The RobotResults2DB tool

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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.

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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:

The RobotResults2DB tool

[Tags] ISSUE-\${ISSUE_ID}

• Testcase ID:

[Tags] TCID-\${TC_ID}

• Requirement ID:

[Tags] FID-\${REQ_ID}

SAMPLE ROBOTFRAMEWORK TESTCASE:

For test case management, we need some tracable information such as version, testcase ID, component, \dots 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:

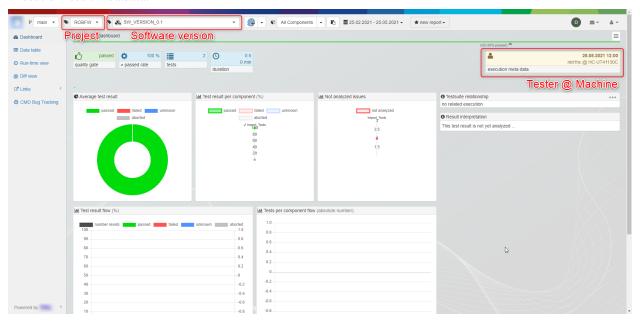
```
*** Settings ***
# Test execution level
Metadata
                                             # Project/Variant
           project
                          ROBFW
Metadata
           version_sw
                                              # Software version
                          SW_VERSION_0.1
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
                          Tran Duy Ngoan (RBVH/ECM1)
            author
            component
Metadata
                          Import_Tools
Metadata
                          Robot Framework 3.2rc2 (Python 3.9.0 on win32)
            testtool
Metadata
           machine
                          %{COMPUTERNAME}
Metadata
            tester
                          %{USER}
*** Test Cases ***
Testcase 01
   [Tags]
            ISSUE-001
                        TCID-1001
                                    FID-112
                                              FID-111
             This is Testcase 01
  Log
Testcase 02
   [Tags]
            ISSUE-RTC-003
                            TCID-1002
                                        FID-113
             This is Testcase 01
   Log
```

DISPLAY ON WEBAPP:

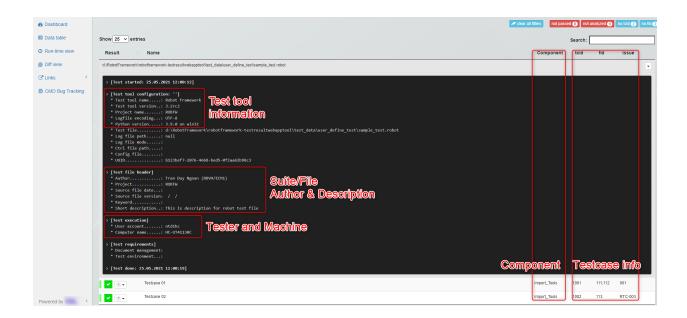
When the *output.xml* file(s) is importing successfully to database, the result for that execution will be available on TestResultWebApp.

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:



FIVE

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": {
  "cli"
            : "robot/cli",
  "core"
             : "robot/core",
  "external" : "robot/external".
  "keywords" : "robot/keywords",
  "libdoc"
             : "robot/libdoc",
              : "robot/output"
  "output"
  "parsing" : "robot/parsing",
             : "robot/reboot",
  "reboot"
  "rpa"
              : "robot/rpa",
  "running"
              : "robot/running",
```

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```
"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"
}
```

10 Chapter 5. Notes:

ROBOTRESULTS2DB'S API!

6.1 RobotResults2DB package

Create new file entry in *tbl_file* table.

6.1.1 Module contents

```
class 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')
```

```
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 exe-
```

cuted.

```
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 confiname, 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 ison 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: IInfo: 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
                          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.

robot2db.process_test(db, test, file id, test result id, metadata info, test number)

Returns: dMetadata: dictionary of Metadata information.

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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