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| CHANGE REQUEST

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| Meeting ID:\* |  SDS #57 |
| Source:\* | Poornima Shandilya, C-DOT, poornima@cdot.inNeeta Meshram, C-DOT, neeta@cdot.inAnupama Chopra, C-DOT, anupama@cdot.in |
| Date:\* | 2022-11-22 |
| Reason for Change/s:\* | New Attribute in SSN resource |
| CR against: Release\* | Release 4 |
| CR against: WI\* | [ ]  Active WI-xxxx[x]  MNT maintenance / < Work Item number(optional)>Is this a mirror CR? Yes [ ]  No [ ] mirror CR number: (Note to Rapporteur - use latest agreed revision)[ ]  STE Small Technical Enhancements / < Work Item number (optional)>Only ONE of the above shall be ticked |
| CR against: TS/TR\* | TS-0026 v4.6 |
| Clauses \* | 7.1.1.1 |
| Type of change: \* | [ ]  Editorial change[x]  Bug Fix or Correction[ ]  Change to existing feature or functionality[ ]  New feature or functionalityOnly ONE of the above shall be ticked |
| Impacted other TS/TR(s) | TS-0001, TS-0004 |
| Post Freeze checking:\* | This CR contains only essential changes and corrections? YES [x]  NO [ ] This CR may break backwards compatibility with the last approved version of the TS? YES [ ]  NO [x]  |
| Template Version: January 2017 (Do not modify) |

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GUIDELINES for Change Requests:

Provide an informative introduction containing the problem(s) being solved, and a summary list of proposals.

Each CR should contain changes related to only one particular issue/problem.

In case of a correction, and the change apply to previous releases, a separate “mirror CR” should be posted at the same time of this CR

Mirror CR: applies only when the text, including clause numbering are exactly the same.

Companion CR: applies when the change means the same but the baselines differ in some way (e.g. clause number).

Follow the principle of completeness, where all changes related to the issue or problem within a deliverable are simultaneously proposed to be made E.g. A change impacting 5 tables should not only include a proposal to change only 3 tables. Includes any changes to references, definitions, and acronyms in the same deliverable.

Follow the drafting rules.

All pictures must be editable.

Check spelling and grammar to the extent practicable.

Use Change bars for modifications.

The change should include the current and surrounding clauses to clearly show where a change is located and to provide technical context of the proposed change. Additions of complete clauses need not show surrounding clauses as long as the proposed clause number clearly shows where the new clause is proposed to be located.

Multiple changes in a single CR shall be clearly separated by horizontal lines with embedded text such as, start of change 1, end of change 1, start of new clause, end of new clause.

When subsequent changes are made to content of a CR, then the accepted version should not show changes over changes. The accepted version of the CR should only show changes relative to the baseline approved text.

Introduction

According to TS-0026 cluase 7.1.1.1,

### 7.1.1.1 SCEF Configuration for NIDD

The 3GPP SCEF Non-IP Data Delivery (NIDD) functionality supports an API to allow the exchange of Non-IP data between an IN-CSE and an MN-CSE, ADN-AE, or ASN-CSE hosted on a UE. Via this SCEF NIDD API, an IN-CSE may exchange oneM2M request and response primitives with an MN-CSE, ADN-AE, or ASN-CSE hosted on a UE.

NOTE: The exchange of oneM2M primitives over the Mcn reference point via NIDD is an extension upon the capability defined within oneM2M TS-0001[1] and oneM2M TS-0004 [3] to exchange oneM2M primitives over the Mca and Mcc reference points. The same procedures defined by oneM2M TS-0001[1] and oneM2M TS-0004 [3] for exchanging oneM2M primitives over the Mca and Mcc are also applicable to Mcn via NIDD unless otherwise stated in this document.

The SCEF NIDD API supports an NIDD Configuration procedure that may be used by the IN-CSE to inform the SCEF that it expects Non-IP Data from a UE hosting an MN-CSE, ADN-AE, or ASN-CSE. Figure 7.1.1.1-1 illustrates this procedure. If the NIDD Configuration procedure is performed, the IN-CSE should perform the procedure before a UE attaches and attempts to establish a Non-IP PDN connection to the SCEF.



**Figure 7.1.1.1-1: NIDD Configuration Request**

**Pre-conditions:**

The IN-CSE is configured with the *M2M-Ext-ID* of a UE and an indication that the ASN/MN-CSE or ADN-AE hosted on this UE uses NIDD to exchange oneM2M primitives with the IN-CSE. This information is configured in the *nodeID* and *niddRequired* attributes, respectively of the <*serviceSubscribedNode*> resource corresponding to the UE.

There is a relationship in place between the Service Provider and MNO allowing the IN-CSE to perform NIDD Configuration Requests to the underlying 3GPP network. The method for establishing this relationship is outside the scope of the present document.

**Step 1: IN-CSE determines to issue NIDD Configuration Request**

If the *niddRequired* attribute of a <*serviceSubscribedNode*> resource associated with a UE hosting an ASN/MN-CSE or ADN-AE is set to TRUE, then the IN-CSE shall issue a NIDD Configuration Request to the proper SCEF.

**Step 2 (Optional): DNS Query/Response**

To determine which SCEF to contact, an IN-CSE may determine the IP address(es)/port(s) of the proper SCEF by performing a DNS query using the *M2M-Ext-ID* of the UE hosting the ASN/MN-CSE or ADN-AE. This *M2M-Ext-ID* shall be configured in the *nodeID* attribute of the <*serviceSubscribedNode*> resource associated with the UE. Alternatively, an IN-CSE may use a pre-configured SCEF identifier. The method for pre-configuring a SCEF identifier into the IN-CSE is outside the scope of the present document.

**Step 3: NIDD Configuration Request**

The IN-CSE issues a NIDD Configuration Request for a particular ASN/MN-CSE or ADN-AE hosted on a UE. The request is configured as follows.

* An HTTP POST method shall be used
* *URI* shall be set to *{apiRoot}/3gpp-nidd/v1/{scsAsId}/configurations/*. The *{apiRoot}* and *{scsAsId}* segments are configured based on Service Provider and MNO policies.
* The request payload shall include a *NiddConfiguration* data structure as specified in 3GPP TS 29.122 [4] with the following attributes:
	+ *externalId* shall be set to the *M2M-Ext-ID* of the UE hosting the targeted ASN/MN-CSE or ADN-AE.
	+ *notificationDestination* shall be set to a URI of the IN-CSE that the SCEF will deliver MO NIDD data to.
	+ *duration* specifies the lifetime of the NIDD Configuration and shall be set per SLA between the Service Provider and MNO. The SCEF may change the NIDD *duration* value.
	+ *pdnEstablishmentOption* may be used to indicate the IN-CSE’s default preference for how the SCEF should process a MT NIDD Request from the IN-CSE if the UE has not yet established a Non-IP PDN connection to the SCEF. This value shall be set based on SLA with the MNO.
	+ *reliableDataService* shall be set to TRUE or FALSE to indicate that the Reliable Data Service is enabled or disabled based on IN-CSE preferences.
	+ *rdsPorts* shall be set to the source and destination ports used for MO and MT NIDD between the IN-CSE and the ASN/MN-CSE or ADN-AE hosted on the UE. This field shall be set if *reliableDataService* is set to TRUE.
	+ *supportedFeatures* shall be set to a string value of “0” indicating no support for group message delivery over NIDD, NIDD notifications over Websocket, testing of NIDD notifications or MT\_NIDD\_modification\_cancellation.
	+ *msisdn, requestTestNotification, websockNotifConfig and niddDownlinkDataTransfers* are not supported by the present document and shall not be included.

**Step 4: Process NIDD Configuration Request**

The SCEF processes the request.

**Step 5: NIDD Configuration Response**

If the NIDD Configuration Request is successfully processed, the SCEF responds indicating the request was accepted. The message includes the following information.

* A response code of 201 CREATED
* The *URI* of the NIDD Configuration resource created by the SCEF.The *URI* is returned in the HTTP Location header with a format of *{apiRoot}/3gpp-nidd/v1/{scsAsId}/configurations/{configurationId}*. The *{apiRoot}* and *{scsAsId}* segments are configured based on Service Provider and MNO policies. The *{configurationId}* segment is configured by the SCEF.
* The response payload will include a *NiddConfiguration* data structure as specified in 3GPP TS 29.122 [4] that includes the attributes present in the request along with the following additional attributes:
	+ *maximumPacketSize* is set to the maximum supported NIDD packet size that can be transferred to the UE by the SCEF. This value is configured by the SCEF per SLA with the MNO.
	+ *status* is set to a value that indicates the NIDD configuration status (e.g. ACTIVE)
	+ *self* is configured with a URI to the resource created by the SCEF for the request

If the response indicates that the request was accepted, the IN-CSE shall use the *maximumPacketSize* as a limit on the maximum size MT NIDD Request it shall initiate towards the corresponding UE specified in the NIDD Configuration Request.

If the NIDD Configuration Request results in an error, the IN-CSE shall not use NIDD for the corresponding UE until the error is resolved. See clause 8.3 for a list of possible error scenarios.

**Step 6 (Optional): NIDD Configuration Delete Request**

If the IN-CSE detects that <*serviceSubscribedNode*> is deleted or the <*serviceSubscribedNode*> *niddRequired* attribute is updated to FALSE, then the IN-CSE shall issue a NIDD Configuration Delete Request for the UE. The request is configured as follows.

* An HTTP DELETE method shall be used
* *URI* shall be set to *{apiRoot}/3gpp-nidd/v1/{scsAsId}/configurations/{configurationId}*. The *{apiRoot}* and *{scsAsId}* segments are configured based on Service Provider and MNO policies. The {*configurationId*} corresponds to the one configured by the SCEF and returned to the IN-CSE when the NIDD Configuration was created.
* The request shall not contain a payload

**Step 7 (Optional): Process NIDD Configuration Delete Request**

The SCEF processes the request.

**Step 8 (Optional): NIDD Configuration Delete Response**

The SCEF responds with a 204 NO CONTENT that indicates the NIDD Configuration was cancelled.

This CR addresses the issue <https://git.onem2m.org/issues/issues/-/issues/61> .

According to highlighted text, There is no attribute at IN-CSE which provides information that whether NIDD configuration was successful or not. This CR proposes to add new Attribute NIDDConfigStatus which can hold two values 'Success' when NIDD configuration is successful and 'Failed' when NIDD configuration is failed.

Currently NIDD Configuration DELETE procedure is included inside the NIDD Configuration Create procedure and DELETE procedure is mentioned optional. But this should not be the case as two are separate procedures and should be written separately with figures. In this CR these procedural changes are done and two clauses are created:

NIDD Configuration Request

NIDD Configuration Delete Request

R01:

Following points were discussed:

Whether UE comes first or SSN creation happens first

“This information is configured in the *nodeID* and *niddRequired* attributes, respectively of the <*serviceSubscribedNode*> resource corresponding to the UE.” whether the resource is already created or it means that it is being configured in the request resource representation.

NiddConfigStatus name is to be aligned.

NiddRequired attribute is not present in create request but later it gets created??

NiddRequired attribute is not present in the resource but later it gets deleted??

Note: Above 2 cases need to be handled in TS-0004

R02:

NIDD Configuration Diagram edit for Create and Delete procedure.

Change to incorporate NIDD configuration shall start only after SSN resource is created.

Handling corresponding to values of *niddConfigStatus* proposed in TS-0004 addded.

R03

INTIALISED to IN-PROCESS

IN-PROCESS is added when nidd configuration delete request is issued.

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Start of Change 1 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### 7.1.1.1 SCEF Configuration for NIDD

### 7.1.1.1.0 Introduction

The 3GPP SCEF Non-IP Data Delivery (NIDD) functionality supports an API to allow the exchange of Non-IP data between an IN-CSE and an MN-CSE, ADN-AE, or ASN-CSE hosted on a UE. Via this SCEF NIDD API, an IN-CSE may exchange oneM2M request and response primitives with an MN-CSE, ADN-AE, or ASN-CSE hosted on a UE.

NOTE: The exchange of oneM2M primitives over the Mcn reference point via NIDD is an extension upon the capability defined within oneM2M TS-0001[1] and oneM2M TS-0004 [3] to exchange oneM2M primitives over the Mca and Mcc reference points. The same procedures defined by oneM2M TS-0001[1] and oneM2M TS-0004 [3] for exchanging oneM2M primitives over the Mca and Mcc are also applicable to Mcn via NIDD unless otherwise stated in this document.

The SCEF NIDD API supports an NIDD Configuration procedure that may be used by the IN-CSE to inform the SCEF that it expects Non-IP Data from a UE hosting an MN-CSE, ADN-AE, or ASN-CSE. Figure 7.1.1.1-1 illustrates this procedure. If the NIDD Configuration procedure is performed, the IN-CSE should perform the procedure before a UE attaches and attempts to establish a Non-IP PDN connection to the SCEF.

### 7.1.1.1.1 NIDD Configuration Request



**Figure 7.1.1.1-1: NIDD Configuration Request**

**Pre-conditions:**

The IN-CSE is configured with the *M2M-Ext-ID* of a UE and an indication that the ASN/MN-CSE or ADN-AE hosted on this UE uses NIDD to exchange oneM2M primitives with the IN-CSE. This information is configured in the *nodeID* and *niddRequired* attributes, respectively of the <*serviceSubscribedNode*> resource corresponding to the UE.

There is a relationship in place between the Service Provider and MNO allowing the IN-CSE to perform NIDD Configuration Requests to the underlying 3GPP network. The method for establishing this relationship is outside the scope of the present document.

**Step 1: IN-CSE determines to issue NIDD Configuration Request**

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NIDD Configuration Request to the proper SCEF is to be issued if any of the following occurs:

* When <*serviceSubscribedNode*> resource is created with *niddRequired* attribute set to TRUE.
* When <*serviceSubscribedNode*> resource with *niddRequired* attribute set to FALSE is present and there is UPDATE request for <*serviceSubscribedNode*> resource to set *niddRequired* attribute to TRUE.
* When <*serviceSubscribedNode*> resource with *niddRequired* attribute set to TRUE and *niddConfigStatus* attribute either set to ‘FAILED’ or ‘DELETED’ is present and there is UPDATE request for <*serviceSubscribedNode*> resource to set *niddRequired* attribute to TRUE.

**Step 2 (Optional): DNS Query/Response**

To determine which SCEF to contact, an IN-CSE may determine the IP address(es)/port(s) of the proper SCEF by performing a DNS query using the *M2M-Ext-ID* of the UE hosting the ASN/MN-CSE or ADN-AE. This *M2M-Ext-ID* shall be configured in the *nodeID* attribute of the <*serviceSubscribedNode*> resource associated with the UE. Alternatively, an IN-CSE may use a pre-configured SCEF identifier. The method for pre-configuring a SCEF identifier into the IN-CSE is outside the scope of the present document.

**Step 3: NIDD Configuration Request**

The IN-CSE issues a NIDD Configuration Request for a particular ASN/MN-CSE or ADN-AE hosted on a UE. The request is configured as follows.

* An HTTP POST method shall be used
* *URI* shall be set to *{apiRoot}/3gpp-nidd/v1/{scsAsId}/configurations/*. The *{apiRoot}* and *{scsAsId}* segments are configured based on Service Provider and MNO policies.
* The request payload shall include a *NiddConfiguration* data structure as specified in 3GPP TS 29.122 [4] with the following attributes:
	+ *externalId* shall be set to the *M2M-Ext-ID* of the UE hosting the targeted ASN/MN-CSE or ADN-AE.
	+ *notificationDestination* shall be set to a URI of the IN-CSE that the SCEF will deliver MO NIDD data to.
	+ *duration* specifies the lifetime of the NIDD Configuration and shall be set per SLA between the Service Provider and MNO. The SCEF may change the NIDD *duration* value.
	+ *pdnEstablishmentOption* may be used to indicate the IN-CSE’s default preference for how the SCEF should process a MT NIDD Request from the IN-CSE if the UE has not yet established a Non-IP PDN connection to the SCEF. This value shall be set based on SLA with the MNO.
	+ *reliableDataService* shall be set to TRUE or FALSE to indicate that the Reliable Data Service is enabled or disabled based on IN-CSE preferences.
	+ *rdsPorts* shall be set to the source and destination ports used for MO and MT NIDD between the IN-CSE and the ASN/MN-CSE or ADN-AE hosted on the UE. This field shall be set if *reliableDataService* is set to TRUE.
	+ *supportedFeatures* shall be set to a string value of “0” indicating no support for group message delivery over NIDD, NIDD notifications over Websocket, testing of NIDD notifications or MT\_NIDD\_modification\_cancellation.

*msisdn, requestTestNotification, websockNotifConfig and niddDownlinkDataTransfers* are not supported by the present document and shall not be included.When NIDD configuration request is sent, IN-CSE shall set *niddConfigStatus* to ‘IN\_PROCESS’.

**Step 4: Process NIDD Configuration Request**

The SCEF processes the request.

**Step 5: NIDD Configuration Response**

If the NIDD Configuration Request is successfully processed, the SCEF responds indicating the request was accepted. The message includes the following information.

* A response code of 201 CREATED
* The *URI* of the NIDD Configuration resource created by the SCEF.The *URI* is returned in the HTTP Location header with a format of *{apiRoot}/3gpp-nidd/v1/{scsAsId}/configurations/{configurationId}*. The *{apiRoot}* and *{scsAsId}* segments are configured based on Service Provider and MNO policies. The *{configurationId}* segment is configured by the SCEF.
* The response payload will include a *NiddConfiguration* data structure as specified in 3GPP TS 29.122 [4] that includes the attributes present in the request along with the following additional attributes:
	+ *maximumPacketSize* is set to the maximum supported NIDD packet size that can be transferred to the UE by the SCEF. This value is configured by the SCEF per SLA with the MNO.
	+ *status* is set to a value that indicates the NIDD configuration status (e.g. ACTIVE)
	+ *self* is configured with a URI to the resource created by the SCEF for the request

If the response indicates that the request was accepted, the IN-CSE shall set *niddConfigStatus* attribute to 'CREATED' and the IN-CSE shall use the *maximumPacketSize* as a limit on the maximum size MT NIDD Request it shall initiate towards the corresponding UE specified in the NIDD Configuration Request.

### If the NIDD Configuration Request results in an error, the IN-CSE shall set *niddConfigStatus* attribute to 'FAILED' and The IN-CSE shall not use NIDD for the corresponding UE until the error is resolved. See clause 8.3 for a list of possible error scenarios. 7.1.1.1.2 NIDD Configuration Delete Request

**4. NIDD Configuration**

**Delete Response**

**Mca**

**3GPP UE**

**(ASN/MN**

**-**

**CSE**

**or ADN**

**-**

**AE)**

**3GPP Network**

**Entities**

**3GPP**

**SCEF**

**DNS**

**SCS**

**(IN**

**-**

**CSE)**

**Mcn**

**-**

**IN**

**-**

**AE**

**Mcc**

**1.**

**IN**

**-**

**CSE determines to**

**Issue NIDD Configuration**

**DELETE Request**

**2. NIDD Configuration**

**Delete Request**

**3. Process NIDD Configuration**

**Delete Request**

**.**

Figure 7.1.1.1-2: NIDD Configuration Delete Request

**Step 1: IN-CSE determines to issue NIDD Configuration Delete Request**

. The IN-CSE shall issue a NIDD Configuration Delete Request to the proper SCEF if any one of the following occurs:

* When there is a DELETE request for <*serviceSubscribedNode*> resource with value of *niddConfigStatus* attribute set to ‘CREATED’ in <*serviceSubscribedNode*> resource.
* When <*serviceSubscribedNode*> resource with *niddRequired* attribute set to TRUE and value of *niddConfigStatus* attribute set to ‘CREATED’ in <*serviceSubscribedNode*> resource and there is an UPDATE request for <*serviceSubscribedNode*> resource to set the *niddRequired* attribute to FALSE .

**Step 2 : NIDD Configuration Delete Request**

If the IN-CSE detects that <*serviceSubscribedNode*> is deleted or the <*serviceSubscribedNode*> *niddRequired* attribute is updated to FALSE, then the IN-CSE shall issue a NIDD Configuration Delete Request for the UE. The request is configured as follows.

* An HTTP DELETE method shall be used
* *URI* shall be set to *{apiRoot}/3gpp-nidd/v1/{scsAsId}/configurations/{configurationId}*. The *{apiRoot}* and*{scsAsId}* segments are configured based on Service Provider and MNO policies. The {*configurationId*} corresponds to the one configured by the SCEF and returned to the IN-CSE when the NIDD Configuration was created.
* The request shall not contain a payload

When NIDD configuration delete request is sent, IN-CSE shall set *niddConfigStatus* to ‘IN\_PROCESS’.

**Step 3 : Process NIDD Configuration Delete Request**

The SCEF processes the request.

**Step 4 : NIDD Configuration Delete Response**

The SCEF responds with a 204 NO CONTENT that indicates the NIDD Configuration was cancelled.

If NIDD Configuration Delete Request was triggered due to Update of <serviceSubscribedNode> resource then after receiving 204 NO CONTENT, IN-CSE shall set *niddConfigStatus* attributeto “DELETED”.

If NIDD Configuration Delete Request was triggered due to Delete of <serviceSubscribedNode> the resource shall not be deleted until 204 NO CONTENT has been received.

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* End of Change 1 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*