



**FUDDO**  
**S E C U R I T Y**

WHEEL FUDDO PAM 3.9 - API  
documentation

*Release is not supported*

Wheel Systems

07.09.2021

<b>1</b>	<b>About documentation</b>	<b>1</b>
<b>2</b>	<b>Authentication</b>	<b>2</b>
<b>3</b>	<b>Accounts</b>	<b>5</b>
3.1	Data structures . . . . .	5
3.2	Creating an account . . . . .	7
3.3	Retrieving accounts list . . . . .	8
3.4	Retrieving an account . . . . .	9
3.5	Modifying accounts . . . . .	9
3.6	Deleting an account . . . . .	10
3.7	Retrieving users allowed to manage accounts . . . . .	11
3.8	Granting management privileges . . . . .	12
3.9	Revoking management privileges . . . . .	12
3.10	Retrieving account-safe assignments list . . . . .	13
3.11	Creating an account-safe assignments . . . . .	14
3.12	Deleting an account-safe assignment . . . . .	15
<b>4</b>	<b>Users</b>	<b>16</b>
4.1	Data structures . . . . .	16
4.2	Creating a user . . . . .	17
4.3	Retrieving users list . . . . .	18
4.4	Retrieving a user . . . . .	19
4.5	Modifying a user . . . . .	19
4.6	Deleting a user . . . . .	20
4.7	Retrieving users allowed to manage users . . . . .	21
4.8	Granting management privileges . . . . .	22
4.9	Revoking management privileges . . . . .	22
4.10	Retrieving user-safe assignments list . . . . .	23
4.11	Creating a user-safe assignment . . . . .	23
4.12	Deleting a user-safe assignment . . . . .	24
<b>5</b>	<b>Servers</b>	<b>26</b>
5.1	Data structures . . . . .	26
5.2	Creating a server . . . . .	28
5.3	Retrieving servers list . . . . .	29

5.4	Retrieving a server . . . . .	29
5.5	Modifying a server . . . . .	30
5.6	Deleting a server . . . . .	31
5.7	Retrieving users allowed to manage given server . . . . .	31
5.8	Granting management privileges . . . . .	32
5.9	Revoking management privileges . . . . .	33
5.10	Listing server addresses . . . . .	33
5.11	Creating a server address . . . . .	35
5.12	Updating a server address . . . . .	36
5.13	Deleting a server address . . . . .	37
<b>6</b>	<b>Safes</b>	<b>38</b>
6.1	Data structures . . . . .	38
6.2	Creating a safe . . . . .	39
6.3	Retrieving safes list . . . . .	40
6.4	Retrieving a safe . . . . .	41
6.5	Modifying a safe . . . . .	42
6.6	Deleting a safe . . . . .	43
6.7	Retrieving users allowed to manage selected safe . . . . .	43
6.8	Granting management privileges . . . . .	44
6.9	Revoking management privileges . . . . .	45
<b>7</b>	<b>Safe members (account-safe-listener) management</b>	<b>46</b>
7.1	Retrieving account-safe-listener assignments list . . . . .	46
7.2	Creating account-safe-listener assignment . . . . .	47
7.3	Deleting account-safe-listener assignment . . . . .	48
7.4	Updating account-safe-listener assignment . . . . .	48
<b>8</b>	<b>Sessions management</b>	<b>50</b>
8.1	Data structures . . . . .	50
8.2	Retrieving sessions list . . . . .	51
8.3	Retrieving session . . . . .	52
8.4	Sending commands to session . . . . .	53
<b>9</b>	<b>Listeners</b>	<b>55</b>
9.1	Data structures . . . . .	55
9.2	Creating a listener . . . . .	57
9.3	Retrieving listeners list . . . . .	57
9.4	Retrieving a listener . . . . .	58
9.5	Modifying a listener . . . . .	59
9.6	Deleting a listener . . . . .	60
9.7	Retrieving users allowed to manage given listener . . . . .	60
9.8	Granting management privileges . . . . .	61
9.9	Revoking management privileges . . . . .	62
9.10	Retrieving listener-safe assignments list . . . . .	62
9.11	Creating a listener-safe assignment . . . . .	63
9.12	Deleting a listener-safe assignment . . . . .	64
<b>10</b>	<b>User authentication methods management</b>	<b>66</b>
10.1	Listing user authentication methods . . . . .	66
10.2	Creating user authentication method . . . . .	67
10.3	Retrieving user authentication method . . . . .	68

10.4	Deleting user authentication method . . . . .	69
<b>11</b>	<b>AAPM communication</b>	<b>71</b>
<b>12</b>	<b>API usage examples</b>	<b>72</b>
12.1	Logging in and retrieving session key . . . . .	72
12.2	Fetching users list . . . . .	72
12.3	Adding a user . . . . .	73
12.4	Setting user authentication method - static password . . . . .	73
12.5	Setting user authentication method - SSH key . . . . .	73
12.6	Fetching user authentication methods list . . . . .	73
12.7	Deleting user authentication method . . . . .	74
12.8	Changing user login . . . . .	74
12.9	Blocking user . . . . .	74

---

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

## CHAPTER 2

---

### Authentication

---

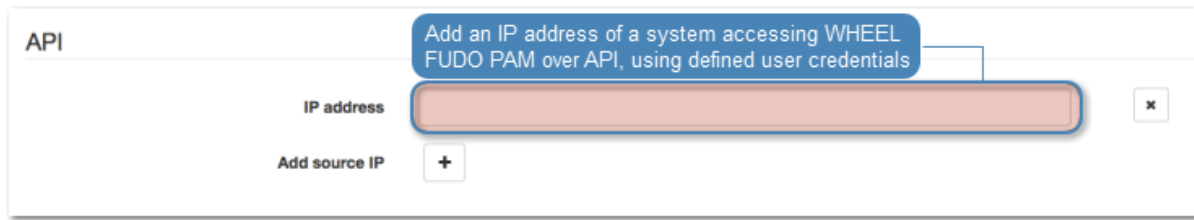
Accessing WHEEL FUDO PAM data structures over API interface requires a *user* object defined in the local database. The same access rights restrictions apply to the API interface as in case of administration panel access.

Role	Access rights
user	<ul style="list-style-type: none"><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 style="list-style-type: none"><li>• Logging in to the administration panel.</li><li>• Browsing objects: servers, users, safes, 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 permissions.</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></ul>
admin	<ul style="list-style-type: none"><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 permissions.</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></ul>
superadmin	<ul style="list-style-type: none"><li>• Full access rights to objects management.</li><li>• Full access rights to system configuration options.</li></ul>

---

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

---



## 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>
ocr_enabled	bool	
ocr_lang	string	
retention	int	
server_id	int	
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"> <li>• write only</li> <li>• required if method == password</li> </ul>
password_change_policy	int	write only
private_key	string	<ul style="list-style-type: none"> <li>• write only</li> <li>• required if method == ssh-key</li> </ul>
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"> <li>• write only</li> <li>• required</li> </ul>
account	Read only	
id	int	
name	string	
listener_id	int	<ul style="list-style-type: none"> <li>• write only</li> <li>• required</li> </ul>
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

---

Status

204 NO CONTENT

---

## Response

---

Status

404 NOT FOUND

---

## 3.10 Retrieving account-safe assignments list

### Request

---

Method

GET

---

Path

/api/system/accountss

---

**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/accountss

---

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	required
email	E-Mail	
external_sync	bool	
full_name	string	
language	string{en, pl, ru}	required
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"> <li>• write only</li> <li>• required</li> </ul>
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

---

**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

---

Status

204 NO CONTENT

---

### Response

---

Status

404 NOT FOUND

---

## 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

---

### 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: HTTPServerAttributes

Parameter	Type	Description
timeout	int	=900

Table 6: RDPServerAttributes

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

Table 7: TLSServerAttributes

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

Table 8: ServerAddressModel

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

Table 9: HTTPServerAddressAttributes

Parameter	Type	Description
host	string	

Table 10: RDPServerAddressAttributes

Parameter	Type	Description
tls_certificate	PEM	
public_key	PEM	

Table 11: SSHServerAddressAttributes

Parameter	Type	Description
public_key	PEM	

Table 12: 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

---

---

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 13: 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 14: 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	SafeRDPAAttributes	
reason	string	
ssh	SafeSSHAttributes	
vnc	SafeVNCAAttributes	

Table 2: SafeRDPAAttributes

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

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"> <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 style="list-style-type: none"> <li>• write only</li> <li>• required</li> </ul>
account		Read only
id	int	
name	string	
listener_id	int	<ul style="list-style-type: none"> <li>• write only</li> <li>• required</li> </ul>
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/session/: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"> <li>• write only</li> <li>• required if <code>secproto == std</code></li> <li>• pass <code>null</code> to generate</li> </ul>
std_public_key	PEM	Read only
tls_private_key	PEM	<ul style="list-style-type: none"> <li>• write only</li> <li>• required if <code>secproto</code> in <code>(tls, nla)</code></li> <li>• pass <code>null</code> to generate</li> </ul>
tls_certificate	PEM	Read only

Table 3: ListenerSSHAttributes

Parameter	Type	Description
private_key	PEM	<ul style="list-style-type: none"> <li>• write only</li> <li>• required</li> </ul>
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"> <li>• write only</li> <li>• required if <code>use_tls</code></li> <li>• pass <code>null</code> to generate</li> </ul>
tls_certificate	PEM	Read only

Table 5: ListenerSafeAssignment

Parameter	Type	Description
listener_id	int	<ul style="list-style-type: none"> <li>• write only</li> <li>• required</li> </ul>
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

---

Body

ListenerSafeAssignmentModel

---

## Response

---

Status

400 BAD REQUEST

---

Headers

Content-Type: Application/JSON

---

Body

ValidationErrors

---

## Response

---

Status

404 NOT FOUND

---

## 9.12 Deleting a listener-safe assignment

### Request

---

Method

DELETE

---

Path

/api/system/safes/:safe\_id/listeners/:listener\_id

---

### Response

---

Status

204 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"><li>• write only</li><li>• required</li></ul>
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

---

Body

ValidationErrors

---

## Response

---

Status

404 NOT FOUND

---

Description

No 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

---

Body

UserAuthenticationMethodModel

---

### Response

---

Status

404 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+bkJKO+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"  
}
```