

Table of content

1. RELEASE NOTES	2
2. OVERVIEW	3
3. PRE-REQUEST	3
4. GENERAL SYNTAX.....	3
5. RESULT FORMAT	3
6. AUTHENTICATION	4
6.1. Authentication example	4
7. COMMANDS.....	5
7.1. CreateAccount	5
7.2. UpdateAccount	5
7.3. DeleteAccount	6
7.4. ActivateAccount.....	6
7.5. DisableAccount	6
7.6. AssignTokenToAccount.....	7
7.7. AccountIsActivated	7
7.8. GetAccountInfo.....	8
7.9. GetAccountStatus	9
7.10. GetAccountsList	9
7.11. GetLockedAccountsList.....	10
7.12. GetAccountProvisioningPdf	10
7.13. CheckOtp	10
7.14. SyncOtp.....	11
7.15. GetMemInfo	11
7.16. MasterSlaveFullResync	11

History

2018-08-21 (5.3.0.0) Documentation updated

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2017-05-16 (5.0.4.4) Additional command

2017-05-10 (5.0.4.0) Additional commands, enhanced results

2016-11-01 (5.0.2.6) Additional commands

2016-10-03 (5.0.2.3) Updated authentication mechanism

2016-05-03 (4.3.4.0) First public release

multiOTP® Enterprise is a strong two factors authentication appliance developed and maintained in Switzerland by
SysCo systèmes de communication sa

Official website: <http://www.multiotp.com/>

1. Release notes

2018-08-21 (5.3.0.0)

ENH: witout2FA algorithm added in the options of various commands

2018-07-17 (5.2.0.3)

ENH: Documentation enhanced

2017-05-16 (5.0.4.4)

ENH: New GetMemInfo command to retrieve appliance memory information

2017-05-10 (5.0.4.0)

FIX: Numeric values are now all returned as numbers instead of string

ENH: New GetAccountProvisioningPdf command to get the provisioning PDF content of an account

ENH: New MasterSlaveFullResync command to force a full Master-Slave resynchronization

ENH: New GetAccountInfo command to retrieve all information about an account

ENH: New DisableAccount command replaces the DesactivateAccount

2016-11-01 (5.0.2.6)

ENH: Documentation enhanced

2016-10-03 (5.0.2.3)

ENH: Updated authentication mechanism, same as services like the Amazon AWS API REST authentication

2016-05-03 (4.3.4.0)

First public release

2. Overview

This document explains how to use the Web API interface of **multiOTP® Enterprise**.

3. Pre-Request

Be sure that the Web API is used by a device for which Web API calls are allowed and enabled.

4. General syntax

The general syntax is the following:

`https://multiOTP_ip_address/?Command=command_string[&Arg1..n=value1..n]&Timestamp=ts&Signature=authentication_string`

5. Result format

Result is returned in JSON format. A general HTTP header code is also provided.

```
{
  "result_code": 19,
  "result_text": "INFO: Requested operation successfully done",
  "result": {
    ...
  }
}
```

Possible general HTTP header codes are:

201: Created	400: Bad Request	500: Server error
202: Accepted	401: Unauthorized	
204: No content	404: Not Found	
	405: Method not allowed	

6. Authentication

The Web API authentication is now using the same signature mechanism as used for various services like the Amazon AWS API REST authentication, which is briefly described here:

- a) Add a Timestamp parameter with an URL encoded value of current GMT date/time in this format: **YYYY-MM-DDThh:mm:ssZ**
- b) Create the signature string:
 - 1) sort all parameters in the ascendant alphabetic order:
 - 2) Create the sorted request string with all parameters concatenated, separated by &
 - 3) Create the signature string (host, path (which is / in our case), request string: "GET\n*host_ip*\n*request_string*")
 - 4) Calculate the hash of the signature using the device secret :
`urlencode(base64(hash_hmac_sha256(signature_string, device_secret)))`
- c) Add the Signature to the parameters and send the request to the multiOTP Enterprise device

6.1. Authentication example

multiOTP Enterprise virtual appliance: **192.168.1.88**

Secret defined for the Web API enabled device doing the request: **mysecret**

Command:

Command=GetAccountStatus

Parameter(s) with URL encoded value

Account=demo_account

Add an URL encoded Timestamp parameter:

Timestamp=2016-11-01T08%3A09%3A04Z

Create the sorted request string for all parameters:

Account=demo_account&Command=GetAccountStatus&Timestamp=2016-11-01T08%3A09%3A04Z

Create the signature string:

GET\n192.168.1.88/\nAccount=demo_account&Command=GetAccountStatus&Timestamp=2016-11-01T08%3A09%3A04Z

Calculate the hash of the signature string: `urlencode(base64(hash_hmac_sha256("GET...", "mysecret")))`

EqMMUOBpZwTosHOaFiaB82Ezv3UBE696W28jlWAQXkw%3D

Send the full request which includes the signature to the multiOTP Enterprise virtual appliance:

https://192.168.1.88/?Command=GetAccountStatus&Account=demo_account&Timestamp=2016-11-01T08:09:04Z&Signature=EqMMUOBpZwTosHOaFiaB82Ezv3UBE696W28jlWAQXkw%3D

Result returned (with a general HTTP header code of 202 Accepted):

```
{
  "result_code": 19,
  "result_text": "INFO: Requested operation successfully done",
  "result": {
    "account": "demo_account",
    "activated": true,
    "delayed": false,
    "delayed_time": 0,
    "last_error": 1477184523,
    "locked": false,
    "user_last_login": 1477962123
  }
}
```

7. Commands

7.1. CreateAccount

Create a new account

Parameters:

- Account: string, mandatory, name of the account.
- Activated: [0|1], optional, account activation. If not defined, the account is activated.
- Algorithm: [totp|hotp|motp|yubicootp|without2fa], optional, OTP algorithm of the account. If not defined, the default is totp.
- Description: string, optional, description of the account.
- Digits: integer, optional, number of digits used for the One Time Password. If not define, the default is 6.
- Email: string, optional, email address of the account.
- Group: string, optional, group(s) of the account. Several groups must be comma separated.
- LdapPassword: [-1|0|1], optional, using AD/LDAP password (1) instead of PIN (0), or take the system defined option (-1).
- NextEvent: integer, optional, next event for hotp or yubicootp algorithm. If not defined, the default value is 0.
- Pin: string, optional, PIN/password of the account. If not defined, a random 4 digits PIN is created.
- PrefixNeeded: [-1|0|1], optional, define if a prefix is needed (1) or not (0), or take the system defined option (-1).
- Seed: hexadecimal, optional, seed of the account. If not defined, a random seed is created.
- Sms: string, optional, mobile phone number of the account, in the international 00nnnnnnnnnn format.
- Synchronized: [0|1], optional, account is AD/LDAP synchronized (1) or not. If not defined, the account is not synchronized.
- TimeInterval: integer, optional, time interval (in seconds) for totp algorithm. If not defined, the default value is 30.
- TokenAlgoSuite: [HMAC-SHA1], optional, token algorithm suite for totp/hotp, default is HMAC-SHA1.

Example:

```
https://192.168.1.88/?Command=CreateAccount&Account=demo_account&Algorithm=hotp&Description=demo%20account
&NextEvent=7&Pin=mypass&PrefixNeeded=1&Seed=3132333435363738393031323334353637383930
&Timestamp=2016-11-01T08:17:25Z&Signature=...
```

Result:

```
{
  "result_code": 11,
  "result_text": "INFO: User successfully created or updated",
  "result": {
    "account": "demo_account"
  }
}
```

7.2. UpdateAccount

Update existing account parameter(s).

Parameters:

- Account: string, mandatory, name of the account.
- Activated: [0|1], optional, account activation.
- Algorithm: [totp|hotp|motp|yubicootp|without2FA], optional, OTP algorithm of the account.
- Description: string, optional, description of the account.
- Digits: integer, optional, number of digits used for the One Time Password.
- Email: string, optional, email address of the account.
- Group: string, optional, group(s) of the account. Several groups must be comma separated.
- LdapPassword: [-1|0|1], optional, using AD/LDAP password (1) instead of PIN (0), or take the system defined option (-1).
- NextEvent: integer, optional, next event for hotp or yubicootp algorithm.
- Pin: string, optional, PIN/password of the account.
- PrefixNeeded: [-1|0|1], optional, define if a prefix is needed (1) or not (0), or take the system defined option (-1).
- Seed: hexadecimal, optional, seed of the account.
- Sms: string, optional, mobile phone number of the account, in the international 00nnnnnnnnnn format.
- Synchronized: [0|1], optional, account is AD/LDAP synchronized (1) or not (0).
- TimeInterval: integer, optional, time interval (in seconds) for totp algorithm.
- TokenAlgoSuite: [HMAC-SHA1], optional, token algorithm suite for totp/hotp.

Example:

```
https://192.168.1.88/?Command=UpdateAccount&Account=demo_account&Email=account@demo.com
&Timestamp=2016-11-01T08:17:25Z&Signature=...
```

Result:

```
{
  "result_code": 11,
  "result_text": "INFO: User successfully created or updated",
  "result": {
    "account": "demo_account"
  }
}
```

7.3. DeleteAccount

Delete an existing account.

Parameter:

Account: string, mandatory, name of the account.

Example:

https://192.168.1.88/?Command=DeleteAccount&Account=demo_account&Timestamp=2016-11-01T08:17:25Z&Signature=...

Result:

```
{
  "result_code": 19,
  "result_text": "INFO: Requested operation successfully done",
  "result": {
    "account": "demo_account"
  }
}
```

7.4. ActivateAccount

Activate an existing account.

Parameter:

Account: string, mandatory, name of the account.

Example:

https://192.168.1.88/?Command=ActivateAccount&Account=demo_account&Timestamp=2016-11-01T08:17:25Z&Signature=...

Result:

```
{
  "result_code": 19,
  "result_text": "INFO: Requested operation successfully done",
  "result": {
    "account": "demo_account"
  }
}
```

7.5. DisableAccount

Disable an existing account.

Parameter:

Account: string, mandatory, name of the account.

Example:

https://192.168.1.88/?Command=DisableAccount&Account=demo_account&Timestamp=2017-05-10T05:00:04Z&Signature=...

Result:

```
{
  "result_code": 19,
  "result_text": "INFO: Requested operation successfully done",
  "result": {
    "account": "demo_account"
  }
}
```

7.6. AssignTokenToAccount

Assign a specific token to an account.

Parameters:

Account: string, mandatory, name of the account.

Token: string, mandatory, serial number of the token.

Example:

```
https://192.168.1.88/?Command=AssignTokenToAccount&Account=demo_account&Token=12345678
&Timestamp=2016-11-01T08:17:25Z&Signature=...
```

Result:

```
{
  "result_code": 19,
  "result_text": "INFO: Requested operation successfully done",
  "result": {
    "account": "demo_account",
    "token": "12345678"
  }
}
```

7.7. AccountIsActivated

Check if the account is activated.

Parameter:

Account: string, mandatory, name of the account.

Example:

```
https://192.168.1.88/?Command=AccountIsActivated&Account=demo_account&Timestamp=2016-11-01T08:17:25Z&Signature=...
```

Result:

```
{
  "result_code": 19,
  "result_text": "INFO: Requested operation successfully done",
  "result": {
    "account": "demo_account",
    "activated": true
  }
}
```

7.8. GetAccountInfo

Get account information.

Parameter:

Account: string, mandatory, name of the account.

Example:

https://192.168.1.88/?Command=GetAccountInfo&Account=demo_account&Timestamp=2017-05-10T05:00:04Z&Signature=...

Result:

```
{
  "result_code": 19,
  "result_text": "INFO: Requested operation successfully done",
  "result": {
    "account": "demo_account",
    "activated": true,
    "admin_with_otp": false,
    "algorithm": "hotp",
    "delayed": false,
    "delayed_finished": 0,
    "delayed_time": 0,
    "delta_time": 0,
    "description": "demo account",
    "dialin_ip_address": "",
    "dialin_ip_mask": "",
    "email": "",
    "error_counter": 0,
    "group": "",
    "key_id": "12345678",
    "language": "",
    "last_error": 0,
    "last_event": -1,
    "locked": false,
    "number_of_digits": 6,
    "request_ldap_pwd": false,
    "request_prefix_pin": true,
    "sms": "",
    "synchronized": false,
    "synchronized_channel": "",
    "synchronized_dn": "",
    "synchronized_server": "",
    "synchronized_time": 0,
    "time_interval": 0,
    "token_algo_suite": "HMAC-SHA1",
    "token_serial": "12345678",
    "user_last_login": 0,
    "welcome_mail_sent": false
  }
}
```


7.9. GetAccountStatus

Check the account status (activated, locked, delayed, delayed_time, user_last_login, last_error).

Parameter:

Account: string, mandatory, name of the account.

Example:

https://192.168.1.88/?Command=GetAccountStatus&Account=demo_account&Timestamp=2016-11-01T08:17:25Z&Signature=...

Result:

```
{
  "result_code": 19,
  "result_text": "INFO: Requested operation successfully done",
  "result": {
    "account": "demo_account",
    "activated": true,
    "delayed": false,
    "delayed_time": 0,
    "last_error": 1477184523,
    "locked": false,
    "user_last_login": 1477962123
  }
}
```

7.10. GetAccountsList

Get the list of all accounts.

Parameter: n/a

Example:

<https://192.168.1.88/?Command=GetAccountsList&Timestamp=2016-11-01T08:17:25Z&Signature=...>

Result:

```
{
  "result_code": 19,
  "result_text": "INFO: Requested operation successfully done",
  "result": [
    {
      "account": "demo_account",
      "activated": true,
      "delayed": false,
      "description": "demo account",
      "group": "",
      "locked": false,
      "synchronized": false,
      "token": "12345678"
    },
    {
      "account": "second_user",
      "activated": true,
      "delayed": true,
      "delayed_finished": 1477988465,
      "delayed_time": 220,
      "description": "second user",
      "group": "",
      "locked": true,
      "synchronized": false,
      "token": ""
    }
  ]
}
```

7.11. GetLockedAccountsList

Get the list of all locked accounts.

Parameter: n/a

Example:

<https://192.168.1.88/?Command=GetLockedAccountsList&Timestamp=2016-11-01T08:17:25Z&Signature=...>

Result:

```
{
  "result_code": 19,
  "result_text": "INFO: Requested operation successfully done",
  "result": [
    {
      "account": "second_user",
      "activated": true,
      "delayed": true,
      "delayed_finished": 1477988465,
      "delayed_time": 220,
      "description": "second user",
      "group": "",
      "locked": true,
      "synchronized": false,
      "token": ""
    }
  ]
}
```

7.12. GetAccountProvisioningPdf

Get the provisioning PDF content of an account

Parameter:

Account: string, mandatory, name of the account.

Example:

https://192.168.1.88/?Command=GetAccountProvisioningPdf&Account=demo_account&Timestamp=2017-05-10T05:00:04Z&Signature=...

Result:

The PDF content is returned, and the returned http header code is 202 in case of success, and 404 otherwise.

7.13. CheckOtp

Check the OTP of an account.

Parameters:

Account: string, mandatory, name of the account.

Otp: string, mandatory, OTP for this account.

Otp2: string, optional, second OTP for this account (used to unlock and check at the same time).

Prefix: string, optional, PIN or AD/LDAP password prefix, if needed for this account.

Example:

https://192.168.1.88/?Command=CheckOtp&Account=demo_account&Otp=287922&Prefix=mypass&Timestamp=2016-11-01T08:17:25Z&Signature=...

Result:

```
{
  "result_code": 0,
  "result_text": "OK: Token accepted",
  "result": {
    "account": "demo_account"
  }
}
```

7.14. SyncOtp

Synchronize the OTP of an account.

Parameters:

Account: string, mandatory, name of the account.
Otp: string, mandatory, OTP for this account.
Otp2: string, mandatory, second OTP for this account.
Prefix: string, optional, PIN or AD/LDAP password prefix, if needed for this account.

Example:

```
https://192.168.1.88/?Command=CheckOtp&Account=demo_account&Otp=399871&Otp2=520489&Prefix=mypass  
&Timestamp=2016-11-01T08:17:25Z&Signature=...
```

Result:

```
{  
  "result_code": 14,  
  "result_text": "INFO: Token has been resynchronized successfully",  
  "result": {  
    "account": "demo_account"  
  }  
}
```

7.15. GetMemInfo

Get appliance memory information

Parameter: n/a

Example:

```
https://192.168.1.88/?Command=GetMemInfo&Timestamp=2017-05-16T05:00:04Z&Signature=...
```

Result:

```
{  
  "result_code": 14,  
  "result_text": "INFO: Requested operation successfully done",  
  "result": {  
    "MemTotal": "4144692 kB",  
    "MemFree": "3151504 kB",  
    "MemAvailable": "3497112 kB",  
    ...  
  }  
}
```

7.16. MasterSlaveFullResync

Force a full Master-Slave resynchronization.

Parameter: n/a

Example:

```
https://192.168.1.88/?Command=MasterSlaveFullResync&Timestamp=2017-05-10T05:00:04Z&Signature=...
```

Result:

```
{  
  "result_code": 14,  
  "result_text": "INFO: Requested operation successfully done",  
  "result": {  
    "account": "demo_account"  
  }  
}
```