# Fudo PAM 4.4 – API documentation

Fudo Security

07.12.2021

# Contents

## About documentation

**Conventions and symbols**

This section covers conventions used throughout this documentation.

*italic*

Uster interface elements.

`example`

Example value of a parameter, API method name or code example.

---

**Note:** Additional information closely related with described topic, e.g. suggestion concerning given procedure step; additional conditions which have to be met.

---

**Warning:** Essential information concerning system's operation. Not adhering to this information may have irreversible consequences.

# Authentication

Accessing Fudo PAM data structures over API interface requires a *user* object defined in the local database. The same access rights restrictions apply to the API interface as in case of administration panel access.

| Role | Access rights |
| --- | --- |
| user | <ul><li>Connecting to servers through assigned safes.</li><li>Loggin to the User Portal (requires adding the user to the `portal` safe)</li><li>Fetching servers' passwords (requires additional access right).</li></ul> |
| service | Accessing SNMP information. |
| operator | <ul><li>Logging in to the administration panel.</li><li>Browsing objects: servers, users, safes, accounts, to which the user has been assigned sufficient access permisions.</li><li>Blocking/unblocking objects: servers, users, safes, listeners, accounts, to which the user has been assigned sufficient access permisions.</li><li>Generating reports on demand and subscribing to periodic reports.</li><li>Activating/deactivating email notifications.</li><li>Viewing live and archived sessions involving objects (user, safe, account, server), to which the user has been assigned sufficient access permissions.</li><li>Converting sessions and downloading converted content involving objects (user, safe, account, server), to which the user has been assigned sufficient access permissions.</li><li>Available dashboard widgets: concurrent sessions, suspicious sessions, account alerts, active users, cluster status, concurrent sessions chart.</li></ul> |
| admin | <ul><li>Logging in to the administration panel.</li><li>Managing objects: servers, users, safes, listeners, accounts, to which the user has been assigned sufficient access permissions.</li><li>Blocking/unblocking objects: servers, users, safes, listeners, accounts, to which the user has been assigned sufficient access permisions.</li><li>Generating reports on demand and subscribing to periodic reports.</li><li>Activating/deactivating email notifications.</li><li>Viewing live and archived sessions involving objects (user, safe, account, server), to which the user has been assigned management privileges.</li><li>Converting sessions and downloading converted content involving objects (user, safe, account, server), to which the user has been assigned sufficient access permissions.</li><li>Managing policies.</li><li>Available dashboard widgets: concurrent sessions, suspicious sessions, account alerts, active users, cluster status, concurrent sessions chart.</li></ul> |

| Role | Access rights |
|------|---------------|
| superadmin | <ul><li>Full access rights to objects management.</li><li>Full access rights to system configuration options.</li><li>Available dashboard widgets: concurrent sessions, suspicious sessions, account alerts, active users, cluster status, concurrent sessions chart, license, system events log.</li></ul> |

## Request

**Method**

```
POST
```

**Path**

```
/api/system/login
```

**Headers**

```
Content-Type: Application/JSON
```

**Body**

```
{
        username: username,
        password: password
}
```

## Response

**Status**

```
200 OK
```

**Headers**

```
Content-Type: Application/JSON
```

**Body**

```
{
        sessionid: ygmd2env50zgr2nblypmrfcvarggn0uf
}
```

## Response

**Status**

```
401 UNAUTHORIZED
```

Accounts

Account defines the privileged account existing on the monitored server. It specifies the actual login credentials, user authentication mode: anonymous (without user authentication), regular (with login credentials substitution) or forward (with login and password forwarding); password changing policy as well as the password changer itself.

## 3.1 Data structures

Table 1: `AccountModel`

| Parameter | Type | Description |
| --- | --- | --- |
| accountpasswordchanger_set | PasswordChangerAttributes | Password Changer settings |
| blocked | bool | |
| credentials | AccountCredentialsAttributes | Required if `type == regular \|\| forward` |
| dump_mode | string{all, none, raw} | Session recording options |
| id | bigserial | Object Identifier |
| name | string | Unique account name. Required |
| ocr_enabled | bool | Enable OCR option |
| ocr_lang | string | Provide the language for the OCR process |
| password_lastupdate | DateTime | |
| password_change_request | DateTime | |
| password_checkout_time_limit | Time (hh:mm:ss) | Duration of the secret checkout |
| password_recovery | bool | Enable a password verifier to automatically trigger a password changer. Available for `type == regular` |
| retention | int | Delete session data after {{int}} days. Min value = 1, Max value = 2147483647 |
| server | | |
|     id | int | required |
|     name | string | required |
| server_id | int | required |
| type | string{anonymous, forward, regular} | required |

Table 2: `AccountCredentialsAttributes`

| Parameter | Type | Description |
|---|---|---|
| domain | string | |
| login | string | required |
| method | string{password, ssh-key, account} | required if `type == regular` |
| secret | string | • write only<br>• required if `method == password` |
| password_change_policy_id | int | required if `type == regular` |
| password_change_policy | | |
|    id | int | required |
|    name | string | required |
| private_key | string | • write only<br>• required if `method == ssh-key` |
| public_key | string | read only |

Table 3: `PasswordChangerAttributes`

| Parameter | Type | Description |
|---|---|---|
| password_changer_type | string{change, verify} | |
| id | int | |
| position | int | required |
| timeout | int | required |
| privileged_mode_password | string | required if `changer_id in (5, 6, 7, 8)` |
| | | `(PC_TELNET_CISCO,` `PC_TELNET_CISCO_ENABLE,` `PC_SSH_CISCO,` `PC_SSH_CISCO_ENABLE)` |
| privileged_username | string | |
| privileged_password | string | |
| ssh_username | string | required if `changer_id == 4` `(PC_SSH_UNIX_MYSQL)` |
| ssh_password | string | required if `changer_id == 4` `(PC_SSH_UNIX_MYSQL)` |
| ssh_host | string | required if `changer_id == 4` `(PC_SSH_UNIX_MYSQL)` |
| ssh_port | string | required if `changer_id == 4` `(PC_SSH_UNIX_MYSQL)` |

Table 4: `AccountSafeListenerAssignment`

| Parameter | Type | Description |
|---|---|---|
| account_id | int | • write only<br>• required |
| account | Read only | |
|    id | int | |
|    name | string | |
| listener_id | int | • write only<br>• reqired |
| listener | Read only | |
|    id | int | |
|    name | string | |

## 3.2 Creating an account

**Request**

| | |
|---|---|
| Method | POST |
| Path | /api/system/accounts |
| Headers | Content-Type: Application/JSON |
| Body | AccountModel |

**Possible Response**

| | |
|---|---|
| Status | 201 CREATED |
| Headers | Content-Type: Application/JSON |
| Body | AccountModel |
| Description | Object successfully created. Resultant object's attributes are included in response body. |

**Possible Response**

| Status | |
|---|---|
| | `400 BAD REQUEST` |

| Headers | |
|---|---|
| | `Content-Type: Application/JSON` |

| Body | |
|---|---|
| | `ValidationErrors` |

| Description | |
|---|---|
| | `Validation didn't pass.` |

## 3.3 Retrieving accounts list

**Request**

| Method | |
|---|---|
| | `GET` |

| Path | |
|---|---|
| | `/api/system/accounts` |

**Note:** Results pagination

Every `GET` request, which returns a collection of objects can be optionally paginated. To achieve it add a pagination parameter to the request path:

`/api/system/objects?page=3&page_size=10`

Table 5: Pagination parameters

| page | int |
|---|---|
| page_size | int |

**Possible Response**

| Status | |
|---|---|
| | `200 OK` |

| Headers | |
|---|---|
| | Content-`Type`: Application/JSON |

| Body | |
|---|---|
| | `[`<br>`AccountModel,`<br>`...`<br>`]` |

## 3.4 Retrieving an account

**Request**

| Method | |
|---|---|
| | `GET` |

| Path | |
|---|---|
| | `/api/system/accounts/:account_id` |

**Possible Response**

| Status | |
|---|---|
| | `200 OK` |

| Headers | |
|---|---|
| | Content-`Type`: Application/JSON |

| Body | |
|---|---|
| | `AccountModel` |

**Possible Response**

| Status | |
|---|---|
| | `404 NOT FOUND` |

| Description | No account with given id. |
|---|---|

## 3.5 Modifying accounts

**Request**

| Method | |
|---|---|
| | `PUT, PATCH` |

| Path | |
|---|---|
| | `/api/system/accounts/:account_id` |

**Possible Response**

| Status | |
|---|---|
| | `200` `OK` |

| Headers | |
|---|---|
| | Content-`Type`: Application/JSON |

| Body | |
|---|---|
| | `AccountModel` |

**Possible Response**

| Status | |
|---|---|
| | `400` `BAD REQUEST` |

| Headers | |
|---|---|
| | Content-`Type`: Application/JSON |

| Body | |
|---|---|
| | `AccountModel` |

**Possible Response**

| Status | |
|---|---|
| | `404` `NOT FOUND` |

| Description | No account with given id. |
|---|---|

## 3.6  Deleting an account

**Request**

| Method | |
|---|---|
| | `DELETE` |

| Path | |
|---|---|
| | `/api/system/accounts/:account_id` |

**Possible Response**

| Status | |
|---|---|
| | `204 NO CONTENT` |

**Possible Response**

| Status | |
|---|---|
| | `404 NOT FOUND` |

| Description | Object with specified identifier was not found. |
|---|---|

## 3.7 Retrieving users allowed to manage accounts

**Request**

| Method | |
|---|---|
| | `GET` |

| Path | |
|---|---|
| | `/api/system/accounts/:account_id/granted_users` |

**Note:** Results pagination

Every `GET` request, which returns a collection of objects can be optionally paginated. To achieve it add a pagination parameter to the request path:

`/api/system/objects?page=3&page_size=10`

Table 6: Pagination parameters

| page | int |
|---|---|
| page_size | int |

**Possible Response**

| Status | |
|--------|--|
| | 200 OK |
| Headers | |
| | `Content-Type: Application/JSON` |

| Body | |
|------|--|
| | ```[
    {
        'name': 'username'
        'id': 'id'
    }, ...
]``` |

## 3.8 Granting management privileges

**Request**

| Method | |
|--------|--|
| | `POST` |

| Path | |
|------|--|
| | `/api/system/accounts/:account_id/granted_users` |

| Body | |
|------|--|
| | ```{
user_id: user_id
}``` |

**Possible Response**

| Status | |
|--------|--|
| | `201 CREATED` |

## 3.9 Revoking management privileges

**Request**

| Method | |
|--------|--|
| | `DELETE` |

| Path | |
|------|--|
| | `/api/system/accounts/:account_id/granted_users/:user_id` |

**Possible Response**

| Status | |
|---|---|
| | 204 NO CONTENT |

**Possible Response**

| Status | |
|---|---|
| | 404 NOT FOUND |

## 3.10  Retrieving account-safe assignments list

**Request**

| Method | |
|---|---|
| | GET |

| Path | |
|---|---|
| | /api/system/accounts |

**Note:**   Results pagination

Every `GET` request, which returns a collection of objects can be optionally paginated. To achieve it add a pagination parameter to the request path:

    /api/system/objects?page=3&page_size=10

Table 7: Pagination parameters

| page | int |
|---|---|
| page_size | int |

**Possible Response**

| Status | |
|---|---|
| | 200 OK |

| Headers | |
|---|---|
| | Content-Type: Application/JSON |

| Body | |
|---|---|
| | ```
[
    AccountSafeAssignmentModel,
    ...
]
``` |

## 3.11 Creating an account-safe assignments

**Request**

| Method | |
|---|---|
| | POST |

| Path | |
|---|---|
| | /api/system/safes/:safe_id/accounts |

| Body | |
|---|---|
| | AccountSafeAssignmentModel |

**Possible Response**

| Status | |
|---|---|
| | 201 CREATED |

| Headers | |
|---|---|
| | Content-Type: Application/JSON |

| Body | |
|---|---|
| | AccountSafeAssignmentModel |

**Possible Response**

| Status | |
|---|---|
| | 400 BAD REQUEST |

| Headers | |
|---|---|
| | Content-Type: Application/JSON |

| Body | |
|---|---|
| | ValidationErrors |

**Possible Response**

| Status | |
|---|---|
| | 404 NOT FOUND |

## 3.12 Deleting an account-safe assignment

**Request**

| Method | |
|---|---|
| | DELETE |

| Path | |
|---|---|
| | /api/system/safes/:safe_id/accounts/:account_id |

**Possible Response**

| Status | |
|---|---|
| | 204 NO CONTENT |

**Possible Response**

| Status | |
|---|---|
| | 404 NOT FOUND |

CHAPTER 4

Users

User defines a subject entitled to connect to servers within monitored IT infrastructure. Detailed object definition (i.e. unique login and domain combination, full name, email address etc.) enables precise accountability of user actions when login and password are substituted with a shared account login credentials.

## 4.1 Data structures

Table 1: `UserModel`

| Parameter | Type | Description |
|---|---|---|
| id | string | Object Identifier. Read only |
| name | string | Unique name. Required |
| email | EMail | |
| language | string{en, pl, ru, ua} | Interface language. Required |
| qual_name | string | Read only |
| is_deleted | string | Read only |
| blocked | bool | |
| reason | string | The reason a user is blocked. Optional if `blocked == true` |
| full_name | string | |
| organization | string | |
| phone | string | |
| ad_domain | string | |
| ldap_base | string | |
| failures | int | Number of authentication failures |
| password_complexity | bool | Enable password complexity settings |
| external_sync | bool | Enable external synchronization |
| valid_since | DateTime | Beginning access time |
| valid_to | DateTime | Ending access time |
| domain | string | |
| role | string{superadmin, admin, operator, user} | Required |
| ldap_server | | |

Table 2: `UserSafeAssignment`

| Parameter | Type | Description |
|---|---|---|
| password_visible | bool | |
| position | int | mandatory, 0 or a negative value |
| safe_id | int | • write only<br>• required |
| safe | | Read only |
|    id | int | |
|    name | string | |
| use_time_policy | bool | |

## 4.2 Creating a user

**Request**

| Method | |
|---|---|
| | POST |

| Path | |
|---|---|
| | /api/system/users |

| Headers | |
|---|---|
| | Content-Type: Application/JSON |

| Body | |
|---|---|
| | UserModel |

## Possible Response

| Status | |
|---|---|
| | 201 CREATED |

| Headers | |
|---|---|
| | Content-Type: Application/JSON |

| Body | |
|---|---|
| | UserModel |

| Description | Object successfully created. Resultant object's attributes are included in response body. |
|---|---|

## Possible Response

| Status | |
|---|---|
| | 400 BAD REQUEST |

| Headers | |
|---|---|
| | Content-Type: Application/JSON |

| Body | |
|---|---|
| | ValidationErrors |

| Description | Validation didn't pass. |
|---|---|

Example:

```
curl -k -X POST -H "Content-Type:application/json"
https://10.0.150.150/api/system/users?sessionid={{sessionid}} -d
[{"name":"john", "role":"user", "language":"en"}]

Result: {
"id":"68719476747",
"email":"",
```

```
"language":"en",
"qual_name":"john",
"is_deleted":false,
"blocked":false,
"reason":"",
"name":"john",
"full_name":"",
"organization":null,
"phone":"",
"ad_domain":"",
"ldap_base":"",
"failures":0,
"password_complexity":false,
"external_sync":false,
"valid_since":"0001-01-01T00:00:00",
"valid_to":"9999-12-31T23:59:59.999999",
"domain":null,
"role":"user",
"ldap_server":null
}
```

## 4.3 Retrieving users list

**Request**

| Method | |
|---|---|
| | GET |
| Path | |
| | /api/system/users |
| pattern | Optional parameter allowing for narrowing down the users list based on user login. |

**Note:** Results pagination

Every `GET` request, which returns a collection of objects can be optionally paginated. To achieve it add a pagination parameter to the request path:

```
/api/system/objects?page=3&page_size=10
```

Table 3: Pagination parameters

| page | int |
|---|---|
| page_size | int |

**Possible Response**

| Status | |
|---|---|
| | 200 OK |

| Headers | |
|---|---|
| | Content-Type: Application/JSON |

| Body | |
|---|---|
| | ```
[
        UserModel,
        ...
]
``` |

Example:

```
curl -k -X GET -H "Content-Type:application/json"
"https://10.0.150.150/api/system/users?sessionid={{sessionid}}"

Result: {
"count": 1,
"next": null,
"previous": null,
"results": [
        "id":"68719476747",
        "email":"",
        "language":"en",
        "qual_name":"john",
        "is_deleted":false,
        "blocked":false,
        "reason":"",
        "name":"john",
        "full_name":"",
        "organization":null,
        "phone":"",
        "ad_domain":"",
        "ldap_base":"",
        "failures":0,
        "password_complexity":false,
        "external_sync":false,
        "valid_since":"0001-01-01T00:00:00",
        "valid_to":"9999-12-31T23:59:59.999999",
        "domain":null,
        "role":"user",
        "ldap_server":null
        ]}
```

## 4.4  Retrieving a user

**Request**

| Method | |
|---|---|
| | `GET` |

| Path | |
|---|---|
| | `/api/system/users/user_id` |

## Possible Response

| Status | |
|---|---|
| | `200 OK` |

| Headers | |
|---|---|
| | `Content-Type: Application/JSON` |

| Body | |
|---|---|
| | `UserModel` |

## Possible Response

| Status | |
|---|---|
| | `404 NOT FOUND` |

| Description | No user with given id. |
|---|---|

Example:

```
curl -k -X GET "https://10.0.150.150/api/system/users/68719476737?sessionid={
→{sessionid}}"

Result: {
"id":"68719476737",
"email":null,
"language":"en",
"qual_name":"admin",
"is_deleted":false,
"blocked":false,
"reason":null,
"name":"admin",
"full_name":null,
"organization":null,
"phone":null,
"ad_domain":null,
"ldap_base":null,
"failures":-1,
"password_complexity":false,
"external_sync":false,
"valid_since":"0001-01-01T00:00:00",
"valid_to":"9999-12-31T23:59:59.999999",
"domain":null,
```

(continues on next page)

```
"role":"superadmin",
"ldap_server":null
        }
```

## 4.5 Modifying a user

**Request**

| Method | |
|---|---|
| | PUT, PATCH |

| Path | |
|---|---|
| | /api/system/users/user_id |

**Possible Response**

| Status | |
|---|---|
| | 200 OK |

| Headers | |
|---|---|
| | Content-Type: Application/JSON |

| Body | |
|---|---|
| | UserModel |

**Possible Response**

| Status | |
|---|---|
| | 400 BAD REQUEST |

| Headers | |
|---|---|
| | Content-Type: Application/JSON |

| Body | |
|---|---|
| | UserModel |

**Possible Response**

| Status | |
|---|---|
| | 404 NOT FOUND |

| Description | No user with given id. |
|---|---|

Example:

```
curl -k -X PATCH -H "Content-Type:application/json"
https://10.0.150.150/api/system/users/68719476745?sessionid={{sessionid}} -d
[{"name":"brian"}]
Result: {
        "id":"68719476745",
        "email":"",
        "language":"en",
        "qual_name":"brian",
        "is_deleted":false,
        "blocked":false,
        "reason":"",
        "name":"brian",
        "full_name":"",
        "organization":null,
        "phone":"",
        "ad_domain":"",
        "ldap_base":"",
        "failures":0,
        "password_complexity":false,
        "external_sync":false,
        "valid_since":"0001-01-01T00:00:00",
        "valid_to":"9999-12-31T23:59:59.999999",
        "domain":null,
        "role":"user",
        "ldap_server":null
                }
```

## 4.6 Deleting a user

**Request**

| Method | |
|---|---|
| | DELETE |

| Path | |
|---|---|
| | /api/system/users/user_id |

**Possible Response**

| Status | |
|---|---|
| | 204 NO CONTENT |

**Possible Response**

| Status | |
|---|---|
| | 404 NOT FOUND |

| Description | Object with specified identifier was not found. |
|---|---|

Example:

```
curl -k -X DELETE https://10.0.150.150/api/system/users/68719476745?sessionid={
↪{sessionid}}
```

## 4.7 Retrieving users allowed to manage users

**Request**

| Method | |
|---|---|
| | GET |

| Path | |
|---|---|
| | /api/system/users/user_id/granted_users |

**Note:** Results pagination

Every `GET` request, which returns a collection of objects can be optionally paginated. To achieve it add a pagination parameter to the request path:

    /api/system/objects?page=3&page_size=10

Table 4: Pagination parameters

| page | int |
|---|---|
| page_size | int |

**Possible Response**

| Status | |
|---|---|
| | 200 OK |

| Headers | |
|---|---|
| | Content-Type: Application/JSON |

| Body | |
|---|---|
| | ```
[
    {
        'name': 'username',
        'id': :id
    }, ...
]
``` |

Examlple:

```
curl -k -X GET
"https://10.0.150.150/api/system/users/68719476740/granted_users?sessionid={
↪{sessionid}}"

[{"id":68719476748,"name":"awesome"}]
```

## 4.8 Granting management privileges

**Request**

| Method | |
|---|---|
| | POST |

| Path | |
|---|---|
| | /api/system/users/user_id/granted_users |

| Body | |
|---|---|
| | ``{`` ``''user_id'': :user_id`` ``}`` |

**Possible Response**

| Status | |
|---|---|
| | 201 CREATED |

Example:

```
curl -k -X POST -H "Content-Type:application/json"
https://10.0.150.150/api/system/users/68719476740/granted_users?sessionid={{sessionid}
↪} -d
[{"user_id":68719476748}]

{"id":68719476748,"name":"awesome"}
```

## 4.9 Revoking management privileges

**Request**

| Method | |
|---|---|
| | DELETE |

| Path | |
|---|---|
| | /api/system/users/user_id/granted_users/user_id |

**Possible Response**

| Status | |
|---|---|
| | 204 NO CONTENT |

**Possible Response**

| Status | |
|---|---|
| | 404 NOT FOUND |

Example:

```
curl -k -X DELETE
https://10.0.150.150/api/system/users/68719476740/granted_users/68719476748?sessionid=
↪{{sessionid}}
```

## 4.10 Retrieving user-safe assignments list

**Request**

| Method | |
|---|---|
| | GET |

| Path | |
|---|---|
| | /api/system/users/:user_id/safes |

**Note:** Results pagination

Every `GET` request, which returns a collection of objects can be optionally paginated. To achieve it add a pagination parameter to the request path:

    /api/system/objects?page=3&page_size=10

Table 5: Pagination parameters

| page | int |
|---|---|
| page_size | int |

**Possible Response**

| Status | |
|---|---|
| | 200 OK |

| Headers | |
|---|---|
| | Content-Type: Application/JSON |

| Body | |
|---|---|
| | `[`<br>`        UserSafeAssignment,`<br>`        ...`<br>`]` |

Example:

```
curl -k -X GET "https://10.0.150.150./api/system/users/68719476740/safes?sessionid={
↪{sessionid}}"
```

## 4.11 Creating a user-safe assignment

**Request**

| Method | |
|---|---|
| | POST |

| Path | |
|---|---|
| | /api/system/users/:user_id/safes |

| Body | |
|---|---|
| | UserSafeAssignment |

**Possible Response**

| Status | |
|---|---|
| | 201 CREATED |

| Headers | |
|---|---|
| | Content-Type: Application/JSON |

| Body | |
|---|---|
| | UserSafeAssignment |

**Possible Response**

Status

> 400 BAD REQUEST

Headers

> Content-Type: Application/JSON

Body

> ValidationErrors

## Possible Response

Status

> 404 NOT FOUND

Example:

```
curl -k -X POST -H "Content-Type:application/json"
https://10.0.150.150/api/system/users/68719476740/safes?sessionid={{sessionid}} -d
[{"safe_id":2, "position":0}]

Result: {
        "safe":
        {"id":2,
        "name":"portal"
        },
"password_visible":false,
"use_time_policy":false,
"position":0,
"blocked":false,
"valid_since":"0001-01-01T00:00:00",
"valid_to":"9999-12-31T23:59:59.999999"
        }
```

## 4.12 Deleting a user-safe assignment

**Request**

Method

> DELETE

Path

> /api/system/users/:user_id/safes/:safe_id

## Possible Response

Status

204 NO CONTENT

**Possible Response**

Status

404 NOT FOUND

Example:

```
curl -k -X DELETE -H https://10.0.150.150/api/system/users/68719476740/safes?
↪sessionid={{sessionid}}
```

User authentication methods management

Table 1: `UserAuthenticationMethodModel`

| Parameter | Type | Description |
|---|---|---|
| id | int | read_only |
| needs_change | bool | default == false |
| position | int | required |
| type | string {extauth, password, sshkey} | |
| external_authentication | int | default == null |

## 5.1 Listing user authentication methods

**Request**

Method

    `GET`

Path

    `/api/system/users/:user_id/methods`

**Possible Response**

| Status | |
|---|---|
| | 200 OK |

| Headers | |
|---|---|
| | Content-Type: Application/JSON |

| Body | |
|---|---|
| | [ |
| |     UserAuthenticationMethodModel, |
| |     ... |
| | ] |

**Possible Response**

| Status | |
|---|---|
| | 404 NOT FOUND |

## 5.2 Creating user authentication method

**Request**

| Method | |
|---|---|
| | POST |

| Path | |
|---|---|
| | /api/system/users/:user_id/methods |

| Headers | |
|---|---|
| | Content-Type: Application/JSON |

| Body | |
|---|---|
| | UserAuthenticationMethodModel |

**Possible Response**

| Status | |
|---|---|
| | 201 CREATED |

| Headers | |
|---|---|
| | Content-Type: Application/JSON |

| Body | |
|---|---|
| | UserAuthenticationMethodModel |

**Possible Response**

| Status | |
|---|---|
| | 400 BAD REQUEST |

| Headers | |
|---|---|
| | Content-Type: Application/JSON |

| Body | |
|---|---|
| | ValidationErrors |

**Possible Response**

| Status | |
|---|---|
| | 404 NOT FOUND |

| Description | No user with given user_id. |
|---|---|

## 5.3 Retrieving user authentication method

**Request**

| Method | |
|---|---|
| | GET |

| Path | |
|---|---|
| | /api/system/users/:user_id/methods/:method_id |

**Possible Response**

| Status | |
|---|---|
| | 200 OK |

| Headers | |
|---|---|
| | Content-Type: Application/JSON |

| Body | |
|---|---|
| | UserAuthenticationMethodModel |

**Possible Response**

| Status | |
|---|---|
| | 404 NOT FOUND |

**Updating user authentication method**

**Request**

| Method | |
|---|---|
| | PATCH, PUT |

| Path | |
|---|---|
| | /api/system/users/:user_id/methods/:method_id |

| Body | |
|---|---|
| | UserAuthenticationMethodModel |

**Possible Response**

| Status | |
|---|---|
| | 200 OK |

| Headers | |
|---|---|
| | Content-Type: Application/JSON |

| Body | |
|---|---|
| | UserAuthenticationMethodModel |

**Possible Response**

| Status | |
|---|---|
| | 400 BAD REQUEST |

| Headers | |
|---|---|
| | Content-Type: Application/JSON |

| Body | |
|---|---|
| | ValidationErrors |

**Possible Response**

| Status | |
|---|---|
| | 404 NOT FOUND |

## 5.4 Deleting user authentication method

**Request**

| Method | |
|---|---|
| | `DELETE` |

| Path | |
|---|---|
| | `/api/system/users/:user_id/methods/:method_id` |

## Possible Response

| Status | |
|---|---|
| | `204` `NO CONTENT` |

## Possible Response

| Status | |
|---|---|
| | `404` `NOT FOUND` |

External authentication

## 6.1 Data structures

Table 1: `ExternalAuthenticationModel`

| Parameter | Type | Description |
|-----------|------|-------------|
| id | int | Object identifier. Read only. |
| type | string {cerb, radius, ldap, ad} | |
| cerb | ExternalAuthenticationCerbModel | Cerb object definiton |
| radius | ExternalAuthenticationRadiusModel | Radius object definiton |
| ldap | ExternalAuthenticationLdapModel | LDAP object definiton |
| ad | ExternalAuthenticationAdModel | Active Directory object definiton |

Table 2: `ExternalAuthenticationCerbModel`

| Parameter | Type | Description |
|-----------|------|-------------|
| host | string | Ip address of service provider; required |
| port | int | Port value of service provider; required |
| bindto | string | Bind address. Include labels like 'fudo:label:test' or ip address |
| nasid | string | Correct value of NAS id of cerb provider; required |
| secret | string | Password to cerb provider; required; write-only |

Table 3: `ExternalAuthenticationRadiusModel`

| Parameter | Type | Description |
|---|---|---|
| host | string | Ip address of service provider; required |
| port | int | Port value of service provider; required |
| bindto | string | Bind address. Include labels like 'fudo:label:test' or ip address |
| nasid | string | Correct value of NAS id of cerb provider; required |
| secret | string | Password to cerb provider; required; write-only |

Table 4: `ExternalAuthenticationLdapModel`

| Parameter | Type | Description |
|---|---|---|
| host | string | Ip address of service provider; required |
| port | int | Port value of service provider; required |
| bindto | string | Bind address. Include labels like 'fudo:label:test' or ip address |
| ldap_binddn | string | Bind domain to LDAP provider; required |
| ssl | bool | Set if you want to use ssl to authenticate; default == false |
| ssl_cert | string | Valid SSL certificate. Required if ssl property set True; default == null |

Table 5: `ExternalAuthenticationAdModel`

| Parameter | Type | Description |
|---|---|---|
| host | string | Ip address of service provider; required |
| port | int | Port value of service provider; required |
| bindto | string | Bind address. Include labels like 'fudo:label:test' or ip address |
| ad_domain | string | Bind domain to AD provider; required |
| ssl | bool | Set if you want to use ssl to authenticate; default == false |
| ssl_cert | string | Valid SSL certificate. Required if ssl property set True; default == null |

## 6.2 Retrieving external authentication methods list

**Request**

| | |
|---|---|
| Method | |
| | GET |
| Path | |
| | /api/system/extauth |

**Note:** Results pagination

Every `GET` request, which returns a collection of objects can be optionally paginated. To achieve it add a pagination parameter to the request path:

    /api/system/objects?page=3&page_size=10

Table 6: Pagination parameters

| | |
|---|---|
| page | int |
| page_size | int |

## Possible Response

Status

    200 OK

Headers

    Content-Type: Application/JSON

Body

    [
    ExternalAuthenticationModel,
    ...
    ]

Example:

```
curl -k -X GET -H "Content-Type:application/json"
https://10.0.150.150/api/system/extauth?sessionid={{sessionid}} -d

Result: {"ad": [
{
    "id": 2594073385365405697,
    "type": "ad",
    "host": "10.0.150.150",
    "port": 389,
    "bindto": null,
    "ad_domain": "default",
    "ssl": false,
    "ssl_cert": ""
}
],
"radius": [
    {
        "id": 2594073385365405699,
        "type": "radius",
        "host": "10.0.150.150",
        "port": 1645,
        "bindto": null,
        "nasid": "cerb"
    }
```

```
],
"ldap": [
    {
        "id": 2594073385365405700,
        "type": "ldap",
        "host": "10.0.150.150",
        "port": 389,
        "bindto": null,
        "ldap_binddn": "dc=admin4,dc=default,dc=defaultt",
        "ssl": false,
        "ssl_cert": ""
    }
],
"cerb": [
    {
        "id": 2594073385365405698,
        "type": "cerb",
        "host": "10.0.150.150",
        "port": 1812,
        "bindto": "10.0.150.160",
        "nasid": "cerb"
    }]}
```

## 6.3 Modifying external authentication method

**Request**

Method

   PUT

Path

   /api/system/extauth/id

**Possible Response**

Status

   200 OK

Headers

   Content-Type: Application/JSON

Body

   ExternalAuthenticationModel

Example:

```
curl -k -X PUT -H "Content-Type:application/json"
https://10.0.150.150/api/system/extauth/2594073385365405697?sessionid={{sessionid}} -
↪d
{
    "host": "10.0.150.150",
    "port": 388,
    "ad_domain": "default"
}
```

## 6.4 Creating an external authentication method

**Request**

| Method | |
|---|---|
| | POST |

| Path | |
|---|---|
| | /api/system/extauth |

| Headers | |
|---|---|
| | Content-Type: Application/JSON |

| Body | |
|---|---|
| | ExternalAuthenticationModel |

**Possible Response**

| Status | |
|---|---|
| | 201 CREATED |

| Headers | |
|---|---|
| | Content-Type: Application/JSON |

| Body | |
|---|---|
| | ExternalAuthenticationModel |

| Description | |
|---|---|
| | Object successfully created. Resultant object's attributes are included in response body. |

**Possible Response**

| Status |
| --- |
| 400 BAD REQUEST |

| Headers |
| --- |
| Content-Type: Application/JSON |

| Body |
| --- |
| ValidationErrors |

| Description |
| --- |
| Validation didn't pass. |

Example:

```
curl -k -X POST -H "Content-Type:application/json"
https://10.0.150.150/api/system/extauth?sessionid={{sessionid}} -d
{
    "type": "ad",
    "host": "10.0.150.150",
    "port": 388,
    "ad_domain": "default"
}
```

## 6.5 Deleting an external authentication method

**Request**

| Method |
| --- |
| DELETE |

| Path |
| --- |
| /api/system/extauth/id |

Example:

```
curl -k -X DELETE https://10.0.150.150/api/system/extauth/2594073385365405697?
↪sessionid={{sessionid}}
```

CHAPTER 7

## Servers

Server is a definition of the IT infrastructure resource, which can be accessed over one of the specified protocols.

## 7.1 Data structures

Table 1: `ServerModel`

| Parameter | Type | Description |
| --- | --- | --- |
| id | bigserial | Object Identifier |
| name | string | Required |
| address | IPv4/string | Write only, required if subnet-mask is empty (static server) |
| addresses | string | Read only, a list of IP addresses |
| description | string | Object description |
| http | HTTPServerAttributes | Required if `protocol == http` |
| rdp | RDPServerAttributes | Required if `protocol == rdp` |
| subnet | SubnetModel | Required if not address |
| tls | TLSServerAttributes | |
| remote_apps | RemoteAppsAttributes | Available for `protocol == rdp` |
| legacy_ciphers | bool | Allow negotiating older encryption algorithms (DSA(1024), RSA(1024)) |
| blocked | bool | |
| reason | string | The reason for blocking Server object |
| port | int | Required |
| bind_ip | IPv4 | Required |
| protocol | string{checkout, citrixsf, http, ica, modbus, mysql, oracle, rdp, ssh, system, tcp, tds, telnet, tn3270, tn5250, vnc} | Required |

Table 2: `HTTPServerAttributes`

| Parameter | Type | Description |
| --- | --- | --- |
| timeout | int | Default 900 |

Table 3: `RDPServerAttributes`

| Parameter | Type | Description |
| --- | --- | --- |
| ca_certificate | PEM | |
| security | string{std, tls, nla} | <ul><li>required;</li><li>default == `nla`</li></ul> |

Table 4: `TLSServerAttributes`

| Parameter | Type | Description |
| --- | --- | --- |
| ca_certificate | PEM | required if `use_tls` |
| use_tls | boolean | |

Table 5: `RemoteAppsAttributes`

| Parameter | Type | Description |
|---|---|---|
| id | string | |
| server | id | |
| name | string | required |
| path | string | required |
| args | string | |
| variables | id, name (required), encrypt, object_type, object_property | |

Table 6: `ServerAddressModel`

| Parameter | Type | Description |
|---|---|---|
| host | IPv4 | required |
| http | HTTPServerAddressAttributes | |
| rdp | RDPServerAddressAttributes | |
| tls | TLSServerAddressAttributes | |
| ssh | SSHServerAddressAttributes | |

Table 7: `SubnetModel`

| Parameter | Type | Description |
|---|---|---|
| ip | IPv4/string | Subnetwork IP address, e.g. `10.0.255.255`. |
| mask | int | Subnet mask in CIDR notation. |
| subnet | string | |

Table 8: `HTTPServerAddressAttributes`

| Parameter | Type | Description |
|---|---|---|
| host | string | |
| tls_certificate | string | |

Table 9: `RDPServerAddressAttributes`

| Parameter | Type | Description |
|---|---|---|
| tls_certificate | PEM | |
| public_key | PEM | |

Table 10: `SSHServerAddressAttributes`

| Parameter | Type | Description |
|---|---|---|
| public_key | PEM | |

Table 11: `TLSServerAddressAttributes`

| Parameter | Type | Description |
|---|---|---|
| tls_certificate | PEM | |

**7.1. Data structures** 44

## 7.2 Creating a server

**Request**

| Method | |
|---|---|
| | POST |

| Path | |
|---|---|
| | /api/system/servers |

| Headers | |
|---|---|
| | Content-Type: Application/JSON |

| Body | |
|---|---|
| | ServerModel |

**Possible Response**

| Status | |
|---|---|
| | 201 CREATED |

| Headers | |
|---|---|
| | Content-Type: Application/JSON |

| Body | |
|---|---|
| | ServerModel |

| Description | Object successfully created. Resultant object's attributes are included in response body. |
|---|---|

**Possible Response**

| Status | |
|---|---|
| | 400 BAD REQUEST |

| Headers | |
|---|---|
| | Content-Type: Application/JSON |

| Body | |
|---|---|
| | ValidationErrors |

| Description | Validation didn't pass. |
|---|---|

## 7.3 Retrieving servers list

**Request**

| Method | |
|---|---|
| | `GET` |

| Path | |
|---|---|
| | `/api/system/servers` |

**Note:** Results pagination

Every `GET` request, which returns a collection of objects can be optionally paginated. To achieve it add a pagination parameter to the request path:

> `/api/system/objects?page=3&page_size=10`

Table 12: Pagination parameters

| page | int |
|---|---|
| page_size | int |

**Possible Response**

| Status | |
|---|---|
| | `200` `OK` |

| Headers | |
|---|---|
| | `Content-Type: Application/JSON` |

| Body | |
|---|---|
| | `[`<br>`        ServerModel,`<br>`        ...`<br>`]` |

## 7.4 Retrieving a server

**Request**

| Method | |
|---|---|
| | `GET` |

| Path | |
|---|---|
| | `/api/system/servers/:server_id` |

**Possible Response**

| Status | |
|---|---|
| | `200 OK` |

| Headers | |
|---|---|
| | `Content-Type: Application/JSON` |

| Body | |
|---|---|
| | `ServerModel` |

## Possible Response

| Status | |
|---|---|
| | `404 NOT FOUND` |

| Description | No server with given id. |
|---|---|

# 7.5  Modifying a server

**Request**

| Method | |
|---|---|
| | `PUT, PATCH` |

| Path | |
|---|---|
| | `/api/system/servers/:server_id` |

## Possible Response

| Status | |
|---|---|
| | `200 OK` |

| Headers | |
|---|---|
| | `Content-Type: Application/JSON` |

| Body | |
|---|---|
| | `ServerModel` |

## Possible Response

| Status | |
|---|---|
| | `400 BAD REQUEST` |

| Headers | |
|---|---|
| | `Content-Type: Application/JSON` |

| Body | |
|---|---|
| | `ServerModel` |

**Possible Response**

| Status | |
|---|---|
| | `404 NOT FOUND` |

| Description | No server with given id. |
|---|---|

## 7.6 Deleting a server

**Request**

| Method | |
|---|---|
| | `DELETE` |

| Path | |
|---|---|
| | `/api/system/servers/:server_id` |

**Possible Response**

| Status | |
|---|---|
| | `204 NO CONTENT` |

**Possible Response**

| Status | |
|---|---|
| | `404 NOT FOUND` |

| Description | Object with specified identifier was not found. |
|---|---|

## 7.7 Retrieving users allowed to manage given server

**Request**

| Method | |
|---|---|
| | `GET` |

| Path | |
|---|---|
| | `/api/system/servers/:server_id/granted_users` |

**Note:**  Results pagination

Every `GET` request, which returns a collection of objects can be optionally paginated. To achieve it add a pagination parameter to the request path:

> `/api/system/objects?page=3&page_size=10`

Table 13: Pagination parameters

| page | int |
|---|---|
| page_size | int |

**Possible Response**

| Status | |
|---|---|
| | `200 OK` |

| Headers | |
|---|---|
| | `Content-Type: Application/JSON` |

| Body | |
|---|---|
| | ```
[
        {
        'name': 'username',
        'id': :id
        }, ...
]
``` |

## 7.8 Granting management privileges

**Request**

| Method | |
|---|---|
| | POST |

| Path | |
|---|---|
| | /api/system/servers/:server_id/granted_users |

| Body | |
|---|---|
| | ```
{
        ''user_id'': :user_id
}
``` |

**Possible Response**

| Status | |
|---|---|
| | 201 CREATED |

## 7.9 Revoking management privileges

**Request**

| Method | |
|---|---|
| | DELETE |

| Path | |
|---|---|
| | /api/system/servers/:server_id/granted_users/:user_id |

**Possible Response**

| Status | |
|---|---|
| | 204 NO CONTENT |

**Possible Response**

| Status | |
|---|---|
| | 404 NOT FOUND |

## 7.10 Listing server addresses

**Request**

| Method | |
|---|---|
| | `GET` |

| Path | |
|---|---|
| | `/api/system/servers/:server_id/addresses` |

**Note:** Results pagination

Every `GET` request, which returns a collection of objects can be optionally paginated. To achieve it add a pagination parameter to the request path:

`/api/system/objects?page=3&page_size=10`

Table 14: Pagination parameters

| page | int |
|---|---|
| page_size | int |

**Possible Response**

| Status | |
|---|---|
| | `204 NO CONTENT` |

**Possible Response**

| Status | |
|---|---|
| | `200 OK` |

| Headers | |
|---|---|
| | `Content-Type: Application/JSON` |

| Body | |
|---|---|
| | `[` |
| | `    ServerAddressModel` |
| | `    ...` |
| | `]` |

**Possible Response**

| Status | |
|---|---|
| | `404 NOT FOUND` |

## 7.11 Creating a server address

**Request**

| Method | |
|---|---|
| | POST |

| Path | |
|---|---|
| | /api/system/servers/:server_id/addresses |

| Headers | |
|---|---|
| | Content-Type: Application/JSON |

| Body | |
|---|---|
| | ServerAddressModel |

**Possible Response**

| Status | |
|---|---|
| | 201 CREATED |

| Headers | |
|---|---|
| | Content-Type: Application/JSON |

| Body | |
|---|---|
| | ServerAddressModel |

**Possible Response**

| Status | |
|---|---|
| | 400 BAD REQUEST |

| Headers | |
|---|---|
| | Content-Type: Application/JSON |

| Body | |
|---|---|
| | ValidationErrors |

**Possible Response**

| Status | |
|---|---|
| | `404 NOT FOUND` |

| Description | |
|---|---|
| | `No server with given :server_id.` |

## 7.12 Updating a server address

**Request**

| Method | |
|---|---|
| | `PATCH, PUT` |

| Path | |
|---|---|
| | `/api/system/servers/:server_id/addresses/:address_id` |

| Body | |
|---|---|
| | `ServerAddressModel` |

**Possible Response**

| Status | |
|---|---|
| | `200 OK` |

| Headers | |
|---|---|
| | `Content-Type: Application/JSON` |

| Body | |
|---|---|
| | `ServerAddressModel` |

**Possible Response**

| Status | |
|---|---|
| | `400 BAD REQUEST` |

| Headers | |
|---|---|
| | `Content-Type: Application/JSON` |

| Body | |
|---|---|
| | `ValidationErrors` |

**Possible Response**

| Status | |
|---|---|
| | 404 NOT FOUND |

| Description | |
|---|---|
| | No server with given :server_id. |

| Description | |
|---|---|
| | No server address with given :address_id |

## 7.13  Deleting a server address

**Request**

| Method | |
|---|---|
| | DELETE |

| Path | |
|---|---|
| | /api/system/servers/:server_id/addresses/:address_id |

**Possible Response**

| Status | |
|---|---|
| | 204 NO CONTENT |

**Possible Response**

| Status | |
|---|---|
| | 404 NOT FOUND |

| Description | |
|---|---|
| | No server with given :server_id. |

| Description | |
|---|---|
| | No server address with given :address_id |

Safes

Safe directly regulates user access to monitored servers. It specifies available protocols' features, policies and other details concerning users and servers relations.

## 8.1 Data structures

Table 1: `SafeModel`

| Parameter | Type | Description |
| --- | --- | --- |
| id | string | Read only |
| rdp | SafeRDPAttributes | Safe settings for `protocol == rdp` |
| ssh | SafeSSHAttributes | Safe settings for `protocol == sh` |
| vnc | SafeVNCAttributes | Safe settings for `protocol == vnc` |
| name | string | Unique name. Required |
| webclient | bool | Enable connections via the browser |
| blocked | bool | |
| reason | string | The reason of the safe being blocked |
| login_reason | bool | Enable sending login reason for connection |
| require_confirmation | bool | Enable confirmation of each connection |
| confirmation_timeout | int | Min value = -2147483648, Max value = 2147483647 |
| note_access | string {none, read, write} | Access level to the notes |
| time_limit | int | Enable Session time limit in minutes |
| inactivity_limit | int | Enable Session inactivity limit in minutes |
| users | string | Read only |

Table 2: `SafeRDPAttributes`

| Parameter | Type | Description |
| --- | --- | --- |
| audio | bool | Audio input redirection. Default value == `true` |
| clipboard | bool | Clipboard redirection. Default value == `true` |
| depth | int{8,16,24,32} | Max. color depth |
| device | bool | Device redirection. Default value == `true` |
| driver_dvc | bool | Default value == `false`" |
| multimedia | bool | Multimedia redirection. Default value == `true` |
| resolution | Resolution | Max. resolution |
| sound | bool | Sound redirection. Default value == `true` |
| suspend | bool | Enable content to not be available for viewing when the user minimizes its client application. |

Table 3: `SafeSSHAttributes`

| Parameter | Type | Description |
| --- | --- | --- |
| session | bool | Default value == `true` |
| port_forwarding | bool | Default value == `true` |
| terminal | bool | Default value == `true` |
| environment | bool | Default value == `true` |
| x11 | bool | Default value == `true` |
| agent_forwarding | bool | Default value == `true` |
| shell | bool | Default value == `true` |
| scp | bool | Default value == `true` |
| sftp | bool | Default value == `true` |
| ssh_exec | bool | Default value == `true` |

Table 4: `SafeVNCAttributes`

| Parameter | Type | Description |
| --- | --- | --- |
| client_clip | bool | Enable a user to be allowed to paste text into the VNC server computer. Default value == `true` |
| server_clip | bool | Enabled a user to be allowed to copy and paste text from the VNC server computer into the user's computer. Default value == `true` |

Table 5: `UserSafeAssignment`

| Parameter | Type | Description |
| --- | --- | --- |
| password_visible | bool | |
| position | int | mandatory, 0 or a negative value |
| safe_id | int | <ul><li>write only</li><li>required</li></ul> |
| safe | | Read only |
|    id | int | |
|    name | string | |
| use_time_policy | bool | |

Table 6: `AccountSafeListenerAssignment`

| Parameter | Type | Description |
|---|---|---|
| account_id | int | <ul><li>write only</li><li>required</li></ul> |
| account | Read only | |
| id | int | |
| name | string | |
| listener_id | int | <ul><li>write only</li><li>reqiured</li></ul> |
| listener | Read only | |
| id | int | |
| name | string | |

## 8.2 Creating a safe

**Request**

| | |
|---|---|
| Method | |
| | `POST` |
| Path | |
| | `/api/system/safes` |
| Headers | |
| | `Content-Type: Application/JSON` |
| Body | |
| | `SafeModel` |

**Possible Response**

| | |
|---|---|
| Status | |
| | `201 CREATED` |
| Headers | |
| | `Content-Type: Application/JSON` |
| Body | |
| | `SafeModel` |

**Possible Response**

| Status | |
|---|---|
| | 400 BAD REQUEST |

| Headers | |
|---|---|
| | Content-Type: Application/JSON |

| Body | |
|---|---|
| | ValidationErrors |

| Description | Validation didn't pass. |
|---|---|

## 8.3 Retrieving safes list

**Request**

| Method | |
|---|---|
| | GET |

| Path | |
|---|---|
| | /api/system/safes |

**Note:** Results pagination

Every GET request, which returns a collection of objects can be optionally paginated. To achieve it add a pagination parameter to the request path:

```
/api/system/objects?page=3&page_size=10
```

Table 7: Pagination parameters

| page | int |
|---|---|
| page_size | int |

**Possible Response**

| Status | |
|---|---|
| | 200 OK |

| Headers | |
|---|---|
| | Content-Type: Application/JSON |

| Body | |
|---|---|
| | ```
[
        SafeModel,
        ...
]
``` |

## 8.4 Retrieving a safe

**Request**

| Method | |
|---|---|
| | `GET` |

| Path | |
|---|---|
| | `/api/system/safes/:safe_id` |

**Possible Response**

| Status | |
|---|---|
| | `200` `OK` |

| Headers | |
|---|---|
| | `Content-Type: Application/JSON` |

| Body | |
|---|---|
| | `SafeModel` |

**Possible Response**

| Status | |
|---|---|
| | `404` `NOT FOUND` |

| Description | No safe with given id. |
|---|---|

## 8.5 Modifying a safe

**Request**

| Method | |
|---|---|
| | `PUT, PATCH` |

| Path | |
|---|---|
| | `/api/system/safes/:safe_id` |

**Possible Response**

| Status | |
|---|---|
| | 200 OK |

| Headers | |
|---|---|
| | Content-Type: Application/JSON |

| Body | |
|---|---|
| | SafeModel |

**Possible Response**

| Status | |
|---|---|
| | 400 BAD REQUEST |

| Headers | |
|---|---|
| | Content-Type: Application/JSON |

| Body | |
|---|---|
| | SafeModel |

**Possible Response**

| Status | |
|---|---|
| | 404 NOT FOUND |

| Description | No safe with given id. |
|---|---|

## 8.6  Deleting a safe

**Request**

| Method | |
|---|---|
| | DELETE |

| Path | |
|---|---|
| | /api/system/safes/:safe_id |

**Possible Response**

| Status | |
|---|---|
| | 204 NO CONTENT |

**Possible Response**

| Status | |
|---|---|
| | 404 NOT FOUND |

| Description | Object with specified identifier was not found. |
|---|---|

## 8.7 Retrieving users allowed to manage selected safe

**Request**

| Method | |
|---|---|
| | GET |

| Path | |
|---|---|
| | /api/system/safes/:safe_id/granted_users |

**Note:** Results pagination

Every GET request, which returns a collection of objects can be optionally paginated. To achieve it add a pagination parameter to the request path:

```
/api/system/objects?page=3&page_size=10
```

Table 8: Pagination parameters

| page | int |
|---|---|
| page_size | int |

**Possible Response**

| Status | |
|---|---|
| | 200 OK |

| Headers | |
|---|---|
| | Content-Type: Application/JSON |

| Body | |
|---|---|
| | ```
[
    {
        'name': 'safename',
        'id': :id
    } , ...
]
``` |

## 8.8 Granting management privileges

**Request**

Method

```
POST
```

Path

```
/api/system/safes/:safe_id/granted_users
```

Body

```
{
        ''user_id'': :user_id
}
```

**Possible Response**

Status

```
201 CREATED
```

## 8.9 Revoking management privileges

**Request**

Method

```
DELETE
```

Path

```
/api/system/safes/:safe_id/granted_users/:safe_id
```

**Possible Response**

Status

```
204 NO CONTENT
```

**Possible Response**

Status

```
404 NOT FOUND
```

Safe members (account-safe-listener) management

## 9.1 Retrieving account-safe-listener assignments list

**Request**

| Method | |
|--------|--|
| | `GET` |

| Path | |
|------|--|
| | `/api/system/safes/:safe_id/account_listeners` |

**Note:** Results pagination

Every `GET` request, which returns a collection of objects can be optionally paginated. To achieve it add a pagination parameter to the request path:

    /api/system/objects?page=3&page_size=10

Table 1: Pagination parameters

| page | int |
|------|-----|
| page_size | int |

**Possible Response**

| Status | |
|---|---|
| | 200 OK |

| Headers | |
|---|---|
| | Content-Type: Application/JSON |

| Body | |
|---|---|
| | ```
[
        AccountSafeListenerAssignment,
        ...
]
``` |

## 9.2 Creating account-safe-listener assignment

**Request**

| Method | |
|---|---|
| | POST |

| Path | |
|---|---|
| | /api/system/safes/:safe_id/account_listeners |

| Body | |
|---|---|
| | AccountSafeListenerAssignment |

**Possible Response**

| Status | |
|---|---|
| | 201 CREATED |

| Headers | |
|---|---|
| | Content-Type: Application/JSON |

| Body | |
|---|---|
| | AccountSafeListenerAssignment |

**Possible Response**

Status

> <span style="color:green">400</span> BAD REQUEST

Headers

> Content-<span style="color:blue">Type</span>: Application/JSON

Body

> ValidationErrors

## Possible Response

Status

> <span style="color:green">404</span> NOT FOUND

# 9.3 Deleting account-safe-listener assignment

**Request**

Method

> DELETE

Path

> /api/system/safes/:safe_id/account_listeners/:assoc_id

## Possible Response

Status

> <span style="color:green">204</span> NO CONTENT

## Possible Response

Status

> <span style="color:green">404</span> NOT FOUND

Sessions management

## 10.1 Data structures

Table 1: `SessionCommandModel`

| Parameter | Type | Description |
|---|---|---|
| command | string{kill, suspend, resume} | required |

Table 2: `SessionModel`

| Parameter | Type | Description |
|---|---|---|
| account | | Required |
|     id | int | |
|     name | string | |
| destination_ip | IPv4 | IP address of the target server |
| description_port | int | Port of the target server address |
| finished_at | DateTime | Datetime of the session termination |
| handled_by | | |
| id | int | |
| listener | | |
|     id | int | ID of the listener, via which the connection was established |
|     name | string | Name of the listener, via which the connection was established |
| login_reason | string | Reason of the login into the system |
| protocol | string{checkout, citrixsf, http, ica, modbus, mysql, oracle, rdp, ssh, system, tcp, tds, telnet, tn3270, tn5250, vnc} | |

Table 2 – continued from previous page

| Parameter | Type | Description |
| --- | --- | --- |
| reason | string | Reason of establishing connection |
| safe | | Read only |
|    id | int | ID of the safe, via which the connection was established |
|    name | string | Name of the safe, via which the connection was established |
| server | | Read only |
|    id | int | ID of the server, to which the connection was established |
|    name | string | Name of the server, to which the connection was established |
| source_ip | IPv4 | Source IP address |
| source_port | int | Port of the source IP address |
| started_at | DateTime | Datetime of the session start |
| status | string{approved, terminated} | |
| user | | |
|    id | int | ID of the user who was connected |
|    name | string | Name of the user who was connected |
| dump_mode | string{all,none,raw} | Session recording options |
| paused | bool | |
| ocr_enabled | bool | Enable OCR option |
| server_address | | |
|    id | int | |
|    host | IPv4 | |
|    port | | |
|    http | | Settings when `protocol == http` |
|       host | | |
|       tls_certificate | | |
|    rdp | | Settings when `protocol == rdp` |
|       tls_certificate | | |
|       public_key | | |
|    ssh | | Settings when `protocol == ssh` |
|       public_key | | |
|    tls | | |

## 10.2 Retrieving sessions list

**Request**

| Method | |
| --- | --- |
| | `GET` |

| Path | |
| --- | --- |
| | `/api/system/sessions` |

---

**Note:**  Results pagination

Every `GET` request, which returns a collection of objects can be optionally paginated. To achieve it add a pagination parameter to the request path:

    /api/system/objects?page=3&page_size=10

Table 3: Pagination parameters

| | |
|---|---|
| page | int |
| page_size | int |

---

## Possible Response

---

Status

    200 OK

---

Headers

    Content-Type: Application/JSON

---

Body

    [
            SessionModel,
            ...
    ]

---

# 10.3 Retrieving session

**Request**

---

Method

    GET

---

Path

    /api/system/sessions/:session_id

---

**Possible Response**

---

| Status | |
|---|---|
| | 200 OK |

| Headers | |
|---|---|
| | Content-Type: Application/JSON |

| Body | |
|---|---|
| | SessionModel |

**Possible Response**

| Status | |
|---|---|
| | 404 NOT FOUND |

## 10.4 Sending commands to session

**Request**

| Method | |
|---|---|
| | POST |

| Path | |
|---|---|
| | /api/system/sessions/:session_id/command |

| Body | SessionCommandModel |
|---|---|

**Possible Response**

| Status | |
|---|---|
| | 200 OK |

| Headers | |
|---|---|
| | Content-Type: Application/JSON |

| Body | |
|---|---|
| | SessionCommandModel |

**Possible Response**

| Status | |
|---|---|
| | 400 BAD REQUEST |

| Headers | |
|---|---|
| | Content-Type: Application/JSON |

| Body | ValidationErrors |
|---|---|

**Possible Response**

| Status | |
|---|---|
| | 404 NOT FOUND |

Listeners

Listener determines server connection mode (proxy, gateway, transparent, bastion) as well as its specifics.

## 11.1 Data structures

Table 1: `ListenerModel`

| Parameter | Type | Description |
|---|---|---|
| blocked | bool | |
| case_insensitivity | bool | Disable case sensitity in the username string when connecting over this listener. Available when `protocol == ssh` |
| id | string | Read only |
| listen_interface | string | Required if `mode == gateway \|\| transparent` |
| listen_ip | IPv4 | Required if `mode == proxy \|\| bastion` |
| listen_port | int | Required if `mode == proxy \|\| bastion` |
| mode | string {bastion, gateway, proxy, system, transparent, unix} | Required |
| name | string | Required |
| protocol | string{checkout, citrixsf, http, ica, modbus, mysql, oracle, rdp, ssh, system, tcp, tds, telnet, tn3270, tn5250, vnc} | Required |
| reason | string | |
| prompt | string | |
| rdp | ListenerRDPAttributes | Required if `protocol == rdp` |
| ssh | ListenerSSHAttributes | Required if `protocol == ssh` |
| tls | ListenerTLSAttributes | |

Table 2: `ListenerRDPAttributes`

| Parameter | Type | Description |
|---|---|---|
| common_name | string | required if `secproto` in (`tls`, `nla`) and `tls_private_key == null` |
| security | string{std, tls, nla} | required |
| std_private_key | PEM | <ul><li>write only</li><li>required if secproto == `std`</li><li>pass `null` to generate</li></ul> |
| tls_private_key | PEM | <ul><li>write only</li><li>required if secproto in (`tls`, `nla`)</li><li>pass `null` to generate</li></ul> |
| tls_certificate | PEM | Read only |
| legacy_ciphers | bool | |
| std_public_key | PEM | Read only |

Table 3: `ListenerSSHAttributes`

| Parameter | Type | Description |
| --- | --- | --- |
| private_key | PEM | <ul><li>write only</li><li>required</li></ul> |
| public_key | PEM | Read only |
| legacy_ciphers | bool | |

Table 4: `ListenerTLSAttributes`

| Parameter | Type | Description |
| --- | --- | --- |
| common_name | string | required if `use_tls` and `tls_private_key` `== null` |
| use_tls | bool | |
| legacy_ciphers | bool | |
| tls_certificate | PEM | Read only |
| tls_private_key | PEM | <ul><li>write only</li><li>required if `use_tls`</li><li>pass `null` to generate</li></ul> |

Table 5: `ListenerSafeAssignment`

| Parameter | Type | Description |
| --- | --- | --- |
| listener_id | int | <ul><li>write only</li><li>required</li></ul> |
| listener | | Read only |
|     id | int | |
|     name | string | |

## 11.2 Creating a listener

**Request**

| Method | |
|---|---|
| | `POST` |

| Path | |
|---|---|
| | `/api/system/listeners` |

| Headers | |
|---|---|
| | Content-`Type`: Application/JSON |

| Body | |
|---|---|
| | `ListenerModel` |

## Possible Response

| Status | |
|---|---|
| | `201 CREATED` |

| Headers | |
|---|---|
| | Content-`Type`: Application/JSON |

| Body | |
|---|---|
| | `ListenerModel` |

| Description | Object successfully created. Resultant object's attributes are included in response body. |
|---|---|

## Possible Response

| Status | |
|---|---|
| | `400 BAD REQUEST` |

| Headers | |
|---|---|
| | Content-`Type`: Application/JSON |

| Body | |
|---|---|
| | `ValidationErrors` |

| Description | Validation didn't pass. |
|---|---|

# 11.3 Retrieving listeners list

**Request**

Method

GET

Path

/api/system/listeners

**Note:** Results pagination

Every `GET` request, which returns a collection of objects can be optionally paginated. To achieve it add a pagination parameter to the request path:

/api/system/objects?page=3&page_size=10

Table 6: Pagination parameters

| page | int |
|------|-----|
| page_size | int |

**Possible Response**

Status

200 OK

Headers

Content-Type: Application/JSON

Body

```
[
        ListenerModel,
        ...
]
```

## 11.4  Retrieving a listener

**Request**

Method

GET

Path

/api/system/listeners/:listener_id

**Possible Response**

| Status | |
|---|---|
| | 200 OK |

| Headers | |
|---|---|
| | Content-Type: Application/JSON |

| Body | |
|---|---|
| | ListenerModel |

### Possible Response

| Status | |
|---|---|
| | 404 NOT FOUND |

| Description | No listener with given id. |
|---|---|

## 11.5  Modifying a listener

**Request**

| Method | |
|---|---|
| | PUT, PATCH |

| Path | |
|---|---|
| | /api/system/listeners/:listener_id |

### Possible Response

| Status | |
|---|---|
| | 200 OK |

| Headers | |
|---|---|
| | Content-Type: Application/JSON |

| Body | |
|---|---|
| | ListenerModel |

### Possible Response

| Status | |
|---|---|
| | 400 BAD REQUEST |

| Headers | |
|---|---|
| | Content-Type: Application/JSON |

| Body | |
|---|---|
| | ListenerModel |

**Possible Response**

| Status | |
|---|---|
| | 404 NOT FOUND |

| Description | No listener with given id. |
|---|---|

## 11.6 Deleting a listener

**Request**

| Method | |
|---|---|
| | DELETE |

| Path | |
|---|---|
| | /api/system/listeners/:listener_id |

**Possible Response**

| Status | |
|---|---|
| | 204 NO CONTENT |

**Possible Response**

| Status | |
|---|---|
| | 404 NOT FOUND |

| Description | Object with specified identifier was not found. |
|---|---|

## 11.7 Retrieving users allowed to manage given listener

**Request**

| Method | |
|---|---|
| | `GET` |

| Path | |
|---|---|
| | `/api/system/listeners/:listener_id/granted_users` |

**Note:**   Results pagination

Every `GET` request, which returns a collection of objects can be optionally paginated. To achieve it add a pagination parameter to the request path:

`/api/system/objects?page=3&page_size=10`

Table 7: Pagination parameters

| page | int |
|---|---|
| page_size | int |

**Possible Response**

| Status | |
|---|---|
| | `200` `OK` |

| Headers | |
|---|---|
| | `Content-`Type`: Application/JSON` |

| Body | |
|---|---|
| | ``` [      {          'name': 'username',          'id': :id      } , ... ] ``` |

## 11.8  Granting management privileges

**Request**

| Method | |
|---|---|
| | `POST` |

| Path | |
|---|---|
| | `/api/system/listeners/:listener_id/granted_users` |

| Body | |
|---|---|
| | `{` |
| | `        ''user_id'': :user_id` |
| | `}` |

**Possible Response**

| Status | |
|---|---|
| | `201 CREATED` |

## 11.9  Revoking management privileges

**Request**

| Method | |
|---|---|
| | `DELETE` |

| Path | |
|---|---|
| | `/api/system/listeners/:listener_id/granted_users/:user_id` |

**Possible Response**

| Status | |
|---|---|
| | `204 NO CONTENT` |

**Possible Response**

| Status | |
|---|---|
| | `404 NOT FOUND` |

## 11.10  Retrieving listener-safe assignments list

**Request**

| Method | |
|---|---|
| | `GET` |

| Path | |
|---|---|
| | `/api/system/listeners` |

**Note:** Results pagination

Every `GET` request, which returns a collection of objects can be optionally paginated. To achieve it add a pagination parameter to the request path:

> `/api/system/objects?page=3&page_size=10`

Table 8: Pagination parameters

| page | int |
|---|---|
| page_size | int |

**Possible Response**

| Status | |
|---|---|
| | `200 OK` |

| Headers | |
|---|---|
| | `Content-Type: Application/JSON` |

| Body | |
|---|---|
| | `[`<br>`        ListenerSafeAssignmentModel,`<br>`        ...`<br>`]` |

## 11.11  Creating a listener-safe assignment

**Request**

| Method | |
|---|---|
| | `POST` |

| Path | |
|---|---|
| | `/api/system/safes/:safe_id/listeners` |

| Body | |
|---|---|
| | `ListenerSafeAssignmentModel` |

**Possible Response**

| Status | |
|---|---|
| | 201 CREATED |

| Headers | |
|---|---|
| | Content-Type: Application/JSON |

| Body | |
|---|---|
| | ListenerSafeAssignmentModel |

**Possible Response**

| Status | |
|---|---|
| | 400 BAD REQUEST |

| Headers | |
|---|---|
| | Content-Type: Application/JSON |

| Body | ValidationErrors |
|---|---|

**Possible Response**

| Status | |
|---|---|
| | 404 NOT FOUND |

## 11.12 Deleting a listener-safe assignment

**Request**

| Method | |
|---|---|
| | DELETE |

| Path | |
|---|---|
| | /api/system/safes/:safe_id/listeners/:listener_id |

**Possible Response**

| Status | |
|---|---|
| | 204 NO CONTENT |

**Possible Response**

Status

> `404` `NOT FOUND`

# CHAPTER 12

## Password changers

Account defines the privileged account existing on the monitored server. It specifies the actual login credentials, user authentication mode: anonymous (without user authentication), regular (with login credentials substitution) or forward (with login and password forwarding); password changing policy as well as the password changer itself.

## 12.1 Data structures

Table 1: `PasswordChangerModel`

| Parameter | Type | Description |
|---|---|---|
| id | bigint | Object identifier. Read only. |
| name | text | Required. |
| timeout | int | Script's execution time limit expressed in seconds. Required. |
| transport | text{LDAP, SSH, Telnet, WINRM, plugin} | Transport layer specifier. Required. |
| changer_type | text{change,verify} | Script type. Required. |
| variables | VariablesModel | Required. |
| commands | CommandsModel | Required. |

Table 2: `VariablesModel`

| Parameter | Type | Description |
|---|---|---|
| id | bigint | Object identifier. |
| name | string | Required. |
| description | string | |
| encrypt | bool | <ul><li>`true` - encrypt variable value,</li><li>`false` - store variable value in plain text.</li></ul> |
| required | bool | <ul><li>`true` - specifying this value is required,</li><li>`false` - specyfing this value is not required.</li></ul> |
| object_type | text | |
| object_property | text | |

Table 3: `CommandsModel`

| Parameter | Type | Description |
|---|---|---|
| id | bigint | Object identifier. Read only. |
| command | text | Required if command_type==INPUT. |
| expected | text | Required if command_type==EXPECTED |
| delay | int | Delay after running the command before executing the next one. Required if command_type==DELAY |
| comment | text | Optional commentary. |
| position | int | required |

Table 4: `account_password_changer`

| Parameter | Type | Description |
|---|---|---|
| id | bigint | Object identifier. |
| position | int | Password changer position in execution queue. |
| account | bigint | Account identifier. |
| password_changer | bigint | Password changer identifier |
| timeout | int | Script's execution time limit. |
| accountvariable_set | | |

Table 5: `accountvariable_set`

| Parameter | Type | Description |
|---|---|---|
| id | bigint | Object identifier. |
| password_changer_variable_id | bigint | |
| value | text | Variable value. |
| account_id | bigint | Account identifier. |
| server_id | bigint | Server identifier. |
| account_password_changer_id | bigint | |
| server_address_id | bigint | |

## 12.2  Creating a password changer

**Request**

| | |
|---|---|
| Method | |
| | POST |

| | |
|---|---|
| Path | |
| | /api/system/password_changers |

| | |
|---|---|
| Headers | |
| | Content-Type: Application/JSON |

| | |
|---|---|
| Body | |
| | PasswordChangerModel |

**Possible Response**

| | |
|---|---|
| Status | |
| | 201 CREATED |

| | |
|---|---|
| Headers | |
| | Content-Type: Application/JSON |

| | |
|---|---|
| Body | |
| | PasswordChangerModel |

| | |
|---|---|
| Description | |
| | Object successfully created. Resultant object's attributes are included in response body. |

**Possible Response**

| Status | |
|---|---|
| | 400 BAD REQUEST |

| Headers | |
|---|---|
| | Content-Type: Application/JSON |

| Body | |
|---|---|
| | ValidationErrors |

| Description | |
|---|---|
| | Validation didn't pass. |

Example:

```
curl -k -X POST -H "Content-Type:application/json"
https://10.0.150.150/api/system/password_changers?sessionid={{sessionid}} -d
{"name":"examplary password changer",
"timeout":300,
"transport":"Telnet",
"changer_type":"verify",
"variables":
        [{
        "name":"transport_host",
        "description":null,
        "encrypt":false,
        "required":true,
        "object_type":"fudo_server_address_property",
        "object_property":"host"},
        {
        "name":"transport_port",
        "description":null,
        "encrypt":false,
        "required":false,
        "object_type":"fudo_server_property",
        "object_property":"port"},
        {
        "name":"transport_bind_ip",
        "description":null,
        "encrypt":false,
        "required":false,
        "object_type":"fudo_server_property",
        "object_property":"bind_ip"
        }],
"commands":
        [{
        "command":"command 1 %%transport_bind_ip%%",
        "expected":null,
        "delay":null,
        "command_type":"INPUT"},
        {
        "command":"command 2 %%transport_port%%",
        "expected":null,
        "delay":null,
```

---

**12.2. Creating a password changer** 87

```
        "command_type":"INPUT"},
        {
        "command":"command 3 %%transport_host%%",
        "expected":null,
        "delay":null,
        "command_type":"INPUT"
        }]}
```

## 12.3 Retrieving password changers list

**Request**

Method
  GET

Path
  /api/system/password_changers

**Note:** Results pagination

Every `GET` request, which returns a collection of objects can be optionally paginated. To achieve it add a pagination parameter to the request path:

  /api/system/objects?page=3&page_size=10

Table 6: Pagination parameters

| page | int |
|---|---|
| page_size | int |

**Possible Response**

Status
  200 OK

Headers
  Content-Type: Application/JSON

Body
  [
  PasswordChangerModel,
  ...
  ]

Example:

```
curl -k -X GET "https://10.0.150.150/api/system/password_changers?sessionid={
↪{sessionid}}"
```

## 12.4 Retrieving a password changer

**Request**

| Method | |
|---|---|
| | GET |

| Path | |
|---|---|
| | /api/system/password_changers/id |

**Possible Response**

| Status | |
|---|---|
| | 200 OK |

| Headers | |
|---|---|
| | Content-Type: Application/JSON |

| Body | |
|---|---|
| | PasswordChangerModel |

**Possible Response**

| Status | |
|---|---|
| | 404 NOT FOUND |

| Not found. | |
|---|---|

Example:

```
curl -k -X GET "https://10.0.150.150/api/system/password_changers/1?sessionid={
↪{sessionid}}"
```

## 12.5 Modifying password changers

**Request**

| Method | |
|---|---|
| | PUT |

| Path | |
|---|---|
| | /api/system/password_changers/id |

## Possible Response

| Status | |
|---|---|
| | 200 OK |

| Headers | |
|---|---|
| | Content-Type: Application/JSON |

| Body | |
|---|---|
| | PasswordChangerModel |

## Possible Response

| Status | |
|---|---|
| | 400 BAD REQUEST |

| Headers | |
|---|---|
| | Content-Type: Application/JSON |

| Body | |
|---|---|
| | PasswordChangerModel |

## Possible Response

| Status | |
|---|---|
| | 404 NOT FOUND |

| Description | Object not found. |
|---|---|

Example:

```
curl -k -X POST -H "Content-Type:application/json"
https://10.0.150.150/api/system/password_changers/6871947674?sessionid={{sessionid}}
↪-d
{
"name":"New name",
"timeout":300,
"transport":"Telnet",
"changer_type":"verify",
```

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```
"variables":
        [{
        "name":"transport_host",
        "description":null,
        "encrypt":false,
        "required":true,
        "object_type":"fudo_server_address_property",
        "object_property":"host"
        },{
        "name":"transport_port",
        "description":null,
        "encrypt":false,
        "required":false,
        "object_type":"fudo_server_property",
        "object_property":"port"
        },{
        "name":"transport_bind_ip",
        "description":null,
        "encrypt":false,
        "required":false,
        "object_type":"fudo_server_property",
        "object_property":"bind_ip"
        }],
"commands":
        [{
        "command":"command 1 %%transport_bind_ip%%",
        "expected":null,
        "delay":null,
        "command_type":"INPUT"
        },{
        "command":"command 2 %%transport_port%%",
        "expected":null,
        "delay":null,
        "command_type":"INPUT"
        },{
        "command":"command 3 %%transport_host%%",
        "expected":null,
        "delay":null,
        "command_type":"INPUT"
        }]}
```

## 12.6  Deleting a password changer

**Request**

| Method | |
|---|---|
| | DELETE |

| Path | |
|---|---|
| | /api/system/password_changers/id |

**Possible Response**

| Status | |
|---|---|
| | 204 NO CONTENT |

**Possible Response**

| Status | |
|---|---|
| | 404 NOT FOUND |

| Description | Object not found. |
|---|---|

Example:

```
curl -k -X DELETE https://10.0.150.150/api/system/password_changers/68719476746?
↪sessionid={{sessionid}}
```

## 12.7 Retrieving account-password changers assignments list

**Request**

| Method | |
|---|---|
| | GET |

| Path | |
|---|---|
| | /api/system/account_password_changers |

**Note:** Results pagination

Every `GET` request, which returns a collection of objects can be optionally paginated. To achieve it add a pagination parameter to the request path:

```
/api/system/objects?page=3&page_size=10
```

Table 7: Pagination parameters

| page | int |
|---|---|
| page_size | int |

**Possible Response**

| Status | |
|---|---|
| | 200 OK |

| Headers | |
|---|---|
| | Content-Type: Application/JSON |

| Body | |
|---|---|
| | ```
[
        AccountSafeAssignmentModel,
        ...
]
``` |

Example:

```
curl -k -X GET "https://10.0.150.150/api/system/account_password_changers?sessionid={
↪{sessionid}}"
```

## 12.8 Adding a password changer to account

**Request**

| Method | |
|---|---|
| | POST |

| Path | |
|---|---|
| | /api/system/account_password_changers |

| Body | |
|---|---|
| | account_password_changer |

**Possible Response**

| Status | |
|---|---|
| | 201 CREATED |

| Headers | |
|---|---|
| | Content-Type: Application/JSON |

| Body | |
|---|---|
| | AccountPasswordChanger |

**Possible Response**

| Status | |
|---|---|
| | 400 BAD REQUEST |

| Headers | |
|---|---|
| | Content-Type: Application/JSON |

| Body | |
|---|---|
| | ValidationErrors |

**Possible Response**

| Status | |
|---|---|
| | 404 NOT FOUND |

Example:

```
curl -k -X POST https://10.0.8.89/api/system/account_password_changers?sessionid={
→{sessionid}} -d
{
  "account": 1992864825347,
  "accountvariable_set": [
      {
        "account_id": 1992864825347,
        "password_changer_variable": 109,
        "server_address_id": null,
        "server_id": null,
        "value": null
      },
      {
        "account_id": 1992864825347,
        "password_changer_variable": 110,
        "server_address_id": null,
        "server_id": null,
        "value": null
      },
      {
        "account_id": null,
        "password_changer_variable": 102,
        "server_address_id": null,
        "server_id": 1992864825347,
        "value": null
      },
      {
        "account_id": 1992864825347,
        "password_changer_variable": 103,
        "server_address_id": null,
        "server_id": null,
        "value": null
      },
      {
        "account_id": null,
```

(continues on next page)

```
        "password_changer_variable": 101,
        "server_address_id": 1992864825351,
        "server_id": null,
        "value": null
      },
      {
        "account_id": 1992864825347,
        "password_changer_variable": 106,
        "server_address_id": null,
        "server_id": null,
        "value": null
      },
      {
        "account_id": null,
        "password_changer_variable": 107,
        "server_address_id": null,
        "server_id": 1992864825347,
        "value": null
      },
      {
        "account_id": 1992864825347,
        "password_changer_variable": 104,
        "server_address_id": null,
        "server_id": null,
        "value": null
      },
      {
        "account_id": null,
        "password_changer_variable": 105,
        "server_address_id": null,
        "server_id": null,
        "value": "base1"
      }
  ],
  "password_changer": 13,
  "position": 0,
  "timeout": 300
}
```

## 12.9 Deleting an account-password changer assignment

**Request**

| Method |
|---|
| DELETE |

| Path |
|---|
| /api/system/account_password_changers/id |

**Possible Response**

---

Status

> 204 NO CONTENT

---

## Possible Response

---

Status

> 404 NOT FOUND

---

Example:

```
curl -k -X DELETE
https://10.0.150.150/api/system/account_password_changers/68719476738?sessionid={
↪{sessionid}}
```

---

Password changer policy

Password changer policy defines specifics of how frequently the password should be changed and password complexity requirements.

Password changer policy can't be created via API, but can be assigned to a particular Account.

## 13.1 Adding a password changer policy to account

**Request**

| Method | |
|---|---|
| | `POST` |

| Path | |
|---|---|
| | `/api/system/accounts` |

| Body | |
|---|---|
| | `AccountModel` |

**Response**

| Status | |
|---|---|
| | `200 OK` |

| Headers | |
|---|---|
| | `Content-Type: Application/JSON` |

| Body | |
|---|---|
| | `AccountModel` |

**Response**

Status

        400 BAD REQUEST

Headers

        Content-Type: Application/JSON

Body

        ValidationErrors

**Response**

Status

        404 NOT FOUND

Example:

```
curl -k -X PUT -H "Accept:application/json" -H "Content-Type:application/json"
https://fudo.whl/api/system/accounts/755918023667220708?sessionid={{sessionid}} -
↪d
[{
"credentials": {
    "login":"",
    "method": "password",
    "password_change_policy_id": "75594322023667220482"
},
"server_id": "755918764677220677",
"password_change_request": "0001-01-01T00:00:00",
"type": "regular",
"name": "TestAccount" }]
```

# CHAPTER 14

## AAPM communication

Description pending.

API usage examples

## 15.1 Logging in and retrieving session key

```
curl -k -X POST -H "Accept:application/json" -H "Content-Type:application/json"
https://fudo.whl/api/system/login -d '{"username": "api_user", "password": "api_
↪password"}'
Result: {"sessionid":"oz2jfky042kz7d3zc2gos1ahxouxehk3"}
```

## 15.2 Fetching users list

```
curl -k -X GET -H "Accept:application/json" -H "Content-Type:application/json"
"https://fudo.whl/api/system/users?sessionid={{sessionid}}&page_size=2&page=1"
Result:
{
"count":110,
"next":"https://fudo.whl/api/system/users?page=2&page_size=2&sessionid={{sessionid}}",
"previous":null,"results":
        [{
        "id":688817234205737171,
        "email":"",
        "language":"en",
        "blocked":true,
        "reason":"",
        "name":"Administrator",
        "full_name":"",
        "organization":null,
        "phone":"",
        "ad_domain":"",
        "ldap_base":"",
        "failures":0,
        "external_sync":false,
        "valid_since":"0001-01-01T00:00:00",
```

```
        "valid_to":"9999-12-31T23:59:59.999999",
        "role":"user"
        },
        {
        "id":688817234205737275,
        "email":"",
        "language":"en",
        "blocked":false,
        "reason":"",
        "name":"User20000",
        "full_name":"test user",
        "organization":"test organization",
        "phone":"",
        "ad_domain":"test.ad",
        "ldap_base":"",
        "failures":0,
        "external_sync":false,
        "valid_since":"2017-05-19T09:23:14",
        "valid_to":"2017-07-18T09:23:14",
        "role":"user"
}]}
```

## 15.3 Adding a user

```
curl -X POST -H "Accept:application/json" -H "Content-Type:application/json"
https://fudo/api/system/users?sessionid={{sessionid}} -d
[{"role": "user",  "name": "test-user", "language":"en"}]
Result:
{
        "id":688817234205737277,
        "email":"",
        "language":"en",
        "blocked":false,
        "reason":"",
        "name":"test-user-admin",
        "full_name":"",
        "organization":null,
        "phone":"",
        "ad_domain":"",
        "ldap_base":"",
        "failures":0,
        "external_sync":false,
        "valid_since":"0001-01-01T00:00:00",
        "valid_to":"9999-12-31T23:59:59.999999",
        "role":"user"
}
```

## 15.4 Setting user authentication method - static password

```
curl -k -X POST -H "Accept:application/json" -H "Content-Type:application/json"
https://fudo/api/system/users/688817234205737277/methods?sessionid={{sessionid}} -d
[{"type": "password", "secret": "test-password", "position":0}]

Result:
{
"id":688817234205751316,
"needs_change":false,
"position":0,
"type":"password"
}
```

## 15.5 Setting user authentication method - SSH key

```
curl -k -X POST -H "Accept:application/json" -H "Content-Type:application/json"
https://fudo.whl/api/system/users/688817234205737277/methods?sessionid={{sessionid}} -
↪d
[{
"type": "sshkey",
"secret": "ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAABAQDS7xsCHfD+bnAoKytzwnxCmTfGEvUuA...",
"position":0
}]
Result:
{
"id":688817234205752136,
"needs_change":false,
"position":1,
"type":"sshkey"
}
```

## 15.6 Fetching user authentication methods list

```
curl -k -X GET -H "Accept:application/json" -H "Content-Type:application/json"
https://fudo.whl/api/system/users/688817234205737277/methods?sessionid={{sessionid}}
{
"id":688817234205751316,
"needs_change":false,
"position":0,
"type":"password"
},{
"id":688817234205752136,
"needs_change":false,
"position":1,
"type":"sshkey"
}]
```

## 15.7 Deleting user authentication method

```
curl -k -X DELETE -H "Accept:application/json" -H "Content-Type:application/json"
https://fudo.whl/api/system/users/688817234205737277/methods/688817234205751316?
↪sessionid={{sessionid}}
```

## 15.8 Changing user login

```
curl -k -X PATCH -H "Accept:application/json" -H "Content-Type:application/json"
https://fudo.whl/api/system/users/688817234205737277?sessionid={{sessionid}} -d
[{"name": "new-user"}]
{
"id":688817234205737277,
"email":"",
"language":"en",
"blocked":false,
"reason":"",
"name":"new-user",
"full_name":"",
"organization":null,
"phone":"",
"ad_domain":"",
"ldap_base":"",
"failures":0,
"external_sync":false,
"valid_since":"0001-01-01T00:00:00",
"valid_to":"9999-12-31T23:59:59.999999",
"role":"user"
}
```

## 15.9 Blocking user

```
curl -k -X PATCH -H "Accept:application/json" -H "Content-Type:application/json"
https://fudo.whl/api/system/users/688817234205737277?sessionid={{sessionid}} -d
[{"blocked": "True"}]
{
"id":688817234205737277,
"email":"",
"language":"en",
"blocked":true,
"reason":"",
"name":"new-user",
"full_name":"",
"organization":null,
"phone":"",
"ad_domain":"",
"ldap_base":"",
"failures":0,
"external_sync":false,
"valid_since":"0001-01-01T00:00:00",
"valid_to":"9999-12-31T23:59:59.999999",
```

```
"role":"user"
}
```

## 15.10 Setting a password for an Account with type "forward"

```
    curl -k -X PUT -H "Accept:application/json" -H "Content-Type:application/json"
    https://fudo.whl/api/system/accounts/688817234205737277?sessionid={{sessionid}}␣
↪-d
    {
"blocked": false,
"credentials": {
  "login": "",
  "method": "password",
  "secret": "blablabla",
  "public_key": null
},
"dump_mode": "all",
"id": 1992864825355,
"name": "forward",
"ocr_enabled": false,
"password_change_request": "0001-01-01T00:00:00",
"password_checkout_time_limit": null,
"password_lastupdate": "0001-01-01T00:00:00",
"server_id": 1992864825356,
"type": "forward"  }
```