**3GPP TSG-CT WG4 Meeting #111-eC4-224xyz**

**E-Meeting, 18th – 26th August 2022 (was C4-224328)**

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| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **29.500** | **CR** | **0353** | **rev** | **1** | **Current version:** | **17.7.0** |  |
|  | | | | | | | | |
| *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:*** | Usage of 3gpp-Sbi-NF-Peer-Info HTTP header | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Ericsson | | | | | | | | | |
| ***Source to TSG:*** | CT4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | SBIProtoc17 | | | | |  | ***Date:*** | | | 2022-07-27 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***Release:*** | | | Rel-17 |
|  | *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 can be 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-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | The usage of the 3gpp-Sbi-NF-Peer-Info HTTP header is not clear, for some scenarios. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | - Clarify the setting of the scrscp and dstscp parameters  - Clarify the scenario where the dstinst parameter, as set by the sender (NF service consumer) contains information that does not match the information of the receiver (NF service producer) | | | | | | | | |
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| ***Consequences if not approved:*** | | Network probes using this HTTP header collect wrong information about the 5GC traffic. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.2.3.2.1, 5.2.3.2.21, 6.13.3.1, 6.13.3.2 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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 ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

\* \* \* 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

|  |  |  |
| --- | --- | --- |
| 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).  This header should also be included in the HTTP POST message of any event notification request for direct communications.  If the header is included in received HTTP request, the SEPP or SCP shall include this header in the HTTP request forwarded to next hop. (NOTE) |
| 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 is also used by SCP to indicate the apiRoot of the target URI, if a new HTTP server is selected or reselected and there is no Location header included in the response.  This header may also be used by an HTTP client towards its local SEPP to indicate the apiRoot of the target URI towards HTTP server in another PLMN.  This header may also be used between SEPPs to indicate the apiRoot of the target URI towards HTTP server in another PLMN, when TLS security with the 3gpp-Sbi-Target-apiRoot header 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 to allow the discovery and selection of a suitable NF service producer (e.g. in case of service requests) or NF service consumer (e.g. in case of notifications or callbacks) by the SCP, as specified in clause 5.2.3.2.7, clause 6.5.3 and clause 6.10. Such headers may be included in any SBI message and include information allowing an SCP to find a suitable NF service producer or NF service consumer, as per the discovery and selection parameters provided respectively by the NF service consumer or the NF service producer. |
| 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. |
| 3gpp-Sbi-Nrf-Uri | Clause 5.2.3.2.12 | This header may be used to indicate the NRF API URIs to be used for a given service request, e.g. in indirect communication with delegated discovery as a result of an NSSF query. It may also indicate whether OAuth2 based authorization is required for accessing the NRF services.  This header may also be used to indicate the NRF API URI to be used for a given notification request, e.g. if the NF service producer has received NRF API URI from the NF service consumer and the NF producer delegates NF consumer reselection to the SCP in indirect communication, |
| 3gpp-Sbi-Target-Nf-Id | Clause 5.2.3.2.13 | This header is used in a 307 Temporary Redirect or 308 Permanent Redirect response, to identify the target NF (service) instance towards which the request is redirected. See clause 6.10.9.1. |
| 3gpp-Sbi-Max-Forward-Hops | Clause 5.2.3.2.14 | This header may be used to indicate the maximum number of allowed hops with specified node type to relay the request message to the target HTTP server.  If node type is "scp", its value indicates the maximum number of allowed SCP hops to relay the request message to the target NF as HTTP server when indirect communication is used. |
| 3gpp-Sbi-Asserted-Plmn-Id | Clause 5.2.3.2.15 | This header may be inserted by a network element, in the incoming SBI HTTP messages, and it indicates the PLMN-ID of the source PLMN of the HTTP messages (i.e. the PLMN of the NF Service Consumer). |
| 3gpp-Sbi-Access-Scope | Clause 5.2.3.2.16 | This header is used in a service request for Indirect Communication to indicate the access scope of the service request for NF service access authorization. See clauses 6.7.3 and 6.10.11. |
| 3gpp-Sbi-Access-Token | Clause 5.2.3.2.17 | This header is used in a service response forwarded by the SCP to an NF service consumer to provide an access token for possible re-use in subsequent service requests. See clause 6.10.1. |
| 3gpp-Sbi-Target-Nf-Group-Id | Clause 5.2.3.2.19 | This header is used in a service response from the SCP to the NF Service Consumer, when using indirect communication with delegated discovery, to indicate the NF Group ID of the NF service producer selected by the SCP. See clause 6.10.3.4. |
| 3gpp-Sbi-Nrf-Uri-Callback | Clause 5.2.3.2.20 | This header may be included in service request (e.g. subscription creation request) from the NF service consumer to the NF service producer, to indicate the NRF API URI to be used to discover an alternative NF service consumer for callback, e.g. during NF service consumer reselection for callback when the original NF service consumer is no longer available.  For indirect communication, if the NF service producer delegates NF service consumer reselection to the SCP, the NF service producer should include 3gpp-Sbi-Nrf-Uri header with received NRF API URI in the notification requests to the NF service consumer. |
| 3gpp-Sbi-NF-Peer-Info | Clause 5.2.3.2.21 | This header is used in HTTP requests and responses to indicate the sender and receiver of the message.  The HTTP client and server should include this header in every HTTP request and response messages.  HTTP intermediaries (e.g. SCP) should forward this header, when relaying HTTP messages to next hop, and may update the destination in the header if the receiver NF of the message is (re)selected. The parameters defined for the source and destination of SCPs or SEPPs (as defined in clause 5.2.3.2.21) may also need to be updated according to the source and destination of the HTTP message. |
| NOTE: The callback URI for event subscription may receive event notifications from different NF producers, e.g. UDM may subscribe to AMF/SMF on behalf of NEF with directly reporting mode for certain UDM events in the subscription, which should be inspected with corresponding OpenAPI schema where the notification is defined. For both direct and indirect communications, to include this header in all event notification requests can help NF consumer to identify the type of event notification and select corresponding schema to perform OpenAPI inspection. | | |

Editor's Note: For the 3gpp-Sbi-Asserted-Plmn-Id header, it's FFS to determine the network entity that inserts the header, and to address the scenario in which the remote SEPP (c-SEPP) may convey signaling from multiple PLMN-IDs (either due to a PLMN having multiple PLMN-IDs, or due to the c-SEPP acting as a hub conveying traffic from different PLMNs.

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

##### 5.2.3.2.21 3gpp-Sbi-NF-Peer-Info

This header contains the IDs of the NF (service) instance as HTTP client and the NF (service) instance as HTTP server.

The encoding of the header follows the ABNF as defined in IETF RFC 7230 [12].

3gpp-Sbi-NF-Peer-Info = "3gpp-Sbi-NF-Peer-Info" ":" OWS peerinfo \*(";" OWS peerinfo)

peerinfo = peertype "=" token

The following peertype are defined:

- srcinst (Source NF instance): indicates the Source NF Instance ID, as defined in 3GPP TS 29.510 [8];

- srcservinst (Source NF service instance): indicates the Source NF Service Instance ID, as defined in 3GPP TS 29.510 [8]; if this parameter is present, srcinst shall also be present;

- srcscp (Source SCP): indicates the FQDN of the Source SCP, the format is "SCP-<SCP FQDN>"; this parameter shall only be included by an SCP, i.e. when the HTTP request or response message is originated or relayed by an SCP;

- srcsepp (Source SEPP): indicates the FQDN of the Source SEPP, the format is "SEPP-<SEPP FQDN>"; this parameter shall only be included by a SEPP, i.e. when the HTTP request or response message is originated by a SEPP;

- dstinst (Destination NF instance): indicates the Destination NF Instance ID, as defined in 3GPP TS 29.510 [8];

- dstservinst (Destination NF service instance): indicates the Destination NF Service Instance ID, as defined in 3GPP TS 29.510 [8]; if this parameter is present, dstinst shall also be present;

- dstscp (Destination SCP): indicates the FQDN of the Destination SCP, the format is "SCP-<SCP FQDN>"; this parameter shall contain the next-hop SCP of the HTTP request or response message to be included by an SCP or by clients/servers sending requests/responses to an SCP;

- dstsepp (Destination SEPP): indicates the FQDN of the Destination SEPP, the format is "SEPP-<SEPP FQDN>"; this parameter shall be included by clients/servers sending requests/responses to a SEPP.

The header shall contain the source peer information, and should contain the destination peer information if available.

EXAMPLE: 3gpp-Sbi-NF-Peer-Info: srcinst=54804518-4191-46b3-955c-ac631f953ed8; dstinst=54804518-4191-4453-569c-ac631f74765cd

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

#### 6.13.3.1 General

The procedure enables network elements (such as NFs, SCPs, SEPPs, network analytics tools or probes, etc.), to obtain source and destination information of messages that were exchanged between a specified pair of NF (Service) instances. When supported and configured to be used by operator's policy, an NF as HTTP client or NF as HTTP server may include the NF (Service) instance IDs in 3gpp-Sbi-NF-Peer-Info header, to identify the HTTP requests or responses between the given pair of NF (Service) instances, as further defined in clause 6.13.3.2.

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

#### 6.13.3.2 Principles

An HTTP client originating a request should include in the request the 3gpp-Sbi-NF-Peer-Info header containing the Source NF (Service) instance ID and if available the Destination NF (Service) instance ID.

Upon receipt of a request that includes the 3gpp-Sbi-NF-Peer-Info, the HTTP server should insert the header in the response sent to the HTTP client, with source and destination peer info corresponding to the destination and source peer info in the request respectively (i.e. swap the received source and destination peer info in the response). The HTTP server should include the 3gpp-Sbi-NF-Peer-Info header in a response even when the header is not included in the request received from the HTTP client.

If the destination peer information provided by HTTP client in the request does not match the information of the HTTP server (e.g. due to the HTTP server having updated its NF (Service) instance ID), the HTTP server should include the updated NF (Service) instance ID values in the response header sent to HTTP client.

When forwarding a request or response that includes the 3gpp-Sbi-NF-Peer-Info header, the SCP should forward this header and may update the destination peer info if the receiver NF is (re)selected; the SCP shall also update the srcscp/dstscp components, based on the source and destination SCP of the forwarded HTTP request or response, as described in clause 5.2.3.2.21.

In an inter-PLMN scenario, the SEPP may remove the header based on operator policies. If an SCP or SEPP generates an error response to a request including this header, the SCP and SEPP should insert the header in the response with source peer info containing the information of the SCP or SEPP, and with destination peer info containing the source peer info in the request respectively.

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