**3GPP TSG-CT3 Meeting #131 C3-235294**

**Chicago, United States, 13 - 17 November 2023 *(Revision of C3-23xxxx)***

**Source: Huawei**

**Title: Pseudo-CR on update of AS registration service**

**Spec: 3GPP TS 29.583 V 0.2.0**

**Agenda item: 18.34**

**Document for: Agreement**

**1. Introduction**

The AS registration procedure in the current specification should be consistent with other NBI APIs, and the description of the PASRegistration data structure provided in the registration procedure and the corresponding figure are missing in the main body.

In addition, in cl.6.1.6.2.3, the NOTE should be added to indicate that at least one of the attributes should be provided since the conInfo attribute is a mandatory attribute and the empty set cannot be provided.

**2. Reason for Change**

1. Shorten the service name.
2. Update the AS registration procedure to shorten the description focus on the aspects that are directly related to the procedure and add the figure.
3. Add a NOTE in clause 6.1.6.2.3 to indicate that at least one of the attributes shall be provided.

**3. Conclusions**

N/A

**4. Proposal**

It is proposed to agree the following changes to 3GPP TS 29.583-030.

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

## 5.1 Introduction

Table 5.1-1: List of PIN server APIs

|  |  |  |  |
| --- | --- | --- | --- |
| Service Name | Service Operations | Operation Semantics | Consumer(s) |
| PIN\_ASRegistration | PIN\_ASRegistration\_Request | Request/Response | e.g., PAS |
| PIN\_ASRegistration\_Update | Request/Response | e.g., PAS |
| PIN\_ASRegistration\_Deregister | Request/Response | e.g., PAS |

Table 5.1-2 summarizes the corresponding PIN server APIs defined in this specification.

Table 5.1-2: PIN server API Descriptions

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Service Name | Clause | Description | OpenAPI Specification File | API Name | Annex |
| PIN\_ASRegistration | 5.2 | Service for AS registration | TS29583\_PIN\_ASRegistration.yaml | pin-as-registration | A.2 |

NOTE: When 3GPP TS 29.122 [2] is referenced for the common protocol and interface aspects for API definition in the clauses under clause 5, the service producer (i.e. PIN Server) takes the role of the SCEF and the service consumer takes the role of the SCS/AS.

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

## 5.2 PIN\_ASRegistration Service

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

### 5.2.1 Service Description

The PIN\_ASRegistration API, as defined in 3GPP TS 23.542 [10], allows a PAS to register, update its registration and deregister at a given PIN server via PIN-9 interface.

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

#### 5.2.2.1 Introduction

The service operation defined for PIN\_ASRegistration API is shown in the table 5.2.2.1-1.

Table 5.2.2.1-1: Operations of the Ppinserver\_ASRegistration API

|  |  |  |
| --- | --- | --- |
| Service operation name | Description | Initiated by |
| PIN\_ASRegistration\_Request | This service operation is used by the service consumer to register to the PIN server. | e.g., PAS |
| PIN\_ASRegistration\_Update | This service operation is used by the service consumer to update registration information to the PIN server. | e.g., PAS |
| PIN\_ASRegistration\_Deregister | This service operation is used by the service consumer to deregister from the PIN server. | e.g., PAS |

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

#### 5.2.2.2 PIN\_ASRegistration\_Request

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

##### 5.2.2.2.2 PAS Registration Creation



Figure 5.2.2.2.2-1: Procedure for PAS Registration Creation

1. When the service consumer needs to register to the PIN server, the service consumer shall send the HTTP POST request message to the PIN Server targeting the "PAS Registrations" collection resource, with the request body including the PASRegistration data structure.

2a. Upon success, if the PAS is authorized, the PIN Server shall respond with an HTTP "201 Created" status code with the response body containing a representation of the created "Individual PAS Registration" resource within the PASRegistration data structure.

2b. On failure, the appropriate HTTP status code indicating the error shall be returned and appropriate additional error information should be returned in the HTTP POST response body, as specified in clause 6.1.7.

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

#### 5.2.2.3 PIN\_ASRegistration\_Update

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

#### 5.2.2.4 PIN\_ASRegistration\_Deregister

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

##### 5.2.2.4.2 Deregistering the Registration



Figure 5.2.2.4.2-1: Procedure for Deregistering the Registration

1. When the service consumer needs to deregister from the PIN server, the service consumer shall send an HTTP DELETE request to the PIN server targeting the corresponding "Individual PAS Registration" resource.

2a. Upon success, if the PAS is authorized, the SEALDD Server shall respond with an HTTP "204 No Content" status code.

2b. On failure, the appropriate HTTP status code indicating the error shall be returned and appropriate additional error information should be returned in the HTTP DELETE response body, as specified in clause 6.1.7.

If the PIN server determines that the received HTTP DELETE request needs to be redirected, the PIN server may respond with an HTTP "307 Temporary Redirect" status code or an HTTP "308 Permanent Redirect" status code including an HTTP "Location" header containing an alternative URI representing the end point of an alternative PIN server where the message should be sent. Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [2].

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

## 6.1 PIN\_ASRegistration Service API

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

### 6.1.1 Introduction

The PIN\_ASRegistration service shall use the PIN\_ASRegistration service API.

The API URI of the PIN\_ASRegistration service API shall be:

**{apiRoot}/<apiName>/<apiVersion>**

The request URIs used in HTTP requests shall have the Resource URI structure defined in clause 5.2.4 of 3GPP TS 29.122 [2], i.e.:

**{apiRoot}/<apiName>/<apiVersion>/<apiSpecificSuffixes>**

with the following components:

- The {apiRoot} shall be set as described in clause 5.2.4 of 3GPP TS 29.122 [2].

- The <apiName>shall be "PIN-as-registration".

- The <apiVersion> shall be "v1".

- The <apiSpecificSuffixes> shall be set as described in clause 5.2.4 of 3GPP TS 29.122 [2].

NOTE: When 3GPP TS 29.122 [2] is referenced for the common protocol and interface aspects for API definition in the clauses under clause 5, the service producer (i.e. PIN Server) takes the role of the SCEF and the service consumer takes the role of the SCS/AS.

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

### 6.1.2 Usage of HTTP

The provisions of clause 5.2.2 of 3GPP TS 29.122 [2] shall apply for the PIN\_ASRegistration API.

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

#### 6.1.3.1 Overview

This clause describes the structure for the Resource URIs and the resources and methods used for the service.

Figure 6.1.3.1-1 depicts the resource URIs structure for the PIN\_ASRegistration API.



Figure 6.1.3.1-1: Resource URI structure of the PIN\_ASRegistration API

Table 6.1.3.1-1 provides an overview of the resources and applicable HTTP methods.

Table 6.1.3.1-1: Resources and methods overview

|  |  |  |  |
| --- | --- | --- | --- |
| Resource purpose/name | Resource URI (relative path after API URI) | HTTP method or custom operation | Description (service operation) |
| PAS Registrations | /registrations | POST | Register a new PAS at the PIN server. |
| Individual PAS Registration | /registrations/{registrationId} | GET | Fetch an individual PAS registration resource. |
| PUT | Fully replace an individual PAS registration resource. |
| PATCH | Partially modify an individual PAS registration resource. |
| DELETE | Remove an individual PAS registration resource. |

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

##### 6.1.3.2.2 Resource Definition

Resource URI: **{apiRoot}/pin-as-registration/<apiVersion>/registrations**

This resource shall support the resource URI variables defined in table 6.1.3.2.2-1.

Table 6.1.3.2.2-1: Resource URI variables for this resource

|  |  |  |
| --- | --- | --- |
| Name | Data type | Definition |
| apiRoot | string | See clause 6.1.1 |

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

###### 6.1.3.2.3.1 POST

This method shall support the URI query parameters specified in table 6.1.3.2.3.1-1.

Table 6.1.3.2.3.1-1: URI query parameters supported by the <method 1> method on this resource

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description | Applicability |
| n/a |  |  |  |  |  |

This method shall support the request data structures specified in table 6.1.3.2.3.1-2 and the response data structures and response codes specified in table 6.1.3.2.3.1-3.

Table 6.1.3.2.3.1-2: Data structures supported by the POST Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| PASRegistration | M | 1 | PAS registration request information. |

Table 6.1.3.2.3.1-3: Data structures supported by the POST Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response  codes | Description |
| PASRegistration | M | 1 | 201 Created | PAS information is successfully registered to the PIN server.  The URI of the created resource shall be returned in the "Location" HTTP header. |
| NOTE: The manadatory HTTP error status code for the HTTP POST method listed in table 5.2.6-1 of 3GPP TS 29.122 [2] also apply. | | | | |

Table 6.1.3.2.3.1-4: Headers supported by the POST method on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| n/a |  |  |  |  |

Table 6.1.3.2.3.1-5: Headers supported by the 201 response code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | Contains the URI of the newly created resource, according to the structure: {apiRoot}/pin-as-registration/<apiVersion>/registrations/{registrationId} |

Table 6.1.3.2.3.1-6: Links supported by the 200 Response Code on this endpoint

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Resource name | HTTP method or custom operation | Link parameter(s) | Description |
| n/a |  |  |  |  |

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

##### 6.1.3.3.2 Resource Definition

Resource URI: **{apiRoot}/pin-as-registration/<apiVersion>/registrations/{registrationId}**

This resource shall support the resource URI variables defined in the table 6.1.3.3.2-1.

Table 6.1.3.3.2-1: Resource URI variables for this resource

|  |  |  |
| --- | --- | --- |
| Name | Data Type | Definition |
| apiRoot | string | See clause 6.1.1 |
| registrationId | string | Identifies a PAS registration. |

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

#### 6.1.6.1 General

This clause specifies the application data model supported by the API.

Table 6.1.6.1-1 specifies the data types defined for the PIN\_ASRegistration API.

Table 6.1.6.1-1: PIN\_ASRegistration API specific Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Clause defined | Description | Applicability |
| ConnectivityInfo | 6.1.6.2.3 | Contains the Connectivity information. |  |
| PASRegistration | 6.1.6.2.2 | Contains the PAS registration information on PIN server. |  |
| PASRegistrationPatch | 6.1.6.2.4 | Contains the PAS registration information on PIN server that can be updated. |  |

Table 6.1.6.1-2 specifies data types re-used by the PIN\_ASRegistration API from other specifications, including a reference to their respective specifications, and when needed, a short description of their use within the PIN\_ASRegistration API.

Table 6.1.6.1-2: PIN\_ASRegistration API re-used Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Reference | Comments | Applicability |
| DateTime | 3GPP TS 29.122 [2] | Used to capture the expiration time of PAS registration. |  |
| DateTimeRm | 3GPP TS 29.571 [11] | Used to capture the expiration time of PAS registration patch. |  |
| Fqdn | 3GPP TS 29.571 [11] | Used to express the Fully Qualified Domain Name of PAS end point. |  |
| Ipv4Addr | 3GPP TS 29.122 [2] | Identifying the IPv4 address of the PAS. |  |
| Ipv6Addr | 3GPP TS 29.122 [2] | Identifying the IPv6 address of the PAS. |  |

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

##### 6.1.6.2.2 Type: PASRegistration

Table 6.1.6.2.2-1: Definition of type <TypeName 1>

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| requestorId | string | M | 1 | Identifies a requestor (i.e.AF Application of the PAS). |  |
| secCred | FFS | M | 1 | Identifies a security credentials of the PAS. |  |
| conInfo | ConnectivityInfo | M | 1 | Contains the connectivity information used to communicate with the PAS. |  |
| passId | string | M | 1 | Identifies the PIN service that provided by the PAS. |  |
| expTime | DateTime | O | 0..1 | Identifies the expiration time for the PAS registration. To maintain an active registration status, a registration update is required before the expiration time.  If the expiration time is not present, then it indicates that the registration of PAS never expires. |  |

Editor’s note: Other details of "secCred" (e.g. data type, format, YAML) is FFS, depending on the coordination and progress of both SA3 and SA6 on security aspects.

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

##### 6.1.6.2.3 Type: ConnectivityInfo

Table 8.1.5.2.5-1: Definition of type ConnectivityInfo

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| fqdn | Fqdn | O | 0..1 | Fully Qualified Domain Name of the PAS. |  |
| ipv4Addrs | Ipv4Addr | O | 0..1 | IPv4 addresses of the PAS. |  |
| ipv6Addrs | Ipv6Addr | O | 0..1 | IPv6 addresses of the PAS. |  |
| uri | Uri | O | 0..1 | URI information of the PAS. |  |
| NOTE: At least one of the attributes shall be provided. | | | | | |

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

#### 6.1.7.1 General

For the PIN\_ASRegistration API, HTTP error responses shall be supported as specified in clause 5.2.6 of 3GPP TS 29.122 [2]. Protocol errors and application errors specified in clause 5.2.6 of 3GPP TS 29.122 [2] shall be supported for the HTTP status codes specified in table 5.2.6-1 of 3GPP TS 29.122 [2].

In addition, the requirements in the following clauses are applicable for the PIN\_ASRegistration API.

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

#### 6.1.7.2 Protocol Errors

No specific procedures for the PIN\_ASRegistration API are specified.

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

#### 6.1.7.3 Application Errors

The application errors defined for the PIN\_ASRegistration API are listed in Table 6.1.7.3-1.

Table 6.1.7.3-1: Application errors

|  |  |  |
| --- | --- | --- |
| Application Error | HTTP status code | Description |
| n/a |  |  |

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

### 6.1.8 Feature negotiation

The optional features in table 6.1.8-1 are defined for the PIN\_ASRegistration API. They shall be negotiated using the extensibility mechanism defined in clause 5.2.7 of 3GPP TS 29.122 [2].

Table 6.1.8-1: Supported Features

|  |  |  |
| --- | --- | --- |
| Feature number | Feature Name | Description |
| n/a |  |  |

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

### 6.1.9 Security

The provisions of clause 6 of 3GPP TS 29.122 [2] shall apply for the PIN\_ASRegistration API.

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