Craft AI MLOps platform Python SDK

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Craft AI

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CHAPTER

ONE

craft_ai_sdk package

1.1 craft_ai_sdk.exceptions module

exception craft_ai_sdk.exceptions.**SdkException**(*message*, *status_code: int | None = None*, *name: str | None = None*, *request_id: str | None = None*, *additional_data: Any = None*)

Bases: Exception

General exception while using this package

1.2 craft_ai_sdk.sdk module

See section *CraftAiSdk class* for more details.

CHAPTER

TWO

CraftAiSdk class

class craft_ai_sdk.**CraftAiSdk**(*sdk_token=None*, *environment_url=None*, *control_url=None*, *verbose_log=None*, *warn_on_metric_outside_of_pipeline=True*)

Main class to instantiate

base_environment_url

Base URL to CraftAI Environment.

Type
str

base_environment_api_url

Base URL to CraftAI Environment API.

Type
str

base_control_url

Base URL to CraftAI authorization server.

Type
str

base_control_api_url

Base URL to CraftAI authorization server API.

Type
str

verbose_log

If True, information during method execution will be printed.

Type
bool

warn_on_metric_outside_of_pipeline

If True, a warning will be printed when a metric is added outside of a pipeline.

Type
bool

__init__(*sdk_token=None*, *environment_url=None*, *control_url=None*, *verbose_log=None*, *warn_on_metric_outside_of_pipeline=True*)

Inits CraftAiSdk.

Parameters

- **sdk_token** (str, optional) – SDK token. You can retrieve it from the website. Defaults to CRAFT_AI_SDK_TOKEN environment variable.
- **environment_url** (str, optional) – URL to CraftAI environment. Defaults to CRAFT_AI_ENVIRONMENT_URL environment variable.

- **control_url** (str, optional) – URL to CraftAI authorization server. You probably don't need to set it. Defaults to CRAFT_AI_CONTROL_URL environment variable, or https://mlops-platform.craft.ai.
- **verbose_log** (bool, optional) – If True, information during method execution will be printed. Defaults to True if the environment variable SDK_VERBOSE_LOG is set to true; False if it is set to false; else, defaults to True in interactive mode; False otherwise.
- **warn_on_metric_outside_of_pipeline** (bool, optional) – If True, a warning will be raised when a metric is added outside of a pipeline. Defaults to True.

Raises

- **ValueError** – if the sdk_token or environment_url is not defined and
- **the corresponding environment variable is not set.** –

2.1 Pipeline

CraftAiSdk.**create_pipeline**(*pipeline_name: str*, *function_path: str | None = None*, *function_name: str | None = None*, *description: str | None = None*, *container_config: ContainerConfigWithGit | ContainerConfigWithLocalFolder | None = None*, *inputs: list[Input] | None = None*, *outputs: list[Output] | None = None*, *wait_for_completion: bool = True*, *timeout_s: int | None = None*, ***, *pipeline_template_name: str | None = None*, ***kwargs*) → Pipeline

Create a pipeline via two main creation modes:

Function-based pipeline creation

Create a pipeline from a function located on a remote repository or locally. It requires function_path and function_name parameters to be specified.

Use *CREATION_PARAMETER_VALUE* to explicitly set a value to null or fall back on project information. You can also use container_config.included_folders to specify the files and folders required for the pipeline execution. This is useful if your repository contains large files that are not required for the pipeline execution, such as documentation or test files. Indeed there is a maximum limit of 5MB for the total size of the content specified with included_folders.

Template-based pipeline creation

Create a pipeline from a predefined pipeline template by specifying the pipeline_template_name. Function parameters should not be specified in this case, as the template defines them.

In both cases, there are two optional parameters to control the pipeline creation process: wait_for_completion and timeout_s.

Parameters

- **pipeline_name** (str) – Name of the pipeline to be created.
- **function_path** (str, optional) – Path to the file that contains the function. This parameter is required if parameter "dockerfile_path" is not specified.
- **function_name** (str, optional) – Name of the function in that file. This parameter is required if parameter "dockerfile_path" is not specified.
- **description** (str, optional) – Description. Defaults to None.
- **container_config** (dict[str, str], optional) – Some pipeline configuration, with the following optional keys:

  - `"language"` (`str`): Language and version used for the pipeline. Defaults to falling back on project information. The accepted formats are "python:3.X-slim", where "3.X" is a supported version of Python, and "python-cuda:3.X-Y.Z" for GPU environments, where "Y.Z" is a supported version of CUDA. The list of supported versions is available on the official documentation website at https://mlops-platform-documentation.craft.ai.
  - `"repository_url"` (`str`): Remote repository url. Defaults to falling back on project information.
  - `"repository_branch"` (`str`): Branch name. Defaults to falling back on project information.
  - `"repository_deploy_key"` (`str`): Private SSH key of the repository. Defaults to falling back on project information, can be set to null. The key should retain the header/footer beacon with : "BEGIN/END RSA PRIVATE KEY".
  - `"requirements_path"` (`str`): Path to the requirements.txt file. Environment variables created through *`create_or_update_environment_variable()`* can be used in requirements.txt, as in `"${ENV_VAR}"`. Defaults to falling back on project information, can be set to null.
  - `"included_folders"` (`list[str]`): List of folders and files in the repository required for the pipeline execution. Defaults to falling back on project information, can be set to null. Total size of included_folders must be less than 5MB.
  - `"system_dependencies"` (`list[str]`): List of system dependencies. Defaults to falling back on project information, can be set to null.
  - `"dockerfile_path"` (`str`): Path to the Dockerfile. This parameter should only be used as a last resort and for advanced use. When specified, the following parameters should be set to null: `"function_path"`, `"function_name"`, `"language"`, `"requirements_path"` and `"system_dependencies"`.
  - `"local_folder` (`str`): Path to local folder where the pipeline is stored.

- **`inputs`** (*list* of instances of *`Input`*) – List of inputs. Each parameter of the pipeline function should be specified as an instance of *`Input`* via this parameter *inputs*. During the execution of the pipeline, the value of the inputs would be passed as function arguments.
- **`outputs`** (*list* of instances of *`Output`*) – List of the pipeline outputs. For the pipeline to have outputs, the function should return a `dict` with the name of the output as keys and the value of the output as values. Each output should be specified as an instance of *`Output`* via this parameter *outputs*.
- **`pipeline_template_name`** (`str`, keyword-only) – Name of the pipeline template to use.
- **`wait_for_completion`** (`bool`, optional) – Whether to wait for the pipeline to be created. Defaults to `True`.
- **`timeout_s`** (`int`) – Maximum time (in seconds) to wait for the pipeline to be created. Set to None to wait indefinitely. Defaults to None. Only applicable if `wait_for_completion` is `True`.

Returns

Created pipeline represented as `dict` with the following keys:

- `"parameters"` (`dict`): Information used to create the pipeline with the following keys:
  - `"pipeline_name"` (`str`): Name of the pipeline.
  - `"function_path"` (`str`): Path to the file that contains the function.
  - `"function_name"` (`str`): Name of the function in that file.
  - `"description"` (`str`): Description.
  - `"inputs"` (`list` of `dict`): List of inputs represented as a `dict` with the following keys:
    - `"name"` (`str`): Input name.
    - `"data_type"` (`str`): Input data type.
    - `"is_required"` (`bool`): Whether the input is required.
    - `"default_value"` (`str`): Input default value.
  - `"outputs"` (`list` of `dict`): List of outputs represented as a `dict` with the following keys:
    - `"name"` (`str`): Output name.
    - `"data_type"` (`str`): Output data type.
    - `"description"` (`str`): Output description.
  - `"container_config"` (`dict[str, str]`): Some pipeline configuration, with the following optional keys:
    - `"language"` (`str`): Language and version used for the pipeline. The accepted formats are "python:3.X-slim", where "3.X" is a supported version of Python, and "python-cuda:3.X-Y.Z" for GPU environments, where "Y.Z" is a supported version of CUDA. The list of supported versions is available on the official documentation website at https://mlops-platform-documentation.craft.ai.
    - `"repository_url"` (`str`): Remote repository url.
    - `"repository_branch"` (`str`): Branch name.
    - `"included_folders"` (`list[str]`): List of folders and files in the repository required for the pipeline execution.
    - `"system_dependencies"` (`list[str]`): List of system dependencies.
    - `"dockerfile_path"` (`str`): Path to the Dockerfile.
    - `"requirements_path"` (`str`): Path to the requirements.txt file.
- `"creation_info"` (`dict`): Information about the pipeline creation:
  - `"created_at"` (`str`): The creation date in ISO format.
  - `"commit_id"` (`str`): The commit id on which the pipeline was built.
  - `"status"` (`str`): either `"creation_pending"` or `"ready"`.
  - `"origin"` (`str`): The origin of the pipeline, can be `"git_repository"` or `"local"`.
  - `"pipeline_template"` (`dict` or `None`): The pipeline template used to create the pipeline, `None` if the pipeline was not created from a template. If not `None`, the dictionary has the following keys:
    - `"name"` (`str`): Name of the pipeline template used as an identifier to create the pipeline.
    - `"version"` (`str`): Version of the pipeline template.

        * `"display_name"` (`str`): Display name of the pipeline template.
        * `"description"` (`str`): Description of the pipeline template.
        * `"hosting_type"` (`str`): Either `"self-hosted"` if the model runs on the environment's infrastructure, or `"private-api"` if the model inference is done through an external API.
        * `"model_family"` (`str`): Model family of the pipeline template.
      - `"last_execution_id"` (`str`): The id of the last execution of the pipeline.

Return type
`dict`

`CraftAiSdk.`**`get_pipeline`**(*pipeline_name: str*, *wait_for_completion=False*, *timeout_s: int | None = None*) → Pipeline

Get a single pipeline if it exists.

Parameters

- **`pipeline_name`** (`str`) – Name of the pipeline to get.
- **`wait_for_completion`** (`bool`, optional) – Whether to wait for the pipeline to be created. Defaults to `False`.
- **`timeout_s`** (`int`) – Maximum time (in seconds) to wait for the pipeline to be created. Set to None to wait indefinitely. Defaults to None. Only applicable if `wait_for_completion` is `True`.

Returns

None if the pipeline does not exist, otherwise pipeline information, with the following keys:

- `"parameters"` (`dict`): Information used to create the pipeline with the following keys:
  - `"pipeline_name"` (`str`): Name of the pipeline.
  - `"function_path"` (`str`): Path to the file that contains the function.
  - `"function_name"` (`str`): Name of the function in that file.
  - `"description"` (`str`): Description.
  - `"inputs"` (`list` of `dict`): List of inputs represented as a `dict` with the following keys:
    * `"name"` (`str`): Input name.
    * `"data_type"` (`str`): Input data type.
    * `"is_required"` (`bool`): Whether the input is required.
    * `"default_value"` (`str`): Input default value.
    * `"description"` (`str`): Output description.
  - `"outputs"` (`list` of `dict`): List of outputs represented as a `dict` with the following keys:
    * `"name"` (`str`): Output name.
    * `"data_type"` (`str`): Output data type.
    * `"description"` (`str`): Output description.
  - `"container_config"` (`dict[str, str]`): Some pipeline configuration, with the following optional keys:

        - `"language"` (`str`): Language and version used for the pipeline. The accepted formats are "python:3.X-slim", where "3.X" is a supported version of Python, and "python-cuda:3.X-Y.Z" for GPU environments, where "Y.Z" is a supported version of CUDA. The list of supported versions is available on the official documentation website at https://mlops-platform-documentation.craft.ai.
        - `"repository_url"` (`str`): Remote repository url.
        - `"repository_branch"` (`str`): Branch name.
        - `"included_folders"` (`list[str]`): List of folders and files in the repository required for the pipeline execution.
        - `"system_dependencies"` (`list[str]`): List of system dependencies.
        - `"dockerfile_path"` (`str`): Path to the Dockerfile.
        - `"requirements_path"` (`str`): Path to the requirements.txt file.
    - `"creation_info"` (`dict`): Information about the pipeline creation:
      - `"created_at"` (`str`): The creation date in ISO format.
      - `"created_by"` (`str`): The user who created the pipeline.
      - `"commit_id"` (`str`): The commit id on which the pipeline was built.
      - `"status"` (`str`): either `"creation_pending"` or `"ready"`.
      - `"origin"` (`str`): The origin of the pipeline, can be `"git_repository"` or `"local"`.
      - `"pipeline_template"` (`dict` or `None`): The pipeline template used to create the pipeline, `None` if the pipeline was not created from a template. If not `None`, the dictionary has the following keys:
        - `"name"` (`str`): Name of the pipeline template used as an identifier to create the pipeline.
        - `"version"` (`str`): Version of the pipeline template.
        - `"display_name"` (`str`): Display name of the pipeline template.
        - `"description"` (`str`): Description of the pipeline template.
        - `"hosting_type"` (`str`): Either `"self-hosted"` if the model runs on the environment's infrastructure, or `"private-api"` if the model inference is done through an external API.
        - `"model_family"` (`str`): Model family of the pipeline template.
      - `"last_execution_id"` (`str`): The id of the last execution of the pipeline.

CraftAiSdk.**delete_pipeline**(*pipeline_name: str*, *force_deployments_deletion=False*) → PipelineDeleted

Delete a pipeline identified by its name.

Parameters

- **pipeline_name** (`str`) – Name of the pipeline.
- **force_deployments_deletion** (`bool`, optional) – if True the associated endpoints will be deleted too. Defaults to False.

Returns

The deleted pipeline and its associated deleted deployments represented as a `dict` with the following keys:

- `"pipeline"` (`dict`): Deleted pipeline represented as `dict` with the following keys:
  - `"name"` (`str`): Name of the deleted pipeline.
- `"deployments"` (`list`): List of deleted deployments represented as `dict` with the following keys:
  - `"name"` (`str`): Name of the deleted deployments.
  - `"execution_rule"` (`str`): Execution rule of the deleted deployments.

Return type
`dict`

`CraftAiSdk.`**`list_pipelines`**`()` → list[PipelineListItem]

Get the list of all pipelines.

Returns

List of pipelines represented as `dict` with the following keys:

- `"pipeline_name"` (`str`): Name of the pipeline.
- `"created_at"` (`str`): Pipeline date of creation.
- `"status"` (`str`): Status of the pipeline.

Return type
`list` of `dict`

`CraftAiSdk.`**`download_pipeline_local_folder`**`(`*pipeline_name: str*, *folder: str*`)`

Download a pipeline's local folder as a *.tgz* archive.

Only available if the pipeline's `origin` is `"local_folder"`. This archive contains the files that were in the `local_folder` parameter provided during pipeline creation, and that were included based on the pipeline's `container_config` property.

Parameters

- **`pipeline_name`** (`str`) – Name of the pipline to be downloaded.
- **`folder`** (`str`) – Path to the folder where the file will be saved.

Returns
None

`CraftAiSdk.`**`get_pipeline_logs`**`(`*pipeline_name: str*, *from_datetime: datetime | None = None*, *to_datetime: datetime | None = None*, *limit: int | None = None*`)` → list[Log]

Get the logs of a pipeline.

Parameters

- **`pipeline_name`** (`str`) – Name of the pipeline.
- **`from_datetime`** (`datetime.time`, optional) – Datetime from which the logs are collected.
- **`to_datetime`** (`datetime.time`, optional) – Datetime until which the logs are collected.
- **`limit`** (`int`, optional) – Maximum number of logs that are collected.

Returns

List of collected logs represented as dict with the following keys:

- `"timestamp"` (`str`): Timestamp of the log.
- `"message"` (`str`): Log message.

Return type
list of dict

class craft_ai_sdk.**Input**(*name*, *data_type*, *description=None*, *is_required=None*, *default_value=None*)

Class to specify a pipeline input when creating a pipeline (cf. *CraftAiSdk.create_pipeline()*).

Parameters

- **name** (str) – Name of the input. This corresponds to the name of a parameter of a pipeline function.
- **data_type** (str) – Type of the input: It could be one of "string", "number","boolean", "json", "array" or "file". For convenience, members of the enumeration *INPUT_OUTPUT_TYPES* could be used too.
- **description** (str, optional) – Description. Defaults to None.
- **is_required** (bool, optional) – Specify if an value should be provided at execution time. Defaults to None.
- **default_value** (Any, optional) – A default value for the pipeline input at execution time. The type for *default_value* should match the type specified by *data_type*. Defaults to None.

class craft_ai_sdk.**CREATION_PARAMETER_VALUE**(*enum.Enum*)

Enumeration for creation parameters special values.

FALLBACK_PROJECT = 'FALLBACK_PROJECT'

Special value to indicate that the parameter should be set to the project information value.

NULL = 'NULL'

Special value to indicate that the parameter should be set to *None*.

class craft_ai_sdk.**Output**(*name*, *data_type*, *description=None*)

Class to specify a pipeline output when creating a pipeline (cf. *CraftAiSdk.create_pipeline()*).

Parameters

- **name** (str) – Name of the output. This corresponds to the key of the *dict* returned by the pipeline function.
- **data_type** (str) – Type of the output. It could be one of "string", "number", "boolean", "json", "array" or "file". For convenience, members of the enumeration *INPUT_OUTPUT_TYPES* could be used too.
- **description** (str, optional) – Description. Defaults to None.

class craft_ai_sdk.**INPUT_OUTPUT_TYPES**(*strenum.LowercaseStrEnum*)

Enumeration for Input and Output data types.

ARRAY = 'array'

BOOLEAN = 'boolean'

FILE = 'file'

JSON = 'json'

NUMBER = 'number'

STRING = 'string'

2.2 Pipeline Template

`CraftAiSdk.`**`get_pipeline_template`**(*pipeline_template_name: str*)

Get information about a specific pipeline template. A pipeline template could be used to create a pipeline.

Parameters

`pipeline_template_name` (*`str`*) – Name of the pipeline template to retrieve.

Returns

Information on the pipeline template represented as dict with the following keys:

- **`"name"` (`str`): Name of the pipeline template used as an** identifier to create the pipeline.
- `"version"` (`str`): Version of the pipeline template.
- **`"enabled"` (`bool`): Whether the pipeline template can be used to** create pipelines or not.
- **`"display_name"` (`str`): Display name of the pipeline** template.
- `"description"` (`str`): Description of the pipeline template.
- **`"hosting_type"` (`str`): Either `"self-hosted"` if the model** runs on the environment's infrastructure, or `"private-api"` if the model inference is done through an external API.
- **`"model_family"` (`str`): Model family of the pipeline** template.
- **`"inputs"` (`list` of `dict`): List of inputs of the pipeline** once created represented as a dict with the following keys:
  - `"name"` (`str`): Input name.
  - `"data_type"` (`str`): Input data type.
  - `"is_required"` (`bool`): Whether the input is required.
  - `"default_value"` (`str`): Input default value.
  - `"description"` (`str`): Output description.
- `"outputs"` (`list` of `dict`): List of outputs of the pipeline once created represented as a dict with the following keys:
  - `"name"` (`str`): Output name.
  - `"data_type"` (`str`): Output data type.
  - `"description"` (`str`): Output description.
- `"recommended_inputs_mapping"` (`list` of `dict`): List of recommended inputs mapping for creating a deployment represented as a dict with the following keys:
  - `"pipeline_input_name"` (`str`): Name of the input.
  - `"data_type` (`str`): Data type of the input.
  - `"source` (`str`): Source of type of the input. Can be "environment_variable", "datastore", "constant", "is_null" "endpoint" or "run".

  - `"endpoint_input_name"` (`str`): Name of the input in the endpoint execution if source is "endpoint".
  - `"constant_value"` (`str`): Value of the constant if source is "constant".
  - `"environment_variable_name"` (`str`): Name of the environment variable if source is "environment_variable".
  - `"is_null"` (`bool`): True if source is "is_null".
  - `"value"`: Value of the input.
- `"recommended_outputs_mapping"` (`list` of `dict`): List of recommended outputs mapping for creating a deployment represented as a dict with the following keys:
  - `"pipeline_output_name"` (`str`): Name of the output.
  - `"data_type` (`str`): Data type of the output.
  - `"destination` (`str`): Destination of type of the output. Can be "datastore", "is_null" "endpoint" or "run".
  - `"endpoint_output_name"` (`str`): Name of the output in the endpoint execution if destination is "endpoint".
  - `"is_null"` (`bool`): True if destination is "is_null".
  - `"value"`: Value of the output.

Return type
`dict`

`CraftAiSdk.`**`list_pipeline_templates`**`()` → list[PipelineTemplate]

List all the available pipeline templates.

Returns

List of available pipeline templates represented as a dict with the following keys:

- **`"name"` (`str`): Name of the pipeline template used as an** identifier to create the pipeline.
- `"version"` (`str`): Version of the pipeline template.
- **`"enabled"` (`bool`): Whether the pipeline template can be used to** create pipelines or not.
- **`"display_name"` (`str`): Display name of the pipeline** template.
- `"description"` (`str`): Description of the pipeline template.
- **`"hosting_type"` (`str`): Either `"self-hosted"` if the model** runs on the environment's infrastructure, or `"private-api"` if the model inference is done through an external API.
- **`"model_family"` (`str`): Model family of the pipeline** template.

Return type
`list` of `dict`

2.3 Pipeline Execution

CraftAiSdk.**run_pipeline**(*pipeline_name: str*, *inputs: dict[str, Any] | None = None*, *inputs_mapping: Sequence[InputSource] | None = None*, *outputs_mapping: Sequence[OutputDestination] | None = None*, *wait_for_completion=True*) → dict[str, Any]

Run a pipeline.

Parameters

- **pipeline_name** (str) – Name of an existing pipeline.
- **inputs** (dict, optional) – Dictionary of inputs to pass to the pipeline with input names as keys and corresponding values as values. For files, the value should be the path to the file or a file content in an instance of io.IOBase. For json, string, number, boolean and array inputs, the size of all values should be less than 0.06MB. Defaults to None.
- **inputs_mapping** (list of instances of *InputSource*) – List of input mappings, to map pipeline inputs to different sources (constant_value, environment_variable_name, datastore_path or is_null). See *InputSource* for more details.
- **outputs_mapping** (list of instances of *OutputDestination*) – List of output mappings, to map pipeline outputs to different destinations (is_null or datastore_path). See *OutputDestination* for more details.
- **wait_for_completion** (bool, optional) – Wait for the end of the execution and returns the execution result. Defaults to *True*.

Returns

Pipeline execution outputs represented as a dict with the following keys:

- "execution_id" (str): Name of the pipeline execution.
- "outputs" (dict): Pipeline execution outputs with output names as keys and corresponding values as values. Note that this key is only returned if wait_for_completion is *True*.

Return type
dict

CraftAiSdk.**list_pipeline_executions**(*pipeline_name: str*) → list[dict[str, Any]]

Get a list of executions for the given pipeline

Parameters
pipeline_name (str) – Name of an existing pipeline.

Returns

A list of information on the pipeline execution represented as dict with the following keys:

- "execution_id" (str): Name of the pipeline execution.
- "status" (*EXECUTION_STATUS*): Status of the pipeline execution.
- "created_at" (str): Date of creation of the pipeline execution.
- "created_by" (str): ID of the user who created the pipeline execution. In the case of a pipeline run, this is the user who triggered the run. In the case of an execution via a deployment, this is the user who created the deployment.
- "end_date" (str): Date of completion of the pipeline execution. Can be *None* if the execution is still running.
- "pipeline_name" (str): Name of the pipeline used for the execution.

- `"deployment_name"` (`str`): Name of the deployment used for the execution.

Return type
`list`

`CraftAiSdk.`**`get_pipeline_execution`**(*execution_id: str*) → dict[str, Any]

Get the status of one pipeline execution identified by its execution_id.

Parameters
`execution_id` (`str`) – Name of the pipeline execution.

Returns

Information on the pipeline execution represented as dict with the following keys:

- `"execution_id"` (`str`): Name of the pipeline execution.
- `"status"` (*EXECUTION_STATUS*): Status of the pipeline execution.
- `"created_at"` (`str`): Date of creation of the pipeline
- `"created_by"` (`str`): ID of the user who created the pipeline execution. In the case of a pipeline run, this is the user who triggered the run. In the case of an execution via a deployment, this is the user who created the deployment.
- `"end_date"` (`str`): Date of completion of the pipeline execution.
- `"pipeline_name"` (`str`): Name of the pipeline used for the execution.
- `"deployment_name"` (`str`): Name of the deployment used for the execution.
- `"steps"` (`list` of *obj*): List of the pipeline executions represented as `dict` with the following keys:
  - `"name"` (`str`): Name of the pipeline.
  - `"status"` (`str`): Status of the pipeline.
  - `"start_date"` (`str`): Date of start of the pipeline execution.
  - `"end_date"` (`str`): Date of completion of the pipeline execution.
  - `"commit_id"` (`str`): Id of the commit used to build the pipeline.
  - `"repository_url"` (`str`): Url of the repository used to build the pipeline.
  - `"repository_branch"` (`str`): Branch of the repository used to build the pipeline.
  - `"requirements_path"` (`str`): Path of the requirements.txt file.
  - `"origin"` (`str`): The origin of the pipeline, can be `"git_repository"` or `"local"`.
- `"inputs"` (`list` of `dict`): List of inputs represented as a dict with the following keys:
  - `"pipeline_input_name"` (`str`): Name of the input.
  - `"data_type` (`str`): Data type of the input.
  - `"source` (`str`): Source of type of the input. Can be “environment_variable”, “datastore”, “constant”, “is_null” “endpoint” or “run”.

  - "endpoint_input_name" (str): Name of the input in the endpoint execution if source is "endpoint".
  - "constant_value" (str): Value of the constant if source is "constant".
  - "environment_variable_name" (str): Name of the environment variable if source is "environment_variable".
  - "is_null" (bool): True if source is "is_null".
  - "value": Value of the input.
- "outputs" (list of dict): List of outputs represented as a dict with the following keys:
  - "pipeline_output_name" (str): Name of the output.
  - "data_type (str): Data type of the output.
  - "destination (str): Destination of type of the output. Can be "datastore", "is_null" "endpoint" or "run".
  - "endpoint_output_name" (str): Name of the output in the endpoint execution if destination is "endpoint".
  - "is_null" (bool): True if destination is "is_null".
  - "value": Value of the output.

Return type
dict

CraftAiSdk.**get_pipeline_execution_input**(*execution_id: str*, *input_name: str*)

Get the input value of an executed pipeline identified by its execution_id.

Parameters

- **execution_id** (str) – ID of the pipeline execution.
- **input_name** (str) – Name of the input.

Returns

Information on the input represented as a dict with the following keys :

- "pipeline_input_name" (str): Name of the input.
- "data_type (str): Data type of the input.
- "source (str): Source of type of the input. Can be "environment_variable", "datastore", "constant", "is_null" "endpoint" or "run".
- "endpoint_input_name" (str): Name of the input in the endpoint execution if source is "endpoint".
- "constant_value" (str): Value of the constant if source is "constant".
- "environment_variable_name" (str): Name of the environment variable if source is "environment_variable".
- "is_null" (bool): True if source is "is_null".
- "value": Value of the input.

Return type
dict

CraftAiSdk.**get_pipeline_execution_output**(*execution_id: str*, *output_name: str*)

Get the output value of an executed pipeline identified by its execution_id.

Parameters

- **execution_id** (str) – ID of the pipeline execution.

- **output_name** (str) – Name of the output.

Returns

Information on the output represented as a dict with the following keys :

- "pipeline_output_name" (str): Name of the output.
- "data_type (str): Data type of the output.
- "destination (str): Destination of type of the output. Can be "datastore", "is_null" "endpoint" or "run".
- "endpoint_output_name" (str): Name of the output in the endpoint execution if destination is "endpoint".
- "is_null" (bool): True if destination is "is_null".
- "value": Value of the output.

Return type
dict

CraftAiSdk.**get_pipeline_execution_logs**(*execution_id: str*, *from_datetime: datetime | None = None*, *to_datetime: datetime | None = None*, *limit: int | None = None*)

Get the logs of an executed pipeline identified by its name.

Parameters

- **execution_id** (str) – ID of the pipeline execution.
- **from_datetime** (datetime.time, optional) – Datetime from which the logs are collected.
- **to_datetime** (datetime.time, optional) – Datetime until which the logs are collected.
- **limit** (int, optional) – Maximum number of logs that are collected.

Returns

List of collected logs represented as dict with the following keys:

- "timestamp" (str): Timestamp of the log.
- "message" (str): Log message.

Return type
list of dict

CraftAiSdk.**delete_pipeline_execution**(*execution_id: str*)

Delete one pipeline execution identified by its execution_id.

Parameters
execution_id (str) – Name of the pipeline execution.

Returns

Deleted pipeline execution represented as dict with the following keys:

- "execution_id" (str): Name of the pipeline execution.

Return type
dict

class craft_ai_sdk.**EXECUTION_STATUS**(*value*, *names=<not given>*, **values*, *module=None*, *qualname=None*, *type=None*, *start=1*, *boundary=None*)

Enumeration for execution statuses

ERROR = 'Error'

The platform behaved incorrectly. You may want to submit a bug report.

FAILED = 'Failed'

The user code encountered an error.

PENDING = 'Pending'

The execution is in queue, but not started

RUNNING = 'Running'

The execution is currently running

SKIPPED = 'Skipped'

The execution conditions were not met (not used for now)

SUCCEEDED = 'Succeeded'

The execution completed successfully

craft_ai_sdk.**FAILED_EXECUTION_STATUSES**

Set of failed execution statuses

craft_ai_sdk.**COMPLETED_EXECUTION_STATUSES**

Set of completed execution statuses

2.4 Deployment

CraftAiSdk.**create_deployment**(*pipeline_name: str*, *deployment_name: str*, *execution_rule:* DEPLOYMENT_EXECUTION_RULES, *mode=DEPLOYMENT_MODES.ELASTIC*, *schedule: str | None = None*, *endpoint_url_path: str | None = None*, *inputs_mapping: list[*InputSource*] | None = None*, *outputs_mapping: list[*OutputDestination*] | None = None*, *description: str | None = None*, *enable_parallel_executions: bool | None = None*, *max_parallel_executions_per_pod: int | None = None*, *ram_request: str | None = None*, *gpu_request: int | None = None*, *wait_for_completion=True*, *timeout_s: int | None = None*, *execution_timeout_s: int | None = None*, *endpoint_token: str | None = None*)

Create a deployment associated with a given pipeline.

Parameters

- **pipeline_name** (str) – Name of the pipeline to deploy.
- **deployment_name** (str) – Name of the deployment.
- **execution_rule** (str) – Execution rule of the deployment. Can be "endpoint" or "periodic". For convenience, members of the enumeration *DEPLOYMENT_EXECUTION_RULES* can be used. If the execution rule is "periodic", schedule must be provided. If it is "endpoint", see the note below on how to trigger the endpoint.
- **mode** (*Queue*) – Mode of the deployment. Can be "elastic" or "low_latency". Defaults to "elastic". For convenience, members of the enumeration *DEPLOYMENT_MODES* can be used. This defines how computing resources are allocated for pipeline executions:
  - "elastic": Each pipeline execution runs in a new isolated container ("pod"), with its own memory (RAM, VRAM, disk). No variables or files are shared between executions, and the pod is destroyed when

the execution ends. This mode is simple to use because it automatically uses computing resources for running executions, and each execution starts from an identical blank state. But it takes time to create a new pod at the beginning of each execution (tens of seconds), and computing resources can become saturated when there are more executions.

  - `"low_latency"`: All pipeline executions for the same deployment run in a shared container ("pod") with shared memory. The pod is created when the deployment is created, and deleted when the deployment is deleted. Shared memory means that if one execution modifies a global variable or a file, subsequent executions on the same pod will see the modified value. This mode makes it possible for executions to respond quickly (less than 0.5 seconds of overhead) because the pod is already up and running when an execution starts, and it is possible to preload or cache data. But it requires care in the code because of possible interactions between executions. And it requires care in how computing resources are used, because pods use resources continuously even when there is no ongoing execution, and the number of pods does not automatically adapt to the number of executions. During the lifetime of a deployment, a pod may be recreated by the platform for technical reasons (including if it tries to use more memory than available). This mode is not compatible with pipelines created with a `container_config.dockerfile_path` property in *`create_pipeline()`*.

- **`schedule`** (`str`, optional) – Schedule of the deployment. Required and applicable only if `execution_rule` is `"periodic"`. Must be a valid *cron expression <https://www.npmjs.com/package/croner>*. The deployment will be executed periodically according to this schedule. The schedule must follow this format: `<minute> <hour> <day of month> <month> <day of week>`. Note that the schedule is in UTC time zone. '*' means all possible values. Here are some examples:

  - `"0 0 * * *"` will execute the deployment every day at midnight.

  - `"0 0 5 * *"` will execute the deployment every 5th day of the month at midnight.

- **`endpoint_url_path`** (`str`, optional) – Applicable only if `execution_rule` is `"endpoint"`. The last part of the URL (address) used to trigger the endpoint deployment. See the note below on how to trigger the endpoint. By default the value of `deployment_name` is used. This can be used to customize the URL independently of `deployment_name`.

- **`inputs_mapping`** (`list` of instances of *`InputSource`*) – List of input mappings, to map pipeline inputs to different sources (such as constant values, endpoint inputs, or environment variables). See *`InputSource`* for more details. For endpoint rules, if an input of the pipeline is not explicitly mapped, it will be automatically mapped to an endpoint input with the same name. For periodic rules, all inputs of the pipeline must be explicitly mapped.

- **`outputs_mapping`** (`list` of instances of *`OutputDestination`*) – List of output mappings, to map pipeline outputs to different destinations. See *`OutputDestination`* for more details. For endpoint rules, if an output of the pipeline is not explicitly mapped, it will be automatically mapped to an endpoint output with the same name. For periodic rules, all outputs of the pipeline must be explicitly mapped.

- **`description`** (`str`, optional) – Description of the deployment.

- **enable_parallel_executions** (bool, optional) – Whether to run several executions at the same time in the same pod, if mode is "low_latency". Not applicable if mode is "elastic", where each execution always runs in a new pod. This is disabled by default, which means that for a deployment with "low_latency" mode, by default only one execution runs at a time on a pod, and other executions are pending while waiting for the running one to finish. Enabling this may be useful for inference batching on a model that takes much memory, so the model is loaded in memory only once and can be used for several inferences at the same time. If this is enabled then global variables, GPU memory and disk files are shared between multiple executions, so you must be mindful of potential race conditions and concurrency issues. For each execution running on a pod, the main Python function is run either as an asyncio coroutine with await if the function was defined with async def (recommended), or in a new thread if the function was defined simply with def. Environment variables are updated whenever a new execution starts on the pod. Using some libraries with async/threaded methods in your code may cause logs to be associated with the wrong running execution (logs are associated with executions through Python contextvars).
- **max_parallel_executions_per_pod** (int, optional) – Only applicable if enable_parallel_executions is True. The maximum number of executions that can run at the same time on a deployment's pod in "low_latency" mode where enable_parallel_executions is True: if a greater number of executions are requested at the same time, then only max_parallel_executions_per_pod executions will actually be running on the pod, and the other ones will be pending until a running execution finishes. Defaults to 6.
- **ram_request** (str, optional) – The amount of memory (RAM) requested for the deployment in KiB, MiB and GiB. The value must be a string with a number followed by a unit, for example "512MiB" or "1GiB". This is only available for "low_latency" deployments mode.
- **gpu_request** (int, optional) – The number of GPUs requested for the deployment. This is only available for "low_latency" deployments mode.
- **wait_for_completion** (bool, optional) – Whether to wait for the deployment to be ready. Defaults to True.
- **timeout_s** (int) – The execution timeout parameter defines how long code
- **stopped.** (*can run before it is automatically*)
- **mode** – Async code: The timeout works correctly, if the execution exceeds the limit, the task is canceled. Non-async code: The timeout is applied, but the running thread is not forcibly stopped, which may delay termination.
- **mode** – Async code: The execution is canceled on timeout. Non-async code: No timeout is applied (runs in the main thread).
- **endpoint_token** (str, optional) – Applicable only if execution_rule is "endpoint". The token to access the endpoint. If not set, a token will be generated. This token is different from the SDK token, you can find it in the result of this function as "endpoint_token". It is used as a secret to trigger the endpoint.

Returns

Created deployment represented as a dict with the following keys:

- "name" (str): Name of the deployment.

- "mode" (str): The deployment mode. Can be "elastic" or "low_latency".
- "pipeline" (dict): Pipeline associated to the deployment represented as dict with the following keys:
  - "name" (str): Name of the pipeline.
- "inputs_mapping" (list of dict): List of inputs mapping represented as dict with the following keys:
  - "pipeline_input_name" (str): Name of the pipeline input.
  - "data_type" (str): Data type of the pipeline input.
  - "description" (str): Description of the pipeline input.
  - "constant_value" (str): Constant value of the pipeline input. Note that this key is only returned if the pipeline input is mapped to a constant value.
  - "environment_variable_name" (str): Name of the environment variable. Note that this key is only returned if the pipeline input is mapped to an environment variable.
  - "endpoint_input_name" (str): Name of the endpoint input. Note that this key is only returned if the pipeline input is mapped to an endpoint input.
  - "is_null" (bool): Whether the pipeline input is mapped to null. Note that this key is only returned if the pipeline input is mapped to null.
  - "datastore_path" (str): Datastore path of the pipeline input. Note that this key is only returned if the pipeline input is mapped to the datastore.
  - "is_required" (bool): Whether the pipeline input is required. Note that this key is only returned if the pipeline input is required.
  - "default_value" (str): Default value of the pipeline input. Note that this key is only returned if the pipeline input has a default value.
- "outputs_mapping" (list of dict): List of outputs mapping represented as dict with the following keys:
  - "pipeline_output_name" (str): Name of the pipeline output.
  - "data_type" (str): Data type of the pipeline output.
  - "description" (str): Description of the pipeline output.
  - "endpoint_output_name" (str): Name of the endpoint output. Note that this key is only returned if the pipeline output is mapped to an endpoint output.
  - "is_null" (bool): Whether the pipeline output is mapped to null. Note that this key is only returned if the pipeline output is mapped to null.
  - "datastore_path" (str): Datastore path of the pipeline output. Note that this key is only returned if the pipeline output is mapped to the datastore.
- "endpoint_token" (str): Token of the endpoint. Note that this key is only returned if the deployment is an endpoint.
- "schedule" (str): Schedule of the deployment. Note that this key is only returned if the execution_rule``of the deployment is ``"periodic".

- `"human_readable_schedule"` (`str`): Human readable schedule of the deployment. Note that this key is only returned if the `execution_rule` of the deployment is `"periodic"`.
- `"created_at"` (`str`): Date of creation of the deployment.
- `"created_by"` (`str`): ID of the user who created the deployment.
- `"updated_at"` (`str`): Date of last update of the deployment.
- `"updated_by"` (`str`): ID of the user who last updated the deployment.
- `"last_execution_id"` (`str`): ID of the last execution of the deployment.
- `"is_enabled"` (`bool`): Whether the deployment is enabled.
- `"description"` (`str`): Description of the deployment.
- `"execution_rule"` (`str`): Execution rule of the deployment.
- `"status"` (`str`): The deployment status. Can be `"creation_pending"`, `"up"`, `"creation_failed"`, `"down_retrying"` or `"standby"`.
- `"enable_parallel_executions"` (`bool`): Indicates whether multiple executions can run concurrently within the same pod. This key is only returned if the deployment mode is `"low_latency"`. For more detailed information, see *enable_parallel_executions* parameter of *`create_deployment()`* method.
- `"max_parallel_executions_per_pod"` (`int`): Maximum number of executions that can run at the same time on a deployment's pod in `"low_latency"` mode. This key is only returned if the deployment mode is `"low_latency"` and if `"enable_parallel_executions"` is `True`. For more detailed information, see *max_parallel_executions_per_pod* parameter of *`create_deployment()`* method.
- `"pods"` (`list` of `dict`): List of pods associated with the low latency deployment. Note that this key is only returned if the deployment is in low latency mode. Each pod is represented as `dict` with the following keys:
  - `pod_id` (`str`): ID of the pod.
  - `status` (`str`): Status of the pod.

Return type

`dict[str, str]`

Note

When `execution_rule` is `"endpoint"`:

- When the endpoint deployment is created, it creates an HTTP endpoint which can be called at `POST {environment_url}/endpoints/{endpoint_url_path}`. You can get *environment_url* with *sdk.base_environment_url*. *endpoint_url_path* is the *endpoint_name* if *endpoint_url_path* is not provided.

An endpoint token is required to call the HTTP endpoint. This token is different from the SDK token, you can find it in the result of this function as "endpoint_token". Use it to set the `"Authorization"` header as `"EndpointToken {endpoint_token}"`.
Input can be passed to the endpoint either:

- When there is no input file mapped to the endpoint, in the body in JSON with the *application/json* content type and with the format

```
{
  "{input_name}": "{input_value}"
}
```

- When a file input is mapped to the endpoint, as a file with a *multipart/form-data* content type.

This will return the output as:

- When there is no output file, in the body in JSON in the format

```
{
  "output": {
    "{output_name}": "{output_value}"
  }
}
```

- When a file output is mapped, it will return the file as a response with the *application/octet-stream* content type.

A successful call will return results with a status code 200 after redirections.
If your HTTP client does not follow redirection automatically, redirections are indicated by a status code between 300 and 399, and the redirection URL is in the *Location* header. Keep calling the redirection URL until you get a non-redirection status code.
If an endpoint deployment's execution encounters an error, it will return a status code between 400 and 599, and an error message in the body at the property *message*.
Here is an example of a successful call with curl:

```
curl -L "{environment_url}/endpoints/{endpoint_name}" \
  -H "Authorization: EndpointToken {endpoint_token}" \
  -H "Content-Type: application/json; charset=utf-8" \
  -d @- << EOF
{"input_string": "value_1", "input_number": 0}
EOF

# The response will be:
# {"output": {"output_string": "returned_value_1", "output_number": 1}}
```

`CraftAiSdk.`**`list_deployments`**`()` → list[DeploymentListItem]

Get the list of all deployments.

Returns

List of deployments represented as `dict` with the following keys:

- `"name"` (`str`): Name of the deployment.
- `"pipeline_name"` (`str`): Name of the pipeline associated to the deployment.
- `"execution_rule"` (`str`): Execution rule of the deployment. Can be `"endpoint"`, `"run"` or `"periodic"`.

- `"mode"` (`str`): Mode of the deployment. Can be `"elastic"` or `"low_latency"`.
- `"is_enabled"` (`bool`): Whether the deployment is enabled.
- `"created_at"` (`str`): Date of creation of the deployment.

Return type
`list` of `dict`

`CraftAiSdk.`**`get_deployment`**(*deployment_name: str*, *wait_for_completion=False*, *timeout_s: int | None = None*) → DeploymentEndpoint | DeploymentPeriodic

Get information of a deployment.

Parameters

- **`deployment_name`** (`str`) – Name of the deployment.
- **`wait_for_completion`** (`bool`, optional) – Whether to wait for the deployment to be ready. Defaults to `False`.
- **`timeout_s`** (`int`, optional) – Maximum time (in seconds) to wait for the deployment to be ready. Set to None to wait indefinitely. Defaults to None. Only applicable if `wait_for_completion` is `True`.

Returns

Deployment information represented as `dict` with the following keys:

- `"name"` (`str`): Name of the deployment.
- `"mode"` (`str`): The deployment mode. Can be `"elastic"` or `"low_latency"`.
- `"pipeline"` (`dict`): Pipeline associated to the deployment represented as `dict` with the following keys:
  - `"name"` (`str`): Name of the pipeline.
- `"inputs_mapping"` (`list` of `dict`): List of inputs mapping represented as `dict` with the following keys:
  - `"pipeline_input_name"` (`str`): Name of the pipeline input.
  - `"data_type"` (`str`): Data type of the pipeline input.
  - `"description"` (`str`): Description of the pipeline input.
  - `"constant_value"` (`str`): Constant value of the pipeline input. Note that this key is only returned if the pipeline input is mapped to a constant value.
  - `"environment_variable_name"` (`str`): Name of the environment variable. Note that this key is only returned if the pipeline input is mapped to an environment variable.
  - `"endpoint_input_name"` (`str`): Name of the endpoint input. Note that this key is only returned if the pipeline input is mapped to an endpoint input.
  - `"is_null"` (`bool`): Whether the pipeline input is mapped to null. Note that this key is only returned if the pipeline input is mapped to null.
  - `"datastore_path"` (`str`): Datastore path of the pipeline input. Note that this key is only returned if the pipeline input is mapped to the datastore.
  - `"is_required"` (`bool`): Whether the pipeline input is required. Note that this key is only returned if the pipeline input is required.

  - `"default_value"` (`str`): Default value of the pipeline input. Note that this key is only returned if the pipeline input has a default value.
- `"outputs_mapping"` (`list` of `dict`): List of outputs mapping represented as `dict` with the following keys:
  - `"pipeline_output_name"` (`str`): Name of the pipeline output.
  - `"data_type"` (`str`): Data type of the pipeline output.
  - `"description"` (`str`): Description of the pipeline output.
  - `"endpoint_output_name"` (`str`): Name of the endpoint output. Note that this key is only returned if the pipeline output is mapped to an endpoint output.
  - `"is_null"` (`bool`): Whether the pipeline output is mapped to null. Note that this key is only returned if the pipeline output is mapped to null.
  - `"datastore_path"` (`str`): Datastore path of the pipeline output. Note that this key is only returned if the pipeline output is mapped to the datastore.
- `"endpoint_token"` (`str`): Token of the deployment. Note that this key is only returned if the `execution_rule` of the deployment is `"endpoint"`.
- `"endpoint_url_path"` (`str`): URL path of the deployment. Note that this key is only returned if the `execution_rule` of the deployment is `"endpoint"`.
- `"schedule"` (`str`): Schedule of the deployment. Note that this key is only returned if the `execution_rule` of the deployment is `"periodic"`.
- `"human_readable_schedule"` (`str`): Human readable schedule of the deployment. Note that this key is only returned if the `execution_rule` of the deployment is `"periodic"`.
- `"created_at"` (`str`): Date of creation of the deployment.
- `"created_by"` (`str`): ID of the user who created the deployment.
- `"updated_at"` (`str`): Date of last update of the deployment.
- `"updated_by"` (`str`): ID of the user who last updated the deployment.
- `"last_execution_id"` (`str`): ID of the last execution of the deployment.
- `"is_enabled"` (`bool`): Whether the deployment is enabled.
- `"description"` (`str`): Description of the deployment.
- `"execution_rule"` (`str`): Execution rule of the deployment.
- `"status"` (`str`): The deployment status. Can be `"creation_pending"`, `"up"`, `"creation_failed"`, `"down_retrying"` or `"standby"`.
- `"enable_parallel_executions"` (`bool`): Indicates whether multiple executions can run concurrently within the same pod. This key is only returned if the deployment mode is `"low_latency"`. For more detailed information, see *enable_parallel_executions* parameter of *`create_deployment()`* method.
- `"max_parallel_executions_per_pod"` (`int`): Maximum number of executions that can run at the same time on a deployment's pod in `"low_latency"` mode. This key is only returned if the deployment mode is `"low_latency"` and if `"enable_parallel_executions"` is `True`. For more detailed information, see *max_parallel_executions_per_pod* parameter of *`create_deployment()`* method.

- `"pods"` (`list` of `dict`): List of pods associated with the low latency deployment. Note that this key is only returned if the deployment is in low latency mode. Each pod is represented as `dict` with the following keys:
  - `pod_id` (`str`): ID of the pod.
  - `status` (`str`): Status of the pod.

Return type
`dict`

`CraftAiSdk.`**`get_deployment_logs`**(*deployment_name: str*, *from_datetime: datetime | None = None*, *to_datetime: datetime | None = None*, *limit: int | None = None*) → list[DeploymentLog]

Get the logs of a deployment with `"low_latency"` mode.

Parameters

- **`deployment_name`** (`str`) – Name of the deployment.
- **`from_datetime`** (`datetime.time`, optional) – Datetime from which the logs are collected. If not specified, logs are collected from the beginning.
- **`to_datetime`** (`datetime.time`, optional) – Datetime until which the logs are collected. If not specified, logs are collected until the end.
- **`limit`** (`int`, optional) – Maximum number of logs that are collected. If not specified, all logs are collected.

Returns

List of logs represented as `dict` with the following keys:

- `"timestamp"` (`str`): Timestamp of the log.
- `"message"` (`str`): Message of the log.
- `"stream"` (`str`): Stream of the log. Typically, `"stdout"` or `"stderr"`
- `"pod_id"` (`str`): ID of the pod.
- `"type"` (`str`): Type of the log. Can be `"deployment"`.

Return type
`list` of `dict`

`CraftAiSdk.`**`update_deployment`**(*deployment_name: str*, *is_enabled: bool | None = None*, *inputs_mapping: list[InputSource] | None = None*, *outputs_mapping: list[OutputDestination] | None = None*, *schedule: str | None = None*, *wait_for_completion=True*, *timeout_s: int | None = None*)

Update the specified properties of a deployment. The properties that can be updated include enabling/disabling the deployment, updating input/output values, and changing the deployment schedule. Only one property can be updated at a time.

Parameters

- **`deployment_name`** (`str`) – Name of the deployment to update.
- **`is_enabled`** (`bool`, optional) – Whether the deployment should be enabled or disabled. Disabling a deployment prevents new executions from being triggered. It also frees up computing resources associated to a low-latency deployment. Defaults to *None*.
- **`inputs_mapping`** (`list` of instances of *`InputSource`*) – List of inputs mapping to update with keys *pipeline_input_name*, and *constant_value* or *datastore_path*. The mapping types can not be changed; only the values

of constant values (*constant_value*) and data store paths (*datastore_path*) can be updated. See *InputSource* for more details.

- **outputs_mapping** (list of instances of *OutputDestination*) – List of outputs mapping to update with keys *pipeline_output_name* and *datastore_path*. The mapping types can not be changed; only the values of data store paths (*datastore_path*) can be updated. See *OutputDestination* for more details.
- **schedule** (str, optional) – New schedule to be assigned to the periodic deployment. Must be a valid CRON expression. Defaults to *None*.

Returns
Deployment information represented as dict as described in *get_deployment()*.

Return type
dict

CraftAiSdk.**delete_deployment**(*deployment_name: str*) → DeploymentDeleted

Delete a deployment identified by its name.

Parameters
deployment_name (str) – Name of the deployment.

Returns

Deleted deployment represented as dict with the following keys:

- "name" (str): Name of the deployment.
- "execution_rule" (str): Execution rule of the deployment. Can be "endpoint", "run" or "periodic".

Return type
dict

class craft_ai_sdk.**InputSource**(*pipeline_input_name=None*, *endpoint_input_name=None*, *environment_variable_name=None*, *is_required=None*, *default_value=None*, *constant_value=None*, *is_null=None*, *datastore_path=None*)

Class to specify to which source a pipeline input should be mapped when creating a deployment (cf. *CraftAiSdk.create_deployment()*). The different sources can be one of:

- endpoint_input_name (str): An endpoint input with the provided name.
- constant_value: A constant value.
- environment_variable_name: The value of the provided environment variable.
- is_null: Nothing.

If the execution rule of the deployment is endpoint and the input is directly mapped to an endpoint input, two more parameters can be specified:

- default_value
- is_required

Parameters

- **pipeline_input_name** (str) – Name of the pipeline input to be mapped.
- **endpoint_input_name** (str, optional) – Name of the endpoint input to which the input is mapped.

- **environment_variable_name** (str, optional) – Name of the environment variable to which the input is mapped.
- **constant_value** (Any, optional) – A constant value.
- **is_null** (True, optional) – If specified, the input is not provided any value at execution time.
- **datastore_path** (str, optional) – Path of the input file in the datastore. If you want to use a file from the datastore as input, this file will then be accessible as if you passed the file path as an argument to the pipeline. The resulting input will be a dict with *"path"* as key and the file path as value. The file will be downloaded in the execution environment before the pipeline is executed. You can then use the file as you would use any other file in the execution environment. Here is an example of how to use this feature in the pipeline code:

```
def pipeline_function(input):
    with open(input["path"]) as f:
        content = f.read()
        print(content)
```

- **default_value** (Any, optional) – This parameter could only be specified if the parameter *endpoint_input_name* is specified.
- **is_required** (bool, optional) – This parameter could only be specified if the parameter *endpoint_input_name* is specified. If set to *True*, the corresponding endpoint input should be provided at execution time.

class craft_ai_sdk.**OutputDestination**(*pipeline_output_name=None*, *endpoint_output_name=None*, *is_null=None*, *datastore_path=None*)

Class to specify to which destination a pipeline output should be mapped when creating a deployment (cf. *CraftAiSdk.create_deployment()*). If the execution rule of the deployment is endpoint, an output could either be exposed as an output of the endpoint (via *endpoint_output_name* parameter) or not (via *is_null* parameter).

Parameters

- **pipeline_output_name** (str) – Name of the pipeline output to be mapped.
- **endpoint_output_name** (str, optional) – Name of the endpoint output to which the output is mapped.
- **is_null** (True, optional) – If specified, the output is not exposed as a deployment output.
- **datastore_path** (str, optional) – Path of the output file in the datastore. If you want to upload a file to the datastore as output, you can specify this parameter. The file will be uploaded to the datastore after the pipeline is executed. In order to pass the file to be uploaded in the datastore, you will have to do the same as if you were passing a file as output. You will have to return a dict with *"path"* as key and the file path as value. The file will be uploaded to the datastore after the pipeline is executed. Here is an example of how to use this feature in the pipeline code:

```
def pipeline_function():
    file_path = "path/to/file"
    with open(file_path, "w") as f:
```

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```
        f.write("content")
    return {"output_file": {"path": file_path}}
```

You can also specify a dynamic path for the file to be uploaded by using one of the following patterns in your datastore path:

- *{execution_id}*: The execution id of the deployment.
- *{date}*: The date of the execution in truncated ISO 8601 (*YYYYMMDD*) format.
- *{date_time}*: The date of the execution in ISO 8601 (*YYYYMMDD_hhmmss*) format.

class craft_ai_sdk.**DEPLOYMENT_EXECUTION_RULES**(*value*, *names=<not given>*, **values*, *module=None*, *qualname=None*, *type=None*, *start=1*, *boundary=None*)

Enumeration for deployments execution rules.

class craft_ai_sdk.**DEPLOYMENT_MODES**(*value*, *names=<not given>*, **values*, *module=None*, *qualname=None*, *type=None*, *start=1*, *boundary=None*)

Enumeration for deployments modes.

2.5 Endpoint

CraftAiSdk.**trigger_endpoint**(*endpoint_name: str*, *endpoint_token: str | None = None*, *inputs: dict[str, Any] | None = None*, *wait_for_completion=True*) → EndpointTriggerWithOutputs | EndpointTriggerBase

Trigger an endpoint.

Parameters

- **endpoint_name** (str) – Name of the endpoint.
- **endpoint_token** (str, optional) – Token to access endpoint. If not set, the SDK token will be used.
- **inputs** (dict, optional) – Dictionary of inputs to pass to the endpoint with input names as keys and corresponding values as values. For files, the value should be an instance of io.IOBase. For json, string, number, boolean and array inputs, the size of all values should be less than 0.06MB. Defaults to {}.
- **wait_for_completion** (bool, optional) – Automatically call *retrieve_endpoint_results* and returns the execution result. Defaults to *True*.

Returns

Created pipeline execution represented as dict with the following keys:

- "execution_id" (str): ID of the execution.
- "outputs" (dict): Dictionary of outputs of the pipeline with output names as keys and corresponding values as values. Note that this key is only returned if wait_for_completion is *True*.

Return type

dict

CraftAiSdk.**retrieve_endpoint_results**(*endpoint_name: str*, *execution_id: str*, *endpoint_token: str | None = None*) → EndpointTriggerWithOutputs

Get the results of an endpoint execution.

Parameters

- **endpoint_name** (str) – Name of the endpoint.
- **execution_id** (str) – ID of the execution returned by *trigger_endpoint*.
- **endpoint_token** (str, optional) – Token to access endpoint. If not set, the SDK token will be used.

Returns

Created pipeline execution represented as dict with the following keys:

- "outputs" (dict): Dictionary of outputs of the pipeline with output names as keys and corresponding values as values.

Return type
dict

CraftAiSdk.**generate_new_endpoint_token**(*endpoint_name: str*, *endpoint_token: str | None = None*) → EndpointNewToken

Generate a new endpoint token for an endpoint.

Parameters

- **endpoint_name** (str) – Name of the endpoint.
- **endpoint_token** (str, optional) – New endpoint token to set. If not set, a new token will be generated.

Returns

New endpoint token represented as dict with the following keys:

- "endpoint_token" (str): New endpoint token.

Return type
dict[str, str]

2.6 Data store

CraftAiSdk.**upload_data_store_object**(*filepath_or_buffer: str | IOBase*, *object_path_in_datastore: str*)

Upload a file as an object into the data store.

Parameters

- **filepath_or_buffer** (str, or file-like object) – String, path to the file to be uploaded ; or file-like object implementing a read() method (e.g. via builtin open function). The file object must be opened in binary mode, not text mode.
- **object_path_in_datastore** (str) – Destination of the uploaded file.

CraftAiSdk.**download_data_store_object**(*object_path_in_datastore: str*, *filepath_or_buffer: str | IO | IOBase*)

Download an object in the data store and save it into a file.

Parameters

- **object_path_in_datastore** (str) – Location of the object to download from the data store.

- **filepath_or_buffer** (str or file-like object) – String, filepath to save the file to ; or a file-like object implementing a `write()` method, (e.g. via builtin `open` function). The file object must be opened in binary mode, not text mode.

Returns
None

CraftAiSdk.**get_data_store_object_information**(*object_path_in_datastore: str*) → DataStoreObjectInformation

Get information about a single object in the data store.

Parameters
object_path_in_datastore (str) – Location of the object in the data store.

Returns

Object information, with the following keys:

- `"path"` (`str`): Location of the object in the data store.
- `"last_modified"` (`str`): The creation date or last modification date in ISO format.
- `"size"` (`str`): The size of the object.

Return type
`dict`

CraftAiSdk.**list_data_store_objects**(*folder_path: str | None = None*) → list[DataStoreObjectInformation]

Get the list of the objects stored in the data store.

Parameters
folder_path (str, optional) – Location of the requested folder in the data store.

Returns

List of objects in the data store represented as `dict` with the following keys:

- `"path"` (`str`): Location of the object in the data store.
- `"last_modified"` (`str`): The creation date or last modification date in ISO format.
- `"size"` (`int`): The size of the object in bytes.

Return type
`list` of `dict`

CraftAiSdk.**iter_data_store_objects**(*folder_path: str | None = None*) → Iterable[DataStoreObjectInformation]

Get an iterable returning every objects stored in the data store.

Parameters
folder_path (str, optional) – Location of the requested folder in the data store.

Returns

List of objects in the data store represented as `dict` with the following keys:

- `"path"` (`str`): Location of the object in the data store.
- `"last_modified"` (`str`): The creation date or last modification date in ISO format.

- `"size"` (`int`): The size of the object in bytes.

Return type
`Iterable` of `dict`

`CraftAiSdk.`**`delete_data_store_object`**`(`*object_path_in_datastore: str*`)` → DataStoreDeletedObject

Delete an object on the datastore.

Parameters
`object_path_in_datastore` (`str`) – Location of the object to be deleted in the data store.

Returns

Deleted object represented as dict with the following keys:

- `path` (`str`): Path of the deleted object.

Return type
`dict`

2.7 Environment Variables

`CraftAiSdk.`**`create_or_update_environment_variable`**`(`*environment_variable_name: str*, *environment_variable_value: str*`)`

Create or update an environment variable available for all pipelines executions.

Parameters

- **`environment_variable_name`** (`str`) – Name of the environment variable to create.
- **`environment_variable_value`** (`str`) – Value of the environment variable to create.

Returns
None

`CraftAiSdk.`**`list_environment_variables`**`()` → list[EnvironmentVariable]

Get a list of all environments variables.

Returns

List of environment variable represented as `dict` with the following keys:

- `name` (`str`): Name of the environment variable.
- `value` (`str`): Value of the environment variable.

Return type
`list` of `dict`

`CraftAiSdk.`**`delete_environment_variable`**`(`*environment_variable_name: str*`)` → EnvironmentVariable

Delete the specified environment variable

Parameters
`environment_variable_name` (`str`) – Name of the environment variable to delete.

Returns

Deleted environment variable represented as `dict` with the following keys:

- `name` (`str`): Name of the environment variable.
- `value` (`str`): Value of the environment variable.

Return type
dict

2.8 Pipeline Metrics

CraftAiSdk.**record_metric_value**(*name: str*, *value: float*)

Create or update a pipeline metric. Note that this function can only be used inside a pipeline code.

Parameters

- **name** (str) – Name of the metric to store.
- **value** (float) – Value of the metric to store.

Returns
True if sent, False otherwise

CraftAiSdk.**record_list_metric_values**(*name: str*, *values: list[float]*)

Add values to a pipeline metric list. Note that this function can only be used inside a pipeline code.

Parameters

- **name** (str) – Name of the metric list to add values.
- **values** (list of float or float) – Values of the metric list to add.

Returns
True if sent, False otherwise

CraftAiSdk.**get_metrics**(*name: str | None = None*, *pipeline_name: str | None = None*, *deployment_name: str | None = None*, *execution_id: str | None = None*) → list[Metric]

Get a list of pipeline metrics. Note that only one of the parameters (pipeline_name, deployment_name, execution_id) can be set.

Parameters

- **name** (str, optional) – Name of the metric to retrieve.
- **pipeline_name** (str, optional) – Filter metrics by pipeline, defaults to all the pipelines.
- **deployment_name** (str, optional) – Filter metrics by deployment, defaults to all the deployments.
- **execution_id** (str, optional) – Filter metrics by execution, defaults to all the executions.

Returns

List of execution metrics as dict with the following keys:

- name (str): Name of the metric.
- value (float): Value of the metric.
- created_at (str): Date of the metric creation.
- execution_id (str): Name of the execution the metric belongs to.
- deployment_name (str): Name of the deployment the execution belongs to.
- pipeline_name (str): Name of the pipeline the execution belongs to.

Return type
list of dict

CraftAiSdk.**get_list_metrics**(*name: str | None = None*, *pipeline_name: str | None = None*, *deployment_name: str | None = None*, *execution_id: str | None = None*) → list[ListMetric]

Get a list of pipeline metric lists. Note that only one of the parameters (pipeline_name, deployment_name, execution_id) can be set.

Parameters

- **name** (str, optional) – Name of the metric list to retrieve.
- **pipeline_name** (str, optional) – Filter metric lists by pipeline, defaults to all the pipelines.
- **deployment_name** (str, optional) – Filter metric lists by deployment, defaults to all the deployments.
- **execution_id** (str, optional) – Filter metric lists by execution, defaults to all the executions.

Returns

List of execution metric lists as dict with the following keys:

- name (str): Name of the metric.
- values (list[float]): Values list of the metric.
- created_at (str): Date of the metric creation.
- execution_id (str): Name of the execution the metric belongs to.
- deployment_name (str): Name of the deployment the execution belongs to.
- pipeline_name (str): Name of the pipeline the execution belongs to.

Return type
list of dict

2.9 Resource Metrics

CraftAiSdk.**get_resource_metrics**(*start_date: datetime*, *end_date: datetime*, *csv=False*) → ResourceMetrics | bytes

Get resource metrics of the environment.

Parameters

- **start_date** (datetime.datetime) – The beginning of the period.
- **end_date** (datetime.datetime) – The end of the period.
- **csv** (bool) – If True, it will return a csv file as bytes.

Returns

If csv is True, it will return bytes. Otherwise: dict: The resource metrics, with the following keys:

- additional_data (dict): Additional data with the following keys:
  - total_disk (int): Total disk size in bytes.
  - total_ram (int): Total RAM size in bytes.
  - total_vram (int): Total VRAM size in bytes if there is a GPU.
- metrics (dict): The metrics of the environment with the following keys:

- `cpu_usage` (`list` of `dict`): The CPU usage in percent.
- `disk_usage` (`list` of `dict`): The disk usage in percent.
- `ram_usage` (`list` of `dict`): The RAM usage in percent.
- `vram_usage` (`list` of `dict`): The VRAM usage in percent if there is a GPU.
- `gpu_usage` (`list` of `dict`): The GPU usage in percent if there is a GPU.
- `network_input_usage` (`list` of `dict`): The network input usage in bytes.
- `network_output_usage` (`list` of `dict`): The network output usage in bytes.

Each element of the lists is a dict with the following keys:

- `metric` (`dict`): Dictionary with the following key:
  - `worker` (`str`): The worker name.
- `values` (`list` of `list`): The values of the metrics in the following format: `[[timestamp, value], ...]`.

2.10 Users

`CraftAiSdk.`**`get_user`**(*user_id: str*) → User

Get information about a user.

Parameters

`user_id` (`str`) – The id of the user.

Returns

The user information, with the following keys:

- `id` (`str`): id of the user.
- `name` (`str`): Name of the user.
- `email` (`str`): Email of the user.

Return type

`dict`

2.11 Vector Database

`CraftAiSdk.`**`get_vector_database_credentials`**`()` → VectorDatabaseCredentials

Get the credentials of the vector database.

Returns

The vector database credentials, with the following keys:

- `"vector_database_url"` (`str`): URL of the vector database.
- `"vector_database_token"` (`str`): Token to connect to the vector database.

Return type

`dict`

CraftAiSdk.**get_weaviate_client**() → weaviate_type.WeaviateClient

Initializes and returns a Weaviate client for interacting with the vector database.

Returns
The Weaviate client.

Return type
weaviate.WeaviateClient

CraftAiSdk.**get_async_weaviate_client**() → weaviate_type.WeaviateAsyncClient

Initializes and returns an async Weaviate client for interacting with the vector database.

Returns
The Weaviate client.

Return type
weaviate.WeaviateAsyncClient

2.12 Utils

file_utils.**multipartify**(*parent_key: str | None = None*) → dict

Convert a nested dictionary or list into a format suitable for multipart/form-data. This is useful for triggering endpoints that require multipart/form-data payloads.

Parameters

- **data** (any) – The data to convert, can be a dict, list, or a simple value.
- **(** (*parent_key*) – obj: *str*, optional): The key to use for the current level of the data structure.

Returns
A dictionary where keys are formatted for multipart/form-data.

Return type
dict

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