Using the REST API

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Accessing the Sisense API

There are 3 main ways to access the Sisense API:

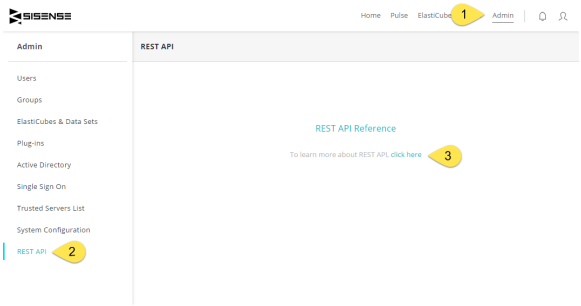
- Via the interactive documentation (`swagger-UI`) that lets you see which APIs exist, what parameters they take, and even lets you try them out.
- Via a tool meant to run HTTP requests, such as `postman` or `curl`.
- Via your own application or script.

For any type of use outside of our documentation, you will need to obtain and use an authentication token, using a process outlined below. To use our internal tool, you will only need to be logged in to Sisense.*

Using the API documentation

You can open the API reference by following these steps:

1. Open the Sisense Web Application and go to the "Admin" screen.
2. Click on the "REST API" tab.
3. Click on the blue "REST API Reference" link.



Or by going to the link `http://<your_address_here>/dev/api/docs/#/` where `<your_address_here>` is replaced by the URL of the server on which Sisense is installed.

You can select the API version you would like to work with in the top bar (currently, the versions are 0.9 and 1.0) and see the list of existing APIs in each version. Once an API is expanded, you'll be able to see all the functions it supports as well as their request types (`GET/POST/PUT/DELETE` etc. - detailed below) and the parameters and/or possible results of each.

Using a programming language

If you're familiar with `javascript` and would like to work with the Sisense API from a script, we recommend trying out Node.js, but you can use other scripting languages such as Python, any non-script language (such as `Java` or `C#`) or by sending requests from your web application, using a library that supports `ajax` requests such as `jQuery`, etc.

Using the Sisense API

Below you'll find important information on how to use the Sisense REST API correctly, regardless of the method you choose.

Authentication

The Sisense REST API requires that you send an authentication token with each request. The token lets the server verify your identity.

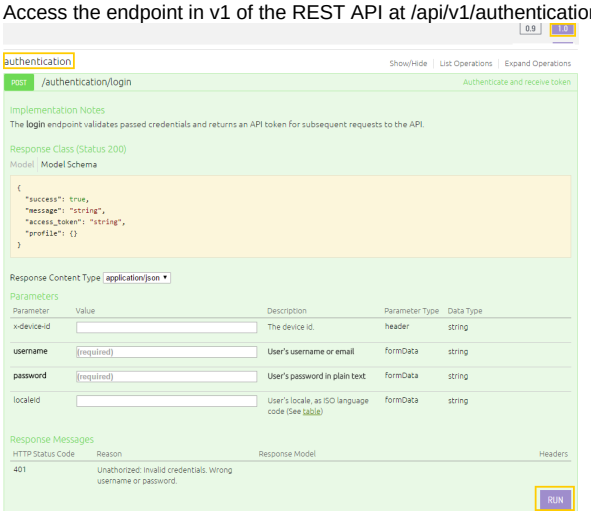
In Sisense each user has their own User Token that must be included in the header of the request. This procedure is described below.

For Sisense version 5.8 and earlier, you can use the Global Token located in the Admin page of the Sisense Web Application. See Authenticating Requests with a Global Token for more information.

To retrieve the User Token for authenticating requests :

1. In the Sisense Web Application, select **Admin** > **REST API**.
2. Click **REST API Reference** to view the list of operations and API documentation.

3. Access the endpoint in v1 of the REST API at /api/v1/authentication/login.



4. In the authentication/login endpoint, enter the following details:

Body *(Using `x-www-form-urlencoded`)*

Property	Value
username	The username you log in to Sisense with
password	The password you log in to Sisense with

The resulting HTTP request should look like:

HTTP Request

```
POST /api/v1/authentication/login HTTP/1.1
Host: localhost
Content-Type: application/x-www-form-urlencoded

username=user%40company.com&password=12345678
```

Note : The username must be URL encoded. For example @ should be written as %40.

You will then receive a response with your authentication token in a JSON response.

Now, for every API call you must include the following in the header:

Header	Value
Authorization	"Bearer " + your token

Note: There is a single space between “Bearer” and your token.

An example of code that sends this request, using `jQuery`:

jQuery

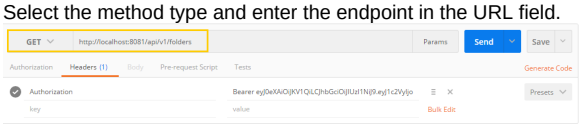
```
var settings = {
  "async": true,
  "crossDomain": true,
  "url": "http://localhost/api/v1/authentication/login",
  "method": "POST",
  "headers": {
    "content-type": "application/x-www-form-urlencoded"
  },
  "data": {
    "username": "user@company.com",
    "password": "12345678"
  }
```

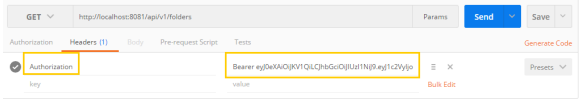
```
}

$.ajax(settings).done(function (response) {
  console.log(response);
});
```

Using an HTTP request tool

Postman

Sisense recommends Postman , which is a Chrome extension that lets you run HTTP requests using a comfortable GUI. The HTTP requests can be executed to view the result, or saved as code snippets in a variety of programming languages.

1. Select the method type and enter the endpoint in the URL field.


2. Under the Header tab, in the **Key** field, enter **Authorization** .
3. In the **Value** field, enter your the word Bearer and your User Token, which can be retrieved through the Post method authentication/login/ endpoint in version 1.0 of the REST API.


4. Click **Send** . The response is displayed in the Body area.

cURL

You can also use cURL from command line, or any other tool that can run HTTP requests with your headers and data.

The token you must include in the Header for version 6.0 and later is the User Token, which you can retrieve through the Post method authentication/login/ endpoint in version 1.0 of the REST API

```
curl -X GET --header "Accept: application/json" "http://localhost:8081/api
/dashboards" --header "Authorization:Bearer
eyJ0eXAiOiJKV1QiLCJhbGciOiJIUzI1NiJ9.
eyJ1c2VyIjoiNTZiOWM3YTFiZGQ2YmViNDY1MDNjZWNlIiwiYXBpU2asdffaDU3N2QtODZiOC01MmU
2LTQyOTYtYjIxZjk3NzhjZjYyIiwiaWF0IjoxNDYxNTgzNzc5fQ.
vTB2fugl72db0tPr184tP5fd6e1SBZqDfYN2vedZOEY"
```

Conventions

Below we will outline some of the conventions used in the Sisense REST API. Please note that some of these conventions are only relevant to `>0.9` versions.

HTTP Methods

An HTTP request can be of the following 5 types, each explicitly defining the kind of result this request is trying to achieve.

GET

`GET` requests are meant to retrieve data. When applied to a collection, such as `users` they will usually return the collection, and when applied to an identity such as `users/someuserid` they will usually return the entity this id represents.

POST

`POST` requests are meant to create entities or perform actions.

A `post` request will contain an entity's data as it's payload, and it will be added to the relevant collection (for example, adding a new user).

Note that for most entities, such as users, there are validation rules preventing duplication (for example, it's impossible to add 2 users with the same user id) meaning that a second POST with the same user JSON will result in an error.

PUT

`PUT` requests are a way to replace an existing entity. When passing an object via `PUT` if the entity of the same ID exists it will be replaced, meaning that if certain fields that existed previously are absent from the passed data, they will not be kept. *This means that a `PUT` request's payload should contain all required fields of the entity!*

PATCH

`PATCH` requests are a way to update an entity without replacing it. The provided data will be merged with the existing data, so that only fields specified in the request will be updated and the rest will remain as they were.

DELETE

`DELETE` requests are meant to delete an entity. Sometimes, it might be possible to `DELETE` an entire collection.

Special Fields

The new Sisense API supports a standard set of fields for `GET` requests, allowing for increased flexibility in the way data is retrieved and used.

Fields

Allows you to declare specific fields of the entity you're getting.

Can be comma delimited, **without spaces**, and `-` can be used for exclusion.

For example:

- `fields: "firstName,email"` will get only the name and email fields of a user: `http://localhost/api/v1/users?fields=firstName,email` returns

```
[
  {
    "email": "user@sisense.com",
    "firstName": "you.ser"
  }
]
```

- `fields: "-hash"` will get all fields of a user except for the password hash

Notes:

1. If a field that doesn't exist is passed, the request will **not** result in an error but rather will return an array of empty objects (in essence will return a value for each object with no fields)
2. Passing both inclusive and exclusive fields in one request will result in an error code 500. For example, `fields:"firstName,-lastName"`.

Sort

Allows you to sort the returned data by the specified field, where normally data is sorted in ascending order, and `-` indicated descending order. For example:

- `sort: "name"` will sort users by their name, ascending
- `sort: "-name"` will sort users by their name, descending

Limit & Skip

These two fields allow you to get a specified number of results (`limit`) at a specified offset (`skip`), which is useful for server-side paging. For example: `limit: 10, skip: 20` will return the third set of 10 results

Expand

The `expand` field lets you define foreign-key fields which you would like to replace with their actual entities. For example, a `user` might have a property called `groups`, an array of ID's where each group is an entity in it's own. Using `expand: "groups"` we will get each `user` object with an array of actual `group` objects instead of their IDs.

This field can be combined with others (for example `expand: "groups(fields:name)"` will get only the name field of each group to replace the group ID) and can be nested (`expand: "groups,groups.users"` will get a user's groups, and their collection of users).

For example, the request `http://localhost/api/v1/users` may return:

```
[
  {
    "_id": "552398f8e5fd8174a8000003",
    "active": true,
    "created": "2015-04-07T08:44:40.169Z",
    "email": "user@sisense.com",
    "firstName": "you.ser",
    "groups": [
      "562fb6bb479b8c3442000068"
    ]
  }
]
```

While `http://localhost/api/v1/users?expand=groups` will return:

```
[
  {
    "_id": "552398f8e5fd8174a8000003",
    "active": true,
    "created": "2015-04-07T08:44:40.169Z",
    "email": "user@sisense.com",
    "firstName": "you.ser",
    "groups": [
      {
        "roleId": null,
        "name": "some group",
        "ad": false,
        "objectSid": "",
        "dn": "",
        "uSNChanged": "",
        "mail": "",
        "created": "2015-10-27T17:39:07.470Z",
        "lastUpdated": "2015-10-27T17:39:07.470Z",
        "_id": "562fb6bb479b8c3442000068"
      }
    ]
  }
]
```

Errors

Errors returned by the new API have been standardized in structure, and will always contain the following properties:

- `status` - an HTTP status code such as `404` or `401`
- `httpMessage` - the standard message for the HTTP status, such as `Not Found`
- `code` - the Sisense error code, which lets you identify the actual problem (see reference)
- `message` - a text message explaining the error code

Depending on the error type, other fields might be present. For example, for a `not found` exception, the fields `resourceType` and `resourceName` will be present, to indicate exactly what resource was not found.

An error example:

```
  "error": {
    "code": 202,
    "message": "User 'd59665_athisisauserid6235_fs' not found",
    "resourceType": "user",
    "resourceName": "d59665_athisisauserid6235_fs",
    "status": 404,
    "httpMessage": "Not Found"
  }
```