**3GPP TSG-CT WG1 Meeting #141eC1-232559**

**Online 17– 21 April 2023**

**Source: vivo**

**Title: PIN deletion procedure**

**Spec: 3GPP TS 24.583 v0.0.0**

**Agenda item: 18.2.26**

**Document for: Agreement**

**1. Reason for Change**

The PIN which is in use can be deleted based on the decision by PEMC or PIN server as described below:

- Decided by PEMC. The PEMC of a PIN decides to delete the PIN and sends request to PIN server. The PIN server accepts the request and deletes the PIN.

- Decided by PIN server. If the PIN is configured to exist for a particular duration and if it continues to exist post the duration the PIN server can decide to delete the PIN and release the resources associated with the PIN.

Once the PIN is deleted, the PIN elements in PIN shall not be able to utilize the services by the PIN or 5GS anymore and cannot access the application server. The network resources allocated for this PIN will be released.

Since the configuration related to the duration of the PIN is available with PEMC and when the duration of the PIN expires, the PEMC can directly delete the PIN locally and without having to be authorized by the PIN server. After the PIN is deleted by PEMC, the PEMC can update the status of PIN to the PIN server.

The PIN deletion procedure is specified in clause 8.5.3 of TS 23.542 v0.2.0

**2. Proposal**

It is proposed to agree the following changes to 3GPP TS 24.583 v0.0.0.

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

#### 5.4.3.1 General

The purpose of PIN deletion procedure is to delete a specific PIN. Both the PIN server and the PEMC are supported to initiate the PIN deletion procedure, and the decision PIN deletion can be made by both the PIN server and the PEMC (i.e. explicit PIN deletion procedure and local PIN deletion procedure). Once the PIN is successfully deleted, the PINE in PIN shall not be able to utilize the services provided by the PIN anymore and cannot access the PIN server. The network resources allocated for this PIN shall be released.

The following procedures are defined for PIN deletion procedure:

a) Explicit PIN deletion procedure as specified in clause 5.4.3.2; and

b) Local PIN deletion procedure as specified in clause 5.4.3.3.

#### 5.4.3.2 Explicit PIN deletion procedure

##### 5.4.3.2.1 PIN server-requested PIN deletion procedure

The PIN server may initiate a PIN server-requested PIN deletion procedure when:

a) the PIN continues to exist after its valid duration timer associated with the PIN; or

b) the PIN server decides to not provide any PIN service for this PIN.

Editor’s note: Other details of PIN server-requested PIN deletion procedure is FFS.

##### 5.4.3.2.2 PEMC-requested PIN deletion procedure

###### 5.4.3.2.2.1 PEMC-requested PIN deletion procedure initiation by PEMC

The PEMC may initiate a PEMC requested PIN deletion procedure initiation procedure when PEMC receives the request from the user or for any other reason which are implementation specific.

The PEMC is authorized to initiate a PEMC-requested PIN deletion procedure initiation if:

a) PIN is successfully created and in use; and

b) PIN ID and security credentials are available in the PEMC,

otherwise, the PINE is not authorized to perform the PEMC-requested PIN deletion procedure initiation.

When the PEMC needs to delete a PIN, if the PEMC is authorized to initiate a PEMC-requested PIN deletion procedure initiation, then the PEMC shall generate an HTTP POST request according to procedures as specified in IETF RFC 7231 [X]. In the HTTP POST request, the PMAE-C:

a) shall set the Request-URI to the URI of the PIN server;

b) shall include a Content-Type header field set to "application/vnd.3gpp.pinapp-info+xml"; and

c) shall include an application/vnd.3gpp.pinapp-info+xml MIME body with a <pin-deletion-request> element in the <pinapp-info> root element:

1) shall include a <pin-id> element set to the PIN ID of the PIN to be deleted; and

2) shall include a <security-credentials> element set to the security credentials of the PIN to be deleted.

The PMAE-C shall send the generated HTTP POST request towards the PAE-S according to IETF RFC 7231 [X].

Upon reception of an HTTP POST request message containing:

a) a Content-Type header field set to "application/vnd.3gpp.pinapp-info+xml"; and

b) an application/vnd.3gpp.pinapp-info+xml MIME body with a <pin-deletion-request> element in the <pinapp-info> root element,

the PAE-S shall verify whether the PEMC is authorized to delete a PIN.

###### 5.4.3.2.2.2 PEMC-requested PIN deletion procedure accepted by PIN server

If the PEMC is authorized to delete the PIN, the PAE-S shall:

a) generate an HTTP 200 (OK) response according to IETF RFC 7231 [X]. In the HTTP 200 (OK) response message, the PMAE-C:

1) shall include a Content-Type header field set to "application/vnd.3gpp.pinapp-info+xml"; and

2) shall include an application/vnd.3gpp.pinapp-info+xml MIME body with a <pin-deletion-accept> element in the <pinapp-info> root element.

From this time onward, the PIN is considered as deleted in the PIN server. The PIN server shall stop all the procedures related to the PIN and release all the network resources allocated for this PIN.

###### 5.4.3.2.2.3 PEMC-requested PIN deletion procedure completion by PEMC

Upon reception of an HTTP 200 (OK) response message containing:

a) a Content-Type header field set to "application/vnd.3gpp.pinapp-info+xml"; and

b) an application/vnd.3gpp.pinapp-info+xml MIME body with a <pin-deletion-accept> element in the <pinapp-info> root element,

the PMAE-C:

a) shall consider the PIN deletion procedure is accepted by the PIN server;

b) shall generate a series of HTTP POST request messages according to procedures as specified in IETF RFC 7231 [X] towards the PIN peer(s) in the PIN accordingly and send the generated HTTP POST request towards the PIN peer(s) accordingly as specified in IETF RFC 7231 [X]. In each HTTP POST request, the PMAE-C:

1) shall set the Request-URI to the URI corresponding to the specific PIN peer.

2) shall include a Content-Type header field set to "application/vnd.3gpp.pinapp-info+xml"; and

3) shall include an application/vnd.3gpp.pinapp-info+xml MIME body with a <pin-deletion-notification-request> element in the <pinapp-info> root element:

i) shall include a <pin-id> element set to the assigned PIN ID of the newly created PIN.

Upon reception of an HTTP POST request message containing:

a) a Content-Type header field set to "application/vnd.3gpp.pinapp-info+xml"; and

b) an application/vnd.3gpp.pinapp-info+xml MIME body with a <pin-deletion-notification-request> element in the <pinapp-info> root element,

the PGAE-C:

a) shall consider the PIN has been deleted;

b) shall invalidate the access control information in the PEGC; and

c) shall perform either of the following to respond to PMAE-C:

1) generate an HTTP 200 (OK) response according to IETF RFC 7231 [X]. In the HTTP 200 (OK) response message, the PGAE-C:

i) shall include a Content-Type header field set to "application/vnd.3gpp.pinapp-info+xml"; and

ii) shall include an application/vnd.3gpp.pinapp-info+xml MIME body with a <pin-creation-notification-accept> element in the <pinapp-info> root element; or

2) generate an HTTP 200 (OK) response according to IETF RFC 7231 [X]. In the HTTP 200 (OK) response message, the PGAE-C:

i) shall include a Content-Type header field set to "application/vnd.3gpp.pinapp-info+xml"; and

ii) shall include an application/vnd.3gpp.pinapp-info+xml MIME body with a <pin-deletion-notification-reject> element in the <pinapp-info> root element:

A) shall include a <cause> element set to an appropriate cause for PIN deletion notification failure.

Upon reception of an HTTP POST request message containing:

a) a Content-Type header field set to "application/vnd.3gpp.pinapp-info+xml"; and

b) an application/vnd.3gpp.pinapp-info+xml MIME body with a <pin-deletion-notification-request> element in the <pinapp-info> root element,

the PEAE-C:

a) shall consider the PIN has been deleted; and

b) shall perform either of the following to respond to PMAE-C:

1) generate an HTTP 200 (OK) response according to IETF RFC 7231 [X]. In the HTTP 200 (OK) response message, the PEAE-C:

i) shall include a Content-Type header field set to "application/vnd.3gpp.pinapp-info+xml"; and

ii) shall include an application/vnd.3gpp.pinapp-info+xml MIME body with a <pin-deletion-notification-accept> element in the <pinapp-info> root element; or

2) generate an HTTP 200 (OK) response according to IETF RFC 7231 [X]. In the HTTP 200 (OK) response message, the PEAE-C:

i) shall include a Content-Type header field set to "application/vnd.3gpp.pinapp-info+xml"; and

ii) shall include an application/vnd.3gpp.pinapp-info+xml MIME body with a <pin-deletion-notification-reject> element in the <pinapp-info> root element:

A) shall include a <cause> element set to an appropriate cause for PIN deletion notification failure.

Upon reception of an HTTP 200 (OK) response message containing:

a) a Content-Type header field set to "application/vnd.3gpp.pinapp-info+xml"; and

b) either of the following:

1) an application/vnd.3gpp.pinapp-info+xml MIME body with a <pin-deletion-notification-accept> element in the <pinapp-info> root element; or

2) an application/vnd.3gpp.pinapp-info+xml MIME body with a <pin-deletion-notification-reject> element in the <pinapp-info> root element;

the PMAE-C shall consider that the PIN has been treated as deleted in the corresponding PIN peer.

NOTE: Whether PEMC needs to take other actions for PIN peer(s) that send <pin-deletion-notification-reject> element is left to UE implementation.

When receiving all the response(s) from PIN peer(s), the PIN is considered as deleted in the PEMC from this time onward. The PEMC shall delete all the information related to this PIN.

###### 5.4.3.2.2.4 PEMC-requested PIN deletion procedure not accepted by PIN server

If the PEMC is not authorized to delete a PIN, the PAE-S shall:

a) generate an HTTP 200 (OK) response according to IETF RFC 7231 [X]. In the HTTP 200 (OK) response message, the PMAE-C:

1) shall include a Content-Type header field set to "application/vnd.3gpp.pinapp-info+xml"; and

2) shall include an application/vnd.3gpp.pinapp-info+xml MIME body with a <pin-deletion-reject> element in the <pinapp-info> root element:

i) shall include a <cause> element set to an appropriate cause for PIN deletion failure; and

b) send the HTTP 200 (OK) response towards the PEAE-C.

Upon reception of an HTTP 200 (OK) response message containing:

a) a Content-Type header field set to "application/vnd.3gpp.pinapp-info+xml"; and

b) an application/vnd.3gpp.pinapp-info+xml MIME body with a <pin-deletion-reject> element in the <pinapp-info> root element,

the PMAE-C shall consider that the PEMC-requested PIN deletion procedure is rejected by the PIN server. The PMAE-C may initiate a local PIN deletion procedure as specified in clause 5.4.3.3 if still needed.

#### 5.4.3.3 Local PIN deletion procedure

##### 5.4.3.3.1 Local PIN deletion procedure initiation by PEMC

The PEMC may initiate a local PIN deletion procedure initiation procedure when:

a) PEMC receives the request from the user or for any other reason which are implementation specific; or

b) the duration associated with the PIN expires.

Editor’s note: The precedence between explicit PIN deletion procedure and local PIN deletion procedure is FFS.

The PEMC is authorized to initiate a local PIN deletion procedure initiation if:

a) the PIN is successfully created and in use; and

b) the PIN ID is available in the PEMC,

otherwise, the PINE is not authorized to perform the local PIN deletion procedure initiation.

When the PEMC needs to locally delete a PIN, if the PEMC is authorized to initiate a local PIN deletion procedure, then the PEMC:

a) shall generate a series of HTTP POST request messages according to procedures as specified in IETF RFC 7231 [X] towards the PIN server and the PIN peer(s) in the PIN accordingly. In each HTTP POST request, the PMAE-C:

1) shall set the Request-URI to the URI corresponding to the PIN server or the specific PIN peer.

2) shall include a Content-Type header field set to "application/vnd.3gpp.pinapp-info+xml"; and

3) shall include an application/vnd.3gpp.pinapp-info+xml MIME body with a <pin-deletion-notification-request> element in the <pinapp-info> root element:

i) shall include a <pin-id> element set to the assigned PIN ID of the newly created PIN; and

b) shall send the generated HTTP POST request towards the PIN server and the PIN peer(s) accordingly as specified in IETF RFC 7231 [X].

Upon reception of an HTTP POST request message containing:

a) a Content-Type header field set to "application/vnd.3gpp.pinapp-info+xml"; and

b) an application/vnd.3gpp.pinapp-info+xml MIME body with a <pin-deletion-notification-request> element in the <pinapp-info> root element,

the PGAE-C:

a) shall consider the PIN has been deleted;

b) shall invalidate the access control information in the PEGC; and

c) shall perform either of the following to respond to PMAE-C:

1) generate an HTTP 200 (OK) response according to IETF RFC 7231 [X]. In the HTTP 200 (OK) response message, the PGAE-C:

i) shall include a Content-Type header field set to "application/vnd.3gpp.pinapp-info+xml"; and

ii) shall include an application/vnd.3gpp.pinapp-info+xml MIME body with a <pin-creation-notification-accept> element in the <pinapp-info> root element; or

2) generate an HTTP 200 (OK) response according to IETF RFC 7231 [X]. In the HTTP 200 (OK) response message, the PGAE-C:

i) shall include a Content-Type header field set to "application/vnd.3gpp.pinapp-info+xml"; and

ii) shall include an application/vnd.3gpp.pinapp-info+xml MIME body with a <pin-deletion-notification-reject> element in the <pinapp-info> root element:

A) shall include a <cause> element set to an appropriate cause for PIN deletion notification failure.

Upon reception of an HTTP POST request message containing:

a) a Content-Type header field set to "application/vnd.3gpp.pinapp-info+xml"; and

b) an application/vnd.3gpp.pinapp-info+xml MIME body with a <pin-deletion-notification-request> element in the <pinapp-info> root element,

the PEAE-C:

a) shall consider the PIN has been deleted; and

b) shall perform either of the following to respond to PMAE-C:

1) generate an HTTP 200 (OK) response according to IETF RFC 7231 [X]. In the HTTP 200 (OK) response message, the PEAE-C:

i) shall include a Content-Type header field set to "application/vnd.3gpp.pinapp-info+xml"; and

ii) shall include an application/vnd.3gpp.pinapp-info+xml MIME body with a <pin-deletion-notification-accept> element in the <pinapp-info> root element; or

2) generate an HTTP 200 (OK) response according to IETF RFC 7231 [X]. In the HTTP 200 (OK) response message, the PEAE-C:

i) shall include a Content-Type header field set to "application/vnd.3gpp.pinapp-info+xml"; and

ii) shall include an application/vnd.3gpp.pinapp-info+xml MIME body with a <pin-deletion-notification-reject> element in the <pinapp-info> root element:

A) shall include a <cause> element set to an appropriate cause for PIN deletion notification failure.

Upon reception of an HTTP POST request message containing:

a) a Content-Type header field set to "application/vnd.3gpp.pinapp-info+xml"; and

b) an application/vnd.3gpp.pinapp-info+xml MIME body with a <pin-deletion-notification-request> element in the <pinapp-info> root element,

the PAE-S:

a) shall consider the PIN has been deleted in the PEMC;

b) shall stop all the procedures related to the PIN and release all the network resources allocated for this PIN;

c) shall generate an HTTP 200 (OK) response according to IETF RFC 7231 [X]. In the HTTP 200 (OK) response message, the PAE-S:

i) shall include a Content-Type header field set to "application/vnd.3gpp.pinapp-info+xml"; and

ii) shall include an application/vnd.3gpp.pinapp-info+xml MIME body with a <pin-creation-notification-accept> element in the <pinapp-info> root element.

##### 5.4.3.3.2 Local PIN deletion procedure completion by PEMC

Upon reception of an HTTP 200 (OK) response message containing:

a) a Content-Type header field set to "application/vnd.3gpp.pinapp-info+xml"; and

b) either of the following:

1) an application/vnd.3gpp.pinapp-info+xml MIME body with a <pin-deletion-notification-accept> element in the <pinapp-info> root element; or

2) an application/vnd.3gpp.pinapp-info+xml MIME body with a <pin-deletion-notification-reject> element in the <pinapp-info> root element;

the PMAE-C shall consider that the PIN has been treated as deleted in the PIN server or the corresponding PIN peer(s).

NOTE: Whether PEMC needs to take other actions for PIN peer(s) that send <pin-deletion-notification-reject> element is left to UE implementation.

When receiving all the response(s) from the PIN server and the PIN peer(s), the PIN is considered as deleted in the PEMC from this time onward. The PEMC shall delete all the information related to this PIN.

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