**3GPP TSG-CT WG4 Meeting #99eC4-204xxx**

**E-Meeting, 18th – 28th August 2020** *Revision of C4-204188*

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| *CR-Form-v12.0* |
| **CHANGE REQUEST** |
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|  | **29.500** | **CR** | **0151** | **rev** | **1** | **Current version:** | **16.4.0** |  |
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| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* |
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| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network |  | Core Network | **X** |

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| ***Title:***  | Determining the NF Service Producer Identity without support of binding procedures  |
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| ***Source to WG:*** | Nokia, Nokia Shanghai Bell, Ericsson |
| ***Source to TSG:*** | CT4 |
|  |  |
| ***Work item code:*** | 5G\_eSBA |  | ***Date:*** | 2020-08-06 |
|  |  |  |  |  |
| ***Category:*** | **F** |  | ***Release:*** | Rel-16 |
|  | *Use one of the following categories:****F*** *(correction)****A*** *(mirror corresponding to a change in an earlier release)****B*** *(addition of feature),* ***C*** *(functional modification of feature)****D*** *(editorial modification)*Detailed explanations of the above categories canbe found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | *Use one of the following releases:Rel-8 (Release 8)Rel-9 (Release 9)Rel-10 (Release 10)Rel-11 (Release 11)Rel-12 (Release 12)**Rel-13 (Release 13)Rel-14 (Release 14)Rel-15 (Release 15)Rel-16 (Release 16)* |
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| ***Reason for change:*** | 1) Per current specification, the SCP that selects the NF service producer shall insert the 3gpp-Sbi-Producer-Id header in the HTTP response (set to the NF service producer identity), if the response from the NF service producer does not include a binding header.The SCP shall actually also include the 3gpp-Sbi-Producer-Id header in the HTTP response even if the response from the NF service producer includes a binding header, because the NF service consumer may not support the binding procedures. This ensures that the NF service consumer can identify the NF service producer even if it does not support the binding procedures.2) The requirements specified in clause 6.10.3.4 (i.e. returning the NF Service Producer ID to the NF Service Consumer) shall also apply to indirect communication without delegated discovery when the NF service consumer only selects an NF set and delegates the selection of the NF service instance to the SCP. In other words, the Binding Indication or the 3gpp-Sbi-Producer-Id header are also used in this scenario by the NF service consumer to identify the NF service producer. However clause 6.10.3.4 is specific to delegated discovery.3) If the 3gpp-Sbi-Producer-Id header is already present in an HTTP response (e.g. in scenarios with multiple SCPs between the NF service consumer and NF service producer), the SCP shall forward the header unmodified in the response towards the HTTP client (without adding any new such header). |
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| ***Summary of change:*** | 1) The SCP shall include the 3gpp-Sbi-Producer-Id header in the HTTP response it forwards towards the NF Service Consumer even if the NF Service Producer returns a Binding Indication in a service response creating a resource. 2) It is clarified that requirements specified in clause 6.10.3.4 (i.e. returning the NF Service Producer ID to the NF Service Consumer) also apply to indirect communication without delegated discovery when the NF service consumer only selects an NF set and delegates the selection of the NF service instance to the SCP, or when the SCP reselects a different service producer instance.3) If the 3gpp-Sbi-Producer-Id header is already present in an HTTP response (e.g. in scenarios with multiple SCPs between the NF service consumer and NF service producer), the SCP shall forward the header unmodified in the response towards the HTTP client (without adding any new such header). |
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| ***Consequences if not approved:*** | NF service consumers do not get the identity of the NF service producers, e.g. in deployments with indirect communication and delegated discovery where not all NF service consumers have been upgraded yet to support the binding procedures. Several stage 2 requirements cannot be supported as a result (see C4-195566 that introduced the 3gpp-Sbi-Producer-Id header). |
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| ***Clauses affected:*** | 5.2.3.2.1, 6.10.3.4, 6.10.5.1 |
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|  | **Y** | **N** |  |  |
| ***Other specs*** |  | **X** |  Other core specifications  | TS/TR ... CR ...  |
| ***affected:*** |  | **X** |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  | **X** |  O&M Specifications | TS/TR ... CR ...  |
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| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** | Rev. 1: merges changes from C4-204247 and C4-204189 |

\* \* \* First Change \* \* \* \*

##### 5.2.3.2.1 General

The 3GPP NF Services shall support the HTTP custom headers specified in Table 5.2.3.2.1-1 below. A description of each custom header and the normative requirements on when to include them are also provided in Table 5.2.3.2-1.

Table 5.2.3.2.1-1: Mandatory HTTP custom headers

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| Name | Reference | Description |
| 3gpp-Sbi-Message-Priority | Clause 5.2.3.2.2 | This header is used to specify the HTTP/2 message priority for 3GPP service based interfaces. This header shall be included in HTTP/2 messages when a priority for the message needs to be conveyed (e.g HTTP/2 messages related to Multimedia Priority Sessions). |
| 3gpp-Sbi-Callback | Clause 5.2.3.2.3 | This header is used to indicate if a HTTP/2 message is a callback (e.g notification).This header shall be included in HTTP POST messages for callbacks towards NF service consumer(s) in another PLMN via the SEPP (See 3GPP TS 29.573 [27]).This header shall also be included in HTTP POST messages for callbacks in indirect communication (See clause 6.10.7). |
| 3gpp-Sbi-Target-apiRoot | Clause 5.2.3.2.4 | This header is used by an HTTP client to indicate the apiRoot of the target URI when communicating indirectly with the HTTP server via an SCP.This header may also be used by an HTTP client to indicate the apiRoot of the target URI towards HTTP server in another PLMN via the SEPP, when TLS is used between the SEPPs. |
| 3gpp-Sbi-Routing-Binding | Clause 5.2.3.2.5 | This header is used in a service request to signal binding information to direct the service request to an HTTP server which has the targeted NF Service Resource context (see clause 6.12). |
| 3gpp-Sbi-Binding | Clause 5.2.3.2.6 | This header is used to signal binding information related to an NF Service Resource to a future consumer (HTTP client) of that resource (see clause 6.12). |
| 3gpp-Sbi-Discovery-\* | Clause 5.2.3.2.7 | Headers beginning with the prefix 3gpp-Sbi-Discovery- are used in indirect communication mode for discovery and selection of a suitable producer by the SCP. Such headers may be included in any SBI message and include information allowing an SCP to find a suitable producer as per the consumer's included delegated discovery parameters. |
| 3gpp-Sbi-Producer-Id | Clause 5.2.3.2.8 | This header is used in a service response from the SCP to the NF Service Consumer, when using indirect communication, to identify the NF service producer. See clause 6.10.3.4.  |
| 3gpp-Sbi-Oci | Clause 5.2.3.2.9 | This header may be used by an overloaded NF Service Producer in a service response, or in a notification request to signal Overload Control Information (OCI) to the NF Service Consumer.This header may also be used by an overloaded NF Service Consumer in a notification response or in a service request to signal Overload Control Information (OCI) to the NF Service Producer. |
| 3gpp-Sbi-Lci | Clause 5.2.3.2.10 | This header may be used by a NF Service Producer to send Load Control Information (LCI) to the NF Service Consumer. |
| 3gpp-Sbi-Client-Credentials | Clause 5.2.3.2.11 | This header may be used by an NF Service Consumer to send Client Credentials Assertion to the NRF or to the NF Service Producer. See clause 6.7.5. |

\* \* \* Next Change \* \* \* \*

#### 6.10.3.4 Returning the NF Service Producer ID to the NF Service Consumer

The following requirements shall apply when using indirect communication with delegated discovery, or indirect communication without delegated discovery when the NF service consumer only selects an NF set and delegates the selection of the NF service instance to the SCP (see clause 6.10.5.1):

- an SCP that (re)selected the target NF service instance shall include the 3gpp-Sbi-Producer-Id header in the HTTP response it forwards towards the NF Service Consumer, containing the NF Instance ID of the NF Service Producer selected by the SCP (see clause 6.10.3.2);

- If the 3gpp-Sbi-Producer-Id header is already present in an HTTP response (e.g. in scenarios with multiple SCPs between the NF service consumer and NF service producer), the SCP shall forward the header unmodified in the response towards the HTTP client (without adding any new such header).

NOTE 1: This allows to support deployments where not all NF Service Producers or NF Service Consumers have been upgraded to support the binding procedures.

NOTE 2: In scenarios where the same NF Service Producer needs to be selected when creating new resources, e.g. when the AMF needs to establish a new PDU session towards the same SMF as the one selected for a previous PDU session, the NF Service Consumer can include the 3gpp-Sbi-Discovery-target-nf-instance-id header set to the NF Instance ID of the NF Service Producer in the request creating the new resource.

NOTE 3: An SCP needs not insert a 3gpp-Sbi-Producer-Id header in an HTTP response if it received a 3gpp-Sbi-Target-apiRoot header in the related HTTP request and it did not reselect a different NF Service Producer.

\* \* \* Next Change \* \* \* \*

### 6.10.5 NF / NF service instance selection for Indirect Communication without Delegated Discovery

#### 6.10.5.1 General

For Indirect Communication without Delegated Discovery, the NF Service Consumer performs the discovery procedure by querying the NRF and the selection of a NF (Service) Set or a specific NF (service) instance . The selection of the target NF service instance may hence be done either by the NF Service Consumer or the SCP (e.g. based on NF (Service) Set information received from the NF Service Consumer).

The NF Service Consumer shall send its request to the SCP containing:

- the 3gpp-Sbi-Target-apiRoot header set to the apiRoot of the selected NF service instance, if the SCP is known to the NF Service Consumer and if the NF Service Consumer has selected a specific NF service instance;

- the identity of the selected NF (Service) Set in the associated "3gpp-Sbi-Discovery-\*" request header(s) (see clause 6.10.3.2), if the NF Service Consumer has selected a target NF (Service) Set ID.

If the request does not include the apiRoot of a selected NF service instance, or if the SCP needs to reselect a different NF service instance, the SCP shall select an NF service instance using the NF (Service) Set ID received in the corresponding "3gpp-Sbi-Discovery-\*" request header(s), if available. The SCP that reselected the target NF service instance shall include the 3gpp-Sbi-Producer-Id header in the HTTP response it forwards towards the NF Service Consumer, containing the NF Instance ID of the NF Service Producer selected by the SCP, as specified in clause 6.10.3.4.

The SCP shall then route the request to the selected NF service instance of the target NF service producer.

\* \* \* End of Changes \* \* \* \*