



# Nnrf\_NFDiscovery

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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: hnrfr-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_NFDDiscovery 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/](http://www.3gpp.org/ftp/Specs/archive/29_series/29.510/)'