Cheetah/Savanna API

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Contents

Chapter 1

Namespace Index

1.1 Namespace List

Here is a list of all namespaces with brief descriptions:

Chapter 2

Hierarchical Index

2.1 Class Hierarchy

This inheritance list is sorted roughly, but not completely, alphabetically:

Chapter 3

Class Index

3.1 Class List

Here are the classes, structs, unions and interfaces with brief descriptions:

Chapter 4

File Index

4.1 File List

Here is a list of all files with brief descriptions:

Chapter 5

Namespace Documentation

5.1 codar Namespace Reference

Namespaces

- cheetah
- savanna

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:

```
=  """
#!/bin/bash
#PBS -N {name}
#PBS -A {project}
#PBS -l nodes={nodes}
#PBS -l walltime={walltime}

"""
```

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:

```
=  """
#!/bin/bash

cd "{scheduler_directory}"
qsub {pbs_name}
"""
```

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:

```
=  """
export CODAR_CHEETAH_EXPERIMENT_DIR="{experiment_dir}"
export CODAR_CHEETAH_MACHINE_CONFIG="{machine_config}"
export CODAR_CHEETAH_APP_CONFIG="{app_config}"
export CODAR_WORKFLOW_SCRIPT="{workflow_script_path}"
export CODAR_WORKFLOW_RUNNER="{workflow_runner}"
export CODAR_CHEETAH_WORKFLOW_LOG_LEVEL="{workflow_debug_level}"
export CODAR_CHEETAH_UMASK="{umask}"
export CODAR_PYTHON="{codar_python}"
"""
```

Definition at line 9 of file templates.py.

5.17.2.2 GROUP_ENV_TEMPLATE

`string codar.cheetah.templates.GROUP_ENV_TEMPLATE`

Initial value:

```
=  """
export CODAR_CHEETAH_GROUP_WALLTIME="{walltime}"
export CODAR_CHEETAH_GROUP_MAX_PROCS="{max_procs}"

export CODAR_CHEETAH_SCHEDULER_ACCOUNT="{account}"
# queue on PBS, partition on SLURM
export CODAR_CHEETAH_SCHEDULER_QUEUE="{queue}"
# SLURM specific options
export CODAR_CHEETAH_SCHEDULER_CONSTRAINT="{constraint}"
export CODAR_CHEETAH_SCHEDULER_LICENSE="{license}"

export CODAR_CHEETAH_CAMPAIGN_NAME="{campaign_name}"

export CODAR_CHEETAH_GROUP_NAME="{group_name}"
export CODAR_CHEETAH_GROUP_NODES="{nodes}"
export CODAR_CHEETAH_GROUP_NODE_EXCLUSIVE="{node_exclusive}"
export CODAR_CHEETAH_GROUP_PROCESSES_PER_NODE="{processes_per_node}"
export CODAR_CHEETAH_MACHINE_NAME="{machine_name}"
"""
```

Definition at line 21 of file templates.py.

5.18 codar.savanna Namespace Reference

Namespaces

- consumer
- exc
- machines
- main
- model
- node_layout
- producer
- runners
- scheduler
- status
- summit_helper

5.18.1 Detailed Description

```
Classes for running pipelines of MPI tasks based on a specified
total process limit. The system is designed to use two + N threads:

1. consumer thread: get pipelines from queue and execute them when process
   slots become available. Stops when a None pipeline is received.

2. producer thread: add pipelines to queue. Can be from file or from network
   service.

3. monitor threads: each process spawned by the consumer thread has a monitor
   thread that blocks on the processes completing with a timeout, and kills the
   process if it’s not done after the timeout is reached.
```

5.19 codar.savanna.consumer Namespace Reference

Classes

- class PipelineRunner

5.19.1 Detailed Description

```
Classes for ’consuming’ pipelines - running groups of MPI tasks based on a
specified total process limit.
```

5.20 codar.savanna.exc Namespace Reference

Classes

- class MachineNotFound
- class SavannaException

5.20.1 Detailed Description

```
Exceptions.
```

5.21 codar.savanna.machines Namespace Reference

Classes

- class Machine
- class MachineNode
- class SummitNode

Functions

- def get_by_name (name)

Variables

- SCHEDULER_OPTIONS = set(["project", "queue", "constraint", "license"])
- local = Machine('local', "local", "mpiexec", MachineNode, processes_per_node=1)
- titan
- cori
- theta
- summit

5.21.1 Detailed Description

```
Configuration for machines supported by Codar.
```

5.21.2 Function Documentation

5.21.2.1 get_by_name()

```
def codar.savanna.machines.get_by_name (
              name )
```

Definition at line 149 of file machines.py.

5.21.3 Variable Documentation

5.21.3.1 cori

```
codar.savanna.machines.cori
```

Initial value:

```
=  Machine('cori', "slurm", "srun", MachineNode,
              processes_per_node=32, node_exclusive=True,
              dataspaces_servers_per_node=4,
              scheduler_options=dict(project="",
                                     queue="debug",
                                     constraint="haswell",
                                     license="SCRATCH,project"))
```

Definition at line 128 of file machines.py.

5.21.3.2 local

```
codar.savanna.machines.local = Machine('local', "local", "mpiexec", MachineNode, processes_←
per_node=1)
```

Definition at line 118 of file machines.py.

5.21.3.3 SCHEDULER_OPTIONS

```
codar.savanna.machines.SCHEDULER_OPTIONS = set(["project", "queue", "constraint", "license"])
```

Definition at line 13 of file machines.py.

5.21.3.4 summit

```
codar.savanna.machines.summit
```

Initial value:

```
=  Machine('summit', "ibm_lsf", "jsrun", SummitNode,
                processes_per_node=42, node_exclusive=True,
                scheduler_options=dict(project=""))
```

Definition at line 144 of file machines.py.

5.21.3.5 theta

```
codar.savanna.machines.theta
```

Initial value:

```
=  Machine('theta', "cobalt", "aprun", MachineNode,
                  processes_per_node=64, node_exclusive=True,
                  dataspaces_servers_per_node=8,
                  scheduler_options=dict(project="",
                                         queue="debug-flat-quad"))
```

Definition at line 137 of file machines.py.

5.21.3.6 titan

```
codar.savanna.machines.titan
```

Initial value:

```
=  Machine('titan', "pbs", "aprun", MachineNode,
                  processes_per_node=16, node_exclusive=True,
                  scheduler_options=dict(project="", queue="debug"),
                  dataspaces_servers_per_node=4)
```

Definition at line 120 of file machines.py.

5.22 codar.savanna.main Namespace Reference

Functions

- def parse_args ()
- def main ()
- def get_job_id ()

Variables

- consumer = None

5.22.1 Detailed Description

```
Main program for executing workflow script with different producers and
runners.
```

5.22.2 Function Documentation

5.22.2.1 get_job_id()

```
def codar.savanna.main.get_job_id ( )
```

Definition at line 104 of file main.py.

5.22.2.2 main()

```
def codar.savanna.main.main ( )
```

Definition at line 39 of file main.py.

5.22.2.3 parse_args()

```
def codar.savanna.main.parse_args ( )
```

Definition at line 18 of file main.py.

5.22.3 Variable Documentation

5.22.3.1 consumer

```
codar.savanna.main.consumer = None
```

Definition at line 15 of file main.py.

5.23 codar.savanna.model Namespace Reference

Classes

- class NodeConfig
- class Pipeline
- class Run

Variables

- string STDOUT_NAME = 'codar.workflow.stdout'
- string STDERR_NAME = 'codar.workflow.stderr'
- string RETURN_NAME = 'codar.workflow.return'
- string WALLTIME_NAME = 'codar.workflow.walltime'
- int KILL_WAIT = 30
- int WAIT_DELAY_KILL = 30
- int WAIT_DELAY_GIVE_UP = 120

5.23.1 Detailed Description

```
Classes for tracking pipelines and the runs within each pipeline in separate
monitor threads that synchronize state.

Note that there is state tracked in these classes which is not available just
by looking at the return code. In particular, a run my be killed for several
different reasons: external signal, run timeout reached, other run in pipeline
failed (when kill on partial fail is set), or if the entire workflow is killed.

The goal here is to provide as much information as possible about why a
pipeline failed, to make an informed decision about whether it is worth
running again when the workflow is restarted, or if it’s failure was more
permanent and not subject to outside forces like the job walltime expiring.
```

5.23.2 Variable Documentation

5.23.2.1 KILL_WAIT

```
int codar.savanna.model.KILL_WAIT = 30
```

Definition at line 37 of file model.py.

5.23.2.2 RETURN_NAME

```
string codar.savanna.model.RETURN_NAME = 'codar.workflow.return'
```

Definition at line 34 of file model.py.

5.23.2.3 STDERR_NAME

```
string codar.savanna.model.STDERR_NAME = 'codar.workflow.stderr'
```

Definition at line 33 of file model.py.

5.23.2.4 STDOUT_NAME

```
string codar.savanna.model.STDOUT_NAME = 'codar.workflow.stdout'
```

Definition at line 32 of file model.py.

5.23.2.5 WAIT_DELAY_GIVE_UP

```
int codar.savanna.model.WAIT_DELAY_GIVE_UP = 120
```

Definition at line 39 of file model.py.

5.23.2.6 WAIT_DELAY_KILL

```
int codar.savanna.model.WAIT_DELAY_KILL = 30
```

Definition at line 38 of file model.py.

5.23.2.7 WALLTIME_NAME

```
string codar.savanna.model.WALLTIME_NAME = 'codar.workflow.walltime'
```

Definition at line 35 of file model.py.

5.24 codar.savanna.node_layout Namespace Reference

Classes

- class NodeLayout

5.25 codar.savanna.producer Namespace Reference

Classes

- class JSONFilePipelineReader

5.25.1 Detailed Description

```
Classes for producing pipelines.
```

5.26 codar.savanna.runners Namespace Reference

Classes

- class MPIRunner
- class Runner
- class SummitRunner

Variables

- mpiexec = MPIRunner('mpiexec', '-n', hostfile='--hostfile')
- aprun = MPIRunner('aprun', '-n', tasks_per_node_arg='-N', hostfile='-L')
- srun = MPIRunner('srun', '-n', nodes_arg='-N', hostfile='-w')
- jsrun = SummitRunner()

5.26.1 Variable Documentation

5.26.1.1 aprun

```
codar.savanna.runners.aprun = MPIRunner('aprun', '-n', tasks_per_node_arg='-N', hostfile='-L')
```

Definition at line 94 of file runners.py.

5.26.1.2 jsrun

```
codar.savanna.runners.jsrun = SummitRunner()
```

Definition at line 96 of file runners.py.

5.26.1.3 mpiexec

```
codar.savanna.runners.mpiexec = MPIRunner('mpiexec', '-n', hostfile='--hostfile')
```

Definition at line 93 of file runners.py.

5.26.1.4 srun

```
codar.savanna.runners.srun = MPIRunner('srun', '-n', nodes_arg='-N', hostfile='-w')
```

Definition at line 95 of file runners.py.

5.27 codar.savanna.scheduler Namespace Reference

Classes

- class JobList

5.27.1 Detailed Description

```
Classes related to finding a job that can run on available resources. Does
not assume any knowledge of how long each job will take. Designed for greedy
search of a job that will fit whenever resources are freed.

In the context of Cheetah workflows, it's unlikely that there will be more than
a few hundred jobs, so it's not worth optimizing the python search code very
much. It is however worth making sure that a job is run when resources are
available, since super computer resources are expensive. Basically it's worth
doing some work in python to make sure we start a big unit of work on compute
nodes.
```

5.28 codar.savanna.status Namespace Reference

Classes

- class PipelineState
- class WorkflowStatus

Variables

- string NOT_STARTED = 'not_started'
- string RUNNING = 'running'
- string DONE = 'done'
- string KILLED = 'killed'
- string REASON_TIMEOUT = 'timeout'
- string REASON_FAILED = 'failed'
- string REASON_SUCCEEDED = 'succeeded'
- string REASON_EXCEPTION = 'exception'
- string REASON_NOFIT = 'nofit'

5.28.1 Detailed Description

```
Class for maintaining state of all FOB runs that the workflow consumer is
managing. State is saved in a JSON file, overwritten on each state change.
```

5.28.2 Variable Documentation

5.28.2.1 DONE

```
string codar.savanna.status.DONE = 'done'
```

Definition at line 14 of file status.py.

5.28.2.2 KILLED

```
string codar.savanna.status.KILLED = 'killed'
```

Definition at line 15 of file status.py.

5.28.2.3 NOT_STARTED

```
string codar.savanna.status.NOT_STARTED = 'not_started'
```

Definition at line 12 of file status.py.

5.28.2.4 REASON_EXCEPTION

```
string codar.savanna.status.REASON_EXCEPTION = 'exception'
```

Definition at line 20 of file status.py.

5.28.2.5 REASON_FAILED

```
string codar.savanna.status.REASON_FAILED = 'failed'
```

Definition at line 18 of file status.py.

5.28.2.6 REASON_NOFIT

```
string codar.savanna.status.REASON_NOFIT = 'nofit'
```

Definition at line 21 of file status.py.

5.28.2.7 REASON_SUCCEEDED

```
string codar.savanna.status.REASON_SUCCEEDED = 'succeeded'
```

Definition at line 19 of file status.py.

5.28.2.8 REASON_TIMEOUT

```
string codar.savanna.status.REASON_TIMEOUT = 'timeout'
```

Definition at line 17 of file status.py.

5.28.2.9 RUNNING

```
string codar.savanna.status.RUNNING = 'running'
```

Definition at line 13 of file status.py.

5.29 codar.savanna.summit_helper Namespace Reference

Functions

- def get_nodes_reqd (res_set, nrs)
- def create_erf_file (run)

5.29.1 Function Documentation

5.29.1.1 create_erf_file()

```
def codar.savanna.summit_helper.create_erf_file (
              run )
```

Definition at line 12 of file summit_helper.py.

5.29.1.2 get_nodes_reqd()

```
def codar.savanna.summit_helper.get_nodes_reqd (
              res_set,
              nrs )
```

```
Get the no. of nodes that will be required based on the resource set
and the no. of resource sets
```

Definition at line 5 of file summit_helper.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:

- cheetah/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
```

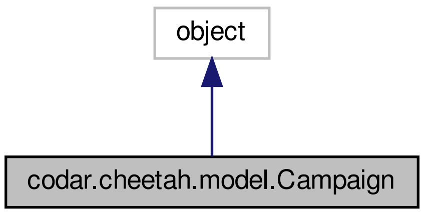
Definition at line 31 of file report_generator.py.

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

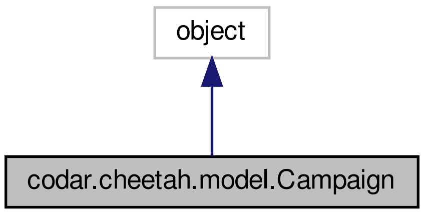
- cheetah/report_generator.py

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]`

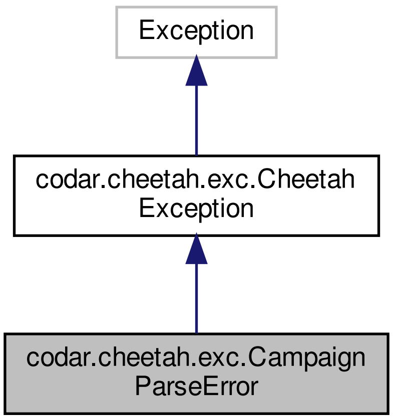
Definition at line 52 of file model.py.

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

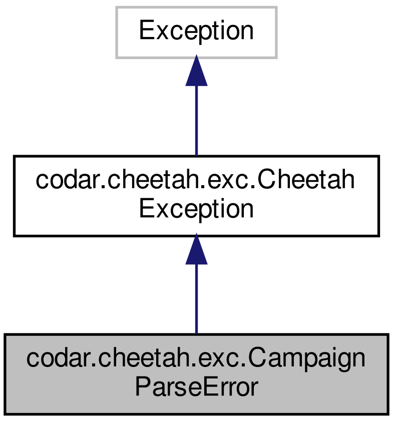
- cheetah/model.py

6.4 codar.cheetah.exc.CampaignParseError Class Reference

Inheritance diagram for codar.cheetah.exc.CampaignParseError:


Exception
codar.cheetah.exc.Cheetah Exception
codar.cheetah.exc.Campaign ParseError

Collaboration diagram for codar.cheetah.exc.CampaignParseError:


Exception
codar.cheetah.exc.Cheetah Exception
codar.cheetah.exc.Campaign ParseError

6.4.1 Detailed Description

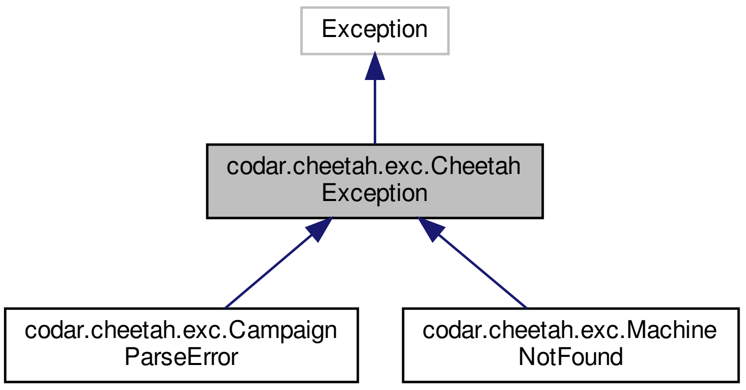
Definition at line 16 of file exc.py.

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

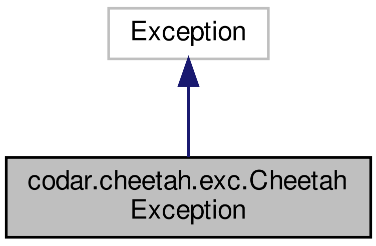
- cheetah/exc.py

6.5 codar.cheetah.exc.CheetahException Class Reference

Inheritance diagram for codar.cheetah.exc.CheetahException:


Exception
codar.cheetah.exc.Cheetah Exception
codar.cheetah.exc.Campaign ParseError
codar.cheetah.exc.Machine NotFound

Collaboration diagram for codar.cheetah.exc.CheetahException:



6.5.1 Detailed Description

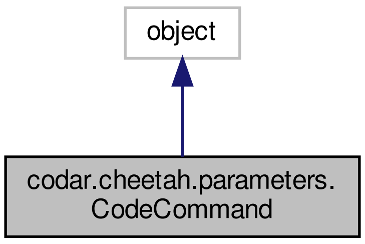
Definition at line 6 of file exc.py.

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

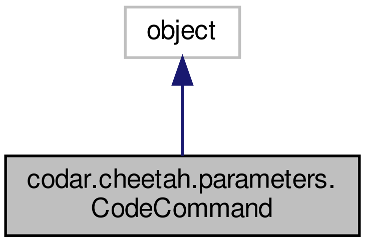
- cheetah/exc.py

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
```

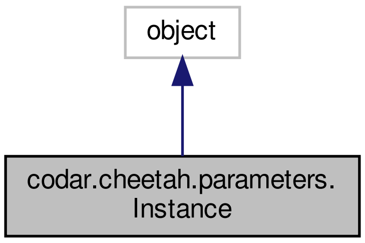
Definition at line 261 of file parameters.py.

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

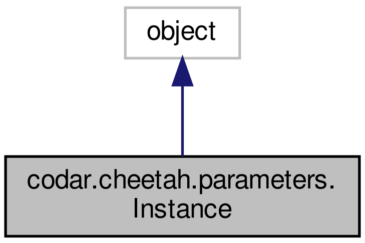
- cheetah/parameters.py

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.
```

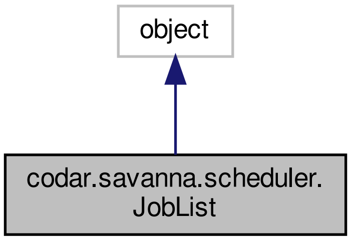
Definition at line 139 of file parameters.py.

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

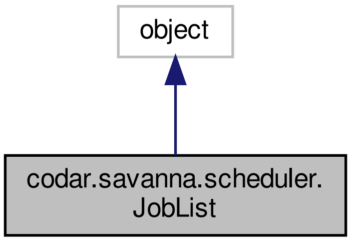
- cheetah/parameters.py

6.8 codar.savanna.scheduler.JobList Class Reference

Inheritance diagram for codar.savanna.scheduler.JobList:



Collaboration diagram for codar.savanna.scheduler.JobList:



Public Member Functions

- def __init__ (self, costfn, initial_jobs=None)
- def add_job (self, job)
- def pop_job (self, max_cost)
- def __len__ (self)

6.8.1 Detailed Description

```
Manage a job list that can find and remove the highest cost job that
doesn't exceed max_cost and insert new jobs.

The job objects can be any type, but a key function must be provided
that takes an instance of a job and returns it's cost.

Uses a coordinated pair of sort list for costs and jobs, along with
the bisect module. A linked list might be more efficient, since the
list copy on insert and delete may dominate the time to do a linear
search of a small list, but it's likely fine either way for the
sizes we will encounter.
```

Definition at line 18 of file scheduler.py.

6.8.2 Constructor & Destructor Documentation

6.8.2.1 __init__()

```
def codar.savanna.scheduler.JobList.__init__ (
              self,
              costfn,
              initial_jobs = None )
```

Definition at line 30 of file scheduler.py.

6.8.3 Member Function Documentation

6.8.3.1 __len__()

```
def codar.savanna.scheduler.JobList.__len__ (
              self )
```

Definition at line 63 of file scheduler.py.

6.8.3.2 add_job()

```
def codar.savanna.scheduler.JobList.add_job (
              self,
              job )
```

Definition at line 41 of file scheduler.py.

6.8.3.3 pop_job()

```
def codar.savanna.scheduler.JobList.pop_job (
              self,
              max_cost )
```

```
Get the highest cost job that doesn't exceed max_cost, and remove
it from the job list. Raises IndexError if the job list is empty,
returns None if no suitable jobs exist in the list.
```

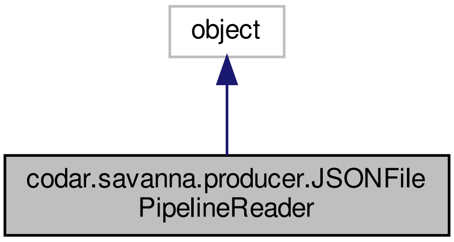
Definition at line 48 of file scheduler.py.

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

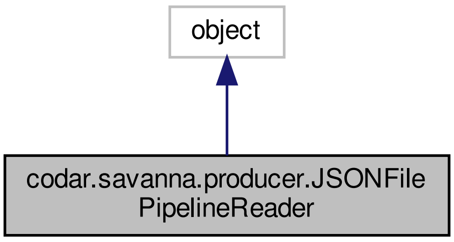
- savanna/scheduler.py

6.9 codar.savanna.producer.JSONFilePipelineReader Class Reference

Inheritance diagram for codar.savanna.producer.JSONFilePipelineReader:



Collaboration diagram for codar.savanna.producer.JSONFilePipelineReader:



Public Member Functions

- def __init__ (self, file_path)
- def read_pipelines (self)

Public Attributes

- file_path

6.9.1 Detailed Description

```
Load pipelines from a file formatted as a new line separated list of
JSON documents. Each JSON document must be a list containing dictionaries,
each dictionary discribing a code to run as part of the pipeline.
```

Definition at line 12 of file producer.py.

6.9.2 Constructor & Destructor Documentation

6.9.2.1 __init__()

```
def codar.savanna.producer.JSONFilePipelineReader.__init__ (
              self,
              file_path )
```

Definition at line 17 of file producer.py.

6.9.3 Member Function Documentation

6.9.3.1 read_pipelines()

```
def codar.savanna.producer.JSONFilePipelineReader.read_pipelines (
              self )
```

Definition at line 20 of file producer.py.

6.9.4 Member Data Documentation

6.9.4.1 file_path

```
codar.savanna.producer.JSONFilePipelineReader.file_path
```

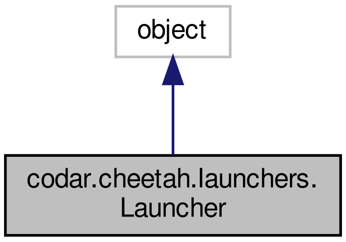
Definition at line 18 of file producer.py.

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

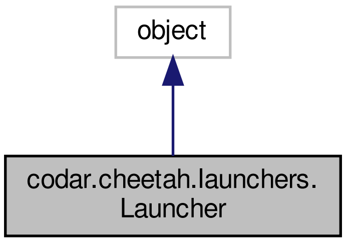
- savanna/producer.py

6.10 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'

6.10.1 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.

6.10.2 Constructor & Destructor Documentation

6.10.2.1 __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.

6.10.3 Member Function Documentation

6.10.3.1 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.

6.10.3.2 read_jobid()

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

Definition at line 400 of file launchers.py.

6.10.4 Member Data Documentation

6.10.4.1 batch_script_name

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

Definition at line 49 of file launchers.py.

6.10.4.2 batch_walltime_name

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

Definition at line 50 of file launchers.py.

6.10.4.3 jobid_file_name

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

Definition at line 51 of file launchers.py.

6.10.4.4 machine_name

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

Definition at line 55 of file launchers.py.

6.10.4.5 name

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

Definition at line 39 of file launchers.py.

6.10.4.6 num_codes

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

Definition at line 59 of file launchers.py.

6.10.4.7 output_directory

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

Definition at line 58 of file launchers.py.

6.10.4.8 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.

6.10.4.9 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.

6.10.4.10 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.

6.10.4.11 runner_name

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

Definition at line 57 of file launchers.py.

6.10.4.12 scheduler_name

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

Definition at line 56 of file launchers.py.

6.10.4.13 status_script_name

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

Definition at line 44 of file launchers.py.

6.10.4.14 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.

6.10.4.15 submit_script_name

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

Definition at line 42 of file launchers.py.

6.10.4.16 wait_script_name

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

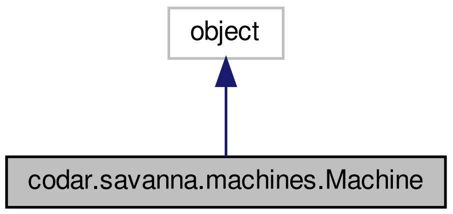
Definition at line 43 of file launchers.py.

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

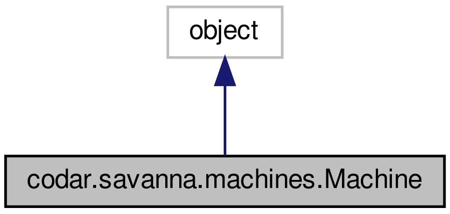
- cheetah/launchers.py

6.11 codar.savanna.machines.Machine Class Reference

Inheritance diagram for codar.savanna.machines.Machine:



Collaboration diagram for codar.savanna.machines.Machine:



Public Member Functions

- def __init__ (self, name, scheduler_name, runner_name, node_class, processes_per_node=None, node_↩ exclusive=False, scheduler_options=None, dataspaces_servers_per_node=1)
- def get_scheduler_options (self, options)
- def get_nodes_reqd (self)

Public Attributes

- name
- scheduler_name
- runner_name
- node_class
- processes_per_node
- node_exclusive
- scheduler_options
- dataspaces_servers_per_node

6.11.1 Detailed Description

```
Class to represent configuration of a specific Supercomputer or
workstation, including the scheduler and runner used by the machine.
This can be used to map an experiment to run on the machine without
having to define machine specific parameter for every experiment
separately.
```

Definition at line 69 of file machines.py.

6.11.2 Constructor & Destructor Documentation

6.11.2.1 __init__()

```
def codar.savanna.machines.Machine.__init__ (
              self,
              name,
              scheduler_name,
              runner_name,
              node_class,
              processes_per_node = None,
              node_exclusive = False,
              scheduler_options = None,
              dataspaces_servers_per_node = 1 )
```

Definition at line 78 of file machines.py.

6.11.3 Member Function Documentation

6.11.3.1 get_nodes_reqd()

```
def codar.savanna.machines.Machine.get_nodes_reqd (
              self )
```

Definition at line 100 of file machines.py.

6.11.3.2 get_scheduler_options()

```
def codar.savanna.machines.Machine.get_scheduler_options (
              self,
              options )
```

```
Validate supplied options and add default values where missing.
Returns a new dictionary.
```

Definition at line 91 of file machines.py.

6.11.4 Member Data Documentation

6.11.4.1 dataspaces_servers_per_node

```
codar.savanna.machines.Machine.dataspaces_servers_per_node
```

Definition at line 89 of file machines.py.

6.11.4.2 name

```
codar.savanna.machines.Machine.name
```

Definition at line 79 of file machines.py.

6.11.4.3 node_class

```
codar.savanna.machines.Machine.node_class
```

Definition at line 82 of file machines.py.

6.11.4.4 node_exclusive

```
codar.savanna.machines.Machine.node_exclusive
```

Definition at line 86 of file machines.py.

6.11.4.5 processes_per_node

```
codar.savanna.machines.Machine.processes_per_node
```

Definition at line 85 of file machines.py.

6.11.4.6 runner_name

```
codar.savanna.machines.Machine.runner_name
```

Definition at line 81 of file machines.py.

6.11.4.7 scheduler_name

```
codar.savanna.machines.Machine.scheduler_name
```

Definition at line 80 of file machines.py.

6.11.4.8 scheduler_options

```
codar.savanna.machines.Machine.scheduler_options
```

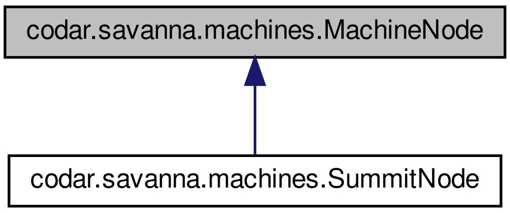
Definition at line 88 of file machines.py.

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

- savanna/machines.py

6.12 codar.savanna.machines.MachineNode Class Reference

Inheritance diagram for codar.savanna.machines.MachineNode:


codar.savanna.machines.MachineNode
codar.savanna.machines.SummitNode

Public Member Functions

- def __init__ (self, num_cpus, num_gpus)
- def validate_layout (self)
- def to_json (self)

Public Attributes

- cpu
- gpu

6.12.1 Detailed Description

Definition at line 16 of file machines.py.

6.12.2 Constructor & Destructor Documentation

6.12.2.1 __init__()

```
def codar.savanna.machines.MachineNode.__init__ (
              self,
              num_cpus,
              num_gpus )
```

Definition at line 17 of file machines.py.

6.12.3 Member Function Documentation

6.12.3.1 to_json()

```
def codar.savanna.machines.MachineNode.to_json (
              self )
```

Definition at line 25 of file machines.py.

6.12.3.2 validate_layout()

```
def codar.savanna.machines.MachineNode.validate_layout (
              self )
```

Definition at line 22 of file machines.py.

6.12.4 Member Data Documentation

6.12.4.1 cpu

```
codar.savanna.machines.MachineNode.cpu
```

Definition at line 19 of file machines.py.

6.12.4.2 gpu

```
codar.savanna.machines.MachineNode.gpu
```

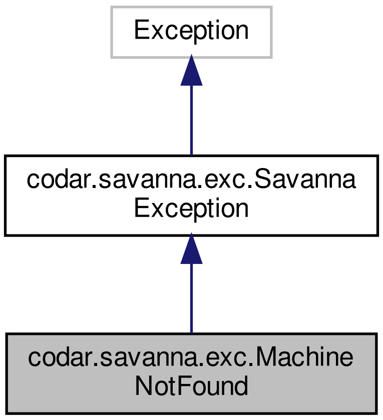
Definition at line 20 of file machines.py.

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

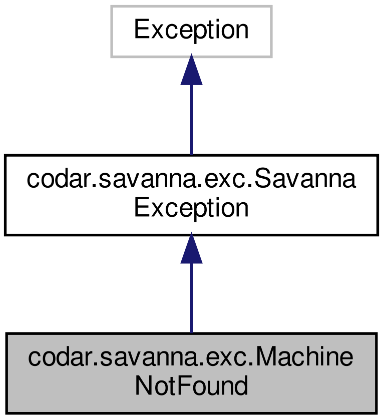
- savanna/machines.py

6.13 codar.savanna.exc.MachineNotFound Class Reference

Inheritance diagram for codar.savanna.exc.MachineNotFound:


Exception
codar.savanna.exc.Savanna Exception
codar.savanna.exc.Machine NotFound

Collaboration diagram for codar.savanna.exc.MachineNotFound:


Exception
codar.savanna.exc.Savanna Exception
codar.savanna.exc.Machine NotFound

Public Member Functions

- def __init__ (self, machine_name)

6.13.1 Detailed Description

Definition at line 10 of file exc.py.

6.13.2 Constructor & Destructor Documentation

6.13.2.1 __init__()

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

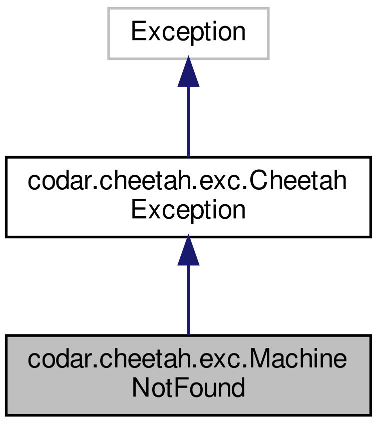
Definition at line 11 of file exc.py.

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

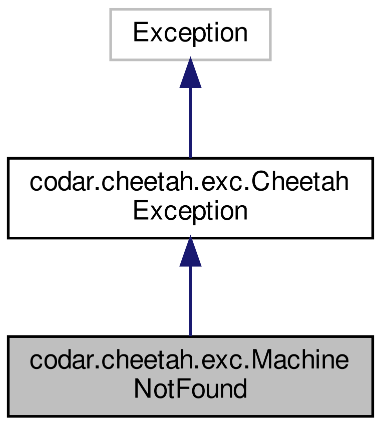
- savanna/exc.py

6.14 codar.cheetah.exc.MachineNotFound Class Reference

Inheritance diagram for codar.cheetah.exc.MachineNotFound:


Exception
codar.cheetah.exc.Cheetah Exception
codar.cheetah.exc.Machine NotFound

Collaboration diagram for codar.cheetah.exc.MachineNotFound:


Exception
codar.cheetah.exc.Cheetah Exception
codar.cheetah.exc.Machine NotFound

Public Member Functions

- def __init__ (self, machine_name)

6.14.1 Detailed Description

Definition at line 10 of file exc.py.

6.14.2 Constructor & Destructor Documentation

6.14.2.1 __init__()

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

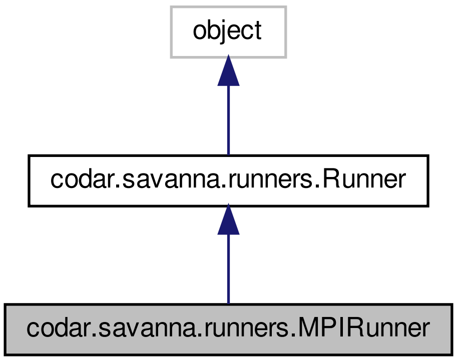
Definition at line 11 of file exc.py.

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

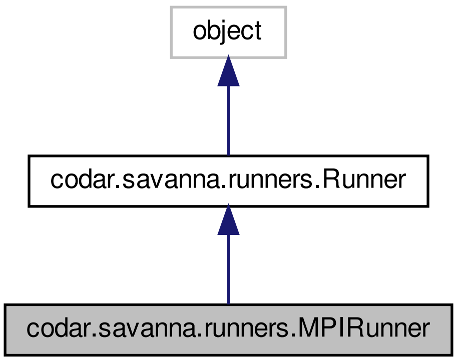
- cheetah/exc.py

6.15 codar.savanna.runners.MPIRunner Class Reference

Inheritance diagram for codar.savanna.runners.MPIRunner:



Collaboration diagram for codar.savanna.runners.MPIRunner:



Public Member Functions

- def __init__ (self, exe, nprocs_arg, nodes_arg=None, tasks_per_node_arg=None, hostfile=None)
- def wrap (self, run, sched_args, find_in_path=True)

Public Attributes

- exe
- nprocs_arg
- nodes_arg
- tasks_per_node_arg
- hostfile

6.15.1 Detailed Description

Definition at line 11 of file runners.py.

6.15.2 Constructor & Destructor Documentation

6.15.2.1 __init__()

```
def codar.savanna.runners.MPIRunner.__init__ (
              self,
              exe,
              nprocs_arg,
              nodes_arg = None,
              tasks_per_node_arg = None,
              hostfile = None )
```

Definition at line 13 of file runners.py.

6.15.3 Member Function Documentation

6.15.3.1 wrap()

```
def codar.savanna.runners.MPIRunner.wrap (
              self,
              run,
              sched_args,
              find_in_path = True )
```

Definition at line 20 of file runners.py.

6.15.4 Member Data Documentation

6.15.4.1 exe

```
codar.savanna.runners.MPIRunner.exe
```

Definition at line 14 of file runners.py.

6.15.4.2 hostfile

`codar.savanna.runners.MPIRunner.hostfile`

Definition at line 18 of file runners.py.

6.15.4.3 nodes_arg

`codar.savanna.runners.MPIRunner.nodes_arg`

Definition at line 16 of file runners.py.

6.15.4.4 nprocs_arg

`codar.savanna.runners.MPIRunner.nprocs_arg`

Definition at line 15 of file runners.py.

6.15.4.5 tasks_per_node_arg

`codar.savanna.runners.MPIRunner.tasks_per_node_arg`

Definition at line 17 of file runners.py.

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

- savanna/runners.py

6.16 codar.savanna.model.NodeConfig Class Reference

Public Member Functions

- def __init__ (self)

Public Attributes

- num_ranks_per_node
- cpu
- gpu

6.16.1 Detailed Description

Definition at line 52 of file model.py.

6.16.2 Constructor & Destructor Documentation

6.16.2.1 __init__()

```
def codar.savanna.model.NodeConfig.__init__ (
              self )
```

```
Intended to look like
cpu = [ 0=[], 1=[], 2=[], 3=[] ]
gpu = [ 0=[], 1=[], 2=[], 3=[] ]
```

Definition at line 53 of file model.py.

6.16.3 Member Data Documentation

6.16.3.1 cpu

```
codar.savanna.model.NodeConfig.cpu
```

Definition at line 60 of file model.py.

6.16.3.2 gpu

```
codar.savanna.model.NodeConfig.gpu
```

Definition at line 61 of file model.py.

6.16.3.3 num_ranks_per_node

```
codar.savanna.model.NodeConfig.num_ranks_per_node
```

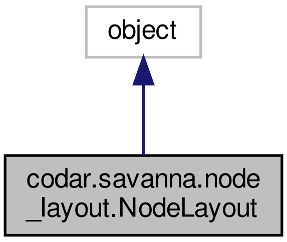
Definition at line 59 of file model.py.

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

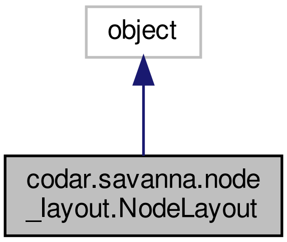
- savanna/model.py

6.17 codar.savanna.node_layout.NodeLayout Class Reference

Inheritance diagram for codar.savanna.node_layout.NodeLayout:



Collaboration diagram for codar.savanna.node_layout.NodeLayout:



Public Member Functions

- def __init__ (self, layout_list)
- def add_node (self, node_dict)
- def get_node_containing_code (self, code)
- def codes_per_node (self)
- def shared_nodes (self)
- def ppn (self)
- def validate (self, ppn, codes_per_node, shared_nodes)
- def as_data_list (self)
- def serialize_to_dict (self)
- def copy (self)
- def group_codes_by_node (self)
- def populate_remaining (self, rc_names, ppn)
- def default_no_share_layout (cls, ppn, code_names)

Public Attributes

- layout_list
- layout_map

6.17.1 Detailed Description

```
Class representing options on how to organize a multi-exe task across
many nodes. It is the scheduler model's job to take this and produce the
correct scheduler and runner options to make this happen, or raise an error
if it's not possible. Note that this will generally be different for each
machine unless it is very simple and suppored uniformly by all desired
machines.

A layout is represented as a list of dictionaries, where each dictionary
described codes to be run together on a single node. The keys are
the names of the codes, and the values are the number of processes to
assign to each.
```

Definition at line 6 of file node_layout.py.

6.17.2 Constructor & Destructor Documentation

6.17.2.1 __init__()

```
def codar.savanna.node_layout.NodeLayout.__init__ (
              self,
              layout_list )
```

Definition at line 20 of file node_layout.py.

6.17.3 Member Function Documentation

6.17.3.1 add_node()

```
def codar.savanna.node_layout.NodeLayout.add_node (
              self,
              node_dict )
```

```
Add a node to an existing layout, e.g. add sosflow.
```

Definition at line 43 of file node_layout.py.

6.17.3.2 as_data_list()

```
def codar.savanna.node_layout.NodeLayout.as_data_list (
              self )
```

Definition at line 114 of file node_layout.py.

6.17.3.3 codes_per_node()

```
def codar.savanna.node_layout.NodeLayout.codes_per_node (
              self )
```

Definition at line 55 of file node_layout.py.

6.17.3.4 copy()

```
def codar.savanna.node_layout.NodeLayout.copy (
              self )
```

Definition at line 129 of file node_layout.py.

6.17.3.5 default_no_share_layout()

```
def codar.savanna.node_layout.NodeLayout.default_no_share_layout (
              cls,
              ppn,
              code_names )
```

```
Create a layout object for the specified codes and ppn, where each
code uses max procs on it’s own node.
```

Definition at line 173 of file node_layout.py.

6.17.3.6 get_node_containing_code()

```
def codar.savanna.node_layout.NodeLayout.get_node_containing_code (
              self,
              code )
```

```
Get node dict containing the specified code. Raises KeyError if
not found.
```

Definition at line 50 of file node_layout.py.

6.17.3.7 group_codes_by_node()

```
def codar.savanna.node_layout.NodeLayout.group_codes_by_node (
              self )
```

```
Return a list of dicts, where each list represents codes on a
node, and a dict key for ppn
Example: [ {sim,analysis1}, {analysis2}, {viz} ].
Must take Summit NodeConfigs into account
```

Definition at line 132 of file node_layout.py.

6.17.3.8 populate_remaining()

```
def codar.savanna.node_layout.NodeLayout.populate_remaining (
              self,
              rc_names,
              ppn )
```

Definition at line 161 of file node_layout.py.

6.17.3.9 ppn()

```
def codar.savanna.node_layout.NodeLayout.ppn (
              self )
```

Definition at line 61 of file node_layout.py.

6.17.3.10 serialize_to_dict()

```
def codar.savanna.node_layout.NodeLayout.serialize_to_dict (
              self )
```

```
Get a copy of the data list passed to the constructor,
suitable for JSON serialization.
```

Definition at line 117 of file node_layout.py.

6.17.3.11 shared_nodes()

```
def codar.savanna.node_layout.NodeLayout.shared_nodes (
              self )
```

Definition at line 58 of file node_layout.py.

6.17.3.12 validate()

```
def codar.savanna.node_layout.NodeLayout.validate (
              self,
              ppn,
              codes_per_node,
              shared_nodes )
```

```
Given a machine ppn and max numer of codes (e.g. 4 on cori),
raise a ValueError if the specified layout won't fit.
Dont modify this yet, this is being used by the tests
```

Definition at line 96 of file node_layout.py.

6.17.4 Member Data Documentation

6.17.4.1 layout_list

```
codar.savanna.node_layout.NodeLayout.layout_list
```

Definition at line 34 of file node_layout.py.

6.17.4.2 layout_map

```
codar.savanna.node_layout.NodeLayout.layout_map
```

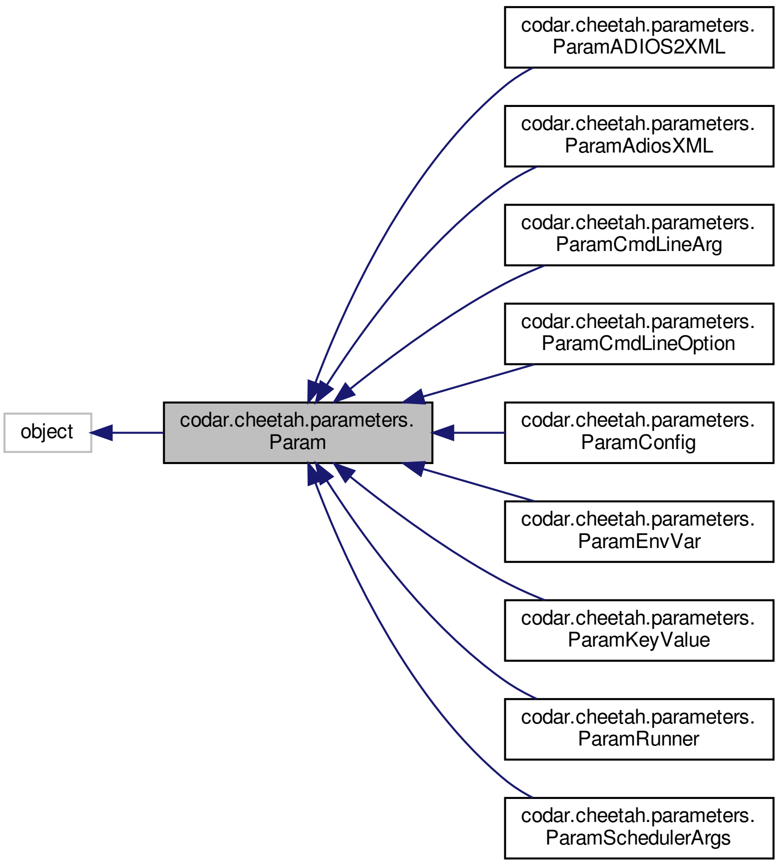
Definition at line 35 of file node_layout.py.

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

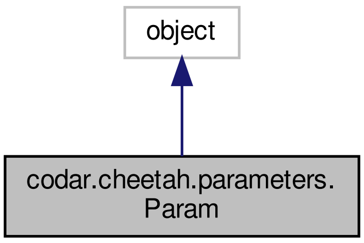
- savanna/node_layout.py

6.18 codar.cheetah.parameters.Param Class Reference

Inheritance diagram for codar.cheetah.parameters.Param:


object
codar.cheetah.parameters.
Param
codar.cheetah.parameters.
ParamADIOS2XML
codar.cheetah.parameters.
ParamAdiosXML
codar.cheetah.parameters.
ParamCmdLineArg
codar.cheetah.parameters.
ParamCmdLineOption
codar.cheetah.parameters.
ParamConfig
codar.cheetah.parameters.
ParamEnvVar
codar.cheetah.parameters.
ParamKeyValue
codar.cheetah.parameters.
ParamRunner
codar.cheetah.parameters.
ParamSchedulerArgs

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

6.18.1 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.

6.18.2 Constructor & Destructor Documentation

6.18.2.1 __init__()

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

Definition at line 320 of file parameters.py.

6.18.3 Member Function Documentation

6.18.3.1 __get__()

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

Definition at line 334 of file parameters.py.

6.18.3.2 __len__()

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

Definition at line 337 of file parameters.py.

6.18.4 Member Data Documentation

6.18.4.1 name

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

Definition at line 322 of file parameters.py.

6.18.4.2 target

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

Definition at line 321 of file parameters.py.

6.18.4.3 values

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

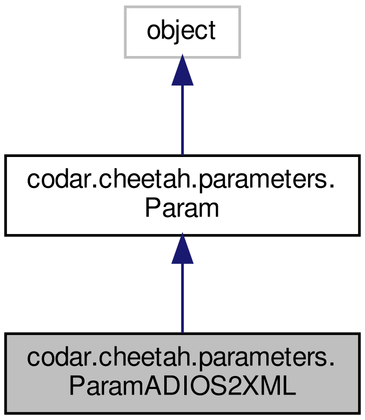
Definition at line 331 of file parameters.py.

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

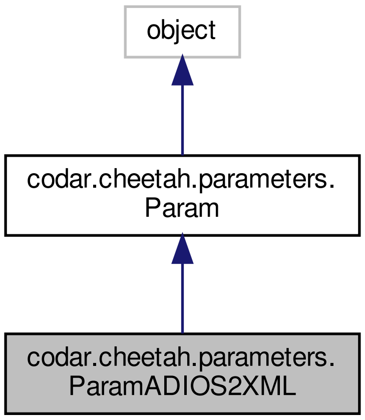
- cheetah/parameters.py

6.19 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

6.19.1 Detailed Description

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

Definition at line 376 of file parameters.py.

6.19.2 Constructor & Destructor Documentation

6.19.2.1 __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.

6.19.3 Member Data Documentation

6.19.3.1 io_name

```
codar.cheetah.parameters.ParamADIOS2XML.io_name
```

Definition at line 404 of file parameters.py.

6.19.3.2 operation_name

```
codar.cheetah.parameters.ParamADIOS2XML.operation_name
```

Definition at line 405 of file parameters.py.

6.19.3.3 rc

```
codar.cheetah.parameters.ParamADIOS2XML.rc
```

Definition at line 403 of file parameters.py.

6.19.3.4 values

```
codar.cheetah.parameters.ParamADIOS2XML.values
```

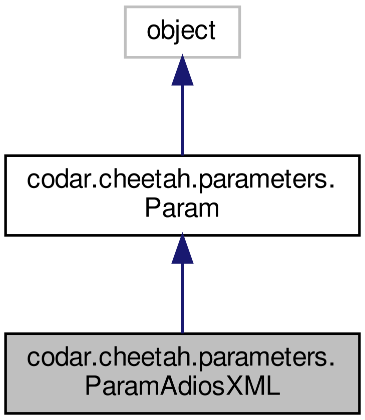
Definition at line 406 of file parameters.py.

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

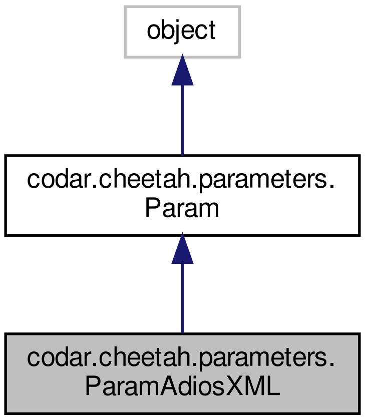
- cheetah/parameters.py

6.20 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

6.20.1 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.

6.20.2 Constructor & Destructor Documentation

6.20.2.1 __init__()

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

Definition at line 362 of file parameters.py.

6.20.3 Member Data Documentation

6.20.3.1 group_name

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

Definition at line 369 of file parameters.py.

6.20.3.2 param_type

```
codar.cheetah.parameters.ParamAdiosXML.param_type
```

Definition at line 368 of file parameters.py.

6.20.3.3 var_name

```
codar.cheetah.parameters.ParamAdiosXML.var_name
```

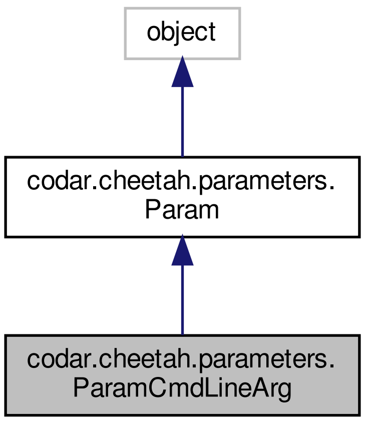
Definition at line 373 of file parameters.py.

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

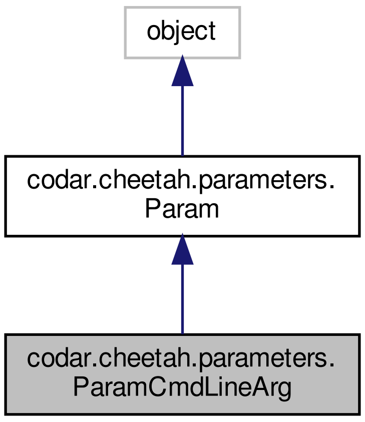
- cheetah/parameters.py

6.21 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

6.21.1 Detailed Description

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

Definition at line 341 of file parameters.py.

6.21.2 Constructor & Destructor Documentation

6.21.2.1 __init__()

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

Definition at line 344 of file parameters.py.

6.21.3 Member Data Documentation

6.21.3.1 position

`codar.cheetah.parameters.ParamCmdLineArg.position`

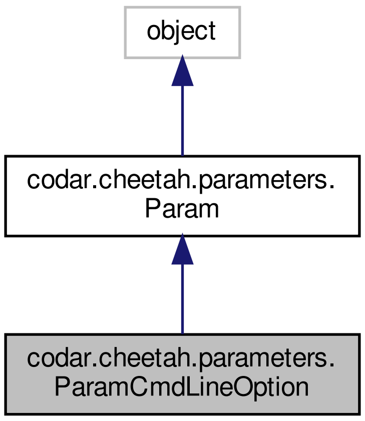
Definition at line 346 of file parameters.py.

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

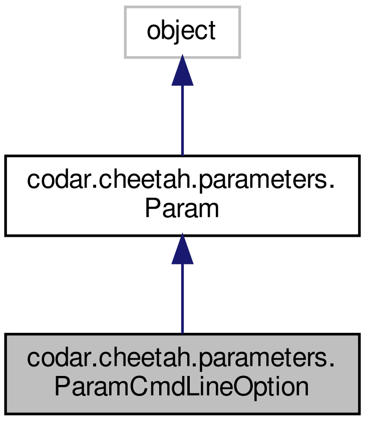
- cheetah/parameters.py

6.22 codar.cheetah.parameters.ParamCmdLineOption Class Reference

Inheritance diagram for codar.cheetah.parameters.ParamCmdLineOption:



Collaboration diagram for codar.cheetah.parameters.ParamCmdLineOption:


object
codar.cheetah.parameters.Param
codar.cheetah.parameters.ParamCmdLineOption

Public Member Functions

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

Public Attributes

- option

6.22.1 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.

6.22.2 Constructor & Destructor Documentation

6.22.2.1 __init__()

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

Definition at line 460 of file parameters.py.

6.22.3 Member Data Documentation

6.22.3.1 option

`codar.cheetah.parameters.ParamCmdLineOption.option`

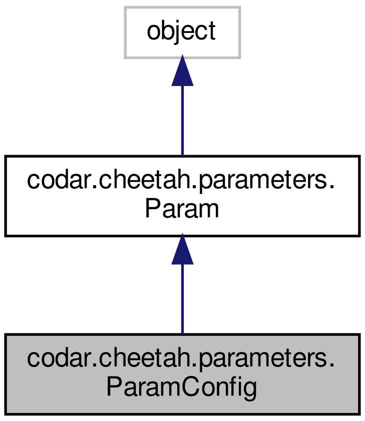
Definition at line 462 of file parameters.py.

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

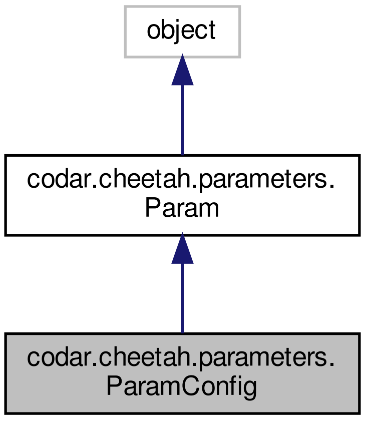
- cheetah/parameters.py

6.23 codar.cheetah.parameters.ParamConfig Class Reference

Inheritance diagram for codar.cheetah.parameters.ParamConfig:


object
codar.cheetah.parameters.Param
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

6.23.1 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.

6.23.2 Constructor & Destructor Documentation

6.23.2.1 __init__()

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

Definition at line 430 of file parameters.py.

6.23.3 Member Data Documentation

6.23.3.1 config_filename

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

Definition at line 432 of file parameters.py.

6.23.3.2 match_string

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

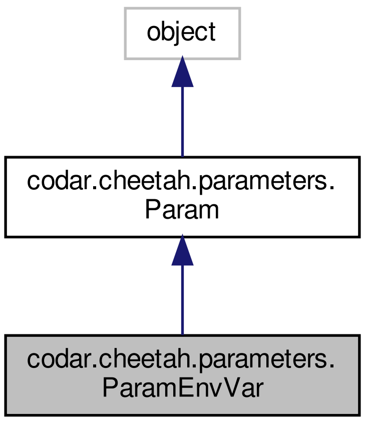
Definition at line 433 of file parameters.py.

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

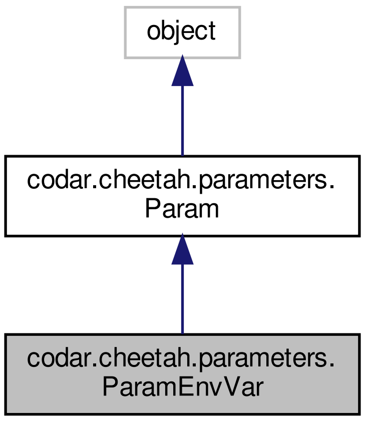
- cheetah/parameters.py

6.24 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

6.24.1 Detailed Description

Definition at line 465 of file parameters.py.

6.24.2 Constructor & Destructor Documentation

6.24.2.1 __init__()

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

Definition at line 466 of file parameters.py.

6.24.3 Member Data Documentation

6.24.3.1 option

`codar.cheetah.parameters.ParamEnvVar.option`

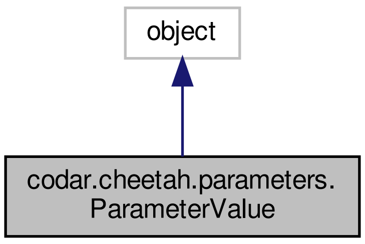
Definition at line 468 of file parameters.py.

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

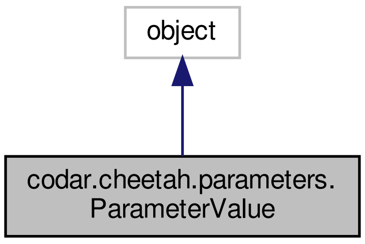
- cheetah/parameters.py

6.25 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

6.25.1 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.

6.25.2 Constructor & Destructor Documentation

6.25.2.1 __init__()

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

Definition at line 88 of file parameters.py.

6.25.3 Member Function Documentation

6.25.3.1 __getattr__()

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

Definition at line 92 of file parameters.py.

6.25.3.2 is_type()

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

Definition at line 97 of file parameters.py.

6.25.4 Member Data Documentation

6.25.4.1 value

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

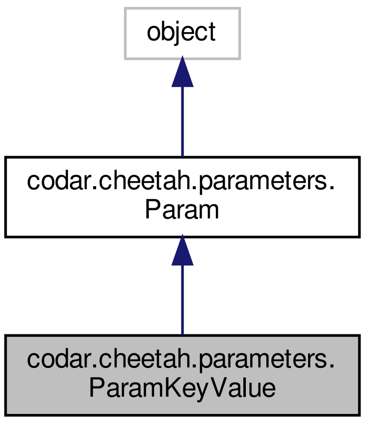
Definition at line 90 of file parameters.py.

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

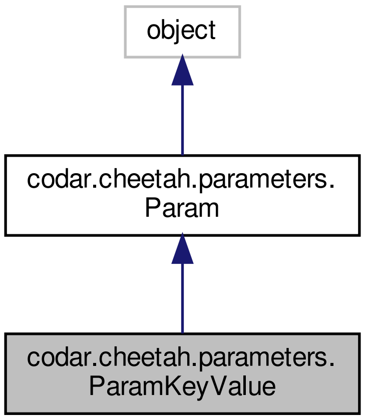
- cheetah/parameters.py

6.26 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

6.26.1 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.

6.26.2 Constructor & Destructor Documentation

6.26.2.1 __init__()

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

Definition at line 449 of file parameters.py.

6.26.3 Member Data Documentation

6.26.3.1 config_filename

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

Definition at line 451 of file parameters.py.

6.26.3.2 key_name

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

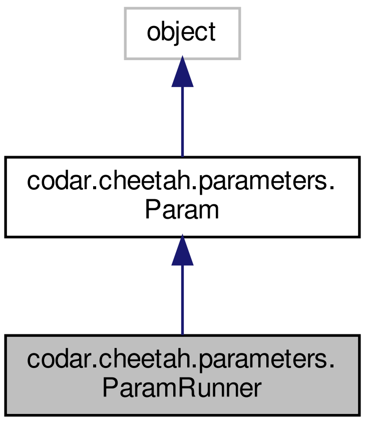
Definition at line 452 of file parameters.py.

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

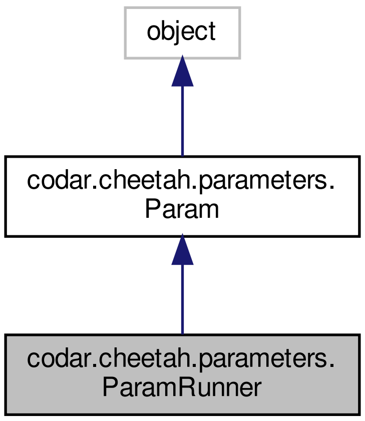
- cheetah/parameters.py

6.27 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

6.27.1 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.

6.27.2 Constructor & Destructor Documentation

6.27.2.1 __init__()

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

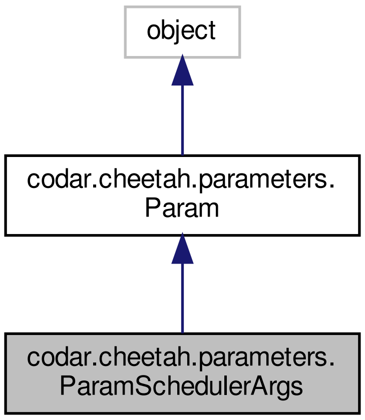
Definition at line 482 of file parameters.py.

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

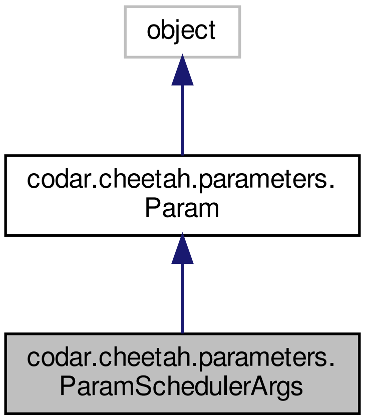
- cheetah/parameters.py

6.28 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

6.28.1 Detailed Description

Definition at line 471 of file parameters.py.

6.28.2 Constructor & Destructor Documentation

6.28.2.1 __init__()

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

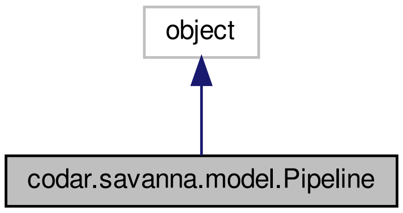
Definition at line 472 of file parameters.py.

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

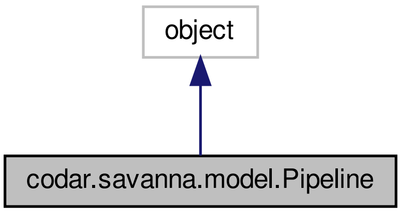
- cheetah/parameters.py

6.29 codar.savanna.model.Pipeline Class Reference

Inheritance diagram for codar.savanna.model.Pipeline:



Collaboration diagram for codar.savanna.model.Pipeline:



Public Member Functions

- def __init__ (self, pipe_id, runs, working_dir, total_nodes, machine_name, kill_on_partial_failure=False, post_process_script=None, post_process_args=None, post_process_stop_on_failure=False, node_↩ layout=None, launch_mode=None)
- def from_data (cls, data)
- def start (self, consumer, nodes_assigned, runner=None)
- def run_finished (self, run)
- def run_post_process_script (self)
- def add_done_callback (self, fn)
- def remove_done_callback (self, fn)
- def add_fatal_callback (self, fn)
- def remove_fatal_callback (self, fn)
- def get_nodes_used (self)
- def set_ppn (self, ppn)
- def set_total_nodes (self)
- def get_state (self)
- def get_pids (self)
- def force_kill_all (self)
- def join_all (self)

Public Attributes

- id
- runs
- working_dir
- kill_on_partial_failure
- post_process_script
- post_process_args
- post_process_stop_on_failure
- node_layout
- machine_name
- done_callbacks
- fatal_callbacks
- total_procs
- log_prefix
- total_nodes
- launch_mode
- nodes_assigned

6.29.1 Detailed Description

Definition at line 449 of file model.py.

6.29.2 Constructor & Destructor Documentation

6.29.2.1 __init__()

```
def codar.savanna.model.Pipeline.__init__ (
              self,
              pipe_id,
              runs,
              working_dir,
              total_nodes,
              machine_name,
              kill_on_partial_failure = False,
              post_process_script = None,
              post_process_args = None,
              post_process_stop_on_failure = False,
              node_layout = None,
              launch_mode = None )
```

Definition at line 455 of file model.py.

6.29.3 Member Function Documentation

6.29.3.1 add_done_callback()

```
def codar.savanna.model.Pipeline.add_done_callback (
              self,
              fn )
```

Definition at line 818 of file model.py.

6.29.3.2 add_fatal_callback()

```
def codar.savanna.model.Pipeline.add_fatal_callback (
              self,
              fn )
```

Definition at line 830 of file model.py.

6.29.3.3 force_kill_all()

```
def codar.savanna.model.Pipeline.force_kill_all (
              self )
```

```
Kill all runs and don't run post processing. Note that this call may
block waiting for all runs to be started, to avoid confusing races.
If the pipeline is already done, this does nothing. If one or more
runs are still active, or have not yet been marked as finished, then
it will mark the entire pipeline as killed so it can be re-run from
scratch on a restart if desired.
```

Definition at line 912 of file model.py.

6.29.3.4 from_data()

```
def codar.savanna.model.Pipeline.from_data (
              cls,
              data )
```

```
Create Pipeline instance from dictionary data structure, containing
at least "id" and "runs" keys. The "runs" key must have a list of dict,
and each dict is parsed using Run.from_data.
Raises KeyError if a required key is missing.
```

Definition at line 497 of file model.py.

6.29.3.5 get_nodes_used()

```
def codar.savanna.model.Pipeline.get_nodes_used (
              self )
```

Definition at line 850 of file model.py.

6.29.3.6 get_pids()

```
def codar.savanna.model.Pipeline.get_pids (
              self )
```

Definition at line 908 of file model.py.

6.29.3.7 get_state()

```
def codar.savanna.model.Pipeline.get_state (
              self )
```

Definition at line 883 of file model.py.

6.29.3.8 join_all()

```
def codar.savanna.model.Pipeline.join_all (
              self )
```

Definition at line 933 of file model.py.

6.29.3.9 remove_done_callback()

```
def codar.savanna.model.Pipeline.remove_done_callback (
              self,
              fn )
```

Definition at line 821 of file model.py.

6.29.3.10 remove_fatal_callback()

```
def codar.savanna.model.Pipeline.remove_fatal_callback (
              self,
              fn )
```

Definition at line 833 of file model.py.

6.29.3.11 run_finished()

```
def codar.savanna.model.Pipeline.run_finished (
              self,
              run )
```

Definition at line 744 of file model.py.

6.29.3.12 run_post_process_script()

```
def codar.savanna.model.Pipeline.run_post_process_script (
              self )
```

Definition at line 772 of file model.py.

6.29.3.13 set_ppn()

```
def codar.savanna.model.Pipeline.set_ppn (
              self,
              ppn )
```

```
Determine number of nodes needed to run pipeline with the specified
node layout or full occupancy layout with ppn. Also updates runs
to set node and task per node counts.
TODO: This should be set by Cheetah in fobs.json
```

Definition at line 855 of file model.py.

6.29.3.14 set_total_nodes()

```
def codar.savanna.model.Pipeline.set_total_nodes (
              self )
```

```
To be deprecated
```

Definition at line 877 of file model.py.

6.29.3.15 start()

```
def codar.savanna.model.Pipeline.start (
              self,
              consumer,
              nodes_assigned,
              runner = None )
```

Definition at line 550 of file model.py.

6.29.4 Member Data Documentation

6.29.4.1 done_callbacks

```
codar.savanna.model.Pipeline.done_callbacks
```

Definition at line 473 of file model.py.

6.29.4.2 fatal_callbacks

```
codar.savanna.model.Pipeline.fatal_callbacks
```

Definition at line 474 of file model.py.

6.29.4.3 id

```
codar.savanna.model.Pipeline.id
```

Definition at line 456 of file model.py.

6.29.4.4 kill_on_partial_failure

```
codar.savanna.model.Pipeline.kill_on_partial_failure
```

Definition at line 459 of file model.py.

6.29.4.5 launch_mode

```
codar.savanna.model.Pipeline.launch_mode
```

Definition at line 483 of file model.py.

6.29.4.6 log_prefix

```
codar.savanna.model.Pipeline.log_prefix
```

Definition at line 476 of file model.py.

6.29.4.7 machine_name

```
codar.savanna.model.Pipeline.machine_name
```

Definition at line 464 of file model.py.

6.29.4.8 node_layout

```
codar.savanna.model.Pipeline.node_layout
```

Definition at line 463 of file model.py.

6.29.4.9 nodes_assigned

```
codar.savanna.model.Pipeline.nodes_assigned
```

Definition at line 487 of file model.py.

6.29.4.10 post_process_args

```
codar.savanna.model.Pipeline.post_process_args
```

Definition at line 461 of file model.py.

6.29.4.11 post_process_script

```
codar.savanna.model.Pipeline.post_process_script
```

Definition at line 460 of file model.py.

6.29.4.12 post_process_stop_on_failure

```
codar.savanna.model.Pipeline.post_process_stop_on_failure
```

Definition at line 462 of file model.py.

6.29.4.13 runs

```
codar.savanna.model.Pipeline.runs
```

Definition at line 457 of file model.py.

6.29.4.14 total_nodes

```
codar.savanna.model.Pipeline.total_nodes
```

Definition at line 482 of file model.py.

6.29.4.15 total_procs

```
codar.savanna.model.Pipeline.total_procs
```

Definition at line 475 of file model.py.

6.29.4.16 working_dir

```
codar.savanna.model.Pipeline.working_dir
```

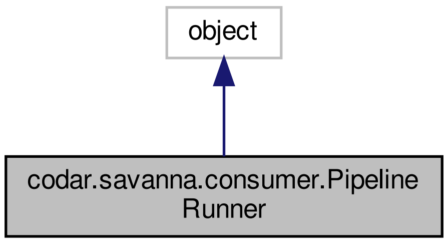
Definition at line 458 of file model.py.

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

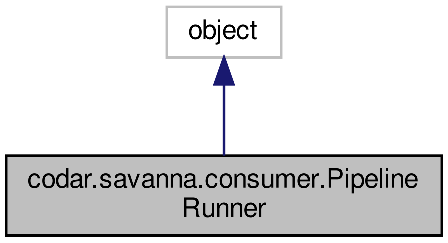
- savanna/model.py

6.30 codar.savanna.consumer.PipelineRunner Class Reference

Inheritance diagram for codar.savanna.consumer.PipelineRunner:



Collaboration diagram for codar.savanna.consumer.PipelineRunner:



Public Member Functions

- def __init__ (self, runner, max_nodes, machine_name, processes_per_node, status_file=None)
- def add_pipeline (self, p)
- def stop (self)
- def kill_all (self)
- def run_finished (self, run)
- def pipeline_finished (self, pipeline)
- def pipeline_fatal (self, pipeline)
- def run_pipelines (self)

Public Attributes

- max_nodes
- machine_name
- ppn
- runner
- job_list_cv
- job_list
- free_cv
- free_nodes
- pipelines_lock
- pipelines
- allocated_nodes

6.30.1 Detailed Description

```
Runner that assumes a homogonous set of nodes. Now only support only
node based limiting (although process limiting can be emulated by setting
process_per_node=1 and max_nodes=max_procs).

Threading model: assumes there could be multiple producer threads calling
add_pipeline, e.g. if using a dynamic job submission model based on
results of previous jobs. Pipelines and each Run in a pipeline are all
executed in separate threads, so their notification callbacks execute in
separate threads, and their threads must be joined before exiting. The
stop and kill_all methods could be called from any of the producer,
Pipeline or Run threads.
```

Definition at line 18 of file consumer.py.

6.30.2 Constructor & Destructor Documentation

6.30.2.1 __init__()

```
def codar.savanna.consumer.PipelineRunner.__init__ (
              self,
              runner,
              max_nodes,
              machine_name,
              processes_per_node,
              status_file = None )
```

Definition at line 32 of file consumer.py.

6.30.3 Member Function Documentation

6.30.3.1 add_pipeline()

```
def codar.savanna.consumer.PipelineRunner.add_pipeline (
              self,
              p )
```

Definition at line 73 of file consumer.py.

6.30.3.2 kill_all()

```
def codar.savanna.consumer.PipelineRunner.kill_all (
              self )
```

```
Kill all running processes spawned by this consumer and don’t
start any new processes.
```

Definition at line 114 of file consumer.py.

6.30.3.3 pipeline_fatal()

```
def codar.savanna.consumer.PipelineRunner.pipeline_fatal (
              self,
              pipeline )
```

Definition at line 190 of file consumer.py.

6.30.3.4 pipeline_finished()

```
def codar.savanna.consumer.PipelineRunner.pipeline_finished (
              self,
              pipeline )
```

```
Monitor thread(s) should call this as pipelines complete.
```

Definition at line 164 of file consumer.py.

6.30.3.5 run_finished()

```
def codar.savanna.consumer.PipelineRunner.run_finished (
              self,
              run )
```

```
TO BE DEPRECATED.
Monitor thread(s) should call this as runs
complete. To be deprecated, as the functionality fails when
node_layout is set to node-sharing.

This means that for node_exclusive, resources held by a run are not
released when the run terminates. For kill_on_partial_failure=False,
this could lead to unused resources, which is ok.
```

Definition at line 148 of file consumer.py.

6.30.3.6 run_pipelines()

```
def codar.savanna.consumer.PipelineRunner.run_pipelines (
              self )
```

```
Main loop of consumer thread. Does not return until all child
threads are complete.
```

Definition at line 194 of file consumer.py.

6.30.3.7 stop()

```
def codar.savanna.consumer.PipelineRunner.stop (
              self )
```

```
Signal to stop when all pipelines are finished. Don't allow adding
new pipelines.
```

Definition at line 105 of file consumer.py.

6.30.4 Member Data Documentation

6.30.4.1 allocated_nodes

```
codar.savanna.consumer.PipelineRunner.allocated_nodes
```

Definition at line 60 of file consumer.py.

6.30.4.2 free_cv

```
codar.savanna.consumer.PipelineRunner.free_cv
```

Definition at line 47 of file consumer.py.

6.30.4.3 free_nodes

```
codar.savanna.consumer.PipelineRunner.free_nodes
```

Definition at line 48 of file consumer.py.

6.30.4.4 job_list

```
codar.savanna.consumer.PipelineRunner.job_list
```

Definition at line 45 of file consumer.py.

6.30.4.5 job_list_cv

```
codar.savanna.consumer.PipelineRunner.job_list_cv
```

Definition at line 43 of file consumer.py.

6.30.4.6 machine_name

```
codar.savanna.consumer.PipelineRunner.machine_name
```

Definition at line 34 of file consumer.py.

6.30.4.7 max_nodes

```
codar.savanna.consumer.PipelineRunner.max_nodes
```

Definition at line 33 of file consumer.py.

6.30.4.8 pipelines

```
codar.savanna.consumer.PipelineRunner.pipelines
```

Definition at line 51 of file consumer.py.

6.30.4.9 pipelines_lock

```
codar.savanna.consumer.PipelineRunner.pipelines_lock
```

Definition at line 50 of file consumer.py.

6.30.4.10 ppn

```
codar.savanna.consumer.PipelineRunner.ppn
```

Definition at line 35 of file consumer.py.

6.30.4.11 runner

```
codar.savanna.consumer.PipelineRunner.runner
```

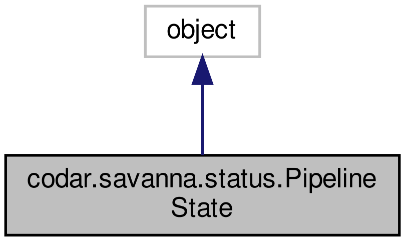
Definition at line 36 of file consumer.py.

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

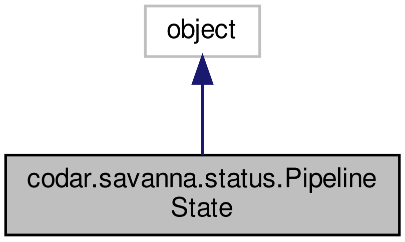
- savanna/consumer.py

6.31 codar.savanna.status.PipelineState Class Reference

Inheritance diagram for codar.savanna.status.PipelineState:



Collaboration diagram for codar.savanna.status.PipelineState:



Public Member Functions

- def __init__ (self, pipeline_id, state, reason=None, return_codes=None)
- def as_data (self)

Public Attributes

- id
- state
- reason
- return_codes

6.31.1 Detailed Description

Definition at line 48 of file status.py.

6.31.2 Constructor & Destructor Documentation

6.31.2.1 __init__()

```
def codar.savanna.status.PipelineState.__init__ (
              self,
              pipeline_id,
              state,
              reason = None,
              return_codes = None )
```

Definition at line 49 of file status.py.

6.31.3 Member Function Documentation

6.31.3.1 as_data()

```
def codar.savanna.status.PipelineState.as_data (
              self )
```

Definition at line 55 of file status.py.

6.31.4 Member Data Documentation

6.31.4.1 id

```
codar.savanna.status.PipelineState.id
```

Definition at line 50 of file status.py.

6.31.4.2 reason

```
codar.savanna.status.PipelineState.reason
```

Definition at line 52 of file status.py.

6.31.4.3 return_codes

```
codar.savanna.status.PipelineState.return_codes
```

Definition at line 53 of file status.py.

6.31.4.4 state

```
codar.savanna.status.PipelineState.state
```

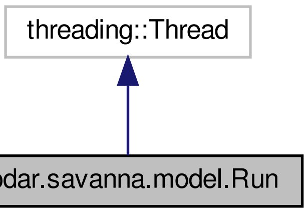
Definition at line 51 of file status.py.

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

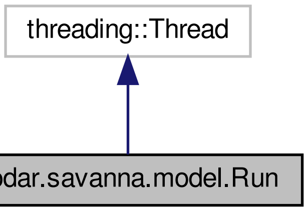
- savanna/status.py

6.32 codar.savanna.model.Run Class Reference

Inheritance diagram for codar.savanna.model.Run:



Collaboration diagram for codar.savanna.model.Run:



Public Member Functions

- def __init__ (self, name, exe, args, sched_args, env, working_dir, timeout=None, nprocs=1, res_set=None, stdout_path=None, stderr_path=None, return_path=None, walltime_path=None, log_prefix=None, sleep_↩ after=None, depends_on_runs=None, hostfile=None, runner_override=False)
- def from_data (cls, data)
- def mpmd_run (cls, runs)
- def set_runner (self, runner)
- def timed_out (self)
- def killed (self)
- def exception (self)
- def succeeded (self)
- def add_callback (self, fn)
- def remove_callback (self, fn)
- def run (self)
- def kill (self)
- def get_returncode (self)
- def get_pid (self)
- def close (self)
- def join (self)
- def get_nodes_used (self)
- def create_node_config (self)

Public Attributes

- name
- exe
- args
- sched_args
- env
- working_dir
- timeout
- nprocs
- res_set
- stdout_path
- stderr_path
- return_path
- walltime_path
- sleep_after
- log_prefix
- runner
- callbacks
- nodes
- tasks_per_node
- depends_on_runs
- hostfile
- machine
- nodes_assigned
- node_config
- erf_file
- runner_override

6.32.1 Detailed Description

```
Manage running a single executable within a pipeline. When start is
called, it will launch the process with Popen and call wait in the new
thread with a timeout, killing if the process does not finish in time.
```

Definition at line 64 of file model.py.

6.32.2 Constructor & Destructor Documentation

6.32.2.1 __init__()

```
def codar.savanna.model.Run.__init__ (
              self,
              name,
              exe,
              args,
              sched_args,
              env,
              working_dir,
              timeout = None,
              nprocs = 1,
              res_set = None,
              stdout_path = None,
              stderr_path = None,
              return_path = None,
              walltime_path = None,
              log_prefix = None,
              sleep_after = None,
              depends_on_runs = None,
              hostfile = None,
              runner_override = False )
```

Definition at line 74 of file model.py.

6.32.3 Member Function Documentation

6.32.3.1 add_callback()

```
def codar.savanna.model.Run.add_callback (
              self,
              fn )
```

```
Function takes single argument which is this run instance, and is
called when the process is complete (either normally or killed by
timeout). Callbacks must not block.
```

Definition at line 228 of file model.py.

6.32.3.2 close()

```
def codar.savanna.model.Run.close (
              self )
```

Definition at line 426 of file model.py.

6.32.3.3 create_node_config()

```
def codar.savanna.model.Run.create_node_config (
              self )
```

Definition at line 445 of file model.py.

6.32.3.4 exception()

```
def codar.savanna.model.Run.exception (
              self )
```

```
True if there was a python exception in the run method. When this
is the case, the state of the underlying process is unknown - it may
have been started or not.
```

Definition at line 211 of file model.py.

6.32.3.5 from_data()

```
def codar.savanna.model.Run.from_data (
              cls,
              data )
```

```
Create Run instance from nested dictionary data structure, e.g.
parsed from JSON. The keys 'name', 'exe', 'args' are required, all the
other keys are optional and have the same names as the constructor
args. Raises KeyError if a required key is missing.
```

Definition at line 146 of file model.py.

6.32.3.6 get_nodes_used()

```
def codar.savanna.model.Run.get_nodes_used (
              self )
```

```
Get number of nodes needed to run this app. Requires that the
pipeline set_ppn method has been called to set this and tasks_per_node
on each run.
```

Definition at line 436 of file model.py.

6.32.3.7 get_pid()

```
def codar.savanna.model.Run.get_pid (
              self )
```

Definition at line 421 of file model.py.

6.32.3.8 get_returncode()

```
def codar.savanna.model.Run.get_returncode (
              self )
```

Definition at line 416 of file model.py.

6.32.3.9 join()

```
def codar.savanna.model.Run.join (
              self )
```

Definition at line 431 of file model.py.

6.32.3.10 kill()

```
def codar.savanna.model.Run.kill (
              self )
```

```
Kill process and cause run thread to complete after the wait
returns. If the run is already done, does nothing. If the process is
killed, it will mark the state as killed so it can be re-run on
workflow restart. Thread safe.
```

Definition at line 319 of file model.py.

6.32.3.11 killed()

```
def codar.savanna.model.Run.killed (
              self )
```

```
True if the run is done and the kill method was called. Note that
this will _NOT_ be true if an external kill signal caused the process
to exit. Raises ValueError if the run is not complete.
```

Definition at line 202 of file model.py.

6.32.3.12 mpmd_run()

```
def codar.savanna.model.Run.mpmd_run (
              cls,
              runs )
```

Definition at line 171 of file model.py.

6.32.3.13 remove_callback()

```
def codar.savanna.model.Run.remove_callback (
              self,
              fn )
```

Definition at line 234 of file model.py.

6.32.3.14 run()

```
def codar.savanna.model.Run.run (
              self )
```

Definition at line 237 of file model.py.

6.32.3.15 set_runner()

```
def codar.savanna.model.Run.set_runner (
              self,
              runner )
```

Definition at line 188 of file model.py.

6.32.3.16 succeeded()

```
def codar.savanna.model.Run.succeeded (
              self )
```

```
True if the run is done, finished normally, and had 0 return value.
Raises ValueError if the run is not complete.
```

Definition at line 218 of file model.py.

6.32.3.17 timed_out()

```
def codar.savanna.model.Run.timed_out (
              self )
```

```
True if the run is done and was killed because it exceeded the
specified run timeout. Raises ValueError if the run is not complete.
```

Definition at line 194 of file model.py.

6.32.4 Member Data Documentation

6.32.4.1 args

```
codar.savanna.model.Run.args
```

Definition at line 78 of file model.py.

6.32.4.2 callbacks

```
codar.savanna.model.Run.callbacks
```

Definition at line 116 of file model.py.

6.32.4.3 depends_on_runs

```
codar.savanna.model.Run.depends_on_runs
```

Definition at line 125 of file model.py.

6.32.4.4 env

`codar.savanna.model.Run.env`

Definition at line 80 of file model.py.

6.32.4.5 erf_file

`codar.savanna.model.Run.erf_file`

Definition at line 139 of file model.py.

6.32.4.6 exe

`codar.savanna.model.Run.exe`

Definition at line 77 of file model.py.

6.32.4.7 hostfile

`codar.savanna.model.Run.hostfile`

Definition at line 128 of file model.py.

6.32.4.8 log_prefix

`codar.savanna.model.Run.log_prefix`

Definition at line 114 of file model.py.

6.32.4.9 machine

`codar.savanna.model.Run.machine`

Definition at line 132 of file model.py.

6.32.4.10 name

```
codar.savanna.model.Run.name
```

Definition at line 76 of file model.py.

6.32.4.11 node_config

```
codar.savanna.model.Run.node_config
```

Definition at line 136 of file model.py.

6.32.4.12 nodes

```
codar.savanna.model.Run.nodes
```

Definition at line 121 of file model.py.

6.32.4.13 nodes_assigned

```
codar.savanna.model.Run.nodes_assigned
```

Definition at line 133 of file model.py.

6.32.4.14 nprocs

```
codar.savanna.model.Run.nprocs
```

Definition at line 83 of file model.py.

6.32.4.15 res_set

```
codar.savanna.model.Run.res_set
```

Definition at line 88 of file model.py.

6.32.4.16 return_path

```
codar.savanna.model.Run.return_path
```

Definition at line 94 of file model.py.

6.32.4.17 runner

```
codar.savanna.model.Run.runner
```

Definition at line 115 of file model.py.

6.32.4.18 runner_override

```
codar.savanna.model.Run.runner_override
```

Definition at line 143 of file model.py.

6.32.4.19 sched_args

```
codar.savanna.model.Run.sched_args
```

Definition at line 79 of file model.py.

6.32.4.20 sleep_after

```
codar.savanna.model.Run.sleep_after
```

Definition at line 98 of file model.py.

6.32.4.21 stderr_path

```
codar.savanna.model.Run.stderr_path
```

Definition at line 92 of file model.py.

6.32.4.22 stdout_path

```
codar.savanna.model.Run.stdout_path
```

Definition at line 90 of file model.py.

6.32.4.23 tasks_per_node

```
codar.savanna.model.Run.tasks_per_node
```

Definition at line 122 of file model.py.

6.32.4.24 timeout

```
codar.savanna.model.Run.timeout
```

Definition at line 82 of file model.py.

6.32.4.25 walltime_path

```
codar.savanna.model.Run.walltime_path
```

Definition at line 96 of file model.py.

6.32.4.26 working_dir

```
codar.savanna.model.Run.working_dir
```

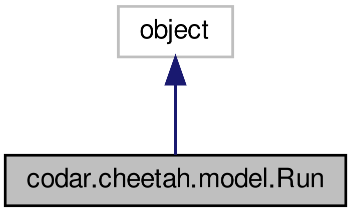
Definition at line 81 of file model.py.

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

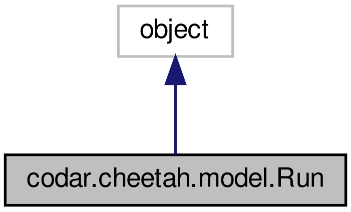
- savanna/model.py

6.33 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

6.33.1 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.

6.33.2 Constructor & Destructor Documentation

6.33.2.1 __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.

6.33.3 Member Function Documentation

6.33.3.1 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.

6.33.3.2 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.

6.33.3.3 get_fob_data_list()

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

Definition at line 528 of file model.py.

6.33.3.4 get_total_nprocs()

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

Definition at line 545 of file model.py.

6.33.3.5 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.

6.33.4 Member Data Documentation

6.33.4.1 codes

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

Definition at line 413 of file model.py.

6.33.4.2 codes_path

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

Definition at line 414 of file model.py.

6.33.4.3 component_inputs

```
codar.cheetah.model.Run.component_inputs
```

Definition at line 425 of file model.py.

6.33.4.4 component_subdirs

```
codar.cheetah.model.Run.component_subdirs
```

Definition at line 422 of file model.py.

6.33.4.5 inputs

```
codar.cheetah.model.Run.inputs
```

Definition at line 417 of file model.py.

6.33.4.6 instance

```
codar.cheetah.model.Run.instance
```

Definition at line 412 of file model.py.

6.33.4.7 machine

```
codar.cheetah.model.Run.machine
```

Definition at line 418 of file model.py.

6.33.4.8 node_layout

```
codar.cheetah.model.Run.node_layout
```

Definition at line 421 of file model.py.

6.33.4.9 run_components

```
codar.cheetah.model.Run.run_components
```

Definition at line 427 of file model.py.

6.33.4.10 run_id

```
codar.cheetah.model.Run.run_id
```

Definition at line 416 of file model.py.

6.33.4.11 run_path

```
codar.cheetah.model.Run.run_path
```

Definition at line 415 of file model.py.

6.33.4.12 sosflow_analysis

```
codar.cheetah.model.Run.sosflow_analysis
```

Definition at line 424 of file model.py.

6.33.4.13 sosflow_profiling

```
codar.cheetah.model.Run.sosflow_profiling
```

Definition at line 423 of file model.py.

6.33.4.14 total_nodes

```
codar.cheetah.model.Run.total_nodes
```

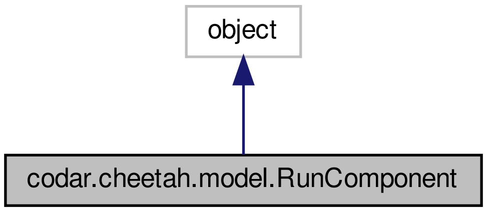
Definition at line 426 of file model.py.

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

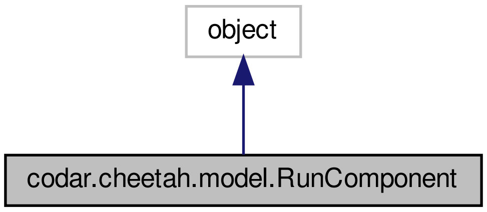
- cheetah/model.py

6.34 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

6.34.1 Detailed Description

Definition at line 870 of file model.py.

6.34.2 Constructor & Destructor Documentation

6.34.2.1 __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.

6.34.3 Member Function Documentation

6.34.3.1 as_fob_data()

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

Definition at line 891 of file model.py.

6.34.4 Member Data Documentation

6.34.4.1 adios_xml_file

`codar.cheetah.model.RunComponent.adios_xml_file`

Definition at line 886 of file model.py.

6.34.4.2 after_rc_done

`codar.cheetah.model.RunComponent.after_rc_done`

Definition at line 888 of file model.py.

6.34.4.3 args

`codar.cheetah.model.RunComponent.args`

Definition at line 877 of file model.py.

6.34.4.4 component_inputs

`codar.cheetah.model.RunComponent.component_inputs`

Definition at line 884 of file model.py.

6.34.4.5 env

`codar.cheetah.model.RunComponent.env`

Definition at line 881 of file model.py.

6.34.4.6 exe

```
codar.cheetah.model.RunComponent.exe
```

Definition at line 876 of file model.py.

6.34.4.7 hostfile

```
codar.cheetah.model.RunComponent.hostfile
```

Definition at line 887 of file model.py.

6.34.4.8 linked_with_sosflow

```
codar.cheetah.model.RunComponent.linked_with_sosflow
```

Definition at line 885 of file model.py.

6.34.4.9 name

```
codar.cheetah.model.RunComponent.name
```

Definition at line 875 of file model.py.

6.34.4.10 nprocs

```
codar.cheetah.model.RunComponent.nprocs
```

Definition at line 879 of file model.py.

6.34.4.11 runner_override

```
codar.cheetah.model.RunComponent.runner_override
```

Definition at line 889 of file model.py.

6.34.4.12 sched_args

```
codar.cheetah.model.RunComponent.sched_args
```

Definition at line 878 of file model.py.

6.34.4.13 sleep_after

```
codar.cheetah.model.RunComponent.sleep_after
```

Definition at line 880 of file model.py.

6.34.4.14 timeout

```
codar.cheetah.model.RunComponent.timeout
```

Definition at line 882 of file model.py.

6.34.4.15 working_dir

```
codar.cheetah.model.RunComponent.working_dir
```

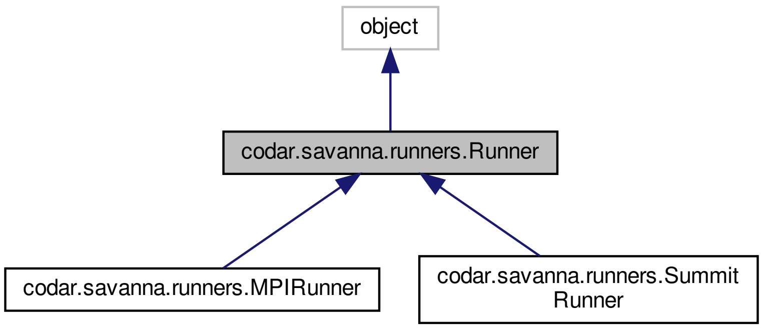
Definition at line 883 of file model.py.

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

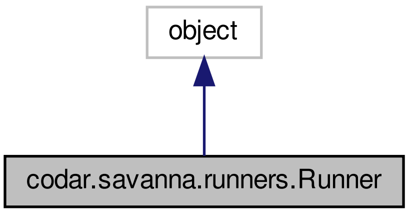
- cheetah/model.py

6.35 codar.savanna.runners.Runner Class Reference

Inheritance diagram for codar.savanna.runners.Runner:


object
codar.savanna.runners.Runner
codar.savanna.runners.MPIRunner
codar.savanna.runners.Summit Runner

Collaboration diagram for codar.savanna.runners.Runner:



Public Member Functions

- def wrap (self, run, sched_args)

6.35.1 Detailed Description

Definition at line 6 of file runners.py.

6.35.2 Member Function Documentation

6.35.2.1 wrap()

```
def codar.savanna.runners.Runner.wrap (
              self,
              run,
              sched_args )
```

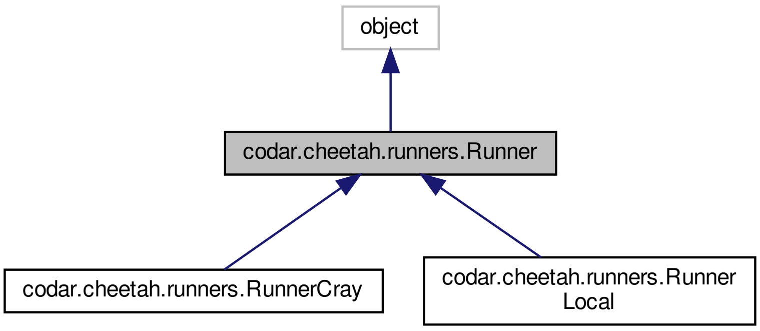
Definition at line 7 of file runners.py.

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

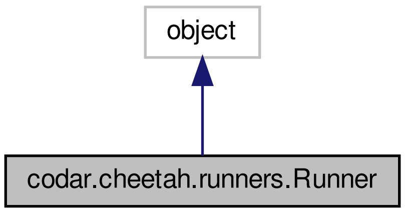
- savanna/runners.py

6.36 codar.cheetah.runners.Runner Class Reference

Inheritance diagram for codar.cheetah.runners.Runner:


object
codar.cheetah.runners.Runner
codar.cheetah.runners.RunnerCray
codar.cheetah.runners.Runner Local

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

6.36.1 Detailed Description

Definition at line 7 of file runners.py.

6.36.2 Member Function Documentation

6.36.2.1 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.

6.36.3 Member Data Documentation

6.36.3.1 name

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

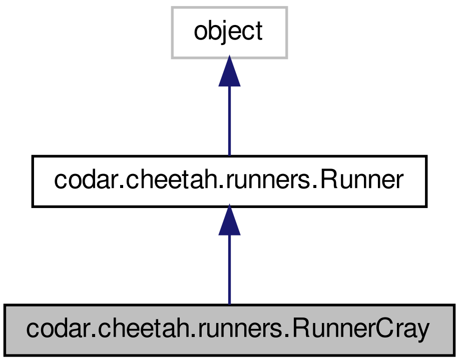
Definition at line 8 of file runners.py.

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

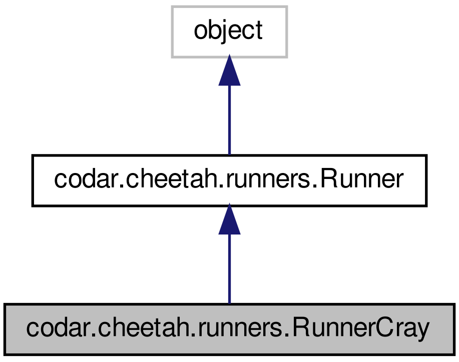
- cheetah/runners.py

6.37 codar.cheetah.runners.RunnerCray Class Reference

Inheritance diagram for codar.cheetah.runners.RunnerCray:


object
codar.cheetah.runners.Runner
codar.cheetah.runners.RunnerCray

Collaboration diagram for codar.cheetah.runners.RunnerCray:


object
codar.cheetah.runners.Runner
codar.cheetah.runners.RunnerCray

Public Member Functions

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

Static Public Attributes

- string name = 'cray'

6.37.1 Detailed Description

Definition at line 40 of file runners.py.

6.37.2 Member Function Documentation

6.37.2.1 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.

6.37.3 Member Data Documentation

6.37.3.1 name

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

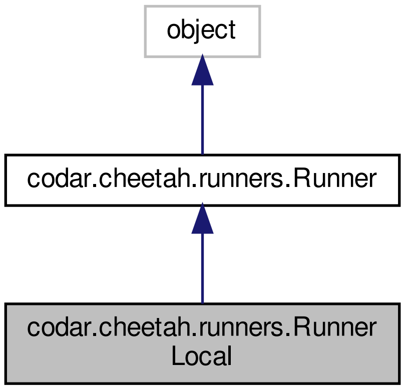
Definition at line 41 of file runners.py.

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

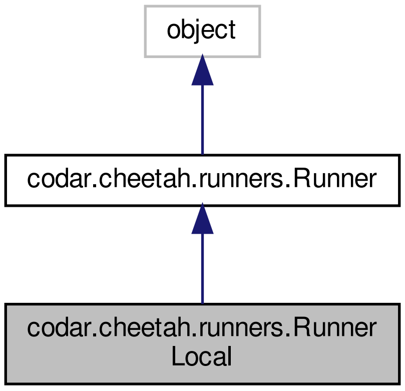
- cheetah/runners.py

6.38 codar.cheetah.runners.RunnerLocal Class Reference

Inheritance diagram for codar.cheetah.runners.RunnerLocal:


object
codar.cheetah.runners.Runner
codar.cheetah.runners.Runner Local

Collaboration diagram for codar.cheetah.runners.RunnerLocal:


object
codar.cheetah.runners.Runner
codar.cheetah.runners.Runner Local

Public Member Functions

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

Static Public Attributes

- string name = 'local'

6.38.1 Detailed Description

Definition at line 20 of file runners.py.

6.38.2 Member Function Documentation

6.38.2.1 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.

6.38.3 Member Data Documentation

6.38.3.1 name

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

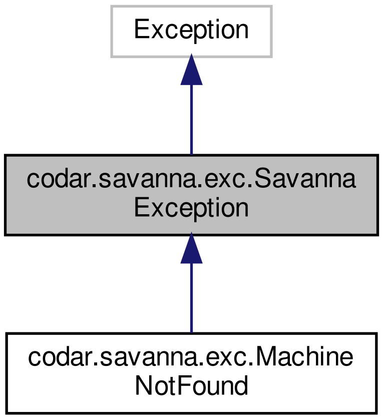
Definition at line 21 of file runners.py.

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

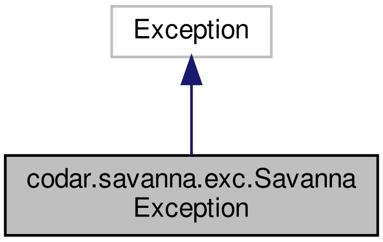
- cheetah/runners.py

6.39 codar.savanna.exc.SavannaException Class Reference

Inheritance diagram for codar.savanna.exc.SavannaException:


Exception
codar.savanna.exc.Savanna Exception
codar.savanna.exc.Machine NotFound

Collaboration diagram for codar.savanna.exc.SavannaException:



6.39.1 Detailed Description

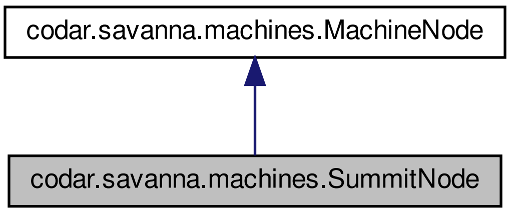
Definition at line 6 of file exc.py.

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

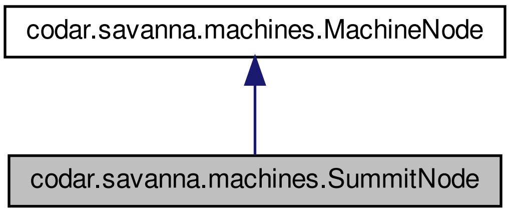
- savanna/exc.py

6.40 codar.savanna.machines.SummitNode Class Reference

Inheritance diagram for codar.savanna.machines.SummitNode:


codar.savanna.machines.MachineNode
codar.savanna.machines.SummitNode

Collaboration diagram for codar.savanna.machines.SummitNode:


codar.savanna.machines.MachineNode
codar.savanna.machines.SummitNode

Public Member Functions

- def __init__ (self)
- def validate_layout (self)
- def to_json (self)

Additional Inherited Members

6.40.1 Detailed Description

Definition at line 28 of file machines.py.

6.40.2 Constructor & Destructor Documentation

6.40.2.1 __init__()

```
def codar.savanna.machines.SummitNode.__init__ (
              self )
```

Definition at line 29 of file machines.py.

6.40.3 Member Function Documentation

6.40.3.1 to_json()

```
def codar.savanna.machines.SummitNode.to_json (
              self )
```

Definition at line 64 of file machines.py.

6.40.3.2 validate_layout()

```
def codar.savanna.machines.SummitNode.validate_layout (
              self )
```

```
Check that 1) the same rank of the same code is not repeated,
2) a gpu is not mapped to multiple executables.
```

Definition at line 32 of file machines.py.

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

- savanna/machines.py

6.41 codar.cheetah.parameters.SummitOpts Class Reference

Public Member Functions

- def __init__ (self)

6.41.1 Detailed Description

Definition at line 486 of file parameters.py.

6.41.2 Constructor & Destructor Documentation

6.41.2.1 __init__()

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

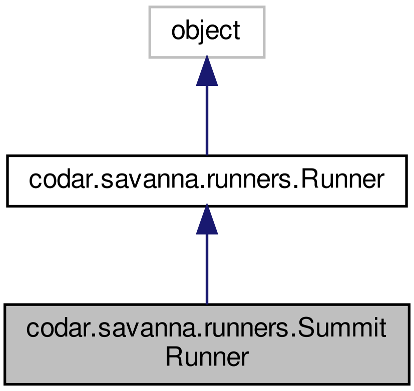
Definition at line 487 of file parameters.py.

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

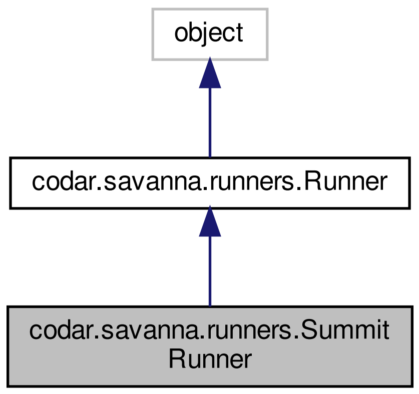
- cheetah/parameters.py

6.42 codar.savanna.runners.SummitRunner Class Reference

Inheritance diagram for codar.savanna.runners.SummitRunner:


object
codar.savanna.runners.Runner
codar.savanna.runners.Summit Runner

Collaboration diagram for codar.savanna.runners.SummitRunner:



Public Member Functions

- def __init__ (self)
- def wrap (self, run, sched_args)
- def wrap_deprecated (self, run, jsrun_opts, find_in_path=True)

Public Attributes

- exe
- nrs_arg
- tasks_per_rs_arg
- cpus_per_rs_arg
- gpus_per_rs_arg
- rs_per_host_arg
- launch_distribution_arg
- bind_arg
- machine

6.42.1 Detailed Description

Definition at line 44 of file runners.py.

6.42.2 Constructor & Destructor Documentation

6.42.2.1 __init__()

```
def codar.savanna.runners.SummitRunner.__init__ (
              self )
```

Definition at line 45 of file runners.py.

6.42.3 Member Function Documentation

6.42.3.1 wrap()

```
def codar.savanna.runners.SummitRunner.wrap (
              self,
              run,
              sched_args )
```

Definition at line 56 of file runners.py.

6.42.3.2 wrap_deprecated()

```
def codar.savanna.runners.SummitRunner.wrap_deprecated (
              self,
              run,
              jsrun_opts,
              find_in_path = True )
```

```
This function is deprecated in favor of the above that uses erf
files
```

Definition at line 60 of file runners.py.

6.42.4 Member Data Documentation

6.42.4.1 bind_arg

```
codar.savanna.runners.SummitRunner.bind_arg
```

Definition at line 53 of file runners.py.

6.42.4.2 cpus_per_rs_arg

`codar.savanna.runners.SummitRunner.cpus_per_rs_arg`

Definition at line 49 of file runners.py.

6.42.4.3 exe

`codar.savanna.runners.SummitRunner.exe`

Definition at line 46 of file runners.py.

6.42.4.4 gpus_per_rs_arg

`codar.savanna.runners.SummitRunner.gpus_per_rs_arg`

Definition at line 50 of file runners.py.

6.42.4.5 launch_distribution_arg

`codar.savanna.runners.SummitRunner.launch_distribution_arg`

Definition at line 52 of file runners.py.

6.42.4.6 machine

`codar.savanna.runners.SummitRunner.machine`

Definition at line 54 of file runners.py.

6.42.4.7 nrs_arg

`codar.savanna.runners.SummitRunner.nrs_arg`

Definition at line 47 of file runners.py.

6.42.4.8 rs_per_host_arg

```
codar.savanna.runners.SummitRunner.rs_per_host_arg
```

Definition at line 51 of file runners.py.

6.42.4.9 tasks_per_rs_arg

```
codar.savanna.runners.SummitRunner.tasks_per_rs_arg
```

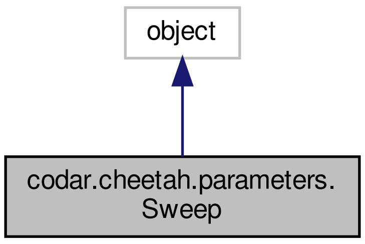
Definition at line 48 of file runners.py.

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

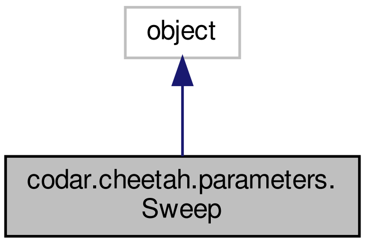
- savanna/runners.py

6.43 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

6.43.1 Detailed Description

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

Definition at line 45 of file parameters.py.

6.43.2 Constructor & Destructor Documentation

6.43.2.1 __init__()

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

Definition at line 50 of file parameters.py.

6.43.3 Member Function Documentation

6.43.3.1 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.

6.43.4 Member Data Documentation

6.43.4.1 node_layout

`codar.cheetah.parameters.Sweep.node_layout`

Definition at line 52 of file parameters.py.

6.43.4.2 parameters

`codar.cheetah.parameters.Sweep.parameters`

Definition at line 51 of file parameters.py.

6.43.4.3 rc_dependency

`codar.cheetah.parameters.Sweep.rc_dependency`

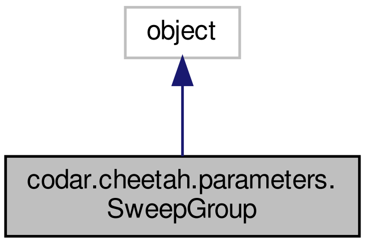
Definition at line 53 of file parameters.py.

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

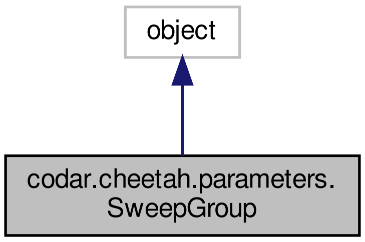
- cheetah/parameters.py

6.44 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

6.44.1 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.

6.44.2 Constructor & Destructor Documentation

6.44.2.1 __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.

6.44.3 Member Data Documentation

6.44.3.1 component_inputs

```
codar.cheetah.parameters.SweepGroup.component_inputs
```

Definition at line 37 of file parameters.py.

6.44.3.2 component_subdirs

```
codar.cheetah.parameters.SweepGroup.component_subdirs
```

Definition at line 29 of file parameters.py.

6.44.3.3 launch_mode

```
codar.cheetah.parameters.SweepGroup.launch_mode
```

Definition at line 41 of file parameters.py.

6.44.3.4 max_procs

```
codar.cheetah.parameters.SweepGroup.max_procs
```

Definition at line 30 of file parameters.py.

6.44.3.5 name

```
codar.cheetah.parameters.SweepGroup.name
```

Definition at line 27 of file parameters.py.

6.44.3.6 nodes

```
codar.cheetah.parameters.SweepGroup.nodes
```

Definition at line 28 of file parameters.py.

6.44.3.7 parameter_groups

```
codar.cheetah.parameters.SweepGroup.parameter_groups
```

Definition at line 31 of file parameters.py.

6.44.3.8 per_run_timeout

```
codar.cheetah.parameters.SweepGroup.per_run_timeout
```

Definition at line 34 of file parameters.py.

6.44.3.9 run_repetitions

```
codar.cheetah.parameters.SweepGroup.run_repetitions
```

Definition at line 42 of file parameters.py.

6.44.3.10 sosflow_analysis

```
codar.cheetah.parameters.SweepGroup.sosflow_analysis
```

Definition at line 36 of file parameters.py.

6.44.3.11 sosflow_profiling

```
codar.cheetah.parameters.SweepGroup.sosflow_profiling
```

Definition at line 35 of file parameters.py.

6.44.3.12 walltime

```
codar.cheetah.parameters.SweepGroup.walltime
```

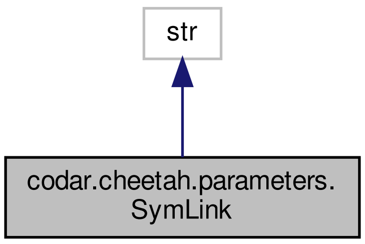
Definition at line 32 of file parameters.py.

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

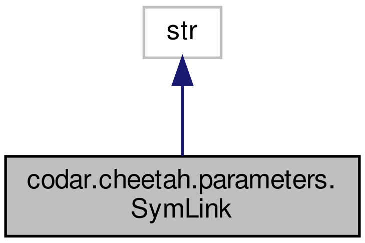
- cheetah/parameters.py

6.45 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

6.45.1 Detailed Description

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

Definition at line 491 of file parameters.py.

6.45.2 Constructor & Destructor Documentation

6.45.2.1 __init__()

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

Definition at line 495 of file parameters.py.

6.45.3 Member Data Documentation

6.45.3.1 source

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

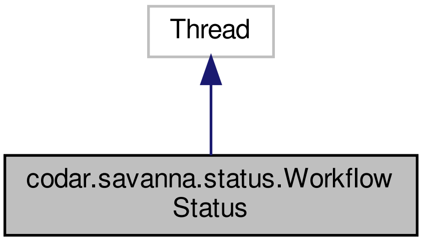
Definition at line 496 of file parameters.py.

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

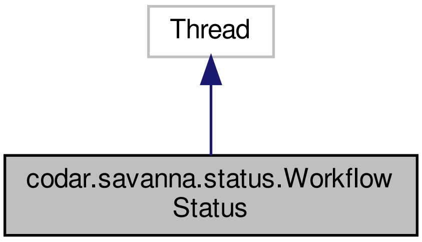
- cheetah/parameters.py

6.46 codar.savanna.status.WorkflowStatus Class Reference

Inheritance diagram for codar.savanna.status.WorkflowStatus:



Collaboration diagram for codar.savanna.status.WorkflowStatus:



Public Member Functions

- def __init__ (self, file_path)
- def set_state (self, pipeline_state)

Public Attributes

- file_path

6.46.1 Detailed Description

Definition at line 24 of file status.py.

6.46.2 Constructor & Destructor Documentation

6.46.2.1 __init__()

```
def codar.savanna.status.WorkflowStatus.__init__ (
              self,
              file_path )
```

Definition at line 25 of file status.py.

6.46.3 Member Function Documentation

6.46.3.1 set_state()

```
def codar.savanna.status.WorkflowStatus.set_state (
              self,
              pipeline_state )
```

Definition at line 37 of file status.py.

6.46.4 Member Data Documentation

6.46.4.1 file_path

```
codar.savanna.status.WorkflowStatus.file_path
```

Definition at line 27 of file status.py.

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

- savanna/status.py

Chapter 7

File Documentation

7.1 __init__.py File Reference

Namespaces

- codar

7.2 cheetah/__init__.py File Reference

Namespaces

- codar.cheetah

7.3 savanna/__init__.py File Reference

Namespaces

- codar.savanna

7.4 cheetah/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)

7.5 cheetah/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)

7.6 cheetah/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")

7.7 cheetah/exc.py File Reference

Classes

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

Namespaces

- codar.cheetah.exc

7.8 savanna/exc.py File Reference

Classes

- class codar.savanna.exc.SavannaException
- class codar.savanna.exc.MachineNotFound

Namespaces

- codar.savanna.exc

7.9 cheetah/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)

7.10 cheetah/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}"

7.11 cheetah/loader.py File Reference

Namespaces

- codar.cheetah.loader

Functions

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

7.12 cheetah/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()

7.13 cheetah/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'])

7.14 savanna/model.py File Reference

Classes

- class codar.savanna.model.NodeConfig
- class codar.savanna.model.Run
- class codar.savanna.model.Pipeline

Namespaces

- codar.savanna.model

Variables

- string codar.savanna.model.STDOUT_NAME = 'codar.workflow.stdout'
- string codar.savanna.model.STDERR_NAME = 'codar.workflow.stderr'
- string codar.savanna.model.RETURN_NAME = 'codar.workflow.return'
- string codar.savanna.model.WALLTIME_NAME = 'codar.workflow.walltime'
- int codar.savanna.model.KILL_WAIT = 30
- int codar.savanna.model.WAIT_DELAY_KILL = 30
- int codar.savanna.model.WAIT_DELAY_GIVE_UP = 120

7.15 cheetah/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

7.16 cheetah/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

7.17 cheetah/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)

7.18 cheetah/runners.py File Reference

Classes

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

Namespaces

- codar.cheetah.runners

7.19 savanna/runners.py File Reference

Classes

- class codar.savanna.runners.Runner
- class codar.savanna.runners.MPIRunner
- class codar.savanna.runners.SummitRunner

Namespaces

- codar.savanna.runners

Variables

- codar.savanna.runners.mpiexec = MPIRunner('mpiexec', '-n', hostfile='--hostfile')
- codar.savanna.runners.aprun = MPIRunner('aprun', '-n', tasks_per_node_arg='-N', hostfile='-L')
- codar.savanna.runners.srun = MPIRunner('srun', '-n', nodes_arg='-N', hostfile='-w')
- codar.savanna.runners.jsrun = SummitRunner()

7.20 cheetah/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)

7.21 savanna/status.py File Reference

Classes

- class codar.savanna.status.WorkflowStatus
- class codar.savanna.status.PipelineState

Namespaces

- codar.savanna.status

Variables

- string codar.savanna.status.NOT_STARTED = 'not_started'
- string codar.savanna.status.RUNNING = 'running'
- string codar.savanna.status.DONE = 'done'
- string codar.savanna.status.KILLED = 'killed'
- string codar.savanna.status.REASON_TIMEOUT = 'timeout'
- string codar.savanna.status.REASON_FAILED = 'failed'
- string codar.savanna.status.REASON_SUCCEEDED = 'succeeded'
- string codar.savanna.status.REASON_EXCEPTION = 'exception'
- string codar.savanna.status.REASON_NOFIT = 'nofit'

7.22 cheetah/templates.py File Reference

Namespaces

- codar.cheetah.templates

Variables

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

7.23 savanna/consumer.py File Reference

Classes

- class codar.savanna.consumer.PipelineRunner

Namespaces

- codar.savanna.consumer

7.24 savanna/machines.py File Reference

Classes

- class codar.savanna.machines.MachineNode
- class codar.savanna.machines.SummitNode
- class codar.savanna.machines.Machine

Namespaces

- codar.savanna.machines

Functions

- def codar.savanna.machines.get_by_name (name)

Variables

- codar.savanna.machines.SCHEDULER_OPTIONS = set(["project", "queue", "constraint", "license"])
- codar.savanna.machines.local = Machine('local', "local", "mpiexec", MachineNode, processes_per_node=1)
- codar.savanna.machines.titan
- codar.savanna.machines.cori
- codar.savanna.machines.theta
- codar.savanna.machines.summit

7.25 savanna/main.py File Reference

Namespaces

- codar.savanna.main

Functions

- def codar.savanna.main.parse_args ()
- def codar.savanna.main.main ()
- def codar.savanna.main.get_job_id ()

Variables

- codar.savanna.main.consumer = None

7.26 savanna/node_layout.py File Reference

Classes

- class codar.savanna.node_layout.NodeLayout

Namespaces

- codar.savanna.node_layout

7.27 savanna/producer.py File Reference

Classes

- class codar.savanna.producer.JSONFilePipelineReader

Namespaces

- codar.savanna.producer

7.28 savanna/scheduler.py File Reference

Classes

- class codar.savanna.scheduler.JobList

Namespaces

- codar.savanna.scheduler

7.29 savanna/summit_helper.py File Reference

Namespaces

- codar.savanna.summit_helper

Functions

- def codar.savanna.summit_helper.get_nodes_reqd (res_set, nrs)
- def codar.savanna.summit_helper.create_erf_file (run)

Index