The RobotResults2DB tool

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Feb 28, 2022

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ROBOTRESULTS2DB TOOL'S DOCUMENTATION

1.1 Introduction:

RobotResults2DB tool helps to import robot *output.xml* result file(s) to WebApp's database for presenting an overview about the execution and detail of each test result.

In order to display the Robotframework test results on TestResultWebApp Dashboard properly, Robot testcase need to give some required information for management such as project/variant, software version, component, ...

Therefore, **Metadata** and **[Tags]** are used to provide that information to *output.xml* result which is used for importing data to WebApp.

1.2 RobotFramework Testcase Settings:

For the whole test execution:

- Project/Variant (can be overwritten by argument *–variant* or *–config* of RobotResults2DB tool when importing):

```
Metadata    project     ${Project_name}
```

- Versions (can be overwritten by argument *–versions* or *–config* of RobotResults2DB tool when importing):

```
Metadata    version_hw     ${Software_version}
Metadata    version_hw     ${Hardware_version}
Metadata    version_test   ${Test_version}
```

For the Suite/File information:

- Description/Documentation:

```
Documentation   ${Suite_description}
```

- Author:

```
Metadata   author   ${Author_name}
```

- Component (can be overwritten by argument *–config* of [RobotResults2DB] tool when importing):

```
Metadata   component   ${Component_name}
```

- Test Tool - framework and python version, e.g **Robot Framework 3.2rc2 (Python 3.9.0 on win32)**:

```
Metadata    testtool    ${Test_tool}
```

- Test Machine:

```
Metadata    machine    %{COMPUTERNAME}
```

- Tester:

```
Metadata    tester    %{USER}
```

For test case information:

- Issue ID:

```
[Tags]    ISSUE-${ISSUE_ID}
```

- Testcase ID:

```
[Tags]    TCID-${TC_ID}
```

- Requirement ID:

```
[Tags]    FID-${REQ_ID}
```

1.3 Sample RobotFramework Testcase:

For test case management, we need some tracable information such as version, testcase ID, component, ... to manage and track testcase(s) on RQM.

So, this information can be provided in **Metadata** (for the whole testsuite/execution info: version, build, ...) and **[Tags]** information (for specific testcase info: component, testcase ID, requirement ID, ...).

Sample Robot testcase with the neccessary information for importing to RQM:

```
*** Settings ***
# Test execution level
Metadata    project         ROBFW               # Project/Variant
Metadata    version_sw      SW_VERSION_0.1      # Software version
Metadata    version_hw      HW_VERSION_0.1      # Hardware version
Metadata    version_test    TEST_VERSION_0.1    # Test version

# File/Suite level
Documentation               This is description for robot test file
Metadata     author         Tran Duy Ngoan (RBVH/ECM1)
Metadata     component      Import_Tools
Metadata     testtool       Robot Framework 3.2rc2 (Python 3.9.0 on win32)
Metadata     machine        %{COMPUTERNAME}
Metadata     tester         %{USER}

*** Test Cases ***
Testcase 01
   [Tags]    ISSUE-001    TCID-1001    FID-112    FID-111
   Log        This is Testcase 01
```

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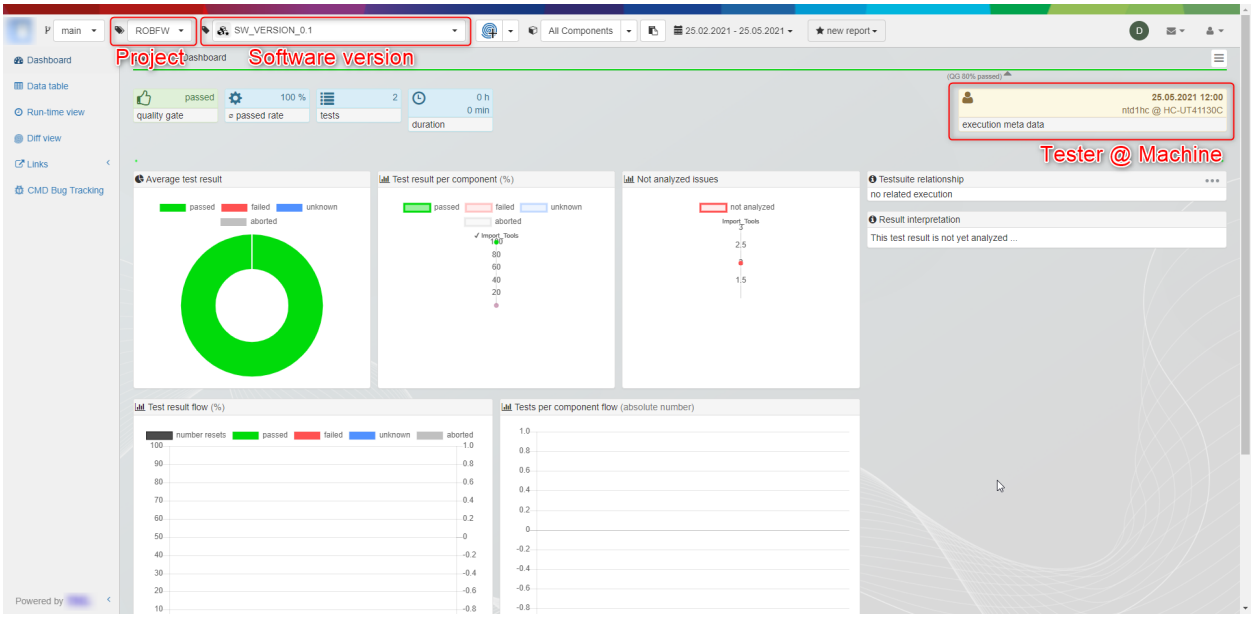
```
Testcase 02
   [Tags]    ISSUE-RTC-003    TCID-1002    FID-113
   Log        This is Testcase 01
```

1.4 Display on WebApp:

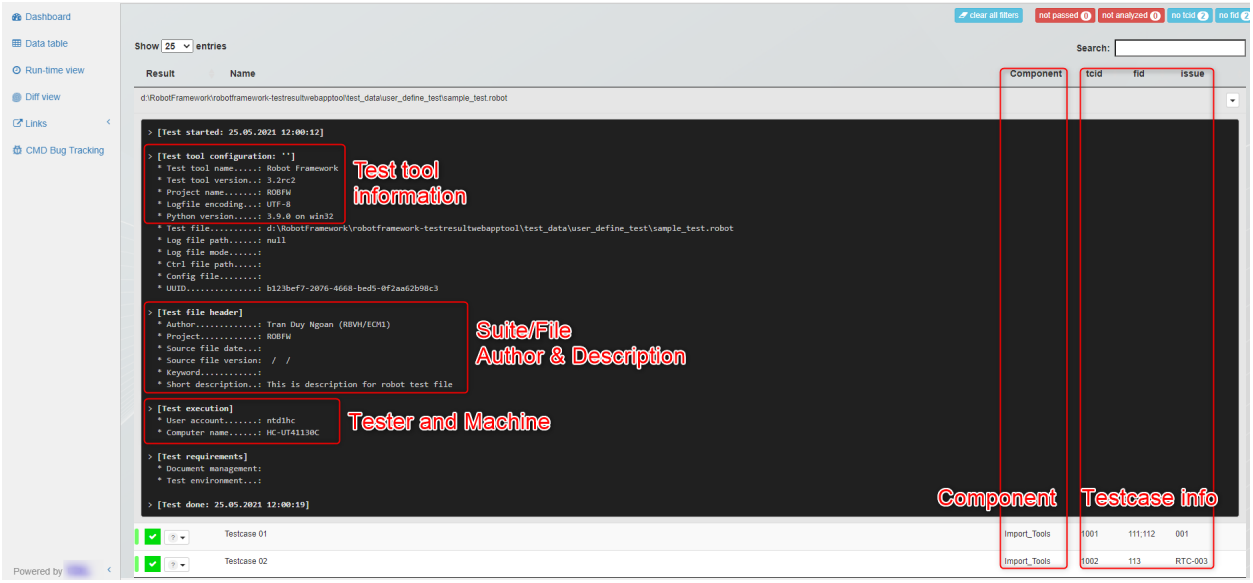
When the *output.xml* file(s) is importing sucessfully to database, the result for that execution will be available on TestResultWebApp.

Above settings in robot testcase will be reflect on **Dashboard** (General view) and **Data table** (Detailed view) as below figures:

Execution result metadata:



Suite/File metadata and Testcase information:



1.5 Notes:

When above settings is missing, that leads to the missing information in the *output.xml*.

Some required fields for management will be set to default value when importing with RobotResults2DB tool:

- *Project*: will be set to default value **ROBFW** if not defined.
- *Software version*: will be set to execution time **%Y%m%d_%H%M%S** as default value.
- *Component*: will be set to default value **unknown** if not defined.

But, you can provide them as command arguments when executing the RobotResults2DB tool with below optional arguments (refer its usage):

- `--variant VARIANT`

  To specify the *Project/Variant* information.

- `--versions VERSIONS`

  To specify the *Software version* information.

- `--config CONFIG`

  Provide a configuration json file *CONFIG* which helps:

  - To configure the *Project/Variant*, *Software version* information (lower prioprity than above commandline arguments)
  - To create a mapping between testcase folder and *Component* information which is display on TestResultWebApp.

  Sample configuration json file:

```
{
    "component": {
```

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```
    "cli"       : "robot/cli",
    "core"      : "robot/core",
    "external"  : "robot/external",
    "keywords"  : "robot/keywords",
    "libdoc"    : "robot/libdoc",
    "output"    : "robot/output",
    "parsing"   : "robot/parsing",
    "reboot"    : "robot/reboot",
    "rpa"       : "robot/rpa",
    "running"   : "robot/running",
    "std_lib"   : "robot/standard_libraries",
    "tags"      : "robot/tags",
    "test_lib"  : "robot/test_libraries",
    "testdoc"   : "robot/testdoc",
    "tidy"      : "robot/tidy",
    "variables" : "robot/variables"
},
    "version_sw"   : "Atest",
    "variant"      : "ROBFW"
}
```

CHAPTER

TWO

ROBOTRESULTS2DB PACKAGE

2.1 Module contents

class CDataBase.**CDataBase**(**args*, ***kwargs*)

Bases: `object`

CDataBase class play a role as mysqlclient and provide methods to interact with TestResultWebApp's database.

arGetCategories()

Get existing categories.

Returns: arCategories : list of exsiting categories.

bExistingResultID(*sResultID*)

Verify the given test result UUID is existing in *tbl_result* table or not.

Args: sResultID : test result UUID to be verified.

Returns: bExisting : True if test result UUID is already existing.

cleanAllTables()

Delete all table data. Please be careful before calling this method.

connect(*host=None*, *user=None*, *passwd=None*, *database=None*, *charset='utf8'*, *use_unicode=True*)

Connect to the database with provided authentication and db info.

Args: host: URL which is hosted the TestResultWebApp's database.

user : user name for database authentication.

passwd : user password for database authentication.

database : database name.

charset (optional): the connection character set.

use_unicode (optional): If True, CHAR and VARCHAR and TEXT columns are returned as Unicode strings, using the configured character set.

Returns: None.

disconnect()

Disconnect from TestResultWebApp's database.

nCreateNewFile(*_tbl_file_name*, *_tbl_file_tester_account*, *_tbl_file_tester_machine*, *_tbl_file_time_start*, *_tbl_file_time_end*, *_tbl_test_result_id*, *_tbl_file_origin='ROBFW'*)

Create new file entry in *tbl_file* table.

Args: _tbl_file_name : file name information.

_tbl_file_tester_account : tester account information.

_tbl_file_tester_machine : test machine information.

_tbl_file_time_start : test file start time.

_tbl_file_time_end : test file end time.

_tbl_test_result_id : UUID of test result for linking to *tbl_result* table.

_tbl_file_origin [origin (test framework) of test file.] Deafult is "ROBFW"

Returns: iInsertedID: ID of new entry.

`nCreateNewSingleTestCase`(*_tbl_case_name*, *_tbl_case_issue*, *_tbl_case_tcid*, *_tbl_case_fid*, *_tbl_case_testnumber*, *_tbl_case_repeatcount*, *_tbl_case_component*, *_tbl_case_time_start*, *_tbl_case_result_main*, *_tbl_case_result_state*, *_tbl_case_result_return*, *_tbl_case_counter_resets*, *_tbl_case_lastlog*, *_tbl_test_result_id*, *_tbl_file_id*)

Create single testcase entry in *tbl_case* table immediately.

Args: _tbl_case_name : test case name.

_tbl_case_issue : test case issue ID.

_tbl_case_tcid : test case ID (used for testmanagement tool).

_tbl_case_fid : test case requirement (function) ID.

_tbl_case_testnumber : order of test case in file.

_tbl_case_repeatcount : test case repeatition count.

_tbl_case_component : component which test case is belong to.

_tbl_case_time_start : test case start time.

_tbl_case_result_main : test case main result.

_tbl_case_result_state : test case completion state.

_tbl_case_result_return : test case result code (as integer).

_tbl_case_counter_resets : counter of target reset within test case execution.

_tbl_case_lastlog : traceback information when test case is failed.

_tbl_test_result_id : UUID of test result for linking to file in *tbl_result* table.

_tbl_file_id : test file ID for linking to file in *tbl_file* table.

Returns: iInsertedID: ID of new entry.

`nCreateNewTestCase`(*_tbl_case_name*, *_tbl_case_issue*, *_tbl_case_tcid*, *_tbl_case_fid*, *_tbl_case_testnumber*, *_tbl_case_repeatcount*, *_tbl_case_component*, *_tbl_case_time_start*, *_tbl_case_result_main*, *_tbl_case_result_state*, *_tbl_case_result_return*, *_tbl_case_counter_resets*, *_tbl_case_lastlog*, *_tbl_test_result_id*, *_tbl_file_id*)

Create bulk of test case entries: new test case are buffered and inserted as bulk.

Once *__NUM_BUFFERD_ELEMENTS_FOR_EXECUTEMANY* is reached, the creation query is executed.

Args: _tbl_case_name : test case name.

_tbl_case_issue : test case issue ID.

_tbl_case_tcid : test case ID (used for testmanagement tool).

_tbl_case_fid : test case requirement (function) ID.

_tbl_case_testnumber : order of test case in file.

_tbl_case_repeatcount : test case repeatition count.

_tbl_case_component : component which test case is belong to.

_tbl_case_time_start : test case start time.

_tbl_case_result_main : test case main result.

_tbl_case_result_state : test case completion state.

_tbl_case_result_return : test case result code (as integer).

_tbl_case_counter_resets : counter of target reset within test case execution.

_tbl_case_lastlog : traceback information when test case is failed.

_tbl_test_result_id : UUID of test result for linking to file in *tbl_result* table.

_tbl_file_id : test file ID for linking to file in *tbl_file* table.

Returns: None.

`sCreateNewTestResult`(*_tbl_prj_project*, *_tbl_prj_variant*, *_tbl_prj_branch*, *_tbl_test_result_id*, *_tbl_result_interpretation*, *_tbl_result_time_start*, *_tbl_result_time_end*, *_tbl_result_version_sw_target*, *_tbl_result_version_sw_test*, *_tbl_result_version_target*, *_tbl_result_jenkinsurl*, *_tbl_result_reporting_qualitygate*)

Creates a new test result in *tbl_result*. This is the main table which is linked to all other data by means of *test_result_id*.

Args: _tbl_prj_project : project information.

_tbl_prj_variant : variant information.

_tbl_prj_branch : branch information.

_tbl_test_result_id : UUID of test result.

_tbl_result_interpretation : result interpretation.

_tbl_result_time_start : test result start time.

_tbl_result_time_end : test result end time.

_tbl_result_version_sw_target : software version information.

_tbl_result_version_sw_test : test version information.

_tbl_result_version_target : hardware version information.

_tbl_result_jenkinsurl : jenkinsurl in case test result is executed by jenkins.

_tbl_result_reporting_qualitygate : qualitygate information for reporting.

Returns: _tbl_test_result_id: *test_result_id*.

`sGetLatestFileID`(*sResultID*)

Get latest file ID from *tbl_file* table.

Args: sResultID : UUID of test result to get the latest file ID.

Returns: sFileID : file ID.

vCreateAbortReason(*_tbl_test_result_id*, *_tbl_abort_reason*, *_tbl_abort_message*)
Create abort reason entry.

Args: _tbl_test_result_id : UUID of test result.

_tbl_abort_reason : abort reason.

_tbl_abort_message : detail message of abort.

Returns: None.

vCreateCCRdata(*_tbl_test_case_id*, *lCCRdata*)
Create CCR data per test case.

Args: _tbl_test_case_id : test case ID.

lCCRdata : list od CCR data.

Returns: None.

vCreateNewHeader(*_tbl_file_id*, *_tbl_header_testtoolconfiguration_testtoolname*, *_tbl_header_testtoolconfiguration_testtoolversionstring*, *_tbl_header_testtoolconfiguration_projectname*, *_tbl_header_testtoolconfiguration_logfileencoding*, *_tbl_header_testtoolconfiguration_pythonversion*, *_tbl_header_testtoolconfiguration_testfile*, *_tbl_header_testtoolconfiguration_logfilepath*, *_tbl_header_testtoolconfiguration_logfilemode*, *_tbl_header_testtoolconfiguration_ctrlfilepath*, *_tbl_header_testtoolconfiguration_configfile*, *_tbl_header_testtoolconfiguration_confname*, *_tbl_header_testfileheader_author*, *_tbl_header_testfileheader_project*, *_tbl_header_testfileheader_testfiledate*, *_tbl_header_testfileheader_version_major*, *_tbl_header_testfileheader_version_minor*, *_tbl_header_testfileheader_version_patch*, *_tbl_header_testfileheader_keyword*, *_tbl_header_testfileheader_shortdescription*, *_tbl_header_testexecution_useraccount*, *_tbl_header_testexecution_computername*, *_tbl_header_testrequirements_documentmanagement*, *_tbl_header_testrequirements_testenvironment*, *_tbl_header_testbenchconfig_name*, *_tbl_header_testbenchconfig_data*, *_tbl_header_preprocessor_filter*, *_tbl_header_preprocessor_parameters*)
Create a new header entry in *tbl_file_header* table which is linked with the file.

Args: _tbl_file_id : file ID information.

_tbl_header_testtoolconfiguration_testtoolname : test tool name.

_tbl_header_testtoolconfiguration_testtoolversionstring : test tool version.

_tbl_header_testtoolconfiguration_projectname : project name.

_tbl_header_testtoolconfiguration_logfileencoding : encoding of logfile.

_tbl_header_testtoolconfiguration_pythonversion : Python version info.

_tbl_header_testtoolconfiguration_testfile : test file name.

_tbl_header_testtoolconfiguration_logfilepath : path to log file.

_tbl_header_testtoolconfiguration_logfilemode : mode of log file.

_tbl_header_testtoolconfiguration_ctrlfilepath : path to control file.

_tbl_header_testtoolconfiguration_configfile : path to configuration file.

_tbl_header_testtoolconfiguration_confname : configuration name.

_tbl_header_testfileheader_author : file author.

_tbl_header_testfileheader_project : project information.

_tbl_header_testfileheader_testfiledate : file creation date.

_tbl_header_testfileheader_version_major : file major version.

_tbl_header_testfileheader_version_minor : file minor version.

_tbl_header_testfileheader_version_patch : file patch version.

_tbl_header_testfileheader_keyword : file keyword.

_tbl_header_testfileheader_shortdescription : file short description.

_tbl_header_testexecution_useraccount : tester account who run the execution.

_tbl_header_testexecution_computername : machine name which is executed on.

_tbl_header_testrequirements_documentmanagement : requirement management information.

_tbl_header_testrequirements_testenvironment : requirement environment information.

_tbl_header_testbenchconfig_name : testbench configuration name.

_tbl_header_testbenchconfig_data : testbench configuration data.

_tbl_header_preprocessor_filter : preprocessor filter information.

_tbl_header_preprocessor_parameters : preprocessor parameters definition.

Returns: None.

`vCreateReanimation`(*_tbl_test_result_id*, *_tbl_num_of_reanimation*)
Create reanimation entry.

Args: _tbl_test_result_id : UUID of test result.

_tbl_num_of_reanimation : counter of target reanimation during execution.

Returns: None.

`vCreateTags`(*_tbl_test_result_id*, *_tbl_usr_result_tags*)
Create tag entries.

Args: _tbl_test_result_id : UUID of test result.

_tbl_usr_result_tags : user tags information.

Returns: None.

`vEnableForeignKeyCheck`(*enable=True*)
Switch *foreign_key_checks* flag.

`vFinishTestResult`(*_tbl_test_result_id*)

Finish upload:

- First do bulk insert of rest of test cases if buffer is not empty.
- Then set state to “new report”.

vSetCategory(*_tbl_test_result_id*, *tbl_result_category_main*)
Create category entry.

Args: _tbl_test_result_id : UUID of test result.

tbl_result_category_main : category information.

Returns: None.

vUpdateEvtbl(*sTestResultID*)
Call *update_evtbl* stored procedure to update provided *test_result_id*.

vUpdateEvtbls()
Call *update_evtbls* stored procedure.

vUpdateFileEndTime(*sFileID*, *sEndtime*)
Update test file end time.

Args: sFileID : file ID to be updated.

sEndtime : end time information.

Returns: None.

vUpdateResultEndTime(*sResultID*, *sEndtime*)
Update test result end time.

Args: sResultID : test result UUID to be updated.

sEndtime : end time information.

Returns: None.

vUpdateStartEndTime(*_tbl_test_result_id*, *_tbl_result_time_start*, *_tbl_result_time_end*)
Create start-end time entry.

Args: _tbl_test_result_id : UUID of test result.

_tbl_result_time_start : result start time.

_tbl_result_time_end : result end time.

Returns: None.

class robot2db.**Logger**
Bases: object

Logger class for logging message

color_error = '\x1b[31m\x1b[1m'

color_normal = '\x1b[37m\x1b[22m'

color_reset = '\x1b[0m\x1b[39m\x1b[49m'

color_warn = '\x1b[33m\x1b[1m'

classmethod config(*output_console=True*, *output_logfile=None*, *indent=0*, *dryrun=False*)
Configure Logger class.

Args: output_console : write message to console output.

output_logfile : path to log file output.

indent : offset indent.

dryrun : if set, a prefix as 'dryrun' is added for all messages.

Returns: None.

dryrun = False

classmethod log(*msg=''*, *color=None*, *indent=0*)
Write log message to console/file output.

Args: msg : message to write to output.

color : color style for the message.

indent : offset indent.

Returns: None.

classmethod log_error(*msg*, *fatal_error=False*)
Write error message to console/file output.

Args: msg : message to write to output.

fatal_error : if set, tool will terminate after logging error message.

Returns: None.

classmethod log_warning(*msg*)
Write warning message to console/file output.

Args: msg : message to write to output.

Returns: None.

output_console = True

output_logfile = None

prefix_all = ''

prefix_error = 'ERROR: '

prefix_fatalerror = 'FATAL ERROR: '

prefix_warn = 'WARN: '

robot2db.**RobotResults2DB**(*args=None*)
Import robot results from *output.xml* to TestResultWebApp's database

Flow to import Robot results to database:

1. Process provided arguments from command line
2. Connect to database
3. Parse Robot results
4. Import results into database
5. Disconnect from database

Args:

args [Argument parser object:]

- *outputfile* : path to the output file or directory with output files to be imported.
- *server* : server which hosts the database (IP or URL).
- *user* : user for database login.
- *password* : password for database login.
- *database* : database name.

- *recursive* : if True, then the path is searched recursively for log files to be imported.
- *dryrun* : if True, then just check the RQM authentication and show what would be done.
- *UUID* : UUID used to identify the import and version ID on TestResultWebApp.
- *variant* : variant name to be set for this import.
- *versions* : metadata: Versions (Software;Hardware;Test) to be set for this import.
- *config* : configuration json file for component mapping information.

Returns: None.

robot2db.**format_time**(*stime*)
Format the given time string to TestResultWebApp's format for importing to db.

Args: stime : string of time.

Returns: TestResultWebApp's time format.

robot2db.**get_branch_from_swversion**(*sw_version*)
Get branch name from software version information.

Convention of branch information in suffix of software version:

- All software version with .0F is the main/freature branch. The leading number is the current year. E.g. 17.0F03
- All software version with .1S, .2S, … is a stabi branch. The leading number is the year of branching out for stabilization. The number before "S" is the order of branching out in the year.

Args: sw_version : software version.

Returns: branch_name : branch name.

robot2db.**get_from_tags**(*lTags*, *reInfo*)
Extract testcase information from tags.

Example: TCID-xxxx, FID-xxxx, …

Args: lTags : list of tag information.

reInfo : regex to get the expectated info (ID) from tag info.

Returns: lInfo : list of expected information (ID)

robot2db.**is_valid_uuid**(*uuid_to_test*, *version=4*)
Verify the given UUID is valid or not.

Args: uuid_to_test : UUID to be verified.

version (optional): UUID version.

Returns: True if the given UUID is valid.

robot2db.**normailze_path**(*sPath*)
Normalize path file.

Args: sPath : string of path file to be normalized.

Returns: sNPath : string of normalized path file.

robot2db.**process_config_file**(*config_file*)

Parse information from configuration file:

- *component*:

```
{
   "component" : {
      "componentA" : "componentA/path/to/testcase",
      "componentB" : "componentB/path/to/testcase",
      "componentC" : [
         "componentC1/path/to/testcase",
         "componentC2/path/to/testcase"
      ]
   }
}
Then all testcase which its path contain componentA/path/to/testcase
will be  belong to componentA, ...
```

- *variant*, *version_sw*: configuration file has low priority than command line

Args: config_file : path to configuration file.

Returns: dConfig : configuration object.

robot2db.**process_metadata**(*metadata*, *default_metadata={'author': '', 'category': '', 'component': '', 'configfile': '', 'machine': '', 'project': 'ROBFW', 'tags': '', 'tester': '', 'testtool': '', 'version_hw': '', 'version_sw': '', 'version_test': ''}*)

Extract metadata from suite result bases on DEFAULT_METADATA

Args: metadata : Robot metadata object.

default_metadata: initial Metadata information for updating.

Returns: dMetadata : dictionary of Metadata information.

robot2db.**process_suite**(*db*, *suite*, *_tbl_test_result_id*, *root_metadata*, *dConfig=None*)

Process to the lowest suite level (test file):

- Create new file and its header information
- Then, process all child test cases

Args: suite : Robot suite object.

_tbl_test_result_id : UUID of test result for importing.

root_metadata : metadata information.

dConfig: configuration data which is parsed from given json configuration file.

Returns: None.

robot2db.**process_suite_metadata**(*suite*, *default_metadata={'author': '', 'category': '', 'component': '', 'configfile': '', 'machine': '', 'project': 'ROBFW', 'tags': '', 'tester': '', 'testtool': '', 'version_hw': '', 'version_sw': '', 'version_test': ''}*)

Try to find metadata information from all suite levels.

Note: Metadata at top suite level has a highest priority.

Args: suite : Robot suite object.

default_metadata: initial Metadata information for updating.

Returns: dMetadata : dictionary of Metadata information.

robot2db.**process_test**(*db*, *test*, *file_id*, *test_result_id*, *metadata_info*, *test_number*)

Process test case data and create new test case record.

Args: db : database object.

test : Robot test object.

file_id : file ID for mapping.

test_result_id : test result ID for mapping.

metadata_info : metadata information.

test_number : order of test case in file.

Returns: None.

robot2db.**truncate_string**(*sString*, *iMaxLength*, *sEndChars='...'*)

Truncate input string before importing to database.

Args: sString : input string for truncation.

iMaxLength : max length of string to be allowed.

sEndChars (optional): end characters which are added to end of truncated string.

Returns: content : string after truncation.

robot2db.**validate_config**(*dConfig*, *sSchema={'component': [<class 'str'>, <class 'dict'>], 'variant': <class 'str'>, 'version_sw': <class 'str'>}*, *bExitOnFail=True*)

Validate the json configuration base on given schema.

Default schema just supports "component", "variant" and "version_sw"

```
CONFIG_SCHEMA = {
   "component" : [str, dict],
   "variant"   : str,
   "version_sw": str,
}
```

Args: dConfig : json configuration object to be verified.

sSchema (optional): schema for the validation. *CONFIG_SCHEMA* is used as default.

bExitOnFail (optional): If True, exit tool in case the validation is fail.

Returns: bValid : True if the given json configuration data is valid.

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