



Fudo PAM 5.2 - API documentation

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

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

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	<ul style="list-style-type: none"> • 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. • Managing 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. • Available dashboard widgets: concurrent sessions, suspicious sessions, account alerts, active users, cluster status, concurrent sessions chart.
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. • Available dashboard widgets: concurrent sessions, suspicious sessions, account alerts, active users, cluster status, concurrent sessions chart.

Role	Access rights
superadmin	<ul style="list-style-type: none">• Full access rights to objects management.• Full access rights to system configuration options.• Available dashboard widgets: concurrent sessions, suspicious sessions, account alerts, active users, cluster status, concurrent sessions chart, license, system events log.

Request

Method	POST
Path	/api/system/login
Headers	Content-Type: Application/JSON
Body	<pre>{ username: username, password: password }</pre>

Response

Status	200 OK
Headers	Content-Type: Application/JSON
Body	<pre>{ sessionid: ygmd2env50zgr2nblypmrfcvarggn0uf }</pre>

Response

Status	401 UNAUTHORIZED
--------	------------------

CHAPTER 3

Accounts

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

3.1 Data structures

Table 1: AccountModel

Parameter	Type	Description
accountpasswordchanger_set	PasswordChangerAttributes	Password Changer settings
blocked	bool	
credentials	AccountCredentialsAttributes	Required if <code>type == regular</code> <code>forward</code>
dump_mode	string{all, none, raw, noraw}	Session recording options
id	bigserial	Object Identifier
name	string	Unique account name. Required
ocr_enabled	bool	Enable OCR option
ocr_lang	string	Provide the language for the OCR process
hotseat	bool	Enable to be informed about existing connections via the User Portal. Available for the server with <code>protocol == rdp</code>
servauth	bool	Authentication against server. Available for <code>type == forward</code> when the server's <code>protocol == ssh</code> <code>protocol == rdp</code> and <code>security == nla</code> . Default value == <code>false</code>
forward_domain	bool	Forwarding domain. Available for <code>type == forward</code> . Default value == <code>true</code> when the server's <code>protocol == rdp</code> , otherwise default value == <code>false</code>
password_lastupdate	DateTime	
password_change_request	DateTime	
password_checkout_time_limit	Time (hh:mm:ss)	Duration of the secret checkout
password_recovery	bool	Enable a password verifier to automatically trigger a password changer. Available for <code>type == regular</code>
retention	int	Delete session data after {{int}} days. Min value = 1, Max value = 2147483647
server		
id	int	required
name	string	required
type	string{anonymous, forward, regular}	required

Table 2: AccountCredentialsAttributes

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

Table 3: PasswordChangerAttributes

Parameter	Type	Description
password_changer_type	string{change, verify}	
id	string	
position	int	required
timeout	int	required

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

Possible Response

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

Possible Response

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

3.3 Retrieving accounts list

Request

Method	GET
Path	/api/system/accounts

Note: Results pagination

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

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

Table 5: Pagination parameters

page	int
page_size	int

Possible Response

Status	200 OK
Headers	Content-Type: Application/JSON
Body	[AccountModel, ...]

3.4 Retrieving an account

Request

Method	GET
Path	/api/system/accounts/:account_id

Possible Response

Status

200 OK

Headers

Content-Type: Application/JSON

BodyAccountModel

Possible Response

Status

404 NOT FOUND

DescriptionNo account with given id.

3.5 Modifying accounts

Request

Method

PUT, PATCH

Path/api/system/accounts/:account_id

Possible Response

Status

200 OK

Headers

Content-Type: Application/JSON

BodyAccountModel

Possible Response

Status400 BAD REQUEST

Headers

Content-Type: Application/JSON

Body

AccountModel

Possible Response

Status404 NOT FOUND

Description

No account with given id.

3.6 Deleting an account

Request

MethodDELETE

Path

/api/system/accounts/:account_id

Possible Response

Status204 NO CONTENT

Possible Response

Status404 NOT FOUND

Description

Object with specified identifier was not found.

3.7 Retrieving users allowed to manage accounts

Request

Method	GET
Path	/api/system/accounts/:account_id/granted_users

Note: Results pagination

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

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

Table 6: Pagination parameters

page	int
page_size	int

Possible Response

Status	200 OK
Headers	Content-Type: Application/JSON
Body	<pre>[{ 'name': 'username' 'id': 'id' }, ...]</pre>

3.8 Granting management privileges

Request

MethodPOST

Path

`/api/system/accounts/:account_id/granted_users`

Body

```
{  
  user_id: user_id  
}
```

Possible Response

Status201 CREATED

3.9 Revoking management privileges

Request

MethodDELETE

Path

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

Possible Response

Status204 NO CONTENT

Possible Response

Status404 NOT FOUND

3.10 Retrieving account-safe assignments list

Request

Method	GET
Path	/api/system/accounts

Note: Results pagination

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

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

Table 7: Pagination parameters

page	int
page_size	int

Possible Response

Status	200 OK
Headers	Content-Type: Application/JSON
Body	[AccountSafeAssignmentModel, ...]

3.11 Creating an account-safe assignments

Request

Method	POST
Path	/api/system/safes/:safe_id/accounts
Body	AccountSafeAssignmentModel

Possible Response

Status

201 CREATED

Headers

Content-Type: Application/JSON

BodyAccountSafeAssignmentModel

Possible Response

Status

400 BAD REQUEST

Headers

Content-Type: Application/JSON

BodyValidationErrors

Possible Response

Status404 NOT FOUND

3.12 Deleting an account-safe assignment

Request

Method

DELETE

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

Possible Response

Status204 NO CONTENT

Possible Response

Status

404 NOT FOUND

CHAPTER 4

Users

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

4.1 Data structures

Table 1: UserModel

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

Table 2: UserSafeAssignment

Parameter	Type	Description
password_visible	bool	Allow a user to use Secret Checkout feature and view passwords in the User Portal.
position	int	mandatory, 0 or a negative value
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

Possible Response

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

Possible Response

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

Example:

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

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```
{ "name": "john", "role": "user", "language": "en" }
```

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

4.3 Retrieving users list

Request

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

Note: Results pagination

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

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

Table 3: Pagination parameters

page	int
page_size	int

Possible Response

Status

200 OK

Headers

Content-Type: Application/JSON

Body

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

Example:

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

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

4.4 Retrieving a user

Request

Method

GET

Path

/api/system/users/user_id

Possible Response

Status

200 OK

Headers

Content-Type: Application/JSON

Body

UserModel

Possible Response

Status

404 NOT FOUND

Description

No user with given id.

Example:

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

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

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

4.5 Modifying a user

Request

Method

PUT, PATCH

Path`/api/system/users/user_id`

Possible Response

Status

200 OK

Headers

Content-Type: Application/JSON

BodyUserModel

Possible Response

Status

400 BAD REQUEST

Headers

Content-Type: Application/JSON

BodyUserModel

Possible Response

Status

404 NOT FOUND

DescriptionNo user with given id.

Example:

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

4.6 Deleting a user

Request

Method

DELETE

Path

/api/system/users/user_id

Possible Response

Status

204 NO CONTENT

Possible Response

Status

404 NOT FOUND

Description

Object with specified identifier was not found.

Example:

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

4.7 Retrieving users allowed to manage users

Request

Method	GET
Path	/api/system/users/user_id/granted_users

Note: Results pagination

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

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

Table 4: Pagination parameters

page	int
page_size	int

Possible Response

Status	200 OK
Headers	Content-Type: Application/JSON
Body	[{ 'name': 'username', 'id': :id }, ...]

Example:

```
curl -k -X GET
"https://10.0.150.150/api/system/users/68719476740/granted_users?sessionid={
↪{sessionid}}"
{"id":68719476748,"name":"awesome"}
```

4.8 Granting management privileges

Request

Method	POST
Path	/api/system/users/user_id/granted_users
Body	<pre>{ "user_id": :user_id }</pre>

Possible Response

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

Example:

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

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

4.9 Revoking management privileges

Request

Method	DELETE
Path	/api/system/users/user_id/granted_users/user_id

Possible Response

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

Possible Response

Status

404 NOT FOUND

Example:

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

4.10 Retrieving user-safe assignments list

Request

Method

GET

Path

/api/system/users/:user_id/safes

Note: Results pagination

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

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

Table 5: Pagination parameters

page	int
page_size	int

Possible Response

Status

200 OK

Headers

Content-Type: Application/JSON

Body

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

Example:

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

4.11 Creating a user-safe assignment

Request

Method	POST
Path	/api/system/users/:user_id/safes
Body	UserSafeAssignment

Possible Response

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

Possible Response

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

Possible Response

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

Example:

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

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

4.12 Deleting a user-safe assignment

Request

Method

DELETE

Path

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

Possible Response

Status

204 NO CONTENT

Possible Response

Status

404 NOT FOUND

Example:

```
curl -k -X DELETE -H
https://10.0.150.150/api/system/users/68719476740/safes/2?sessionId={{sessionId}}
```

User authentication methods management

Table 1: UserAuthenticationMethodModel

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

5.1 Listing user authentication methods

Request

Method	GET
Path	/api/system/users/:user_id/methods

Possible Response

Status200 OK

Headers

Content-Type: Application/JSON

Body

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

Possible Response

Status404 NOT FOUND

5.2 Creating user authentication method

Request

MethodPOST

Path

/api/system/users/:user_id/methods

Headers

Content-Type: Application/JSON

Body

UserAuthenticationMethodModel

Possible Response

Status201 CREATED

Headers

Content-Type: Application/JSON

Body

UserAuthenticationMethodModel

Possible Response

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

Possible Response

Status	404 NOT FOUND
Description	No user with given user_id.

5.3 Retrieving user authentication method

Request

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

Possible Response

Status	200 OK
Headers	Content-Type: Application/JSON
Body	UserAuthenticationMethodModel

Possible Response

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

Updating user authentication method

Request

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

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

Body	UserAuthenticationMethodModel
------	-------------------------------

Possible Response

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

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

Body	UserAuthenticationMethodModel
------	-------------------------------

Possible Response

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

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

Body	ValidationErrors
------	------------------

Possible Response

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

5.4 Deleting user authentication method

Request

Method

DELETE

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

Possible Response

Status204 NO CONTENT

Possible Response

Status404 NOT FOUND

External authentication

6.1 Data structures

Table 1: ExternalAuthenticationModel

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

Table 2: ExternalAuthenticationCerbModel

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

Table 3: ExternalAuthenticationRadiusModel

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

Table 4: ExternalAuthenticationLdapModel

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

Table 5: ExternalAuthenticationAdModel

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

6.2 Retrieving external authentication methods list

Request

Method	GET
Path	/api/system/extauth

Note: Results pagination

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

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

Table 6: Pagination parameters

page	int
page_size	int

Possible Response

Status	200 OK
Headers	Content-Type: Application/JSON
Body	[ExternalAuthenticationModel, ...]

Example:

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

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

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```

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

```

6.3 Modifying external authentication method

Request

Method	PUT
Path	/api/system/extauth/id

Possible Response

Status	200 OK
Headers	Content-Type: Application/JSON
Body	ExternalAuthenticationModel

Example:

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

6.4 Creating an external authentication method

Request

Method	POST
Path	/api/system/extauth
Headers	Content-Type: Application/JSON
Body	ExternalAuthenticationModel

Possible Response

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

Possible Response

Status

400 BAD REQUEST

Headers

Content-Type: Application/JSON

Body

ValidationErrors

Description

Validation didn't pass.

Example:

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

6.5 Deleting an external authentication method

Request

Method

DELETE

Path

/api/system/extauth/id

Example:

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

CHAPTER 7

Servers

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

7.1 Data structures

Table 1: ServerModel

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

Table 2: RemoteAppsAttributes

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

Table 3: HTTPServerAttributes

Parameter	Type	Description
timeout	int	Default 900

Table 4: RDPServerAttributes

Parameter	Type	Description
ca_certificate	PEM	
security	string{std, tls, nla}	<ul style="list-style-type: none"> • required; • default == nla

Table 5: SubnetModel

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

Table 6: TLSServerAttributes

Parameter	Type	Description
ca_certificate	string	required if use_tls
use_tls	boolean	

7.2 Creating a server

Request

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

Possible Response

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

Possible Response

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

7.3 Retrieving servers list

Request

Method	GET
Path	/api/system/servers

Note: Results pagination

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

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

Table 7: Pagination parameters

page	int
page_size	int

Possible Response

Status

200 OK

Headers

Content-Type: Application/JSON

Body

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

7.4 Retrieving a server

Request

Method

GET

Path/api/system/servers/:server_id

Possible Response

Status

200 OK

Headers

Content-Type: Application/JSON

BodyServerModel

Possible Response

Status

404 NOT FOUND

DescriptionNo server with given id.

7.5 Modifying a server

Request

Method	PUT, PATCH
Path	/api/system/servers/:server_id

Possible Response

Status	200 OK
Headers	Content-Type: Application/JSON
Body	ServerModel

Possible Response

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

Possible Response

Status	404 NOT FOUND
Description	No server with given id.

7.6 Deleting a server

Request

Method	DELETE
Path	/api/system/servers/:server_id

Possible Response

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

Possible Response

Status	404 NOT FOUND
Description	Object with specified identifier was not found.

7.7 Retrieving users allowed to manage given server

Request

Method	GET
Path	/api/system/servers/:server_id/granted_users

Note: Results pagination

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

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

Table 8: Pagination parameters

page	int
page_size	int

Possible Response

Status200 OK

Headers

Content-Type: Application/JSON

Body

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

7.8 Granting management privileges

Request

MethodPOST

Path

`/api/system/servers/:server_id/granted_users`

Body

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

Possible Response

Status201 CREATED

7.9 Revoking management privileges

Request

MethodDELETE

Path

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

Possible Response

Status204 NO CONTENT

Possible Response

Status404 NOT FOUND

7.10 Listing server addresses

Request

MethodGET

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 9: Pagination parameters

page	int
page_size	int

Possible Response

Status204 NO CONTENT

Possible Response

Status

200 OK

Headers

Content-Type: Application/JSON

Body

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

Possible Response

Status

404 NOT FOUND

7.11 Creating a server address

Request

Method

POST

Path

/api/system/servers/:server_id/addresses

Headers

Content-Type: Application/JSON

Body

ServerAddressModel

Possible Response

Status

201 CREATED

Headers

Content-Type: Application/JSON

Body

ServerAddressModel

Possible Response

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

Possible Response

Status	404 NOT FOUND
Description	No server with given :server_id.

7.12 Updating a server address

Request

Method	PATCH, PUT
Path	/api/system/servers/:server_id/addresses/:address_id
Body	ServerAddressModel

Possible Response

Status	200 OK
Headers	Content-Type: Application/JSON
Body	ServerAddressModel

Possible Response

Status

400 BAD REQUEST

Headers

Content-Type: Application/JSON

BodyValidationErrors

Possible Response

Status

404 NOT FOUND

DescriptionNo server with `given :server_id`.

DescriptionNo server address with `given :address_id`

7.13 Deleting a server address

Request

Method

DELETE

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

Possible Response

Status204 NO CONTENT

Possible Response

Status

404 NOT FOUND

Description

No server with `given :server_id`.

Description

No server address with `given :address_id`

CHAPTER 8

Safes

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

8.1 Data structures

Table 1: SafeModel

Parameter	Type	Description
id	string	Read only
rdp	SafeRDPAttributes	Safe settings for <code>protocol == rdp</code>
ssh	SafeSSHAttributes	Safe settings for <code>protocol == sh</code>
vnc	SafeVNCAttributes	Safe settings for <code>protocol == vnc</code>
name	string	Unique name. Required
otp_in_access_gateway	bool	Default value == <code>true</code>
webclient	bool	Enable connections via the browser. Available for <code>protocol == ssh protocol == rdp protocol == vnc</code> . Can't be enabled when <code>otp_in_access_gateway == false</code>
blocked	bool	
reason	string	The reason of the safe being blocked
login_reason	bool	Enable sending login reason for connection
require_confirmation	bool	Enable confirmation of each connection
confirmation_timeout	int	Min value = -2147483648, Max value = 2147483647
note_access	string {none, read, write}	Access level to the notes
time_limit	int	Enable Session time limit in minutes
inactivity_limit	int	Enable Session inactivity limit in minutes
required_votes	int	How many voters will be voting for the access request
backup	string	Target destination for storing session data
users	string	Read only

Table 2: SafeRDPAttributes

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

Table 3: SafeSSHAttributes

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

Table 4: SafeVNCAttributes

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

Table 5: UserSafeAssignment

Parameter	Type	Description
password_visible	bool	Allow a user to use Secret Checkout feature and view passwords in the User Portal.
position	int	mandatory, 0 or a negative value
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	

8.2 Creating a safe

Request

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

Possible Response

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

Possible Response

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

8.3 Retrieving safes list

Request

Method	GET
Path	/api/system/safes

Note: Results pagination

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

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

Table 7: Pagination parameters

page	int
page_size	int

Possible Response

Status	200 OK
Headers	Content-Type: Application/JSON
Body	[SafeModel, ...]

8.4 Retrieving a safe

Request

Method	GET
Path	/api/system/safes/:safe_id

Possible Response

Status	200 OK
Headers	Content-Type: Application/JSON
Body	SafeModel

Possible Response

Status	404 NOT FOUND
Description	No safe with given id.

8.5 Modifying a safe

Request

Method	PUT, PATCH
Path	/api/system/safes/:safe_id

Possible Response

Status	200 OK
Headers	Content-Type: Application/JSON
Body	SafeModel

Possible Response

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

Possible Response

Status	404 NOT FOUND
Description	No safe with given id.

8.6 Deleting a safe

Request

Method	DELETE
Path	/api/system/safes/:safe_id

Possible Response

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

Possible Response

Status	404 NOT FOUND
Description	Object with specified identifier was not found.

8.7 Retrieving users allowed to manage selected safe

Request

Method	GET
Path	/api/system/safes/:safe_id/granted_users

Note: Results pagination

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

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

Table 8: Pagination parameters

page	int
page_size	int

Possible Response

Status200 OK

Headers

Content-Type: Application/JSON

Body

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

8.8 Granting management privileges

Request

MethodPOST

Path

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

Body

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

Possible Response

Status201 CREATED

8.9 Revoking management privileges

Request

MethodDELETE

Path

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

Possible Response

Status204 NO CONTENT

Possible Response

Status404 NOT FOUND

Safe members (account-safe-listener) management

9.1 Retrieving account-safe-listener assignments list

Request

Method	GET
Path	/api/system/safes/:safe_id/account_listeners

Note: Results pagination

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

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

Table 1: Pagination parameters

page	int
page_size	int

Possible Response

Status200 OK

Headers

Content-Type: Application/JSON

Body

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

9.2 Creating account-safe-listener assignment

Request

MethodPOST

Path

`/api/system/safes/:safe_id/account_listeners`

Body

`AccountSafeListenerAssignment`

Possible Response

Status201 CREATED

Headers

Content-Type: Application/JSON

Body

`AccountSafeListenerAssignment`

Possible Response

Status

400 BAD REQUEST

Headers

Content-Type: Application/JSON

Body

ValidationErrors

Possible Response

Status

404 NOT FOUND

9.3 Deleting account-safe-listener assignment

Request

Method

DELETE

Path

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

Possible Response

Status

204 NO CONTENT

Possible Response

Status

404 NOT FOUND

10.1 Data structures

Table 1: SessionCommandModel

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

Table 2: SessionModel

Parameter	Type	Description
account		Required
id	int	
name	string	
destination_ip	IPv4	IP address of the target server
description_port	int	Port of the target server address
finished_at	DateTime	Datetime of the session termination
handled_by		
id	int	
listener		
id	int	ID of the listener, via which the connection was established
name	string	Name of the listener, via which the connection was established
login_reason	string	Reason of the login into the system

Continued on next page

Table 2 – continued from previous page

Parameter	Type	Description
protocol	string{checkout, citrixsf, http, ica, modbus, mysql, oracle, rdp, ssh, system, tcp, tds, telnet, tn3270, tn5250, vnc}	
reason	string	Reason of establishing connection
safe		Read only
id	int	ID of the safe, via which the connection was established
name	string	Name of the safe, via which the connection was established
server		Read only
id	int	ID of the server, to which the connection was established
name	string	Name of the server, to which the connection was established
source_ip	IPv4	Source IP address
source_port	int	Port of the source IP address
started_at	DateTime	Datetime of the session start
status	string{approved, terminated}	
user		
id	int	ID of the user who was connected
name	string	Name of the user who was connected
dump_mode	string{all,none,raw}	Session recording options
paused	bool	
ocr_enabled	bool	Enable OCR option
server_address		
id	int	
host	IPv4	
port		
http		Settings when protocol == http
host		
tls_certificate		
rdp		Settings when protocol == rdp
tls_certificate		
public_key		

Continued on next page

Table 2 – continued from previous page

Parameter	Type	Description
ssh		Settings when protocol == ssh
public_key		
tls		

10.2 Retrieving sessions list

Request

Method	GET
Path	/api/system/sessions

Note: Results pagination

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

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

Table 3: Pagination parameters

page	int
page_size	int

Possible Response

Status	200 OK
Headers	Content-Type: Application/JSON
Body	[SessionModel, ...]

10.3 Retrieving session

Request

Method	GET
Path	/api/system/sessions/:session_id

Possible Response

Status	200 OK
Headers	Content-Type: Application/JSON
Body	SessionModel

Possible Response

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

10.4 Sending commands to session

Request

Method	POST
Path	/api/system/sessions/:session_id/command
Body	SessionCommandModel

Possible Response

Status	200 OK
Headers	Content-Type: Application/JSON
Body	SessionCommandModel

Possible Response

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

Possible Response

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

CHAPTER 11

Listeners

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

11.1 Data structures

Table 1: ListenerModel

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

Table 4: ListenerTLSAttributes

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

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	

11.2 Creating a listener

Request

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

Possible Response

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

Possible Response

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

11.3 Retrieving listeners list

Request

Method	GET
Path	/api/system/listeners

Note: Results pagination

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

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

Table 6: Pagination parameters

page	int
page_size	int

Possible Response

Status	200 OK
Headers	Content-Type: Application/JSON
Body	[<div> ListenerModel, ... </div>]

11.4 Retrieving a listener

Request

Method	GET
Path	/api/system/listeners/:listener_id

Possible Response

Status200 OK

Headers

Content-Type: Application/JSON

Body

ListenerModel

Possible Response

Status404 NOT FOUND

Description

No listener with given id.

11.5 Modifying a listener

Request

MethodPUT, PATCH

Path

/api/system/listeners/:listener_id

Possible Response

Status200 OK

Headers

Content-Type: Application/JSON

Body

ListenerModel

Possible Response

Status400 BAD REQUEST

Headers

Content-Type: Application/JSON

Body

ListenerModel

Possible Response

Status404 NOT FOUND

Description

No listener with given id.

11.6 Deleting a listener

Request

MethodDELETE

Path

/api/system/listeners/:listener_id

Possible Response

Status204 NO CONTENT

Possible Response

Status404 NOT FOUND

Description

Object with specified identifier was not found.

11.7 Retrieving users allowed to manage given listener

Request

Method	GET
Path	/api/system/listeners/:listener_id/granted_users

Note: Results pagination

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

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

Table 7: Pagination parameters

page	int
page_size	int

Possible Response

Status	200 OK
Headers	Content-Type: Application/JSON
Body	[{ 'name': 'username', 'id': :id } , ...]

11.8 Granting management privileges

Request

MethodPOST

Path

`/api/system/listeners/:listener_id/granted_users`

Body

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

Possible Response

Status`201 CREATED`

11.9 Revoking management privileges

Request

MethodDELETE

Path

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

Possible Response

Status`204 NO CONTENT`

Possible Response

Status`404 NOT FOUND`

11.10 Retrieving listener-safe assignments list

Request

Method

GET

Path
`/api/system/listeners`

Note: Results pagination

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

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

Table 8: Pagination parameters

page	int
page_size	int

Possible Response

Status

200 OK

Headers

Content-Type: Application/JSON

Body

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

11.11 Creating a listener-safe assignment

Request

Method

POST

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

Body

ListenerSafeAssignmentModel

Possible Response

Status

201 CREATED

Headers

Content-Type: Application/JSON

BodyListenerSafeAssignmentModel

Possible Response

Status

400 BAD REQUEST

Headers

Content-Type: Application/JSON

BodyValidationErrors

Possible Response

Status404 NOT FOUND

11.12 Deleting a listener-safe assignment

Request

Method

DELETE

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

Possible Response

Status204 NO CONTENT

Possible Response

Status

404 NOT FOUND

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

12.1 Data structures

Table 1: PasswordChangerModel

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

Table 2: VariablesModel

Parameter	Type	Description
id	bigint	Object identifier.
name	string	Required.
description	string	
encrypt	bool	<ul style="list-style-type: none"> • true - encrypt variable value, • false - store variable value in plain text.
required	bool	<ul style="list-style-type: none"> • true - specifying this value is required, • false - specifying this value is not required.
object_type	text	
object_property	text	

Table 3: CommandsModel

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

Table 4: account_password_changer

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

Table 5: accountvariable_set

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

12.2 Creating a password changer

Request

Method	POST
Path	/api/system/password_changers
Headers	Content-Type: Application/JSON
Body	PasswordChangerModel

Possible Response

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

Possible Response

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

Example:

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

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```
"position": 2,
"delay":null,
"command_type":"INPUT"},
{
"command":"command 3 %%transport_host%%",
"expected": null,
"position": 3,
"delay":null,
"command_type":"INPUT"
}}}
```

12.3 Retrieving password changers list

Request

Method	GET
Path	/api/system/password_changers

Note: Results pagination

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

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

Table 6: Pagination parameters

page	int
page_size	int

Possible Response

Status	200 OK
Headers	Content-Type: Application/JSON
Body	[PasswordChangerModel, ...]

Example:

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

12.4 Retrieving a password changer

Request

Method	GET
Path	/api/system/password_changers/id

Possible Response

Status	200 OK
Headers	Content-Type: Application/JSON
Body	PasswordChangerModel

Possible Response

Status	404 NOT FOUND
Not found.	

Example:

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

12.5 Modifying password changers

Request

Method

PUT

Path`/api/system/password_changers/id`

Possible Response

Status

200 OK

Headers

Content-Type: Application/JSON

BodyPasswordChangerModel

Possible Response

Status

400 BAD REQUEST

Headers

Content-Type: Application/JSON

BodyPasswordChangerModel

Possible Response

Status

404 NOT FOUND

Description Object not found.

Example:

```
curl -k -X POST -H "Content-Type:application/json"
https://10.0.150.150/api/system/password_changers/68719476747?sessionId={{sessionId}}
↪ -d
{
  "name": "New name",
  "timeout": 300,
  "transport": "Telnet",
  "changer_type": "verify",
```

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```

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

```

12.6 Deleting a password changer

Request

Method

DELETE

Path`/api/system/password_changers/id`

Possible Response

Status204 NO CONTENT

Possible Response

Status404 NOT FOUND

Description Object not found.

Example:

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

12.7 Retrieving account-password changers assignments list

Request

Method

GET

Path`/api/system/account_password_changers`

Note: Results pagination

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

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

Table 7: Pagination parameters

page	int
page_size	int

Possible Response

Status

200 OK

Headers

Content-Type: Application/JSON

Body

```
[  
  AccountSafeAssignmentModel,  
  ...  
]
```

Example:

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

12.8 Adding a password changer to account

Request

Method

POST

Path

/api/system/account_password_changers

Body

account_password_changer

Possible Response

Status

201 CREATED

Headers

Content-Type: Application/JSON

Body

AccountPasswordChanger

Possible Response

Status

400 BAD REQUEST

Headers

Content-Type: Application/JSON

Body

ValidationErrors

Possible Response

Status

404 NOT FOUND

Example:

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

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```

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

```

12.9 Deleting an account-password changer assignment

Request

Method

DELETE

Path

/api/system/account_password_changers/id

Possible Response

Status

204 NO CONTENT

Possible Response

Status

404 NOT FOUND

Example:

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

Password changer policy

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

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

13.1 Adding a password changer policy to account

Request

Method	POST
Path	/api/system/accounts
Body	AccountModel

Possible Response

Status	200 OK
Headers	Content-Type: Application/JSON
Body	AccountModel

Possible Response

Status

400 BAD REQUEST

Headers

Content-Type: Application/JSON

Body

ValidationErrors

Possible Response

Status

404 NOT FOUND

Example:

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

CHAPTER 14

AAPM communication

Description pending.

15.1 Logging in and retrieving session key

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

Result: {"sessionid":"oz2jfkY042kz7d3zc2gos1ahxouxehk3"}
```

15.2 Fetching users list

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

Result:
{
  "count":110,
  "next":"https://fudo.whl/api/system/users?page=2&page_size=2&sessionid={{sessionid}}",
  "previous":null,"results":
    [{
      "id":688817234205737171,
      "email":"",
      "language":"en",
      "blocked":true,
      "reason":"",
      "name":"Administrator",
      "full_name":"",
      "organization":null,
      "phone":"",
      "ad_domain":"",
      "ldap_base":"",
      "failures":0,
```

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```

        "external_sync":false,
        "valid_since":"0001-01-01T00:00:00",
        "valid_to":"9999-12-31T23:59:59.999999",
        "role":"user"
    },
    {
        "id":688817234205737275,
        "email":"",
        "language":"en",
        "blocked":false,
        "reason":"",
        "name":"User20000",
        "full_name":"test user",
        "organization":"test organization",
        "phone":"",
        "ad_domain":"test.ad",
        "ldap_base":"",
        "failures":0,
        "external_sync":false,
        "valid_since":"2017-05-19T09:23:14",
        "valid_to":"2017-07-18T09:23:14",
        "role":"user"
    }
}
}
}

```

15.3 Adding a user

```

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

```

Result:

```

{
    "id":688817234205737277,
    "email":"",
    "language":"en",
    "blocked":false,
    "reason":"",
    "name":"test-user-admin",
    "full_name":"",
    "organization":null,
    "phone":"",
    "ad_domain":"",
    "ldap_base":"",
    "failures":0,
    "external_sync":false,
    "valid_since":"0001-01-01T00:00:00",
    "valid_to":"9999-12-31T23:59:59.999999",
    "role":"user"
}

```

15.4 Setting user authentication method - static password

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

Result:

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

15.5 Setting user authentication method - SSH key

```
curl -k -X POST -H "Accept:application/json" -H "Content-Type:application/json"
https://fudo.whl/api/system/users/688817234205737277/methods?sessionid={{sessionid}} -
↪ d
{
  "type": "sshkey",
  "secret": "ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAQDS7xsCHfD+bnAoKytzwnxCmTfGEvUuA...",
  "position":0
}
```

Result:

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

15.6 Fetching user authentication methods list

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

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

15.7 Deleting user authentication method

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

15.8 Changing user login

```
curl -k -X PATCH -H "Accept:application/json" -H "Content-Type:application/json"
https://fudo.whl/api/system/users/688817234205737277?sessionid={{sessionid}} -d
{"name": "new-user"}
```

```
Result: {
  "id":688817234205737277,
  "email":"",
  "language":"en",
  "blocked":false,
  "reason":"",
  "name":"new-user",
  "full_name":"",
  "organization":null,
  "phone":"",
  "ad_domain":"",
  "ldap_base":"",
  "failures":0,
  "external_sync":false,
  "valid_since":"0001-01-01T00:00:00",
  "valid_to":"9999-12-31T23:59:59.999999",
  "role":"user"
}
```

15.9 Blocking a user

```
curl -k -X PATCH -H "Accept:application/json" -H "Content-Type:application/json"
https://fudo.whl/api/system/users/688817234205737277?sessionid={{sessionid}} -d
{"blocked": "True"}
```

```
Result: {
  "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,
```

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```
"valid_since": "0001-01-01T00:00:00",  
"valid_to": "9999-12-31T23:59:59.999999",  
"role": "user"  
}
```

15.10 Setting a password for an Account with type “forward”

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