Cheetah API

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Chapter 1

Namespace Index

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Chapter 2

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Chapter 3

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3.1 Class List

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Chapter 4

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Chapter 5

Namespace Documentation

5.1 codar Namespace Reference

Namespaces

- cheetah

5.2 codar.cheetah Namespace Reference

Namespaces

- adios2_interface
- adios_params
- config
- exc
- helpers
- launchers
- loader
- machine_launchers
- model
- parameters
- pbs
- report_generator
- runners
- status
- templates

5.2.1 Detailed Description

```
Import most important classes into top level cheetah module namespace.
```

5.3 codar.cheetah.adios2_interface Namespace Reference

Functions

- def get_adios_version (xml_file)
- def set_engine (xmlfile, io_obj, engine_type, parameters=None)
- def set_transport (xmlfile, io_obj, transport_type, parameters=None)
- def set_var_operation (xmlfile, io_obj, var_name, operation, parameters=None)

5.3.1 Detailed Description

```
ADIOS2 Interface
```

5.3.2 Function Documentation

5.3.2.1 get_adios_version()

```
def codar.cheetah.adios2_interface.get_adios_version (
              xml_file )
```

```
Get the ADIOS version of this xml file.

:param xml_file: Path to the adios xml file
:return: 1 (adios version 1) or 2 (adios version 2)
```

Definition at line 32 of file adios2_interface.py.

5.3.2.2 set_engine()

```
def codar.cheetah.adios2_interface.set_engine (
              xmlfile,
              io_obj,
              engine_type,
              parameters = None )
```

```
Set the engine type for an input IO object.

:param xmlfile: String. The ADIOS2 xml file to be modified
:param io_obj: String. Name of the io object which contains the engine
:param engine_type: String. The engine type to be set for the io object
:param parameters: List. A list of dicts containing 'key and 'value' keys
:return: True on success, False on error
```

Definition at line 51 of file adios2_interface.py.

5.3.2.3 set_transport()

```
def codar.cheetah.adios2_interface.set_transport (
              xmlfile,
              io_obj,
              transport_type,
              parameters = None )
```

```
Set the transport type for an io object

:param xmlfile: String. The ADIOS2 xml file to be modified
:param io_obj: String. Name of the io object that contains the engine
:param transport_type String. The transport type for this io object
:param parameters: A dict containing the parameter keys and values
:return: True on success, False on error
```

Definition at line 76 of file adios2_interface.py.

5.3.2.4 set_var_operation()

```
def codar.cheetah.adios2_interface.set_var_operation (
              xmlfile,
              io_obj,
              var_name,
              operation,
              parameters = None )
```

```
Set an operation on a variable

:param xmlfile: String. The ADIOS2 xml file to be modified
:param io_obj: String. Name of the io object that contains the engine
:param var_name String. Name of the variable
:param operation String. The operation to be performed on the variable
:param parameters: A dict containing the parameter keys and values
:return: True on success, False on error
```

Definition at line 100 of file adios2_interface.py.

5.4 codar.cheetah.adios_params Namespace Reference

Functions

- def adios_xml_transform (xml_filepath, group_name, var_name, value)
- def adios_xml_transport (xml_filepath, group_name, method_name, method_opts)
- def xml_has_transport (xml_filepath, transport_type)

5.4.1 Detailed Description

```
Functions for parsing and editing the ADIOS xml file to enable variable
transforms.  Transforms include compression and reduction. 'Transform'
is an ADIOS specific term.
```

5.4.2 Function Documentation

5.4.2.1 adios_xml_transform()

```
def codar.cheetah.adios_params.adios_xml_transform (
              xml_filepath,
              group_name,
              var_name,
              value )
```

```
Edit the ADIOS XML file to enable transform (compression/reduction) for a
variable

:param group_name:   Name of the variable that will be transformed
:param var_name:     Name of the variable that will be transformed
:param value:        Transform type and options (sz, zfp etc.)
:param xml_filepath: Aboslute path of the adios xml file. This will be in
                     the run directory.

TODO: add error handling, tests, e.g. for when variable not found in XML
file
```

Definition at line 10 of file adios_params.py.

5.4.2.2 adios_xml_transport()

```
def codar.cheetah.adios_params.adios_xml_transport (
              xml_filepath,
              group_name,
              method_name,
              method_opts )
```

Definition at line 33 of file adios_params.py.

5.4.2.3 xml_has_transport()

```
def codar.cheetah.adios_params.xml_has_transport (
              xml_filepath,
              transport_type )
```

```
Check ADIOS XML file if provided transport method is present for any group
:param xml_filepath: Path to the adios xml file
:param transport_type: Transport type (POSIX, MPI, MPI_AGGREGATE,
DATASPACES, DIMES, FLEXPATH)
:return: True if transport type found, else false.
```

Definition at line 42 of file adios_params.py.

5.5 codar.cheetah.config Namespace Reference

Functions

- def scheduler_path (scheduler_name)
- def machine_submit_env_path (machine_name)
- def etc_path (conf_name)
- def get_dataspaces_num_servers (num_dimes_clients, num_dataspaces_clients)

Variables

- PACKAGE_PATH = os.path.realpath(os.path.dirname(__file__))
- DATA_PATH = os.path.join(PACKAGE_PATH, "data")
- CODAR_PATH = os.path.realpath(os.path.join(PACKAGE_PATH, ".."))
- CHEETAH_PATH_SCHEDULER = os.path.join(DATA_PATH, "scheduler")
- CHEETAH_PATH_MACHINE_CONFIG = os.path.join(DATA_PATH, "machine_config")
- WORKFLOW_SCRIPT = os.path.join(CODAR_PATH, "savanna", "main.py")

5.5.1 Detailed Description

```
Cheetah paths and (in future) features for loading site configuration.
```

5.5.2 Function Documentation

5.5.2.1 etc_path()

```
def codar.cheetah.config.etc_path (
              conf_name )
```

Definition at line 29 of file config.py.

5.5.2.2 get_dataspaces_num_servers()

```
def codar.cheetah.config.get_dataspaces_num_servers (
              num_dimes_clients,
              num_dataspaces_clients )
```

```
Get the number of dataspaces server instances that must be created for a
given number of client processes.
```

Definition at line 33 of file config.py.

5.5.2.3 machine_submit_env_path()

```
def codar.cheetah.config.machine_submit_env_path (
              machine_name )
```

Definition at line 24 of file config.py.

5.5.2.4 scheduler_path()

```
def codar.cheetah.config.scheduler_path (
              scheduler_name )
```

Definition at line 20 of file config.py.

5.5.3 Variable Documentation

5.5.3.1 CHEETAH_PATH_MACHINE_CONFIG

```
codar.cheetah.config.CHEETAH_PATH_MACHINE_CONFIG = os.path.join(DATA_PATH, "machine_config")
```

Definition at line 15 of file config.py.

5.5.3.2 CHEETAH_PATH_SCHEDULER

```
codar.cheetah.config.CHEETAH_PATH_SCHEDULER = os.path.join(DATA_PATH, "scheduler")
```

Definition at line 13 of file config.py.

5.5.3.3 CODAR_PATH

```
codar.cheetah.config.CODAR_PATH = os.path.realpath(os.path.join(PACKAGE_PATH, ".."))
```

Definition at line 11 of file config.py.

5.5.3.4 DATA_PATH

```
codar.cheetah.config.DATA_PATH = os.path.join(PACKAGE_PATH, "data")
```

Definition at line 9 of file config.py.

5.5.3.5 PACKAGE_PATH

```
codar.cheetah.config.PACKAGE_PATH = os.path.realpath(os.path.dirname(__file__))
```

Definition at line 8 of file config.py.

5.5.3.6 WORKFLOW_SCRIPT

```
codar.cheetah.config.WORKFLOW_SCRIPT = os.path.join(CODAR_PATH, "savanna", "main.py")
```

Definition at line 17 of file config.py.

5.6 codar.cheetah.exc Namespace Reference

Classes

- class CampaignParseError
- class CheetahException
- class MachineNotFound

5.6.1 Detailed Description

```
Exceptions.
```

5.7 codar.cheetah.helpers Namespace Reference

Functions

- def make_executable (path)
- def swift_escape_string (s)
- def parse_timedelta_seconds (v)
- def copy_to_dir (source_file, dest_dir, follow_symlinks=True)
- def copy_to_path (source_file, dest_file, follow_symlinks=True)
- def is_executable (fpath)
- def copytree_to_dir (source_dir, dest_dir, follow_symlinks=True)
- def relative_or_absolute_path (prefix, path)
- def relative_or_absolute_path_list (prefix, path_list)
- def get_immediate_subdirs (dir_path)
- def dir_size (path)
- def get_file_size (dir_entry)
- def is_campaign_directory (path)
- def require_campaign_directory (path)
- def json_config_set_option (filename, key, value)

5.7.1 Function Documentation

5.7.1.1 copy_to_dir()

```
def codar.cheetah.helpers.copy_to_dir (
              source_file,
              dest_dir,
              follow_symlinks = True )
```

```
Wrapper around copyfile with directory destination and more
control over permissions.
```

Definition at line 80 of file helpers.py.

5.7.1.2 copy_to_path()

```
def codar.cheetah.helpers.copy_to_path (
              source_file,
              dest_file,
              follow_symlinks = True )
```

```
Wrapper around copyfile that respects umask and preserves
executability.
```

Definition at line 94 of file helpers.py.

5.7.1.3 copytree_to_dir()

```
def codar.cheetah.helpers.copytree_to_dir (
              source_dir,
              dest_dir,
              follow_symlinks = True )
```

```
Custom version of copytree that does not preserve permissions, but
does preserve executability. The goal is to respect the current umask
but keep executable files executable.
```

Definition at line 112 of file helpers.py.

5.7.1.4 dir_size()

```
def codar.cheetah.helpers.dir_size (
              path )
```

```
Get the size of the directory represented by path recursively.
:param path: Path to the dir whose size needs to be calculated
:return: size in bytes of the dir
```

Definition at line 151 of file helpers.py.

5.7.1.5 get_file_size()

```
def codar.cheetah.helpers.get_file_size (
              dir_entry )
```

```
Get size of the file or directory pointed to by path.
Directory size is recursive; it includes sizes of enclosing files/dirs.
:param dir_entry: path to the file or directory. Should not contain wildcards.
                  Must be of type DirEntry.
:return: size in bytes
```

Definition at line 170 of file helpers.py.

5.7.1.6 get_immediate_subdirs()

```
def codar.cheetah.helpers.get_immediate_subdirs (
              dir_path )
```

```
Get a list of top-level subdirectories.
:param dir_path: Directory path to search
:return: list of subdirectory names
```

Definition at line 141 of file helpers.py.

5.7.1.7 is_campaign_directory()

```
def codar.cheetah.helpers.is_campaign_directory (
              path )
```

```
Return True if the specified path exists, is a directory, and has a
.campaign file to indicate it's a top level campaign directory.
```

Definition at line 186 of file helpers.py.

5.7.1.8 is_executable()

```
def codar.cheetah.helpers.is_executable (
              fpath )
```

Definition at line 107 of file helpers.py.

5.7.1.9 json_config_set_option()

```
def codar.cheetah.helpers.json_config_set_option (
              filename,
              key,
              value )
```

Definition at line 201 of file helpers.py.

5.7.1.10 make_executable()

```
def codar.cheetah.helpers.make_executable (
              path )
```

Definition at line 14 of file helpers.py.

5.7.1.11 parse_timedelta_seconds()

```
def codar.cheetah.helpers.parse_timedelta_seconds (
              v )
```

```
Parse a time duration. Can be a number of seconds (integer only),
a timedelta object, or a string in "HH:MM:SS" format. Returns the number
of seconds in the duration as an int, safe for JSON serialization or
passing to time.sleep.

>>> parse_timedelta_seconds('15')
15
>>> parse_timedelta_seconds('01:15')
75
>>> parse_timedelta_seconds('10:00:05')
36005
>>> parse_timedelta_seconds(12345)
12345
>>> parse_timedelta_seconds(datetime.timedelta(days=1, seconds=7))
86407
>>> parse_timedelta_seconds(1.1)
Traceback (most recent call last):
    ...
ValueError: Invalid duration (must be timedelta, int, or 'HH:MM:SS'): 1.1
>>> parse_timedelta_seconds("12:34:34bad")
Traceback (most recent call last):
    ...
ValueError: Invalid duration string, must be HH:MM:SS format
```

Definition at line 29 of file helpers.py.

5.7.1.12 relative_or_absolute_path()

```
def codar.cheetah.helpers.relative_or_absolute_path (
              prefix,
              path )

If path is an absolute path, return as is, otherwise pre-pend prefix.
```

Definition at line 130 of file helpers.py.

5.7.1.13 relative_or_absolute_path_list()

```
def codar.cheetah.helpers.relative_or_absolute_path_list (
              prefix,
              path_list )
```

Definition at line 137 of file helpers.py.

5.7.1.14 require_campaign_directory()

```
def codar.cheetah.helpers.require_campaign_directory (
              path )

Raise CheetahException if the specified path is not a top-level
campaign directory.
```

Definition at line 193 of file helpers.py.

5.7.1.15 swift_escape_string()

```
def codar.cheetah.helpers.swift_escape_string (
              s )

Escape backslashes and double quotes in string, so it can be
embedded in a literal swift string when generatig swift source code.
```

Definition at line 19 of file helpers.py.

5.8 codar.cheetah.launchers Namespace Reference

Classes

- class Launcher

Variables

- string TAU_PROFILE_PATTERN = "codar.cheetah.tau-{code}"

5.8.1 Detailed Description

```
Class model for "launchers", which are responsible for taking an application
and mediating how it is run on a super computer or local machine. The only
supported launcher currently is swift-t. Swift allows us to configure how
each run within a sweep is parallelized, and handles details of submitting to
the correct scheduler and runner when passed appropriate options.
```

5.8.2 Variable Documentation

5.8.2.1 TAU_PROFILE_PATTERN

```
string codar.cheetah.launchers.TAU_PROFILE_PATTERN = "codar.cheetah.tau-{code}"
```

Definition at line 25 of file launchers.py.

5.9 codar.cheetah.loader Namespace Reference

Functions

- def load_experiment_class (file_path)

5.9.1 Detailed Description

```
Functions for loading experiment python files by path.

Requires Python 3.3+
```

5.9.2 Function Documentation

5.9.2.1 load_experiment_class()

```
def codar.cheetah.loader.load_experiment_class (
              file_path )

Given the path to a python module containing an experiment, load the
module and find and return the class.
```

Definition at line 12 of file loader.py.

5.10 codar.cheetah.machine_launchers Namespace Reference

Functions

- def get_launcher (machine, output_directory, num_codes)

Variables

- machine_launchers = dict()

5.10.1 Function Documentation

5.10.1.1 get_launcher()

```
def codar.cheetah.machine_launchers.get_launcher (
              machine,
              output_directory,
              num_codes )
```

Definition at line 12 of file machine_launchers.py.

5.10.2 Variable Documentation

5.10.2.1 machine_launchers

```
codar.cheetah.machine_launchers.machine_launchers = dict()
```

Definition at line 4 of file machine_launchers.py.

5.11 codar.cheetah.model Namespace Reference

Classes

- class Campaign
- class Run
- class RunComponent

Variables

- RESERVED_CODE_NAMES = set(['post-process'])

5.11.1 Detailed Description

```
Object oriented model to represent jobs to run on different Supercomputers or
workstations using different schedulers and runners (for running applications
on compute nodes from front end nodes), and allow pass through of scheduler
or runner specific options.

Subclasses representing specific types of schedulers, runners, and
supercomputers (machines) are specified in other modules with the corresponding
name.
```

5.11.2 Variable Documentation

5.11.2.1 RESERVED_CODE_NAMES

```
codar.cheetah.model.RESERVED_CODE_NAMES = set(['post-process'])
```

Definition at line 36 of file model.py.

5.12 codar.cheetah.parameters Namespace Reference

Classes

- class CodeCommand
- class Instance
- class Param
- class ParamADIOS2XML
- class ParamAdiosXML
- class ParamCmdLineArg
- class ParamCmdLineOption
- class ParamConfig
- class ParamEnvVar
- class ParameterValue
- class ParamKeyValue
- class ParamRunner
- class ParamSchedulerArgs
- class SummitOpts
- class Sweep
- class SweepGroup
- class SymLink

5.12.1 Detailed Description

```
Module containing classes for specifying paramter value sets and groupings
of parameters. Used in the Experiment specification in the 'runs' variable.
```

5.13 codar.cheetah.pbs Namespace Reference

Functions

- def open_pbs_file (scheduler_dir_path, name, project, nodes, walltime)
- def write_run_script (script_out_path, scheduler_dir_path)

Variables

- string PBS_NAME = 'job.pbs'
- string PBS_FORMAT_TEMPLATE
- string SUBMIT_FORMAT_TEMPLATE

5.13.1 Detailed Description

```
Module for generating PBS files for executing many jobs with the same
number of nodes.

TODO: define a common interface for schedulers, that works with at least
SLURM and PBS.

TODO: codify dir structure - scheduler dir contains scheduler script, has
subdir for each set of experiment parameters.
```

5.13.2 Function Documentation

5.13.2.1 open_pbs_file()

```
def codar.cheetah.pbs.open_pbs_file (
              scheduler_dir_path,
              name,
              project,
              nodes,
              walltime )
```

```
Open and write a PBS file to the specified path and return the open file
object for further writing. Caller is responsible for closing the file.

TODO: rather than passing back a file, this should probably return
an object with an 'add_run' function. There should also be a template
for the run output dir set somewhere - maybe other modules handle that,
it should not be scheduler specific.
```

Definition at line 38 of file pbs.py.

5.13.2.2 write_run_script()

```
def codar.cheetah.pbs.write_run_script (
              script_out_path,
              scheduler_dir_path )
```

```
Write a bash script that will submit a PBS file generated by
`open_pbs_file` with the correct working directory and enironment.
This is the end user (experiment runner)'s entry point to start the
experiment.
```

Definition at line 55 of file pbs.py.

5.13.3 Variable Documentation

5.13.3.1 PBS_FORMAT_TEMPLATE

```
string codar.cheetah.pbs.PBS_FORMAT_TEMPLATE
```

Initial value:

```
1 =  """
2 #!/bin/bash
3 #PBS -N {name}
4 #PBS -A {project}
5 #PBS -l nodes={nodes}
6 #PBS -l walltime={walltime}
7
8 """
```

Definition at line 18 of file pbs.py.

5.13.3.2 PBS_NAME

```
string codar.cheetah.pbs.PBS_NAME = 'job.pbs'
```

Definition at line 15 of file pbs.py.

5.13.3.3 SUBMIT_FORMAT_TEMPLATE

```
string codar.cheetah.pbs.SUBMIT_FORMAT_TEMPLATE
```

Initial value:

```
1 =  """
2 #!/bin/bash
3
4 cd "{scheduler_directory}"
5 qsub {pbs_name}
6 """
```

Definition at line 30 of file pbs.py.

5.14 codar.cheetah.report_generator Namespace Reference

Classes

- class _ReportGenerator
- class _RunParser

Functions

- def generate_report (campaign_directory, user_run_script, output_file_path)

5.14.1 Detailed Description

```
Generate performance report from a completed campaign.
This module parses all run directories in all sweep groups to aggregate
information.
Runs sosflow analysis to collect data.

All parameters specified in the spec file must be used as column headers in
an output csv file.
```

5.14.2 Function Documentation

5.14.2.1 generate_report()

```
def codar.cheetah.report_generator.generate_report (
              campaign_directory,
              user_run_script,
              output_file_path )
```

```
This is a post-run function.
It walks the campaign tree and retrieves performance information
about all completed runs.
```

Definition at line 401 of file report_generator.py.

5.15 codar.cheetah.runners Namespace Reference

Classes

- class Runner
- class RunnerCray
- class RunnerLocal

5.15.1 Detailed Description

```
TODO: unused currently by SwiftLauncher, but may still be needed, so keeping
this module for now.
```

5.16 codar.cheetah.status Namespace Reference

Functions

- def print_campaign_status (campaign_directory, filter_user=None, filter_group=None, filter_run=None, filter_code=None, group_summary=False, run_summary=False, print_logs=False, log_level='DEBUG', return_codes=False, print_output=False, show_parameters=False)
- def get_workflow_status (status_file_path, print_counts=False, indent=0, print_return_codes=False, filter_↩ run=None, print_parameters=False, filter_code=None, run_summary=False, code_names=None)

5.16.1 Detailed Description

```
Funtions to print status information for campaigns.
```

5.16.2 Function Documentation

5.16.2.1 get_workflow_status()

```
def codar.cheetah.status.get_workflow_status (
              status_file_path,
              print_counts = False,
              indent = 0,
              print_return_codes = False,
              filter_run = None,
              print_parameters = False,
              filter_code = None,
              run_summary = False,
              code_names = None )
```

Definition at line 187 of file status.py.

5.16.2.2 print_campaign_status()

```
def codar.cheetah.status.print_campaign_status (
              campaign_directory,
              filter_user = None,
              filter_group = None,
              filter_run = None,
              filter_code = None,
              group_summary = False,
              run_summary = False,
              print_logs = False,
              log_level = 'DEBUG',
              return_codes = False,
              print_output = False,
              show_parameters = False )
```

Definition at line 22 of file status.py.

5.17 codar.cheetah.templates Namespace Reference

Variables

- string CAMPAIGN_ENV_TEMPLATE
- string GROUP_ENV_TEMPLATE

5.17.1 Detailed Description

```
Templates for cheetah configuration. This should be used as little as possible:
ideally scripts should be stored separately and be independently testable.
For example, bash scripts can use environment variables for customization
instead of being templates.
```

5.17.2 Variable Documentation

5.17.2.1 CAMPAIGN_ENV_TEMPLATE

```
string codar.cheetah.templates.CAMPAIGN_ENV_TEMPLATE
```

Initial value:

```
1 =  """
2 export CODAR_CHEETAH_EXPERIMENT_DIR="{experiment_dir}"
3 export CODAR_CHEETAH_MACHINE_CONFIG="{machine_config}"
4 export CODAR_CHEETAH_APP_CONFIG="{app_config}"
5 export CODAR_WORKFLOW_SCRIPT="{workflow_script_path}"
6 export CODAR_WORKFLOW_RUNNER="{workflow_runner}"
7 export CODAR_CHEETAH_WORKFLOW_LOG_LEVEL="{workflow_debug_level}"
8 export CODAR_CHEETAH_UMASK="{umask}"
9 export CODAR_PYTHON="{codar_python}"
10 """
```

Definition at line 9 of file templates.py.

5.17.2.2 GROUP_ENV_TEMPLATE

```
string codar.cheetah.templates.GROUP_ENV_TEMPLATE
```

Initial value:

```
1 =  """
2 export CODAR_CHEETAH_GROUP_WALLTIME="{walltime}"
3 export CODAR_CHEETAH_GROUP_MAX_PROCS="{max_procs}"
4
5 export CODAR_CHEETAH_SCHEDULER_ACCOUNT="{account}"
6 # queue on PBS, partition on SLURM
7 export CODAR_CHEETAH_SCHEDULER_QUEUE="{queue}"
8 # SLURM specific options
9 export CODAR_CHEETAH_SCHEDULER_CONSTRAINT="{constraint}"
10 export CODAR_CHEETAH_SCHEDULER_LICENSE="{license}"
11
12 export CODAR_CHEETAH_CAMPAIGN_NAME="{campaign_name}"
13
14 export CODAR_CHEETAH_GROUP_NAME="{group_name}"
15 export CODAR_CHEETAH_GROUP_NODES="{nodes}"
16 export CODAR_CHEETAH_GROUP_NODE_EXCLUSIVE="{node_exclusive}"
17 export CODAR_CHEETAH_GROUP_PROCESSES_PER_NODE="{processes_per_node}"
18 export CODAR_CHEETAH_MACHINE_NAME="{machine_name}"
19 """
```

Definition at line 21 of file templates.py.

Chapter 6

Class Documentation

6.1 codar.cheetah.report_generator._ReportGenerator Class Reference

Public Member Functions

- def __init__ (self, campaign_directory, user_run_script, output_filename)
- def parse_campaign (self)
- def parse_user_campaigns (self)
- def parse_sweep_group (self, group_dir)
- def parse_run_dir (self, run_dir, exit_status)
- def write_output (self)

Public Attributes

- parsed_runs
- unique_keys
- campaign_directory
- user_run_script
- output_filename
- current_campaign_user
- run_status

6.1.1 Detailed Description

Definition at line 228 of file report_generator.py.

6.1.2 Constructor & Destructor Documentation

6.1.2.1 __init__()

```
def codar.cheetah.report_generator._ReportGenerator.__init__ (
              self,
              campaign_directory,
              user_run_script,
              output_filename )
```

Definition at line 232 of file report_generator.py.

6.1.3 Member Function Documentation

6.1.3.1 parse_campaign()

```
def codar.cheetah.report_generator._ReportGenerator.parse_campaign (
              self )

:return:
```

Definition at line 259 of file report_generator.py.

6.1.3.2 parse_run_dir()

```
def codar.cheetah.report_generator._ReportGenerator.parse_run_dir (
              self,
              run_dir,
              exit_status )

Parse run directory of a sweep group
```

Definition at line 331 of file report_generator.py.

6.1.3.3 parse_sweep_group()

```
def codar.cheetah.report_generator._ReportGenerator.parse_sweep_group (
              self,
              group_dir )

Parse sweep group and get post-run performance information
```

Definition at line 304 of file report_generator.py.

6.1.3.4 parse_user_campaigns()

```
def codar.cheetah.report_generator._ReportGenerator.parse_user_campaigns (
              self )
```

:return:

Definition at line 273 of file report_generator.py.

6.1.3.5 write_output()

```
def codar.cheetah.report_generator._ReportGenerator.write_output (
              self )
```

:return:

Definition at line 388 of file report_generator.py.

6.1.4 Member Data Documentation

6.1.4.1 campaign_directory

codar.cheetah.report_generator._ReportGenerator.campaign_directory

Definition at line 241 of file report_generator.py.

6.1.4.2 current_campaign_user

codar.cheetah.report_generator._ReportGenerator.current_campaign_user

Definition at line 254 of file report_generator.py.

6.1.4.3 output_filename

codar.cheetah.report_generator._ReportGenerator.output_filename

Definition at line 251 of file report_generator.py.

6.1.4.4 parsed_runs

`codar.cheetah.report_generator._ReportGenerator.parsed_runs`

Definition at line 235 of file report_generator.py.

6.1.4.5 run_status

`codar.cheetah.report_generator._ReportGenerator.run_status`

Definition at line 257 of file report_generator.py.

6.1.4.6 unique_keys

`codar.cheetah.report_generator._ReportGenerator.unique_keys`

Definition at line 239 of file report_generator.py.

6.1.4.7 user_run_script

`codar.cheetah.report_generator._ReportGenerator.user_run_script`

Definition at line 247 of file report_generator.py.

The documentation for this class was generated from the following file:

- report_generator.py

6.2 codar.cheetah.report_generator._RunParser Class Reference

Public Member Functions

- def __init__ (self, run_dir, exit_status, user_run_script)
- def read_fob_json (self)
- def get_rc_names (self)
- def get_run_params (self)
- def read_sos_perf_data (self)
- def get_cheetah_perf_data (self)
- def read_adios_output_file_sizes (self)
- def read_node_layout (self)
- def execute_user_run_script (self)
- def verify_run_successful (self)
- def serialize_params_nested_dict (self, nested_run_params_dict)

Public Attributes

- run_dir
- exit_status
- user_run_script
- serialized_run_params
- fob_dict
- rc_names
- rc_working_dir
- rc_name_exe

6.2.1 Detailed Description

Definition at line 22 of file report_generator.py.

6.2.2 Constructor & Destructor Documentation

6.2.2.1 __init__()

```
def codar.cheetah.report_generator._RunParser.__init__ (
              self,
              run_dir,
              exit_status,
              user_run_script )
```

```
Class to parse a run directory.
:param run_dir:
```

Definition at line 23 of file report_generator.py.

6.2.3 Member Function Documentation

6.2.3.1 execute_user_run_script()

```
def codar.cheetah.report_generator._RunParser.execute_user_run_script (
              self )
```

Definition at line 160 of file report_generator.py.

6.2.3.2 get_cheetah_perf_data()

```
def codar.cheetah.report_generator._RunParser.get_cheetah_perf_data (
              self )
```

Definition at line 115 of file report_generator.py.

6.2.3.3 get_rc_names()

```
def codar.cheetah.report_generator._RunParser.get_rc_names (
              self )
```

Definition at line 52 of file report_generator.py.

6.2.3.4 get_run_params()

```
def codar.cheetah.report_generator._RunParser.get_run_params (
              self )
```

Definition at line 70 of file report_generator.py.

6.2.3.5 read_adios_output_file_sizes()

```
def codar.cheetah.report_generator._RunParser.read_adios_output_file_sizes (
              self )
```

```
:return:
```

Definition at line 127 of file report_generator.py.

6.2.3.6 read_fob_json()

```
def codar.cheetah.report_generator._RunParser.read_fob_json (
              self )
```

Definition at line 46 of file report_generator.py.

6.2.3.7 read_node_layout()

```
def codar.cheetah.report_generator._RunParser.read_node_layout (
              self )

:return:
```

Definition at line 149 of file report_generator.py.

6.2.3.8 read_sos_perf_data()

```
def codar.cheetah.report_generator._RunParser.read_sos_perf_data (
              self )

:return: True if sos data was found, False otherwise
```

Definition at line 82 of file report_generator.py.

6.2.3.9 serialize_params_nested_dict()

```
def codar.cheetah.report_generator._RunParser.serialize_params_nested_dict (
              self,
              nested_run_params_dict )

codar.cheetah.run-params.json has the structure:
{
    app1: {
param1: value1
param2: value2
    }
    app2: {
param1: value1
param2: value2
    }
}

Serialize this structure so that we have
{app1__param1: value1, app1__param2:value2, and so on}.
```

Definition at line 204 of file report_generator.py.

6.2.3.10 verify_run_successful()

```
def codar.cheetah.report_generator._RunParser.verify_run_successful (
              self )

:return:
```

Definition at line 180 of file report_generator.py.

6.2.4 Member Data Documentation

6.2.4.1 exit_status

codar.cheetah.report_generator._RunParser.exit_status

Definition at line 30 of file report_generator.py.

6.2.4.2 fob_dict

codar.cheetah.report_generator._RunParser.fob_dict

Definition at line 34 of file report_generator.py.

6.2.4.3 rc_name_exe

codar.cheetah.report_generator._RunParser.rc_name_exe

Definition at line 41 of file report_generator.py.

6.2.4.4 rc_names

codar.cheetah.report_generator._RunParser.rc_names

Definition at line 35 of file report_generator.py.

6.2.4.5 rc_working_dir

codar.cheetah.report_generator._RunParser.rc_working_dir

Definition at line 36 of file report_generator.py.

6.2.4.6 run_dir

`codar.cheetah.report_generator._RunParser.run_dir`

Definition at line 29 of file report_generator.py.

6.2.4.7 serialized_run_params

`codar.cheetah.report_generator._RunParser.serialized_run_params`

Definition at line 33 of file report_generator.py.

6.2.4.8 user_run_script

`codar.cheetah.report_generator._RunParser.user_run_script`

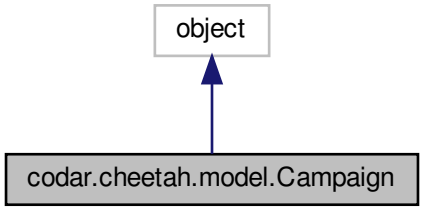
Definition at line 31 of file report_generator.py.

The documentation for this class was generated from the following file:

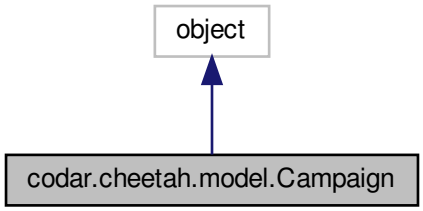
- report_generator.py

6.3 codar.cheetah.model.Campaign Class Reference

Inheritance diagram for codar.cheetah.model.Campaign:



Collaboration diagram for codar.cheetah.model.Campaign:



Public Member Functions

- def __init__ (self, machine_name, app_dir)
- def make_experiment_run_dir (self, output_dir, _check_code_paths=True)

Public Attributes

- machine
- app_dir
- runs
- inputs
- codes
- machine_scheduler_options
- machine_app_config_script

Static Public Attributes

- name = None
- list codes = [ ]
- list supported_machines = [ ]
- list sweeps = [ ]
- list inputs = [ ]
- umask = None
- bool kill_on_partial_failure = False
- run_post_process_script = None
- bool run_post_process_stop_group_on_failure = False
- app_config_scripts = None
- run_dir_setup_script = None
- dictionary scheduler_options = {}
- tau_config = None
- sosd_path = None
- sos_analysis_path = None
- int sosd_num_aggregators = 1
- post_process_script = None
- python_path = sys.executable

6.3.1 Detailed Description

```
An experiment class specifies an application, a set of parameter to
sweep over, and a set of supported target machine. A specific instance
binds the experiment to a specific machine within the set of supported
machines, and supports generating a set of scripts to run the experiment
on that machine.
```

Definition at line 39 of file model.py.

6.3.2 Constructor & Destructor Documentation

6.3.2.1 __init__()

```
def codar.cheetah.model.Campaign.__init__ (
              self,
              machine_name,
              app_dir )
```

Definition at line 117 of file model.py.

6.3.3 Member Function Documentation

6.3.3.1 make_experiment_run_dir()

```
def codar.cheetah.model.Campaign.make_experiment_run_dir (
              self,
              output_dir,
              _check_code_paths = True )
```

```
Produce scripts and directory structure for running the experiment.

Directory structure will be a subdirectory for each scheduler group,
and within each scheduler group directory, a subdirectory for each
run.
```

Definition at line 199 of file model.py.

6.3.4 Member Data Documentation

6.3.4.1 app_config_scripts

```
codar.cheetah.model.Campaign.app_config_scripts = None  [static]
```

Definition at line 74 of file model.py.

6.3.4.2 app_dir

```
codar.cheetah.model.Campaign.app_dir
```

Definition at line 126 of file model.py.

6.3.4.3 codes [1/2]

```
list codar.cheetah.model.Campaign.codes = []  [static]
```

Definition at line 48 of file model.py.

6.3.4.4 codes [2/2]

```
codar.cheetah.model.Campaign.codes
```

Definition at line 134 of file model.py.

6.3.4.5 inputs [1/2]

```
list codar.cheetah.model.Campaign.inputs = []  [static]
```

Definition at line 51 of file model.py.

6.3.4.6 inputs [2/2]

```
codar.cheetah.model.Campaign.inputs
```

Definition at line 131 of file model.py.

6.3.4.7 kill_on_partial_failure

```
bool codar.cheetah.model.Campaign.kill_on_partial_failure = False  [static]
```

Definition at line 56 of file model.py.

6.3.4.8 machine

```
codar.cheetah.model.Campaign.machine
```

Definition at line 125 of file model.py.

6.3.4.9 machine_app_config_script

```
codar.cheetah.model.Campaign.machine_app_config_script
```

Definition at line 180 of file model.py.

6.3.4.10 machine_scheduler_options

```
codar.cheetah.model.Campaign.machine_scheduler_options
```

Definition at line 174 of file model.py.

6.3.4.11 name

```
codar.cheetah.model.Campaign.name = None  [static]
```

Definition at line 47 of file model.py.

6.3.4.12 post_process_script

```
codar.cheetah.model.Campaign.post_process_script = None  [static]
```

Definition at line 106 of file model.py.

6.3.4.13 python_path

```
codar.cheetah.model.Campaign.python_path = sys.executable  [static]
```

Definition at line 112 of file model.py.

6.3.4.14 run_dir_setup_script

```
codar.cheetah.model.Campaign.run_dir_setup_script = None  [static]
```

Definition at line 83 of file model.py.

6.3.4.15 run_post_process_script

```
codar.cheetah.model.Campaign.run_post_process_script = None  [static]
```

Definition at line 64 of file model.py.

6.3.4.16 run_post_process_stop_group_on_failure

```
bool codar.cheetah.model.Campaign.run_post_process_stop_group_on_failure = False  [static]
```

Definition at line 65 of file model.py.

6.3.4.17 runs

```
codar.cheetah.model.Campaign.runs
```

Definition at line 127 of file model.py.

6.3.4.18 scheduler_options

```
dictionary codar.cheetah.model.Campaign.scheduler_options = {}  [static]
```

Definition at line 87 of file model.py.

6.3.4.19 sos_analysis_path

```
codar.cheetah.model.Campaign.sos_analysis_path = None  [static]
```

Definition at line 96 of file model.py.

6.3.4.20 sosd_num_aggregators

```
int codar.cheetah.model.Campaign.sosd_num_aggregators = 1  [static]
```

Definition at line 97 of file model.py.

6.3.4.21 sosd_path

```
codar.cheetah.model.Campaign.sosd_path = None  [static]
```

Definition at line 95 of file model.py.

6.3.4.22 supported_machines

```
list codar.cheetah.model.Campaign.supported_machines = []  [static]
```

Definition at line 49 of file model.py.

6.3.4.23 sweeps

```
list codar.cheetah.model.Campaign.sweeps = []  [static]
```

Definition at line 50 of file model.py.

6.3.4.24 tau_config

```
codar.cheetah.model.Campaign.tau_config = None  [static]
```

Definition at line 90 of file model.py.

6.3.4.25 umask

```
codar.cheetah.model.Campaign.umask = None  [static]
```

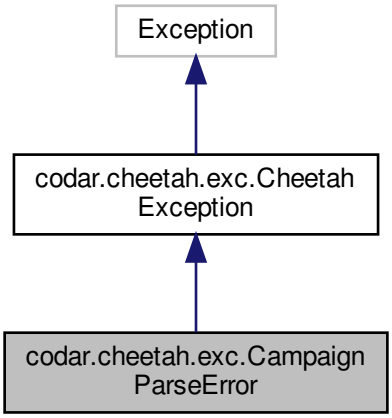
Definition at line 52 of file model.py.

The documentation for this class was generated from the following file:

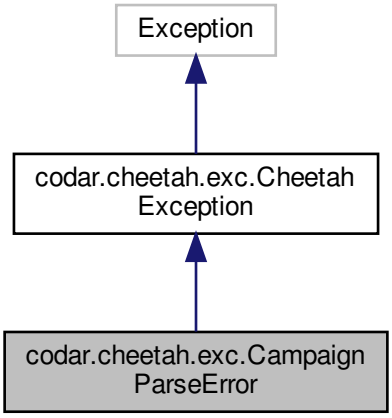
- model.py

6.4 codar.cheetah.exc.CampaignParseError Class Reference

Inheritance diagram for codar.cheetah.exc.CampaignParseError:



Collaboration diagram for codar.cheetah.exc.CampaignParseError:



6.4.1 Detailed Description

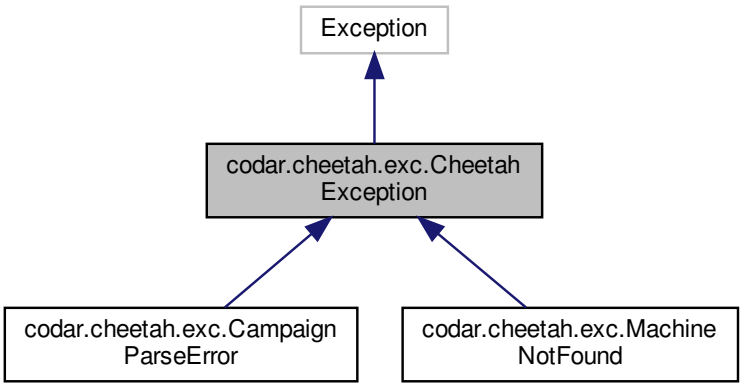
Definition at line 16 of file exc.py.

The documentation for this class was generated from the following file:

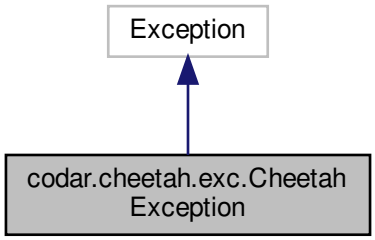
- exc.py

6.5 codar.cheetah.exc.CheetahException Class Reference

Inheritance diagram for codar.cheetah.exc.CheetahException:



Collaboration diagram for codar.cheetah.exc.CheetahException:



6.5.1 Detailed Description

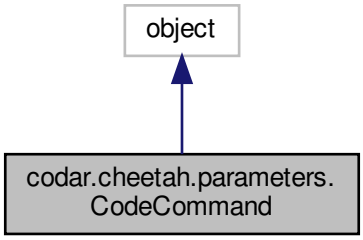
Definition at line 6 of file exc.py.

The documentation for this class was generated from the following file:

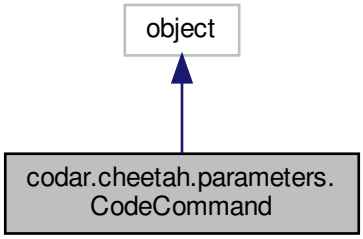
- exc.py

6.6 codar.cheetah.parameters.CodeCommand Class Reference

Inheritance diagram for codar.cheetah.parameters.CodeCommand:



Collaboration diagram for codar.cheetah.parameters.CodeCommand:



Public Member Functions

- def __init__ (self, target)
- def add_arg (self, position, value)
- def add_option (self, option, value)
- def get_argv (self)

Public Attributes

- target
- args
- options

6.6.1 Detailed Description

```
Helper class to build up command args and options as we go. Does not
know about the path to it's executable, that is part of the execution
environment which is added during realization.
```

Definition at line 254 of file parameters.py.

6.6.2 Constructor & Destructor Documentation

6.6.2.1 __init__()

```
def codar.cheetah.parameters.CodeCommand.__init__ (
              self,
              target )
```

Definition at line 260 of file parameters.py.

6.6.3 Member Function Documentation

6.6.3.1 add_arg()

```
def codar.cheetah.parameters.CodeCommand.add_arg (
              self,
              position,
              value )
```

```
Allows adding positional args out of order.

TODO: better error handling.
```

Definition at line 265 of file parameters.py.

6.6.3.2 add_option()

```
def codar.cheetah.parameters.CodeCommand.add_option (
              self,
              option,
              value )
```

Definition at line 277 of file parameters.py.

6.6.3.3 get_argv()

```
def codar.cheetah.parameters.CodeCommand.get_argv (
              self )
```

Definition at line 282 of file parameters.py.

6.6.4 Member Data Documentation

6.6.4.1 args

```
codar.cheetah.parameters.CodeCommand.args
```

Definition at line 262 of file parameters.py.

6.6.4.2 options

```
codar.cheetah.parameters.CodeCommand.options
```

Definition at line 263 of file parameters.py.

6.6.4.3 target

```
codar.cheetah.parameters.CodeCommand.target
```

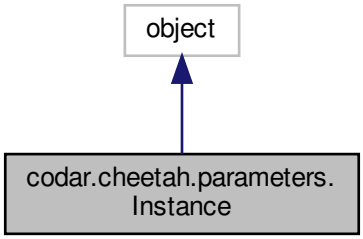
Definition at line 261 of file parameters.py.

The documentation for this class was generated from the following file:

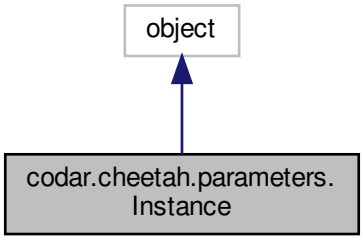
- parameters.py

6.7 codar.cheetah.parameters.Instance Class Reference

Inheritance diagram for codar.cheetah.parameters.Instance:



Collaboration diagram for codar.cheetah.parameters.Instance:



Public Member Functions

- def __init__ (self)
- def add_parameter (self, p, idx)
- def parameter_values (self)
- def code_commands (self)
- def get_codes_argv (self)
- def as_string (self)
- def get_parameter_values_by_type (self, param_class)
- def get_nprocs (self, target)
- def get_hostfile (self, target)
- def get_sched_opts (self, target)
- def as_dict (self)

6.7.1 Detailed Description

```
Represent an instance of an application with fixed parameters. An
application may consistent of multiple codes running at the same time,
and multiple middlewear layers (scheduler like PBS, runner like aprun,
or swift), all of which may have their own parameters.

Abstractly, an instance is a two-level nested dict, where the first
level indicates the target for a parameter (application code or
middlewear), and the second level contains the parameter values for that
target.
```

Definition at line 101 of file parameters.py.

6.7.2 Constructor & Destructor Documentation

6.7.2.1 __init__()

```
def codar.cheetah.parameters.Instance.__init__ (
              self )
```

Definition at line 113 of file parameters.py.

6.7.3 Member Function Documentation

6.7.3.1 add_parameter()

```
def codar.cheetah.parameters.Instance.add_parameter (
              self,
              p,
              idx )
```

Definition at line 129 of file parameters.py.

6.7.3.2 as_dict()

```
def codar.cheetah.parameters.Instance.as_dict (
              self )

Produce dict (mainly for for JSON seriliazation) with keys based on
parameter names. This ignores the type of the param, it's just the
name value pairs.
```

Definition at line 244 of file parameters.py.

6.7.3.3 as_string()

```
def codar.cheetah.parameters.Instance.as_string (
              self )
```

```
Get a command line like value for the instance. Note that this
only includes positional and option command line args, not config
args like adios XML. TODO: deprecate??
```

Definition at line 199 of file parameters.py.

6.7.3.4 code_commands()

```
def codar.cheetah.parameters.Instance.code_commands (
              self )
```

```
Wrapper to allow delayed calculation of derived parameter values.
```

Definition at line 146 of file parameters.py.

6.7.3.5 get_codes_argv()

```
def codar.cheetah.parameters.Instance.get_codes_argv (
              self )
```

```
Get an _unordered_ dict mapping code name to list of args for
that code. Higher levels of model are responsible for re-ordering
as needed.
```

Definition at line 192 of file parameters.py.

6.7.3.6 get_hostfile()

```
def codar.cheetah.parameters.Instance.get_hostfile (
              self,
              target )
```

Definition at line 232 of file parameters.py.

6.7.3.7 get_nprocs()

```
def codar.cheetah.parameters.Instance.get_nprocs (
              self,
              target )
```

Definition at line 226 of file parameters.py.

6.7.3.8 get_parameter_values_by_type()

```
def codar.cheetah.parameters.Instance.get_parameter_values_by_type (
              self,
              param_class )
```

```
Get a list of ParamaterValues of the specified type in the instance.
```

Definition at line 215 of file parameters.py.

6.7.3.9 get_sched_opts()

```
def codar.cheetah.parameters.Instance.get_sched_opts (
              self,
              target )
```

Definition at line 238 of file parameters.py.

6.7.3.10 parameter_values()

```
def codar.cheetah.parameters.Instance.parameter_values (
              self )
```

```
Wrapper to allow delayed calculation of derived parameter values.
```

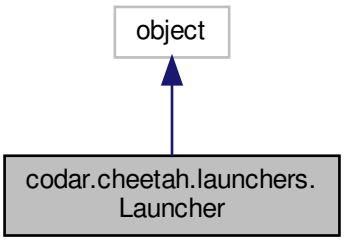
Definition at line 139 of file parameters.py.

The documentation for this class was generated from the following file:

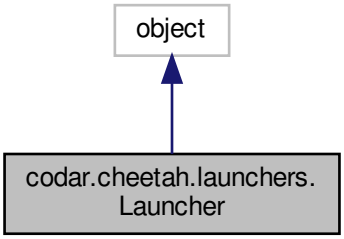
- parameters.py

6.8 codar.cheetah.launchers.Launcher Class Reference

Inheritance diagram for codar.cheetah.launchers.Launcher:



Collaboration diagram for codar.cheetah.launchers.Launcher:



Public Member Functions

- def __init__ (self, machine_name, scheduler_name, runner_name, output_directory, num_codes)
- def create_group_directory (self, campaign_name, app_dir, group_name, runs, max_nprocs, nodes, launch↩ _mode, component_subdirs, walltime, node_exclusive, timeout, machine, sosd_path=None, sos_analysis↩ _path=None, tau_config=None, kill_on_partial_failure=False, run_post_process_script=None, run_post_↩ process_stop_on_failure=False, scheduler_options=None, run_dir_setup_script=None)
- def read_jobid (self)

Public Attributes

- machine_name
- scheduler_name
- runner_name
- output_directory
- num_codes

Static Public Attributes

- name = None
- string submit_script_name = 'submit.sh'
- string wait_script_name = 'wait.sh'
- string status_script_name = 'status.sh'
- string submit_out_name = 'codar.cheetah.submit-output.txt'
- string run_command_name = 'codar.cheetah.run-params.txt'
- string run_json_name = 'codar.cheetah.run-params.json'
- string run_out_name = 'codar.cheetah.run-output.txt'
- batch_script_name = None
- string batch_walltime_name = 'codar.cheetah.walltime.txt'
- string jobid_file_name = 'codar.cheetah.jobid.txt'

6.8.1 Detailed Description

```
Class to represent a single batch job or submission script.
It's job is to take a scheduler group and produce a script for executing
all runs within the scheduler group with the indicated scheduler
parameters.

The launcher may take configuration parameters to specify which scheduler/
runner to use, but there is no longer an object model for schedulers and
runners.
```

Definition at line 28 of file launchers.py.

6.8.2 Constructor & Destructor Documentation

6.8.2.1 __init__()

```
def codar.cheetah.launchers.Launcher.__init__ (
              self,
              machine_name,
              scheduler_name,
              runner_name,
              output_directory,
              num_codes )
```

Definition at line 54 of file launchers.py.

6.8.3 Member Function Documentation

6.8.3.1 create_group_directory()

```
def codar.cheetah.launchers.Launcher.create_group_directory (
              self,
              campaign_name,
              app_dir,
              group_name,
              runs,
              max_nprocs,
              nodes,
              launch_mode,
              component_subdirs,
              walltime,
              node_exclusive,
              timeout,
              machine,
              sosd_path = None,
              sos_analysis_path = None,
              tau_config = None,
              kill_on_partial_failure = False,
              run_post_process_script = None,
              run_post_process_stop_on_failure = False,
              scheduler_options = None,
              run_dir_setup_script = None )
```

```
Copy scripts for the appropriate scheduler to group directory,
and write environment configuration. Returns required number of nodes,
which will be calculated if the passed nodes is None
```

Definition at line 72 of file launchers.py.

6.8.3.2 read_jobid()

```
def codar.cheetah.launchers.Launcher.read_jobid (
              self )
```

Definition at line 400 of file launchers.py.

6.8.4 Member Data Documentation

6.8.4.1 batch_script_name

```
codar.cheetah.launchers.Launcher.batch_script_name = None  [static]
```

Definition at line 49 of file launchers.py.

6.8.4.2 batch_walltime_name

```
string codar.cheetah.launchers.Launcher.batch_walltime_name = 'codar.cheetah.walltime.txt'
[static]
```

Definition at line 50 of file launchers.py.

6.8.4.3 jobid_file_name

```
string codar.cheetah.launchers.Launcher.jobid_file_name = 'codar.cheetah.jobid.txt'  [static]
```

Definition at line 51 of file launchers.py.

6.8.4.4 machine_name

```
codar.cheetah.launchers.Launcher.machine_name
```

Definition at line 55 of file launchers.py.

6.8.4.5 name

```
codar.cheetah.launchers.Launcher.name = None  [static]
```

Definition at line 39 of file launchers.py.

6.8.4.6 num_codes

```
codar.cheetah.launchers.Launcher.num_codes
```

Definition at line 59 of file launchers.py.

6.8.4.7 output_directory

```
codar.cheetah.launchers.Launcher.output_directory
```

Definition at line 58 of file launchers.py.

6.8.4.8 run_command_name

```
string codar.cheetah.launchers.Launcher.run_command_name = 'codar.cheetah.run-params.txt'
[static]
```

Definition at line 46 of file launchers.py.

6.8.4.9 run_json_name

```
string codar.cheetah.launchers.Launcher.run_json_name = 'codar.cheetah.run-params.json'  [static]
```

Definition at line 47 of file launchers.py.

6.8.4.10 run_out_name

```
string codar.cheetah.launchers.Launcher.run_out_name = 'codar.cheetah.run-output.txt'  [static]
```

Definition at line 48 of file launchers.py.

6.8.4.11 runner_name

```
codar.cheetah.launchers.Launcher.runner_name
```

Definition at line 57 of file launchers.py.

6.8.4.12 scheduler_name

```
codar.cheetah.launchers.Launcher.scheduler_name
```

Definition at line 56 of file launchers.py.

6.8.4.13 status_script_name

```
string codar.cheetah.launchers.Launcher.status_script_name = 'status.sh'  [static]
```

Definition at line 44 of file launchers.py.

6.8.4.14 submit_out_name

```
string codar.cheetah.launchers.Launcher.submit_out_name = 'codar.cheetah.submit-output.txt'
[static]
```

Definition at line 45 of file launchers.py.

6.8.4.15 submit_script_name

```
string codar.cheetah.launchers.Launcher.submit_script_name = 'submit.sh'  [static]
```

Definition at line 42 of file launchers.py.

6.8.4.16 wait_script_name

```
string codar.cheetah.launchers.Launcher.wait_script_name = 'wait.sh'  [static]
```

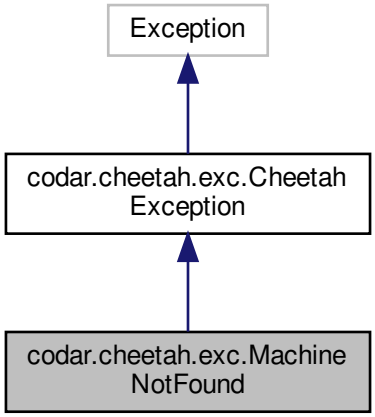
Definition at line 43 of file launchers.py.

The documentation for this class was generated from the following file:

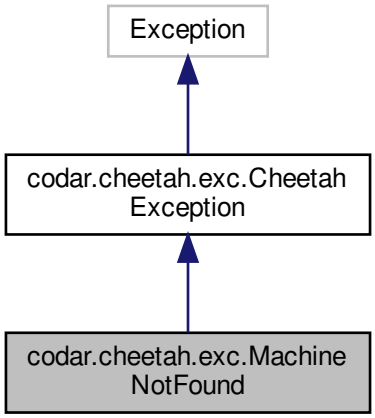
- launchers.py

6.9 codar.cheetah.exc.MachineNotFound Class Reference

Inheritance diagram for codar.cheetah.exc.MachineNotFound:



Collaboration diagram for codar.cheetah.exc.MachineNotFound:



Public Member Functions

- def __init__ (self, machine_name)

6.9.1 Detailed Description

Definition at line 10 of file exc.py.

6.9.2 Constructor & Destructor Documentation

6.9.2.1 __init__()

```
def codar.cheetah.exc.MachineNotFound.__init__ (
              self,
              machine_name )
```

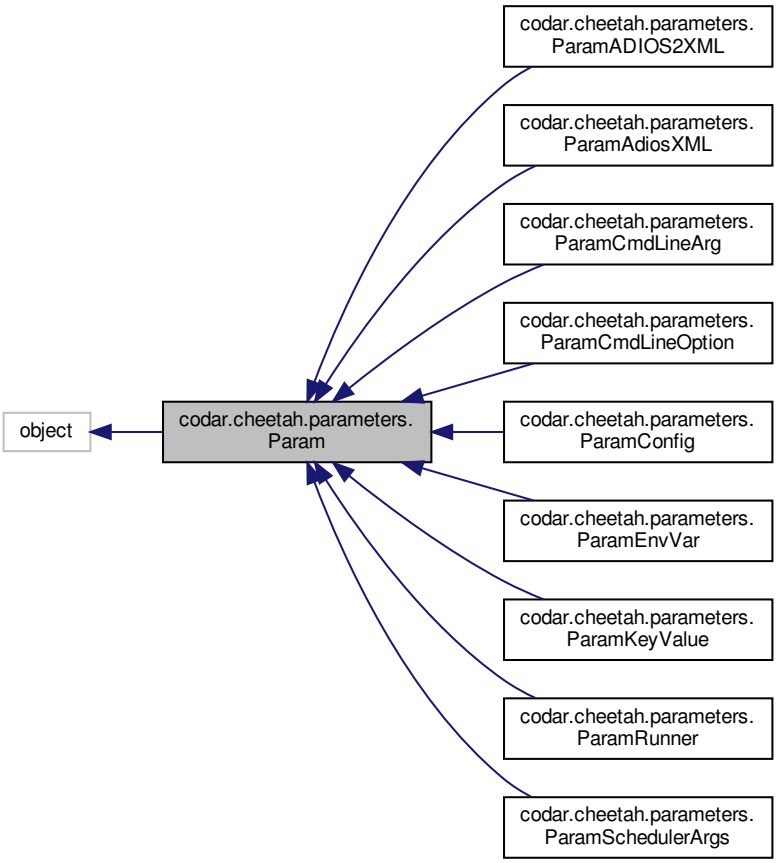
Definition at line 11 of file exc.py.

The documentation for this class was generated from the following file:

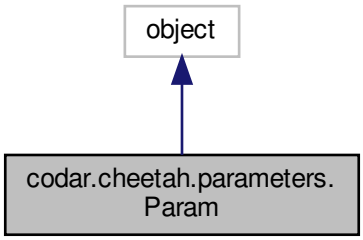
- exc.py

6.10 codar.cheetah.parameters.Param Class Reference

Inheritance diagram for codar.cheetah.parameters.Param:



Collaboration diagram for codar.cheetah.parameters.Param:



Public Member Functions

- def __init__ (self, target, name, values)
- def __get__ (self, idx)
- def __len__ (self)

Public Attributes

- target
- name
- values

6.10.1 Detailed Description

```
Abstract base class representing a parameter to an application. This
includes any method for modifying the run characteristics of an
application - command line, config file, environment variables, different
executable built with diffrent compiler flags.

Every parameter must have a unique name, and must target a specific
application or middleware, e.g. pbs, aprun, or one of the science
codes that make up an application.

Note that if a science application has only one code, it will likely still
involve middlewhere targets like PBS. Using a different target is one way
to model those.

TODO: is it useful to separate the definition of a param and it's values?

TODO: should we require that the name be unique across all targets, or
just within each target? Global uniqueness allows for a simple list of
dict representation of instances, but two level nested dicts may be
more powerful (first level is target, second level is params).
```

Definition at line 299 of file parameters.py.

6.10.2 Constructor & Destructor Documentation

6.10.2.1 __init__()

```
def codar.cheetah.parameters.Param.__init__ (
              self,
              target,
              name,
              values )
```

Definition at line 320 of file parameters.py.

6.10.3 Member Function Documentation

6.10.3.1 __get__()

```
def codar.cheetah.parameters.Param.__get__ (
              self,
              idx )
```

Definition at line 334 of file parameters.py.

6.10.3.2 __len__()

```
def codar.cheetah.parameters.Param.__len__ (
              self )
```

Definition at line 337 of file parameters.py.

6.10.4 Member Data Documentation

6.10.4.1 name

```
codar.cheetah.parameters.Param.name
```

Definition at line 322 of file parameters.py.

6.10.4.2 target

```
codar.cheetah.parameters.Param.target
```

Definition at line 321 of file parameters.py.

6.10.4.3 values

```
codar.cheetah.parameters.Param.values
```

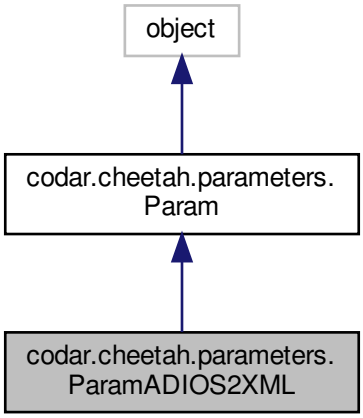
Definition at line 331 of file parameters.py.

The documentation for this class was generated from the following file:

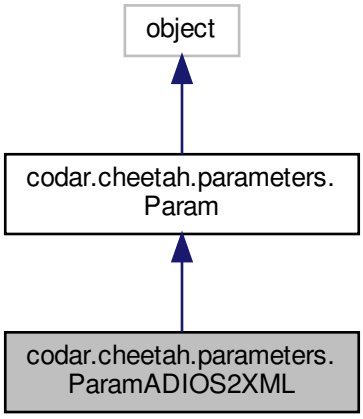
- parameters.py

6.11 codar.cheetah.parameters.ParamADIOS2XML Class Reference

Inheritance diagram for codar.cheetah.parameters.ParamADIOS2XML:



Collaboration diagram for codar.cheetah.parameters.ParamADIOS2XML:



Public Member Functions

- def __init__ (self, rc, io_name, operation_name, values)

Public Attributes

- rc
- io_name
- operation_name
- values

6.11.1 Detailed Description

```
Class to represent ADIOS2 XML file parameter options
```

Definition at line 376 of file parameters.py.

6.11.2 Constructor & Destructor Documentation

6.11.2.1 __init__()

```
def codar.cheetah.parameters.ParamADIOS2XML.__init__ (
              self,
              rc,
              io_name,
              operation_name,
              values )
```

```
:param rc: name of the run component
:param io_name: name of the io object in the xml file
:param operation_name: engine/transport/var_operation
:param values: a list of dicts of the type
[ { engine_name: {parameters} },
  { engine_name: {parameters} },
  { var_name: {operation_name: {parameters}}}
]
Examples:
[ {"BPFile": {'Threads':1}},
  {"BPFile": {"ProfileUnits": "Microseconds"}}
]
[ { "T": { "zfp": {"rate":18, "accuracy": 0.01} } },
  { "T": { "zfp": {"rate":18, "accuracy": 0.001} } },
  { "T": { "zfp": {"rate":18, "accuracy": 0.0001} } },
  { "T": { "sz":  {"rate":18, "accuracy": 0.01} } },
]
```

Definition at line 380 of file parameters.py.

6.11.3 Member Data Documentation

6.11.3.1 io_name

codar.cheetah.parameters.ParamADIOS2XML.io_name

Definition at line 404 of file parameters.py.

6.11.3.2 operation_name

codar.cheetah.parameters.ParamADIOS2XML.operation_name

Definition at line 405 of file parameters.py.

6.11.3.3 rc

codar.cheetah.parameters.ParamADIOS2XML.rc

Definition at line 403 of file parameters.py.

6.11.3.4 values

codar.cheetah.parameters.ParamADIOS2XML.values

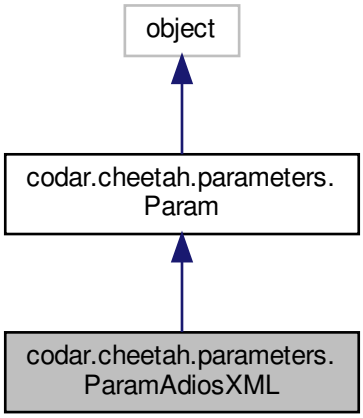
Definition at line 406 of file parameters.py.

The documentation for this class was generated from the following file:

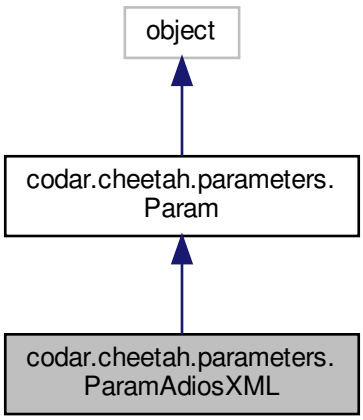
- parameters.py

6.12 codar.cheetah.parameters.ParamAdiosXML Class Reference

Inheritance diagram for codar.cheetah.parameters.ParamAdiosXML:



Collaboration diagram for codar.cheetah.parameters.ParamAdiosXML:



Public Member Functions

- def __init__ (self, target, name, adios_xml_tags, values)

Public Attributes

- param_type
- group_name
- var_name

6.12.1 Detailed Description

```
Class to represent ADIOS XML Transform.

The transform config is encoded in the name, so transforms on different
variables can be included in the sweep.

Format:
    adios_transform:<group_name>:<var_name>
    adios_transport:<group_name>

Note that the filename is specified in the code definition.
```

Definition at line 349 of file parameters.py.

6.12.2 Constructor & Destructor Documentation

6.12.2.1 __init__()

```
def codar.cheetah.parameters.ParamAdiosXML.__init__ (
              self,
              target,
              name,
              adios_xml_tags,
              values )
```

Definition at line 362 of file parameters.py.

6.12.3 Member Data Documentation

6.12.3.1 group_name

```
codar.cheetah.parameters.ParamAdiosXML.group_name
```

Definition at line 369 of file parameters.py.

6.12.3.2 param_type

codar.cheetah.parameters.ParamAdiosXML.param_type

Definition at line 368 of file parameters.py.

6.12.3.3 var_name

codar.cheetah.parameters.ParamAdiosXML.var_name

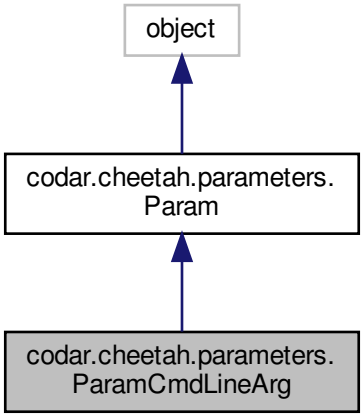
Definition at line 373 of file parameters.py.

The documentation for this class was generated from the following file:

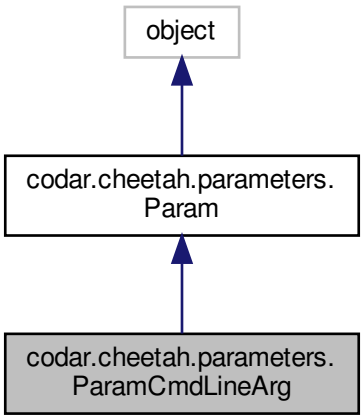
- parameters.py

6.13 codar.cheetah.parameters.ParamCmdLineArg Class Reference

Inheritance diagram for codar.cheetah.parameters.ParamCmdLineArg:



Collaboration diagram for codar.cheetah.parameters.ParamCmdLineArg:



Public Member Functions

- def __init__ (self, target, name, position, values)

Public Attributes

- position

6.13.1 Detailed Description

```
Specification for parameters that are based as a positional command line
argument.
```

Definition at line 341 of file parameters.py.

6.13.2 Constructor & Destructor Documentation

6.13.2.1 __init__()

```
def codar.cheetah.parameters.ParamCmdLineArg.__init__ (
              self,
              target,
              name,
              position,
              values )
```

Definition at line 344 of file parameters.py.

6.13.3 Member Data Documentation

6.13.3.1 position

`codar.cheetah.parameters.ParamCmdLineArg.position`

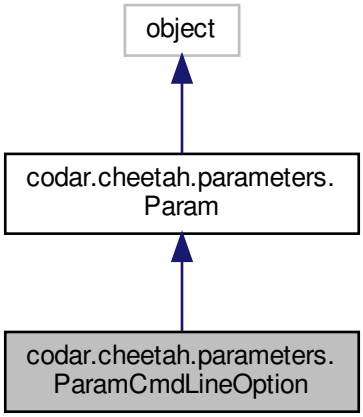
Definition at line 346 of file parameters.py.

The documentation for this class was generated from the following file:

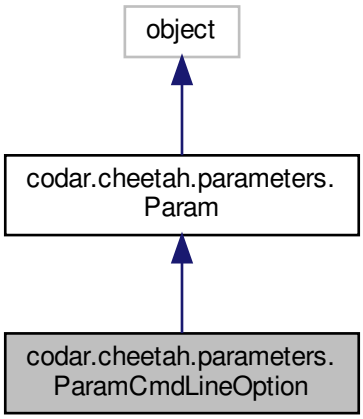
- parameters.py

6.14 codar.cheetah.parameters.ParamCmdLineOption Class Reference

Inheritance diagram for codar.cheetah.parameters.ParamCmdLineOption:



Collaboration diagram for codar.cheetah.parameters.ParamCmdLineOption:



Public Member Functions

- def __init__ (self, target, name, option, values)

Public Attributes

- option

6.14.1 Detailed Description

```
Specification for parameters that are based as a labeled command line
option. The option must contain the prefix, e.g. '--output-file' not
'output-file'.
```

Definition at line 455 of file parameters.py.

6.14.2 Constructor & Destructor Documentation

6.14.2.1 __init__()

```
def codar.cheetah.parameters.ParamCmdLineOption.__init__ (
              self,
              target,
              name,
              option,
              values )
```

Definition at line 460 of file parameters.py.

6.14.3 Member Data Documentation

6.14.3.1 option

`codar.cheetah.parameters.ParamCmdLineOption.option`

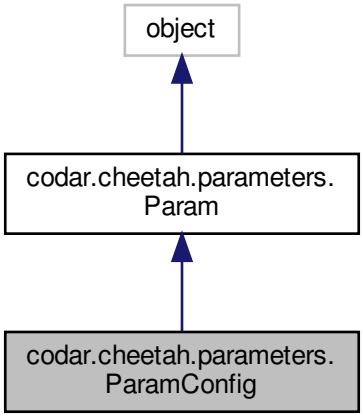
Definition at line 462 of file parameters.py.

The documentation for this class was generated from the following file:

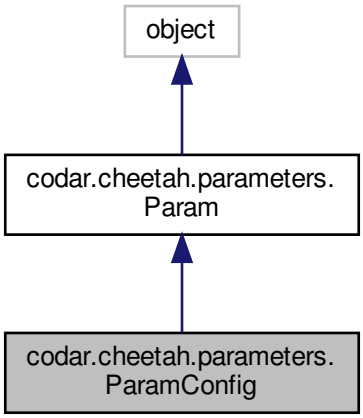
- parameters.py

6.15 codar.cheetah.parameters.ParamConfig Class Reference

Inheritance diagram for codar.cheetah.parameters.ParamConfig:



Collaboration diagram for codar.cheetah.parameters.ParamConfig:



Public Member Functions

- def __init__ (self, target, name, config_filename, match_string, values)

Public Attributes

- config_filename
- match_string

6.15.1 Detailed Description

```
Class to represent a simple literal string replace in a config file.

Note that the filename must be added to the inputs list as well, to be
copied to each run directory.
```

Definition at line 423 of file parameters.py.

6.15.2 Constructor & Destructor Documentation

6.15.2.1 __init__()

```
def codar.cheetah.parameters.ParamConfig.__init__ (
              self,
              target,
              name,
              config_filename,
              match_string,
              values )
```

Definition at line 430 of file parameters.py.

6.15.3 Member Data Documentation

6.15.3.1 config_filename

```
codar.cheetah.parameters.ParamConfig.config_filename
```

Definition at line 432 of file parameters.py.

6.15.3.2 match_string

```
codar.cheetah.parameters.ParamConfig.match_string
```

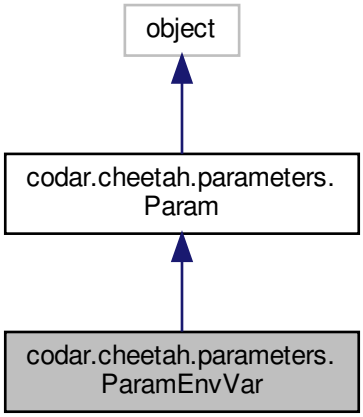
Definition at line 433 of file parameters.py.

The documentation for this class was generated from the following file:

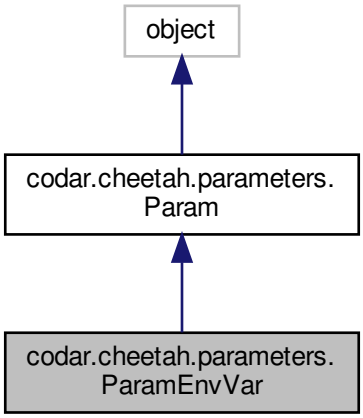
- parameters.py

6.16 codar.cheetah.parameters.ParamEnvVar Class Reference

Inheritance diagram for codar.cheetah.parameters.ParamEnvVar:



Collaboration diagram for codar.cheetah.parameters.ParamEnvVar:



Public Member Functions

- def __init__ (self, target, name, option, values)

Public Attributes

- option

6.16.1 Detailed Description

Definition at line 465 of file parameters.py.

6.16.2 Constructor & Destructor Documentation

6.16.2.1 __init__()

```
def codar.cheetah.parameters.ParamEnvVar.__init__ (
              self,
              target,
              name,
              option,
              values )
```

Definition at line 466 of file parameters.py.

6.16.3 Member Data Documentation

6.16.3.1 option

`codar.cheetah.parameters.ParamEnvVar.option`

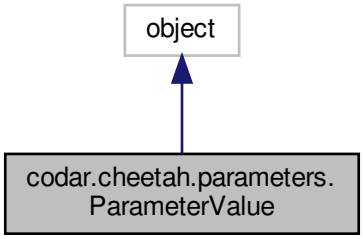
Definition at line 468 of file parameters.py.

The documentation for this class was generated from the following file:

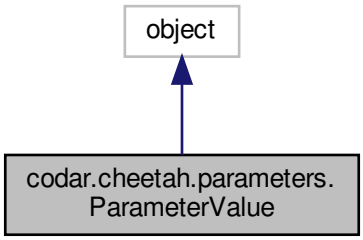
- parameters.py

6.17 codar.cheetah.parameters.ParameterValue Class Reference

Inheritance diagram for codar.cheetah.parameters.ParameterValue:



Collaboration diagram for codar.cheetah.parameters.ParameterValue:



Public Member Functions

- def __init__ (self, parameter, value_index)
- def __getattr__ (self, name)
- def is_type (self, parameter_class)

Public Attributes

- value

6.17.1 Detailed Description

```
Convenience classes for tracking a specific value of a parameter.
Proxies to underlying parameter object, adds a `value` instance
variable.

TODO: this is kind of hacky, is there a better way?
```

Definition at line 80 of file parameters.py.

6.17.2 Constructor & Destructor Documentation

6.17.2.1 __init__()

```
def codar.cheetah.parameters.ParameterValue.__init__ (
              self,
              parameter,
              value_index )
```

Definition at line 88 of file parameters.py.

6.17.3 Member Function Documentation

6.17.3.1 __getattr__()

```
def codar.cheetah.parameters.ParameterValue.__getattr__ (
              self,
              name )
```

Definition at line 92 of file parameters.py.

6.17.3.2 is_type()

```
def codar.cheetah.parameters.ParameterValue.is_type (
              self,
              parameter_class )
```

Definition at line 97 of file parameters.py.

6.17.4 Member Data Documentation

6.17.4.1 value

```
codar.cheetah.parameters.ParameterValue.value
```

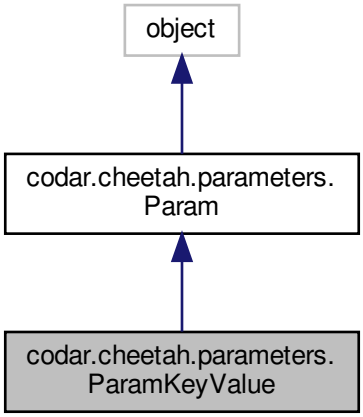
Definition at line 90 of file parameters.py.

The documentation for this class was generated from the following file:

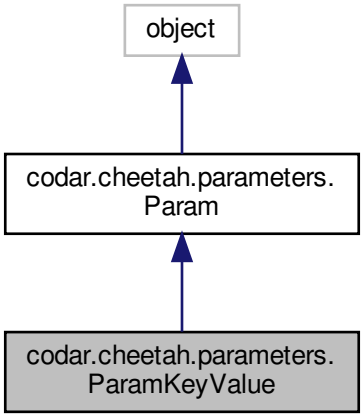
- parameters.py

6.18 codar.cheetah.parameters.ParamKeyValue Class Reference

Inheritance diagram for codar.cheetah.parameters.ParamKeyValue:



Collaboration diagram for codar.cheetah.parameters.ParamKeyValue:



Public Member Functions

- def __init__ (self, target, name, config_filename, key_name, values)

Public Attributes

- config_filename
- key_name

6.18.1 Detailed Description

```
Class to represent replacement of the value in a config file with
'k = v' formatted lines. This should work with various formats, including
fortran namelist and INI, by ignoring lines that don't match the
simple k = v pattern. It has the advantage of being flexible, but the
disadvantage of not understanding sections or other more complicated
structure in config files. Also does not do any quoting - if required,
the spec writer should include literal quotes around the values.

Note that the filename must be added to the inputs list as well, to be
copied to each run directory.
```

Definition at line 436 of file parameters.py.

6.18.2 Constructor & Destructor Documentation

6.18.2.1 __init__()

```
def codar.cheetah.parameters.ParamKeyValue.__init__ (
              self,
              target,
              name,
              config_filename,
              key_name,
              values )
```

Definition at line 449 of file parameters.py.

6.18.3 Member Data Documentation

6.18.3.1 config_filename

```
codar.cheetah.parameters.ParamKeyValue.config_filename
```

Definition at line 451 of file parameters.py.

6.18.3.2 key_name

```
codar.cheetah.parameters.ParamKeyValue.key_name
```

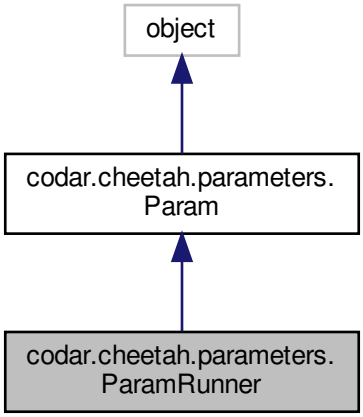
Definition at line 452 of file parameters.py.

The documentation for this class was generated from the following file:

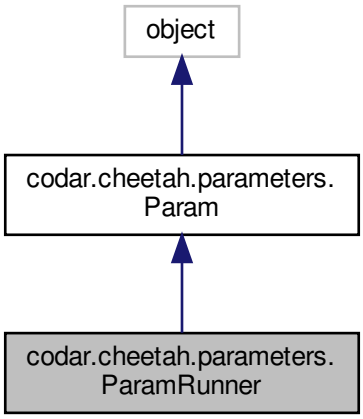
- parameters.py

6.19 codar.cheetah.parameters.ParamRunner Class Reference

Inheritance diagram for codar.cheetah.parameters.ParamRunner:



Collaboration diagram for codar.cheetah.parameters.ParamRunner:



Public Member Functions

- def __init__ (self, target, name, values)

Additional Inherited Members

6.19.1 Detailed Description

```
Specification for parameters that are passed to the runner, e.g.
mpirun, mpilaunch, srun, apirun, but usually still associated with a
specific application code.
```

Definition at line 478 of file parameters.py.

6.19.2 Constructor & Destructor Documentation

6.19.2.1 __init__()

```
def codar.cheetah.parameters.ParamRunner.__init__ (
              self,
              target,
              name,
              values )
```

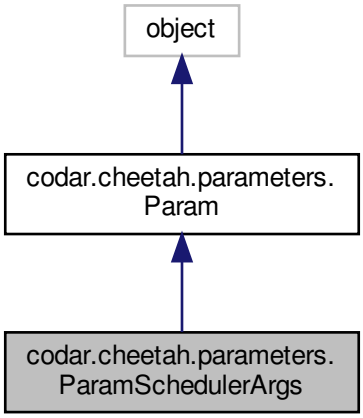
Definition at line 482 of file parameters.py.

The documentation for this class was generated from the following file:

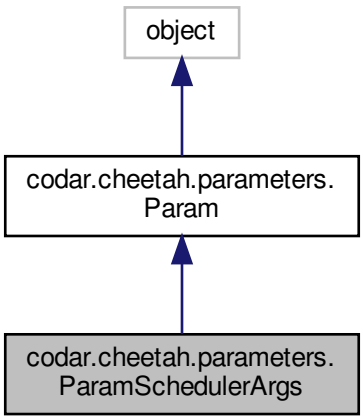
- parameters.py

6.20 codar.cheetah.parameters.ParamSchedulerArgs Class Reference

Inheritance diagram for codar.cheetah.parameters.ParamSchedulerArgs:



Collaboration diagram for codar.cheetah.parameters.ParamSchedulerArgs:



Public Member Functions

- def __init__ (self, target, values)

Additional Inherited Members

6.20.1 Detailed Description

Definition at line 471 of file parameters.py.

6.20.2 Constructor & Destructor Documentation

6.20.2.1 __init__()

```
def codar.cheetah.parameters.ParamSchedulerArgs.__init__ (
              self,
              target,
              values )
```

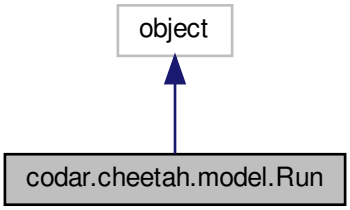
Definition at line 472 of file parameters.py.

The documentation for this class was generated from the following file:

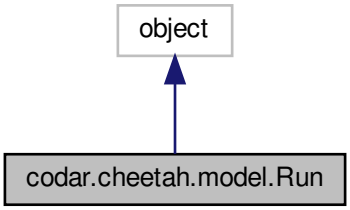
- parameters.py

6.21 codar.cheetah.model.Run Class Reference

Inheritance diagram for codar.cheetah.model.Run:



Collaboration diagram for codar.cheetah.model.Run:



Public Member Functions

- def __init__ (self, instance, codes, codes_path, run_path, inputs, machine, node_layout, rc_dependency, component_subdirs, sosflow_profiling, sosflow_analyis, component_inputs=None)
- def get_fob_data_list (self)
- def get_total_nprocs (self)
- def get_app_param_dict (self)
- def add_dataspaces_support (self, machine)
- def insert_sosflow (self, sosd_path, sos_analysis_path, run_path, ppn)

Public Attributes

- instance
- codes
- codes_path
- run_path
- run_id
- inputs
- machine
- node_layout
- component_subdirs
- sosflow_profiling
- sosflow_analysis
- component_inputs
- total_nodes
- run_components

6.21.1 Detailed Description

```
Class representing how to actually run an instance on a given environment,
including how to generate arg arrays for executing each code required for
the application.

TODO: create a model shared between workflow and cheetah, i.e. codar.model
```

Definition at line 401 of file model.py.

6.21.2 Constructor & Destructor Documentation

6.21.2.1 __init__()

```
def codar.cheetah.model.Run.__init__ (
              self,
              instance,
              codes,
              codes_path,
              run_path,
              inputs,
              machine,
              node_layout,
              rc_dependency,
              component_subdirs,
              sosflow_profiling,
              sosflow_analyis,
              component_inputs = None )
```

Definition at line 411 of file model.py.

6.21.3 Member Function Documentation

6.21.3.1 add_dataspaces_support()

```
def codar.cheetah.model.Run.add_dataspaces_support (
              self,
              machine )
```

```
Add support for dataspaces.
Check RC Adios xml files to see if any transport methods are marked
for coupling with DATASPACES/DIMES.
For stage_write, check command line args to see if DATASPACES/DIMES
is specified.
:param machine: The current machine. I dont like this here.
:return:
```

Definition at line 630 of file model.py.

6.21.3.2 get_app_param_dict()

```
def codar.cheetah.model.Run.get_app_param_dict (
              self )
```

```
Return dictionary containing only the app parameters
(does not include nprocs or exe paths).
```

Definition at line 625 of file model.py.

6.21.3.3 get_fob_data_list()

```
def codar.cheetah.model.Run.get_fob_data_list (
              self )
```

Definition at line 528 of file model.py.

6.21.3.4 get_total_nprocs()

```
def codar.cheetah.model.Run.get_total_nprocs (
              self )
```

Definition at line 545 of file model.py.

6.21.3.5 insert_sosflow()

```
def codar.cheetah.model.Run.insert_sosflow (
              self,
              sosd_path,
              sos_analysis_path,
              run_path,
              ppn )
```

```
Insert a new component at start of list to launch sosflow daemon.
Should be called only once.
```

Definition at line 752 of file model.py.

6.21.4 Member Data Documentation

6.21.4.1 codes

```
codar.cheetah.model.Run.codes
```

Definition at line 413 of file model.py.

6.21.4.2 codes_path

```
codar.cheetah.model.Run.codes_path
```

Definition at line 414 of file model.py.

6.21.4.3 component_inputs

`codar.cheetah.model.Run.component_inputs`

Definition at line 425 of file model.py.

6.21.4.4 component_subdirs

`codar.cheetah.model.Run.component_subdirs`

Definition at line 422 of file model.py.

6.21.4.5 inputs

`codar.cheetah.model.Run.inputs`

Definition at line 417 of file model.py.

6.21.4.6 instance

`codar.cheetah.model.Run.instance`

Definition at line 412 of file model.py.

6.21.4.7 machine

`codar.cheetah.model.Run.machine`

Definition at line 418 of file model.py.

6.21.4.8 node_layout

`codar.cheetah.model.Run.node_layout`

Definition at line 421 of file model.py.

6.21.4.9 run_components

`codar.cheetah.model.Run.run_components`

Definition at line 427 of file model.py.

6.21.4.10 run_id

`codar.cheetah.model.Run.run_id`

Definition at line 416 of file model.py.

6.21.4.11 run_path

`codar.cheetah.model.Run.run_path`

Definition at line 415 of file model.py.

6.21.4.12 sosflow_analysis

`codar.cheetah.model.Run.sosflow_analysis`

Definition at line 424 of file model.py.

6.21.4.13 sosflow_profiling

`codar.cheetah.model.Run.sosflow_profiling`

Definition at line 423 of file model.py.

6.21.4.14 total_nodes

`codar.cheetah.model.Run.total_nodes`

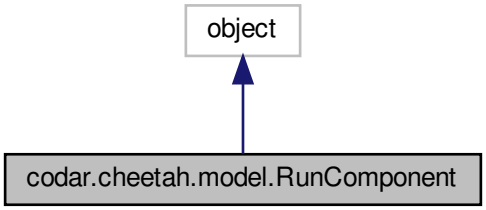
Definition at line 426 of file model.py.

The documentation for this class was generated from the following file:

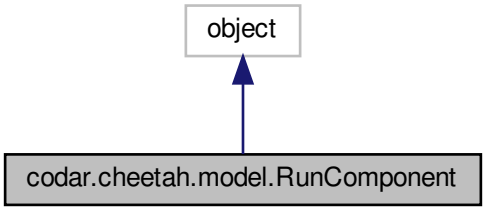
- model.py

6.22 codar.cheetah.model.RunComponent Class Reference

Inheritance diagram for codar.cheetah.model.RunComponent:



Collaboration diagram for codar.cheetah.model.RunComponent:



Public Member Functions

- def __init__ (self, name, exe, args, sched_args, nprocs, working_dir, component_inputs=None, sleep_after=None, linked_with_sosflow=False, adios_xml_file=None, env=None, timeout=None, hostfile=None, runner_override=False)
- def as_fob_data (self)

Public Attributes

- name
- exe
- args
- sched_args
- nprocs
- sleep_after
- env
- timeout

- working_dir
- component_inputs
- linked_with_sosflow
- adios_xml_file
- hostfile
- after_rc_done
- runner_override

6.22.1 Detailed Description

Definition at line 870 of file model.py.

6.22.2 Constructor & Destructor Documentation

6.22.2.1 __init__()

```
def codar.cheetah.model.RunComponent.__init__ (
              self,
              name,
              exe,
              args,
              sched_args,
              nprocs,
              working_dir,
              component_inputs = None,
              sleep_after = None,
              linked_with_sosflow = False,
              adios_xml_file = None,
              env = None,
              timeout = None,
              hostfile = None,
              runner_override = False )
```

Definition at line 874 of file model.py.

6.22.3 Member Function Documentation

6.22.3.1 as_fob_data()

```
def codar.cheetah.model.RunComponent.as_fob_data (
              self )
```

Definition at line 891 of file model.py.

6.22.4 Member Data Documentation

6.22.4.1 adios_xml_file

`codar.cheetah.model.RunComponent.adios_xml_file`

Definition at line 886 of file model.py.

6.22.4.2 after_rc_done

`codar.cheetah.model.RunComponent.after_rc_done`

Definition at line 888 of file model.py.

6.22.4.3 args

`codar.cheetah.model.RunComponent.args`

Definition at line 877 of file model.py.

6.22.4.4 component_inputs

`codar.cheetah.model.RunComponent.component_inputs`

Definition at line 884 of file model.py.

6.22.4.5 env

`codar.cheetah.model.RunComponent.env`

Definition at line 881 of file model.py.

6.22.4.6 exe

codar.cheetah.model.RunComponent.exe

Definition at line 876 of file model.py.

6.22.4.7 hostfile

codar.cheetah.model.RunComponent.hostfile

Definition at line 887 of file model.py.

6.22.4.8 linked_with_sosflow

codar.cheetah.model.RunComponent.linked_with_sosflow

Definition at line 885 of file model.py.

6.22.4.9 name

codar.cheetah.model.RunComponent.name

Definition at line 875 of file model.py.

6.22.4.10 nprocs

codar.cheetah.model.RunComponent.nprocs

Definition at line 879 of file model.py.

6.22.4.11 runner_override

codar.cheetah.model.RunComponent.runner_override

Definition at line 889 of file model.py.

6.22.4.12 sched_args

codar.cheetah.model.RunComponent.sched_args

Definition at line 878 of file model.py.

6.22.4.13 sleep_after

codar.cheetah.model.RunComponent.sleep_after

Definition at line 880 of file model.py.

6.22.4.14 timeout

codar.cheetah.model.RunComponent.timeout

Definition at line 882 of file model.py.

6.22.4.15 working_dir

codar.cheetah.model.RunComponent.working_dir

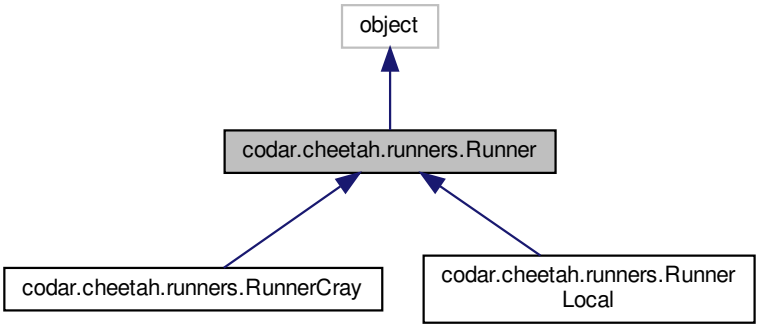
Definition at line 883 of file model.py.

The documentation for this class was generated from the following file:

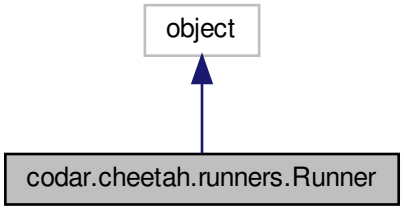
- model.py

6.23 codar.cheetah.runners.Runner Class Reference

Inheritance diagram for codar.cheetah.runners.Runner:



Collaboration diagram for codar.cheetah.runners.Runner:



Public Member Functions

- def wrap_app_command (self, command_dir, out_name, app_command)

Static Public Attributes

- name = None

6.23.1 Detailed Description

Definition at line 7 of file runners.py.

6.23.2 Member Function Documentation

6.23.2.1 wrap_app_command()

```
def codar.cheetah.runners.Runner.wrap_app_command (
              self,
              command_dir,
              out_name,
              app_command )

Given an application command line, return a list of commands to
run the given line using this runner and in the specified command
working directory.
```

Definition at line 10 of file runners.py.

6.23.3 Member Data Documentation

6.23.3.1 name

```
codar.cheetah.runners.Runner.name = None  [static]
```

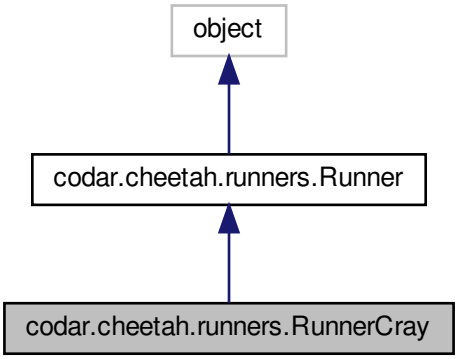
Definition at line 8 of file runners.py.

The documentation for this class was generated from the following file:

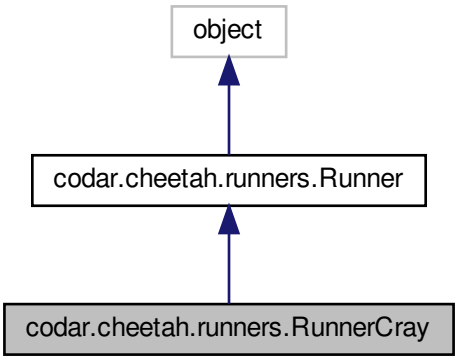
- runners.py

6.24 codar.cheetah.runners.RunnerCray Class Reference

Inheritance diagram for codar.cheetah.runners.RunnerCray:



Collaboration diagram for codar.cheetah.runners.RunnerCray:



Public Member Functions

- def wrap_app_command (self, command_dir, out_name, app_command)

Static Public Attributes

- string name = 'cray'

6.24.1 Detailed Description

Definition at line 40 of file runners.py.

6.24.2 Member Function Documentation

6.24.2.1 wrap_app_command()

```
def codar.cheetah.runners.RunnerCray.wrap_app_command (
              self,
              command_dir,
              out_name,
              app_command )

Run using aprun, and cd before/after to arrange separate working
dir per run.

TODO: how to pass aprun params?

NOTE: assumes CWD is batch directory within the experiment output dir.
```

Definition at line 43 of file runners.py.

6.24.3 Member Data Documentation

6.24.3.1 name

```
string codar.cheetah.runners.RunnerCray.name = 'cray'  [static]
```

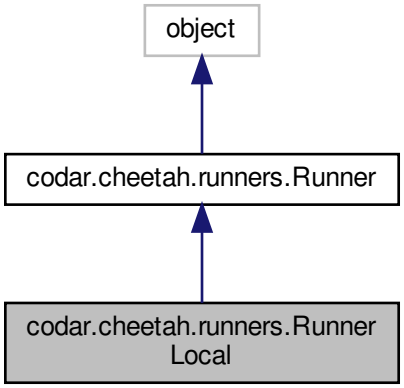
Definition at line 41 of file runners.py.

The documentation for this class was generated from the following file:

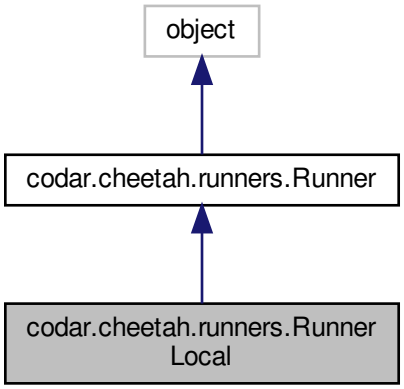
- runners.py

6.25 codar.cheetah.runners.RunnerLocal Class Reference

Inheritance diagram for codar.cheetah.runners.RunnerLocal:



Collaboration diagram for codar.cheetah.runners.RunnerLocal:



Public Member Functions

- def wrap_app_command (self, command_dir, out_name, app_command)

Static Public Attributes

- string name = 'local'

6.25.1 Detailed Description

Definition at line 20 of file runners.py.

6.25.2 Member Function Documentation

6.25.2.1 wrap_app_command()

```
def codar.cheetah.runners.RunnerLocal.wrap_app_command (
              self,
              command_dir,
              out_name,
              app_command )

Run directly, just at cd before/after to arrange separate working
dir per run.

TODO: how to pass runner params?

NOTE: assumes CWD is batch directory within the experiment output dir.
```

Definition at line 23 of file runners.py.

6.25.3 Member Data Documentation

6.25.3.1 name

```
string codar.cheetah.runners.RunnerLocal.name = 'local'  [static]
```

Definition at line 21 of file runners.py.

The documentation for this class was generated from the following file:

- runners.py

6.26 codar.cheetah.parameters.SummitOpts Class Reference

Public Member Functions

- def __init__ (self)

6.26.1 Detailed Description

Definition at line 486 of file parameters.py.

6.26.2 Constructor & Destructor Documentation

6.26.2.1 __init__()

```
def codar.cheetah.parameters.SummitOpts.__init__ (
              self )
```

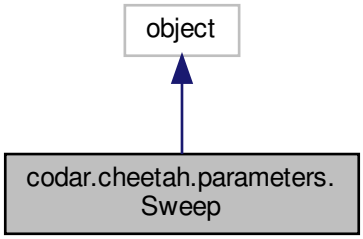
Definition at line 487 of file parameters.py.

The documentation for this class was generated from the following file:

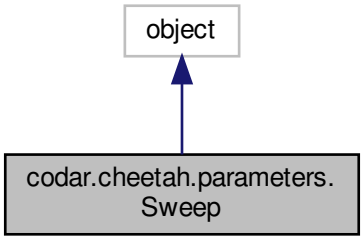
- parameters.py

6.27 codar.cheetah.parameters.Sweep Class Reference

Inheritance diagram for codar.cheetah.parameters.Sweep:



Collaboration diagram for codar.cheetah.parameters.Sweep:



Public Member Functions

- def __init__ (self, parameters, node_layout=None, rc_dependency=None)
- def get_instances (self)

Public Attributes

- parameters
- node_layout
- rc_dependency

6.27.1 Detailed Description

```
Class representing a set of parameter values to search over as
a cross product.
```

Definition at line 45 of file parameters.py.

6.27.2 Constructor & Destructor Documentation

6.27.2.1 __init__()

```
def codar.cheetah.parameters.Sweep.__init__ (
              self,
              parameters,
              node_layout = None,
              rc_dependency = None )
```

Definition at line 50 of file parameters.py.

6.27.3 Member Function Documentation

6.27.3.1 get_instances()

```
def codar.cheetah.parameters.Sweep.get_instances (
              self )
```

```
Get a list of Instance objects representing dense cross product over
param values.

TODO: this works great for command line options and args, but
what about for config and other types of params? Need to setup
a run dir and populate it with filled config templates.

Also how to pass per run output dir? Or is just making CWD the
per run dir enough for all cases we care about?

TODO: should have same signature as SweepGroup version OR a
different name.
```

Definition at line 55 of file parameters.py.

6.27.4 Member Data Documentation

6.27.4.1 node_layout

```
codar.cheetah.parameters.Sweep.node_layout
```

Definition at line 52 of file parameters.py.

6.27.4.2 parameters

`codar.cheetah.parameters.Sweep.parameters`

Definition at line 51 of file parameters.py.

6.27.4.3 rc_dependency

`codar.cheetah.parameters.Sweep.rc_dependency`

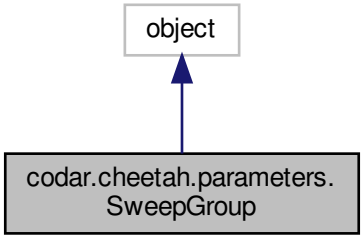
Definition at line 53 of file parameters.py.

The documentation for this class was generated from the following file:

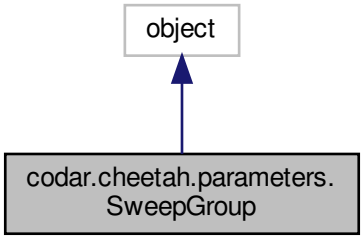
- parameters.py

6.28 codar.cheetah.parameters.SweepGroup Class Reference

Inheritance diagram for codar.cheetah.parameters.SweepGroup:



Collaboration diagram for codar.cheetah.parameters.SweepGroup:



Public Member Functions

- def __init__ (self, name, parameter_groups, component_subdirs=False, component_inputs=None, walltime=3600, max_procs=None, per_run_timeout=None, sosflow_profiling=False, sosflow_analysis=False, nodes=None, launch_mode=None, run_repetitions=0)

Public Attributes

- name
- nodes
- component_subdirs
- max_procs
- parameter_groups
- walltime
- per_run_timeout
- sosflow_profiling
- sosflow_analysis
- component_inputs
- launch_mode
- run_repetitions

6.28.1 Detailed Description

```
Class representing a grouping of run parameters that can be executed by
a single scheduler job, because they share the same scheduler parameters.

Note that nodes is no longer required - if not specified, it is calculated
based on the biggest run within the group.

How this gets converted into a script depends on the target machine and
which scheduler (if any) that machine uses.
```

Definition at line 11 of file parameters.py.

6.28.2 Constructor & Destructor Documentation

6.28.2.1 __init__()

```
def codar.cheetah.parameters.SweepGroup.__init__ (
                self,
                name,
                parameter_groups,
                component_subdirs = False,
                component_inputs = None,
                walltime = 3600,
                max_procs = None,
                per_run_timeout = None,
                sosflow_profiling = False,
                sosflow_analysis = False,
                nodes = None,
                launch_mode = None,
                run_repetitions = 0 )
```

Definition at line 26 of file parameters.py.

6.28.3 Member Data Documentation

6.28.3.1 component_inputs

codar.cheetah.parameters.SweepGroup.component_inputs

Definition at line 37 of file parameters.py.

6.28.3.2 component_subdirs

codar.cheetah.parameters.SweepGroup.component_subdirs

Definition at line 29 of file parameters.py.

6.28.3.3 launch_mode

codar.cheetah.parameters.SweepGroup.launch_mode

Definition at line 41 of file parameters.py.

6.28.3.4 max_procs

codar.cheetah.parameters.SweepGroup.max_procs

Definition at line 30 of file parameters.py.

6.28.3.5 name

codar.cheetah.parameters.SweepGroup.name

Definition at line 27 of file parameters.py.

6.28.3.6 nodes

codar.cheetah.parameters.SweepGroup.nodes

Definition at line 28 of file parameters.py.

6.28.3.7 parameter_groups

codar.cheetah.parameters.SweepGroup.parameter_groups

Definition at line 31 of file parameters.py.

6.28.3.8 per_run_timeout

codar.cheetah.parameters.SweepGroup.per_run_timeout

Definition at line 34 of file parameters.py.

6.28.3.9 run_repetitions

codar.cheetah.parameters.SweepGroup.run_repetitions

Definition at line 42 of file parameters.py.

6.28.3.10 sosflow_analysis

codar.cheetah.parameters.SweepGroup.sosflow_analysis

Definition at line 36 of file parameters.py.

6.28.3.11 sosflow_profiling

codar.cheetah.parameters.SweepGroup.sosflow_profiling

Definition at line 35 of file parameters.py.

6.28.3.12 walltime

`codar.cheetah.parameters.SweepGroup.walltime`

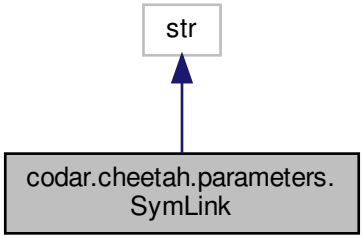
Definition at line 32 of file parameters.py.

The documentation for this class was generated from the following file:

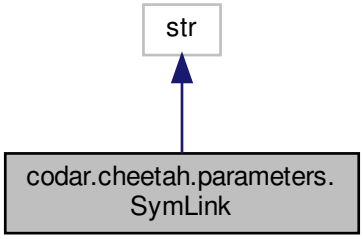
- parameters.py

6.29 codar.cheetah.parameters.SymLink Class Reference

Inheritance diagram for codar.cheetah.parameters.SymLink:



Collaboration diagram for codar.cheetah.parameters.SymLink:



Public Member Functions

- def __init__ (self, source)

Public Attributes

- source

6.29.1 Detailed Description

```
Class to represent symbolic links as an input type for a run component
```

Definition at line 491 of file parameters.py.

6.29.2 Constructor & Destructor Documentation

6.29.2.1 __init__()

```
def codar.cheetah.parameters.SymLink.__init__ (
              self,
              source )
```

Definition at line 495 of file parameters.py.

6.29.3 Member Data Documentation

6.29.3.1 source

```
codar.cheetah.parameters.SymLink.source
```

Definition at line 496 of file parameters.py.

The documentation for this class was generated from the following file:

- parameters.py

Chapter 7

File Documentation

7.1 __init__.py File Reference

Namespaces

- codar.cheetah

7.2 adios2_interface.py File Reference

Namespaces

- codar.cheetah.adios2_interface

Functions

- def codar.cheetah.adios2_interface.get_adios_version (xml_file)
- def codar.cheetah.adios2_interface.set_engine (xmlfile, io_obj, engine_type, parameters=None)
- def codar.cheetah.adios2_interface.set_transport (xmlfile, io_obj, transport_type, parameters=None)
- def codar.cheetah.adios2_interface.set_var_operation (xmlfile, io_obj, var_name, operation, parameters=None)

7.3 adios_params.py File Reference

Namespaces

- codar.cheetah.adios_params

Functions

- def codar.cheetah.adios_params.adios_xml_transform (xml_filepath, group_name, var_name, value)
- def codar.cheetah.adios_params.adios_xml_transport (xml_filepath, group_name, method_name, method↩ _opts)
- def codar.cheetah.adios_params.xml_has_transport (xml_filepath, transport_type)

7.4 config.py File Reference

Namespaces

- codar.cheetah.config

Functions

- def codar.cheetah.config.scheduler_path (scheduler_name)
- def codar.cheetah.config.machine_submit_env_path (machine_name)
- def codar.cheetah.config.etc_path (conf_name)
- def codar.cheetah.config.get_dataspaces_num_servers (num_dimes_clients, num_dataspaces_clients)

Variables

- codar.cheetah.config.PACKAGE_PATH = os.path.realpath(os.path.dirname(__file__))
- codar.cheetah.config.DATA_PATH = os.path.join(PACKAGE_PATH, "data")
- codar.cheetah.config.CODAR_PATH = os.path.realpath(os.path.join(PACKAGE_PATH, ".."))
- codar.cheetah.config.CHEETAH_PATH_SCHEDULER = os.path.join(DATA_PATH, "scheduler")
- codar.cheetah.config.CHEETAH_PATH_MACHINE_CONFIG = os.path.join(DATA_PATH, "machine_↩ config")
- codar.cheetah.config.WORKFLOW_SCRIPT = os.path.join(CODAR_PATH, "savanna", "main.py")

7.5 exc.py File Reference

Classes

- class codar.cheetah.exc.CheetahException
- class codar.cheetah.exc.MachineNotFound
- class codar.cheetah.exc.CampaignParseError

Namespaces

- codar.cheetah.exc

7.6 helpers.py File Reference

Namespaces

- codar.cheetah.helpers

Functions

- def codar.cheetah.helpers.make_executable (path)
- def codar.cheetah.helpers.swift_escape_string (s)
- def codar.cheetah.helpers.parse_timedelta_seconds (v)
- def codar.cheetah.helpers.copy_to_dir (source_file, dest_dir, follow_symlinks=True)
- def codar.cheetah.helpers.copy_to_path (source_file, dest_file, follow_symlinks=True)
- def codar.cheetah.helpers.is_executable (fpath)
- def codar.cheetah.helpers.copytree_to_dir (source_dir, dest_dir, follow_symlinks=True)
- def codar.cheetah.helpers.relative_or_absolute_path (prefix, path)
- def codar.cheetah.helpers.relative_or_absolute_path_list (prefix, path_list)
- def codar.cheetah.helpers.get_immediate_subdirs (dir_path)
- def codar.cheetah.helpers.dir_size (path)
- def codar.cheetah.helpers.get_file_size (dir_entry)
- def codar.cheetah.helpers.is_campaign_directory (path)
- def codar.cheetah.helpers.require_campaign_directory (path)
- def codar.cheetah.helpers.json_config_set_option (filename, key, value)

7.7 launchers.py File Reference

Classes

- class codar.cheetah.launchers.Launcher

Namespaces

- codar.cheetah.launchers

Variables

- string codar.cheetah.launchers.TAU_PROFILE_PATTERN = "codar.cheetah.tau-{code}"

7.8 loader.py File Reference

Namespaces

- codar.cheetah.loader

Functions

- def codar.cheetah.loader.load_experiment_class (file_path)

7.9 machine_launchers.py File Reference

Namespaces

- codar.cheetah.machine_launchers

Functions

- def codar.cheetah.machine_launchers.get_launcher (machine, output_directory, num_codes)

Variables

- codar.cheetah.machine_launchers.machine_launchers = dict()

7.10 model.py File Reference

Classes

- class codar.cheetah.model.Campaign
- class codar.cheetah.model.Run
- class codar.cheetah.model.RunComponent

Namespaces

- codar.cheetah.model

Variables

- codar.cheetah.model.RESERVED_CODE_NAMES = set(['post-process'])

7.11 parameters.py File Reference

Classes

- class codar.cheetah.parameters.SweepGroup
- class codar.cheetah.parameters.Sweep
- class codar.cheetah.parameters.ParameterValue
- class codar.cheetah.parameters.Instance
- class codar.cheetah.parameters.CodeCommand
- class codar.cheetah.parameters.Param
- class codar.cheetah.parameters.ParamCmdLineArg
- class codar.cheetah.parameters.ParamAdiosXML
- class codar.cheetah.parameters.ParamADIOS2XML
- class codar.cheetah.parameters.ParamConfig
- class codar.cheetah.parameters.ParamKeyValue
- class codar.cheetah.parameters.ParamCmdLineOption
- class codar.cheetah.parameters.ParamEnvVar
- class codar.cheetah.parameters.ParamSchedulerArgs
- class codar.cheetah.parameters.ParamRunner
- class codar.cheetah.parameters.SummitOpts
- class codar.cheetah.parameters.SymLink

Namespaces

- codar.cheetah.parameters

7.12 pbs.py File Reference

Namespaces

- codar.cheetah.pbs

Functions

- def codar.cheetah.pbs.open_pbs_file (scheduler_dir_path, name, project, nodes, walltime)
- def codar.cheetah.pbs.write_run_script (script_out_path, scheduler_dir_path)

Variables

- string codar.cheetah.pbs.PBS_NAME = 'job.pbs'
- string codar.cheetah.pbs.PBS_FORMAT_TEMPLATE
- string codar.cheetah.pbs.SUBMIT_FORMAT_TEMPLATE

7.13 report_generator.py File Reference

Classes

- class codar.cheetah.report_generator._RunParser
- class codar.cheetah.report_generator._ReportGenerator

Namespaces

- codar.cheetah.report_generator

Functions

- def codar.cheetah.report_generator.generate_report (campaign_directory, user_run_script, output_file_path)

7.14 runners.py File Reference

Classes

- class codar.cheetah.runners.Runner
- class codar.cheetah.runners.RunnerLocal
- class codar.cheetah.runners.RunnerCray

Namespaces

- codar.cheetah.runners

7.15 status.py File Reference

Namespaces

- codar.cheetah.status

Functions

- def codar.cheetah.status.print_campaign_status (campaign_directory, filter_user=None, filter_group=None, filter_run=None, filter_code=None, group_summary=False, run_summary=False, print_logs=False, log_↩ level='DEBUG', return_codes=False, print_output=False, show_parameters=False)
- def codar.cheetah.status.get_workflow_status (status_file_path, print_counts=False, indent=0, print_return↩ _codes=False, filter_run=None, print_parameters=False, filter_code=None, run_summary=False, code_↩ names=None)

7.16 templates.py File Reference

Namespaces

- codar.cheetah.templates

Variables

- string codar.cheetah.templates.CAMPAIGN_ENV_TEMPLATE
- string codar.cheetah.templates.GROUP_ENV_TEMPLATE

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