
Zowe Client Python SDK

Release 0.2.0

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 is 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

CHAPTER

FOUR

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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