Package ‘mlflow’

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Type Package

Title Interface to 'MLflow'

Version 1.7.0

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Description R interface to 'MLflow', open source platform for the complete machine learning life cycle, see <https://mlflow.org/>. This package supports installing 'MLflow', tracking experiments, creating and running projects, and saving and serving models.

License Apache License 2.0

URL https://github.com/mlflow/mlflow

BugReports https://github.com/mlflow/mlflow/issues

SystemRequirements MLflow (https://www.mlflow.org/)

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NeedsCompilation no

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install_mlflow

Install MLflow

Description

Installs auxiliary dependencies of MLflow (e.g. the MLflow CLI). As a one-time setup step, you must run install_mlflow() to install these dependencies before calling other MLflow APIs.

Usage

install_mlflow(python_version = "3.6")

Arguments

python_version  Optional Python version to use within conda environment created for installing the MLflow CLI. If unspecified, defaults to using Python 3.6

Details


Alternatively, you can set MLFLOW_PYTHON_BIN and MLFLOW_BIN environment variables instead. MLFLOW_PYTHON_BIN should point to python executable and MLFLOW_BIN to mlflow cli executable. These variables allow you to use custom mlflow installation. Note that there may be some compatibility issues if the custom mlflow version does not match the version of the R package.

Examples

```r
## Not run:
library(mlflow)
install_mlflow()

## End(Not run)
```

mlflow_client

Initialize an MLflow Client

Description

Initializes and returns an MLflow client that communicates with the tracking server or store at the specified URI.
Usage

mlflow_client(tracking_uri = NULL)

Arguments

tracking_uri   The tracking URI. If not provided, defaults to the service set by ‘mlflow_set_tracking_uri’.

mlflow_create_experiment

Create Experiment

Description

Creates an MLflow experiment and returns its id.

Usage

mlflow_create_experiment(name, artifact_location = NULL, client = NULL)

Arguments

name   The name of the experiment to create.
artifact_location   Location where all artifacts for this experiment are stored. If not provided, the remote server will select an appropriate default.
client   (Optional) An MLflow client object returned from mlflow_client. If specified, MLflow will use the tracking server associated with the passed-in client. If unspecified (the common case), MLflow will use the tracking server associated with the current tracking URI.

mlflow_delete_experiment

Delete Experiment

Description

Marks an experiment and associated runs, params, metrics, etc. for deletion. If the experiment uses FileStore, artifacts associated with experiment are also deleted.

Usage

mlflow_delete_experiment(experiment_id, client = NULL)
Arguments

- **experiment_id**: ID of the associated experiment. This field is required.
- **client**: (Optional) An MLflow client object returned from `mlflow_client`. If specified, MLflow will use the tracking server associated with the passed-in client. If unspecified (the common case), MLflow will use the tracking server associated with the current tracking URI.

---

**mlflow_delete_run**  
*Delete a Run*

Description

Deletes the run with the specified ID.

Usage

```r
mlflow_delete_run(run_id, client = NULL)
```

Arguments

- **run_id**: Run ID.
- **client**: (Optional) An MLflow client object returned from `mlflow_client`. If specified, MLflow will use the tracking server associated with the passed-in client. If unspecified (the common case), MLflow will use the tracking server associated with the current tracking URI.

---

**mlflow_delete_tag**  
*Delete Tag*

Description

Deletes a tag on a run. This is irreversible. Tags are run metadata that can be updated during a run and after a run completes.

Usage

```r
mlflow_delete_tag(key, run_id = NULL, client = NULL)
```

Arguments

- **key**: Name of the tag. Maximum size is 255 bytes. This field is required.
- **run_id**: Run ID.
- **client**: (Optional) An MLflow client object returned from `mlflow_client`. If specified, MLflow will use the tracking server associated with the passed-in client. If unspecified (the common case), MLflow will use the tracking server associated with the current tracking URI.
---

**mlflow_download_artifacts**

*Download Artifacts*

**Description**

Download an artifact file or directory from a run to a local directory if applicable, and return a local path for it.

**Usage**

```r
mlflow_download_artifacts(path, run_id = NULL, client = NULL)
```

**Arguments**

- `path`: Relative source path to the desired artifact.
- `run_id`: Run ID.
- `client`: (Optional) An MLflow client object returned from `mlflow_client`. If specified, MLflow will use the tracking server associated with the passed-in client. If unspecified (the common case), MLflow will use the tracking server associated with the current tracking URI.

---

**mlflow_end_run**

*End a Run*

**Description**

Terminates a run. Attempts to end the current active run if `run_id` is not specified.

**Usage**

```r
mlflow_end_run(
  status = c("FINISHED", "FAILED", "KILLED"),
  end_time = NULL,
  run_id = NULL,
  client = NULL
)
```

**Arguments**

- `status`: Updated status of the run. Defaults to `"FINISHED"`. Can also be set to "FAILED" or "KILLED".
- `end_time`: Unix timestamp of when the run ended in milliseconds.
- `run_id`: Run ID.
mlflow_get_experiment

(client) An MLflow client object returned from mlflow_client. If specified, MLflow will use the tracking server associated with the passed-in client. If unspecified (the common case), MLflow will use the tracking server associated with the current tracking URI.

Description

Gets metadata for an experiment and a list of runs for the experiment. Attempts to obtain the active experiment if both 'experiment_id' and 'name' are unspecified.

Usage

mlflow_get_experiment(experiment_id = NULL, name = NULL, client = NULL)

Arguments

<table>
<thead>
<tr>
<th>Argument</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>experiment_id</td>
<td>ID of the experiment.</td>
</tr>
<tr>
<td>name</td>
<td>The experiment name. Only one of 'name' or 'experiment_id' should be specified.</td>
</tr>
<tr>
<td>client</td>
<td>(Optional) An MLflow client object returned from mlflow_client. If specified, MLflow will use the tracking server associated with the passed-in client. If unspecified (the common case), MLflow will use the tracking server associated with the current tracking URI.</td>
</tr>
</tbody>
</table>

mlflow_get_metric_history

Get Metric History

Description

Get a list of all values for the specified metric for a given run.

Usage

mlflow_get_metric_history(metric_key, run_id = NULL, client = NULL)

Arguments

<table>
<thead>
<tr>
<th>Argument</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>metric_key</td>
<td>Name of the metric.</td>
</tr>
<tr>
<td>run_id</td>
<td>Run ID.</td>
</tr>
<tr>
<td>client</td>
<td>(Optional) An MLflow client object returned from mlflow_client. If specified, MLflow will use the tracking server associated with the passed-in client. If unspecified (the common case), MLflow will use the tracking server associated with the current tracking URI.</td>
</tr>
</tbody>
</table>
mlflow_get_run

Get Run

Description

Gets metadata, params, tags, and metrics for a run. Returns a single value for each metric key: the most recently logged metric value at the largest step.

Usage

mlflow_get_run(run_id = NULL, client = NULL)

Arguments

- run_id: Run ID.
- client: (Optional) An MLflow client object returned from mlflow_client. If specified, MLflow will use the tracking server associated with the passed-in client. If unspecified (the common case), MLflow will use the tracking server associated with the current tracking URI.

mlflow_get_tracking_uri

Get Remote Tracking URI

Description

Gets the remote tracking URI.

Usage

mlflow_get_tracking_uri()
**Description**

Extracts the ID of the run or experiment.

**Usage**

```r
mlflow_id(object)
```

```
## S3 method for class 'mlflow_run'
mlflow_id(object)
```

```
## S3 method for class 'mlflow_experiment'
mlflow_id(object)
```

**Arguments**

- `object` An `mlflow_run` or `mlflow_experiment` object.

---

**Description**

Gets a list of artifacts.

**Usage**

```r
mlflow_list_artifacts(path = NULL, run_id = NULL, client = NULL)
```

**Arguments**

- `path` The run’s relative artifact path to list from. If not specified, it is set to the root artifact path
- `run_id` Run ID.
- `client` (Optional) An MLflow client object returned from `mlflow_client`. If specified, MLflow will use the tracking server associated with the passed-in client. If unspecified (the common case), MLflow will use the tracking server associated with the current tracking URI.
mlflow_list_experiments

List Experiments

Description

Gets a list of all experiments.

Usage

mlflow_list_experiments(
    view_type = c("ACTIVE_ONLY", "DELETED_ONLY", "ALL"),
    client = NULL
)

Arguments

view_type Qualifier for type of experiments to be returned. Defaults to ‘ACTIVE_ONLY’.
client (Optional) An MLflow client object returned from mlflow_client. If specified, MLflow will use the tracking server associated with the passed-in client. If unspecified (the common case), MLflow will use the tracking server associated with the current tracking URI.

mlflow_list_run_infos

List Run Infos

Description

Returns a tibble whose columns contain run metadata (run ID, etc) for all runs under the specified experiment.

Usage

mlflow_list_run_infos(
    run_view_type = c("ACTIVE_ONLY", "DELETED_ONLY", "ALL"),
    experiment_id = NULL,
    client = NULL
)
**mlflow_load_flavor**

### Arguments

- **run_view_type**
  - Run view type.

- **experiment_id**
  - Experiment ID. Attempts to use the active experiment if not specified.

- **client**
  - (Optional) An MLflow client object returned from `mlflow_client`. If specified, MLflow will use the tracking server associated with the passed-in client. If unspecified (the common case), MLflow will use the tracking server associated with the current tracking URI.

---

**mlflow_load_flavor**  
*Load MLflow Model Flavor*

---

### Description

Loads an MLflow model using a specific flavor. This method is called internally by `mlflow_load_model`, but is exposed for package authors to extend the supported MLflow models. See [https://mlflow.org/docs/latest/models.html#storage-format](https://mlflow.org/docs/latest/models.html#storage-format) for more info on MLflow model flavors.

### Usage

```r
mlflow_load_flavor(flavor, model_path)
```

### Arguments

- **flavor**
  - An MLflow flavor object loaded by `mlflow_load_model`, with class loaded from the flavor field in an MLmodel file.

- **model_path**
  - The path to the MLflow model wrapped in the correct class.

---

**mlflow_load_model**  
*Load MLflow Model*

---

### Description

Loads an MLflow model. MLflow models can have multiple model flavors. Not all flavors / models can be loaded in R. This method by default searches for a flavor supported by R/MLflow.

### Usage

```r
mlflow_load_model(model_uri, flavor = NULL, client = mlflow_client())
```
mlflow_log_artifact

Arguments

model_uri The location, in URI format, of the MLflow model.
flavor Optional flavor specification (string). Can be used to load a particular flavor in case there are multiple flavors available.
client (Optional) An MLflow client object returned from mlflow_client. If specified, MLflow will use the tracking server associated with the passed-in client. If unspecified (the common case), MLflow will use the tracking server associated with the current tracking URI.

Details

The URI scheme must be supported by MLflow - i.e. there has to be an MLflow artifact repository corresponding to the scheme of the URI. The content is expected to point to a directory containing MLmodel. The following are examples of valid model uris:
- “file:///absolute/path/to/local/model” - “file:relative/path/to/local/model” - “s3://my_bucket/path/to/model”
- “runs://<mlflow_run_id>/run-relative/path/to/model” - “models://<model_name>/<model_version>“
- “models://<model_name>/<stage>“

For more information about supported URI schemes, see the Artifacts Documentation at https://www.mlflow.org/docs/latest/tracking.html#artifact-stores.

mlflow_log_artifact  Log Artifact

Description

Logs a specific file or directory as an artifact for a run.

Usage

mlflow_log_artifact(path, artifact_path = NULL, run_id = NULL, client = NULL)

Arguments

path The file or directory to log as an artifact.
artifact_path Destination path within the run’s artifact URI.
run_id Run ID.
client (Optional) An MLflow client object returned from mlflow_client. If specified, MLflow will use the tracking server associated with the passed-in client. If unspecified (the common case), MLflow will use the tracking server associated with the current tracking URI.
Details

When logging to Amazon S3, ensure that you have the s3:PutObject, s3:GetObject, s3:ListBucket, and s3:GetBucketLocation permissions on your bucket.

Additionally, at least the AWS_ACCESS_KEY_ID and AWS_SECRET_ACCESS_KEY environment variables must be set to the corresponding key and secrets provided by Amazon IAM.

---

**mlflow_log_batch**  
*Log Batch*

Description

Log a batch of metrics, params, and/or tags for a run. The server will respond with an error (non-200 status code) if any data failed to be persisted. In case of error (due to internal server error or an invalid request), partial data may be written.

Usage

```r
mlflow_log_batch(
  metrics = NULL,
  params = NULL,
  tags = NULL,
  run_id = NULL,
  client = NULL
)
```

Arguments

- **metrics**  
  A dataframe of metrics to log, containing the following columns: "key", "value", "step", "timestamp". This dataframe cannot contain any missing ('NA') entries.

- **params**  
  A dataframe of params to log, containing the following columns: "key", "value". This dataframe cannot contain any missing ('NA') entries.

- **tags**  
  A dataframe of tags to log, containing the following columns: "key", "value". This dataframe cannot contain any missing ('NA') entries.

- **run_id**  
  Run ID.

- **client**  
  (Optional) An MLflow client object returned from `mlflow_client`. If specified, MLflow will use the tracking server associated with the passed-in client. If unspecified (the common case), MLflow will use the tracking server associated with the current tracking URI.
mlflow_log_metric  

Description
Logs a metric for a run. Metrics key-value pair that records a single float measure. During a single execution of a run, a particular metric can be logged several times. The MLflow Backend keeps track of historical metric values along two axes: timestamp and step.

Usage
mlflow_log_metric(
    key,  
    value,  
    timestamp = NULL,  
    step = NULL,  
    run_id = NULL,  
    client = NULL
)

Arguments
key  Name of the metric.
value  Float value for the metric being logged.
timestamp  Timestamp at which to log the metric. Timestamp is rounded to the nearest integer. If unspecified, the number of milliseconds since the Unix epoch is used.
step  Step at which to log the metric. Step is rounded to the nearest integer. If unspecified, the default value of zero is used.
run_id  Run ID.
client  (Optional) An MLflow client object returned from mlflow_client. If specified, MLflow will use the tracking server associated with the passed-in client. If unspecified (the common case), MLflow will use the tracking server associated with the current tracking URI.

mlflow_log_model  

Description
Logs a model for this run. Similar to `mlflow_save_model()` but stores model as an artifact within the active run.

Usage
mlflow_log_model(model, artifact_path, ...)

Log Model
Logs a metric for a run. Metrics key-value pair that records a single float measure. During a single execution of a run, a particular metric can be logged several times. The MLflow Backend keeps track of historical metric values along two axes: timestamp and step.

Usage
mlflow_log_metric(
    key,  
    value,  
    timestamp = NULL,  
    step = NULL,  
    run_id = NULL,  
    client = NULL
)

Arguments
key  Name of the metric.
value  Float value for the metric being logged.
timestamp  Timestamp at which to log the metric. Timestamp is rounded to the nearest integer. If unspecified, the number of milliseconds since the Unix epoch is used.
step  Step at which to log the metric. Step is rounded to the nearest integer. If unspecified, the default value of zero is used.
run_id  Run ID.
client  (Optional) An MLflow client object returned from mlflow_client. If specified, MLflow will use the tracking server associated with the passed-in client. If unspecified (the common case), MLflow will use the tracking server associated with the current tracking URI.

Log Model
Logs a model for this run. Similar to `mlflow_save_model()` but stores model as an artifact within the active run.

Usage
mlflow_log_model(model, artifact_path, ...)

Description
Logs a metric for a run. Metrics key-value pair that records a single float measure. During a single execution of a run, a particular metric can be logged several times. The MLflow Backend keeps track of historical metric values along two axes: timestamp and step.

Usage
mlflow_log_metric(
    key,  
    value,  
    timestamp = NULL,  
    step = NULL,  
    run_id = NULL,  
    client = NULL
)

Arguments
key  Name of the metric.
value  Float value for the metric being logged.
timestamp  Timestamp at which to log the metric. Timestamp is rounded to the nearest integer. If unspecified, the number of milliseconds since the Unix epoch is used.
step  Step at which to log the metric. Step is rounded to the nearest integer. If unspecified, the default value of zero is used.
run_id  Run ID.
client  (Optional) An MLflow client object returned from mlflow_client. If specified, MLflow will use the tracking server associated with the passed-in client. If unspecified (the common case), MLflow will use the tracking server associated with the current tracking URI.

Log Model
Logs a model for this run. Similar to `mlflow_save_model()` but stores model as an artifact within the active run.

Usage
mlflow_log_model(model, artifact_path, ...)

Description
Logs a metric for a run. Metrics key-value pair that records a single float measure. During a single execution of a run, a particular metric can be logged several times. The MLflow Backend keeps track of historical metric values along two axes: timestamp and step.

Usage
mlflow_log_metric(
    key,  
    value,  
    timestamp = NULL,  
    step = NULL,  
    run_id = NULL,  
    client = NULL
)

Arguments
key  Name of the metric.
value  Float value for the metric being logged.
timestamp  Timestamp at which to log the metric. Timestamp is rounded to the nearest integer. If unspecified, the number of milliseconds since the Unix epoch is used.
step  Step at which to log the metric. Step is rounded to the nearest integer. If unspecified, the default value of zero is used.
run_id  Run ID.
client  (Optional) An MLflow client object returned from mlflow_client. If specified, MLflow will use the tracking server associated with the passed-in client. If unspecified (the common case), MLflow will use the tracking server associated with the current tracking URI.
**mlflow_log_param**

**Arguments**

- **model**: The model that will perform a prediction.
- **artifact_path**: Destination path where this MLflow compatible model will be saved.
- **...**: Optional additional arguments passed to `mlflow.save_model()` when persisting the model. For example, `conda_env = /path/to/conda.yaml` may be passed to specify a conda dependencies file for flavors (e.g. keras) that support conda environments.

**Description**

Logs a parameter for a run. Examples are params and hyperparams used for ML training, or constant dates and values used in an ETL pipeline. A param is a STRING key-value pair. For a run, a single parameter is allowed to be logged only once.

**Usage**

```r
mlflow_log_param(key, value, run_id = NULL, client = NULL)
```

**Arguments**

- **key**: Name of the parameter.
- **value**: String value of the parameter.
- **run_id**: Run ID.
- **client**: (Optional) An MLflow client object returned from `mlflow_client`. If specified, MLflow will use the tracking server associated with the passed-in client. If unspecified (the common case), MLflow will use the tracking server associated with the current tracking URI.

---

**mlflow_param**

**Read Command-Line Parameter**

**Description**

Reads a command-line parameter passed to an MLflow project. MLflow allows you to define named, typed input parameters to your R scripts via the `mlflow_param` API. This is useful for experimentation, e.g. tracking multiple invocations of the same script with different parameters.

**Usage**

```r
mlflow_param(name, default = NULL, type = NULL, description = NULL)
```
Arguments

- **name**: The name of the parameter.
- **default**: The default value of the parameter.
- **type**: Type of this parameter. Required if ‘default’ is not set. If specified, must be one of "numeric", "integer", or "string".
- **description**: Optional description for the parameter.

Examples

```r
## Not run:
# This parametrized script trains a GBM model on the Iris dataset and can be run as an MLflow project. You can run this script (assuming it's saved at /some/directory/params_example.R) with custom parameters via:
# mlflow_run(entry_point = "params_example.R", uri = "/some/directory",
# parameters = list(num_trees = 200, learning_rate = 0.1))
install.packages("gbm")
library(mlflow)
library(gbm)
# define and read input parameters
num_trees <- mlflow_param(name = "num_trees", default = 200, type = "integer")
lr <- mlflow_param(name = "learning_rate", default = 0.1, type = "numeric")
# use params to fit a model
ir.adaboost <- gbm(Species ~., data=iris, n.trees=num_trees, shrinkage=lr)

## End(Not run)
```

mlflow_predict  
**Generate Prediction with MLflow Model**

Description

Performs prediction over a model loaded using `mlflow_load_model()`, to be used by package authors to extend the supported MLflow models.

Usage

```r
mlflow_predict(model, data, ...)
```

Arguments

- **model**: The loaded MLflow model flavor.
- **data**: A data frame to perform scoring.
- **...**: Optional additional arguments passed to underlying predict methods.
mlflow_rename_experiment

Rename Experiment

Description

Renames an experiment.

Usage

mlflow_rename_experiment(new_name, experiment_id = NULL, client = NULL)

Arguments

- new_name: The experiment’s name will be changed to this. The new name must be unique.
- experiment_id: ID of the associated experiment. This field is required.
- client: (Optional) An MLflow client object returned from mlflow_client. If specified, MLflow will use the tracking server associated with the passed-in client. If unspecified (the common case), MLflow will use the tracking server associated with the current tracking URI.

mlflow_restore_experiment

Restore Experiment

Description

Restores an experiment marked for deletion. This also restores associated metadata, runs, metrics, and params. If experiment uses FileStore, underlying artifacts associated with experiment are also restored.

Usage

mlflow_restore_experiment(experiment_id, client = NULL)

Arguments

- experiment_id: ID of the associated experiment. This field is required.
- client: (Optional) An MLflow client object returned from mlflow_client. If specified, MLflow will use the tracking server associated with the passed-in client. If unspecified (the common case), MLflow will use the tracking server associated with the current tracking URI.

Details

Throws ‘RESOURCE_DOES_NOT_EXIST’ if the experiment was never created or was permanently deleted.
mlflow_restore_run Restore a Run

Description

Restores the run with the specified ID.

Usage

```r
mlflow_restore_run(run_id, client = NULL)
```

Arguments

- **run_id**: Run ID.
- **client**: (Optional) An MLflow client object returned from `mlflow_client`. If specified, MLflow will use the tracking server associated with the passed-in client. If unspecified (the common case), MLflow will use the tracking server associated with the current tracking URI.

mlflow_rfunc_serve Serve an RFunc MLflow Model

Description

Serves an RFunc MLflow model as a local REST API server. This interface provides similar functionality to “mlflow models serve” cli command, however, it can only be used to deploy models that include RFunc flavor. The deployed server supports standard mlflow models interface with /ping and /invocation endpoints. In addition, R function models also support deprecated /predict endpoint for generating predictions. The /predict endpoint will be removed in a future version of mlflow.

Usage

```r
mlflow_rfunc_serve(
  model_uri,
  host = "127.0.0.1",
  port = 8000,
  daemonized = FALSE,
  browse = !daemonized,
  ...
)
```
Arguments

- `model_uri`  The location, in URI format, of the MLflow model.
- `host`  Address to use to serve model, as a string.
- `port`  Port to use to serve model, as numeric.
- `daemonized`  Makes 'httpuv' server daemonized so R interactive sessions are not blocked to handle requests. To terminate a daemonized server, call `httpuv::stopDaemonizedServer()` with the handle returned from this call.
- `browse`  Launch browser with serving landing page?
- ...  Optional arguments passed to `mlflow_predict()`.

Details

The URI scheme must be supported by MLflow - i.e. there has to be an MLflow artifact repository corresponding to the scheme of the URI. The content is expected to point to a directory containing MLmodel. The following are examples of valid model uris:

- "file:///absolute/path/to/local/model" - "file:relative/path/to/local/model" - "s3://my_bucket/path/to/model"
- "runs:/<mlflow_run_id>/run-relative/path/to/model" - "models:/<model_name>/<model_version>"
- "models:/<model_name>/<stage>"

For more information about supported URI schemes, see the Artifacts Documentation at https://www.mlflow.org/docs/latest/tracking.html#artifact-stores.

Examples

```r
## Not run:
library(mlflow)

# save simple model with constant prediction
mlflow_save_model(function(df) 1, "mlflow_constant")

# serve an existing model over a web interface
mlflow_rfunc_serve("mlflow_constant")

# request prediction from server
httr::POST("http://127.0.0.1:8090/predict/")

## End(Not run)
```

Description

Wrapper for the `mlflow run` CLI command. See https://www.mlflow.org/docs/latest/cli.html#mlflow-run for more info.
Usage

mlflow_run(
    uri = ".",
    entry_point = NULL,
    version = NULL,
    parameters = NULL,
    experiment_id = NULL,
    experiment_name = NULL,
    backend = NULL,
    backend_config = NULL,
    no_conda = FALSE,
    storage_dir = NULL
)

Arguments

uri A directory containing modeling scripts, defaults to the current directory.
entry_point Entry point within project, defaults to ‘main’ if not specified.
version Version of the project to run, as a Git commit reference for Git projects.
parameters A list of parameters.
experiment_id ID of the experiment under which to launch the run.
experiment_name Name of the experiment under which to launch the run.
backend Execution backend to use for run.
backend_config Path to JSON file which will be passed to the backend. For the Databricks back-
end, it should describe the cluster to use when launching a run on Databricks.
no_conda If specified, assume that MLflow is running within a Conda environment with
the necessary dependencies for the current project instead of attempting to create
a new Conda environment. Only valid if running locally.
storage_dir Valid only when ‘backend’ is local. MLflow downloads artifacts from dis-
tributed URIs passed to parameters of type ‘path’ to subdirectories of ‘storage_dir’.

Value

The run associated with this run.

Examples

## Not run:
# This parametrized script trains a GBM model on the Iris dataset and can be run as an MLflow
# project. You can run this script (assuming it's saved at /some/directory/params_example.R)
# with custom parameters via:
# mlflow_run(entry_point = "params_example.R", uri = "/some/directory",
# parameters = list(num_trees = 200, learning_rate = 0.1))
install.packages("gbm")
library(mlflow)
library(gbm)
# define and read input parameters
num_trees <- mlflow_param(name = "num_trees", default = 200, type = "integer")
lr <- mlflow_param(name = "learning_rate", default = 0.1, type = "numeric")
# use params to fit a model
ir.adaboost <- gbm(Species ~., data=iris, n.trees=num_trees, shrinkage=lr)

## End(Not run)

---

**mlflow_save_model.crate**

*Save Model for MLflow*

**Description**

Saves model in MLflow format that can later be used for prediction and serving. This method is generic to allow package authors to save custom model types.

**Usage**

```r
## S3 method for class 'crate'
mlflow_save_model(model, path, model_spec = list(), ...)

## S3 method for class 'keras.engine.training.Model'
mlflow_save_model(model, path, model_spec = list(), conda_env = NULL, ...)
mlflow_save_model(model, path, model_spec = list(), ...)
```

**Arguments**

- **model**
  - The model that will perform a prediction.
- **path**
  - Destination path where this MLflow compatible model will be saved.
- **model_spec**
  - MLflow model config this model flavor is being added to.
- **...**
  - Optional additional arguments.
- **conda_env**
  - Path to Conda dependencies file.
### mlflow_search_runs  
**Search Runs**

#### Description

Search for runs that satisfy expressions. Search expressions can use Metric and Param keys.

#### Usage

```r
mlflow_search_runs(
  filter = NULL,
  run_view_type = c("ACTIVE_ONLY", "DELETED_ONLY", "ALL"),
  experiment_ids = NULL,
  order_by = list(),
  client = NULL
)
```

#### Arguments

- **filter**: A filter expression over params, metrics, and tags, allowing returning a subset of runs. The syntax is a subset of SQL which allows only ANDing together binary operations between a param/metric/tag and a constant.
- **run_view_type**: Run view type.
- **experiment_ids**: List of string experiment IDs (or a single string experiment ID) to search over. Attempts to use active experiment if not specified.
- **order_by**: List of properties to order by. Example: "metrics.acc DESC".
- **client**: (Optional) An MLflow client object returned from `mlflow_client`. If specified, MLflow will use the tracking server associated with the passed-in client. If unspecified (the common case), MLflow will use the tracking server associated with the current tracking URI.

### mlflow_server  
**Run MLflow Tracking Server**

#### Description

Wrapper for ‘mlflow server‘.
Usage

```r
mlflow_server(
    file_store = "mlruns",
    default_artifact_root = NULL,
    host = "127.0.0.1",
    port = 5000,
    workers = 4,
    static_prefix = NULL
)
```

Arguments

- **file_store**: The root of the backing file store for experiment and run data.
- **default_artifact_root**: Local or S3 URI to store artifacts in, for newly created experiments.
- **host**: The network address to listen on (default: 127.0.0.1).
- **port**: The port to listen on (default: 5000).
- **workers**: Number of gunicorn worker processes to handle requests (default: 4).
- **static_prefix**: A prefix which will be prepended to the path of all static paths.

---

**mlflow_set_experiment**  *Set Experiment*

Description

Sets an experiment as the active experiment. Either the name or ID of the experiment can be provided. If the a name is provided but the experiment does not exist, this function creates an experiment with provided name. Returns the ID of the active experiment.

Usage

```r
mlflow_set_experiment(
    experiment_name = NULL,
    experiment_id = NULL,
    artifact_location = NULL
)
```

Arguments

- **experiment_name**: Name of experiment to be activated.
- **experiment_id**: ID of experiment to be activated.
- **artifact_location**: Location where all artifacts for this experiment are stored. If not provided, the remote server will select an appropriate default.
mlflow_set_experiment_tag

*Set Experiment Tag*

**Description**

Sets a tag on an experiment with the specified ID. Tags are experiment metadata that can be updated.

**Usage**

```python
mlflow_set_experiment_tag(key, value, experiment_id = NULL, client = NULL)
```

**Arguments**

- `key` Name of the tag. All storage backends are guaranteed to support key values up to 250 bytes in size. This field is required.
- `value` String value of the tag being logged. All storage backends are guaranteed to support key values up to 5000 bytes in size. This field is required.
- `experiment_id` ID of the experiment.
- `client` (Optional) An MLflow client object returned from `mlflow_client`. If specified, MLflow will use the tracking server associated with the passed-in client. If unspecified (the common case), MLflow will use the tracking server associated with the current tracking URI.

mlflow_set_tag

*Set Tag*

**Description**

Sets a tag on a run. Tags are run metadata that can be updated during a run and after a run completes.

**Usage**

```python
mlflow_set_tag(key, value, run_id = NULL, client = NULL)
```

**Arguments**

- `key` Name of the tag. Maximum size is 255 bytes. This field is required.
- `value` String value of the tag being logged. Maximum size is 500 bytes. This field is required.
- `run_id` Run ID.
- `client` (Optional) An MLflow client object returned from `mlflow_client`. If specified, MLflow will use the tracking server associated with the passed-in client. If unspecified (the common case), MLflow will use the tracking server associated with the current tracking URI.
mlflow_set_tracking_uri

Set Remote Tracking URI

Description

Specifies the URI to the remote MLflow server that will be used to track experiments.

Usage

mlflow_set_tracking_uri(uri)

Arguments

uri The URI to the remote MLflow server.

mlflow_start_run Start Run

Description

Starts a new run. If ‘client’ is not provided, this function infers contextual information such as source name and version, and also registers the created run as the active run. If ‘client’ is provided, no inference is done, and additional arguments such as ‘start_time’ can be provided.

Usage

mlflow_start_run(
    run_id = NULL,
    experiment_id = NULL,
    start_time = NULL,
    tags = NULL,
    client = NULL
)

Arguments

run_id If specified, get the run with the specified UUID and log metrics and params under that run. The run’s end time is unset and its status is set to running, but the run’s other attributes remain unchanged.

experiment_id Used only when ‘run_id’ is unspecified. ID of the experiment under which to create the current run. If unspecified, the run is created under a new experiment with a randomly generated name.

start_time Unix timestamp of when the run started in milliseconds. Only used when ‘client’ is specified.
tags Additional metadata for run in key-value pairs. Only used when `client` is specified.

client (Optional) An MLflow client object returned from `mlflow_client`. If specified, MLflow will use the tracking server associated with the passed-in client. If unspecified (the common case), MLflow will use the tracking server associated with the current tracking URI.

Examples

```r
## Not run:
with(mlflow_start_run(), {
  mlflow_log_metric("test", 10)
})
## End(Not run)
```

---

### `mlflow_ui`

**Run MLflow User Interface**

**Description**

Launches the MLflow user interface.

**Usage**

```r
mlflow_ui(client, ...)
```

**Arguments**

- **client** (Optional) An MLflow client object returned from `mlflow_client`. If specified, MLflow will use the tracking server associated with the passed-in client. If unspecified (the common case), MLflow will use the tracking server associated with the current tracking URI.

- **...** Optional arguments passed to `mlflow_server()` when `x` is a path to a file store.

**Examples**

```r
# launch mlflow ui locally
mlflow_ui()

# launch mlflow ui for existing mlflow server
mlflow_set_tracking_uri("http://tracking-server:5000")
mlflow_ui()
```
uninstall_mlflow

## End(Not run)

<table>
<thead>
<tr>
<th>uninstall_mlflow</th>
<th>Uninstall MLflow</th>
</tr>
</thead>
</table>

**Description**

Uninstalls MLflow by removing the Conda environment.

**Usage**

```r
uninstall_mlflow()
```

**Examples**

```r
# Not run:
library(mlflow)
install_mlflow()
uninstall_mlflow()
```

```r
# End(Not run)
```
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