**3GPP TSG-CT WG1 Meeting #124-eC1-20xxxx**

**Electronic meeting, 2-10 June 2020**

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| *CR-Form-v12.0* |
| **CHANGE REQUEST** |
|  |
|  | **24.182** | **CR** | **0120** | **rev** | **1** | **Current version:** | **16.2.0** |  |
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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:***  | Preconditions correction for forking model |
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| ***Source to WG:*** | Ericsson |
| ***Source to TSG:*** | C1 |
|  |  |
| ***Work item code:*** | eIMSVideo |  | ***Date:*** | 2020-06-05 |
|  |  |  |  |  |
| ***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:*** | For the forking model the preconditions support is inherent as the CAT media is negotiated in a separate dialog. The current text regarding support of preconditions use the text "if preconditions are used". This can be more explicit in stating that the Supported header field with a preconditions option tag has been received. |
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| ***Summary of change:*** | Clarify that the Supported header field has been received. |
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| ***Consequences if not approved:*** | Unclear specification, text between gateway model and forking model not aligned. |
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| ***Clauses affected:*** | 4.5.5.2.2, 4.5.5.3.2 |
|  |  |
|  | **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 \* \* \* \*

##### 4.5.5.2.2 AS Actions for forking model

The AS performing the forking model shall follow the procedure as specified in annex D in 3GPP TS 24.628 [14] with the additional procedures described in this subclause.

If the terminating network provides early media (e.g. CAT service) towards the originating UE, the AS decides which CAT service should have priority based on the operator policy and the calling CAT service subscriber’s preferences. The procedures in this subclause are applicable if the CAT service provided by the AS serving the originating UE has priority. If the CAT service provided by the AS serving the originating UE has no priority, the AS does not perform any CAT specific procedures. The AS can determine whether the terminating network provides early media if the AS receives a P-Early-Media header field with a "sendrecv" value or a "sendonly" value.

Upon receiving an initial SIP INVITE request destined to the terminating UE, the AS shall:

a) based on local policy remove the P-Early-Media header field, if present;

b) forward the initial SIP INVITE request to the terminating UE;

c) contact the MRF to request CAT resources; and

d) send a reliable SIP 183 (Session Progress) response to the originating UE. The AS shall include in the SIP 183 (Session Progress) provisional response:

- a P-Asserted-Identity header field containing the public user identity of the terminating UE unless privacy policy or restriction services prevent providing any public user identity of the terminating party;

- a To header field with a To tag locally generated by the AS;

- a P-Early-Media header field with a "sendrecv" value or a "sendonly" value;

- an SDP answer, based on information received from the MRF. The AS shall include an SDP a=content media-level attribute, as specified in RFC 4796 [12], with a "g.3gpp.cat" value in the SDP answer; and

- if a Supported header field with an option tag "precondition" was received in the initial INVITE request, and the AS decides to use the precondition mechanism an indication in the SDP answer that the local preconditions are fulfilled.

If preconditions are used, the AS shall not instruct the MRF to start applicable media for the CAT service before the originating UE has indicated that preconditions are fulfilled. The point when the AS instructs the MRF to start applicable media for the CAT service is based on local policy. If the AS can provide CAT media for media lines not included in the original SDP offer and the UE in the Contact header field included media feature tags indicating support for the additional media, the AS shall send an UPDATE request towards the UE in the dialog with a negotiated SDP. The AS shall include in this UPDATE request:

a) an SDP offer based on an offer from the MRF with any new media lines placed after the existing media-lines. The AS shall include an SDP a=content media-level attribute, as specified in RFC 4796 [12], with a "g.3gpp.cat" value in all the media lines;

b) a P-Early-Media header field with a "sendrecv" value or a "sendonly" value; and

c) if preconditions are used, an indication in the SDP offer that local preconditions are fulfilled.

NOTE 1: The AS can, based on local policy, wait to send the SIP 183 (Session Progress) response to the originating UE until the AS has received a SIP 180 (Ringing) provisional response from the terminating UE.

NOTE 2: The AS can, based on local policy, wait to instruct the MRF to start CAT media until the AS has received a SIP 180 (Ringing) provisional response from the terminating UE.

NOTE 3: The interaction between the AS and MRF is not specified for the CAT service but can use the Cr reference point as described in 3GPP TS 24.229 [4].

NOTE 4: If the AS acts as a Proxy and does not want to remain in the signalling path between the originating UE and the terminating UE, the AS does not need to add its own SIP-URI to the SIP Record-Route header field. If the AS acts as a B2BUA, the AS will always remain in the signalling path.

NOTE 5: The AS can, if it supports the P-Early-Media header field, based on local policy choose to not provide the CAT service to the originating UE if the initial INVITE request does not contain a P-Early-Media header field with a "supported" value.

Upon receiving a reliable provisional response from a terminating UE containing an SDP answer to the original SIP INVITE request, the AS:

a) may forward the provisional response to the originating UE reliably;

b) may, unless the provisional response contained a 199 response code, change the response code to SIP 183 (Session Progress) response;

c) shall insert a P-Early-Media header field, or modify an existing header field, with an "inactive" value before forwarding the provisional response;

d) shall, if the reliable provisional response is not forwarded to the originating UE, acknowledge the received provisional response by sending a SIP PRACK request as defined in RFC 3262 [5] to the terminating UE; and

e) shall, if the reliable provisional response contained an SDP answer and the provisional response is not forwarded to the originating UE, save the SDP answer contained in the reliable provisional response for that particular early dialog. If forking has occurred toward the terminating UE, the AS may save SDP answers from several different UEs;

If precondition procedures are used between the originating UE and the terminating UE, the AS shall forward reliable provisional responses which contain SDP to the originating UE, in order to allow the UEs to exchange additional SDP offers and answers associated with the precondition procedures.

Upon receiving an unreliable provisional response from the terminating UE to the original SIP INVITE request, the AS may forward the provisional response to the originating UE reliably. Unless the provisional response contained a 199 response code, the AS may change the response code to SIP 183 (Session Progress) response.

If the AS supports the P-Early-Media header field, the AS shall insert a P-Early-Media header field with an "inactive" value before forwarding the provisional response.

Upon receiving a SIP 200 (OK) response to the initial SIP INVITE request from the terminating UE indicating that the terminating UE has answered the call, the AS shall:

a) instruct the MRF to stop the media for the CAT service;

b) forward the SIP 200 (OK) response to the originating UE; and

c) if the AS has saved the SDP answer associated with the dialog confirmed by the SIP 200 (OK) response and if the AS has not forwarded the SDP answer to the originating UE, the AS shall include the saved SDP answer in the SIP 200 (OK) response.

Upon receiving a SIP 4xx, 5xx or 6xx response from a terminating UE the AS shall:

a) instruct the MRF to stop the media for the CAT service; and

b) forward the final response to the originating UE.

Upon receiving a SIP PRACK request including the P-Early-Media header field with an "inactive" value, the AS shall:

a) instruct the MRF to release the media resource reserved for the CAT service; and

b) forward the SIP PRACK request to the terminating UE.

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

##### 4.5.5.3.2 AS actions for forking model

The AS performing the forking model shall follow the procedure as specified in annex D in 3GPP TS 24.628 [14] with the additional procedures described in this subclause.

Upon receiving an initial SIP INVITE request destined to the served user, the AS shall:

a) based on local policy remove the P-Early-Media header field, if present;

b) forward the initial SIP INVITE request to the served user;

c) contact the MRF to request CAT resources; and

d) send a reliable SIP 183 (Session Progress) response to the originating UE. The SIP 183 (Session Progress) provisional response shall:

- include a P-Asserted-Identity header field containing the public user identity of the served user unless privacy policy or restriction services prevent providing any public user identity of the terminating party;

- include a To header field with a To tag locally generated by the AS;

- include a P-Early-Media header field with a "sendrecv" value or a "sendonly" value;

- include an SDP answer, based on information received from the MRF. The AS shall include an SDP a=content media-level attribute, as specified in RFC 4796 [12], with a "g.3gpp.cat" value in the SDP answer; and

- if a Supported header field with an option tag "precondition" was received in the initial INVITE request, and the AS decides to use the precondition mechanism an indication in the SDP answer that the local preconditions are fulfilled.

If preconditions are used, the AS shall not instruct the MRF to start applicable media for the CAT service before the originating UE has indicated that preconditions are fulfilled. The point when the AS instructs the MRF to start applicable media for the CAT service is based on local policy. If the AS can provide CAT media for media lines not included in the original SDP offer and the UE in the Contact header field included media feature tags indicating support for the additional media, the AS shall send an UPDATE request towards the UE in the dialog with a negotiated SDP. The AS shall include in this UPDATE request:

a) an SDP offer based on an offer from the MRF with any new media lines placed after the existing media-lines. The AS shall include an SDP a=content media-level attribute, as specified in RFC 4796 [12], with a "g.3gpp.cat" value in all the media lines;

b) a P-Early-Media header field with a "sendrecv" value or a "sendonly" value; and

c) if preconditions are used, an indication in the SDP offer that local preconditions are fulfilled.

NOTE 1: The AS can, based on local policy, wait to send the SIP 183 (Session Progress) response to the originating UE until the AS has received a SIP 180 (Ringing) provisional response from the served UE.

NOTE 2: The AS can, based on local policy, wait to instruct the MRF to start CAT media until the AS has received a SIP 180 (Ringing) provisional response from the served UE.

NOTE 3: The interaction between the AS and MRF is not specified for the CAT service but can use the Cr reference point as described in 3GPP TS 24.229 [4].

NOTE 4: If the AS acts as a Proxy and does not want to remain in the signalling path between the originating UE and the terminating UE, the AS does not need to add its own SIP-URI to the SIP Record-Route header field. If the AS acts as a B2BUA, the AS will always remain in the signalling path.

NOTE 5: The AS can, if it supports the P-Early-Media header field, based on local policy choose to not provide the CAT service to the originating UE if the initial INVITE request does not contain a P-Early-Media header field with a "supported" value.

Upon receiving a reliable provisional response from a served UE containing an SDP answer to the original SIP INVITE request, the AS:

- may forward the provisional response to the originating UE reliably and, unless the provisional response contained a 199 response code, after changing the Status-Line to SIP 183 (Session Progress) response;

- shall insert a P-Early-Media header field, or modify an existing header field, with an "inactive" value before forwarding the provisional response;

- shall, if the reliable provisional response is not forwarded to the originating UE, acknowledge the received provisional response by sending a SIP PRACK request as defined in RFC 3262 [5] to the served UE; and

- shall, if the reliable provisional response contained an SDP answer and the provisional response is not forwarded to the originating UE, save the SDP answer contained in the reliable provisional response for that particular early dialog. If forking has occurred toward the served user, the AS may save SDP answers from several different UEs;

If precondition procedures are used between the originating UE and the served UE, the AS shall forward reliable provisional responses which contain SDP to the originating UE, in order to allow the UEs to exchange additional SDP offers and answers associated with the precondition procedures.

Upon receiving an unreliable provisional response from a served UE to the original SIP INVITE request, the AS may forward the provisional response to the originating UE and, unless the provisional response contained a 199 response code, after changing the Status-Line to SIP 183 (Session Progress) response.

If the AS supports the P-Early-Media header field, the AS shall insert a P-Early-Media header field with an "inactive" value before forwarding the provisional response.

Upon receiving a SIP 200 (OK) response to the initial SIP INVITE request from a served UE indicating that the served user has answered the call, the AS shall:

- instruct the MRF to stop the media for the CAT service;

- forward the SIP 200 (OK) response to the originating UE; and

- if the AS has saved the SDP answer associated with the dialog confirmed by the SIP 200 (OK) response and if the AS has not forwarded the SDP answer to the originating UE, the AS shall include the saved SDP answer in the SIP 200 (OK) response.

Upon receiving a SIP 4xx, 5xx or 6xx response from a served UE the AS shall:

- instruct the MRF to stop the media for the CAT service; and

- forward the final response to the originating UE.

Upon receiving a SIP PRACK request including the P-Early-Media header field with an "inactive" value, the AS shall:

- instruct the MRF to release the media resource reserved for the CAT service; and

- forward the SIP PRACK request to the served UE.

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