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# **Zowe Client Python SDK**

*Release 0.0.1*

**Contributors to the Zowe Project**

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The Zowe Client Python SDK, is a set of Python packages designed to allow programmatic interactions with z/OS REST API interfaces.

Python developers can leverage the Zowe SDK in order to create powerful scripts/applications that can interact with z/OS components.



## GETTING STARTED

### 1.1 Installation

When installing the Zowe Client Python SDK you have two options.

- Install all the Zowe packages
- Install a single sub-package

The choice depends on your intentions. If you chose to install all Zowe SDK packages this means that you will install everything under the *zowe* namespace in PyPi.

Alternatively you can chose to install only a single subpackage for a smaller installation.

To install all Zowe SDK packages using pip:

```
pip install zowe
```

To install only a subpackage using pip:

```
pip install zowe.<subpackage>_for_zowe_sdk
```

To see all available sub-packages check the *Zowe SDK packages* section.

### 1.2 Basic usage

After you install the package in your project, import the class for the required sub-package (i.e *Console* class for z/OS Console commands). Create a dictionary to handle communication with the plug-in:

```
from zowe.zos_console_for_zowe_sdk import Console
connection = {
    "host_url": "<host address>",
    "user": "<user>",
    "password": "<password>",
}

my_console = Console(connection)
```

Alternatively you can use an existing Zowe CLI profile instead:

```
from zowe.zos_console_for_zowe_sdk import Console

connection = {
```

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```
"plugin_profile": "<profile name>"  
}  
my_console = Console(connection)
```



## ABOUT THE PROJECT

The Zowe Client Python SDK, is a set of Python packages designed to allow programmatic interactions with z/OS REST API interfaces.

Python developers can leverage the Zowe SDK in order to create powerful scripts/applications that can interact with z/OS components.



## ZOWE SDK PACKAGES

The Zowe Client Python SDK is divided into multiple packages. Each one responsible for a single aspect of the SDK.

### 3.1 Core

Contains the core functionalities for the Zowe Client Python SDK.

#### 3.1.1 Installing

To install this package using pip issue the following command:

```
pip install zowe.zowe_core_for_zowe_sdk
```

#### 3.1.2 Reference

##### Core Classes

Classes belonging to the Zowe Client Python SDK core package.

##### SdkApi

**class** `core.zowe.core_for_zowe_sdk.SdkApi` (*connection, default\_url*)

Abstract class used to represent the base SDK API.

**connection**

A dictionary containing the connection arguments

**Type** dict

**default\_url**

The default endpoint for the API

**Type** str

**create\_custom\_request\_arguments** ()

Create a copy of the default request arguments dictionary.

This method is required because the way that Python handles dictionary creation

## ZosmfProfile

**class** `core.zowe.core_for_zowe_sdk.ZosmfProfile` (*profile\_name*)

Class used to represent a Zowe z/OSMF profile.

This class is only used when there is already a Zowe z/OSMF profile created and the user opted to use the profile instead of passing the credentials directly in the object constructor.

**profile\_name**

Zowe z/OSMF profile name

**Type** str

**load()**

Load z/OSMF connection details from a z/OSMF profile.

**Returns** z/OSMF connection object

**Return type** zosmf\_connection

**property profiles\_dir**

Return the os path for the Zowe z/OSMF profiles.

## ApiConnection

**class** `core.zowe.core_for_zowe_sdk.ApiConnection` (*host\_url*, *user*, *password*,  
*ssl\_verification=True*)

Class used to represent a connection with a REST API.

**host\_url**

The base url of the rest api host

**Type** str

**user**

The user of the rest api

**Type** str

**password**

The password for the user

**Type** str

**ssl\_verification**

**Type** bool

## RequestHandler

**class** `core.zowe.core_for_zowe_sdk.RequestHandler` (*session\_arguments*)

Class used to handle HTTP/HTTPS requests.

**session\_arguments**

Zowe SDK session arguments

**Type** dict

**valid\_methods**

List of supported request methods

Type list

**handle\_ssl\_warnings** ()

Turn off warnings if the SSL verification argument if off.

**normalize\_response** ()

Normalize the response object to a JSON format.

**Returns** A normalized JSON for the request response

**Return type** json

**perform\_request** (*method*, *request\_arguments*, *expected\_code*=[200])

Execute an HTTP/HTTPS requests from given arguments and return validated response (JSON).

**Parameters**

- **method** (*str*) – The request method that should be used
- **request\_arguments** (*dict*) – The dictionary containing the required arguments for the execution of the request
- **expected\_code** (*int*) – The list containing the acceptable response codes (default is [200])

**Returns** **normalized\_response** – normalized request response in json (dictionary)

**Return type** json

**send\_request** ()

Build a custom session object, prepare it with a custom request and send it.

**validate\_method** ()

Check if the input request method for the request is supported.

**Raises** *InvalidRequestMethod* – If the input request method is not supported

**validate\_response** ()

Validate if request response is acceptable based on expected code list.

**Raises**

- **UnexpectedStatus** – If the response status code is not in the expected code list
- **RequestFailed** – If the HTTP/HTTPS request fails

## Exception classes

### InvalidRequestMethod

**class** `core.zowe.core_for_zowe_sdk.InvalidRequestMethod` (*input\_method*)

Class used to represent an invalid request method exception.

## 3.2 z/OS Console

Contains the z/OSMF Console REST API functionalities.

### 3.2.1 Installing

```
pip install zowe.zos_console_for_zowe_sdk
```

### 3.2.2 Reference

#### z/OS Console classes

##### Console

**class** `zos_console.zowe.zos_console_for_zowe_sdk.Console` (*connection*)

Class used to represent the base z/OSMF Console API.

...

**connection**

Connection object

**issue\_command** (*command, console=None*)

Issues a command on z/OS Console.

**Parameters**

- **command** – The z/OS command to be executed
- **console** – The console that should be used to execute the command (default is None)

**Returns** A JSON containing the response from the console command

**Return type** json

## 3.3 z/OS Files

Contains the z/OSMF Files REST API functionalities.

### 3.3.1 Installing

```
pip install zowe.zos_files_for_zowe_sdk
```

### 3.3.2 Reference

#### z/OS Files classes

##### Files

**class** `zos_files.zowe.zos_files_for_zowe_sdk.Files` (*connection*)  
 Class used to represent the base z/OSMF Files API.

...

**connection**  
 connection object

**download\_dsn** (*dataset\_name, output\_file*)  
 Retrieve the contents of a dataset and saves it to a given file.

**get\_dsn\_content** (*dataset\_name*)  
 Retrieve the contents of a given dataset.

**Returns** A JSON with the contents of a given dataset

**Return type** json

**list\_dsn** (*name\_pattern*)  
 Retrieve a list of datasets based on a given pattern.

**Returns** A JSON with a list of dataset names matching the given pattern

**Return type** json

**list\_dsn\_members** (*dataset\_name*)  
 Retrieve the list of members on a given PDS/PDSE.

**Returns** A JSON with a list of members from a given PDS/PDSE

**Return type** json

**upload\_file\_to\_dsn** (*input\_file, dataset\_name*)  
 Upload contents of a given file and uploads it to a dataset.

**write\_to\_dsn** (*dataset\_name, data*)  
 Write content to an existing dataset.

**Returns** A JSON containing the result of the operation

**Return type** json

### 3.4 z/OS Jobs

Contains the z/OSMF Jobs REST API functionalities.

### 3.4.1 Installing

```
pip install zowe.zos_jobs_for_zowe_sdk
```

### 3.4.2 Reference

#### z/OS Jobs classes

##### Jobs

**class** `zos_jobs.zowe.zos_jobs_for_zowe_sdk.Jobs` (*connection*)

Class used to represent the base z/OSMF Jobs API.

**connection**

Connection object

**get\_job\_status** (*jobname, jobid*)

Retrieve the status of a given job on JES.

**Parameters**

- **jobname** (*str*) – The name of the job
- **jobid** (*str*) – The job id on JES

**Returns** A JSON object containing the status of the job on JES

**Return type** `response_json`

**list\_jobs** (*owner=None, prefix='\*', max\_jobs=1000, user\_correlator=None*)

Retrieve list of jobs on JES based on the provided arguments.

**Parameters**

- **owner** (*str, optional*) – The job owner (default is None)
- **prefix** (*str, optional*) – The job name prefix (default is \*)
- **max\_jobs** (*int, optional*) – The maximum number of jobs in the output (default is 1000)
- **user\_correlator** (*str, optional*) – The z/OSMF user correlator attribute (default is None)

**Returns** A JSON containing a list of jobs on JES queue based on the given parameters

**Return type** `json`

**submit\_from\_local\_file** (*jcl\_path*)

Submit a job from local file.

This function will internally call the `submit_plaintext` function in order to submit the contents of the given input file

**Parameters** **jcl\_path** (*str*) – Path to the local file where the JCL is located

**Raises** **FileNotFoundError** – If the local file provided is not found

**Returns** A JSON containing the result of the request execution

**Return type** `json`



**submit\_from\_mainframe** (*jcl\_path*)

Submit a job from a given dataset.

**Parameters** **jcl\_path** (*str*) – The dataset where the JCL is located

**Returns** A JSON containing the result of the request execution

**Return type** json

**submit\_plaintext** (*jcl*)

Submit a job from plain text input.

**Parameters** **jcl** (*str*) – The plain text JCL to be submitted

**Returns** A JSON containing the result of the request execution

**Return type** json

## 3.5 z/OS TSO

Contains the z/OSMF TSO REST API functionalities.

### 3.5.1 Installing

```
pip install zowe.zos_tso_for_zowe_sdk
```

### 3.5.2 Reference

#### z/OS TSO classes

##### Tso

**class** `zos_tso.zowe.zos_tso_for_zowe_sdk.Tso` (*connection*)

Class used to represent the base z/OSMF TSO API.

...

**connection**

Connection object

**session\_not\_found**

Constant for the session not found tso message id

**end\_tso\_session** (*session\_key*)

Terminates an existing TSO session.

**Parameters** **session\_key** (*str*) – The session key of an existing TSO session

**Returns** A string informing if the session was terminated successfully or not

**Return type** str

**issue\_command** (*command*)

Issues a TSO command.

This function will first initiate a TSO session, retrieve the session key, send the command and finally terminate the session

**Parameters** **command** (*str*) – TSO command to be executed

**Returns** A list containing the output from the TSO command

**Return type** list

**parse\_message\_ids** (*response\_json*)

Parse TSO response and retrieve only the message ids.

**Parameters** **response\_json** (*dict*) – The JSON containing the TSO response

**Returns** A list containing the TSO response message ids

**Return type** list

**ping\_tso\_session** (*session\_key*)

Ping an existing TSO session and returns if it is still available.

**Parameters** **session\_key** (*str*) – The session key of an existing TSO session

**Returns** A string informing if the ping was successful or not. Where the options are: 'Ping successful' or 'Ping failed'

**Return type** str

**retrieve\_tso\_messages** (*response\_json*)

Parse the TSO response and retrieve all messages.

**Parameters** **response\_json** (*dict*) – The JSON containing the TSO response

**Returns** A list containing the TSO response messages

**Return type** list

**send\_tso\_message** (*session\_key, message*)

Send a command to an existing TSO session.

**Parameters**

- **session\_key** (*str*) – The session key of an existing TSO session
- **message** (*str*) – The message/command to be sent to the TSO session

**Returns** A non-normalized list from TSO containing the result from the command

**Return type** list

**start\_tso\_session** (*proc='IZUFPROC', chset='697', cpage='1047', rows='204', cols='160', rsize='4096', acct='DEFAULT'*)

Start a TSO session.

**Parameters**

- **proc** (*str, optional*) – Proc parameter for the TSO session (default is "IZUF-PROC")
- **chset** (*str, optional*) – Chset parameter for the TSO session (default is "697")
- **cpage** (*str, optional*) – Cpage parameter for the TSO session (default is "1047")
- **rows** (*str, optional*) – Rows parameter for the TSO session (default is "204")
- **cols** (*str, optional*) – Cols parameter for the TSO session (default is "160")
- **rsize** (*str, optional*) – Rsize parameter for the TSO session (default is "4096")
- **str** (*acctL*) – Acct parameter for the TSO session (default is "DEFAULT")
- **optional** – Acct parameter for the TSO session (default is "DEFAULT")

**Returns** The 'servletKey' key for the created session (if successful)

**Return type** str

## 3.6 z/OSMF

Contains the z/OSMF REST API functionalities.

### 3.6.1 Installing

```
pip install zowe.zosmf_for_zowe_sdk
```

### 3.6.2 Reference

#### z/OSMF classes

##### Zosmf

**class** zosmf.zowe.zosmf\_for\_zowe\_sdk.Zosmf (*connection*)

Class used to represent the base z/OSMF API.

**connection**

Connection object

**get\_info()**

Return a JSON response from the GET request to z/OSMF info endpoint.

**Returns** A JSON containing the z/OSMF Info REST API data

**Return type** json



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**CHAPTER  
FOUR**

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**CLASSES**



## CONTRIBUTING

This document contains the contribution guidelines for the Zowe Client Python SDK.

- *Git branching model*
- *Pull requests*
- *Code standards*

### 5.1 Git branching model

This project follows the [Git flow](#) branching model.

### 5.2 Pull requests

Consider the following when you interact with pull requests:

- Pull request reviewers should be assigned to a same-team member.
- Pull requests should remain open for at least 24 hours, or until close of the business next business day (accounting for weekends and holidays).
- Anyone can comment on a pull request to request delay on merging or to get questions answered.

### 5.3 Code standards

This project follows the [PEP 8](#) style guide.





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