being discovered
  Schema:
    Type: array
```

```
        Items:
          Reference: 'TS29571_CommonData.yaml#/components/schemas/Dnai'
        Min Items: 1
      Style: form
      Explode: false
    - Name: supported-features
      In: query
      Description: Features required to be supported by the target NF
      Schema:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/SupportedFeatures'
    - Name: upf-iwk-eps-ind
      In: query
      Description: UPF supporting interworking with EPS or not
      Schema:
        Type: boolean
    - Name: chf-supported-plmn
      In: query
      Description: PLMN ID supported by a CHF
      Content:
        Application/JSON:
          Schema:
            Reference: 'TS29571_CommonData.yaml#/components/schemas/PlmnId'
    - Name: preferred-locality
      In: query
      Description: preferred target NF location
      Schema:
        Type: string
    - Name: access-type
      In: query
      Description: AccessType supported by the target NF
      Schema:
        Reference: 'TS29571_CommonData.yaml#/components/schemas/AccessType'
    - Name: If-None-Match
      In: header
      Description: Validator for conditional requests, as described in IETF RFC 7232,
3.2
      Schema:
        Type: string

  Responses:
    '200':
      Description: Expected response to a valid request
      Content:
        Application/JSON:
          Schema:
            Reference: '#/components/schemas/SearchResult'
      Headers:
        Cache-Control:
          Description: Cache-Control containing max-age, described in IETF RFC 7234,
5.2
          Schema:
            Type: string
```

```
        ETag:
          Description: Entity Tag containing a strong validator, described in IETF RFC
7232, 2.3
          Schema:
            Type: string
      '307':
        Description: Temporary Redirect
      '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-disc: Access to the Nnrf_NFDiscovery API

schemas:
  SearchResult:
    Type: object
    Required:
      - nfInstances
    Properties:
      validityPeriod:
        Type: integer
      nfInstances:
        Type: array
        Items:
```

```
        Reference: '#/components/schemas/NFProfile'
    NFProfile:
      Type: object
      Required:
        - nfInstanceId
        - nfType
        - nfStatus
      Properties:
        nfInstanceId:
          Reference: 'TS29571_CommonData.yaml#/components/schemas/NfInstanceId'
        nfType:
          Reference: 'TS29510_Nnrf_NFManagement.yaml#/components/schemas/NFType'
        nfStatus:
          Reference: 'TS29510_Nnrf_NFManagement.yaml#/components/schemas/NFStatus'
        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: 'TS29510_Nnrf_NFManagement.yaml#/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
        capacity:
          Type: integer
          Minimum: 0
          Maximum: 65535
        load:
          Type: integer
          Minimum: 0
          Maximum: 100
        locality:
          Type: string
        priority:
```

```
      Type: integer
      Minimum: 0
      Maximum: 65535
    udrInfo:
      Reference: 'TS29510_Nnrf_NFManagement.yaml#/components/schemas/UdrInfo'
    udmInfo:
      Reference: 'TS29510_Nnrf_NFManagement.yaml#/components/schemas/UdmInfo'
    ausfInfo:
      Reference: 'TS29510_Nnrf_NFManagement.yaml#/components/schemas/AusfInfo'
    amfInfo:
      Reference: 'TS29510_Nnrf_NFManagement.yaml#/components/schemas/AmfInfo'
    smfInfo:
      Reference: 'TS29510_Nnrf_NFManagement.yaml#/components/schemas/SmfInfo'
    upfInfo:
      Reference: 'TS29510_Nnrf_NFManagement.yaml#/components/schemas/UpfInfo'
    pcfInfo:
      Reference: 'TS29510_Nnrf_NFManagement.yaml#/components/schemas/PcfInfo'
    bsfInfo:
      Reference: 'TS29510_Nnrf_NFManagement.yaml#/components/schemas/BsfInfo'
    chfInfo:
      Reference: 'TS29510_Nnrf_NFManagement.yaml#/components/schemas/ChfInfo'
    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: 'TS29510_Nnrf_NFManagement.yaml#/components/schemas/ServiceName'
    versions:
      Type: array
      Items:
       Reference: 'TS29510_Nnrf_NFManagement.yaml#/components/schemas/NFServiceVersion'

      minItems: 1
    scheme:
```

```
      Reference: 'TS29571_CommonData.yaml#/components/schemas/UriScheme'
    nfServiceStatus:
      Reference: 'TS29510_Nnrf_NFManagement.yaml#/components/schemas/NFServiceStatus'
    fqdn:
      Reference: 'TS29510_Nnrf_NFManagement.yaml#/components/schemas/Fqdn'
    ipEndPoints:
      Type: array
      Items:
        Reference: 'TS29510_Nnrf_NFManagement.yaml#/components/schemas/IpEndPoint'
      minItems: 1
    apiPrefix:
      Type: string
    defaultNotificationSubscriptions:
      Type: array
      Items:
        Reference:
'TS29510_Nnrf_NFManagement.yaml#/components/schemas/DefaultNotificationSubscription'
      minItems: 1
    capacity:
      Type: integer
      Minimum: 0
      Maximum: 65535
    load:
      Type: integer
      Minimum: 0
      Maximum: 100
    priority:
      Type: integer
      Minimum: 0
      Maximum: 65535
    recoveryTime:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/DateTime'
    chfServiceInfo:
      Reference: 'TS29510_Nnrf_NFManagement.yaml#/components/schemas/ChfServiceInfo'
    supportedFeatures:
      Reference: 'TS29571_CommonData.yaml#/components/schemas/SupportedFeatures'
```

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/'
```