Zowe Client Python SDK

Release 0.2.0

Contributors to the Zowe Project

Jan 21, 2021
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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.
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:

```python
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:

```python
from zowe.zos_console_for_zowe_sdk import Console
connection = {
(continues on next page)```
my_console = Console(connection)
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.
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.

```python

class 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.
```

---

This is the end of the extracted text.
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
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

```python
pip install zowe.zos_console_for_zowe_sdk
```

3.2.2 Reference

z/OS Console classes

Console

```python
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

```python
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

3.5. z/OS TSO
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 “IZUFPROC”)
-  **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”)
-  **acct** (*str*, 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_zoweSdk
```

3.6.2 Reference

z/OSMF classes

**Zosmf**

```python
class zosmf.zowe.zosmf_for_zoweSdk.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
```
This document contains the contribution guidelines for the Zowe Client Python SDK.

Notice that the Python SDK is still in early development stages, meaning that major architectural changes might be made by the development team at any given moment. **For this reason, only bug fixes and documentation changes are being accepted as contribution at this moment**. This document will be updated as soon as the stable release of the SDK is published (v1.0.0)

- *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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