decisionengine

Release 2.0.3.dev8+gd23db48f

Fermilab

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The Decision Engine is a critical component of the HEP Cloud Facility. It provides the functionality of resource scheduling for disparate resource providers, including those which may have a cost or restricted allocation of cycles. This package, decisionengine, provides the framework and base classes, the decisionengine_modules package contains provider specific implementations of the base classes.

CHAPTER

ONE

RELEASE NOTES

1.1 Release Notes

HEPCloud's Decision Engine release notes.

The latest release is the designated production release. Decision Engine will support also N-1. New feature development will happen in the development branch and go in the next (N+1) release.

1.1.1 Release 2.0.2

This is mainly a bug fix and documentation release. Instructions to run on EL8 have been added. Also a UP/DOWN status metric was added via Prometheus.

Issues fixed in this release

- 428 : Decision engine 1.7.3 bug too many open file descriptors in glide_frontend_element.py
- 427 : Set CONTINUE_IF_NO_PROXY to False to allow hybrid configuration

Full list of commits since version 2.0.1

7ec132e9: [pre-commit.ci] auto fixes from pre-commit.com hooks

b942241a: Add installation instructions for CentOS 8

4f6fc134: [pre-commit.ci] auto fixes from pre-commit.com hooks

e8d1922e: Fix docstrings errors and warnings

fc6aefd5: Docker container and test setup for EL8

51d5293f: [pre-commit.ci] auto fixes from pre-commit.com hooks

0c15d3bd: Added UP/DOWN status metric of the decision engine

fc76a1f0: Fixup coverage for new version

04b18750: Set upper limit version for flake8. This is needed to have pytest-flake8 and flake8 versions working together.

98797411: Add 'Setup pressure-based pilot submission' section to install document

0165183c: make RPM requires more flexible

28e2a0d4: Updated release notes for 2.0.1 and porting of 1.7.3

1.1.2 Release 2.0.1

Patch level (bug fix) release.

Issues fixed in this release

Bugs fixed

- DE 639: de-client –status stalls whenever channels are not yet in STEADY state
- DE 638: Sources should go offline if the client channel offline
- DE 634: de-client –stop-channel / –start-channel doesn't work in 2.0rc2
- DE 626: New DE 2.0rc2 regularly takes 2-3 minutes to shut down
- DE 599: Clarify timeout variable in block_while()
- DE 522: Decision engine log files get split between several different processes with several different versions open
- DE 236: New race condition in de-client

Enhancements:

- DE 650: Added separate log files for Sources

Full list of commits since version 2.0.0

b5e56ab8: Remove signal handler.

0fb6814b: Prevent blocking (if possible) during service actions.

bb68fc31: Add logging handler to client-message receiver.

53fefbc5: Update kombu version.

009cdd95: Use kombu queues for server/client communication.

29a1ee25: add distinct logging for sources

e44e9210: Update GitHub actions; pylint workaround.

d192f8fb: Lock typing_extensions for Python 3.6 compat

2b946043: Fix pre-commit node version to 17.9.0, the last to support SL7.

76f3ddfb: lock pyupgrade to python3.6 support

c9c7cb3e: Include psutil as part of runtime requirements.

df8a3941: Make sure to kill worker process.

69924d0c: Do not block de-client calls during startup.

ddb18d7c: Minor cleanups.

f4dc7da7: Do not take source offline more than once during detach.

cbffa992: Update Docker entrypoint script for DE 2.0 branch

e10fe5af: Fixed cross-package link in the documentation

9da1eac8: Added cross-package link in the documentation

d278726b: Updated 2.0 release notes and indexes, ready for 2.0.0

1.1.3 Release 2.0.0

This release series follows 1.7. A lot started to happen in 1.7.0 and has happened since, so we felt it was proper to change the major version number. We are proud to introduce Decision Engine 2.0.0 to outside users: it provides a friendlier installation procedure and configuration samples to test it on all resources supported by the GlideinWMS Factory, like OSG, some HPC resources and commercial cloud providers.

- New architecture with redesigned source system using Kombu message passing with a Redis backend.
- Token support via DE modules: support for SciToken, WlcgToken (for CE authentication) and HTCondor Idtokens (for Glideins and Factory communication)
- Separation from the GlideinWMS Frontend. Decision Engine still shares some libraries with GlideinWMS but you don't need any more to install and configure the Frontend.
- Structured logging. Improved python logging and adoption of structured logs format that will increase the semantinc content of the messages and ease the export of information for dashboards and Elastic Search.
- Monitoring via Prometheus.
- SQLAlchemy object-relational mapper to increase the testability of DB interactions and to allow different database backends.
- Packaging via setuptools for both decisionengine and decisionengine_modules: Dependencies are not yet fully listed in the RPMs.
- Added support of CentOS8 (RHEL7 is still out main platform)
- Configuration example using HTC resources via GlideinWMS Factory
- Decision Engine is distributed under the Apache 2.0 license
- We increased our CI tests including also code auto-formatting and license compliance. We introduced integration tests and we are proud of our over 95% unit test coverage.

Note: SQLAlchemy is required and is now the only datasource backend supported. Upgrading from a different datasource backend (1.6 or earlier were using direct PostgreSQL, 1.7 was supporting both) is a one-way change with a migration tool. We suggest dropping all objects if you wish to reuse the tablespace. You can preserve a copy of the old database to query historical information.

Note: Added requirement on the Kombu library and a Redis server. We suggest to install Redis using a container.

Note: Added requirement on prometheus-client. Prometheus is be used as optional monitoring component.

Issues fixed in this release

- 528: Update license and add copyright notices
- 207: Under certain circumstances the fetch of the "consumes" information fails but the channel does not go offline operations
- 547: Update DE client libs to pgsql-12
- 459: Setuptools issues in decisionengine rpm
- 546: Request CentOS8 Stream support for Decision Engine

- 453: Struct Logging Self test errors with pytest-xdist
- 418: Add auto-formatting of the code
- 134: Yum update on decisionengine rpm doesn't restart the service
- 480: Request: Make postgresql migration script to migrate from old postgresql schema to new sqlalchemy schema

Full list of commits since version 1.7.0

685a3a8e: Added changelog file for developers curated list of changes

044f4463: Updated 1.7 and 2.0 release notes, ready for 2.0.0 RC4

19994fb5: Convert timeout program options to floats.

e2055f92: Address Marco's review comments.

abdf35ad: Restore multiple queues but purge source queue after each publish.

52936cb5: Improve error-handling.

aad20744: Change to multiprocessing.Lock for protecting channel/source workers.

24bbee41: Adjust launching of source workers in attempt to avoid deadlock.

6d13a392: Remove unnecessary (and perhaps harmful) external updating of channel states.

5456f32f: Improve test coverage.

1afabb70: Use service_actions to disable sources whenever client channels fail.

7f67a172: Various naming and logging adjustments

e6e49184: Adjust de-client –status and add –product-dependencies program option.

a7c1f351: Apply block-while timeout to all channels, not each channel.

3d739ec7: Update ci workflow to include workflow_dispatch mechanism and to customize artifact file name

c5a05650: Archive unit test logs in case of unit test failure and make them available as artifacts

e94c2abb: Update Python 3.6-compatible pre-commit hooks.

aeb6b974: Update Countdown docstrings.

525eb3a8: Add Countdown class to address global timeout problem.

4c458e0c: Updated release notes for 2.0.0 RC3 (1.7.99.post3)

137b574a: Add a minimal container image more suited to production usage

9d7f6875: Provide de-client –queue-status program option.

a7dcc30d: Ensure that channels and sources shared the same queues.

49a316e0: Restore pyupgrade to v2.30, which works on Python 3.6

2ce5ccb6: [pre-commit.ci] pre-commit autoupdate

7bd41851: Print number of pickled bytes of source-produced data.

97aed846: Protect tests from Redis DB/routing-key collisions.

4d3abab7: Flush the Redis DB once the DE server stops.

e36c2150: Remove unnecessary @pytest.mark.usefixtures(...) decorations.

30d68610: More unit testing

7850995d: We should have one path where we test without -v.

a81a52cc: A simple test to ensure the metrics can run

7547720c: Logger tests are a bit unstable at high parallelization.

56516df7: Add missing test to ensure we can change the channel level twice

abde7d0f: Add missing tests for inherited functions

6522ed37: Note lines we are not testing

de7829a4: Remove the unit test log directory if it got created

28fbd599: pin jsonnet 0.17.0

9c5c827e: Metrics seems to want the channels setup to complete

b8829997: Pin pytest version

b348d6f7: Fix deadlock starting cherrypy metrics server

7697e6c1: Log invocation of random port

9e7e4813: Clarify note on xdist, run more workers

0b495fbf: Leave note to remember to cleanup temp files

ca5ddf6f: Ensure we are calling the cherrypy shutdown methods

e60efe78: Move metrics fixtures to the fixtures file

9c717cc5: Log finished with DB init

55965f9e: Prep the server fixture to permit the metrics webserver

732ff99b: Add a 'ping' method

6117cc95: [pre-commit.ci] pre-commit autoupdate

b5af73ca: More logging about cherrypy state

dfe4278f: Added unlinked release notes for DE 2.0.0

7d6484ad: Test source shared between two channels.

ae29d9d1: Test same source types, separate channels

6095d33f: Test LatestMessages utility.

dfbf3e06: Separate sources from channels.

2c10391e: Remove source proxy

afcc7cff: Add some more logging to try and trace startup state

dbd49a66: Explicitly pass .coveragerc to pytest.

e6b03216: Set max retry timeout for sqlite in unit tests.

51bed3d6: Updated documentation for 1.7.1 release

3829151f: Allow duplicate keys if their values are the same.

1ea288e0: [pre-commit.ci] pre-commit autoupdate

6b6611e5: Use pre-commit.ci rather than local actions

dedbe4bd: Use local time for structlog timestamp

461c506e: Make sure de_std.libsonnet is provided when packaged.

f93b5963: Update pre-commit hook versions and accommodate python-debian issue.

bba51609: Reduce number of fixtures.

a4510cb1: Segment the update for setuptools so it gets cached correctly

40098f35: Merge pull request #584 from jcpunk/user-pip

4e1b79a1: Merge pull request #583 from jcpunk/drop-dbutils

72c8db4a: Recommend using the site user pip dir instead.

ff604495: Drop unneeded module

b203e2c4: remove extraneous 'import gc'

ee2278e7: replace needed import

4b7dedf2: add licensing info

e5a56816: add licensing info

a114abba: add licensing info

c2d511cd: adding queue logging to de_logger

77dd8d5a: Also run checks on backports to 1.7

7c029578: Updated developers instructions w/ license maintenance via REUSE information

e66b985d: Fix faulty tests.

d1a86c57: Set Apache 2.0 license and added REUSE compliance

e488030e: Ensure that redis is running.

6c982c11: Report PID for source process.

3f844ca4: Further flesh out the documentation

1d750001: Simplifications and rearrangements.

b85dca45: Set state to error for exceptions caught before the thread start.

c4727acb: Changed summaries to histograms in DecisionEngine and TaskManager modules

6fa0bf4d: Added install document and updated the index and development instructions accordingly

e4de391e: Do the build of the wheel as not-root per our requirements

24ba5272: Add a redis server to the CI testing containers

c939a6ed: Address Pat's comments.

1925a7b0: First implementation using Kombu/redis to communicate data from sources to cycles.

82faa271: Don't try to package obsolete sql file

9cbffe94: Drop redundant tests.

ab0de9a5: Drop obsolete raw postgresql interface

164b36d3: Removed unnecessary comment

91f7a76f: Fixed rebase errors

e475fbd5: Added import statement to fix MultiProcessCollector

a409f126: Add no-webserver setting to all DE Test Workers

39cca32e: Moved multiprocess import to metrics to clean up imports.

73762e90: Added –no-webserver to invocations of DEServer

303ee4be: Added __all__ global to control what is exported.

5170224b: Allow for metrics disabling from systemd unit file

2cacef4f: Added check for proper metrics environment and associated unit tests

a637a088: Make webserver operation configurable

b3d6445a: Changed set_to_function calls to set() calls for metrics

5dccc7fa: Changed metric names to match prometheus convention

7371c2e8: Added cherrypy requirement

2c511cea: Added metrics to record time to run Modules and DecisionEngine rpc calls

c24d33bc: Renamed prometheus.py to metrics.py

2335134d: Moved TaskManager metrics to util/prometheus.py to avoid duplicates

3c1b790c: Added metrics endpoint to RPC server, changed prometheus to multiprocess mode, and added CherryPy webserver for prometheus metrics

d8972de0: Added unit tests for metrics API

7b0f641b: Add instructions for running the Redis container.

8d0c4919: Block pytest-postgresql 4

d988f1a0: Lower timeout for actions.

4f920dcc: Simplifications in preparation for Kombu.

eb9f4292: Make TaskManager not executable

00c8f6e6: Remove unused files.

dd990d2c: Adding de-logparser, a tool to help parsing Decision Engine semi-structured logs

1da0d61e: Added a comment to help developers with incomplete installation

1cbc7334: Drop testing/support for PyPy

3ba3e8e6: Ignoring E203, whitespace after ':', since black is adding the whitespace

814669d5: Disable PyPy test that fails for PG_DE_DB_WITH_SCHEMA fixture value.

8d68c287: Fix debug message

33db6425: Test composite workflows using source proxies and configuration combination.

30951a5b: EL7 doesn't ship with a new enough golang for jsonnetfmt

e72eb3fd: Forbid inheritance from SourceProxy.

e95071fd: Automatically format jsonnet files with jsonnetfmt

355ccd45: Correct tests for python 3.10

64119161: Start testing python 3.10

c1cb8258: add dummy source and test

31b0f30b: Check for duplicate keys after source proxies have been removed.

140a4c47: Fix configuration-combination function signature.

d4a05299: Remove now unnecessary blocking.

1e78a889: Don't run setup.py as root

a71d5b0a: Add error for running server as root

cd345701: Incrase coverage in LogicEngine

6c132924: Fix out of sync devel requirements

8bfab003: Start running tests with xdist

aebe7d49: Remove unnecessary conversion to Pandas dataframe.

28919b16: Allow channels to boot in parallel.

c4fc5997: Improve parameter and variable names.

e021419b: Encourage use of automatic nag hook

cc4e469a: Update hooks to latest via *pre-commit autoupgrade*

cef30b69: Further simplify some cases

590bea3f: Add channel-combination facilities.

a4a7938c: Various simplifications recommended by flake8-simple

d5157416: Possible simplification to logging.

81e3d1ee: Fix pylint error on *create_runner* and *ProcessingState*

2a328c25: Added missing init file to make managers a package

d7f44015: Rework tests for #454

9521d3ce: Add debug statement when default logic-engine configuration is used.

c6dc778c: Unconditionally execute publishers with default configured logic engine.

a48dd7d8: Remove now-unnecessary Python-to-Jsonnet conversion.

a6a81ce7: Run autoformatters

49dac1ec: Setup pre-commit hooks for autoformatters

3800cc2a: Run the code style/standards checks early.

1d42eb0d: TaskManager now inherits from ComponentManager. Also added SourceManager, ChannelManager, and SourceSubscriptionManager files for future integration.

85a16f3b: Python optimised byte code removes assert under some conditions

bed2f5d9: Support latest setuptools_scm release

1.1.4 Release 1.7.4

Same as 1.7.1 release. Dome to mantain the same version number as decisionengine_modules.

1.1.5 Release 1.7.3

Same as 1.7.1 release. Dome to mantain the same version number as decisionengine_modules.

1.1.6 Release 1.7.2

Same as 1.7.1 release. Done to maintain the same version number as decisionengine_modules.

1.1.7 Release 1.7.1

Patch level (bug fix) release.

Issues fixed in this release

Bugs fixed

- DE 522: Decision engine log files get split between several different processes with several different versions open: (fd1e99ce)

Enhancements:

- Added dummy sources (de1536fa)

Full list of commits since version 1.7.0

606e1e9f: Merge pull request #585 from vitodb/fix/1.7/vito_port_PR527

538cf940: Merge pull request #586 from HEPCloud/goodenou-patch-remove-gc

67febfd0: remove unnecessary 'import gc'

9da797d3: Improve parameter and variable names.

55a5b547: porting #PR515 into 1.7 (simplifications to logging in Modules) cherry-picked from commit d515741

fd1e99ce: porting #PR563 into 1.7 (adding queue logging into de_logger)

c75deef4: Also run tests on PRs for backports to 1.7

de1536fa: add dummy source and test

1.1.8 Release 1.7.0

This release features:

- New produces-consumes structure using decorators. This will improve the code quality, improving static checks and reducing the lines of code by removing repetitive boilerplates, especially in the modules.
- Added structured logging. Improved python logging and adoption of structured logs format that will increase the semantinc content of the messages and ease the export of information for dashboards and Elastic Search.
- Added SQLAlchemy object-relational mapper to increase the testability of DB interactions and to allow different database backends. Switching between datasource backends requires dropping all objects if you wish to reuse the tablespace.
- Packaging via setuptools for both decisionengine and decisionengine_modules: Dependencies are not yet fully listed in the RPMs.

- A new, optional, configuration parameter called "channel_name" is available. "channel_name" is one of the keys in the output dictionary of the structured logging and will be used in the upcoming monitoring. If the variable is not defined in the configuration file, then it is taken from the name of the file, e.g. the job_classification.jsonnet config file gives a default "channel_name" value of "job_classification".

Note: Added requirement on SQLAlchemy (for new datasource backend). Non-SQLAlchemy users should ensure the indexes from 13c2f283 are in their database.

Note: Added requirement on prometheus-client. Prometheus will be used as optional monitoring component.

Note: The "channel_name" key in the Source Proxy config dictionaries needs to be changed to "source_channel". "channel_name" is now being used to describe the name of the channel itself, not the name of the channel the Source Proxy is gettting information from.

Issues fixed in this release

- 481: Channel name should be available to all worker types in TaskManager
- 456: Logic engine messages show in the main DE log (1.6.99 post4) prj_testing
- 458: Exception in new SQLAlchemy data source 1.6.99post4
- 455: New postgresql exception in 1.6.99post4 (aka Fixed databese inconsistency silently ignored in v1.6)
- 456: Logic engine messages show in the main DE log (1.6.99 post4)
- 451: Transforms executed in wrong order in 1.6.99.post3
- 367: Test race conditions bug
- 406: Taskmanager doesn't use/honor global log level
- 379: Add postgresql.sql to distributed decisionengine rpm
- 329: Docker container is missing pylint
- 293: Drop requirements.txt setup mode
- 285: Unify ProcessingState with Reaper state management code
- 253: Decision engine can sometimes start up at boot time before network name resolution is working (ae04db5)

Full list of commits since version 1.6.0

f42558df: Updated documentation for 1.7.0 release

029d118a: Updated release notes for 1.7.0 RC4 (1.6.99.post8)

0e19c754: fix SP

810994af: Update release_notes_1.7.rst

fbee95e7: Update release_notes_1.7.rst

68b955b0: Make sure product is a string

ef7a8b96: Automatically adjust PYTHONPATH for tests

e292d388: Updated release notes for 1.7.0 RC3 (1.6.99.post7)

d60b6e4e: new changes for logging with common logger name "channel"

8cdeb67e: Simplify return expression

8fb128d3: Ensure file is "flushed" so name is fully established

7806aa00: Add github CodeQL analysis

9f09bca9: removed modules/LogicEngine.py and corresponding test

b9d28fbf: Cleaner check for *Any*

cc91aa24: Switch to fstring formatting

7bb5b64f: Just return created value rather than store then return

f4847fbe: Combine nested *with* blocks

4ba38bcd: Drop redundant brackets

bdcfe8c9: By convention, pandas is usually imported as *pd*

1dd904ff: Use more traditional expression order

cccd31bc: Unused loop vars should start with _

c055a5cd: Drop *_keys* in favor of DB backed *keys*

e8c689b4: Moved prometheus-client requirement to proper place in list

5391500d: Added metrics API module

c2d7835c: Drop unnecessary timeout

c167fc50: Add tests for de-query-tool entry point

efabfeb3: Updated release notes for 1.7.0 RC2 (1.6.99.post6)

b2739c14: moved logging of LogicEngine from decisionengine logger to channel loggers

0c0532f3: Add locks to help ensure data changes are "atomic"

ae63c6ee: Use DB generated known keys so it always matches DB state

b2259e9e: Use public .keys() rather than internal implementation

85b6c3ba: Real world data shows the defaults are fine

95fb3fdf: Further constrain tablespace

3ebe8619: Finish implementation of get_datablock

edbb3568: Add entry point for de-query-tool

fed95c62: adding logging of importlib imports of modules

53e62f03: Sometimes pypy times out on the cleanup.

a44d4bc4: Don't test sqlite on pypy it isn't necessary

b13aa8a9: Some corrections

94c14110: Fix missing defines

5f102095: More detailed testing of datablock

b6c99021: Make sure our sqlite tests have ForeignKeyConditional support

6b76ba7c: Fix typo

6694369d: Ensure dbutils uses transactions

1df400ae: Fix spaces

5278fd99: Raise timout for numpy on pypy

6d0a1a74: Release notes ready for v1.7.0

084f74e1: Initial SQLAlchemy Datasource

3353aa00: Make sure our jsonnet is json synatx valid

402b1c26: Fix transform-ordering problem.

49297573: Fix incorrect packaging of tests at top level

fbfae499: The test_channel loads data once per second.

33f9ade1: Rename taskmanager test nodb

308343e9: Initial modifications for addition of structured logging

6f337b75: Add missing error message

23a4b770: Call fixtures in a cleaner manner for xdist

1f2fe8c4: Add self.config so I can introspect the fixtures later

689c0020: Add missing *config* attrib test

d2732816: Best practices are for fixtues to *yield* vs *return*

accef50a: Seed SQLAlchemy fixtures for later activation

31002bc5: Help define the fixture interlocking

0f5fb129: The pandas 1.3.0 doesn't build against PyPy any longer

a7d18a41: Correctly test datablock construction paths

9af4c144: the *mock* package was a backport for python2.

5ddaff8f: Add another constructor test

9ae9ad13: Make sure if the client says to stop we don't override it

a581cd2b: run pyupgrade against codebase for python3.6

09e4e79c: Handle reaper duplicate shutdowns more cleanly

64d29dc5: Drop pointless cache restore

1c6b2588: Update PyPy to 3.7 for testing

2bae173e: Increase wait for overloaded test workers, update log messages

b67c185c: When aborting CI builds cleanup all processes

6c5d6306: Trim pytest fast functions, add required plugin

8c63ca6b: note why we're ignoring this line

2bd4ecbc: Add a syntax check for the toml files

e2dca404: Sometimes these get stuck

6d012fab: Add in Jenkinsfile pipeline configuration a timeout at stage level

baf07973: Add timeout option to block-while/until

970faf92: Make pre-commit happy

0cea2285: Fix alignment issue

5620c65b: List why we aren't checking

88611d90: Ensure fixtures are cleaned up between invocations

0ba135d2: Setup blank DB for SQLAlchemy tests and prep fixtures

3793e674: Setup pre-commit

9e6d1317: Migrate test_Reaper to pytest fixtures

51df43bf: Cleanup a bunch of pointless whitespace

96e5d069: Fix typo

9f96f418: Setup datablock to use our paramaterized fixture

36ebc66c: Add config for LGTM

c6032e5f: Use topologically sorted transforms to remove some multi-threading.

e063f82a: Drop pointless comma

bfd6689e: Begin prepwork for PEP517

72c5725f: Stub out null source rather than more complex mocking

3b65e5e2: Push Singleton into its own space

fb5b177e: Put fixtures in central location

5ab3cbaa: Add more details to channel startup logs

afe7f7d7: Add log about what DB we are hitting

38034b2c: Let the datasource handle the connections internally

5e03b6fe: Since we are opening an IPv4 socket, just use 127.0.0.1 to check

cac2bef3: Fix missing version requirements

3be8f84f: Add line lenght for autoformater

90e2baad: Protect against inappropriate wait under error condition.

943a17a7: Fix de-client typo and adjust tests accordingly.

3b104eba: Set the logs to DEBUG for testing

4c5564d4: Add another sync method to try and make tests less spotty

66bd81f2: Make sure to encourage updates to tools

d16f04cc: Put postgresql datasource schema into RPM

62b97e79: Fix __str__ so it includes all the data

611ef1f8: Drop pointless lines

5b9e2fb6: Drop unreachable excepts

6991f65f: Restore product-name translation required for some source-proxy cases.

f6258c09: Fixed formatting and updated content

104a0446: Update index.rst

2ed61289: Update index.rst

cb687150: Create release_notes.rst

3b57d4a2: Note new requirement

871af08b: Added 1.7.0 release notes

ce42b802: improved 1.6 release note

583c10fb: fixed rst error

96d4dc1e: Added 1.6.2 release notes, from branch 1.6

13c2f283: Add some helpful indexes to our default schema

29c32571: Log as workers are started

619021c2: One of these tests seems to be spotty, break them out to find which one

29a2c72d: Run the test in a way that gives us colors

4e36bfd2: Drop unused table create logic

5511f69e: Stronger notify state for when we've a lot of watchers.

b6cc7a46: Test the dataspace abstractions

e3b1f594: Better messages about our state

2d2feab9: Drop duplicate tests, leave specifics

8e737329: Add parameter based datasource api tests

5c023aa5: Don't do debug logs for flake8, they aren't helpful

f5d1a12f: Setup list of public exports for dataspace.py

7158b422: Merge pull request #365 from jcpunk/bad-update-is-error

cd98cc4a: Update should error out if you try to do it wrongly

eb7907fe: Add option to set taskmanager datestamp and sample usage

e124532c: Make sure the fixture uses the production flow

a8241b6e: Make sure RPM also owns the .egg-info so we don't confuse the namespaces

da87376e: Ensure the DE server is fully started before running query

622bfacf: Simplify use of our PG fixtures

df98ecdf: Fixed flake8 issue

061ff6cf: decisionengine/framework: stop_channel runs Publisher shutdown methods

3727b80b: Fixup comment to avoid assuming this test uses the DB

d45aaf6b: Fix script path typo

a25a4a30: Fix ABC to match our actual usage

1510b2d1: Address minor linting issues

945e4b16: Fix missing attribute insert

5eace9d5: Add note for how to get modules in place

50a8e268: Add list of packages in the CI env to output

b9cb197d: Sanity check the home directory

cd17223c: Have client provide a hint when you ask for no behavior

95b02365: Fix de-query-tool to support produce/consume model

e660ca72: Update required versions for bugfixes

6863cb81: Fix path error

bb52e8b1: Merge pull request #340 from jcpunk/service-stop

6d7aba95: Drop obsolete files

168ae7aa: Name the tests better

0f60c4e3: Support new produces/consumes/configuration-description infrastructure.

81912469: Add de-query-tool

2a26c944: ExecStopPre is not supported on all systemd instances

67a54d5c: Merge pull request #338 from jcpunk/fix-pytest-postgres

70ab133f: Fixup use of pytest_postgresql for version 3.0.0

f8f4255e: Merge pull request #337 from jcpunk/thread-names

5f49a4f6: Set names for the various parallel code

64da77c6: Merge pull request #327 from jcpunk/datablock-expire

de33a60a: Merge pull request #336 from knoepfel/use-toposort

31a8a905: Merge pull request #328 from knoepfel/de-class-inference

410e383d: Merge pull request #331 from jcpunk/reaper-interval-tests

719ff0c8: Test datablock expire funtions

e14c49d8: The 'name' parameter is optional.

7846c9f3: Enable DE class inference based on configuration.

32ab7e44: Use third-party topological sort.

01aa8ae6: Merge pull request #325 from jcpunk/channel-tests

52b48479: Merge pull request #326 from jcpunk/valid-config-tests

8c4749e7: Merge pull request #330 from jcpunk/pylint-actions

a37770c9: Ensure validation testing is tested

d8ab5eb6: Add missing test to ensure the run interval is actually used

0cd9c42b: Also run pylint for extra sanity checks

c5cf1fff: Ensure our errors error out

baf01700: Merge pull request #324 from jcpunk/cleanup-trivial-tests

2a0133aa: Try to cleanup trivial missing coverage

44e0ad6f: Merge pull request #323 from jcpunk/about-coverage

d811f617: Merge pull request #322 from knoepfel/fix-fail-on-error

cb426262: Merge pull request #312 from jcpunk/finish-setuptools

8f6d407d: Merge pull request #316 from jcpunk/abc-coverage

4d0676bb: Merge pull request #317 from vitodb/pylint

d7c43b96: Use regular expression to support fail_on_error feature.

ada66925: add support to run pylint tests

efb1e57b: Finish migration to pure setuptools

bc4720cf: We aren't testing 'unversioned" releases

e4dc35e3: Merge pull request #314 from jcpunk/jsonnet_syntax

87e32c22: Merge pull request #294 from jcpunk/move-reaper

dec85d5e: Merge pull request #319 from jcpunk/task-loop

4108472a: Merge pull request #320 from jcpunk/container-swig

920af1c9: Merge pull request #321 from knoepfel/include-init-files

650dffa7: Don't forget __init__.py files.

1b412e03: The latest m2crypto seems to need swig now

a6e3ab1c: Merge pull request #313 from jcpunk/conf-test

1205636a: Simplify run loop

30e59dc9: fix test_client_with_no_server_verbose unit test for Jenkins CI (#315)

10384a8c: Move reaper into its own place and reuse state logic

940584e4: No real way to test abstract base classes

250c14b1: The *_validate* function doesn't permit missing 'PRODUCES'

5ae1ce9f: Make sure syntax error in config names the problem

b899fa23: Add SourceProxy module test. (#307)

7b3df14c: Increae coverage of utils (#304)

ddba2a31: Fix duplicate entry warning (#311)

915673fa: Test modules minimally (#298)

bc0c21a9: Some repos may error out, don't let them kill the build (#297)

924a7047: doc: add 1.6.1 release notes

b1ab4d31: doc: fix typo

85e5d714: postgresql: do not print stack trace for low level library (#309)

255c6415: Setuptools uses entry return value as an error msg (#303)

2fd8db45: Fix name to match expectations (#305)

9cddb70a: updated release notes

7fe0358e: Error in more clean methods (#300)

84aa506c: Fix a bug in setup.py parsing of requirements. (#301)

a58b61bb: fix typo in release notes

1.1.9 Release 1.6.2

Patch level (bug fix) release.

Issues fixed in this release

Bugs fixed

- DEM 200 (part of it): Invoke correctly channels shutdown: (75eaa90)
- no issue: Use regular expression to support fail_on_error feature (1386d20)

Enhancements:

- Improved CI support (e.g. added pylint tests)
- 217: Add option to de-client –print-product to only print the column names in a data block and-or to print one or more records in key/value format. (c4c7681)

Full list of commits since version 1.6.1

c4c7681: Updated de-query-tool w/ cherry pick of fixes from latest version of PR#332

f964d4b: Fixup use of pytest_postgresql for version 3.0.0

635ffd1: Also run pylint for extra sanity checks

11676ff: Fixed function w/ the same name

b8278f6: Add de-query-tool

75eaa90: Merge pull request #335 from shreyb/publisher_shutdown_from_1.6

77e3d79: Added set_to_shutdown method to TaskManager and accompanying test

1386d20: Merge branch 'knoepfel-fix-fail-on-error' into 1.6

73a18b1: Merge branch 'fix-fail-on-error' of https://github.com/knoepfel/decisionengine into knoepfel-fix-fail-on-error

4f49fb7: Merge branch 'jcpunk-finish-setuptools' into 1.6

a5e5d39: Merge branch 'finish-setuptools' of https://github.com/jcpunk/decisionengine into jcpunk-finish-setuptools

a1ed252: Merge branch 'vitodb-pylint' into 1.6

c8eddda: Merge branch 'pylint' of https://github.com/vitodb/decisionengine into vitodb-pylint Meerging PR#317 to release branch 1.6

d7c43b9: Use regular expression to support fail_on_error feature.

ada6692: add support to run pylint tests

efb1e57: Finish migration to pure setuptools

e4dc35e: Merge pull request #314 from jcpunk/jsonnet_syntax

87e32c2: Merge pull request #294 from jcpunk/move-reaper

dec85d5: Merge pull request #319 from jcpunk/task-loop

4108472: Merge pull request #320 from jcpunk/container-swig

920af1c: Merge pull request #321 from knoepfel/include-init-files

650dffa: Don't forget __init__.py files.

1b412e0: The latest m2crypto seems to need swig now

a6e3ab1: Merge pull request #313 from jcpunk/conf-test

1205636: Simplify run loop

de553a7: fix test_client_with_no_server_verbose unit test for Jenkins CI (#315)

30e59dc: fix test_client_with_no_server_verbose unit test for Jenkins CI (#315)

10384a8: Move reaper into its own place and reuse state logic

250c14b: The *_validate* function doesn't permit missing 'PRODUCES'

5ae1ce9: Make sure syntax error in config names the problem

b899fa2: Add SourceProxy module test. (#307)

7b3df14: Increae coverage of utils (#304)

ddba2a3: Fix duplicate entry warning (#311)

915673f: Test modules minimally (#298)

bc0c21a: Some repos may error out, don't let them kill the build (#297)

924a704: doc: add 1.6.1 release notes

b1ab4d3: doc: fix typo

85e5d71: postgresql: do not print stack trace for low level library (#309)

255c641: Setuptools uses entry return value as an error msg (#303)

2fd8db4: Fix name to match expectations (#305)

9cddb70: updated release notes

7fe0358: Error in more clean methods (#300)

84aa506: Fix a bug in setup.py parsing of requirements. (#301)

a58b61b: fix typo in release notes

33660bf: fixed a typo[locuser@fermicloud462 decisionengine]

1.1.10 Release 1.6.1

Patch level (bug fix) release.

Issues fixed in this release

- 306 : /etc/decisionengine/decision_engine.conf as shipped in RPM is wrong format (de0aef3)
- 275 : Running de-client –stop-channel <channel> results in KeyError (59fb44e)

Full list of commits since version 1.6.0

d7ccd8a : doc: fix typo

ac48e50 : updated release notes

de0aef3 : Fix name to match expectations (#305)

59fb44e : postgresql: do not print stack trace for low level library (#309) (#310)

2162bbe : Setuptools uses entry return value as an error msg (#308)

b0fd9fb : 1.6.0 package backports (#302)

1.1.11 Release 1.6.0

In this release:

- The logic engine has been rewritten in pure python. This removes the last C++ dependency the decision engine had. The build system has been updated accordingly.
- Migrated to setuptools package development library. This build system is the standard vanilla python build system provided with the python distribution. Build configurations have been updated and rpm packaging remains the primary distribution method.
- Completed logging implementation.
- Improvements in error handling and code coverage.
- Improvements in Jenkins and GitHub actions CI/CD pipelines.

Issues fixed in this release

- 44 : Logic Engine doesn't handle missing values gracefully (743effc)
- 253 : Decision engine can sometimes start up at boot time before network name resolution is working (ae04db5)

Full list of commits since version 1.5.0

2551e07 : More coverage for de-client (#296)

dde3945 : Make sure actions either complete in time or die (#295)

381861c : Update Jenkins pipeline configuration (#292)

eb771f4 : Try to cleanup Dockerfile PATH issue (#291)

780cb56 : fix unittest doc

8680942 : update unittest documentation

8154b24 : Fixup sphinx doc (#290)

5f7e13a : enhancements in logging and error handling in dataspace dir (#283)

3d92725 : Add missing runtime requirement (#286)

743effc : Allow conversion from errors to false values in logic-engine expressions. (#284)

124dcab : Inherit version from setuptools_scm if possible (#287)

3669803 : added missing "\" as line continuation

761f1d9 : Drop invalid **init**.py

dc0e71b : migrate to setuptools (#264)

3b6f1bf : Make reaper reset state when starting from stopped proc (#280)

b2f9061 : added ISO-8601 format to time in logging. changed name of function for better clarity. (#279)

0a74fe1 : Improved DE client usage (#281)

ebf53e3 : Added shutdown method to Publisher class (#278)

f95ab6d : Address some flake8/black reports (#274)

1c383b7 : Automatically pull in our settings from about.py (#273)

e71f186 : logging and error handling enhancements to taskmanager directory (#277)

7de9ab9 : Increase Reaper log verbosity (#267)

019d245 : Update actions to follow new best practices (#272)

b84e847 : Avoid possible sync issues in reaper startup (#271)

891975f : Remove vestigial C++ files. (#270)

42e5e1f : enhancements in logging and exception handling in newly added logicengine files (#265)

38effe6 : Ensure the scheduler has started the thread before returning (#269)

db54fa1 : Start testing on PyPy with psycopg2cffi (#223)

cc44058 : Squashed commit of the following: (#263)

d6548e9 : Enhanced logging in the logicengine directory files (#261)

c341bf7 : Better match our workflow with codecov (#260)

1fbe44d : Use ‘new’ syntax for forward compat (#259)

2294b0b : Do a limited pin on version requirements (#256)

bcda470 : Python implementation of logic engine (#246)

c6721b4 : address comment on RB

ae04db5 : Add Wants and After (network-online.target) dependency

1a96b14 : Fix action repodata

a70cee8 : Move to CodeCov.io

7b16b4e : Add Wants and Requires dependencies (#258)

76c3670 : Move to CodeCov.io (#254)

e7ba013 : Fix action repodata (#255)

d7e72f2 : revert 3.9 test

b04154b : added 1.5.0 release notes

a03da29 : remove 3.9 to see if documentatoin gets generated

1.1.12 Release 1.5.0

In this release:

- Introduce data product query interface
- Cleanup of Ligic Engine code
- Improvements in error handling
- Improvements in testing and CI

Issues fixed in this release

- 217 , 218 : Add option to de-client –print-product to only print the column names in a data block and-or to print one or more records in key/value format (fe7abcf)
- 240 : Logic Engine call leads to immediate taskmanager segfault exit (d855aa0)
- 239 : implement data product browsing interface (fe9faa9)

Full list of commits since version 1.4.1

d66c54b : Add PEP-0396 metadata (#243)

bfc91a6 : More compat between psycopg2/psycopg2cffi (#248)

f5d31a6 : Cleanup Fixture FIXME (#249)

0dfaf3c : Adding docker documentation (#251)

4b166a2 : Since we are python3 only now, drop python-six compat layer (#252)

fe7abcf : Add format support to de-client (#217) (#241)

df5a3d7 : Add wheel support for easier testing (#247)

7de970d : Add place to inject env if need be (#242)

84e2930 : Fix race in test case (#250)

d855aa0 : Fix fact-lookup to support duplicate names in separate rules. (#245)

51370fb : Resolve fixture 'quickstart' issue (#238)

3ea9129 : Move from TravisCI to raw actions (#235)

fe9faa9 : implement data product browsing interface (#239)

cf0f3c0 : Add support to use custom base docker container to run tests (#234)

d91722f : Compat with psycopg2cffi (#233)

7d15a8c : Test failing source proxy. (#232)

b9a4bbb : Add debug logs for which threads are created #176 (#231)

6e6f4c9 : Updated Jenkins configuration documentation (#229)

2d9fd7b : Log if config passed validation #117 (#230)

60c46d3 : Self-test needs a real namespace to 'import numpy' in new python eval (#228)

a120077 : Test that the doc actually builds during CI (#227)

4b6240a : Extend timeout for coverage combine (#226)

b059696 : Update workflow per changes at github (#225)

7a71cac : Use newer compilers/runtimes (#224)

15ffd93 : Add header for strict includes (#222)

71b141a : Add special PyPy only requirement (#221)

9dbb932 : Move Python C extension to versioned .so file (#220)

ea7ade5 : Migrate from boost-python to pybind11 (#215)

e6b2eae : Add python 3.9 to testing matrix (#219)

04c8f9c : Add the option to print columns types on de-client (#216)

8815dc6 : Logic-engine cleanups (#211)

086d0d5 : fix missing back tick

54cc084 : modified release notes

24744cf : Synchronize access to the task managers (#214)

87a7fda : replde dash with underscore

743d0fd : try sphinx_rtd_theme

18c7909 : added 1.4.0 release notes

ff3d491 : force docker pull when building the docker container to make sure to use an updated base layer (#210)

1.1.13 Release 1.4.1

In this release:

- Bug fixes to 1.4.0 release

Issues fixed in this release

- 213 : de-client hangs under certain circumstances in version 1.4 and greater (race condition) (84ecfe2)

Full list of commits since version 1.4.0

9799b9a : update release version to 1.4.1

84ecfe2 : Synchronize access to the task managers (#214)

751b6b8 : Address data races; remove need to sleep in unit tests (#205)

1.1.14 Release 1.4.0

In this release:

- Improvements in error handling and client/server interactions
- Added log rotation by time
- Improvements in code coverage

Issues fixed in this release

- 153 : Have de-client –print-product return different error message if product does not exist (18a950c)
- 171 : yum update on decision engine rpm from python2 to python3 doesn't undo the symlinks (eb85c97)
- 188 : Channel debug info now leaks into startup.log (99d20a5)
- 208 : Error when trying to run reaper in version 1.4.0 (84eccf3)

Full list of commits since version 1.3

84eccf3 : Fix typo in reaper script. (#209)

d836abf : next RC

926944a : Fix coveralls reporting (#198)

b95c323 : Updating base Dockerfile (#199)

d302e31 : Help jsonnet, which doesn't understand PosixPath objects. (#204)

2d791a7 : Test configuration policies. (#197)

236e27a : Ensure items are returned in a stable order (#202)

e974f5f : add pylinit and pycodestyle (#203)

fbe7616 : Test task manager (#196)

686ca80 : require more recent version of pytest-postgresql (#195)

99d20a5 : Fix double-logging problem. (#192)

4ce3d17 : A set of fixtures to simplify unit tests (#183)

65f8052 : Fix typo (#190)

f3a4be8 : Protect against None workers (#187)

ec310fb : remove py3 from package name

7006489 : bump version to 1.4.0rc

158d835 : decisionengine/framework/modules: Fix SourceProxy retries (#184)

1356bf1 : Add support to test any branch in Jenkins (#182)

692fa8e : Add timeout support for unit test on Jenkins (#181)

e3d6e6a : Updated Jenkins documentation to take into account unit tests timeout parametr (#180)

2586a3e : Configuration redesign (#168)

fac984d : Fix error with DBUtils import. Looks like names of modules changed (#175)

7d661ee : Move postgres-specific implementation to postgres source. (#174)

eb85c97 : Rpm (#173)

10fe843 : Adding log rotation by time (#170)

a8d239b : Various improvements. (#167)

d9b92ee : Ignore vim's *.swp files (#166)

d9f72ef : Fix call to shutdown_timeout (and add sample entry to config) (#165)

3161795 : Add drops for items using tables being dropped (#164)

77d186d : Show output of test runtimes in travis (#163)

81820a4 : Allow server to start with no channels. (#161)

49879a6 : DE server and client usability improvements (#160)

de91c4f : Add tests to default and override config (#158)

14df1f6 : Use python fallthrough for options (#159)

ac64a92 : Drop python 2.7 integration tests since we are python3 only (#157)

d963301 : Update Jenkins pipeline to properly test closing PR (#156)

64248cb : Merge 'runtime' tests into running channel tests (#150)

065ad77 : Adding Jenkins pipeline documentation (#155)

18a950c : fix print-product to report non-existing product as such (#154)

6493735 : Fix invalid attribute name (#152)

d953c6a : Remove unnecessary set_start_method call (#149)

c8c9b65 : guarantee that process is killed so test never hang (#147)

f1542b6 : Channel test (#146)

7f349a8 : Fix faulty TaskManager state type (#145)

d50f1c4 : fix logging regression introduced in f5e299969e0611e3480e9fa2782052df… (#142)

becfa26 : Pass the correct type. (#144)

1a60daf : DecisionEngine: fix typo (#143)

9e7b867 : Updating Jenkins pipeline configuration (#140)

e3a6703 : fix regression introduced in f5e299969e0611e3480e9fa2782052df86d7c4ed (#141)

4900bc6 : Restore runtime test. (#139)

0823f3d : Consolidate DE server/client tests into one file. (#138)

4f84435 : A few more access fixes.

160cfd1 : Fix task manager state access.

c00d819 : A few more cleanups.

ec087e2 : Various cleanups

a309ffe : Improvements to DE client CLI.

1.1.15 Release 1.3.0

In this release:

- Introduced Jsonnet based configuration system
- Improved logging
- Improved coverage of datasource

Full list of commits since version 1.2

239e82c : postgresql: improve SQL query (#133)

668eb1f : Update to make the code compatible with both python and JSON based config files (#129)

afd8837 : Configuration-manager fixes (#128)

571e2be : Remove pip installed system python packages

407d9ed : Update Dockerfile

1fefc69 : Implement unit tests for datablock.py (#122)

43c8d7a : Adjust global configuration to include program-option values. (#126)

2840813 : Switch to Jsonnet configuration system (#125)

5c4ae0e : logging changes: added config file and command line interface (#124)

6697f22 : Further config-manager testing and factorizations. (#123)

fa89fd0 : Insulate multiprocessing test from parent environment. (#120)

139a537 : Allow empty base directory for log file. (#119)

f14d40c : Factorize configuration-loading steps. (#118)

e00afee : Enhance testing and error reporting of ConfigManager (#117)

c3d1be3 : Python 3 upgrades. (#116)

e7399af : Header fix (#114)

0456abf : Adding editor config file, see https://editorconfig.org/ (#115)

82112d1 : Dockerfile: fetch osg 3.5 repo rpm (#113)

97c21b1 : osg version 3.5 (#112)

33f28a8 : Introduce jsonnet dependency (#110)

3f8b55e : improve server error handling (#108)

f15588e : added 1.2.0 release notes

b433325 : Remove unnecessary ‘main’ functionality. (#107)

1.1.16 Release 1.2.0

In this release:

- Swithed to python3
- Improved coverage
- Database data retention : added reaper to remove data older than configurable number of days
- Improved logging

decisionengine

3dfe167 : Jenkins pipeline improvements (#106)

22a7073 : pull request for review request 137 (#105)

cafffb2 : Make it possible to run code directly (for tests), and (#100)

802e98b : replace psycog2 witt psycopg2-binary (#101)

573ce8f : Jenkins pipeline improvements (#99)

9d08835 : Run coveralls even under failed state (#97)

bc1df4b : Add tests for PostgreSQL datasource (#71)

c1ac391 : Fix missing py-modules.html (#96)

8dbfdee : Setup gh-pages doc workflow (#94)

cd4a01a : Doc (#93)

673080d : set version to 1.2.0 (for now). Supply conf file that corresponds to (#91)

f912225 : Db (#92)

dc8b68a : Add reaper to the RPC (#83) (#90)

29ade91 : adding .Jenkinsfile with Jenkins pipeline configuration (#86)

c1dfe5c : Don't exclude E1004 from pylint, do exclude line breaks (#89)

440f949 : Fix varname (#88)

313d135 : Compress (#87)

6b8dc4b : Revert "Add reaper to the RPC (#83)"

dbea8e5 : Update utils.sh so pytest will complete.

e848316 : Update to postgresql11

7f4b805 : Add reaper to the RPC (#83)

0ba2c51 : remove astpp module and depedencies it pulls in (#81)

6b8eab9 : don't track test coverage of tests (#80)

0da18ec : made reaper.py executable

aca24a3 : make reaper.py executable, make symbolic link to it from /usr/bin (#72)

0202acf : Implementation of data reaper (#70)

16b6be1 : Simple changes for Python 3 deployment (#69)

fd2418c : Fix warnings caught by PEP-8 Speaks.

d16359b : Python 3 (and other) simplications.

3c7b6b7 : Only run Github Actions for python3.6 (#68)

453cbba : Update README.md

b27ed53 : remove unnecessary (and atually harmful) python shebang (#66)

decisionengine_modules

30d928b : clone version 1.2.0 of decisionengine

ae7c5a6 : Jenkins pipeline improvements (#236)

310befd : T198 (#235)

a65886d : Fix import as reported in : https://github.com/HEPCloud/decisionengin… (#232)

93711cc : Run coveralls even if tests fail (#229)

03d763a : Jenkins pipeline improvements (#230)

f48d30f : Fix/223 (#228)

c8aa262 : github ticket 199 (#222)

0323bda : Address : https://github.com/HEPCloud/decisionengine_modules/issues/224 (#226)

62e4df6 : Add support to run CI on Jenkins (#221)

5ab1541 : bump master version to 1.2.0 (for now) (#219)

bc19c65 : decisionengine_modules/NERSC: Added retry loop for NERSC API Calls (#220)

41a50de : Sync up pep8speaks and run_pylint.sh with decisionengine settings (#218)

db4634f : silence pylint error (#217)

1b95141 : Fix whitespace around operator error

746ea38 : ignore W503

8a8b5f4 : remove unused variable

a6668bf : fix PEP8 warnings

13773ee : address pep8 warnings

6bea4ca : silence pylint error

f589895 : Pass sort=True parameter to fix future warning (#215)

a1d0507 : fixing pep8 warning

a10bd17 : debugging one import error

ec501ad : make coveralls.io links work

deab1a7 : T201 (#204)

69f2645 : Add coveragerc

6d8a5f5 : decisionengine_modules/NERSC: Make Nersc API call backward-compatible with old config (#196)

a7e0af9 : Only run Github Actions for python3.6 (#24)

1.1.17 Release 1.1.0

In this release:

- Fixed. https://github.com/HEPCloud/decisionengine_modules/issues/108 "Supply Postgres script to delete fields in main database before a certain date"
- significant code cleanup and pep8 compliance
- unit test work
- CI (GitHub actions and Travis) is introduced

commits

f894b1d : Skip unittest (#77)

632e64b : Add ipython

f681a79 : Make python 2.7 tests run on 1.1 branch

d6a32c0 : implementation of data reaper (#75)

2ad8614 : Use sparse checkout for first checkout to get .github/actions (#65)

812f032 : Cat output of pytest log Exit pylint entrypoint with the line count of pep8 and pylint logs Deal with (detach from ...) Only tar up (S)RPMS dirs for rpm build.

6b05ec7 : Fix errors reported by run_pylint (#62)

d9f5b66 : Setup pep8speaks

c3b8ac2 : Run github actions as non-root uid. Install packages in virtualenv and remove system rpms.

ae01f9e : Support Python 3 for Boost Python

579761c : Support Python 3 for Boost Python

044b979 : Remove unnecessary using declarations.

00f6d00 : Add extra header dependency due to Boost Python ommission.

24e0795 : Apply clang-format

17c17f9 : Remove JSON dependency.

faa0b22 : Massive cleanup.

07b555f : Updates to Github Actions to allow building with python3.6

fef6c11 : Fix errors when running pylint.sh multiple times

da6f077 : Autopep8 -i fixes

39fe5b3 : TaskManager: fix calling log_exception with correct number of arguments and minor format changes to reduce PEP8 warnings

17396da : logicengine: get rid of compuler warnings

01dc3d1 : Only track what we need

b609d73 : Configure coveralls (and some minor cleanup)

bd9ed5e : Many C++ cleanups

2a61876 : Add Badges

c864f27 : Do not call pytest fixtures directly.

307db5f : white space fix

882b58f : fix unit tests

1da687c : Replace Boost facilities with C++ STL ones.

5a6e6b1 : Run tests on push

8404245 : Add missing Boost regex library dependency.

ceb5fe7 : Apply clang-format to files that were missed earlier.

3de9940 : Apply clang-format to C++ code.

8a8f560 : Cache venv directory instead

ad017ce : Build private boost for testing

928c64a : Test pip cache

358939a : Adjust CMakeLists.txt files to use correct Python versions

9f0ddb3 : Add pylint github action.

5e6ce4a : Remove more unused C++ files.

63717fe : Setup travis to use new cmake var

74fab2a : Use cmake argumement -DPYVER=3.6 to build python3 library https://fermicloud140.fnal.gov/reviews/r/31/

843f30c : Minor cleanups per travis-lint

a538cac : Remove unused C++ files.

4c9d125 : Update repo where action is taken from

87fb2d9 : Update rpms installed in docker image. Update entrypoint.sh to use cmake3.

199ee87 : Find python3 libraries using cmake3 from epel rpm Also need to install python3-devel

4c79d2c : Remove unnused GNUmakefiles.

94342ee : Add unit test as a Github Action

1a0e102 : more advanced travis.yml

0be413f : Add helper file for pip

7794327 : Make recursive import happy

7005c78 : Add simple target

de8b0fa : python3 compliance: replace string.join() where appropriate, handle UserDict

2662e6c : note required packages

3b87119 : Add missing header includes.

3e79b84 : Remove defunct code and its tests

b1dbe1a : Ensure attribs are defined at **init**

c4ad78a : Correct logger arguments do avoid duplicate string parse

a8dcc67 : Remove unused imports (per pylint)

d3502b5 : Remove obsolete CVS directories.

d744111 : add six module to the list of required modules

0a9b1e8 : Fix class declaration

b83157e : Handle metaclasses

549f33b : Add config for Travis CI

ee71044 : Drop trailing white space

3f82af6 : Python3 forward compatible syntax

28bf291 : Add safe (for python 2.7) python3 compatible syntax

1d1d76f : prepare for python3

CHAPTER

TWO

INSTALL DECISION ENGINE

Here are instructions for operators and developers to install the Decision Engine using the distributed RPM packages.

2.1 Installing and running HEPCloud's Decision Engine

Decision engine uses a PostgreSQL database back-end and Redis as message broker and cache.

You need to install first PostgreSQL, Redis, and then the Decision engine framework (decisionengine) and install and add the standard channels (decisionengine_modules).

The following instructions assume a system installation, performed as `root`. decisionengine will run as the decisionengine user.

2.1.1 Install PostgreSQL

The default postgresql installed on RH7 is 9.2 which is outdated. Suggest to remove it and install 12 instead :

1. Remove old postgresql

```
yum erase -y postgresql*
```

2. Install postgresql 12

```
yum install -y https://download.postgresql.org/pub/repos/yum/reporpms/EL-7-x86_64/
↪pgdg-redhat-repo-latest.noarch.rpm
yum install -y postgresql12 postgresql12-server
# optional, also: postgresql11-devel
```

3. Enable postgresql

```
systemctl enable postgresql-12
```

4. Init the database

```
/usr/pgsql-12/bin/postgresql-12-setup initdb
```

5. edit `/var/lib/pgsql/12/data/pg_hba.conf` like the following:

```
[root@fermicloud371 ~]# diff  /var/lib/pgsql/12/data/pg_hba.conf~ /var/lib/pgsql/12/
↪data/pg_hba.conf
80c80
```

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```
< local   all             all                                     peer
---
> local   all             all                                     trust
82c82
< host    all             all             127.0.0.1/32            ident
---
> host    all             all             127.0.0.1/32            trust
84c84
< host    all             all             ::1/128                 ident
---
> host    all             all             ::1/128                 trust
```

This is setting the authentication method to *trust*

6. start the database

```
systemctl start postgresql-12
```

7. create decisionengine

```
createdb -U postgres decisionengine
```

The schema and the connection will be created and configured during the Decision engine framework installation.

To use the database you have to add it to the environment:

```
export PG_VERSION=12
export PATH="/usr/pgsql-${PG_VERSION}/bin:~/.local/bin:$PATH"
```

2.1.2 Install Redis

Install and start the message broker (Redis) as explained in the redis document

2.1.3 Install Decision Engine and the standard modules

1. Prerequisites setup. Make sure that the required yum repositories and some required packages (python3, gcc, ...) are installed and up to date.

```
yum install -y http://ftp.scientificlinux.org/linux/scientific/7x/repos/x86_64/yum-
↪conf-softwarecollections-2.0-1.el7.noarch.rpm
yum install -y https://dl.fedoraproject.org/pub/epel/epel-release-latest-7.noarch.
↪rpm
# gcc, swig and make are needed for dependencies (jsonnet)
yum -y install python3 python3-pip python3-setuptools python3-wheel \
    gcc gcc-c++ make \
    python3-devel swig openssl-devel git rpm-build
python3 -m pip install --upgrade --user pip
python3 -m pip install --upgrade --user setuptools wheel setuptools-scm[toml]

# To install the modules you will also need GlideinWMS Frontend, which is in the␣
↪OSG repository.
# Assuming the use of OSG 3.5 that supports both GSI and tokens, here is a brief␣
```

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```
↪summary of the setup:
yum install -y yum-priorities
yum install -y https://repo.opensciencegrid.org/osg/3.5/osg-3.5-el7-release-latest.
↪rpm
# HTCondor 8.9.x or 9.x, required by GlideinWMS, is in the osg-upcoming repository.␣
↪It should be enabled to find the dependency
# GlideinWMS 3.9.x is in osg-contrib. The repository should be enabled to find the␣
↪dependency
# In both the following files set: enabled=1
vi /etc/yum.repos.d/osg-upcoming.repo
vi /etc/yum.repos.d/osg-contrib.repo
# Change the Epel repository priority to make sure that comes after the OSG␣
↪repositories, which are 98. Make sure that epel has:
priority=99
vi /etc/yum.repos.d/epel.repo
```

The complete version of the GlideinWMS installation instructions is available here

2. Setup the decision engine yum repositories

```
wget -O /etc/yum.repos.d/ssi-hepcloud.repo http://ssi-rpm.fnal.gov/hep/ssi-hepcloud.
↪repo
wget -O /etc/yum.repos.d/ssi-hepcloud-dev.repo http://ssi-rpm.fnal.gov/hep/ssi-
↪hepcloud-dev.repo
```

3. Install the decision engine (add `--enablerepo=ssi-hepcloud-dev` for the latest development version)

```
yum install decisionengine
yum install decisionengine_modules
```

4. Not all packages are available as RPM. It is necessary to install directly some Python dependencies. To avoid to pollute the system Python we will install them for the `decisionengine` user, the user the service is running as. Install the required Python packages (these are taken from setup.py)

```
su decisionengine -s /bin/bash
python3 -m pip install --upgrade pip setuptools wheel --user
python3 /path/to/decisionengine/setup.py develop --user
python3 /path/to/decisionengine/setup.py develop --user --uninstall
python3 /path/to/decisionengine_modules/setup.py develop --user
python3 /path/to/decisionengine_modules/setup.py develop --user --uninstall
exit
```

The commands above should be sufficient. Anyway, here is an explicit list you can use in alternative:

```
su decisionengine -s /bin/bash
# from decisionengine setup.py
python3 -m pip install --user jsonnet==0.17.0 tabulate toposort structlog
python3 -m pip install --user wheel DBUtils sqlalchemy
python3 -m pip install --user pandas==1.1.5 numpy==1.19.5
python3 -m pip install --user "psycopg2-binary >= 2.8.6; platform_python_
↪implementation == 'CPython'"
python3 -m pip install --user "psycopg2cffi >= 2.9.0; platform_python_
↪implementation == 'PyPy'"
```

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```
python3 -m pip install --user "cherrypy>=18.6.0" "kombu[redis]>=5.2.0rc1"
↪"prometheus-client>=0.10.0"
python3 -m pip install --user "psutil>=5.8.0" "typing_extensions==4.1.1"
# from decisionengine_modules setup.py
python3 -m pip install --user boto3 google-api-python-client
python3 -m pip install --user "google_auth<2dev,>=1.16.0" "urllib3>=1.26.2"
python3 -m pip install --user gcs-oauth2-boto-plugin
# Condor should be already there from the RPM, if not add: python3 -m pip install␣
↪htcondor
python3 -m pip install --user bill-calculator-hep

# The following are additional requirements for v1.6 and earlier
python3 -m pip install --user boto packaging
# This is not in pypi
python3 -m pip install --user https://test-files.pythonhosted.org/packages/f4/a5/
↪17a14b4ef85bc412a0ddb771771de3f562430328b0d83da6091a4131bb26/bill_calculator_hep_
↪mapsacosta-0.0.10-py3-none-any.whl

exit
```

Now you can type `decisionengine --help` to print the help message. To do more you need first to configure Decision Engine.

2.1.4 Configure Decision Engine

The default configuration file lives in `/etc/decisionengine/decision_engine.jsonnet`.

A number of defaults are set for you.

Selecting your datasource

You need a datasource to store in the database the channel's data (datablocks). Each datasource has its own unique schema and cannot be used with a different datasource.

The SQLAlchemy Data Source

SQLAlchemy is the default Data Source after v1.7 and is setup with a configuration like:

```
"datasource": {
  "module": "decisionengine.framework.dataspace.datasources.sqlalchemy_ds",
  "name": "SQLAlchemyDS",
  "config": {
    "url": "postgresql://{db_user}:{db_password}@{db_host}:{db_port}/{db_dbname}",
    }
  }
```

Any extra keywords you can pass to the `sqlalchemy.engine.Engine` constructor may be set under `config`.

SQLAlchemy will create any tablespace objects it requires automatically.

The PostgreSQL Data Source

The postgresql Data Source is the only one supported pre v1.7 and is setup with a config like:

```
"datasource": {
  "module": "decisionengine.framework.dataspace.datasources.postgresql",
 "name": "Postgresql",
  "config": {
    "user": "postgres",
    "blocking": true,
    "host": "localhost",
    "port": 5432,
    "database": "decisionengine",
    "maxconnections": 100,
    "maxcached": 10
    }
  }
```

If you use this datasource you must also load the database schema by hand. To load the database schema run:

```
psql -U postgres decisionengine -f /usr/share/doc/decisionengine/datasources/postgresql.
↪sql
```

2.1.5 Start decision engine

Start the service

```
systemctl start decisionengine
```

2.1.6 Add channels to decision engine

Decision engine decision cycles happen in channels. You can add channels by adding configuration files in `/etc/decisionengine/config.d/` and restarting the decision engine.

Here is a simple test channel configuration. This test channel is using some NOP classes currently defined in the unit tests and not distributed. First, copy these classes from the Git repository:

```
cd YOUR_decisionengine_REPO
# OR download the files from GitHub
mkdir /tmp/derepo
cd /tmp/derepo
wget https://github.com/HEPCloud/decisionengine/archive/refs/heads/master.zip
unzip master.zip
cd decisionengine-master
# Now copy the files
cp -r src/decisionengine/framework/tests /lib/python3.6/site-packages/decisionengine/
↪framework/
```

Then, add the channel by placing this in `/etc/decisionengine/config.d/test_channel.jsonnet`:

```
{
  sources: {
    source1: {
      module: "decisionengine.framework.tests.SourceNOP",
      parameters: {},
```

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```
      schedule: 1,
    }
  },
  transforms: {
    transform1: {
      module: "decisionengine.framework.tests.TransformNOP",
      parameters: {},
      schedule: 1
    }
  },
  logicengines: {
    le1: {
      module: "decisionengine.framework.logicengine.LogicEngine",
      parameters: {
        facts: {
          pass_all: "True"
        },
        rules: {
          r1: {
            expression: 'pass_all',
            actions: ['publisher1']
          }
        }
      }
    }
  },
  publishers: {
    publisher1: {
      module: "decisionengine.framework.tests.PublisherNOP",
      parameters: {}
    }
  }
}
```

Finally, restart decision engine to start the new channel:

```
systemctl restart decisionengine
```

`de-client --status` should show the active test channel

2.1.7 Setup pressure-based pilot submission

At this point Decision Engine, GlideinWMS and HTCondor are supposed to be installed and able to run.
We assume that the Frontend proxy and the VO proxy are already available.

Decision Engine configuration templates referred in this section are available in the contrib repo.
Files from `decisionengine` folder need to be copied inside `/etc/decisionengine`. Those configuration files have the placeholder field `@CHANGEME@` that needs to be replaced with a proper parameter according to the specific system setup.

Once those configuration file have been updated, we are ready to finalize the Decision Engine configuration.

- Setup Redis

Start the message broker (Redis) as pod container:

```
podman run --name decisionengine-redis -p 127.0.0.1:6379:6379 -d redis:6 --loglevel␣
↪warning
```

- Create GWMS frontend configuration For this step it is needed to run:

```
chown -R decisionengine: /var/lib/gwms-frontend
systemctl start decisionengine
ksu decisionengine -e /usr/bin/python3 /usr/lib/python3.6/site-packages/decisionengine_
↪modules/glideinwms/configure_gwms_frontend.py
```

This command will create the file `/var/lib/gwms-frontend/vofrontend/de_frontend_config`

At this point it is needed to stop decisionengine service and remove the Redis container:

```
systemctl stop decisionengine
podman stop decisionengine-redis | xargs podman rm
```

Now all should be ready to run Decision Engine.

- Run Decision Engine

The procedure to run Decision Engine is as follow:

- Reset decisionengine DB:

  ```
  dropdb -U postgres decisionengine
  createdb -U postgres decisionengine
  ```

- Run Redis container:

  ```
  podman run --name decisionengine-redis -p 127.0.0.1:6379:6379 -d redis:6 --loglevel␣
  ↪warning
  ```

- Start decisionengine service and check its status:

  ```
  systemctl start decisionengine
  sleep 5
  systemctl status decisionengine
  ```

- Submit a test job

- Switch to `decisionengine` user and make sure channel and sources are `STEADY`:

  ksu decisionengine -e /bin/bash de-client –status

- prepare a Condor submission file `mytest.submit` with the following content:

  ```
  #  A test Condor submission file - mytest.submit
  executable = /bin/hostname
  universe = vanilla
  +DESIRED_Sites = "@CHANGEME@"
  log = test.log
  output = test.out.$(Cluster).$(Process)
  error = test.err.$(Cluster).$(Process)
  queue 1
  ```

- submit the test job:

```
condor_submit mytest.submit
```

- check jobs in the queue:

```
condor_q
```

- check for available glideins:

```
condor_status
```

after test jobs are submitted it will take few minutes (usually no more than 10 minutes) to get some glideins and then get the job running.

Now the `decisionengine` user session can be closed to get back to the `root` session.

- Stop Decision Engine service

Finally stop Decision Engine service and remove the Redis container:

```
systemctl stop decisionengine.service
podman stop decisionengine-redis | xargs podman rm
```

2.2 Installing and running HEPCloud's Decision Engine on EL8

Decision engine uses a PostgreSQL database back-end and Redis as message broker and cache.

You need to install first PostgreSQL, Redis, and then the Decision engine framework (decisionengine) and install and add the standard channels (decisionengine_modules).

The following instructions assume a system installation, performed as `root`. decisionengine will run as the decisionengine user.

2.2.1 Install PostgreSQL

The default postgresql installed on RH8 is 9.2 which is outdated. Suggest to remove it and install 12 instead :

1. Disable the built-in PostgreSQL module

```
sudo dnf -qy module disable postgresql
```

2. Install postgresql 12

```
dnf install -y https://download.postgresql.org/pub/repos/yum/reporpms/EL-8-x86_64/
↪pgdg-redhat-repo-latest.noarch.rpm
dnf install -y postgresql12 postgresql12-server
# optional, also: postgresql12-devel
```

3. Enable postgresql

```
systemctl enable postgresql-12
```

4. Init the database

```
/usr/pgsql-12/bin/postgresql-12-setup initdb
```

5. edit /var/lib/pgsql/12/data/pg_hba.conf like the following:

```
[root@fermicloud371 ~]# diff  /var/lib/pgsql/12/data/pg_hba.conf~ /var/lib/pgsql/12/
↪data/pg_hba.conf
80c80
< local   all             all                                     peer
---
> local   all             all                                     trust
82c82
< host    all             all             127.0.0.1/32            ident
---
> host    all             all             127.0.0.1/32            trust
84c84
< host    all             all             ::1/128                 ident
---
> host    all             all             ::1/128                 trust
```

   This is setting the authentication method to *trust*

6. start the database

```
systemctl start postgresql-12
```

7. create decisionengine

```
createdb -U postgres decisionengine
```

The schema and the connection will be created and configured during the Decision engine framework installation.

To use the database you have to add it to the environment:

```
export PG_VERSION=12
export PATH="/usr/pgsql-${PG_VERSION}/bin:~/.local/bin:$PATH"
# you may also add these lines to ~/.bashrc
```

2.2.2 Install Redis

Install and start the message broker (Redis) container on your system. You can find more details on the redis document

1. Install Padman

```
dnf install -y podman
```

2. Run the Redis container

```
podman run --name decisionengine-redis -p 127.0.0.1:6379:6379 -d redis:6 --loglevel␣
↪warning
# When prompted to select an image, pick "docker.io/library/redis:6".
```

2.2.3 Install Decision Engine and the standard modules

1. Prerequisites setup. Make sure that the required packages (python39, gcc, ...) are installed and up to date.

```
# gcc, swig and make are needed for dependencies (jsonnet)
dnf install python39 python39-pip python39-setuptools python39-wheel \
    gcc gcc-c++ make \
    python39-devel swig openssl-devel git rpm-build
python3.9 -m pip install --upgrade --user pip
python3.9 -m pip install --upgrade --user setuptools wheel setuptools-scm[toml]

# To install the modules you will also need GlideinWMS Frontend, which is in the␣
↪OSG repository.
# Assuming the use of OSG 3.6, here is a brief summary of the setup:
dnf install -y https://repo.opensciencegrid.org/osg/3.6/osg-3.6-el8-release-latest.
↪rpm
# HTCondor 8.9.x or 9.x, required by GlideinWMS, is in the osg-upcoming repository.␣
↪It should be enabled to find the dependency
# GlideinWMS 3.9.x is in osg-contrib. The repository should be enabled to find the␣
↪dependency
# In both the following files set: enabled=1
vi /etc/yum.repos.d/osg-upcoming.repo
vi /etc/yum.repos.d/osg-contrib.repo
# Change the Epel repository priority to make sure that comes after the OSG␣
↪repositories, which are 98. Make sure that epel has:
priority=99
vi /etc/yum.repos.d/epel.repo
```

   The complete version of the GlideinWMS installation instructions is available *here<https://opensciencegrid.org/docs/other/install-gwms-frontend/>*. For a minimal installation, you can use the following command:

   > dnf install glideinwms-vofrontend-libs glideinwms-vofrontend-glidein glideinwms-userschedd glideinwms-usercollector

2. Setup the decision engine user and git repositories

```
useradd decisionengine
sudo -u decisionengine git clone https://github.com/HEPCloud/decisionengine.git ~
↪decisionengine/decisionengine
sudo -u decisionengine git clone https://github.com/HEPCloud/decisionengine_modules.
↪git ~decisionengine/decisionengine_modules
```

3. Install the decision engine from the git repositories

```
# Install the decisionengine framework and modules using setuptools
su - decisionengine
pushd decisionengine
python3.9 setup.py develop --user
popd
pushd decisionengine_modules
python3.9 setup.py develop --user
popd
exit
```

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```
# Create the required system files and directories (as root)
mkdir /etc/decisionengine
mkdir /var/log/decisionengine/
cp ~decisionengine/decisionengine/config/decision_engine.jsonnet /etc/decisionengine
cp -r ~decisionengine/decisionengine/src/decisionengine/framework/tests/etc/
↪decisionengine/config.d /etc/decisionengine
chown -R decisionengine:decisionengine /etc/decisionengine
chown -R decisionengine:decisionengine /var/log/decisionengine
```

Now you can type `decisionengine --help` while logged in as decisionengine to print the help message. To do more you need first to configure Decision Engine.

2.2.4 Configure Decision Engine

The default configuration file lives in `/etc/decisionengine/decision_engine.jsonnet`.

A number of defaults are set for you.

Selecting your datasource

You need a datasource to store in the database the channel's data (datablocks). Each datasource has its own unique schema and cannot be used with a different datasource.

The SQLAlchemy Data Source

SQLAlchemy is the default Data Source after v1.7 and is setup with a configuration like:

```
"datasource": {
  "module": "decisionengine.framework.dataspace.datasources.sqlalchemy_ds",
  "name": "SQLAlchemyDS",
  "config": {
    "url": "postgresql://{db_user}:{db_password}@{db_host}:{db_port}/{db_dbname}",
    }
  }
```

Any extra keywords you can pass to the `sqlalchemy.engine.Engine` constructor may be set under `config`.

SQLAlchemy will create any tablespace objects it requires automatically.

The PostgreSQL Data Source

The postgresql Data Source is the only one supported pre v1.7 and is setup with a config like:

```
"datasource": {
  "module": "decisionengine.framework.dataspace.datasources.postgresql",
 "name": "Postgresql",
  "config": {
    "user": "postgres",
    "blocking": true,
    "host": "localhost",
    "port": 5432,
    "database": "decisionengine",
    "maxconnections": 100,
    "maxcached": 10
```

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```
    }
  }
```

If you use this datasource you must also load the database schema by hand. To load the database schema run:

```
psql -U postgres decisionengine -f /usr/share/doc/decisionengine/datasources/postgresql.
↪sql
```

2.2.5 Start decision engine

Start the service

```
# As decisionengine user
decisionengine --no-webserver &
```

2.2.6 Add channels to decision engine

Decision engine decision cycles happen in channels. You can add channels by adding configuration files in `/etc/decisionengine/config.d/` and restarting the decision engine.

Here is a simple test channel configuration. This test channel is using some NOP classes currently defined in the unit tests and not distributed.

The following configuration has been added as an example to `/etc/decisionengine/config.d/test_channel.jsonnet` during the installation process:

```
{
  sources: {
    source1: {
      module: "decisionengine.framework.tests.SourceNOP",
      parameters: {},
      schedule: 1,
    }
  },
  transforms: {
    transform1: {
      module: "decisionengine.framework.tests.TransformNOP",
      parameters: {},
      schedule: 1
    }
  },
  logicengines: {
    le1: {
      module: "decisionengine.framework.logicengine.LogicEngine",
      parameters: {
        facts: {
          pass_all: "True"
        },
        rules: {
          r1: {
            expression: 'pass_all',
```

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```
            actions: ['publisher1']
          }
        }
      }
    }
  },
  publishers: {
    publisher1: {
      module: "decisionengine.framework.tests.PublisherNOP",
      parameters: {}
    }
  }
}
```

Once the decisionengine is running, `de-client --status` should show the active test channel.

CHAPTER

THREE

DEVELOPER DOCUMENTATION

The developer documentation is in the GitHub Wiki

Intructions to build the package, or to run unit tests and other CI tests, and to install decisionengine are in the GitHub Wiki as well.

CHAPTER

FOUR

JENKINS CI PIPELINE

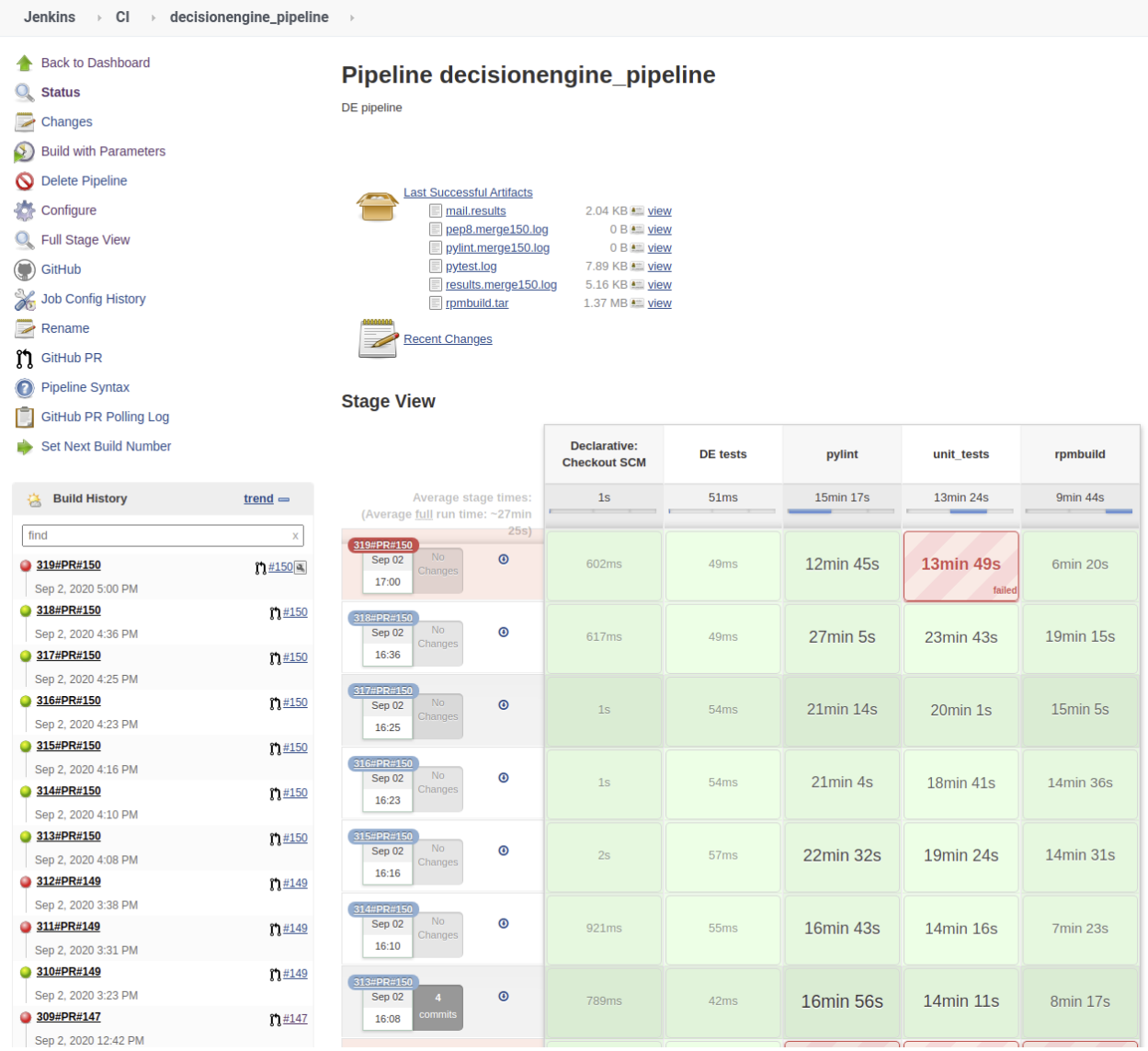
4.1 Decisionengine CI with Jenkins pipeline

Jenkins dashboard with Decisionengine framework CI results is available here.

A CI build is triggered any time a PR is created/closed or a commit is made to an existing PR.
There are also *nightly CI builds* to test a list of predefined branches.

The Jenkins pipeline runs *pylint* and *unit_tests* test suites alongside the *rpmbuild* stage.

The Jenkins dashboard looks like this:



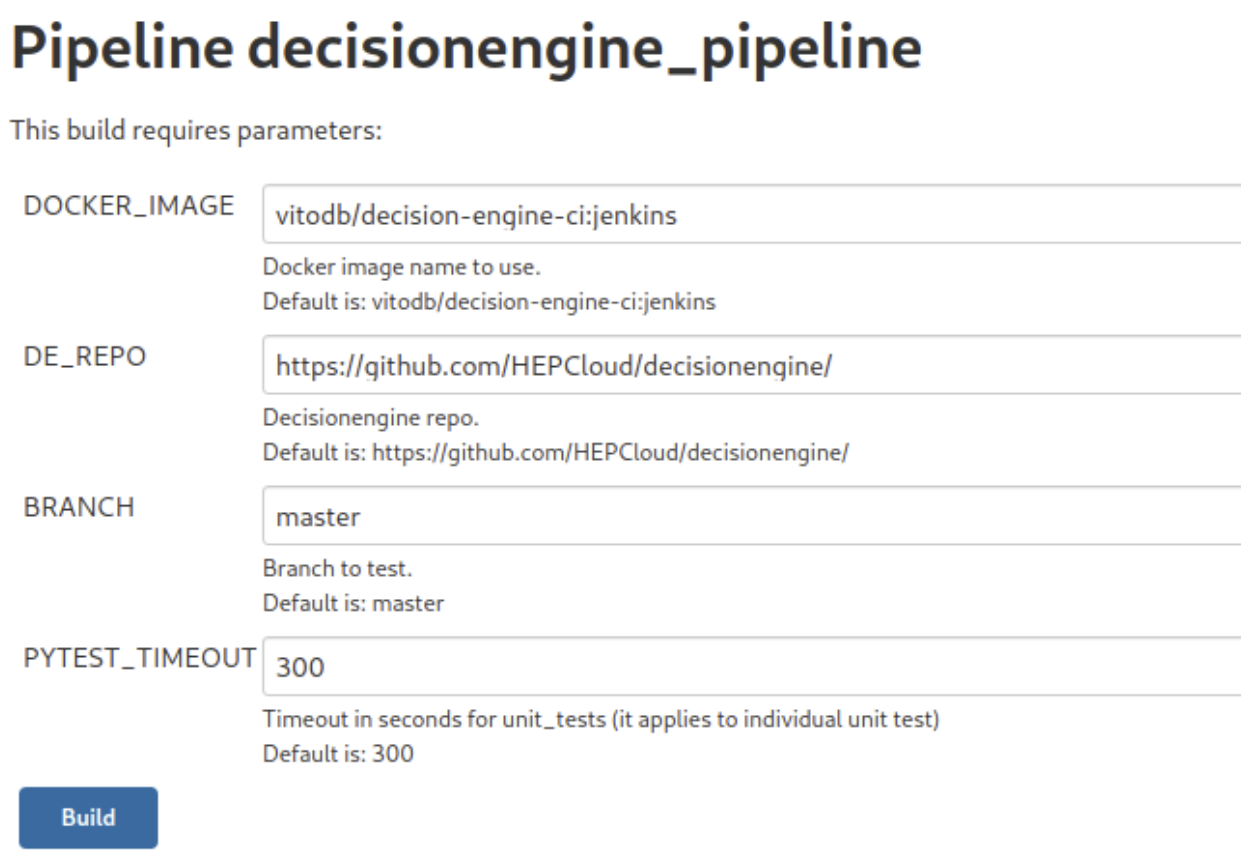
On the bottom left side there is the list of recent CI builds that are named after the PR or the branch tested.
On the bottom right side the dashboard shows for each CI build detailed status for each test suite.

Hovering the mouse over the *status box* for each CI build stage, a tool-tip with a button to access log details shows up.

Next to the build number the symbol gives access to a menu with the list of artifacts stored for that build. Those artifacts include logs and the tarball with RPMs.

From the panel on the left side it is possible to access the PR on GitHub by clicking on the PR icon that looks like this #142.

On occasion it could be useful to trigger a manual CI build to test a branch on the official DE GitHub repository or on the user fork. For this purpose, on the top left panel the user can click on the Build with Parameters button, and this panel shows up



the user can modify these parameters to customize what code to test with the CI build.

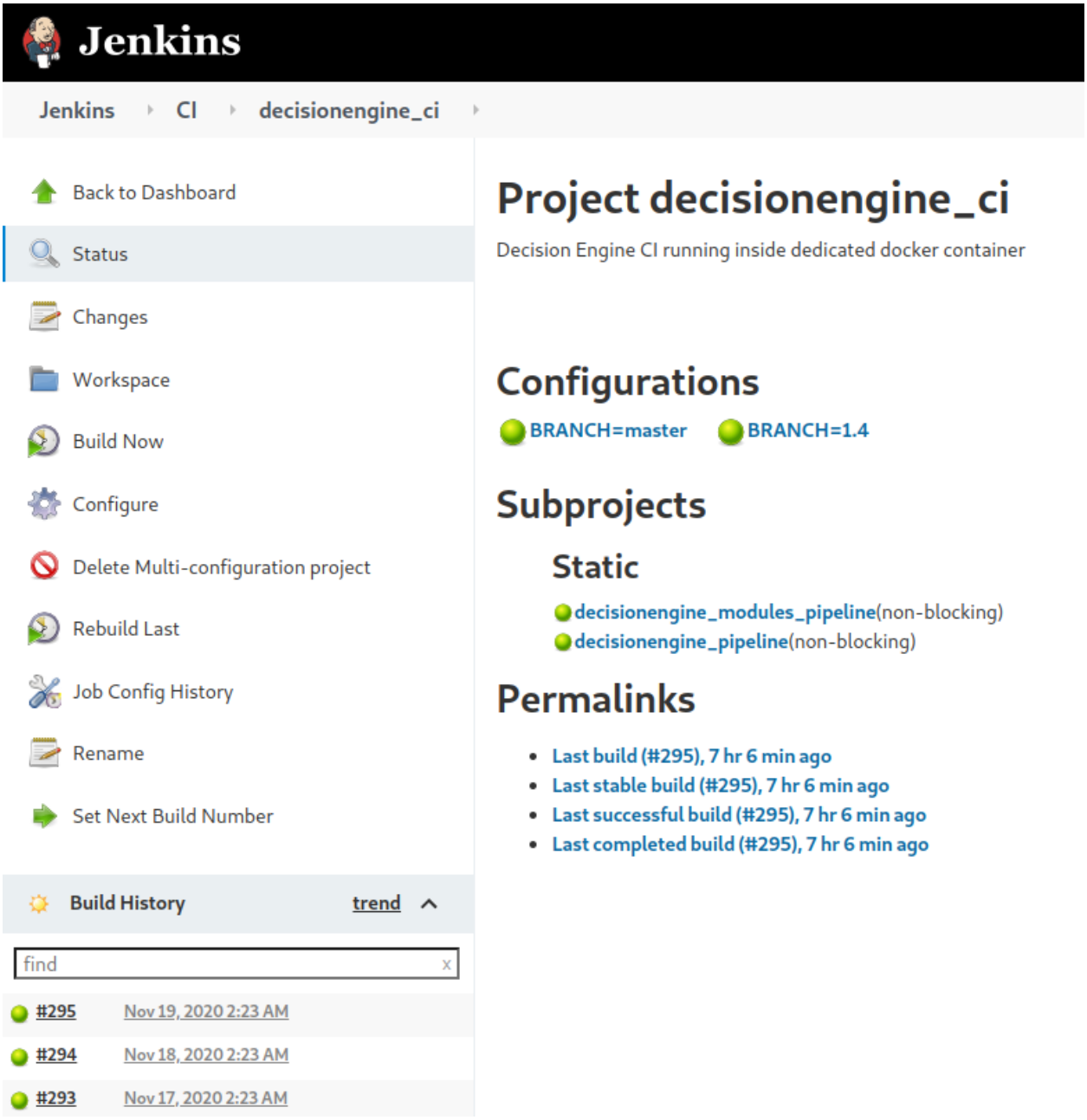
The *DE_REPO* parameter can point to the user fork or to the main repository.
The *BRANCH* parameter can point to the desired branch to test.
The *PYTEST_TIMEOUT* parameter is the timeout in seconds for *unit_tests*.

When ready, by clicking on the *Build* button, the CI build will start.

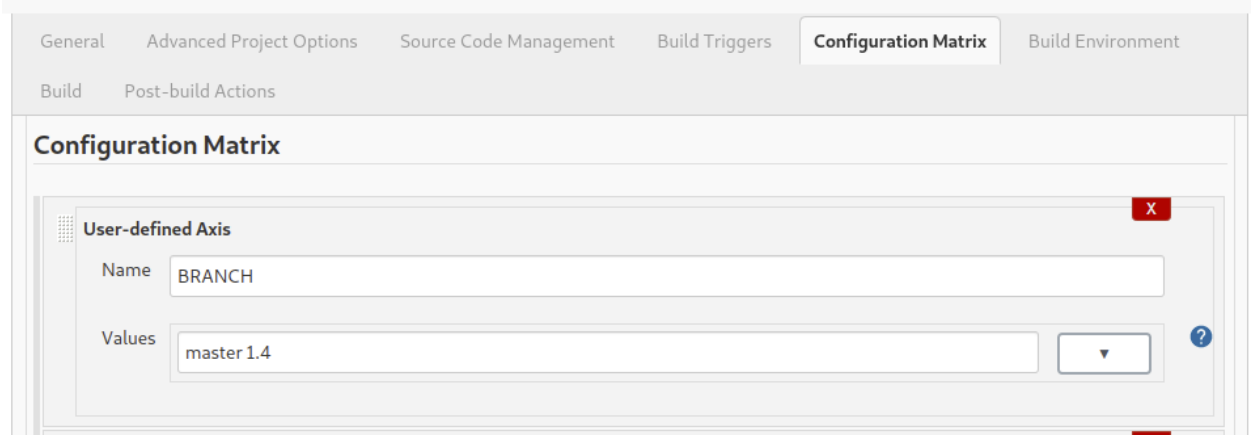
The pipeline configuration is part of the decisionengine repo.

4.1.1 Nightly CI build configuration

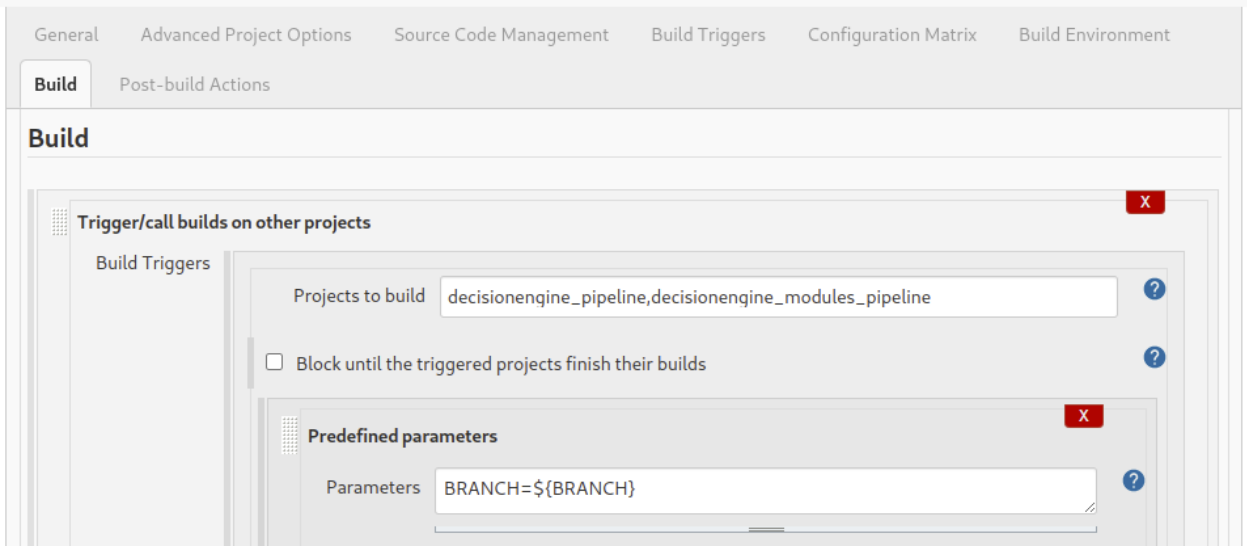
The nightly CI build for Decisionengine framework uses this Jenkins project that triggers a CI build using the Jenkins pipeline described above to test a list of predefined branches.



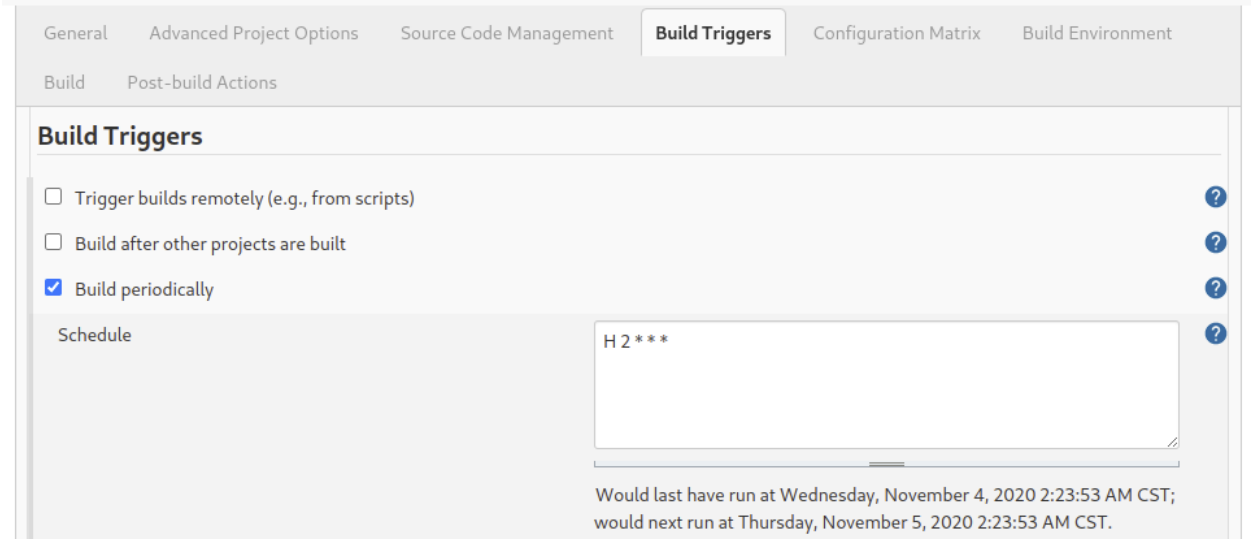
Branches to test are defined using the project matrix as shown in the picture below.
Each branch in the list (here *master* and *1.4*) spawns an independent CI build.



In the *Build* section of the configuration it is set the list of Jenkins subprojects to be triggered, in this case we have *decisionengine_pipeline* and *decisionengine_modules_pipeline*.
The *Parameters* text box is used to override parameters of each Jenkins subproject with a custom value.
In total this Jenkins project triggers 4 CI builds, i.e. 2 branches X 2 Jenkins subprojects.



Finally the *Build Triggers* section is used to setup the schedule for the periodic build,
in this case it is scheduled to run at about 2 AM.
Jenkins will choose the actual time depending on the actual load on the system.


General
Advanced Project Options
Source Code Management
Build Triggers
Configuration Matrix
Build Environment
Build
Post-build Actions
Build Triggers
Trigger builds remotely (e.g., from scripts)
Build after other projects are built
Build periodically
Schedule
H 2 * * *
Would last have run at Wednesday, November 4, 2020 2:23:53 AM CST; would next run at Thursday, November 5, 2020 2:23:53 AM CST.

CHAPTER

FIVE

SOURCE CODE

5.1 Welcome to decisionengine's documentation!

5.1.1 decisionengine package

Subpackages

decisionengine.framework package

Subpackages

decisionengine.framework.config package

Subpackages

decisionengine.framework.config.tests package

Submodules

decisionengine.framework.config.tests.test_config module

decisionengine.framework.config.tests.test_config.**_channel_config_dir**(*relative_dir*)

decisionengine.framework.config.tests.test_config.**_global_config_file**(*relative_filename*)

decisionengine.framework.config.tests.test_config.**load**()

decisionengine.framework.config.tests.test_config.**test_channel_empty_config**(*load*, *caplog*)

decisionengine.framework.config.tests.test_config.**test_channel_empty_dictionary**(*load*, *caplog*)

decisionengine.framework.config.tests.test_config.**test_channel_invalid_modules_list**(*load*, *caplog*)

decisionengine.framework.config.tests.test_config.**test_channel_invalid_modules_no_keys**(*load*, *caplog*)

decisionengine.framework.config.tests.test_config.**test_channel_invalid_modules_string**(*load*, *caplog*)

decisionengine.framework.config.tests.test_config.**test_channel_loading**(*caplog*)

decisionengine.framework.config.tests.test_config.**test_channel_module_missing_all**(*load*, *caplog*)

decisionengine.framework.config.tests.test_config.**test_channel_module_missing_module**(*load*, *caplog*)

decisionengine.framework.config.tests.test_config.**test_channel_module_missing_parameters**(*load*, *caplog*)

decisionengine.framework.config.tests.test_config.**test_channel_names**(*load*)

decisionengine.framework.config.tests.test_config.**test_channel_no_config_files**(*load*)

decisionengine.framework.config.tests.test_config.**test_channel_no_modules**(*load*)

decisionengine.framework.config.tests.test_config.**test_empty_config**(*load*)

decisionengine.framework.config.tests.test_config.**test_minimal_jsonnet_right_extension**(*load*, *capsys*)

decisionengine.framework.config.tests.test_config.**test_minimal_jsonnet_wrong_extension**(*load*, *capsys*)

decisionengine.framework.config.tests.test_config.**test_syntax_error_in_config_names_bad_file**(*load*)

decisionengine.framework.config.tests.test_config.**test_valid_but_empty_config**(*load*)

decisionengine.framework.config.tests.test_de_std module

decisionengine.framework.config.tests.test_de_std.**config**(*basename*, *jpathdirs=None*)

decisionengine.framework.config.tests.test_de_std.**test_allow_duplicate_keys_same_values**()

decisionengine.framework.config.tests.test_de_std.**test_allow_duplicate_source_proxy_keys**()

decisionengine.framework.config.tests.test_de_std.**test_combine_one_level**()

decisionengine.framework.config.tests.test_de_std.**test_combine_one_level_skip_proxies**()

decisionengine.framework.config.tests.test_de_std.**test_error_on_duplicate_keys**()

decisionengine.framework.config.tests.test_de_std.**test_jpath**()

decisionengine.framework.config.tests.test_policies module

decisionengine.framework.config.tests.test_policies.**test_channel_config_dir**(*tmp_path*, *monkeypatch*)

decisionengine.framework.config.tests.test_policies.**test_global_config_dir**(*tmp_path*, *monkeypatch*)

decisionengine.framework.config.tests.test_policies.**test_global_config_file**(*tmp_path*, *monkeypatch*)

decisionengine.framework.config.tests.test_policies.**test_valid_dir**(*tmp_path*)

Module contents

Submodules

decisionengine.framework.config.ChannelConfigHandler module

Manager of channel configurations.

The ChannelConfigHandler manages only channel configurations and not the global decision-engine configuration. It is responsible for loading channel configuration files and validating that the channels have the correct configuration artifacts.

class decisionengine.framework.config.ChannelConfigHandler.**ChannelConfigHandler**(*global_config*, *channel_config_dir*)

Bases: `object`

_load_channel(*channel_name*, *path*)

get_channels()

load_all_channels()

Load all channel configurations inside the stored channel-configuration directory.

Any cached configurations will be dropped prior to reloading.

load_channel(*channel_name*)

Load a single configuration for a channel with the supplied name.

The behavior is to read a configuration file whose path is:

<cached channel config. dir>/{channel_name}.jsonnet

where the cached channel-configuration directory was stored whenever the ChannelConfigHandler object was created, and {channel_name} is the value of the supplied method argument.

print_channel_config(*channel*)

decisionengine.framework.config.ChannelConfigHandler.**_check_keys**(*channel_conf_dict*)

check that channel config has mandatory keys :type data: `dict`

decisionengine.framework.config.ChannelConfigHandler.**_make_de_logger**(*global_config*)

decisionengine.framework.config.ValidConfig module

ValidConfig represents a valid JSON document.

The decision engine requires each of its configuration files to be valid JSON. This is achieved by either supplying a valid Jsonnet or JSON document upfront.

Vetting of a file for JSON validity happens upon construction of a 'ValidConfig' object. A fully constructed 'ValidConfig' object thus corresponds to a valid JSON document.

class decisionengine.framework.config.ValidConfig.**ValidConfig**(*filename*, *jpathdirs=None*)

Bases: UserDict

ValidConfig represents a valid JSON configuration in the form of a dictionary.

In addition to the normal dictionary operations, users may call 'dump()' to print out in a string form the JSON configuration.

_abc_impl = <_abc._abc_data object>

dump()

Print dictionary data to a valid JSON string.

decisionengine.framework.config.ValidConfig.**_config_from_file**(*config_file*, *jpaths=None*)

decisionengine.framework.config.policies module

Decision-engine default configuration policies.

For the decision-engine process, the configuration policies are:

- The global configuration file must be named 'decision_engine.jsonnet' and it must reside in (a) a directory that can be accessed through the 'CONFIG_PATH' environment variable, or (b) the /etc/decisionengine directory.
- All channel configurations must reside in (a) a directory accessible through the 'CHANNEL_CONFIG_PATH' environment variable, or (b) a 'config.d' subdirectory of the /etc/decisionengine directory.

The utilities provided in this module provide simple means of accessing the configuration artifacts according to the policies listed above. Please consult the documentation for each function below for more detailed information.

decisionengine.framework.config.policies.**channel_config_dir**(*parent_dir=None*)

Retrieve the channel configuration directory as a pathlib.Path object.

This function returns a path object according to the following precedence rules:

1. If the 'parent_dir' argument is provided, the returned path object will correspond to '{parent_dir}/config.d'.
2. If the 'CHANNEL_CONFIG_PATH' environment variable has been set, the returned path object will correspond to ${CHANNEL_CONFIG_PATH}.
3. If neither 1 or 2 apply, the returned path object corresponds to '{global_config_dir()}/config.d' (see documentation for 'global_config_dir()').

Regardless of the precedence rule used, the returned path object must be a valid directory or an exception will be raised–i.e. if the 'parent_dir' argument is supplied, and the resulting path object is not a valid directory, the function will exit with an exception and not attempt rule 2 or 3.

decisionengine.framework.config.policies.**global_config_dir**()

Retrieve global configuration dir as pathlib.Path object.

This is the directory that houses the 'decision_engine.jsonnet' global configuration file.

This function checks that the 'CONFIG_PATH' variable has been set or will use /etc/decisionengine otherwise. If the path exists as a directory, then the directory path is returned as a string; otherwise an exception is raised.

decisionengine.framework.config.policies.**global_config_file**(*parent_dir=None*)

Return the pathlib.Path object corresponding to the global configuration.

If supplied, the 'parent_dir' is assumed to be the full path corresponding to a directory containing the 'decision_engine.jsonnet' file. If not provided, the global configuration directory is determined based on the behavior of the 'global_config_dir()' function.

An exception is raised if no 'decision_engine.jsonnet' file is found.

decisionengine.framework.config.policies.**valid_dir**(*path*, *scope*)

Throws if the supplied path object is not a directory, otherwise returns the path object.

Module contents

decisionengine.framework.dataspace package

Subpackages

decisionengine.framework.dataspace.datasources package

Subpackages

decisionengine.framework.dataspace.datasources.sqlalchemy_ds package

Submodules

decisionengine.framework.dataspace.datasources.sqlalchemy_ds.datasource_api module

The datasource layer for our abstraction

class decisionengine.framework.dataspace.datasources.sqlalchemy_ds.datasource_api.**SQLAlchemyDS**(*config_dict*

Bases: *DataSource*

A DecisionEngine data source via the SQL Alchemy ORM

```
{
    "dataspace": {
        "datasource": {
            "module": "decisionengine.framework.dataspace.datasources.sqlalchemy_ds
↪",
            "name": "SQLAlchemyDS",
            "params": {
                "pool_size": 5,
                "max_overflow": 10,
                "timeout": 30,
```

(continues on next page)

(continued from previous page)

```
                # url is mandatory, but any `engine` keyword is accepted here.
                "url": "dialect[+driver]://user:password@host/dbname"
            }
        }
    }
}
```

Exceptions should be caught and logged by the caller.

_abc_impl = <_abc._abc_data object>

close()

Close all connections to the database

Returns
None

connect()

Create a pool of database connections

Returns
None

create_tables()

Create database tables

Returns
None

delete_data_older_than(*days*)

Delete data older that interval

Parameters
days (*int*) – remove data older than this many days

Returns
None

duplicate_datablock(*taskmanager_id*, *generation_id*, *new_generation_id*)

For the given taskmanager_id, make a copy of the datablock with given generation_id, set the generation_id for the datablock copy

Parameters

- **taskmanager_id** (*str/uuid*) – id of taskmanager to retrieve
- **generation_id** (*int*) – generation id to clone
- **new_generation_id** (*int*) – generation id to create

Returns
None

get_datablock(*taskmanager_id*, *generation_id*)

Return the entire datablock from the dataproduct table for the given taskmanager_id, generation_id

Parameters

- **taskmanager_id** (*str/uuid*) – id of taskmanager to retrieve

- **generation_id** (*int*) – generation id to locate

Returns
with all set keys and their associated values

Return type
dict

get_dataproduct(*taskmanager_id*, *generation_id*, *key*)

Return the data from the dataproduct table for the given taskmanager_id, generation_id, key

Parameters

- **taskmanager_id** (*str/uuid*) – id of taskmanager to retrieve
- **generation_id** (*int*) – generation id to locate
- **key** (*str*) – key for the value

Returns
The possibly binary value stored earlier

Return type
obj

get_dataproducts(*taskmanager_id*, *key=None*)

Return list of all data products associated with with taskmanager_id

Parameters

- **taskmanager_id** (*str/uuid*) – id of taskmanager to retrieve
- **key** (*str*) – key for the value

Returns
each element is the matching row as a dict()

Return type
tuple

get_header(*taskmanager_id*, *generation_id*, *key*)

Return the header from the header table for the given taskmanager_id, generation_id, key

Parameters

- **taskmanager_id** (*str/uuid*) – id of taskmanager to retrieve
- **generation_id** (*int*) – generation id to locate
- **key** (*str*) – key for the value

Returns

fields in order are:
taskmanager.taskmanager_id, header.taskmanager_id, header.generation_id, header.key, header.create_time, header.expiration_time, header.scheduled_create_time, header.creator, header.schema_id

Return type
tuple

get_last_generation_id(*taskmanager_name*, *taskmanager_id=None*)

Return last generation id for current task manager or taskmanager w/ task_manager_id.

Parameters

- **taskmanager_name** (*str*) – name of taskmanager to retrieve
- **taskmanager_id** (*str/uuid*) – id of taskmanager to retrieve

Returns
the largest generation stored within the database

Return type
int

get_metadata(*taskmanager_id*, *generation_id*, *key*)

Return the metadata from the metadata table for the given taskmanager_id, generation_id, key

Parameters

- **taskmanager_id** (*str/uuid*) – id of taskmanager to retrieve
- **generation_id** (*int*) – generation id to locate
- **key** (*str*) – key for the value

Returns

fields in order are:
taskmanager.taskmanager_id, metadata.taskmanager_id, metadata.generation_id, metadata.key, metadata.state, metadata.generation_time, metadata.missed_update_count

Return type
tuple

get_schema(*table=None*)

Given the table name return it's schema

get_taskmanager(*taskmanager_name*, *taskmanager_id=None*)

Find the task manager by name/uuid in the database get back the primary key.

If multiples match, find highest primary key.

Parameters

- **taskmanager_name** (*str*) – name of taskmanager to retrieve
- **taskmanager_id** (*str/uuid*) – id of taskmanager to retrieve

Returns
the matching row, column names as keys

Return type
dict

get_taskmanagers(*taskmanager_name=None*, *start_time=None*, *end_time=None*)

Find taskmanagers that meet our search

Parameters

- **taskmanager_name** (*str*) – name of taskmanager to retrieve
- **start_time** (*datetime*) – Datetime to confine against
- **end_time** (*datetime*) – Datetime to confine against

Returns
each element is a dict() matching row, column names as keys

Return type
list

insert(*taskmanager_id*, *generation_id*, *key*, *value*, *header*, *metadata*)

Insert data into respective tables for the given taskmanager_id, generation_id, key

Parameters

- **taskmanager_id** (*str/uuid*) – id of taskmanager to retrieve
- **generation_id** (*int*) – generation id to create
- **key** (*str*) – key for the value
- **value** (*obj*) – Value can be an object or dict or a binary
- **header** (datablock.Header) – Header for the value
- **metadata** (datablock.Metadata) – Metadata for the value

Returns
None

reset_connections()

Reset the connection to the database. So long as self.engine isn't undef, the engine can still make new connections if new db actions happen. It just wont have any open at this time.

Returns
None

store_taskmanager(*name*, *taskmanager_id*, *datestamp=None*)

Store TaskManager in database

Parameters

- **name** (*str*) – name of taskmanager to retrieve
- **taskmanager_id** (*str/uuid*) – id of taskmanager to retrieve
- **datestamp** (*datetime*) – datetime of created object, defaults to 'now'

Returns
the primary key of the row in the database

Return type
int

update(*taskmanager_id*, *generation_id*, *key*, *value*, *header*, *metadata*)

Update the data in respective tables for the given taskmanager_id, generation_id, key

Parameters

- **taskmanager_id** (*str/uuid*) – id of taskmanager to retrieve
- **generation_id** (*int*) – generation id to update
- **key** (*str*) – key for the value
- **value** (*obj*) – Value can be an object or dict or a binary
- **header** (datablock.Header) – Header for the value
- **metadata** (datablock.Metadata) – Metadata for the value

Returns
None

decisionengine.framework.dataspace.datasources.sqlalchemy_ds.db_schema module

The table layout and utilities for our SQLAlchemy ORM

class decisionengine.framework.dataspace.datasources.sqlalchemy_ds.db_schema.**Base**(***kwargs*)

Bases: object

The base class of the class hierarchy.

When called, it accepts no arguments and returns a new featureless instance that has no instance attributes and cannot be given any.

_sa_registry = <sqlalchemy.orm.decl_api.registry object>

metadata = MetaData()

registry = <sqlalchemy.orm.decl_api.registry object>

class decisionengine.framework.dataspace.datasources.sqlalchemy_ds.db_schema.**Dataproduct**(***kwargs*)

Bases: *Base*

The PRIMARY KEY on this table isn't used. . . .

Existing code appears to depend on column order.

_sa_class_manager = {'generation_id':
<sqlalchemy.orm.attributes.InstrumentedAttribute object>, 'id':
<sqlalchemy.orm.attributes.InstrumentedAttribute object>, 'key':
<sqlalchemy.orm.attributes.InstrumentedAttribute object>, 'taskmanager':
<sqlalchemy.orm.attributes.InstrumentedAttribute object>, 'taskmanager_id':
<sqlalchemy.orm.attributes.InstrumentedAttribute object>, 'value':
<sqlalchemy.orm.attributes.InstrumentedAttribute object>}

generation_id

id

key

taskmanager

taskmanager_id

value

class decisionengine.framework.dataspace.datasources.sqlalchemy_ds.db_schema.**Header**(***kwargs*)

Bases: *Base*

The PRIMARY KEY on this table isn't used. . . .

The existing code has a hard expectation on the time columns being BIGINT rather than datetime objects burried within the classes.

Looks like there was an inital goal of a relationship
with the Schema table, but it may not be in use

Existing code appears to depend on column order.

_sa_class_manager = {'create_time':
<sqlalchemy.orm.attributes.InstrumentedAttribute object>, 'creator':
<sqlalchemy.orm.attributes.InstrumentedAttribute object>, 'expiration_time':
<sqlalchemy.orm.attributes.InstrumentedAttribute object>, 'generation_id':
<sqlalchemy.orm.attributes.InstrumentedAttribute object>, 'id':
<sqlalchemy.orm.attributes.InstrumentedAttribute object>, 'key':
<sqlalchemy.orm.attributes.InstrumentedAttribute object>, 'scheduled_create_time':
<sqlalchemy.orm.attributes.InstrumentedAttribute object>, 'schema_id':
<sqlalchemy.orm.attributes.InstrumentedAttribute object>, 'taskmanager':
<sqlalchemy.orm.attributes.InstrumentedAttribute object>, 'taskmanager_id':
<sqlalchemy.orm.attributes.InstrumentedAttribute object>}

create_time

creator

expiration_time

generation_id

id

key

scheduled_create_time

schema_id

taskmanager

taskmanager_id

class decisionengine.framework.dataspace.datasources.sqlalchemy_ds.db_schema.**Metadata**(***kwargs*)

Bases: *Base*

The PRIMARY KEY on this table isn't used....

The existing code has a hard expectation on the state field as a 'text' element.

The existing code has a hard expectation on the time columns being BIGINT rather than datetime objects burried within the classes.

Existing code appears to depend on column order.

_sa_class_manager = {'generation_id':
<sqlalchemy.orm.attributes.InstrumentedAttribute object>, 'generation_time':
<sqlalchemy.orm.attributes.InstrumentedAttribute object>, 'id':
<sqlalchemy.orm.attributes.InstrumentedAttribute object>, 'key':
<sqlalchemy.orm.attributes.InstrumentedAttribute object>, 'missed_update_count':
<sqlalchemy.orm.attributes.InstrumentedAttribute object>, 'state':
<sqlalchemy.orm.attributes.InstrumentedAttribute object>, 'taskmanager':
<sqlalchemy.orm.attributes.InstrumentedAttribute object>, 'taskmanager_id':
<sqlalchemy.orm.attributes.InstrumentedAttribute object>}

generation_id

generation_time

id

key

missed_update_count

state

taskmanager

taskmanager_id

class decisionengine.framework.dataspace.datasources.sqlalchemy_ds.db_schema.**Schema**(***kwargs*)

Bases: *Base*

This table may not be in use

Has a one-to-many relationship with:
Header - may not be in use

_sa_class_manager = {'schema': <sqlalchemy.orm.attributes.InstrumentedAttribute object>, 'schema_id': <sqlalchemy.orm.attributes.InstrumentedAttribute object>}

schema

schema_id

class decisionengine.framework.dataspace.datasources.sqlalchemy_ds.db_schema.**Taskmanager**(***kwargs*)

Bases: *Base*

Has a one-to-many relationship with:
Header Metadata Dataproduct

changes cascade on:
Header Metadata Dataproduct

Existing code appears to depend on column order.

_sa_class_manager = {'datestamp': <sqlalchemy.orm.attributes.InstrumentedAttribute object>, 'name': <sqlalchemy.orm.attributes.InstrumentedAttribute object>, 'sequence_id': <sqlalchemy.orm.attributes.InstrumentedAttribute object>, 'task_dataproduct': <sqlalchemy.orm.attributes.InstrumentedAttribute object>, 'task_header': <sqlalchemy.orm.attributes.InstrumentedAttribute object>, 'task_metadata': <sqlalchemy.orm.attributes.InstrumentedAttribute object>, 'taskmanager_id': <sqlalchemy.orm.attributes.InstrumentedAttribute object>}

datestamp

name

sequence_id

task_dataproduct

task_header

task_metadata

taskmanager_id

decisionengine.framework.dataspace.datasources.sqlalchemy_ds.utils module

Code not written by us

decisionengine.framework.dataspace.datasources.sqlalchemy_ds.utils.**add_engine_pidguard**(*engine*)

Based on https://stackoverflow.com/questions/62920507/using-sqlalchemy-connection-pooling-queues-with-python-multiprocess

decisionengine.framework.dataspace.datasources.sqlalchemy_ds.utils.**clone_model**(*model*, ***kwargs*)

Based on https://stackoverflow.com/a/55991358

decisionengine.framework.dataspace.datasources.sqlalchemy_ds.utils.**orm_as_dict**(*obj*)

Based on : https://stackoverflow.com/a/37350445

Module contents

Top level import so we can rationally segment items of the ORM

class decisionengine.framework.dataspace.datasources.sqlalchemy_ds.**SQLAlchemyDS**(*config_dict*)

Bases: *DataSource*

A DecisionEngine data source via the SQL Alchemy ORM

```
{
    "dataspace": {
        "datasource": {
            "module": "decisionengine.framework.dataspace.datasources.sqlalchemy_ds
↪",
            "name": "SQLAlchemyDS",
            "params": {
                "pool_size": 5,
                "max_overflow": 10,
                "timeout": 30,

                # url is mandatory, but any `engine` keyword is accepted here.
                "url": "dialect[+driver]://user:password@host/dbname"
            }
        }
    }
}
```

Exceptions should be caught and logged by the caller.

_abc_impl = <_abc._abc_data object>

close()

Close all connections to the database

Returns
None

connect()

Create a pool of database connections

Returns
None

create_tables()

Create database tables

Returns
None

delete_data_older_than(*days*)

Delete data older that interval

Parameters
days (*int*) – remove data older than this many days

Returns
None

duplicate_datablock(*taskmanager_id*, *generation_id*, *new_generation_id*)

For the given taskmanager_id, make a copy of the datablock with given generation_id, set the generation_id for the datablock copy

Parameters

- **taskmanager_id** (*str/uuid*) – id of taskmanager to retrieve
- **generation_id** (*int*) – generation id to clone
- **new_generation_id** (*int*) – generation id to create

Returns
None

get_datablock(*taskmanager_id*, *generation_id*)

Return the entire datablock from the dataproduct table for the given taskmanager_id, generation_id

Parameters

- **taskmanager_id** (*str/uuid*) – id of taskmanager to retrieve
- **generation_id** (*int*) – generation id to locate

Returns
with all set keys and their associated values

Return type
dict

get_dataproduct(*taskmanager_id*, *generation_id*, *key*)

Return the data from the dataproduct table for the given taskmanager_id, generation_id, key

Parameters

- **taskmanager_id** (*str/uuid*) – id of taskmanager to retrieve
- **generation_id** (*int*) – generation id to locate
- **key** (*str*) – key for the value

Returns
The possibly binary value stored earlier

Return type
obj

get_dataproducts(*taskmanager_id*, *key=None*)

Return list of all data products associated with with taskmanager_id

Parameters

- **taskmanager_id** (*str/uuid*) – id of taskmanager to retrieve
- **key** (*str*) – key for the value

Returns
each element is the matching row as a dict()

Return type
tuple

get_header(*taskmanager_id*, *generation_id*, *key*)

Return the header from the header table for the given taskmanager_id, generation_id, key

Parameters

- **taskmanager_id** (*str/uuid*) – id of taskmanager to retrieve
- **generation_id** (*int*) – generation id to locate
- **key** (*str*) – key for the value

Returns

fields in order are:
taskmanager.taskmanager_id, header.taskmanager_id, header.generation_id, header.key, header.create_time, header.expiration_time, header.scheduled_create_time, header.creator, header.schema_id

Return type
tuple

get_last_generation_id(*taskmanager_name*, *taskmanager_id=None*)

Return last generation id for current task manager or taskmanager w/ task_manager_id.

Parameters

- **taskmanager_name** (*str*) – name of taskmanager to retrieve
- **taskmanager_id** (*str/uuid*) – id of taskmanager to retrieve

Returns
the largest generation stored within the database

Return type
int

get_metadata(*taskmanager_id*, *generation_id*, *key*)

Return the metadata from the metadata table for the given taskmanager_id, generation_id, key

Parameters

- **taskmanager_id** (*str/uuid*) – id of taskmanager to retrieve
- **generation_id** (*int*) – generation id to locate
- **key** (*str*) – key for the value

Returns

fields in order are:
taskmanager.taskmanager_id, metadata.taskmanager_id, metadata.generation_id, metadata.key, metadata.state, metadata.generation_time, metadata.missed_update_count

Return type
tuple

`get_schema`(*table=None*)

Given the table name return it's schema

`get_taskmanager`(*taskmanager_name*, *taskmanager_id=None*)

Find the task manager by name/uuid in the database get back the primary key.

If multiples match, find highest primary key.

Parameters

- **taskmanager_name** (*str*) – name of taskmanager to retrieve
- **taskmanager_id** (*str/uuid*) – id of taskmanager to retrieve

Returns
the matching row, column names as keys

Return type
dict

`get_taskmanagers`(*taskmanager_name=None*, *start_time=None*, *end_time=None*)

Find taskmanagers that meet our search

Parameters

- **taskmanager_name** (*str*) – name of taskmanager to retrieve
- **start_time** (*datetime*) – Datetime to confine against
- **end_time** (*datetime*) – Datetime to confine against

Returns
each element is a dict() matching row, column names as keys

Return type
list

`insert`(*taskmanager_id*, *generation_id*, *key*, *value*, *header*, *metadata*)

Insert data into respective tables for the given taskmanager_id, generation_id, key

Parameters

- **taskmanager_id** (*str/uuid*) – id of taskmanager to retrieve
- **generation_id** (*int*) – generation id to create
- **key** (*str*) – key for the value
- **value** (*obj*) – Value can be an object or dict or a binary
- **header** (datablock.Header) – Header for the value
- **metadata** (datablock.Metadata) – Metadata for the value

Returns
None

reset_connections()

Reset the connection to the database. So long as self.engine isn't undef, the engine can still make new connections if new db actions happen. It just wont have any open at this time.

Returns
None

store_taskmanager(*name*, *taskmanager_id*, *datestamp=None*)

Store TaskManager in database

Parameters

- **name** (*str*) – name of taskmanager to retrieve
- **taskmanager_id** (*str/uuid*) – id of taskmanager to retrieve
- **datestamp** (*datetime*) – datetime of created object, defaults to 'now'

Returns
the primary key of the row in the database

Return type
int

update(*taskmanager_id*, *generation_id*, *key*, *value*, *header*, *metadata*)

Update the data in respective tables for the given taskmanager_id, generation_id, key

Parameters

- **taskmanager_id** (*str/uuid*) – id of taskmanager to retrieve
- **generation_id** (*int*) – generation id to update
- **key** (*str*) – key for the value
- **value** (*obj*) – Value can be an object or dict or a binary
- **header** (datablock.Header) – Header for the value
- **metadata** (datablock.Metadata) – Metadata for the value

Returns
None

decisionengine.framework.dataspace.datasources.tests package

Submodules

decisionengine.framework.dataspace.datasources.tests.fixtures module

pytest fixtures/constants

decisionengine.framework.dataspace.datasources.tests.fixtures.**PG_DE_DB_WITHOUT_SCHEMA**(*request: FixtureRequest*) → connection

Fixture factory for PostgreSQL.

Parameters
request – fixture request object

Returns
postgresql client

decisionengine.framework.dataspace.datasources.tests.fixtures.**PG_PROG**(*request: FixtureRequest*, *tmp_path_factory: TempPathFactory*) → Iterator[PostgreSQLExecutor]

Process fixture for PostgreSQL.

Parameters

- **request** – fixture request object
- **tmp_path_factory** – temporary path object (fixture)

Returns
tcp executor

decisionengine.framework.dataspace.datasources.tests.fixtures.**SQLALCHEMY_PG_WITH_SCHEMA**(*PG_DE_DB_WITH*

Get a blank database from pytest_postgresql. Then setup the SQLAlchemy style URL with that DB. The SQLAlchemyDS will create the schema as needed.

decisionengine.framework.dataspace.datasources.tests.fixtures.**SQLALCHEMY_TEMPFILE_SQLITE**(*tmp_path*)

Setup an SQLite database with the pytest tmp_path fixture. Then setup the SQLAlchemy style URL with that DB. The SQLAlchemyDS will create the schema as needed.

decisionengine.framework.dataspace.datasources.tests.fixtures.**datasource**(*request*)

This parameterized fixture will setup up various datasources.

Add datasource objects to DATASOURCES_TO_TEST once they've got our basic schema loaded. And adjust our *if* statements here until we are SQLAlchemy only.

Pytest should take it from there and automatically run it through all the tests using this fixture.

decisionengine.framework.dataspace.datasources.tests.fixtures.**mock_data_block**()

This fixture replaces the standard datablock implementation.

The current DataBlock implementation does not own any data products but forwards them immediately to a backend datasource. The only implemented datasource requires Postgres, which is overkill when needing to test simple data-product communication between modules.

This mock datablock class directly owns the data products, thus avoiding the need for a datasource backend. It is anticipated that a future design of the DataBlock will own the data products, thus making this mock class unnecessary.

decisionengine.framework.dataspace.datasources.tests.test_datasource_api module

This test plan covers a generic dataspace object via pytest parameters.

decisionengine.framework.dataspace.datasources.tests.test_datasource_api.**test_create_tables**(*datasource*)

create_tables() should be safe to call multiple times

decisionengine.framework.dataspace.datasources.tests.test_datasource_api.**test_delete_data_older_than_ar**

Can we delete old entries

decisionengine.framework.dataspace.datasources.tests.test_datasource_api.**test_duplicate_datablock**(*datasou*
Can we duplicate taskmanager1 and all its entries

decisionengine.framework.dataspace.datasources.tests.test_datasource_api.**test_get_datablock**(*datasource*)

decisionengine.framework.dataspace.datasources.tests.test_datasource_api.**test_get_dataproduct**(*datasource*)
Can we get the dataproduct by uuid with key

decisionengine.framework.dataspace.datasources.tests.test_datasource_api.**test_get_dataproduct_not_exist**
Does it error out if we ask for bogus information?

decisionengine.framework.dataspace.datasources.tests.test_datasource_api.**test_get_dataproducts**(*datasource*
Can we get the dataproducts by uuid and uuid with key

decisionengine.framework.dataspace.datasources.tests.test_datasource_api.**test_get_dataproducts_not_exist**
Does it error out if we ask for bogus information?

decisionengine.framework.dataspace.datasources.tests.test_datasource_api.**test_get_header**(*datasource*)
Can we fetch a header?

decisionengine.framework.dataspace.datasources.tests.test_datasource_api.**test_get_header_not_exist**(*datas*
Does it error out if we ask for a bogus header?

decisionengine.framework.dataspace.datasources.tests.test_datasource_api.**test_get_last_generation_id**(*dat*
Can we get the last generation id by name or name and uuid

decisionengine.framework.dataspace.datasources.tests.test_datasource_api.**test_get_last_generation_id_no**
Does it error out if we ask for a bogus taskmanager?

decisionengine.framework.dataspace.datasources.tests.test_datasource_api.**test_get_metadata**(*datasource*)
Can we fetch a metadata element?

decisionengine.framework.dataspace.datasources.tests.test_datasource_api.**test_get_metadata_not_exist**(*dat*
Does it error out if we ask for a bogus metadata element?

decisionengine.framework.dataspace.datasources.tests.test_datasource_api.**test_get_taskmanager_exists**(*dat*
Can I get a taskmanager by name or name and uuid

decisionengine.framework.dataspace.datasources.tests.test_datasource_api.**test_get_taskmanager_not_exists**
This should error out

decisionengine.framework.dataspace.datasources.tests.test_datasource_api.**test_get_taskmanagers**(*datasource*
Can I get multimple task managers

decisionengine.framework.dataspace.datasources.tests.test_datasource_api.**test_get_taskmanagers_not_exist**
Do I error out when asking for garbage

decisionengine.framework.dataspace.datasources.tests.test_datasource_api.**test_has_config**(*datasource*)
This should have a *config* dict we can pass to jsonnet

decisionengine.framework.dataspace.datasources.tests.test_datasource_api.**test_insert**(*datasource*)
Can we insert new elements

decisionengine.framework.dataspace.datasources.tests.test_datasource_api.**test_reset_connections**(*datasourc*
reset_connections() should be safe to call any time

decisionengine.framework.dataspace.datasources.tests.test_datasource_api.**test_store_taskmanager**(*datasourc*
Can we make new entries

decisionengine.framework.dataspace.datasources.tests.test_datasource_api.**test_update**(*datasource*)
Do updates work as expected

decisionengine.framework.dataspace.datasources.tests.test_datasource_api.**test_update_bad**(*datasource*)
Do updates fail to work on bogus taskmanager as expected

Module contents

Submodules

decisionengine.framework.dataspace.datasources.null module

class decisionengine.framework.dataspace.datasources.null.**NullDataSource**(*config_dict*)
Bases: *DataSource*

Implementation of data source ABC that does nothing

_abc_impl = <_abc._abc_data object>

close()
Close all connections to the database

connect()
Create a pool of database connections

create_tables()
Create database tables

delete_data_older_than(*days*)
Delete data older that interval :type days: long :arg days: remove data older than interval

duplicate_datablock(*taskmanager_id*, *generation_id*, *new_generation_id*)
For the given taskmanager_id, make a copy of the datablock with given generation_id, set the generation_id for the datablock copy

Parameters

- **taskmanager_id** (string) – taskmanager_id for generation to be retrieved
- **generation_id** (int) – generation_id of the data
- **new_generation_id** (int) – generation_id of the new datablock created

get_datablock(*taskmanager_id*, *generation_id*)
Return the entire datablock from the dataproduct table for the given taskmanager_id, generation_id

Parameters

- **taskmanager_id** (string) – taskmanager_id for generation to be retrieved
- **generation_id** (int) – generation_id of the data

get_dataproduct(*taskmanager_id*, *generation_id*, *key*)
Return the data from the dataproduct table for the given taskmanager_id, generation_id, key

Parameters

- **taskmanager_id** (string) – taskmanager_id for generation to be retrieved
- **generation_id** (int) – generation_id of the data

- **key** (string) – key for the value

get_dataproducts(*taskmanager_id*, *key=None*)

Return list of all data products associated with with taskmanager_id

Parameters
key (string) – data product key

get_header(*taskmanager_id*, *generation_id*, *key*)

Return the header from the header table for the given taskmanager_id, generation_id, key

Parameters

- **taskmanager_id** (string) – taskmanager_id for generation to be retrieved
- **generation_id** (int) – generation_id of the data
- **key** (string) – key for the value

get_last_generation_id(*taskmanager_name*, *taskmanager_id=None*)

Return last generation id for current task manager or taskmanager w/ task_manager_id.

Parameters

- **taskmanager_name** (string) – task manager name
- **taskmanager_id** (string) – task manager id

get_metadata(*taskmanager_id*, *generation_id*, *key*)

Return the metadata from the metadata table for the given taskmanager_id, generation_id, key

Parameters

- **taskmanager_id** (string) – taskmanager_id for generation to be retrieved
- **generation_id** (int) – generation_id of the data
- **key** (string) – key for the value

get_schema(*table=None*)

Given the table name return it's schema

Parameters
table (string) – Name of the table

get_taskmanager(*taskmanager_name*, *taskmanager_id=None*)

Retrieve TaskManager :type taskmanager_name: string :arg taskmanager_name: name of taskmanager to retrieve :type taskmanager_id: string :arg taskmanager_id: id of taskmanager to retrieve

get_taskmanagers(*taskmanager_name=None*, *start_time=None*, *end_time=None*)

Retrieve TaskManagers :type taskmanager_name: string :arg taskmanager_name: name of taskmanager to retrieve :type taskmanager_id: string :arg taskmanager_id: id of taskmanager to retrieve

insert(*taskmanager_id*, *generation_id*, *key*, *value*, *header*, *metadata*)

Insert data into respective tables for the given taskmanager_id, generation_id, key

Parameters

- **taskmanager_id** (string) – taskmanager_id for generation to be retrieved
- **generation_id** (int) – generation_id of the data
- **key** (string) – key for the value
- **value** (object) – Value can be an object or dict

- **header** (Header) – Header for the value
- **header** – Metadata for the value

reset_connections()

Drop any cached connections and reconnect to the database

store_taskmanager(*name*, *taskmanager_id*, *datestamp=None*)

Store TaskManager :type taskmanager_name: string :arg taskmanager_name: name of taskmanager to retrieve :type taskmanager_id: string :arg taskmanager_id: id of taskmanager to retrieve :type datestamp: datetime :arg datestamp: datetime of created object, defaults to 'now'

update(*taskmanager_id*, *generation_id*, *key*, *value*, *header*, *metadata*)

Update the data in respective tables for the given taskmanager_id, generation_id, key

Parameters

- **taskmanager_id** (string) – taskmanager_id for generation to be retrieved
- **generation_id** (int) – generation_id of the data
- **key** (string) – key for the value
- **value** (object) – Value can be an object or dict
- **header** (Header) – Header for the value
- **header** – Metadata for the value

Module contents

decisionengine.framework.dataspace.tests package

Submodules

decisionengine.framework.dataspace.tests.fixtures module

decisionengine.framework.dataspace.tests.fixtures.**PG_DE_DB_WITHOUT_SCHEMA**(*request: FixtureRequest*) → connection

Fixture factory for PostgreSQL.

Parameters
request – fixture request object

Returns
postgresql client

decisionengine.framework.dataspace.tests.fixtures.**PG_PROG**(*request: FixtureRequest*, *tmp_path_factory: TempPathFactory*) → Iterator[PostgreSQLExecutor]

Process fixture for PostgreSQL.

Parameters

- **request** – fixture request object
- **tmp_path_factory** – temporary path object (fixture)

Returns
tcp executor

decisionengine.framework.dataspace.tests.fixtures.**SQLALCHEMY_PG_WITH_SCHEMA**(*PG_DE_DB_WITHOUT_SCHEMA*

Get a blank database from pytest_postgresql. Then setup the SQLAlchemy style URL with that DB. The SQLAlchemyDS will create the schema as needed.

decisionengine.framework.dataspace.tests.fixtures.**SQLALCHEMY_TEMPFILE_SQLITE**(*tmp_path*)

Setup an SQLite database with the pytest tmp_path fixture. Then setup the SQLAlchemy style URL with that DB. The SQLAlchemyDS will create the schema as needed.

decisionengine.framework.dataspace.tests.fixtures.**datasource**(*request*)

This parameterized fixture will setup up various datasources.

Add datasource objects to DATASOURCES_TO_TEST once they've got our basic schema loaded. And adjust our *if* statements here until we are SQLAlchemy only.

Pytest should take it from there and automatically run it through all the tests using this fixture.

decisionengine.framework.dataspace.tests.fixtures.**dataspace**(*request*)

This parameterized fixture will setup up various datasources. Add datasource objects to DATASOURCES_TO_TEST once they've got our basic schema loaded. And adjust our *if* statements here until we are SQLAlchemy only.

Pytest should take it from there and automatically run it through all the tests using this fixture.

decisionengine.framework.dataspace.tests.fixtures.**load_sample_data_into_datasource**(*schema_only_db*)

load our sample test data into a dataspace This is a function not a fixture so you can run it on any datasource providing the right API.

decisionengine.framework.dataspace.tests.test_Reaper module

decisionengine.framework.dataspace.tests.test_Reaper.**config**()

decisionengine.framework.dataspace.tests.test_Reaper.**reaper**(*request*)

decisionengine.framework.dataspace.tests.test_Reaper.**test_fail_bad_config**(*reaper*, *config*)

decisionengine.framework.dataspace.tests.test_Reaper.**test_fail_missing_config**(*reaper*, *config*)

decisionengine.framework.dataspace.tests.test_Reaper.**test_fail_missing_config_key**(*reaper*, *config*)

decisionengine.framework.dataspace.tests.test_Reaper.**test_fail_small_retain**(*reaper*)

decisionengine.framework.dataspace.tests.test_Reaper.**test_fail_small_run_interval**(*reaper*)

decisionengine.framework.dataspace.tests.test_Reaper.**test_fail_start_two_reapers**(*reaper*)

decisionengine.framework.dataspace.tests.test_Reaper.**test_fail_wrong_config_key**(*reaper*, *config*)

decisionengine.framework.dataspace.tests.test_Reaper.**test_just_stop_no_error**(*reaper*)

decisionengine.framework.dataspace.tests.test_Reaper.**test_loop_of_start_stop_in_clumps**(*reaper*)

decisionengine.framework.dataspace.tests.test_Reaper.**test_reap_default_state**(*reaper*)

decisionengine.framework.dataspace.tests.test_Reaper.**test_reaper_can_reap**(*reaper*)

decisionengine.framework.dataspace.tests.test_Reaper.**test_source_fail_can_be_fixed**(*reaper*)

decisionengine.framework.dataspace.tests.test_Reaper.**test_start_delay**(*reaper*)

decisionengine.framework.dataspace.tests.test_Reaper.**test_start_stop**(*reaper*)

decisionengine.framework.dataspace.tests.test_Reaper.**test_start_stop_stop**(*reaper*)

decisionengine.framework.dataspace.tests.test_Reaper.**test_state_can_be_active**(*reaper*)

decisionengine.framework.dataspace.tests.test_Reaper.**test_state_sets_timer_and_uses_it**(*reaper*)

decisionengine.framework.dataspace.tests.test_datablock module

decisionengine.framework.dataspace.tests.test_datablock.**test_DataBlock_constructor**(*dataspace*)

decisionengine.framework.dataspace.tests.test_datablock.**test_DataBlock_duplicate**(*dataspace*)

decisionengine.framework.dataspace.tests.test_datablock.**test_DataBlock_get_dataproducts**(*dataspace*)

decisionengine.framework.dataspace.tests.test_datablock.**test_DataBlock_get_header**(*dataspace*)

decisionengine.framework.dataspace.tests.test_datablock.**test_DataBlock_get_metadata**(*dataspace*)

decisionengine.framework.dataspace.tests.test_datablock.**test_DataBlock_get_taskmanager**(*dataspace*)

decisionengine.framework.dataspace.tests.test_datablock.**test_DataBlock_is_expired**(*dataspace*)

This test just validates the method/function exists. The stub within our default code should be replaced by a class inheriting from it. That class should have more rational return types.

decisionengine.framework.dataspace.tests.test_datablock.**test_DataBlock_is_expired_with_key**(*dataspace*)

This test just validates the method/function exists. The stub within our default code should be replaced by a class inheriting from it. That class should have more rational return types.

decisionengine.framework.dataspace.tests.test_datablock.**test_DataBlock_key_management**(*dataspace*)

decisionengine.framework.dataspace.tests.test_datablock.**test_DataBlock_key_management_change_name**(*datasp*

decisionengine.framework.dataspace.tests.test_datablock.**test_DataBlock_mark_expired**(*dataspace*)

decisionengine.framework.dataspace.tests.test_datablock.**test_DataBlock_no_key_by_name**(*dataspace*)

decisionengine.framework.dataspace.tests.test_datablock.**test_DataBlock_to_str**(*dataspace*)

decisionengine.framework.dataspace.tests.test_datablock.**test_Header_constructor**(*dataspace*)

decisionengine.framework.dataspace.tests.test_datablock.**test_Header_is_valid**(*dataspace*)

decisionengine.framework.dataspace.tests.test_datablock.**test_Metadata_constructor**(*dataspace*)

decisionengine.framework.dataspace.tests.test_datablock.**test_Metadata_set_state**(*dataspace*)

decisionengine.framework.dataspace.tests.test_datablock_zlib module

decisionengine.framework.dataspace.tests.test_datablock_zlib.**test_compress**()

decisionengine.framework.dataspace.tests.test_datablock_zlib.**test_zdumps**()

decisionengine.framework.dataspace.tests.test_datablock_zlib.**test_zloads**()

decisionengine.framework.dataspace.tests.test_datasource module

decisionengine.framework.dataspace.tests.test_datasource.**test_has_methods_we_expect**()

decisionengine.framework.dataspace.tests.test_dataspace module

decisionengine.framework.dataspace.tests.test_dataspace.**test_dataspace_config_finds_bad**()

decisionengine.framework.dataspace.tests.test_dataspace.**test_delete**(*dataspace*)

decisionengine.framework.dataspace.tests.test_dataspace.**test_duplicate_datablock**(*dataspace*)
Can we duplicate taskmanager1 and all its entries

decisionengine.framework.dataspace.tests.test_dataspace.**test_get_datablock**(*dataspace*)
Can we get the datablock content

decisionengine.framework.dataspace.tests.test_dataspace.**test_get_dataproduct**(*dataspace*)
Can we get the dataproduct by uuid with key

decisionengine.framework.dataspace.tests.test_dataspace.**test_get_dataproduct_not_exist**(*dataspace*)
Does it error out if we ask for bogus information?

decisionengine.framework.dataspace.tests.test_dataspace.**test_get_dataproducts**(*dataspace*)
Can we get the dataproducts by uuid and uuid with key

decisionengine.framework.dataspace.tests.test_dataspace.**test_get_dataproducts_not_exist**(*dataspace*)
Does it error out if we ask for bogus information?

decisionengine.framework.dataspace.tests.test_dataspace.**test_get_header**(*dataspace*)
Can we fetch a header?

decisionengine.framework.dataspace.tests.test_dataspace.**test_get_header_not_exist**(*dataspace*)
Does it error out if we ask for a bogus header?

decisionengine.framework.dataspace.tests.test_dataspace.**test_get_last_generation_id**(*dataspace*)
Can we get the last generation id by name or name and uuid

decisionengine.framework.dataspace.tests.test_dataspace.**test_get_last_generation_id_not_exist**(*dataspace*)
Does it error out if we ask for a bogus taskmanager?

decisionengine.framework.dataspace.tests.test_dataspace.**test_get_metadata**(*dataspace*)
Can we fetch a metadata element?

decisionengine.framework.dataspace.tests.test_dataspace.**test_get_metadata_not_exist**(*dataspace*)
Does it error out if we ask for a bogus metadata element?

decisionengine.framework.dataspace.tests.test_dataspace.**test_get_taskmanager_exists**(*dataspace*)
Can I get a taskmanager by name or name and uuid

decisionengine.framework.dataspace.tests.test_dataspace.**test_get_taskmanager_not_exists**(*dataspace*)
This should error out

decisionengine.framework.dataspace.tests.test_dataspace.**test_get_taskmanagers**(*dataspace*)
Can I get multimple task managers

decisionengine.framework.dataspace.tests.test_dataspace.**test_get_taskmanagers_not_exist**(*dataspace*)
Do I error out when asking for garbage

decisionengine.framework.dataspace.tests.test_dataspace.**test_has_config**(*dataspace*)
verify our config entry exists

decisionengine.framework.dataspace.tests.test_dataspace.**test_insert**(*dataspace*)
Can we insert new elements

decisionengine.framework.dataspace.tests.test_dataspace.**test_mark_expired**(*dataspace*)

decisionengine.framework.dataspace.tests.test_dataspace.**test_store_taskmanager**(*dataspace*)
Can we make new entries

decisionengine.framework.dataspace.tests.test_dataspace.**test_update**(*dataspace*)
Do updates work as expected

decisionengine.framework.dataspace.tests.test_dataspace.**test_update_bad**(*dataspace*)
Do updates fail to work on bogus taskmanager as expected

Module contents

Submodules

decisionengine.framework.dataspace.datablock module

class decisionengine.framework.dataspace.datablock.**DataBlock**(*dataspace*, *name*, *taskmanager_id=None*, *generation_id=None*, *sequence_id=None*)

Bases: object

__insert(*key*, *value*, *header*, *metadata*)
Insert a new product into database with header and metadata

__update(*key*, *value*, *header*, *metadata*)
Update an existing product in the database with header and metadata

_setitem(*key*, *value*, *header*, *metadata=None*)
put a product in the database with header and metadata

duplicate()

Duplicate the datablock and return this new DataBlock. The intent is that at the point the duplication occurs there is only information from the sources in the DataBlock. This also increments the generation_id of this DataBlock.

TODO: Also update the header and the metadata information TODO: Make this threadsafe

Return type
DataBlock

get(*key*, *default=None*)

Return the value associated with the key in the database

Return type
dict

get_dataproducts(*key=None*)

get_header(*key*)

Return the Header associated with the key in the database

Return type
Header

get_metadata(*key*)

Return the metadata associated with the key in the database

Return type
Metadata

get_taskmanager(*taskmanager_name*, *taskmanager_id=None*)

Retrieve TaskManager

Parameters

- **taskmanager_name** (*str*) – Name of the TaskManager
- **taskmanager_id** (*str, optional*) – ID of the TaskManager to retrieve. Defaults to None.

Returns
TaskManager information

Return type
dict

The dictionary returned looks like :

```
{
    'datestamp': datetime.datetime(2017, 12, 20, 17, 37, 17, 503210,
                 tzinfo=psycopg2.tz.FixedOffsetTimezone(offset=-360, name=None)),
    'sequence_id': 135L,
    'name': 'AWS_Calculations',
    'taskmanager_id': '77B16EB5-C79E-45B0-B1B1-37E846692E1D'
}
```

is_expired(*key=None*)

Check if the dataproduct for a given key or any key is expired

keys()

mark_expired(*expiration_time*)

Set the expiration_time for the current generation of the dataproduct and mark it as expired if expiration_time <= current time

put(*key*, *value*, *header*, *metadata=None*)

Put data into the DataBlock

store_taskmanager(*taskmanager_name*, *taskmanager_id*)

Persist TaskManager, returns sequence number :type taskmanager_name: `string` :type taskmanager_id: :obj: *string* :rtype: `int`

class decisionengine.framework.dataspace.datablock.**Header**(*taskmanager_id*, *create_time=None*, *expiration_time=None*, *scheduled_create_time=None*, *creator='module'*, *schema_id=None*)

Bases: `UserDict`

_abc_impl = <_abc._abc_data object>

default_data_lifetime = 1800

is_valid()

Check if the Header has minimum required information

required_keys = {'create_time', 'creator', 'expiration_time', 'scheduled_create_time', 'schema_id', 'taskmanager_id'}

exception decisionengine.framework.dataspace.datablock.**InvalidMetadataError**

Bases: `Exception`

Errors due to invalid Metadata

class decisionengine.framework.dataspace.datablock.**Metadata**(*taskmanager_id*, *state='NEW'*, *generation_id=None*, *generation_time=None*, *missed_update_count=0*)

Bases: `UserDict`

_abc_impl = <_abc._abc_data object>

required_keys = {'generation_id', 'generation_time', 'missed_update_count', 'state', 'taskmanager_id'}

set_state(*state*)

Set the state for the Metadata

valid_states = {'END_CYCLE', 'METADATA_UPDATE', 'NEW', 'START_BACKUP'}

class decisionengine.framework.dataspace.datablock.**ProductRetriever**(*product_name*, *product_type*, *product_source*)

Bases: `object`

decisionengine.framework.dataspace.datablock.**compress**(*obj*)

Compress python object :param obj: python object :return: compressed object

decisionengine.framework.dataspace.datablock.**decompress**(*zbytes*)

Decompress zipped byte stream, convert to string. :param zbytes: byte stream :return: uncompressed string

decisionengine.framework.dataspace.datablock.**zdumps**(*obj*)

Pickle and compress :param obj: a python object :return: compressed string

decisionengine.framework.dataspace.datablock.**zloads**(*zbytes*)

Decompress and unpickle If input is not compressed attempts to just unpickle it

Parameters
zbytes – compressed bytes

Returns
returns python object

decisionengine.framework.dataspace.datasource module

class decisionengine.framework.dataspace.datasource.**DataSource**(*config*)

Bases: object

_abc_impl = <_abc._abc_data object>

abstract close()

Close all connections to the database

abstract connect()

Create a pool of database connections

abstract create_tables()

Create database tables

dataproduct_table = 'dataproduct'

Name of the dataproduct table

abstract delete_data_older_than(*days*)

Delete data older that interval :type days: long :arg days: remove data older than interval

abstract duplicate_datablock(*taskmanager_id*, *generation_id*, *new_generation_id*)

For the given taskmanager_id, make a copy of the datablock with given generation_id, set the generation_id for the datablock copy

Parameters

- **taskmanager_id** (string) – taskmanager_id for generation to be retrieved
- **generation_id** (int) – generation_id of the data
- **new_generation_id** (int) – generation_id of the new datablock created

abstract get_datablock(*taskmanager_id*, *generation_id*)

Return the entire datablock from the dataproduct table for the given taskmanager_id, generation_id

Parameters

- **taskmanager_id** (string) – taskmanager_id for generation to be retrieved
- **generation_id** (int) – generation_id of the data

abstract get_dataproduct(*taskmanager_id*, *generation_id*, *key*)

Return the data from the dataproduct table for the given taskmanager_id, generation_id, key

Parameters

- **taskmanager_id** (string) – taskmanager_id for generation to be retrieved
- **generation_id** (int) – generation_id of the data
- **key** (string) – key for the value

abstract get_dataproducts(*taskmanager_id*, *key*)

Return list of all data products associated with with taskmanager_id

Parameters
key (string) – data product key

abstract get_header(*taskmanager_id*, *generation_id*, *key*)

Return the header from the header table for the given taskmanager_id, generation_id, key

Parameters

- **taskmanager_id** (string) – taskmanager_id for generation to be retrieved
- **generation_id** (int) – generation_id of the data
- **key** (string) – key for the value

abstract get_last_generation_id(*taskmanager_name*, *taskmanager_id=None*)

Return last generation id for current task manager or taskmanager w/ task_manager_id.

Parameters

- **taskmanager_name** (string) – task manager name
- **taskmanager_id** (string) – task manager id

abstract get_metadata(*taskmanager_id*, *generation_id*, *key*)

Return the metadata from the metadata table for the given taskmanager_id, generation_id, key

Parameters

- **taskmanager_id** (string) – taskmanager_id for generation to be retrieved
- **generation_id** (int) – generation_id of the data
- **key** (string) – key for the value

abstract get_schema(*table=None*)

Given the table name return it's schema

Parameters
table (string) – Name of the table

abstract get_taskmanager(*taskmanager_name*, *taskmanager_id*)

Retrieve TaskManager :type taskmanager_name: string :arg taskmanager_name: name of taskmanager to retrieve :type taskmanager_id: string :arg taskmanager_id: id of taskmanager to retrieve

abstract get_taskmanagers(*taskmanager_name=None*, *start_time=None*, *end_time=None*)

Retrieve TaskManagers :type taskmanager_name: string :arg taskmanager_name: name of taskmanager to retrieve :type taskmanager_id: string :arg taskmanager_id: id of taskmanager to retrieve

header_table = 'header'

Name of the header table

abstract insert(*taskmanager_id*, *generation_id*, *key*, *value*, *header*, *metadata*)

Insert data into respective tables for the given taskmanager_id, generation_id, key

Parameters

- **taskmanager_id** (string) – taskmanager_id for generation to be retrieved
- **generation_id** (int) – generation_id of the data
- **key** (string) – key for the value
- **value** (object) – Value can be an object or dict
- **header** (Header) – Header for the value
- **header** – Metadata for the value

metadata_table = 'metadata'

Name of the metadata table

abstract reset_connections()

Drop any cached connections and reconnect to the database

abstract store_taskmanager(*taskmanager_name*, *taskmanager_id*, *datestamp=None*)

Store TaskManager :type taskmanager_name: string :arg taskmanager_name: name of taskmanager to retrieve :type taskmanager_id: string :arg taskmanager_id: id of taskmanager to retrieve :type datestamp: datetime :arg datestamp: datetime of created object, defaults to 'now'

taskmanager_table = 'taskmanager'

Name of the taskmanager table

abstract update(*taskmanager_id*, *generation_id*, *key*, *value*, *header*, *metadata*)

Update the data in respective tables for the given taskmanager_id, generation_id, key

Parameters

- **taskmanager_id** (string) – taskmanager_id for generation to be retrieved
- **generation_id** (int) – generation_id of the data
- **key** (string) – key for the value
- **value** (object) – Value can be an object or dict
- **header** (Header) – Header for the value
- **header** – Metadata for the value

decisionengine.framework.dataspace.dataspace module

class decisionengine.framework.dataspace.dataspace.**DataSpace**(*config*)

Bases: object

DataSpace class is collection of datablocks and provides interface to the database used to store the actual data

close()

delete(*taskmanager_id*, *all_generations=False*)

duplicate_datablock(*taskmanager_id*, *generation_id*, *new_generation_id*)

get_datablock(*taskmanager_id*, *generation_id*)

get_dataproduct(*taskmanager_id*, *generation_id*, *key*)

get_dataproducts(*taskmanager_id*, *key=None*)

get_header(*taskmanager_id*, *generation_id*, *key*)

get_last_generation_id(*taskmanager_name*, *taskmanager_id=None*)

get_metadata(*taskmanager_id*, *generation_id*, *key*)

get_taskmanager(*taskmanager_name*, *taskmanager_id=None*)

get_taskmanagers(*taskmanager_name=None*, *start_time=None*, *end_time=None*)

insert(*taskmanager_id*, *generation_id*, *key*, *value*, *header*, *metadata*)

mark_demented(*taskmanager_id*, *keys*, *generation_id=None*)

mark_expired(*taskmanager_id*, *generation_id*, *key*, *expiry_time*)

store_taskmanager(*name*, *taskmanager_id*, *datestamp=None*)

update(*taskmanager_id*, *generation_id*, *key*, *value*, *header*, *metadata*)

exception decisionengine.framework.dataspace.dataspace.**DataSpaceConfigurationError**

Bases: Exception

Errors related to database access

exception decisionengine.framework.dataspace.dataspace.**DataSpaceConnectionError**

Bases: Exception

Errors related to database access

exception decisionengine.framework.dataspace.dataspace.**DataSpaceError**

Bases: Exception

Errors related to database access

exception decisionengine.framework.dataspace.dataspace.**DataSpaceExistsError**

Bases: Exception

Errors related to database access

decisionengine.framework.dataspace.maintain module

class decisionengine.framework.dataspace.maintain.**Reaper**(*config*)

Bases: object

Reaper provides functionality of periodic deletion of data older than retention_interval in days

The class attributes indicate a rational set of defaults that shouldn't be altered by user configuration.

MIN_RETENTION_INTERVAL_DAYS = 7

MIN_SECONDS_BETWEEN_RUNS = 7080

_reaper_loop(*delay*)

The thread actually runs this.

reap()

Actually spawn the query to delete the old records. Lock the state as this task doesn't have a cancel option.

property retention_interval

We have data constraints, so use a property to track

property seconds_between_runs

We have data constraints, so use a property to track

start(*delay=0*)

Start thread with an optional delay to start the thread in X seconds

stop()

Try to stop the reaper, will block if the reaper cannot be interupted.

Module contents

decisionengine.framework.engine package

Subpackages

decisionengine.framework.engine.tests package

Submodules

decisionengine.framework.engine.tests.fixtures module

pytest defaults

decisionengine.framework.engine.tests.fixtures.**DEServer**(*conf_path=None*, *conf_override=None*, *channel_conf_path=None*, *channel_conf_override=None*, *host='127.0.0.1'*, *port=None*, *make_conf_dirs_if_missing=False*, *block_until_startup_complete=True*)

A DE Server using a private database

decisionengine.framework.engine.tests.fixtures.**PG_DE_DB_WITHOUT_SCHEMA**(*request: FixtureRequest*) → connection

Fixture factory for PostgreSQL.

Parameters
request – fixture request object

Returns
postgresql client

decisionengine.framework.engine.tests.fixtures.**PG_PROG**(*request: FixtureRequest*, *tmp_path_factory: TempPathFactory*) → Iterator[PostgreSQLExecutor]

Process fixture for PostgreSQL.

Parameters

- **request** – fixture request object
- **tmp_path_factory** – temporary path object (fixture)

Returns
tcp executor

decisionengine.framework.engine.tests.fixtures.**SQLALCHEMY_PG_WITH_SCHEMA**(*PG_DE_DB_WITHOUT_SCHEMA*)

Get a blank database from pytest_postgresql. Then setup the SQLAlchemy style URL with that DB. The SQLAlchemyDS will create the schema as needed.

decisionengine.framework.engine.tests.fixtures.**SQLALCHEMY_TEMPFILE_SQLITE**(*tmp_path*)

Setup an SQLite database with the pytest tmp_path fixture. Then setup the SQLAlchemy style URL with that DB. The SQLAlchemyDS will create the schema as needed.

decisionengine.framework.engine.tests.test_ChannelWorkers module

class decisionengine.framework.engine.tests.test_ChannelWorkers.**TaskManager**

Bases: object

name = 'test_channel'

set_loglevel_value(*value*)

decisionengine.framework.engine.tests.test_ChannelWorkers.**global_config**(*dataspace*)

decisionengine.framework.engine.tests.test_ChannelWorkers.**test_worker_logger_sized_rotation**(*global_config*)

decisionengine.framework.engine.tests.test_ChannelWorkers.**test_worker_logger_timed_rotation**(*global_config*)

decisionengine.framework.engine.tests.test_ChannelWorkers.**test_worker_name**(*global_config*)

decisionengine.framework.engine.tests.test_SourceWorkers module

decisionengine.framework.engine.tests.test_SourceWorkers.**global_config**(*dataspace*)

decisionengine.framework.engine.tests.test_SourceWorkers.**source_config**(*channel_name*, *source_name*)

decisionengine.framework.engine.tests.test_SourceWorkers.**source_worker_for**(*src_config*, *global_config*)

decisionengine.framework.engine.tests.test_SourceWorkers.**test_worker_logger_sized_rotation**(*global_config*)

decisionengine.framework.engine.tests.test_SourceWorkers.**test_worker_logger_timed_rotation**(*global_config*)

decisionengine.framework.engine.tests.test_SourceWorkers.**test_worker_logger_wrong_rotation_method**(*global_*

decisionengine.framework.engine.tests.test_SourceWorkers.**test_worker_name**(*global_config*)

decisionengine.framework.engine.tests.test_client_only module

decisionengine.framework.engine.tests.test_client_only.**test_client_err_returned_as_rc**()
no de server is running, so –status should error

decisionengine.framework.engine.tests.test_client_only.**test_client_err_returned_verbose_as_rc**()
no de server is running, so –status should error

decisionengine.framework.engine.tests.test_client_only.**test_client_help**(*capfd*)

decisionengine.framework.engine.tests.test_client_only.**test_client_with_no_command_says_use_help**()

decisionengine.framework.engine.tests.test_client_only.**test_client_with_no_server**()

decisionengine.framework.engine.tests.test_client_only.**test_client_with_no_server_verbose**()

decisionengine.framework.engine.tests.test_client_only.**test_exclusive_options**()

decisionengine.framework.engine.tests.test_query_tool_only module

decisionengine.framework.engine.tests.test_query_tool_only.**test_client_err_returned_as_rc**()
no de server is running, so –status should error

decisionengine.framework.engine.tests.test_query_tool_only.**test_client_err_returned_verbose_as_rc**()
no de server is running, so –status should error

decisionengine.framework.engine.tests.test_query_tool_only.**test_query_tool_help**()

decisionengine.framework.engine.tests.test_query_tool_only.**test_query_tool_with_no_server**()

decisionengine.framework.engine.tests.test_query_tool_only.**test_query_tool_with_no_server_verbose**()

decisionengine.framework.engine.tests.test_startup module

decisionengine.framework.engine.tests.test_startup.**_check_override**(*arguments*)

decisionengine.framework.engine.tests.test_startup.**metrics_env_setup**(*tmp_path*, *monkeypatch*)
Make sure we have a directory set for PROMETHEUS_MULTIPROC_DIR so that metric instantiation gives us multiprocess metrics

decisionengine.framework.engine.tests.test_startup.**test_change_port**()

decisionengine.framework.engine.tests.test_startup.**test_check_metrics_env_no_webserver**()

decisionengine.framework.engine.tests.test_startup.**test_check_metrics_env_var_set**()

decisionengine.framework.engine.tests.test_startup.**test_check_metrics_env_var_unset**()

decisionengine.framework.engine.tests.test_startup.**test_default_config**()

decisionengine.framework.engine.tests.test_verify_redis_server module

decisionengine.framework.engine.tests.test_verify_redis_server.**test_verify_bad_broker**()

decisionengine.framework.engine.tests.test_verify_redis_server.**test_verify_bad_redis_server**()

decisionengine.framework.engine.tests.test_verify_redis_server.**test_verify_bad_url**()

decisionengine.framework.engine.tests.test_verify_redis_server.**test_verify_redis_server**()

decisionengine.framework.engine.tests.test_verify_redis_server.**test_verify_redis_url**()

Module contents

Submodules

decisionengine.framework.engine.ChannelWorkers module

class decisionengine.framework.engine.ChannelWorkers.**ChannelWorker**(*task_manager*, *logger_config*)

Bases: Process

Class that encapsulates a channel's task manager as a separate process.

This class' run function is called whenever the process is started. If the process is abruptly terminated–e.g. the run method is pre-empted by a signal or an os._exit(n) call–the ChannelWorker object will still exist even if the operating-system process no longer does.

To determine the exit code of this process, use the ChannelWorker.exitcode value, provided by the multiprocessing.Process base class.

get_consumes()

get_produces()

get_state_name()

run()

Method to be run in sub-process; can be overridden in sub-class

setup_logger()

wait_while(*state*, *timeout=None*)

class decisionengine.framework.engine.ChannelWorkers.**ChannelWorkers**

Bases: object

This class manages and provides access to the task-manager workers.

The intention is that the decision engine never directly interacts with the workers but refers to them via a context manager:

with workers.access() as ws:
    # Access to ws now protected ws['new_channel'] = ChannelWorker(...)

In cases where the decision engine's block_while method must be called (e.g. during tests), one should use unguarded access:

ws = workers.get_unguarded() # Access to ws is unprotected ws['new_channel'].wait_while(...)

Calling a blocking method while using the protected context manager (i.e. workers.access()) will likely result in a deadlock.

class Access(*workers*, *lock*)

Bases: object

access()

accessed_by_another_thread()

get_unguarded()

decisionengine.framework.engine.ClientMessageReceiver module

class decisionengine.framework.engine.ClientMessageReceiver.**ClientMessageReceiver**(*exchange_name*, *exchange_type*, *broker_url*, *routing_key_suffix*, *logger_name*)

Bases: object

_receive(*body*, *message*)

execute(*func*, **args*)

decisionengine.framework.engine.DecisionEngine module

Main loop for Decision Engine. The following environment variable points to decision engine configuration file: DECISION_ENGINE_CONFIG_FILE if this environment variable is not defined the DE-Config.py file from the ``../tests/etc/` directory will be used.

class decisionengine.framework.engine.DecisionEngine.**DecisionEngine**(*global_config*, *channel_config_loader*, *server_address*)

Bases: ThreadingMixIn, SimpleXMLRPCServer

_dataframe_to_column_names(*df*)

_dataframe_to_csv(*df*)

_dataframe_to_json(*df*)

_dataframe_to_table(*df*)

_dataframe_to_vertical_tables(*df*)

_dispatch(*method*, *params*)

Dispatches the XML-RPC method.

XML-RPC calls are forwarded to a registered function that matches the called XML-RPC method name. If no such function exists then the call is forwarded to the registered instance, if available.

If the registered instance has a _dispatch method then that method will be called with the name of the XML-RPC method and its parameters as a tuple e.g. instance._dispatch('add',(2,3))

If the registered instance does not have a _dispatch method then the instance will be searched to find a matching method and, if found, will be called.

Methods beginning with an '_' are considered private and will not be called.

block_while(*state*, *timeout=None*)

create_channel(*channel_name*, *channel_config*)

get_logger()

metrics()

reaper_start(*delay*)

reaper_status()

reaper_stop()

rm_channel(*channel*, *maybe_timeout*)

rpc_block_while(*client_queue*, *state_str*, *timeout=None*)

rpc_get_channel_log_level(*client_queue*, *channel*)

rpc_get_log_level(*client_queue*)

rpc_get_source_log_level(*client_queue*, *source*)

rpc_kill_channel(*client_queue*, *channel*, *timeout=None*)

rpc_metrics(*client_queue*)

Display collected metrics

rpc_ping(*client_queue*)

rpc_print_product(*client_queue*, *product*, *columns=None*, *query=None*, *types=False*, *format=None*)

rpc_print_products(*client_queue*)

rpc_product_dependencies(*client_queue*)

rpc_query_tool(*client_queue*, *product*, *format=None*, *start_time=None*)

rpc_queue_status(*client_queue*)

rpc_reaper_start(*client_queue*, *delay=0*)

Start the reaper process after 'delay' seconds. Default 0 seconds delay. :type delay: int

rpc_reaper_status(*client_queue*)

rpc_reaper_stop(*client_queue*)

rpc_rm_channel(*client_queue*, *channel*, *maybe_timeout*)

rpc_set_channel_log_level(*client_queue*, *channel*, *log_level*)

Assumes log_level is a string corresponding to the supported logging-module levels.

rpc_set_source_log_level(*client_queue*, *source*, *log_level*)

Assumes log_level is a string corresponding to the supported logging-module levels.

rpc_show_config(*client_queue*, *channel*)

Show the configuration for a channel.

rpc_show_de_config(*client_queue*)

rpc_start_channel(*client_queue*, *channel_name*)

rpc_start_channels(*client_queue*)

rpc_status(*client_queue*)

rpc_stop(*client_queue=None*)

rpc_stop_channel(*client_queue*, *channel*)

rpc_stop_channels(*client_queue*)

service_actions()

Called by the serve_forever() loop.

May be overridden by a subclass / Mixin to implement any code that needs to be run during the loop.

start_channel(*channel_name*, *src_workers*)

start_channels()

start_webserver()

Start CherryPy webserver using configured port. If port is not configured use default webserver port.

stop_channels()

stop_worker(*worker*, *timeout*)

class decisionengine.framework.engine.DecisionEngine.**RequestHandler**(*request*, *client_address*, *server*)

Bases: SimpleXMLRPCRequestHandler

rpc_paths = ('/RPC2',)

class decisionengine.framework.engine.DecisionEngine.**StopState**(*value*)

Bases: Enum

An enumeration.

Clean = 2

NotFound = 1

Terminated = 3

decisionengine.framework.engine.DecisionEngine.**_channel_preamble**(*name*)

decisionengine.framework.engine.DecisionEngine.**_check_metrics_env**(*options*)

decisionengine.framework.engine.DecisionEngine.**_create_de_server**(*global_config*, *channel_config_loader*)

Create the DE server with the passed global configuration and config manager

decisionengine.framework.engine.DecisionEngine.**_get_de_conf_manager**(*global_config_dir*, *channel_config_dir*, *options*)

decisionengine.framework.engine.DecisionEngine.**_get_global_config**(*config_file*, *options*)

decisionengine.framework.engine.DecisionEngine.**_initial_start_channels**(*server*)

decisionengine.framework.engine.DecisionEngine.**_queue_name_and_type**(*redis_obj*, *redis_member*)

decisionengine.framework.engine.DecisionEngine.**_requests_in_flight**(*redis_obj*, *exchange_name*)

decisionengine.framework.engine.DecisionEngine.**_start_de_server**(*server*)

Start the DE server and listen forever

decisionengine.framework.engine.DecisionEngine.**_verify_redis_server**(*broker_url*)

decisionengine.framework.engine.DecisionEngine.**_verify_redis_url**(*broker_url*)

decisionengine.framework.engine.DecisionEngine.**main**(*args=None*)

If args is None, sys.argv will be used instead If args is a list, it will be used instead of sys.argv (for unit testing)

decisionengine.framework.engine.DecisionEngine.**parse_program_options**(*args=None*)

If args is a list, it will be used instead of sys.argv

decisionengine.framework.engine.SourceWorkers module

class decisionengine.framework.engine.SourceWorkers.**SourceWorker**(*key*, *config*, *logger_config*, *channel_name*, *exchange*, *broker_url*)

Bases: Process

Provides interface to loadable modules an events to sycronize execution

get_loglevel()

run()

Get the data from source

set_loglevel_value(*log_level*)

Assumes log_level is a string corresponding to the supported logging-module levels.

setup_logger()

take_offline()

class decisionengine.framework.engine.SourceWorkers.**SourceWorkers**(*exchange*, *broker_url*, *logger=<BoundLoggerLazyProxy(logger=None, wrapper_class=None, processors=None, context_class=None, initial_values={}, logger_factory_args=('decisionengine',))>*)

Bases: object

This class manages and provides access to the Source workers.

The intention is that the decision engine never directly interacts with the workers but refers to them via a context manager:

with workers.access() as ws:
Access to ws now protected ws['new_source'] = SourceWorker(...)

In cases where the decision engine's block_while method must be called (e.g. during tests), one should use unguarded access:

ws = workers.get_unguarded() # Access to ws is unprotected ws['new_source'].wait_while(...)

Calling a blocking method while using the protected context manager (i.e. workers.access()) will likely result in a deadlock.

class Access(*workers*, *lock*)

Bases: object

access()

detach(*channel_name*, *source_names*)

get_unguarded()

prune(*channel_name*, *source_names*)

remove_all(*timeout*)

update(*channel_name*, *source_configs*, *logger_config*)

decisionengine.framework.engine.de_client module

decisionengine.framework.engine.de_client.**command_for_args**(*argsparsed*, *de_socket*)

argsparsed should be from create_parser in this file

decisionengine.framework.engine.de_client.**console_scripts_main**(*args_to_parse=None*)

This is the entry point for the setuptools auto generated scripts. Setuptools thinks a return from this function is an error message.

decisionengine.framework.engine.de_client.**create_parser**()

decisionengine.framework.engine.de_client.**main**(*args_to_parse=None*, *logger_name='de_client'*)

If you pass a list of args, they will be used instead of sys.argv

decisionengine.framework.engine.de_query_tool module

decisionengine.framework.engine.de_query_tool.**command_for_args**(*argsparsed*, *de_socket*)

Calls the proper function for the arguments passed to de_query_tool.

Parameters

- **argsparsed** (*Namespace*) – Should be from create_parser in this file.
- **de_socket** (*ServerProxy*) – RPC Server Proxy.

Returns
Output of the command.

Return type
str

decisionengine.framework.engine.de_query_tool.**console_scripts_main**(*args_to_parse=None*)

This is the entry point for the setuptools auto generated scripts. Setuptools thinks a return from this function is an error message.

decisionengine.framework.engine.de_query_tool.**create_parser**()

decisionengine.framework.engine.de_query_tool.**main**(*args_to_parse=None*, *logger_name='de_query_tool'*)

Main function for de_query_tool

Parameters
args_to_parse (*list, optional*) – If you pass a list of args, they will be used instead of sys.argv. Defaults to None.

Returns
Query result

Return type
str

Module contents

decisionengine.framework.logicengine package

Subpackages

decisionengine.framework.logicengine.tests package

Submodules

decisionengine.framework.logicengine.tests.test_bool_function_name module

decisionengine.framework.logicengine.tests.test_bool_function_name.**test_error_conditions**()

decisionengine.framework.logicengine.tests.test_cascaded_rules module

decisionengine.framework.logicengine.tests.test_cascaded_rules.**myengine**()

decisionengine.framework.logicengine.tests.test_cascaded_rules.**test_rule_that_does_not_fire**(*myengine*)

decisionengine.framework.logicengine.tests.test_cascaded_rules.**test_rule_that_fires**(*myengine*)

decisionengine.framework.logicengine.tests.test_construction module

decisionengine.framework.logicengine.tests.test_construction.**test_configuration_with_fact_using_functio**

decisionengine.framework.logicengine.tests.test_construction.**test_configuration_with_numy_facts**()

decisionengine.framework.logicengine.tests.test_construction.**test_default_construction**()
LogicEngine is not default constructible.

decisionengine.framework.logicengine.tests.test_construction.**test_trivial_configuration**()
Logic engine constructed with trivial rules and facts.

decisionengine.framework.logicengine.tests.test_construction.**test_wrong_configuration**()
LogicEngine construction requires rules and facts; if we don't supply them it is an error.

decisionengine.framework.logicengine.tests.test_duplicate_fact_names module

decisionengine.framework.logicengine.tests.test_duplicate_fact_names.**test_duplicate_fact_names**()

decisionengine.framework.logicengine.tests.test_facts module

decisionengine.framework.logicengine.tests.test_facts.**make_db**(*maximum*)

decisionengine.framework.logicengine.tests.test_facts.**test_compound_fact_with_spaces**()

decisionengine.framework.logicengine.tests.test_facts.**test_fact_using_numpy_array**()

decisionengine.framework.logicengine.tests.test_facts.**test_fact_using_numpy_function**()

decisionengine.framework.logicengine.tests.test_facts.**test_fact_with_fail_on_error**()

decisionengine.framework.logicengine.tests.test_facts.**test_fact_with_nested_names**()

decisionengine.framework.logicengine.tests.test_facts.**test_simple_fact**()

decisionengine.framework.logicengine.tests.test_facts.**test_syntax_error**(*caplog*)

decisionengine.framework.logicengine.tests.test_fail_on_error module

decisionengine.framework.logicengine.tests.test_fail_on_error.**logic_engine_with_fact**(*fact*)

decisionengine.framework.logicengine.tests.test_fail_on_error.**test_conditional_fact**()

decisionengine.framework.logicengine.tests.test_fail_on_error.**test_fact_with_misspecified_attribute**()

decisionengine.framework.logicengine.tests.test_fail_on_error.**test_fail_on_error**(*caplog*)

decisionengine.framework.logicengine.tests.test_fail_on_error.**test_false_fact_with_spaces**()

decisionengine.framework.logicengine.tests.test_fail_on_error.**test_false_literal_fact**()

decisionengine.framework.logicengine.tests.test_fail_on_error.**test_index_error**()

decisionengine.framework.logicengine.tests.test_fail_on_error.**test_misspecified_fact**()

decisionengine.framework.logicengine.tests.test_fail_on_error.**test_true_fact**()

decisionengine.framework.logicengine.tests.test_fail_on_error.**test_true_literal_fact**()

decisionengine.framework.logicengine.tests.test_pandas_fact module

decisionengine.framework.logicengine.tests.test_pandas_fact.**mydata**(*y*)
Return a 'datablock' surrogate carrying a Pandas DataFrame, and a parameter named 'y' with value y.

decisionengine.framework.logicengine.tests.test_pandas_fact.**myengine**()

decisionengine.framework.logicengine.tests.test_pandas_fact.**test_rule_that_does_not_fire**(*myengine*)
Rules that do not fire do not create entries in the returned actions and newfacts.

decisionengine.framework.logicengine.tests.test_pandas_fact.**test_rule_that_fires**(*myengine*)

decisionengine.framework.logicengine.tests.test_rule_with_negated_fact module

decisionengine.framework.logicengine.tests.test_rule_with_negated_fact.**myengine**()

decisionengine.framework.logicengine.tests.test_rule_with_negated_fact.**test_rule_that_does_not_fire**(*myen*
Rules that do not fire do not create entries in the returned actions and newfacts.

decisionengine.framework.logicengine.tests.test_rule_with_negated_fact.**test_rule_that_fires**(*myengine*)

decisionengine.framework.logicengine.tests.test_simple_configuration module

decisionengine.framework.logicengine.tests.test_simple_configuration.**myengine**()

decisionengine.framework.logicengine.tests.test_simple_configuration.**test_error_on_bad_names**(*myengine*)

decisionengine.framework.logicengine.tests.test_simple_configuration.**test_rule_that_does_not_fire**(*myengi*
Rules that do not fire do not create entries in the returned actions and newfacts.

decisionengine.framework.logicengine.tests.test_simple_configuration.**test_rule_that_fires**(*myengine*)

Module contents

Submodules

decisionengine.framework.logicengine.BooleanExpression module

class decisionengine.framework.logicengine.BooleanExpression.**BooleanExpression**(*expr*)

Bases: object

evaluate(*d*)

Return the evaluated Boolen value of this expression in the context of the given data 'd'.

exception decisionengine.framework.logicengine.BooleanExpression.**LogicError**

Bases: TypeError

decisionengine.framework.logicengine.BooleanExpression.**function_name_from_call**(*callnode*)

decisionengine.framework.logicengine.BooleanExpression.**maybe_fail_on_error**(*expr*)

decisionengine.framework.logicengine.FactLookup module

class decisionengine.framework.logicengine.FactLookup.**FactLookup**(*fact_names*, *rules_cfg*)

Bases: object

Establishes a policy for looking up a fact based on the given name.

To wit, the first fact with a given name is the one that is used in the evaluation of all subsequent facts.

As an example, consider the following configuration:

```
{
    "facts": {
        "should_publish": "(True)"
    },
    "rules": {
        "publish_1": {
            "expression": "should_publish",
            "facts": ["should_publish"]
        },
        "publish_2": {
            "expression": "should_publish",
            "actions": ["go_to_press"],
            "facts": ["should_publish"]
        },
        "retract": {
            "expression": "not should_publish",
            "facts": ["should_retract"]
        }
    }
}
```

In the above, the first fact to be evaluated will always be the top-level facts (i.e. those not encapsulated by the 'rules' table). The rules labeled 'publish_1' and 'publish_2' both rely on the 'should_publish' fact in their expressions, and they in turn create their own facts with the same name. FactLookup ensures that 'publish_1' and 'publish_2' will both use the evaluated fact from the top-level 'facts' table.

rule_for(*fact_name*)

Selects rule required to evaluate fact with the supplied name.

Parameters
fact_name (*str*) – Name of fact for which rule will be selected.

Return type
str

Returns
Rule name

sorted_rules(*rules_cfg*)

Rules sorted according to rule dependencies.

Parameters
rules_cfg (*dict*) – rules as specified in logic-engine configuration

Return type
list

Returns
Rules to be evaluated by the rule engine.

decisionengine.framework.logicengine.LogicEngine module

class decisionengine.framework.logicengine.LogicEngine.**LogicEngine**(*cfg*)

Bases: *Module*

_create_facts_dataframe(*newfacts*)

Convert newfacts dict in format below to dataframe with columns [‘rule_name’, ‘fact_name’, fact_value’]

facts dict format:

```
{
    "newfacts": {
        "publish_glidein_requests": {
            "allow_hpc_new": true,
            "allow_foo": true
        },
        "dummy_rule": {
            "dummy_new_fact": true
        }
    }
}
```

consumes()

Return the names of all the items that must be in the DataBlock for the rules to be evaluated.

evaluate(*db*)

Evaluate our facts and rules, in the context of the given data. db can be any mappable, in particular a DataBlock or dictionary.

Parameters
db (DataBlock) – Products used to evaluate facts.

evaluate_facts(*db*)

Parameters
db (DataBlock) – Products used to evaluate facts.

Return type
dict

Returns
Evaluated fact values (e.g. True or False) for each fact name.

produces()

decisionengine.framework.logicengine.LogicEngine.**passthrough_configuration**(*publisher_names*)

Assembles logic-engine configuration to unconditionally execute all publishers.

decisionengine.framework.logicengine.Rule module

class decisionengine.framework.logicengine.Rule.**Rule**(*rule_name*, *rule_cfg*)

Bases: object

In-memory representation of logic-engine rule, relying on parsing utilities in BooleanExpression.

evaluate(*evaluated_facts*)

Evaluates a compiled expression given the supplied facts.

Parameters
evaluated_facts (*dict*) – Initial fact values (e.g. True or False) for each fact name.

Return type
bool

decisionengine.framework.logicengine.RuleEngine module

class decisionengine.framework.logicengine.RuleEngine.**RuleEngine**(*fact_names*, *rules_cfg*)

Bases: object

Engine responsible for evaluating logic-engine rules.

This class is responsible for (a) forming a sorted set of rules that supports dependencies between them, and (b) evaluating the rules according to a specified fact-lookup policy.

execute(*evaluated_facts*)

Evaluates all rules given the supplied facts.

Parameters
evaluated_facts (*dict*) – Initial fact values (e.g. True or False) for each fact name.

Return type
tuple

Returns
Actions to be taken based on rule evaluation; new facts produced during that evaluation.

Module contents

decisionengine.framework.modules package

Subpackages

decisionengine.framework.modules.tests package

Submodules

decisionengine.framework.modules.tests.test_EmptySource module

decisionengine.framework.modules.tests.test_EmptySource.**test_empty_source_structure**()

decisionengine.framework.modules.tests.test_EmptySource.**test_missing_data_product_name_not_supported**()

decisionengine.framework.modules.tests.test_Module module

decisionengine.framework.modules.tests.test_Module.**test_module_structure**()
The module.Module itself is a bit of a skeleton…

decisionengine.framework.modules.tests.test_Publisher module

decisionengine.framework.modules.tests.test_Publisher.**test_publisher_structure**()
The module.publisher itself is a bit of a skeleton…

decisionengine.framework.modules.tests.test_QueueLogger module

decisionengine.framework.modules.tests.test_QueueLogger.**handler_setup**()

decisionengine.framework.modules.tests.test_QueueLogger.**log_setup**()

decisionengine.framework.modules.tests.test_QueueLogger.**queue_logger_setup**()

decisionengine.framework.modules.tests.test_QueueLogger.**setup_queue_logging**(*queue_logger_setup*, *log_setup*, *handler_setup*)

decisionengine.framework.modules.tests.test_QueueLogger.**test_setup_queue_logging**(*queue_logger_setup*, *log_setup*, *handler_setup*)

decisionengine.framework.modules.tests.test_QueueLogger.**test_start_queue_logger**(*queue_logger_setup*, *log_setup*, *handler_setup*)

decisionengine.framework.modules.tests.test_QueueLogger.**test_stop_queue_logger**(*queue_logger_setup*, *log_setup*, *handler_setup*)

decisionengine.framework.modules.tests.test_Source module

decisionengine.framework.modules.tests.test_Source.**test_source_structure**()

The module.Source itself is a bit of a skeleton…

decisionengine.framework.modules.tests.test_Transform module

decisionengine.framework.modules.tests.test_Transform.**test_transform_structure**()

The module.Transform itself is a bit of a skeleton…

decisionengine.framework.modules.tests.test_de_logger module

decisionengine.framework.modules.tests.test_de_logger.**log_setup**()

decisionengine.framework.modules.tests.test_de_logger.**test_by_nonsense_is_err**(*log_setup*)

decisionengine.framework.modules.tests.test_de_logger.**test_by_size**(*log_setup*)

decisionengine.framework.modules.tests.test_de_logger.**test_by_time**(*log_setup*)

decisionengine.framework.modules.tests.test_module_decorators module

decisionengine.framework.modules.tests.test_module_decorators.**test_multiple_consumes_declarations**()

decisionengine.framework.modules.tests.test_module_decorators.**test_multiple_produces_declarations**()

decisionengine.framework.modules.tests.test_module_decorators.**test_supports_config**()

decisionengine.framework.modules.tests.test_module_decorators.**test_wrong_product_names**()

decisionengine.framework.modules.tests.test_module_decorators.**test_wrong_product_types**()

decisionengine.framework.modules.tests.test_translate_product_name module

decisionengine.framework.modules.tests.test_translate_product_name.**test_translate_all**()

decisionengine.framework.modules.tests.test_translate_product_name.**test_translate_illegal_characters**()

decisionengine.framework.modules.tests.test_translate_product_name.**test_translate_none**()

decisionengine.framework.modules.tests.test_translate_product_name.**test_translate_simple**()

decisionengine.framework.modules.tests.test_translate_product_name.**test_translate_with_underscores**()

Module contents

Submodules

decisionengine.framework.modules.EmptySource module

This dummy source takes the name of a source datablock from config file as parameter "data_product_name" and produces an empty pandas DataFrame as a datablock with that name

class decisionengine.framework.modules.EmptySource.**EmptySource**(*config*)

Bases: *Source*

_supported_config = {'data_product_name': (<class 'str'>, '', None)}

acquire()

decisionengine.framework.modules.Module module

class decisionengine.framework.modules.Module.**Module**(*set_of_parameters*)

Bases: object

A skeleton of a module

get_data_block()

get_parameters()

set_data_block(*data_block*)

decisionengine.framework.modules.Module.**consumes**(***kwargs*)

decisionengine.framework.modules.Module.**produces**(***kwargs*)

decisionengine.framework.modules.Module.**verify_products**(*producer*, *data*)

decisionengine.framework.modules.Publisher module

class decisionengine.framework.modules.Publisher.**Parameter**(*name*, *type=None*, *default=None*, *comment=None*)

Bases: object

class decisionengine.framework.modules.Publisher.**Publisher**(*set_of_parameters*)

Bases: *Module*

_consumes = {}

publish(*data_block=None*)

shutdown()

decisionengine.framework.modules.Publisher.**consumes**(***kwargs*)

decisionengine.framework.modules.Publisher.**describe**(*cls*, *program_options=<class 'decisionengine.framework.modules.describe.ModuleProgramOptions'>*)

decisionengine.framework.modules.Publisher.**supports_config**(**args*)

decisionengine.framework.modules.QueueLogger module

class decisionengine.framework.modules.QueueLogger.**QueueLogger**

Bases: object

configure_listener(*handlers*)

format_logger(*logger*)

initialize_q()

setup_queue_logging(*logger*, *handlers*)

start()

stop()

decisionengine.framework.modules.Source module

class decisionengine.framework.modules.Source.**Parameter**(*name*, *type=None*, *default=None*, *comment=None*)

Bases: object

class decisionengine.framework.modules.Source.**Source**(*set_of_parameters*)

Bases: *Module*

_produces = {}

acquire()

decisionengine.framework.modules.Source.**describe**(*cls*, *sample_config=None*)

decisionengine.framework.modules.Source.**produces**(***kwargs*)

decisionengine.framework.modules.Source.**supports_config**(**args*)

decisionengine.framework.modules.Transform module

class decisionengine.framework.modules.Transform.**Parameter**(*name*, *type=None*, *default=None*, *comment=None*)

Bases: object

class decisionengine.framework.modules.Transform.**Transform**(*set_of_parameters*)

Bases: *Module*

_consumes = {}

_produces = {}

transform()

decisionengine.framework.modules.Transform.**consumes**(***kwargs*)

decisionengine.framework.modules.Transform.**describe**(*cls*, *program_options=<class 'decisionengine.framework.modules.describe.ModuleProgramOptions'>*)

decisionengine.framework.modules.Transform.**produces**(***kwargs*)

decisionengine.framework.modules.Transform.**supports_config**(**args*)

decisionengine.framework.modules.de_logger module

Logger to use in all modules

decisionengine.framework.modules.de_logger.**configure_logging**(*log_level='DEBUG'*, *file_rotate_by='size'*, *rotation_time_unit='D'*, *rotation_interval=1*, *max_backup_count=6*, *max_file_size=200000000*, *log_file_name='/tmp/decision_engine_logs/decisioneng*
start_q_logger='True')

Parameters

- **log_level** (str) – log level
- **file_rotate_by** – files rotation by size or by time
- **rotation_time_unit** (str) – unit of time for file rotation
- **rotation_interval** (int) – time in rotation_time_units between file rotations
- **log_file_name** (str) – log file name
- **max_file_size** (int) – maximal size of log file. If reached save and start new log.
- **max_backup_count** (int) – start rotaion after this number is reached

Return type
None

decisionengine.framework.modules.de_logger.**get_logger**()

get default logger - "decisionengine" :rtype: logging.Logger - rotating file logger

decisionengine.framework.modules.de_logger.**get_queue_logger**()

get QueueLogger which owns the logging queues and listeners :rtype: decisionengine.framework.modules.QueueLogger`

decisionengine.framework.modules.de_logger.**stop_queue_logger**()

decisionengine.framework.modules.describe module

class decisionengine.framework.modules.describe.**ModuleProgramOptions**(*module_spec*, *cls*)

Bases: object

process_args()

class decisionengine.framework.modules.describe.**Parameter**(*name*, *type=None*, *default=None*, *comment=None*)

Bases: object

decisionengine.framework.modules.describe.**_par_default**(*par_type*, *default_value*)

decisionengine.framework.modules.describe.**_par_type**(*par_type*, *default_value*)

decisionengine.framework.modules.describe.**main_wrapper**(*cls*, *program_options=<class 'decisionengine.framework.modules.describe.ModuleProgramOptions'>*)

decisionengine.framework.modules.describe.**supports_config**(**args*)

decisionengine.framework.modules.logging_configDict module

Global Logger config dictionary used by all loggers (in their own subkeys)

decisionengine.framework.modules.print_description module

decisionengine.framework.modules.print_description.**_print_comment**(*comment*)

decisionengine.framework.modules.print_description.**_print_type**(*type_or_value*)

decisionengine.framework.modules.print_description.**_print_value**(*v*)

decisionengine.framework.modules.print_description.**_spec_from_file_name**(*filename*)

decisionengine.framework.modules.print_description.**print_consumes**(*cls*)

decisionengine.framework.modules.print_description.**print_produces**(*cls*)

decisionengine.framework.modules.print_description.**print_supported_config**(*module_spec*, *cls*)

decisionengine.framework.modules.print_description.**spec_if_main**(*cls*)

decisionengine.framework.modules.translate_product_name module

decisionengine.framework.modules.translate_product_name.**translate**(*spec*)

Break apart the string 'old -> new' into a tuple ('old', 'new')

decisionengine.framework.modules.translate_product_name.**translate_all**(*specs*)

Module contents

decisionengine.framework.taskmanager package

Submodules

decisionengine.framework.taskmanager.LatestMessages module

The LatestMessages class listens for messages from a set of queues and retains only the last unconsumed message from each queue.

The latest messages are consumed by calling the consume() instance method, which returns a dictionary whose key is the message routing key and whose value is the full message. If no messages are available, consume() returns an empty dictionary.

The LatestMessages class is intended to be used as a context manager (e.g.):

```
with LatestMessages(queues, broker_url) as messages:
    while some_predicate():
        msgs = messages.consume()
        if not msgs:
            continue

        for routing_key, msg in msgs.items():
            ...
```

Upon exiting the the context, a LatestMessage object will no longer listen for any messages.

class decisionengine.framework.taskmanager.LatestMessages.**LatestMessages**(*queues*, *broker_url*)

Bases: object

_listen()

consume()

Return dictionary of latest messages, keyed by message routing key.

decisionengine.framework.taskmanager.ProcessingState module

The ProcessingState class can represent any of the following task-manager states:

BOOT IDLE ACTIVE STEADY OFFLINE SHUTTINGDOWN SHUTDOWN ERROR

In addition, the class supports 'wait_until(state)' and 'wait_while(state)' methods, which, when called from a different process, block until the state has been entered or exited, respectively.

The 'RUNNING_CONDITIONS' list is a list of states that a thread may have if it is started/starting. The 'STOPPING_CONDITIONS' list is a list of states that a thread may have if it is stopped/stopping. The 'INACTIVE_CONDITIONS' list is a list of states that a thread may have when it is not active

class decisionengine.framework.taskmanager.ProcessingState.**ProcessingState**(*state=State.BOOT*)

Bases: object

This object tracks the state of a process.

A number of convience wrappers are provided.

Additionally you may use the *.lock* attribute for *with* block to lock the state during specific operations.

get()

This function is a minimally locking check to fetch the state.

get_state_value()

has_value(*state*)

inactive()

property lock

probably_running()

set(*state*)

This function will lock (and possibly block) to ensure a consistent change to the state value.

This function can be blocked using the *.lock* to force state sync between threads if need be.

should_stop()

wait_until(*state*, *timeout=None*)

wait_while(*state*, *timeout=None*)

class decisionengine.framework.taskmanager.ProcessingState.**State**(*value*)

Bases: Enum

An enumeration.

ACTIVE = 2

BOOT = 0

ERROR = 7

IDLE = 1

OFFLINE = 6

SHUTDOWN = 5

SHUTTINGDOWN = 4

STEADY = 3

decisionengine.framework.taskmanager.PublisherStatus module

PublisherStatus

The status of each decision-engine publisher is captured by a PublisherStatus object. The status can be queried to determine if a given publisher is enabled, and when it was last enabled or disabled. To access this information from a datablock, one must specify the a consumes statement:

The API for each relevant class is given below.

class decisionengine.framework.taskmanager.PublisherStatus.**PublisherState**(*enabled*, *duration*, *since*)

Bases: NamedTuple

_asdict()

Return a new dict which maps field names to their values.

_field_defaults = {}

_fields = ('enabled', 'duration', 'since')

classmethod _make(*iterable*)

Make a new PublisherState object from a sequence or iterable

_replace(***kwds*)

Return a new PublisherState object replacing specified fields with new values

duration: timedelta

datetime.timedelta object representing duration between now and when publisher was last enabled/disabled

enabled: bool

Boolean value indicating if publisher is enabled.

since: datetime

datetime.datetime object representing when publisher was last enabled/disabled

class decisionengine.framework.taskmanager.PublisherStatus.**PublisherStatus**(*status_snapshot*)

Bases: object

Proxy object that provides publisher-status information.

is_enabled(*publisher_name*)

Parameters
publisher_name (*str*) – The name of the configured publisher

Returns
If publisher is enabled or disabled

Return type
bool

state(*publisher_name*)

Parameters
publisher_name (*str*) – The name of the configured publisher

Returns
Full state of publisher

Return type
PublisherState

class decisionengine.framework.taskmanager.PublisherStatus.**PublisherStatusBoard**(*publisher_names*)

Bases: object

Publisher status board owned by each decision channel

The status board is not a user-facing entity; it is owned by each decision channel, which updates the status of each publisher after they have been run.

snapshot()

Returns
An publisher-status object corresponding to now

Return type
PublisherStatus

update(*publisher_name*, *result_of_publish*)

Parameters

- **publisher_name** (*str*) – The name of the configured publisher
- **result_of_publish** (*bool*) – Whether the last execution of the publisher was successsul

decisionengine.framework.taskmanager.SourceProductCache module

class decisionengine.framework.taskmanager.SourceProductCache.**SourceProductCache**(*expected_products*, *logger*)

Bases: object

update(*new_data*)

decisionengine.framework.taskmanager.TaskManager module

Task manager

class decisionengine.framework.taskmanager.TaskManager.**TaskManager**(*name*, *workers*, *dataspace*, *expected_products*, *exchange*, *broker_url*, *routing_keys*)

Bases: object

Task manager

data_block_put(*data*, *header*, *data_block*)

Put data into data block

Parameters

- **data** (dict) – key, value pairs
- **header** (Header) – data header
- **data_block** (DataBlock) – data block

decision_cycle()

Decision cycle to be run periodically (by trigger)

get_consumes()

get_loglevel()

get_produces()

get_state()

get_state_name()

get_state_value()

run_cycle(*messages*)

run_cycles()

Task manager main loop

run_logic_engine(*data_block*)

Run Logic Engine.

Parameters

data_block (DataBlock) – data block

run_publishers(*actions*, *data_block*)

Run Publishers in main process.

Parameters
data_block (DataBlock) – data block

run_transform(*worker*, *data_block*)

Run a transform

Parameters

- **worker** (Worker) – Transform worker
- **data_block** (DataBlock) – data block

run_transforms(*data_block=None*)

Run transforms. So far in main process.

Parameters
data_block (DataBlock) – data block

set_loglevel_value(*log_level*)

Assumes log_level is a string corresponding to the supported logging-module levels.

take_offline()

Adjust status to stop the decision cycles and bring the task manager offline

decisionengine.framework.taskmanager.module_graph module

Ensure no circularities in produces and consumes.

class decisionengine.framework.taskmanager.module_graph.**Worker**(*key*, *conf_dict*, *base_class*, *channel_name*)

Bases: object

Provides interface to loadable modules an events to sycronise execution

decisionengine.framework.taskmanager.module_graph.**_consumed_products**(**worker_lists*)

decisionengine.framework.taskmanager.module_graph.**_create_module_instance**(*config_dict*, *base_class*, *channel_name*)

Create instance of dynamically loaded module

decisionengine.framework.taskmanager.module_graph.**_find_only_one_subclass**(*module*, *base_class*)

Search through module looking for only one subclass of the supplied base_class

decisionengine.framework.taskmanager.module_graph.**_make_workers_for**(*configs*, *base_class*, *channel_name*)

decisionengine.framework.taskmanager.module_graph.**_produced_products**(**worker_lists*)

decisionengine.framework.taskmanager.module_graph.**channel_workers**(*channel_name*, *channel_config*, *logger*)

decisionengine.framework.taskmanager.module_graph.**ensure_no_circularities**(*sources*, *transforms*, *publishers*)

Ensures no circularities among data products.

decisionengine.framework.taskmanager.module_graph.**source_products**(*source_workers*)

decisionengine.framework.taskmanager.module_graph.**validated_workflow**(*channel_name*, *sources*, *channel_config*, *logger=<BoundLoggerLazyProxy(logger=None wrapper_class=None, processors=None, context_class=None, initial_values={}, logger_factory_args=())>*)

Module contents

decisionengine.framework.tests package

Submodules

decisionengine.framework.tests.ABTransform module

class decisionengine.framework.tests.ABTransform.**ABTransform**(*module_parameters*, **args*, ***kwargs*)

Bases: *Transform*

_consumes = {'B': None}

_produces = {'A': None}

decisionengine.framework.tests.BATransform module

class decisionengine.framework.tests.BATransform.**BATransform**(*module_parameters*, **args*, ***kwargs*)

Bases: *Transform*

_consumes = {'A': None}

_produces = {'B': None}

decisionengine.framework.tests.DynamicPublisher module

class decisionengine.framework.tests.DynamicPublisher.**DynamicPublisher**(*config*)

Bases: *Publisher*

_supported_config = {'consumes': (<class 'list'>, None, None), 'expects': (<class 'int'>, None, None)}

publisher(*data_block*)

decisionengine.framework.tests.DynamicSource module

class decisionengine.framework.tests.DynamicSource.**DynamicSource**(*config*)

Bases: *Source*

_supported_config = {'data_product_name': (<class 'str'>, None, None)}

acquire()

decisionengine.framework.tests.DynamicTransform module

class decisionengine.framework.tests.DynamicTransform.**DynamicTransform**(*config*)

Bases: *Transform*

_supported_config = {'consumes': (<class 'list'>, None, None), 'data_product_name': (<class 'str'>, None, None)}

transform(*data_block*)

decisionengine.framework.tests.ErringPublisher module

class decisionengine.framework.tests.ErringPublisher.**ErringPublisher**(*module_parameters*, **args*, ***kwargs*)

Bases: *Publisher*

_consumes = {'bar': None}

publish(*data_block*)

decisionengine.framework.tests.ErrorOnAcquire module

class decisionengine.framework.tests.ErrorOnAcquire.**ErrorOnAcquire**(*config*)

Bases: *Source*

_produces = {'_placeholder': None}

acquire()

decisionengine.framework.tests.FailingPublisher module

class decisionengine.framework.tests.FailingPublisher.**FailingPublisher**(*module_parameters*, **args*, ***kwargs*)

Bases: *Publisher*

_consumes = {'bar': None, 'publisher_status': <class 'decisionengine.framework.taskmanager.PublisherStatus.PublisherStatus'>}

publish(*data_block*)

decisionengine.framework.tests.IntSource module

class decisionengine.framework.tests.IntSource.**IntSource**(*config*)

Bases: *Source*

_produces = {'int_value': <class 'int'>}

_supported_config = {'int_value': (<class 'int'>, None, None)}

acquire()

decisionengine.framework.tests.ModuleProgramOptions module

class decisionengine.framework.tests.ModuleProgramOptions.**AcquireWithConfig**(*name*)

Bases: object

test(*byte_str*, *expected_stderr=''*)

class decisionengine.framework.tests.ModuleProgramOptions.**AcquireWithSampleConfig**(*name*)

Bases: object

test()

class decisionengine.framework.tests.ModuleProgramOptions.**ConfigTemplate**(*name*)

Bases: object

test(*has_comments=False*)

class decisionengine.framework.tests.ModuleProgramOptions.**Describe**(*name*)

Bases: object

test(*consumes=None*, *produces=None*)

class decisionengine.framework.tests.ModuleProgramOptions.**DescribeAlias**(*alias*, *original*)

Bases: object

test()

class decisionengine.framework.tests.ModuleProgramOptions.**Help**(*name*)

Bases: object

test(*has_sample_config=False*)

decisionengine.framework.tests.ModuleProgramOptions.**_expected_acquire_result**(*name*, *config_file=None*, *multiplier=1*, *channel_name='test1'*)

decisionengine.framework.tests.ModuleProgramOptions.**_expected_config_template**(*name*)

decisionengine.framework.tests.ModuleProgramOptions.**_expected_config_template_with_comments**(*name*)

decisionengine.framework.tests.ModuleProgramOptions.**_expected_help**(*name*)

decisionengine.framework.tests.ModuleProgramOptions.**_expected_source_help**(*name*, *has_sample_config=False*)

decisionengine.framework.tests.ModuleProgramOptions.**_normalize**(*string*)

decisionengine.framework.tests.ModuleProgramOptions.**_run_as_main**(*name*, **program_options*)

decisionengine.framework.tests.PublisherNOP module

class decisionengine.framework.tests.PublisherNOP.**PublisherNOP**(*module_parameters*, **args*, ***kwargs*)

Bases: *Publisher*

_consumes = {'bar': <class 'pandas.core.frame.DataFrame'>}

publish(*data_block*)

decisionengine.framework.tests.PublisherWithMissingConsumes module

class decisionengine.framework.tests.PublisherWithMissingConsumes.**PublisherWithMissingConsumes**(*set_of_par*

Bases: *Publisher*

decisionengine.framework.tests.SourceAlias module

decisionengine.framework.tests.SourceNOP module

class decisionengine.framework.tests.SourceNOP.**SourceNOP**(*config*)

Bases: *Source*

_produces = {'foo': <class 'pandas.core.frame.DataFrame'>}

acquire()

decisionengine.framework.tests.SourceWithMissingProduces module

class decisionengine.framework.tests.SourceWithMissingProduces.**SourceWithMissingProduces**(*set_of_parameters*

Bases: *Source*

decisionengine.framework.tests.SourceWithSampleConfigNOP module

class decisionengine.framework.tests.SourceWithSampleConfigNOP.**SourceWithSampleConfigNOP**(*config*)

Bases: *Source*

_produces = {'foo': <class 'pandas.core.frame.DataFrame'>}

_supported_config = {'channel_name': (<class 'str'>, None, None), 'multiplier': (<class 'int'>, None, None)}

acquire()

decisionengine.framework.tests.SupportsConfigPublisher module

class decisionengine.framework.tests.SupportsConfigPublisher.**SupportsConfig**(*set_of_parameters*)

Bases: *Publisher*

_supported_config = {'comment': (<class 'str'>, None, 'Single-line comment'), 'comment_with_nl': (<class 'str'>, None, 'Comment with newline\n'), 'convert_to': (<class 'int'>, 3, None), 'default_only': (<class 'float'>, 2.5, None), 'no_type': (None, None, None), 'only_type': (<class 'int'>, None, None)}

decisionengine.framework.tests.TransformNOP module

class decisionengine.framework.tests.TransformNOP.**TransformNOP**(*module_parameters*, **args*, ***kwargs*)

Bases: *Transform*

_consumes = {'foo': <class 'pandas.core.frame.DataFrame'>}

_produces = {'bar': <class 'pandas.core.frame.DataFrame'>}

transform(*data_block*)

decisionengine.framework.tests.TransformWithMissingProducesConsumes module

class decisionengine.framework.tests.TransformWithMissingProducesConsumes.**TransformWithMissingProducesC**

Bases: *Transform*

transform(*data_block*)

decisionengine.framework.tests.WriteToDisk module

Special publisher used to register publish calls with an external file.

It is difficult to interact with individual publishers while testing a workflow. The WriteToDisk publisher therefore writes to an external file that can be read by a test. Ideally, we would implement a system so that the test and any instance of the WriteToDisk class are passed the same file-name string. Unfortunately, this is non-trivial to achieve without adjusting the behavior of the decision-engine server itself. We therefore choose the following abstruse logic:

- WriteToDisk creates a temporary file and broadcasts its name to STDOUT. Note that this temporary file must be uniquely named as multiple tests can use WriteToDisk in parallel.
- Capture STDOUT in the DETestWorker class.
- Pass STDOUT to the 'wait_for_n_writes' which will wait until the number 'n' appears in the file.

class decisionengine.framework.tests.WriteToDisk.**WriteToDisk**(*config*)

Bases: *Publisher*

_supported_config = {'consumes': (<class 'list'>, None, None), 'filename': (<class 'str'>, None, None)}

publish(*data_block*)

decisionengine.framework.tests.WriteToDisk.**wait_for_n_writes**(*stdout*, *n*)

decisionengine.framework.tests.fixtures module

defaults for pytest

decisionengine.framework.tests.fixtures.**DEServer**(*conf_path=None*, *conf_override=None*, *channel_conf_path=None*, *channel_conf_override=None*, *host='127.0.0.1'*, *port=None*, *make_conf_dirs_if_missing=False*, *block_until_startup_complete=True*)

A DE Server using a private database

decisionengine.framework.tests.fixtures.**PG_DE_DB_WITHOUT_SCHEMA**(*request: FixtureRequest*) → connection

Fixture factory for PostgreSQL.

Parameters
request – fixture request object

Returns
postgresql client

decisionengine.framework.tests.fixtures.**PG_PROG**(*request: FixtureRequest*, *tmp_path_factory: TempPathFactory*) → Iterator[PostgreSQLExecutor]

Process fixture for PostgreSQL.

Parameters

- **request** – fixture request object
- **tmp_path_factory** – temporary path object (fixture)

Returns
tcp executor

decisionengine.framework.tests.fixtures.**SQLALCHEMY_PG_WITH_SCHEMA**(*PG_DE_DB_WITHOUT_SCHEMA*)

Get a blank database from pytest_postgresql. Then setup the SQLAlchemy style URL with that DB. The SQLAlchemyDS will create the schema as needed.

decisionengine.framework.tests.fixtures.**SQLALCHEMY_TEMPFILE_SQLITE**(*tmp_path*)

Setup an SQLite database with the pytest tmp_path fixture. Then setup the SQLAlchemy style URL with that DB. The SQLAlchemyDS will create the schema as needed.

decisionengine.framework.tests.test_client_errors module

Fixture based DE Server tests of the sample config

decisionengine.framework.tests.test_client_errors.**test_client_cannot_wait_on_bad_state**(*deserver*)

Verify wait is for a valid state

decisionengine.framework.tests.test_client_server module

Fixture based DE Server for the de-client tests

decisionengine.framework.tests.test_client_server.**test_client_get_loglevel**(*deserver*)

decisionengine.framework.tests.test_client_server.**test_client_print_product**(*deserver*)

decisionengine.framework.tests.test_client_server.**test_client_set_loglevel**(*deserver*)

decisionengine.framework.tests.test_client_server.**test_client_status_msg_to_logger**(*deserver*, *caplog*)

Make sure the actual client console call goes to a logging destination

decisionengine.framework.tests.test_combined_channels module

decisionengine.framework.tests.test_combined_channels.**test_combined_channels**(*deserver*)

decisionengine.framework.tests.test_combined_channels.**test_combined_channels_3g**(*deserver_combined*)

decisionengine.framework.tests.test_defaults module

Fixture based DE Server tests of the sample config

decisionengine.framework.tests.test_defaults.**test_defaults**(*deserver*)

decisionengine.framework.tests.test_dynamic_test_modules module

decisionengine.framework.tests.test_dynamic_test_modules.**test_dynamic_publisher**()

decisionengine.framework.tests.test_dynamic_test_modules.**test_dynamic_source**()

decisionengine.framework.tests.test_dynamic_test_modules.**test_dynamic_transform**()

decisionengine.framework.tests.test_empty_config module

Fixture based DE Server tests of adding a channel later on

decisionengine.framework.tests.test_empty_config.**test_client_can_start_one_channel_added_after_startup**(

Verify client can start a single channel

decisionengine.framework.tests.test_error_on_acquire module

decisionengine.framework.tests.test_error_on_acquire.**test_error_on_acquire**(*deserver*)

decisionengine.framework.tests.test_module_program_options module

decisionengine.framework.tests.test_module_program_options.**test_acquire_for_sources**()

decisionengine.framework.tests.test_module_program_options.**test_config_templates**()

decisionengine.framework.tests.test_module_program_options.**test_descriptions**()

decisionengine.framework.tests.test_module_program_options.**test_help**()

decisionengine.framework.tests.test_module_program_options.**test_module_alias**()

decisionengine.framework.tests.test_publisher_status module

decisionengine.framework.tests.test_publisher_status.**test_publisher_status**(*deserver*)

decisionengine.framework.tests.test_publisher_status_board module

decisionengine.framework.tests.test_publisher_status_board.**test_publisher_status_board**()

decisionengine.framework.tests.test_query_tool_server module

Fixture based DE Server for the de-query-tool tests

decisionengine.framework.tests.test_query_tool_server.**test_query_tool**(*deserver*)

decisionengine.framework.tests.test_reaper module

Fixture based DE Server for the reaper tests

decisionengine.framework.tests.test_reaper.**test_client_can_get_de_server_reaper_status**(*deserver*)

Verify reaper status

decisionengine.framework.tests.test_same_source_types module

decisionengine.framework.tests.test_same_source_types.**test_same_source_types_separate_channels**(*deserver*)

decisionengine.framework.tests.test_sample_config module

Fixture based DE Server tests of the defaults

decisionengine.framework.tests.test_sample_config.**stopped_channel_opts**(*timeout=1*)

decisionengine.framework.tests.test_sample_config.**test_client_can_get_de_server_status**(*deserver*)

decisionengine.framework.tests.test_sample_config.**test_client_can_kill_one_channel**(*deserver*)

decisionengine.framework.tests.test_sample_config.**test_client_can_restart_all_channels**(*deserver*)

Verify client can get channel products even when none are run

decisionengine.framework.tests.test_sample_config.**test_client_can_restart_one_channel**(*deserver*)

Verify client can restart a single channel

decisionengine.framework.tests.test_sample_config.**test_client_logger_level**(*deserver*)

decisionengine.framework.tests.test_sample_config.**test_client_non_real_channel**(*deserver*)

decisionengine.framework.tests.test_shared_sources module

decisionengine.framework.tests.test_shared_sources.**record_that_matches**(*substring*, *records*)

decisionengine.framework.tests.test_shared_sources.**test_conflicting_source_configurations**(*deserver_conflict*, *caplog*)

decisionengine.framework.tests.test_shared_sources.**test_shared_source**(*deserver_shared*, *caplog*)

decisionengine.framework.tests.test_start_with_bad_channels module

Fixture based DE Server tests of invalid channel configs

decisionengine.framework.tests.test_start_with_bad_channels.**_consumes_not_subset**(*test_str*)

decisionengine.framework.tests.test_start_with_bad_channels.**_expected_circularity**(*test_str*)

decisionengine.framework.tests.test_start_with_bad_channels.**_missing_consumes**(*name*)

decisionengine.framework.tests.test_start_with_bad_channels.**_missing_produces**(*name*)

decisionengine.framework.tests.test_start_with_bad_channels.**test_client_can_get_products_no_channels**(*des*, *cap*)

Verify client can get channel products even when none are run

decisionengine.framework.tests.test_status_during_startup module

decisionengine.framework.tests.test_status_during_startup.**test_status_during_startup**(*deserver_no_wait*)

Module contents

decisionengine.framework.util package

Submodules

decisionengine.framework.util.countdown module

class decisionengine.framework.util.countdown.**Countdown**(*wait_up_to*)

Bases: `object`

Countdown is a context manager that keeps track of elapsed time.

It is designed to be used for cases where a sequence of operations should not take longer than a specified period of time. This is done by occasionally querying the 'time_left' attribute (e.g.):

```
countdown = Countdown(wait_up_to=10)
for p in processes:
    with countdown:
        rc = p.join(countdown.time_left)
        if rc is None:
            p.terminate()
```

In the above example, the time it takes to shutdown all processes should not exceed 10 seconds. Upon entering the countdown context, a timer starts. Once that context is exited, the timer stops and the elapsed time is subtracted from the initial 'wait_up_to' value. If it takes 10 seconds for the first process to join, then the 'time_left' value will be 0 when joining all subsequent processes. In this way, the entire sequence of operations is constrained to occur in roughly 10 seconds.

decisionengine.framework.util.fs module

decisionengine.framework.util.fs.**files_with_extensions**(*dir_path*, **extensions*)

Return all files in dir_path that match the provided extensions.

If no extensions are given, then all files in dir_path are returned.

Results are sorted by channel name to ensure stable output.

decisionengine.framework.util.logparser module

decisionengine.framework.util.logparser.**console_scripts_main**(*args_to_parse=None*)

This is the entry point for the setuptools auto generated scripts. Setuptools thinks a return from this function is an error message.

decisionengine.framework.util.logparser.**create_parser**()

decisionengine.framework.util.logparser.**execute_command_from_args**(*argsparsed*, *logfile=None*, *constraint=None*)

Parse the log file as requested.

Parameters

- **argsparsed** (*Namespace*) – Parsed arguments from create_parser in this file.
- **logfile** (*path*) – Log file path.
- **constraint** (*dict*) – Combined constraints dictionary

Returns

Output of the command.

Return type

str

decisionengine.framework.util.logparser.**main**(*args_to_parse=None*)

Main function for logparser

Parameters

- **args_to_parse** (*list, optional*) – If you pass a list of args, they will be used instead of sys.argv.
- **None.** (*Defaults to*) –

Returns
Parsing result

Return type
str

decisionengine.framework.util.logparser.**matches_constraint**(*constraint*, *linelist*, *linedict*)

Return True if all constraints are marched

Parameters

- **constraint** (*dict|None*) – combined constraints
- **linelist** (*list*) – List of line fields
- **linedict** (*dict*) – Dictionary with structured elements

Returns
True is all constraints are matched, False otherwise

Return type
bool

decisionengine.framework.util.logparser.**parse_constraints**(*constraints*, *loglevel=None*)

Parse and combine the constraints

Parameters

- **constraints** (*list|None*) – List of constraints
- **loglevel** (*str*) – Logging level, e.g. DEBUG, INFO, ...

Returns
combined constraint dictionary

Return type
dict

decisionengine.framework.util.metrics module

class decisionengine.framework.util.metrics.**Counter**(*name: str*, *documentation: str*, *labelnames: ~typing.Iterable[str] = ()*, *namespace: str = ''*, *subsystem: str = ''*, *unit: str = ''*, *registry: ~prometheus_client.registry.CollectorRegistry | None = <prometheus_client.registry.CollectorRegistry object>*, *_labelvalues: ~typing.Sequence[str] | None = None*)

Bases: Counter

_abc_impl = <_abc._abc_data object>

class decisionengine.framework.util.metrics.**Gauge**(**args*, ***kwargs*)

Bases: Gauge

Override prometheus client Gauge so that muliproccess_mode 'liveall" is the default as opposed to 'all'

_DEFAULT_MULTIPROC_MODE = 'liveall'

__determine_multiprocess_mode_existence(**args*, ***kwargs*)

_abc_impl = <_abc._abc_data object>

class decisionengine.framework.util.metrics.**Histogram**(*name: str*, *documentation: str*, *labelnames: ~typing.Iterable[str] = ()*, *namespace: str = ''*, *subsystem: str = ''*, *unit: str = ''*, *registry: ~prometheus_client.registry.CollectorRegistry | None = <prometheus_client.registry.CollectorRegistry object>*, *_labelvalues: ~typing.Sequence[str] | None = None*, *buckets: ~typing.Sequence[float | str] = (0.005, 0.01, 0.025, 0.05, 0.075, 0.1, 0.25, 0.5, 0.75, 1.0, 2.5, 5.0, 7.5, 10.0, inf)*)

Bases: Histogram

_abc_impl = <_abc._abc_data object>

class decisionengine.framework.util.metrics.**Summary**(*name: str*, *documentation: str*, *labelnames: ~typing.Iterable[str] = ()*, *namespace: str = ''*, *subsystem: str = ''*, *unit: str = ''*, *registry: ~prometheus_client.registry.CollectorRegistry | None = <prometheus_client.registry.CollectorRegistry object>*, *_labelvalues: ~typing.Sequence[str] | None = None*)

Bases: Summary

_abc_impl = <_abc._abc_data object>

decisionengine.framework.util.metrics.**display_metrics**()

decisionengine.framework.util.reaper module

A stand-alone script purges data in database older than specified in configuration. Configuration file has to have this bit added:

```
{
    "dataspace" : {
        "retention_interval_in_days" : 365,
        "datasource" :  {}
    }
}
```

Can be used in a cron job.

decisionengine.framework.util.reaper.**main**()

decisionengine.framework.util.redis_stats module

decisionengine.framework.util.redis_stats.**redis_stats**(*broker_url*, *exchange*)

decisionengine.framework.util.singleton module

class decisionengine.framework.util.singleton.**ScopedSingleton**

Bases: *Singleton*

Singleton pattern using Metaclass with weak refs

_instances = <WeakValueDictionary>

class decisionengine.framework.util.singleton.**ScopedSingletonABC**(*name*, *bases*, *namespace*, ***kwargs*)

Bases: ABCMeta, *ScopedSingleton*

class decisionengine.framework.util.singleton.**Singleton**

Bases: type

Singleton pattern using Metaclass with strong refs

_instances = {}

class decisionengine.framework.util.singleton.**SingletonABC**(*name*, *bases*, *namespace*, ***kwargs*)

Bases: ABCMeta, *Singleton*

decisionengine.framework.util.sockets module

decisionengine.framework.util.sockets.**get_random_port**()

decisionengine.framework.util.subclasses module

decisionengine.framework.util.subclasses.**_derived_class**(*cls*, *base_class*)

Only matches subclasses that are not equal to the base class.

decisionengine.framework.util.subclasses.**all_subclasses**(*module*, *base_class*)

Return all of a module's subclasses of the given base class.

Module contents

Submodules

decisionengine.framework.about module

PEP-0396 provides instructions for providing module versions While we are at it, add a few other useful bits

decisionengine.framework.version module

Module contents

decisionengine.tests package

Submodules

decisionengine.tests.test_framework_package module

Make sure decisionengine.framework is a valid python package

decisionengine.tests.test_framework_package.**test_can_import**()

Module contents

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