



FUDO

Fudo PAM 4.0 - API documentation

Release is not supported

Fudo Security

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

| |
|---|
| <p>Warning: Warning. Essential information concerning system's operation. Not adhering to this information may have irreversible consequences.</p> |
|---|

CHAPTER 2

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 style="list-style-type: none"> • Connecting to servers through assigned safes. • Loggin to the User Portal (requires adding the user to the portal safe) • Fetching servers' passwords (requires additional access right). |
| service | Accessing SNMP information. |
| operator | <ul style="list-style-type: none"> • Logging in to the administration panel. • Browsing objects: servers, users, safes, accounts, to which the user has been assigned sufficient access permissions. • Blocking/unblocking objects: servers, users, safes, listeners, accounts, to which the user has been assigned sufficient access permissions. • Generating reports on demand and subscribing to periodic reports. • Activating/deactivating email notifications. • Viewing live and archived sessions involving objects (user, safe, account, server), to which the user has been assigned sufficient access permissions. • Converting sessions and downloading converted content involving objects (user, safe, account, server), to which the user has been assigned sufficient access permissions. |
| admin | <ul style="list-style-type: none"> • Logging in to the administration panel. • Managing objects: servers, users, safes, listeners, accounts, to which the user has been assigned sufficient access permissions. • Blocking/unblocking objects: servers, users, safes, listeners, accounts, to which the user has been assigned sufficient access permissions. • Generating reports on demand and subscribing to periodic reports. • Activating/deactivating email notifications. • Viewing live and archived sessions involving objects (user, safe, account, server), to which the user has been assigned management privileges. • Converting sessions and downloading converted content involving objects (user, safe, account, server), to which the user has been assigned sufficient access permissions. • Managing policies. |
| superadmin | <ul style="list-style-type: none"> • Full access rights to objects management. • Full access rights to system configuration options. |

Note: For API access purposes, the user must have an IP address defined in the API section of the user properties form.

The screenshot shows a configuration window for an API. At the top left, the word 'API' is displayed. A blue callout box contains the text: 'Add an IP address of a system accessing WHEEL FUDO PAM over API, using defined user credentials'. Below this, there is a label 'IP address' next to a large, empty, rounded rectangular input field. To the right of the input field is a small square button with an 'x' icon. Below the input field, there is a label 'Add source IP' followed by a small square button with a '+' icon.

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

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 |
|-------------|--|--|
| changer | PasswordChangerAttributes | |
| credentials | AccountCredentialsAttributes | required if <code>type == regular</code> |
| id | bigserial | object identifier |
| name | string | required |
| ocr_enabled | bool | |
| ocr_lang | string | |
| retention | int | |
| server_id | int | required |
| type | string{anonymous, forward, regular} | required |

Table 2: AccountCredentialsAttributes

| Parameter | Type | Description |
|------------------------|---------------------------|--|
| domain | string | |
| login | string | |
| method | string{password, ssh-key} | required |
| secret | string | <ul style="list-style-type: none"> • write only • required if method == password |
| password_change_policy | int | write only |
| private_key | string | <ul style="list-style-type: none"> • write only • required if method == ssh-key |
| public_key | string | read only |

Table 3: PasswordChangerAttributes

| Parameter | Type | Description |
|--------------------------|--------|--|
| changer_id | 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 | <ul style="list-style-type: none"> • write only • required |
| account | Read only | |
| id | int | |
| name | string | |
| listener_id | int | <ul style="list-style-type: none"> • write only • required |
| 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 |

Response

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

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 |

Response

Status

200 OK

Headers

Content-Type: Application/JSON

Body

```
[  
  AccountModel,  
  ...  
]
```

3.4 Retrieving an account

Request

Method

GET

Path

/api/system/accounts/:account_id

Response

Status

200 OK

Headers

Content-Type: Application/JSON

Body

AccountModel

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

Response

Status

200 OK

Headers

Content-Type: Application/JSON

Body

AccountModel

Response

Status

400 BAD REQUEST

Headers

Content-Type: Application/JSON

Body

AccountModel

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

Response

Status

204 NO CONTENT

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 |
|-----------|-----|

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
}
```

Response

Status

201 CREATED

3.9 Revoking management privileges

Request

Method

DELETE

Path

/api/system/accounts/:account_id/granted_users/:user_id

Response

Status204 NO CONTENT

Response

Status404 NOT FOUND

3.10 Retrieving account-safe assignments list

Request

MethodGET

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 |

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

Response

Status

201 CREATED

Headers

Content-Type: Application/JSON

Body

AccountSafeAssignmentModel

Response

Status

400 BAD REQUEST

Headers

Content-Type: Application/JSON

Body

ValidationErrors

Response

Status

404 NOT FOUND

3.12 Deleting an account-safe assignment

Request

Method

DELETE

Path

/api/system/safes/:safe_id/accounts/:account_id

Response

Status

204 NO CONTENT

Response

Status

404 NOT FOUND

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 |
|---------------|---|-------------|
| ad_domain | string | |
| blocked | bool | |
| email | E-Mail | |
| external_sync | bool | |
| full_name | string | |
| language | string{en, pl, ru} | |
| ldap_base | string | |
| name | string | required |
| phone | string | |
| reason | string | |
| role | string{superadmin, admin, operator, user} | required |
| valid_since | string | |
| valid_to | DateTime | |

Table 2: UserSafeAssignment

| Parameter | Type | Description |
|------------------|--------|--|
| password_visible | bool | |
| position | int | |
| safe_id | int | <ul style="list-style-type: none"> • write only • 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 |

Response

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

Response

| | |
|-------------|--------------------------------|
| Status | 400 BAD REQUEST |
| Headers | Content-Type: Application/JSON |
| Body | ValidationErrors |
| Description | Validation didn't pass. |

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 |

Response

Status

200 OK

Headers

Content-Type: Application/JSON

Body

```
[
  UserModel,
  ...
]
```

4.4 Retrieving a user

Request

Method

GET

Path

/api/system/users/:user_id

Response

Status

200 OK

Headers

Content-Type: Application/JSON

Body

UserModel

Response

Status

404 NOT FOUND

Description

No user with given id.

4.5 Modifying a user

Request

Method

PUT, PATCH

Path

/api/system/users/:user_id

Response

Status

200 OK

Headers

Content-Type: Application/JSON

Body

UserModel

Response

Status

400 BAD REQUEST

Headers

Content-Type: Application/JSON

Body

UserModel

Response

Status

404 NOT FOUND

Description

No user with given id.

4.6 Deleting a user

Request

Method

DELETE

Path

/api/system/users/:user_id

Response

Status

204 NO CONTENT

Response

Status

404 NOT FOUND

Description Object with specified identifier was not found.

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 |
|-----------|-----|

Response

Status

200 OK

Headers

Content-Type: Application/JSON

Body

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

4.8 Granting management privileges

Request

Method

POST

Path

/api/system/users/:user_id/granted_users

Body

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

Response

Status

201 CREATED

4.9 Revoking management privileges

Request

Method

DELETE

Path

/api/system/users/:user_id/granted_users/:user_id

Response

Status204 NO CONTENT

Response

Status404 NOT FOUND

4.10 Retrieving user-safe assignments list

Request

MethodGET

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 |

Response

Status

200 OK

Headers

Content-Type: Application/JSON

Body

```
[
    UserSafeAssignment,
    ...
]
```

4.11 Creating a user-safe assignment

Request

Method

POST

Path

/api/system/users/:user_id/safes

Body

UserSafeAssignment

Response

Status

201 CREATED

Headers

Content-Type: Application/JSON

Body

UserSafeAssignment

Response

Status

400 BAD REQUEST

Headers

Content-Type: Application/JSON

Body

ValidationErrors

Response

Status

404 NOT FOUND

4.12 Deleting a user-safe assignment

Request

Method

DELETE

Path

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

Response

Status

204 NO CONTENT

Response

Status

404 NOT FOUND

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

5.1 Data structures

Table 1: ServerModel

| Parameter | Type | Description |
|-------------|--|---|
| address | IPv4/string | write only, required if subnetmask is empty (static server) |
| addresses | string | read only, a list of IP addresses |
| bind_ip | IPv4 | required |
| blocked | bool | |
| description | string | object description |
| http | HTTPServerAttributes | |
| id | bigserial | object identifier |
| name | string | required |
| port | int | required |
| protocol | string{http, modbus, mysql, oracle, rdp, ssh, telnet, tn3270, vnc} | required |
| rdp | RDPAttributes | required if protocol == rdp |
| reason | string | reason for blocking object |
| subnet | SubnetModel | required if not address |
| tls | TLSServerAttributes | |

Table 2: HTTPServerAttributes

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

Table 3: RDPServerAttributes

| Parameter | Type | Description |
|----------------|-----------------------|-------------|
| security | string{std, tls, nla} | required |
| ca_certificate | PEM | |

Table 4: TLSServerAttributes

| Parameter | Type | Description |
|----------------|---------|---------------------|
| sslv2 | boolean | |
| sslv3 | boolean | |
| ca_certificate | PEM | required if use_tls |
| use_tls | boolean | |

Table 5: ServerAddressModel

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

Table 6: SubnetModel

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

Table 7: HTTPServerAddressAttributes

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

Table 8: RDPServerAddressAttributes

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

Table 9: SSHServerAddressAttributes

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

Table 10: TLSServerAddressAttributes

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

5.2 Creating a server

Request

| | |
|---------|--------------------------------|
| Method | POST |
| Path | /api/system/servers |
| Headers | Content-Type: Application/JSON |
| Body | ServerModel |

Response

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

Response

| | |
|-------------|--------------------------------|
| Status | 400 BAD REQUEST |
| Headers | Content-Type: Application/JSON |
| Body | ValidationErrors |
| Description | Validation didn't pass. |

5.3 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 11: Pagination parameters

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

Response

Status

200 OK

Headers

`Content-Type: Application/JSON`

Body

```
[
  ServerModel,
  ...
]
```

5.4 Retrieving a server

Request

Method

GET

Path

`/api/system/servers/:server_id`

Response

Status

200 OK

Headers

Content-Type: Application/JSON

Body

ServerModel

Response

Status

404 NOT FOUND

Description

No server with given id.

5.5 Modifying a server

Request

Method

PUT, PATCH

Path

/api/system/servers/:server_id

Response

Status

200 OK

Headers

Content-Type: Application/JSON

Body

ServerModel

Response

Status

400 BAD REQUEST

Headers

Content-Type: Application/JSON

Body

ServerModel

Response

Status

404 NOT FOUND

Description

No server with given id.

5.6 Deleting a server

Request

Method

DELETE

Path

/api/system/servers/:server_id

Response

Status

204 NO CONTENT

Response

Status

404 NOT FOUND

Description

Object with specified identifier was not found.

5.7 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 12: Pagination parameters

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

Response

Status

200 OK

Headers

Content-Type: Application/JSON

Body

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

5.8 Granting management privileges

Request

Method

POST

Path

/api/system/servers/:server_id/granted_users

Body

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

Response

Status

201 CREATED

5.9 Revoking management privileges

Request

Method

DELETE

Path

/api/system/servers/:server_id/granted_users/:user_id

Response

Status

204 NO CONTENT

Response

Status

404 NOT FOUND

5.10 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 13: Pagination parameters

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

Response

Status

204 NO CONTENT

Response

Status

200 OK

Headers

Content-Type: Application/JSON

Body

```
[
    ServerAddressModel
    ...
]
```

Response

Status

404 NOT FOUND

5.11 Creating a server address

Request

| | |
|---------|--|
| Method | POST |
| Path | /api/system/servers/:server_id/addresses |
| Headers | Content-Type: Application/JSON |
| Body | ServerAddressModel |

Response

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

Response

| | |
|---------|--------------------------------|
| Status | 400 BAD REQUEST |
| Headers | Content-Type: Application/JSON |
| Body | ValidationErrors |

Response

Status

404 NOT FOUND

Description

No server with `given :server_id`.

5.12 Updating a server address

Request

Method

PATCH, PUT

Path

`/api/system/servers/:server_id/addresses/:address_id`

Body

ServerAddressModel

Response

Status

200 OK

Headers

`Content-Type: Application/JSON`

Body

ServerAddressModel

Response

Status

400 BAD REQUEST

Headers

`Content-Type: Application/JSON`

Body

ValidationErrors

Response

Status

404 NOT FOUND

Description

No server with `given :server_id`.

Description

No server address with `given :address_id`

5.13 Deleting a server address

Request

Method

DELETE

Path

`/api/system/servers/:server_id/addresses/:address_id`

Response

Status

204 NO CONTENT

Response

Status

404 NOT FOUND

Description

No server with `given :server_id`.

Description

No server address with `given :address_id`

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

6.1 Data structures

Table 1: SafeModel

| Parameter | Type | Description |
|--------------|-------------------|-------------|
| blocked | bool | |
| login_reason | bool | |
| name | string | required |
| rdp | SafeRDPAtributes | |
| reason | string | |
| ssh | SafeSSHAttributes | |
| vnc | SafeVNCAtributes | |

Table 2: SafeRDPAtributes

| Parameter | Type | Description |
|------------|----------------|----------------------|
| audio | bool | Default true |
| clipboard | bool | Default true |
| depth | int{8,1,24,32} | Default '' |
| device | bool | Default true |
| driver_dvc | bool | Default false |
| multimedia | bool | Default true |
| resolution | Resolution | Default '' |
| sound | bool | Default true |

Table 3: SafeSSHAttributes

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

Table 4: SafeVNCAttributes

| Parameter | Type | Description |
|-------------|------|---------------------------|
| client_clip | bool | Default <code>true</code> |
| server_clip | bool | Default <code>true</code> |

Table 5: UserSafeAssignment

| Parameter | Type | Description |
|------------------|--------|--|
| password_visible | bool | |
| position | int | |
| safe_id | int | <ul style="list-style-type: none"> • write only • required |
| safe | | Read only |
| id | int | |
| name | string | |
| use_time_policy | bool | |

Table 6: AccountSafeListenerAssignment

| Parameter | Type | Description |
|-------------|--------|--|
| account_id | int | <ul style="list-style-type: none"> • write only • required |
| account | | Read only |
| id | int | |
| name | string | |
| listener_id | int | <ul style="list-style-type: none"> • write only • required |
| listener | | Read only |
| id | int | |
| name | string | |

6.2 Creating a safe

Request

Method

POST

Path

/api/system/safes

Headers

Content-Type: Application/JSON

Body

SafeModel

Response

Status

201 CREATED

Headers

Content-Type: Application/JSON

Body

SafeModel

Response

Status

400 BAD REQUEST

Headers

Content-Type: Application/JSON

Body

ValidationErrors

Description Validation didn't pass.

6.3 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 |

Response

Status

200 OK

Headers

Content-Type: Application/JSON

Body

```
[
    SafeModel,
    ...
]
```

6.4 Retrieving a safe

Request

Method

GET

Path

/api/system/safes/:safe_id

Response

Status

200 OK

Headers

Content-Type: Application/JSON

Body

SafeModel

Response

Status

404 NOT FOUND

Description

No safe with given id.

6.5 Modifying a safe

Request

Method

PUT, PATCH

Path

/api/system/safes/:safe_id

Response

Status

200 OK

Headers

Content-Type: Application/JSON

Body

SafeModel

Response

Status

400 BAD REQUEST

Headers

Content-Type: Application/JSON

Body

SafeModel

Response

Status

404 NOT FOUND

Description

No safe with given id.

6.6 Deleting a safe

Request

Method

DELETE

Path

/api/system/safes/:safe_id

Response

Status

204 NO CONTENT

Response

Status

404 NOT FOUND

Description

Object with specified identifier was not found.

6.7 Retrieving users allowed to manage selected safe

Request

Method

GET

Path`/api/system/safes/:safe_id/granted_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 8: Pagination parameters

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

Response

Status

200 OK

Headers`Content-Type: Application/JSON`

Body

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

6.8 Granting management privileges

Request

Method

POST

Path

/api/system/safes/:safe_id/granted_users

Body

```
{
  "user_id": :user_id
}
```

Response

Status

201 CREATED

6.9 Revoking management privileges

Request

Method

DELETE

Path

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

Response

Status

204 NO CONTENT

Response

Status

404 NOT FOUND

Safe members (account-safe-listener) management

7.1 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 |

Response

Status

200 OK

Headers

Content-Type: Application/JSON

Body

```
[
  AccountSafeListenerAssignment,
  ...
]
```

7.2 Creating account-safe-listener assignment

Request

Method

POST

Path

/api/system/safes/:safe_id/account_listeners

Body

AccountSafeListenerAssignment

Response

Status

201 CREATED

Headers

Content-Type: Application/JSON

Body

AccountSafeListenerAssignment

Response

Status

400 BAD REQUEST

Headers

Content-Type: Application/JSON

Body

ValidationErrors

Response

Status

404 NOT FOUND

7.3 Deleting account-safe-listener assignment

Request

Method

DELETE

Path

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

Response

Status

204 NO CONTENT

Response

Status

404 NOT FOUND

7.4 Updating account-safe-listener assignment

Request

Method

PATCH, PUT

Path

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

Body

AccountSafeListenerAssignment

Response

Status

200 OK

Headers

Content-Type: Application/JSON

Body

AccountSafeListenerAssignment

Response

Status

400 BAD REQUEST

Headers

Content-Type: Application/JSON

Body

ValidationErrors

Response

Status

404 NOT FOUND

8.1 Data structures

Table 1: `SessionCommandModel`

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

Table 2: SessionModel

| Parameter | Type | Description |
|------------------|--|-------------|
| account | | required |
| safe | | Read only |
| id | int | |
| name | string | |
| destination_ip | IPv4 | |
| description_port | int | |
| dump_mode | string{all,none,raw} | |
| finished_at | DateTime | |
| listener | | |
| id | int | |
| name | string | |
| paused | bool | |
| protocol | string{http,modbus,mysql,oracle,rdp,ssh,telnet,tn3270,vnc} | |
| safe | | |
| id | int | |
| name | string | |
| source_ip | IPv4 | |
| source_port | int | |
| started_at | DateTime | |
| user | | |
| id | int | |
| name | string | |

8.2 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 |

Response

Status

200 OK

Headers

Content-Type: Application/JSON

Body

```
[  
    SessionModel,  
    ...  
]
```

8.3 Retrieving session

Request

Method

GET

Path

/api/system/sessions/:session_id

Response

Status

200 OK

Headers

Content-Type: Application/JSON

Body

SessionModel

Response

Status

404 NOT FOUND

8.4 Sending commands to session

Request

Method

GET

Path

/api/system/users/:session_id/command

Body

SessionCommandModel

Response

Status

200 OK

Headers

Content-Type: Application/JSON

Body

SessionCommandModel

Response

Status

400 BAD REQUEST

Headers

Content-Type: Application/JSON

Body

ValidationErrors

Response

Status

404 NOT FOUND

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

9.1 Data structures

Table 1: ListenerModel

| Parameter | Type | Description |
|------------------|--|--|
| blocked | bool | |
| name | string | required |
| listen_interface | string | required if mode in (gateway, transparent) |
| listen_ip | IPv4 | required if mode in (proxy, bastion) |
| listen_port | int | required if mode in (proxy, bastion) |
| prompt | string | |
| protocol | string{http, modbus, mysql, oracle, rdp, ssh, telnet, tn3270, vnc} | required |
| rdp | ListenerRDPAttributes | required if protocol == rdp |
| reason | | |
| ssh | ListenerSSHAttributes | required if protocol == ssh |
| tls | ListenerTLSAttributes | |

Table 2: ListenerRDPAttributes

| Parameter | Type | Description |
|-----------------|-----------------------|--|
| common_name | string | required if <code>secproto</code> in <code>(tls, nla)</code> and <code>tls_private_key == null</code> |
| security | string{std, tls, nla} | required |
| std_private_key | PEM | <ul style="list-style-type: none"> • write only • required if <code>secproto == std</code> • pass <code>null</code> to generate |
| std_public_key | PEM | Read only |
| tls_private_key | PEM | <ul style="list-style-type: none"> • write only • required if <code>secproto</code> in <code>(tls, nla)</code> • pass <code>null</code> to generate |
| tls_certificate | PEM | Read only |

Table 3: ListenerSSHAttributes

| Parameter | Type | Description |
|-------------|------|--|
| private_key | PEM | <ul style="list-style-type: none"> • write only • required |
| public_key | PEM | Read only |

Table 4: ListenerTLSAttributes

| Parameter | Type | Description |
|-----------------|--------|--|
| common_name | string | required if <code>use_tls</code> and <code>tls_private_key == null</code> |
| use_tls | bool | |
| tls_private_key | PEM | <ul style="list-style-type: none"> • write only • required if <code>use_tls</code> • pass <code>null</code> to generate |
| tls_certificate | PEM | Read only |

Table 5: ListenerSafeAssignment

| Parameter | Type | Description |
|-------------|--------|--|
| listener_id | int | <ul style="list-style-type: none"> • write only • required |
| listener | | Read only |
| id | int | |
| name | string | |

9.2 Creating a listener

Request

| | |
|---------|--------------------------------|
| Method | POST |
| Path | /api/system/listeners |
| Headers | Content-Type: Application/JSON |
| Body | ListenerModel |

Response

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

Response

| | |
|-------------|--------------------------------|
| Status | 400 BAD REQUEST |
| Headers | Content-Type: Application/JSON |
| Body | ValidationErrors |
| Description | Validation didn't pass. |

9.3 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 |

Response

Status

200 OK

Headers

Content-Type: Application/JSON

Body

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

9.4 Retrieving a listener

Request

Method

GET

Path

/api/system/listeners/:listener_id

Response

Status

200 OK

Headers

Content-Type: Application/JSON

Body

ListenerModel

Response

Status

404 NOT FOUND

Description

No listener with given id.

9.5 Modifying a listener

Request

Method

PUT, PATCH

Path

/api/system/listeners/:listener_id

Response

Status

200 OK

Headers

Content-Type: Application/JSON

Body

ListenerModel

Response

Status

400 BAD REQUEST

Headers

Content-Type: Application/JSON

Body

ListenerModel

Response

Status

404 NOT FOUND

Description

No listener with given id.

9.6 Deleting a listener

Request

Method

DELETE

Path

/api/system/listeners/:listener_id

Response

Status

204 NO CONTENT

Response

Status

404 NOT FOUND

Description

Object with specified identifier was not found.

9.7 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 |

Response

Status

200 OK

Headers

Content-Type: Application/JSON

Body

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

9.8 Granting management privileges

Request

Method

POST

Path

/api/system/listeners/:listener_id/granted_users

Body

```
{
  "user_id": :user_id
}
```

Response

Status

201 CREATED

9.9 Revoking management privileges

Request

Method

DELETE

Path

/api/system/listeners/:listener_id/granted_users/:user_id

Response

Status

204 NO CONTENT

Response

Status

404 NOT FOUND

9.10 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 |

Response

Status

200 OK

Headers

Content-Type: Application/JSON

Body

```
[
    ListenerSafeAssignmentModel,
    ...
]
```

9.11 Creating a listener-safe assignment

Request

Method

POST

Path

/api/system/safes/:safe_id/listeners

Body

ListenerSafeAssignmentModel

Response

Status

201 CREATED

Headers

Content-Type: Application/JSON

BodyListenerSafeAssignmentModel

Response

Status

400 BAD REQUEST

Headers

Content-Type: Application/JSON

BodyValidationErrors

Response

Status404 NOT FOUND

9.12 Deleting a listener-safe assignment

Request

Method

DELETE

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

Response

Status204 NO CONTENT

Response

Status

404 NOT FOUND

User authentication methods management

Table 1: UserAuthenticationMethodModel

| Parameter | Type | Description |
|-----------|--------------------------|---|
| position | int | required |
| secret | string | <ul style="list-style-type: none">• write only• required |
| type | string{password, sshkey} | required |

10.1 Listing user authentication methods

Request

Method

GET

Path

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

Response

Status

200 OK

Headers

Content-Type: Application/JSON

Body

```
[
    UserAuthenticationMethodModel,
    ...
]
```

Response

Status

404 NOT FOUND

10.2 Creating user authentication method

Request

Method

POST

Path

/api/system/users/:user_id/methods

Headers

Content-Type: Application/JSON

Body

UserAuthenticationMethodModel

Response

Status

201 CREATED

Headers

Content-Type: Application/JSON

Body

UserAuthenticationMethodModel

Response

Status

400 BAD REQUEST

Headers

Content-Type: Application/JSON

BodyValidationErrors

Response

Status

404 NOT FOUND

DescriptionNo user with given user_id.

10.3 Retrieving user authentication method

Request

Method

GET

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

Response

Status

200 OK

Headers

Content-Type: Application/JSON

BodyUserAuthenticationMethodModel

Response

Status404 NOT FOUND

Updating user authentication method

Request

Method

PATCH, PUT

Path

/api/system/users/:user_id/methods/:method_id

Body

UserAuthenticationMethodModel

Response

Status

200 OK

Headers

Content-Type: Application/JSON

Body

UserAuthenticationMethodModel

Response

Status

400 BAD REQUEST

Headers

Content-Type: Application/JSON

Body

ValidationErrors

Response

Status

404 NOT FOUND

10.4 Deleting user authentication method

Request

Method

DELETE

Path

/api/system/users/:user_id/methods/:method_id

Response

Status

204 NO CONTENT

Response

Status

404 NOT FOUND

CHAPTER 11

AAPM communication

Description pending.

12.1 Logging in and retrieving session key

```
curl -X POST -H "Accept:application/json" -H "Content-Type:application/json" https://
↪ fudo/api/system/login -d '{"username": "api_user", "password": "api_password"}'

{"sessionid": "oz2jfky042kz7d3zc2gos1ahxouxehek3"}
```

12.2 Fetching users list

```
curl -k -X GET -H "Accept:application/json" -H "Content-Type:application/json"
↪ "https://fudo.whl/api/system/users?sessionid=oz2jfky042kz7d3zc2gos1ahxouxehek3&page_
↪ size=2&page=1"

{
  "count":110,"next":"https://fudo.whl/api/system/users?page=2&page_size=2&
↪ sessionid=oz2jfky042kz7d3zc2gos1ahxouxehek3","
  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
↪ ", "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"}]
}
```

12.3 Adding a user

```
curl -X POST -H "Accept:application/json" -H "Content-Type:application/json" https://
↳ fudo/api/system/users?sessionId=oz2jfkY042kz7d3zc2gos1ahxouxehk3 -d '{"role": "user
↳ ", "name": "test-user", "language": "en"}'

{"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"}
```

12.4 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=oz2jfkY042kz7d3zc2gos1ahxouxehk3 -d '{"type": "password", "secret": "test-
↳ password", "position":0}'

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

12.5 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=lqt6wpz2z8zatcsh8fnigv4l1zxd6bx2 -d '{"type": "sshkey", "secret": "ssh-
↳ rsa
↳ AAAAB3NzaC1yc2EAAAADAQABAAQDS7xsCHfD+bnAoKytzwnxCmTfGEvUuAJTjYOWTZugtodbCh1poTBYuQ8.
↳ ..
↳ ..HpWyBUYVcN80b7Y5bTq8CZO+iPTFKBfzMILu3VDyBRvjuLhCgz5f1UPhbMWE2/
↳ WpRSFjk5wQ1PR33FMZWnSnxS0Q8qkJqIrF+9mkz2fu/
↳ oSQC0kz0IIqrPUYQoM1YKxGslrSyT+M7TenDxyDsJgBhsyjosLXjbIbwLI/HnPgL...
↳ ..TproWWh/wHS2faPHRH1DcSlep4SYfSWqNh59FYE+r12hzkpNwaE/
↳ gLEM9XLUyNImQ+bkJ5K0+2dyvu80avg89WD8V2KP7Qn59gcxJCnweQ+wX0+GpCsAL", "position":0}'

{"id":688817234205752136,"needs_change":false,"position":1,"type":"sshkey"}
```

12.6 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=lqt6wpz2z8zatcsh8fnigv4l1zxd6bx2

{"id":688817234205751316,"needs_change":false,"position":0,"type":"password"},{"id
↳ ":688817234205752136,"needs_change":false,"position":1,"type":"sshkey"}]
```

12.7 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=lqt6wpz2z8zaticsh8fnigu4l1zxd6bx2
```

12.8 Changing user login

```
curl -k -X PATCH -H "Accept:application/json" -H "Content-Type:application/json"␣  
↪https://fudo.whl/api/system/users/688817234205737277?  
↪sessionId=lqt6wpz2z8zaticsh8fnigu4l1zxd6bx2 -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"  
}
```

12.9 Blocking user

```
curl -k -X PATCH -H "Accept:application/json" -H "Content-Type:application/json"␣  
↪https://fudo.whl/api/system/users/688817234205737277?  
↪sessionId=lqt6wpz2z8zaticsh8fnigu4l1zxd6bx2 -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"  
}
```