

# Two factor authentication (2FA)

OTP - One Time Password

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# Introduction to OTP

## What is OTP?

A **one time password (OTP)** is a password that is valid for only one login session or transaction, on a computer system or other digital device.

The most important advantage addressed by OTPs is that, in contrast to static passwords, they are not vulnerable to replay attacks

OTP is use as **second-factor authentication (2FA)**. The 2FA is an extra layer of protection used to ensure the security of online accounts beyond just a username and password

## Soffid Implementations

Soffid provides different OTP implementations. Users with the proper permissions could configure the OTP services on Soffid Console, they could configure one or more OTP implementations.

Once the OTP is configured, the end-users could config their owns OTP devices.

You can visit [My OTP devices page](#) for more information.

## Email

An email with the OTP will be send to the end-user. Then, the end-user will write the received code into Soffid to verify the token.

## SMS

An SMS message will be send to the end-user to use it for authentication. Then, the end-user will write the received code into Soffid to verify the token.

Test messaging is a commns technology used for delivery OTPs. That is a secure authorisation method to send a numeric code to a mobile number.

## Time based HMAC Token

The end-user must scan a QR code with an OTP application (Free Otp+, Google Authenticator and Microsoft Authenticator are the most used). Then, the end-user will write the received code into Soffid to verify the token.

## Event based HMAC Token

The end-user must scan a QR code with an OTP application (Free Otp+, Google Authenticator and Microsoft Authenticator are the most used). Then, the end-user will write the received code into Soffid to verify the token.

## Security PIN

The end-user can configure a security PIN into Soffid.

Soffid will ask for a specific number of digits from the PIN to verify the access. When Soffid ask for a number of digits, the user would write these numbers to confirm.

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[https://en.wikipedia.org/wiki/One-time\\_password](https://en.wikipedia.org/wiki/One-time_password)

# How to install OTP addon in Soffid

## Installation

### Download

Please download the Soffid OTP add-on.

You can download it at the following link <http://www.soffid.com/download/enterprise/> if you have Soffid user with authorization, or in the following <http://download.soffid.com/download/> by registering.

### Upload

Once the OTP add-on is downloaded, please log in to IAM Console.

You need to be an administrator user of the Soffid console or a user with permissions to upload addons.

It is recommended to upload the addons to master, this is the way to maintain updated all, master and tenants if there are.

In the Soffid console, please go to: "Main Menu > Administration > Configure Soffid > Global Settings > Plugins" and upload the addon file, for more information visit the [Addons Getting started](#) page

Finally, when the addon is installed, it will be required to restart the Soffid Console.

# How to use OTP in Soffid

## Introduction

Soffid allows administrator users to config the access authentication with OTP as the second-factor authentication (2FA). This is the way to add a extra layer of protection used to ensure the security of online accounts beyond just a username and password.

The administrator user could config the proper OTP implementations that wants to use.

To know how to config the diffent options you can visit the [OTP settings page](#).

There are three points where OTP can be used in Soffid

1. [Login Federation](#)
2. [Access to pages](#)
3. [XACML Rules](#)
4. [Password Recovery](#)

## Federation

When you are configuring Soffid as Identity Provider, on the Authentication section you could config the OTP as a second authentication factor (2FA).

You can visit the [How to deploy the identity & service provider step by step page](#) for more detailed information

## Example

First of all, configure the OTP as a second factor authentication at the Identity & service providers page

Main Menu > Administration > Configuration > Web SSO > Identity & Service providers

## Authentication

Authentication methods

First au	Passwc	Kerber	Extern	OTP	Email	SMS	PIN	Certific	FIDO
Passwc	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kerber		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Extern			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
OTP				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Email					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SMS						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PIN							<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Certific								<input type="checkbox"/>	<input type="checkbox"/>
FIDO									<input type="checkbox"/>

Then, when users login, they must write their credentials

**Please, identify yourself.**

User name:

admin

Password:

.....

Login

If the credentials written are ok, finally Soffid will ask for the 2FA

**A second authentication factor is required**

User name:

admin

One time password Email message to pg\*\*\*\*\*@so\*\*\*\*.co\* PIN:

Login

A service provider from anonymous needs to authenticate you.

# Authentication

Regarding to the access to pages, you will be able to config the specific Soffid console pages that will require OTP authentication. In addition, you will be able to config if the second-factor authentication will be required to all the users or only to users with enabled token.

You can visit the [Authentication page](#) for more information

## Example

The following is an example of how for a given configuration, a user can access certain pages, or how a second authentication factor is required for the user.

## Second factor authentication configuration

Soffid will require the PIN to access to the specified pages to users with a enabled token

Main Menu > Administration > Configuration > Security settings > Authentication

Pages that optionally require OTP authentication for users with a enabled token:

```
/resource/user/user.zul  
/resource/group/group.zul  
/resource/account/account.zul
```

Pages that require OTP authentication to any user:

## User access

<https://www.youtube.com/embed/D0m8kWgFLGg?rel=0>

## XACML

OTP can also be used at **XACML Policy Management**. This policies allow adding more complex and restricted rules to the authorizations.

You can visit the [XACML book](#) for more information.

# Example

A 2FA is required to launch the connection to some servers.

Administrator user can configure the XACML policies.

Main Menu > Administration > Configuration > Security settings > XACML Policy Management

## Obligations

<input type="checkbox"/>	⚙️ Obligation	⚙️ Full fill on	⚙️ Attribute	⚙️ Value
<input type="checkbox"/>	urn:soffid:obligation:message	Permit	text	This is a protected system. Do not enter without authorization, please.
<input type="checkbox"/>	urn:soffid:obligation:otp	Permit	timeout	30



When dilbert launch the connection, Soffid will ask for the 2FA

Enter your OTP value

Email message to pg\*\*\*\*\*@so\*\*\*\*.co\* PIN:

OK

Cancel

# Password Recovery

OTP can be use by end-user to recover the password.

You can visit the [Password Recovery book](#) for more information.

# Example

A end-user wants to recover his password.

Soffid allows to recover by clicking on the recover password option:





identity and access  
management

Please, identify yourself to proceed

User




Password



Login

[Recover password](#)

Then, the end-user must identify himself:

The image shows a login interface for Soffid. At the top, the Soffid logo is displayed in a stylized font with 'soff' in grey, 'fid' in blue, and 'id' in green. Below the logo, the text 'identity and access management' is written in a smaller, teal font. The main instruction 'Please, identify yourself to proceed' is centered in white. Below this, the label 'User:' is followed by a long, empty white input field. At the bottom, there are two teal buttons: 'Password recovery questions' and 'Cancel'.

And Soffid requires to enter the PIN

The image shows a PIN entry interface for Soffid. At the top, the Soffid logo is displayed in a stylized font with 'soff' in grey, 'fid' in blue, and 'id' in green. Below the logo, the text 'identity and access management' is written in a smaller, teal font. The main instruction 'Enter the answers to the following questions' is centered in white. Below this, there is a table with two columns: 'Question' and 'Answer'. The 'Question' column contains the text 'PIN for device: TOTP00000039'. The 'Answer' column contains an empty white input field. At the bottom, there are two teal buttons: 'Recover' and 'Close'.

If the end-user has not configured the OTP devices, a error message will be display.



Error obtaining recover questions:patricia at soffid

---

OK

# OTP Management

The OTP settings allow the administrator users to configure the available OPT options. Soffid provides four different OTP implementations.

# Screen overview



# Standard attributes

## Email

- **Enabled:** allows you to enable or disable the OTP implementation.
- **Number of digits:** number of digits of the PIN code that will be generated.
- **Subject**
- **Body**
- **Number of failures to lock the token**

To send an email, will be mandatory to fill in the value of the **mail.from** parameter. You can visit the [mail server parameters](#).

## SMS

- **Enabled:** allows you to enable or disable the OTP implementation.
- **Number of digits:** number of digits of the PIN code that will be generated.
- **URL to send the SMS:** enter the URL of your SMS provider rest service

```
https://www.xxxxxxx.com/cgi-bin/sms/http2sms.cgi?account=sms-bg490971-1&password=XXXXXXt&login=user&from=SOFFID&to=${PHONE}&message=This is your access PIN: ${PIN}&noStop&contentType=application/json&class=0
```

- **HTTP Method:** enter POST or GET depending on your provider documentation
- **HTTP Header:** optionally, you can add any HTTP header, including Basic or Bearer authentication tokens. The header must include the header name and header value. For instance:  
`Authorization: Basic dXNlcjpwYXNzd29yZA==`
- **POST data to send** Enter the body of the HTTP request
- **Text to be present in the HTTP response:** Soffid will check the response from your SMS Provider contains this text

```
"status":100
```

- **Number of failures to lock the token**

The URL and POST data to be sent, the administrator can use some tags that will be replaced by some target user attributes:

- `${PHONE}`: The target phone number
- `${PIN}`: The one-time password to be entered by the user
- `${userAttribute}`: Any of the standard or custom user attributes, like `${fullName}` or `${userName}`

## Voice (alternative to SMS)

- **Enabled**: allows you to enable or disable the OTP implementation.
- **URL to send the SMS**: enter the URL of your voice call provider rest service
- **HTTP Method**: enter POST or GET depending on your provider's documentation
- **HTTP Header**: optionally, you can add any HTTP header, including Basic or Bearer authentication tokens. The header must include the header name and header value. For instance:

```
Authorization: Basic xxxxxxxxxxxxxxxOUVCRS1DMzE0LTl3MzAtQkY0Qy05RDgwRTMyQUQ4OUY=
Content-Type: application/json
Accept: application/json
```

- **POST data to send** Enter the body of the HTTP request.

```
Text to be present in the HTTP response: Soffid will check the response from your SMS Provider
contains this text
```

The POST data to be sent, the administrator can use some tags that will be replaced by some target user attributes:

- `${PHONE}`: The target phone number
- `${PIN}`: The one-time password to be entered by the user
- **Number of failures to lock the token**

## Time based HMAC Token

- **Enabled**: allows you to enable or disable the OTP implementation.
- **Number of digits**: number of digits of the PIN code that will be generated.
- **Algorithm**: allows you to select an HMAC algorithm.
- **Issuer**
- **Number of failures to lock the token**

## Event based HMAC Token

- **Enabled**: allows you to enable or disable the OTP implementation.

- **Number of digits:** number of digits of the PIN code that will be generated.
- **Algorithm:** allows you to select an HMAC algorithm.
- **Issuer**
- **Number of failures to lock the token**

## Security PIN

- **Enabled:** allows you to enable or disable the Security PIN implementation.
- **Minimum PIN length:** minimum number of digits that the PIN has to have.
- **Number of digits from the PIN to ask:** number of digits that Soffil will ask to verify the identity.
- **Number of failures to lock the token**

## Actions

Confirm changes	Allows you to save the updates and quit the page.
-----------------	---

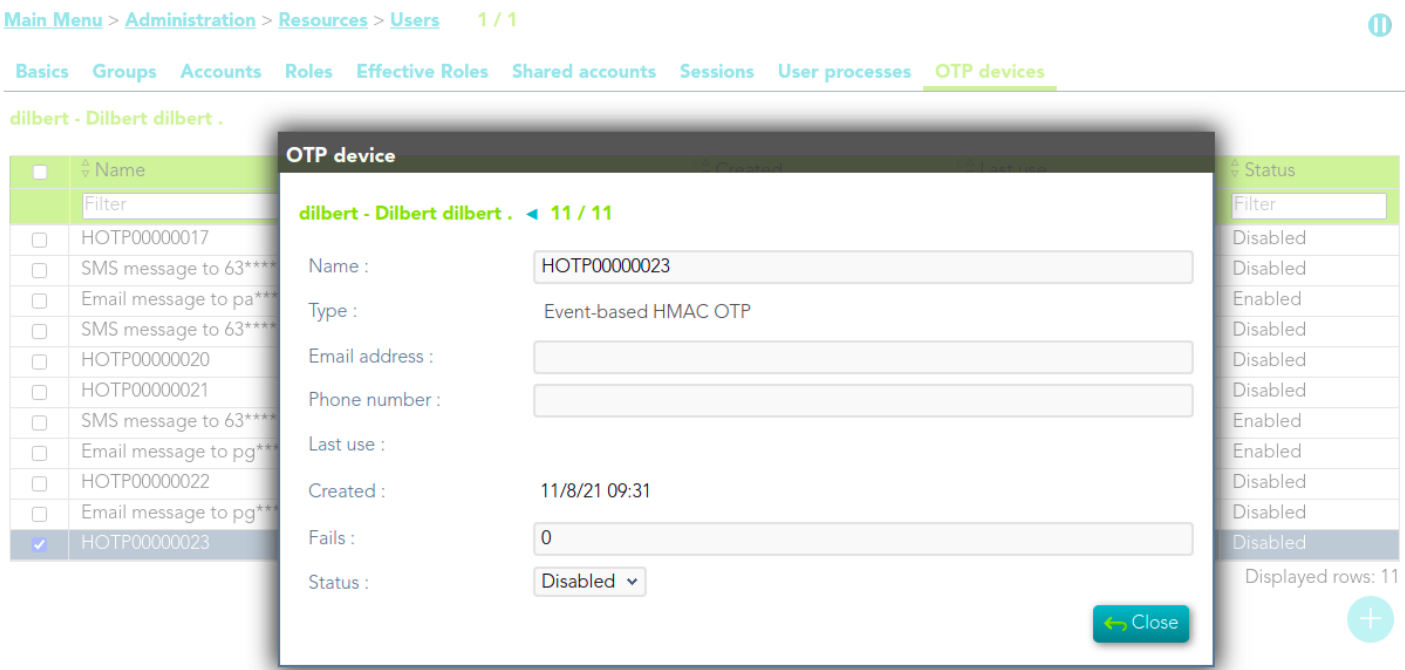


# Users OTP devices

## Description

Soffid allows you to manage the OTP devices for each user. That option will be availavle on the User window. You need to query the user on the Users window, click the proper user and go to the OTP devices Tab, here you could manage the OTP devices for that user.

## Screen overview



## Standard attributes

- **Name:** authomatic name assigned to the OTP device.
- **Type:** selected type
- **Email address**
- **Phone number**
- **Last use**

- **Created**
- **Fails:** fails number when the OTP device was created.
- **Status:**
  - Created
  - Enabled
  - Locked
  - Disabled

# Actions

<b>Add</b>	Allows you to add a new OTP devices. To add a new OTP devices you need clic the add button (+), the Soffid will display a new wizard to config the OTP devices. Fist of all you need select the OTP device Type and then Apply changes.
<b>Delete</b>	Allows you to delete one or more OTP devices for a specific user. To delete OTP devices first select the devices, then click on the subtract button (-), then Soffid will ask you to confirm or cancel the operation.
<b>Change Status</b>	Allows you to change the OTP device status. First of all you need click the proper OTP device, then change the status and finally close the window.

# Self service portal

# My OTP devices

## Description

My OTP devices are part of a Soffid Self-service portal that allows end-users to access their OTP devices configured.

That option display to each user, all their OTP devices and also allows you to manage those and add new OTP devices.

Soffid Administrator user can configure the available OTP types. For more information, you can visit [the OTP settings page](#).

This option will only be available if the OTP addon is installed in the Soffid console. Visit the [Two factor authentication book](#) for more information

## Screen overview

<https://www.youtube.com/embed/faw-C7dwYYc?rel=0>

## Standard attributes

- **Name:** automatic name assigned to the OTP device
- **Created:** created date and time.
- **Last use:** last used date and time.
- **Status**
  - Created
  - Enabled
  - Locked

- Disabled

# Actions

<b>Add</b>	Allows you to add a new OTP device. To add new OTP devices you need to click the add button (+), then Soffid will display a new wizard to config the OTP devices. First of all, you need to select the OTP device Type, once the type is selected, you need to fill in the required fields, which depend on the Type selected. If you select an Event-based or Time-based HMAC Token, you will need to scan the QR code and write the PIN. Finally, you must Apply changes.
<b>Delete</b>	Allows you to delete one or more OTP devices. To delete OTP devices first select the devices, then click on the subtract button (-), then Soffid will ask you to confirm or cancel the operation.

# SCIM for OTP devices

SCIM for OTP devices

# SCIM for OTP devices

SCIM for OTP devices

# □ Getting Started

## Introduction

Soffid allows you to combine two of the most powerful addons you can use into Soffid Console, **SCIM**, and **OTP**.

Please note that the SCIM REST Web Service Add-on installed must be installed, please check this part in [How to use SCIM in Soffid # Installation](#)

Please note that a user with the authentication is required, please check this part in [How to use SCIM in Soffid # Confirm authorization](#)

Please note that is recommended to use a REST client, please see our example in [Testing tool # RESTer](#)

Please note that the correct header parameters must be used, please browse them in [SCIM in Soffid # HTTP request](#)

Please note that the OTP addon must be installed and configured, check it in [OTP Settings](#)

## OTP Device Types

OTP device types available

- **TOTP**: Time based HMAC Token
- **HOTP**: Event based HMAC Token
- **EMAIL**
- **SMS**
- **PIN**: Security PIN

## OTP Device Status



OTP device status available :

- C: **Created**
- V: **Validated**
- L: **Locked**
- D: **Disabled**

## OTP Operations

Soffid provides an API that allows you to connect to the OTP microservices.

The available operations are the following

- List all
- List by filter
- Query by id
- Create
- Update
- Validate
- Send SMS
- Delete

You can visit the [SCIM OTP devices examples page](#) for more detailed information

## Workflows

With the previous operations, using the SCIM OTP API, we can define some workflows.

You can visit the [SCIM OTP devices Workflows examples page](#)

# SCIM OTP devices examples

## Operations

This page shows the operations that can be performed for the OTP devices object.

### List all

#### Request

```
GET http://<your-domain>/soffid/webservice/scim2/v1/OtpDevice
```

#### Response 200 OK

```
{
  "schemas": [
    "urn:ietf:params:scim:api:messages:2.0:ListResponse"
  ],
  "totalResults": 25,
  "startIndex": 1,
  "Resources": [
    {
      "lastUsed": "2021-10-14 06:57:00",
      "created": "2021-10-14 06:44:43",
      "meta": {
        "location": "http://soffid.pat.lab:8080/soffid/webservice/scim2/v1/OtpDevice/4022880",
        "links": {
          "requestChallenge":
            "http://soffid.pat.lab:8080/soffid/webservice/scim2/v1/OtpDevice/4022880/requestChallenge",
          "responseChallenge":
            "http://soffid.pat.lab:8080/soffid/webservice/scim2/v1/OtpDevice/4022880/responseChallenge"
        },
        "resourceType": "OtpDevice"
      }
    }
  ]
}
```

```
    },
    "schemas": [
      "urn:soffid:com.soffid.iam.addons.otp.common.OtpDevice"
    ],
    "name": "TOTP000000001",
    "id": 4022880,
    "type": "TOTP",
    "user": "franck",
    "fails": 0,
    "status": "D"
  },
  {
    "created": "2021-10-14 08:37:38",
    "meta": {
      "location": "http://soffid.pat.lab:8080/soffid/webservice/scim2/v1/OtpDevice/4024384",
      "links": {
        "requestChallenge":
"http://soffid.pat.lab:8080/soffid/webservice/scim2/v1/OtpDevice/4024384/requestChallenge",
        "responseChallenge":
"http://soffid.pat.lab:8080/soffid/webservice/scim2/v1/OtpDevice/4024384/responseChallenge"
      },
      "resourceType": "OtpDevice"
    },
    "schemas": [
      "urn:soffid:com.soffid.iam.addons.otp.common.OtpDevice"
    ],
    "name": "Email message to pg*****@so****.co*",
    "id": 4024384,
    "type": "EMAIL",
    "user": "patricia",
    "fails": 0,
    "email": "patricia@soffid.com",
    "status": "D"
  },
  {
    "created": "2021-10-14 11:17:52",
    "meta": {
      "location": "http://soffid.pat.lab:8080/soffid/webservice/scim2/v1/OtpDevice/4024416",
      "links": {
        "requestChallenge":
```

```

"http://soffid.pat.lab:8080/soffid/webservice/scim2/v1/OtpDevice/4024416/requestChallenge",
    "responseChallenge":
"http://soffid.pat.lab:8080/soffid/webservice/scim2/v1/OtpDevice/4024416/responseChallenge"
    },
    "resourceType": "OtpDevice"
  },
  "schemas": [
    "urn:soffid:com.soffid.iam.addons.otp.common.OtpDevice"
  ],
  "phone": "666555444",
  "name": "SMS message to 66*****44",
  "id": 4024416,
  "type": "SMS",
  "user": "agatha",
  "fails": 0,
  "status": "V"
},
.....
.....
]
}

```

## List by filter

List all the OTP devices with a filter expression.

It is allowed to use pagination and sort the information, for more information visit the [Sorting](#) and [Pagination](#) information.

## Request

```
GET http://<your-domain>/soffid/webservice/scim2/v1/OtpDevice?filter=type eq "TOTP"
```

## Response 200 OK

```

{
  "schemas": [
    "urn:ietf:params:scim:api:messages:2.0:ListResponse"
  ]
}

```

```

],
"totalResults": 7,
"startIndex": 1,
"Resources": [
  {
    "lastUsed": "2021-10-14 06:57:00",
    "created": "2021-10-14 06:44:43",
    "meta": {
      "location": "http://soffid.pat.lab:8080/soffid/webservice/scim2/v1/OtpDevice/4022880",
      "links": {
        "requestChallenge":
"http://soffid.pat.lab:8080/soffid/webservice/scim2/v1/OtpDevice/4022880/requestChallenge",
        "responseChallenge":
"http://soffid.pat.lab:8080/soffid/webservice/scim2/v1/OtpDevice/4022880/responseChallenge"
      },
      "resourceType": "OtpDevice"
    },
    "schemas": [
      "urn:soffid:com.soffid.iam.addons.otp.common.OtpDevice"
    ],
    "name": "TOTP000000001",
    "id": 4022880,
    "type": "TOTP",
    "user": "franck",
    "fails": 0,
    "status": "D"
  },
  .....
  .....
]
}

```

## Query by id

Query a OTP device by its id (primary key).

### Request

```
GET http://<your-domain>/soffid/webservice/scim2/v1/OtpDevice/5007882
```

## Response 200 OK

```
{
  "created": "2022-02-22 07:46:51",
  "meta": {
    "location": "http://soffid.pat.lab:8080/soffid/webservice/scim2/v1/OtpDevice/5007882",
    "links": {
      "requestChallenge":
"http://soffid.pat.lab:8080/soffid/webservice/scim2/v1/OtpDevice/5007882/requestChallenge",
      "responseChallenge":
"http://soffid.pat.lab:8080/soffid/webservice/scim2/v1/OtpDevice/5007882/responseChallenge"
    },
    "resourceType": "OtpDevice"
  },
  "schemas": [
    "urn:soffid:com.soffid.iam.addons.otp.common.OtpDevice"
  ],
  "name": "TOTP000000035",
  "id": 5007882,
  "type": "TOTP",
  "user": "admin",
  "fails": 0,
  "status": "C"
}
```

## Create

Allows you to create a new OTP device. It is important the type of the OTP you want to create, and depending on this, it will be mandatory to add new attributes to the request.

- **SMS**: add to the JSON the phone attribute
- **EMAIL**: add to the JSON the email attribute
- **PIN**: add to the JSON the pin attribute

## Request

```
http://<your-domain>/soffid/webservice/scim2/v1/OtpDevice
```

## JSON

```
{
  "meta": {
    "location": "http://<your-domain>/webservice/scim2/v1/OtpDevice",
    "resourceType": "OtpDevice"
  },
  "schemas": [
    "urn:soffid:com.soffid.iam.addons.otp.common.OtpDevice"
  ],
  "type": "TOTP",
  "user": "admin"
}
```

## Response 200 OK

```
{
  "image":
    "iVBORw0KGgoAAAANSUUEGAAAMgAAADIAQAAAACFI5MzAAAC3kIEQVR4Xu2XP66jMBDGB7lwFy5gydeg40rkAoRcgFzJna+B5AtA58Ji9hueQvJWu8UbS6stMoqiwA9lrPn7Qfw3o99vnPYhHyL2L0mghhOz2Xue+tjGlltBlm9haQPdgufsButxp4LQlc1M+C5tSLt1TSWJjy26Jvipd2NfTTJPHU/kmlxariS8RX6w2fhwwt+i82OC/ER3fX2+Ze7HBJbp0iGieCQh54dpSaCBaOz8SmbukfY0C1STJAHIZkdQe947d6khkYau3KKZrNktzs77MwYawoTCuTFqEDytHY1PPxqSEQPPwY3WoOeu0WzPbGtloNH6tTdz1BX2ky3w7mSZAnkA95sQge3eRmfMdAQhh8pwLFL94ACR/9VkOzvbB5oX0LnuaEz9xoS/YORcNROGY7jn/nREE5bwCRwFwtveOQtBgoSjc9rnzggOWm27nUCBcnws1wl3OPgeOpVVQqCkdynqU+rLWQx+fwxEtTEEZXBLoO4KjcpzAqScZWQbczRNphZOq+CBHcNkuQmSs+hm4enHw1hXBWM9o39PS4XW161oyBhIZt2MishP/imy3kCDUEAyo3LpZe2m/BUDYlmtDjbUoDYtiQNYrUkLPj7jdNE5g4hIKVUQWK5BszRQh3PWBf0pncUJCAhRjJDGPZokbdtpiCMooYHs8rZ4WehKulhnZqM0YIKSo+czsmnIRFKpxxyArfd8FY7GoKRzISg7gSlnqsj2UwdYVZh+c+9jATMZj2J0rUi7ix0YsFsFt9qlrtR5PA9o10wYPx0nlpDjjRhD4Xi0MoP6NnTj4KEQ4WJFvNbXIDWZ+1oCCwujWhYg7S3sVQR0bDUYj3GI+3xp a81BPOah+3T/UvDyqqIshDNxIq2q8dftD7W4GGRLyBYT0ujdRRedOwOgKRgvMiS446z2JqwjKfMJUJextCm87dqCHlj+xGj0WxMbT/8v7G8mPyZ/uQDxH7n8kvJ2XgRr9Rxi0AAAAASUVORK5CYII=",
  "created": "2022-02-22 07:46:51",
  "meta": {
    "location": "http://soffid.pat.lab:8080/soffid/webservice/scim2/v1/OtpDevice/5007882",
    "resourceType": "OtpDevice"
  },
  "schemas": [
    "urn:soffid:com.soffid.iam.addons.otp.common.OtpDevice"
  ],
  "name": "TOTP00000035",
  "id": 5007882,
  "type": "TOTP",
  "user": "admin",
}
```

```
"fails": 0,  
"status": "C"  
}
```

## Example JSON SMS

```
{  
  "type": "SMS",  
  "user": "dilbert",  
  "phone": "6665552222"  
}
```

## Example JSON EMAIL

```
{  
  "type": "EMAIL",  
  "user": "dilbert",  
  "email": "dilbert@soffid.com"  
}
```

## Example JSON PIN

```
{  
  "type": "PIN",  
  "user": "dilbert",  
  "email": "123456789"  
}
```

# Update partial

Only attributes with changes will be updated, the other will maintain the same value. This example shows how to enable an OTP device.

## Request

```
PATCH http://<your-domain>/soffid/webservice/scim2/v1/OtpDevice/5007882
```

## JSON



```
{
  "Operations":
  [
    {
      "op": "replace",
      "path": "status",
      "value": "V"
    }
  ]
}
```

## Response 200 OK

```
{
  "created": "2022-02-22 07:46:51",
  "meta": {
    "location": "http://soffid.pat.lab:8080/soffid/webservice/scim2/v1/OtpDevice/5007882",
    "links": {
      "requestChallenge":
"http://soffid.pat.lab:8080/soffid/webservice/scim2/v1/OtpDevice/5007882/requestChallenge",
      "responseChallenge":
"http://soffid.pat.lab:8080/soffid/webservice/scim2/v1/OtpDevice/5007882/responseChallenge"
    },
    "resourceType": "OtpDevice"
  },
  "schemas": [
    "urn:soffid:com.soffid.iam.addons.otp.common.OtpDevice"
  ],
  "name": "TOTP000000035",
  "id": 5007882,
  "type": "TOTP",
  "user": "admin",
  "fails": 0,
  "status": "V"
}
```

## Request Challenge

This operation allows Soffid to obtain the PIN code for a specific OTP device. We can use this method to send an email or SMS, depending on the type of OTP device.

## Request

```
GET http://<your-domain>//soffid/webservice/scim2/v1/OtpDevice/<OTP_ID>/requestChallenge
```

## Response 200 OK

```
{
  "cell": "PIN",
  "cardNumber": "SMS message to 66*****22"
}
```

# Response Challenge

This operation allows you to validate a PIN code for a specific OTP device.

## Request

```
POST http://<your-domain>//soffid/webservice/scim2/v1/OtpDevice/<OTP_ID>/responseChallenge
```

### JSON

```
{
  "pin": "12345678"
}
```

## Response 200 OK

```
{
  "success": false,
  "locked": false
}
```

# Delete

In this case, delete operation will cancel the TaskInstance, but does not be deleted form database.



Please note after this delete, the account has to be created again to use it in the next examples.

## Request

```
DELETE - http://<your-domain>/soffid/webservice/scim2/v1/OtpDevice/5007967
```

## Response 204 No Content

```
204 No Content
```

## Error response

For more information about error response visit

<https://bookstack.soffid.com/link/116#bkmrk-error-response>

# SCIM OTP devices Workflows examples

## Workflow Examples

### Workflow 1

#### 1. Create Email OTP device

##### Request

```
GET http://<your-domain>/soffid/webservice/scim2/v1/OtpDevice
```

##### JSON

```
{
  "type": "EMAIL",
  "user": "dilbert",
  "email": "dilbert@soffid.com"
}
```

##### Response 200 OK

```
{
  "created": "2022-03-09 13:39:52",
  "meta": {
    "location": "http://soffid.pat.lab:8080/soffid/webservice/scim2/v1/OtpDevice/5099461",
    "resourceType": "OtpDevice"
  },
  "schemas": [
    "urn:soffid:com:soffid.iam.addons.otp.common.OtpDevice"
  ]
}
```

```
1,  
"name": "Email message to di*****@so****.co*",  
"id": 5099461,  
"type": "EMAIL",  
"user": "dilbert",  
"fails": 0,  
"email": "dilbert@soffid.com",  
"status": "C"  
}
```

## 2. RequestChallenge to get the PIN code

### Request

```
GET http://<your-domain>/soffid/webservice/scim2/v1/OtpDevice/5099461/requestChallenge
```

### Response 200 OK

```
{  
  "cell": "PIN",  
  "cardNumber": "Email message to di*****@so****.co*"
}
```

## 3. ResponseChallenge to validate the PIN code

### Request

```
POST http://<your-domain>/soffid/webservice/scim2/v1/OtpDevice/5099461/responseChallenge
```

### JSON

```
{  
  "pin": "839231"  
}
```

### Response 200 OK

```
{  
  "success": true,  
  "locked": false
```

```
}
```

## 4. Enable OTP device

### Request

```
PATCH http://<your-domain>/soffid/webservice/scim2/v1/OtpDevice/5099461
```

### JSON

```
{
  "Operations":
  [
    {
      "op": "replace",
      "path": "status",
      "value": "V"
    }
  ]
}
```

### Response

```
{
  "created": "2022-03-09 13:39:52",
  "meta": {
    "location": "http://soffid.pat.lab:8080/soffid/webservice/scim2/v1/OtpDevice/5099461",
    "links": {
      "requestChallenge":
"http://soffid.pat.lab:8080/soffid/webservice/scim2/v1/OtpDevice/5099461/requestChallenge",
      "responseChallenge":
"http://soffid.pat.lab:8080/soffid/webservice/scim2/v1/OtpDevice/5099461/responseChallenge"
    },
    "resourceType": "OtpDevice"
  },
  "schemas": [
    "urn:soffid:com.soffid.iam.addons.otp.common.OtpDevice"
  ],
  "name": "Email message to di*****@so****.co*",
  "id": 5099461,
```

```
"type": "EMAIL",
"user": "dilbert",
"fails": 0,
"email": "dilbert@soffid.com",
"status": "V"
}
```

# Workflow 2

## 1. Get TOTP devices

Obtain all unused OTP devices by 2022.

### Request

```
GET http://<your-domain>/soffid/webservice/scim2/v1/OtpDevice?filter=lastUsed le "2022-01-01"
```

### Response 200 Ok

```
{
  "schemas": [
    "urn:ietf:params:scim:api:messages:2.0:ListResponse"
  ],
  "totalResults": 5,
  "startIndex": 1,
  "Resources": [
    {
      "lastUsed": "2021-10-14 06:57:00",
      "created": "2021-10-14 06:44:43",
      "meta": {
        "location": "http://soffid.pat.lab:8080/soffid/webservice/scim2/v1/OtpDevice/4022880",
        "links": {
          "requestChallenge":
            "http://soffid.pat.lab:8080/soffid/webservice/scim2/v1/OtpDevice/4022880/requestChallenge",
          "responseChallenge":
            "http://soffid.pat.lab:8080/soffid/webservice/scim2/v1/OtpDevice/4022880/responseChallenge"
        },
        "resourceType": "OtpDevice"
      },
    },
  ],
}
```

```

    "schemas": [
      "urn:soffid:com.soffid.iam.addons.otp.common.OtpDevice"
    ],
    "name": "TOTP000000001",
    "id": 4022880,
    "type": "TOTP",
    "user": "admin",
    "fails": 0,
    "status": "E"
  },
  {
    "lastUsed": "2021-10-14 06:59:33",
    "created": "2021-10-14 06:58:05",
    "meta": {
      "location": "http://soffid.pat.lab:8080/soffid/webservice/scim2/v1/OtpDevice/4022891",
      "links": {
        "requestChallenge":
"http://soffid.pat.lab:8080/soffid/webservice/scim2/v1/OtpDevice/4022891/requestChallenge",
        "responseChallenge":
"http://soffid.pat.lab:8080/soffid/webservice/scim2/v1/OtpDevice/4022891/responseChallenge"
      },
      "resourceType": "OtpDevice"
    },
    "schemas": [
      "urn:soffid:com.soffid.iam.addons.otp.common.OtpDevice"
    ],
    "name": "TOTP000000002",
    "id": 4022891,
    "type": "TOTP",
    "user": "ckelp",
    "fails": 0,
    "status": "C"
  },
  .....
]
}

```

## 2. Disable OTP device

Disble the OTP devices one by one



# Request

```
PATCH http://<your-domain>/soffid/webservice/scim2/v1/OtpDevice/4022880
```

## JSON

```
{
  "Operations":
  [
    {
      "op": "replace",
      "path": "status",
      "value": "D"
    }
  ]
}
```

## Response 200 Ok

```
{
  "lastUsed": "2021-10-14 06:57:00",
  "created": "2021-10-14 06:44:43",
  "meta": {
    "location": "http://soffid.pat.lab:8080/soffid/webservice/scim2/v1/OtpDevice/4022880",
    "links": {
      "requestChallenge":
"http://soffid.pat.lab:8080/soffid/webservice/scim2/v1/OtpDevice/4022880/requestChallenge",
      "responseChallenge":
"http://soffid.pat.lab:8080/soffid/webservice/scim2/v1/OtpDevice/4022880/responseChallenge"
    },
    "resourceType": "OtpDevice"
  },
  "schemas": [
    "urn:soffid:com.soffid.iam.addons otp.common.OtpDevice"
  ],
  "name": "TOTP00000001",
  "id": 4022880,
  "type": "TOTP",
  "user": "admin",
  "fails": 0,
```

```
"status": "D"
```

```
}
```