# Common

**Library version:** RENAT 0.1.12 **Library scope:** global

supported

Named arguments:

### Introduction

Common library for RENAT

It loads config files and create necessary varibles. The file should be the 1st library included from any test case.

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## **Configuration file**

### Global configuration

There are 2 important configuration files. The global configuration files (aka master files) include device information, authentication etc that are used for all the test cases in the suite. The local configuration file local.yaml includes information about nodes, tester ports etc. that are used in a specific test case.

At the beginning, the module makes a local copy the master files and initialize necessary variables.

The RENAT framework utilized the YAML format for its configurations file.

The master files folder is defined by renat-master-folder in \$RENAT\_PATH/config/config.yaml. Usually, users do not need to modify the master files. The most common case is when new device is deployed, the device.yaml need to be update so that device could be used in the test cases.

#### 1. device.yaml: contains global device information

Each device information is store under device block and has the following format:

```
<node_name>
type: <device type>
description: <any useful description>
ip: <the IPv4 address of the device
```

Where <node\_name> is the name of the device. It could be the name of a switch, router or a web appliance box and should be uniq between the devices. <description> is any useful information and <ip> is the IP that RENAT uses to access the device.

<type> is important because it will be used as the ky of the access\_template in template file. Usually users do not need to invent a new type but should use the existed type. When a new platform need to be supported, a new type will be introduced with the correspon template and authentication information.

### Samples:

```
device:
  apollo:
    type: ssh-host
    description: main server
    ip: 10.128.3.101
  artermis:
    type: ssh-host
    description: second server
    ip: 10.128.3.91
  vmx11:
    type: juniper
    description: r1
    ip: 10.128.64.11
  vmx12:
    type: juniper
    description: r2
    ip: 10.128.64.12
```

### 2. template.yaml: contains device template information

The template file contains information about how to access to the device and how it should polling information (SNMP only for now). Each template has the following format:

<type>: access: <ssh or telnet> auth: <plaint-text or public-key> profile: <authentication profile name> prompt: <a regular expression for the PROMPT of the CLI device> (optional) login\_prompt: <a login PROMPT for CLI device> (optional) password\_prompt: <a PROMPT for asking password of CLI device> (optional) append: <a pharase to append automatically for every CLI command that executes> on this device (optional> init: <an array of command that will be executed automatically after a sucessful login of CLI device> (optional)</a>

Note: Becareful about the prompt field. Usually RENAT will wait until it could see the prompt in its output. A wrong prompt will halt the system until it is timed out.

### Samples:

```
access-template:
ssh-host:
access: ssh
auth: public-key
profile: default
prompt: \$
append:
init: unalias -a
juniper:
access: telnet
auth: plain-text
```

```
profile: default
    prompt: "(#|>) '
    append: ' | no-more'
  cisco:
    access: ssh
    auth: plain-text
    profile: default
    prompt: "\@.*(#|>) "
    append:
    init:
snmp-template:
   juniper:
      mib: ./mib-Juniper.json
      community: public
       poller: renat
    cisco:
       mib: ./mib-Cisco.json
       community: public
```

#### 3. auth.yaml: contains authentication information

The file contains authentication information that system uses when access to a device. Each authencation type has follwing format:

Where <profile> is the name of the authentication profile specificed in the access template of the device

#### Sample

```
auth:
  plain-text:
    default:
      user: user
      pass: nttXXX
    flets:
      user: user
      pass: lpcoXXXX
    arbor:
      user: admin
      pass: nttXXX
  public-key: # for Public Key authentication
    default:
      user: robot
      key: /home/user/.ssh/robot_id_rsa
    test:
      user: jenkins
      key: /var/lib/jenkins/.ssh/id_rsa
```

### **Local Configuration**

Local configuration (aka local.yaml) was used by a test case of its sub test cases. Test cases could includes several test cases (the sub level is not limited). The local configuration is defined by local.yaml in the config folder of each test case. If a test case does not has the local.yaml in its config folder, it will use the local.yaml file in its parent test case and so on. This will help users to share the test information for related test case without having the same local.yaml for each test case (**Note:** this feature is enabled from RENAT 0.1.4). The local.yaml that is really used for the test is called active local.yaml.

When user used the wizard item.sh to create a new test case, they have the ability to crete new local.yaml or not. local.yaml could be edited and inserted new information later to hold more informations for the test case.

When a test is run, it will display its current active  $\ensuremath{\mathsf{local.yaml}}$ 

The local configuration file of each test item is stored in the config folder of the item as 'local.yaml

Usually the local.yaml has following parts:

- CLI node information: started by node keyword
- WEB node information: started by webapp keyword
- Tester device information: started by tester keyword
- Default information: automatically created and started by default keyword
- And other neccessary information for the test by yaml format

### Sample:

```
# CLI node
node:
vmx11:
device: vmx11
snmp_polling: yes
vmx12:
device: vmx11
snmp_polling: yes
apollo:
device: vmx11
snmp_polling: yes
apollo:
snmp_polling: yes
```

```
# web application information
webapp:
 arbor-sp-a:
    device: arbor-sp-a
    proxv:
      http: 10.128.8.210:8080
      ssl: 10.128.8.210:8080
      socks: 10.128.8.210:8080
# Tester information
 tester01:
    type: ixnet
    ip: 10.128.32.70
    config: vmx_20161129.ixncfg
# Other user information|
port-mapping:
 uplink01:
    device: vmx11
   port: ge-0/0/0
 downlink01:
    device: vmx12
    port: ge-0/0/2
# Default information
  ignore_dead_node: yes
 terminal:
    width: 80
    height: 32
  result_folder: result
```

### **Variables**

The module automatically create GLOBAL & LOCAL variable for other libraries. It also creates global list variables GLOBAL, LOCAL and NODE that could be accessed from Robot Framework` test cases.

The GLOBAL variable holds all information defined by the master files and LOCAL variable holds all variables defined by active local.yaml. And NODE is a list that hold all active nodes defined in the local.yaml.

Users could access to the information of a key in local.yaml by \${LOCAL[key']}, information of a node by \${LOCAL[node'][vmx11']} or simply \$NODE[vmx']. When a keyword need a list of current node, @{NODE} could be used.

Notes: By default, RENAT will stop and raise an exception if connection to a node is failed. But if ignore\_dead\_node is defined as yes (default) is the current active local.yaml, RENAT will omit an warning but keep running the test and remove the node from its active node list.

### **Shortcuts**

Change Mod · Cleanup Result · Close Display · Convert Html To Pdf · Convert Xml · Count Keyword · Count Keyword Line · Count Match Regexp · Create Sequence · Csv Add · Csv Concat · Csv Create · Csv Merge · Csv Select · Diff File · Err · Error Line Should Not Be Bigger Than · Error Should Not Be Bigger Than · Explicit Run · File Md5 · Fold Str · Follow Syslog And Trap · Get Config Path · Get Config Value · Get File Without Error · Get Item Config Path · Get Item Name · Get Multi Lines · Get Myid · Get Renat Path · Get Result Folder · Get Result Path · Get Test Device · Is Stable · Keyword Line Should Not Be Bigger Than · Keyword Should Not Be Bigger Than · Load Plugin · Log · Log Csv · Log To Console · Loop For Node Tag · Md 5 · Merge Files · Mib For Node · Node With Attr · Node With Tag · Node Without Tag · Pause · Ping Until Ok · Random Name · Random Number · Renat Version · Screenshot · Send · Set Multi Item Variable · Set Result Folder · Slack · Start Display · Str 2 Seq · Version · Wait

## Keywords

Keyword	Arguments	Documentation
Change Mod	name, mod, relative=False	Changes file mod, likes Unix chmod
		mod is a string specifying the privilege mode relative is False or True
		Examples:
		Common. Change Mod tmp 0775
Cleanup Result	ignore=^(log.html output.xml report.html)\$	Cleans up the result folder
		Deletes all files in current active folder that does not match the ignore expression and are older than the time the test has started.
		Note: The keyword only removes files but not folders
Close Display		Closes the opened display
Convert Html To Pdf	html_file, pdf_file	Converts html file to pdf file
Convert XmI	style, src, dst	Converts XML by using XLS stylesheet
		Predefined stylesheets are store in tools/xls under current active RENAT folder
		Parameters:
		style: path to stylesheet
		<ul> <li>src: path to the XML source</li> <li>dst: path to the output file</li> </ul>
Count Keyword	keyword, *pattern list	·
	_	Count the keyword in files. Keyword is not case-sensitive
Count Keyword Line	keyword, *pattern_list	Count the number of lines contains the keyword

Count Match Regexp	regexp, *pattern_list		is matched partially. For example, error or ener of regex found in pattern_list	22 ./	,
			Count Match RegExp .*error.* result/*.csv result/	*.txt	
Create	start, end, interval, option=float		th number from start to end with interval		
Sequence	, see, see, see, see, see, see, see, se	Example:	The first start to one with merval		
			<u>e Sequence</u> 10 15 0.5		
Csv Add			of [11.0, 11.5, 12.0, 12.5, 13.0, 13.5, 14.0, 14.5]		
CSV Add	pathname, *items	Add more data define by a list items to a existed CSV file			
0 0		Note:: do not check the consistency between item's number and header's number			IE)
Csv Concat	src_pattern, dst_name, input_header=None, result_header=True	Concatinates CSV files vertically If the CSV files has header, set has_header to \${TRUE}			
		Examples:			
			<u>V Concat</u> config/data0[3,4].csv result/result2.csv <u>V Concat</u> config/data0[3,4].csv result/result2.csv		
Csv Create	pathname, *header		e with headers defined by a list header	Πα3_Πσασσι=ψ[ΤΤΟΣ]	
OSV Orcate	patrilane, ricader		,		
Csv Merge	cro nattorn det namo	The CSV file is opend with UTF-8 encoding mode  Merges all CSV files horizontally by key key from src pattern			
ost merge	src_pattern, dst_name, input_header=None, key=0, select_column=:, result_header=True	input_header de keyword assume	fines whether the input files has header row or that input files have no header and automatic	ally define columns nam	e. When
		input_header is not null (default is zero), the row define by input_header will be used as header and do is counted from the next row.  select_column is a string that define the output columns and key is the column name that used to me			
		When input_header is \${NULL}, select_column and <i>key</i> is the index of columns. Otherwise, they are <i>column name</i> .			
		The result header (column names) is decided by result_header (True or False)			
		The keyword returns False if no file is found by the pattern			
		Examples:			
			config/data0[3,4].csv	result/result2.csv	
		Merge Common. <u>CSV</u> Merge	config/data0[3,4].csv	result/result2.csv	input_header=
			src_pattern=\${RESULT_FOLDER}/balance*.csv	input_header=0	
			dst_name=\${RESULT_FOLDER}/result.csv key=Stat Name	result_header=\${FALSE} select_column=Valid Frames Rx.	
		Common. <u>CSV</u> <u>Merge</u>	src_pattern=\${RESULT_FOLDER}/balance*.csv	input_header=\${NULL}	
			dst_name=\${RESULT_FOLDER}/result.csv key=0	result_header=\${FALSE} select column=5	
Csv Select	src_file, dst_file, str_row=:, str_col=:, has_header=None		str_col are used to spec	cify necessary	
		<ul> <li>: and 1,2 means all rows and 2nd and 3rd columns</li> <li>0:3 and 1 means 3 rows from the 1st one(0,1,2) and second column</li> <li>0:5:2 and 1 means 3 rows(0,3,5) and second column</li> </ul>			
		Notes:			
		<ul> <li>Rows and columns are indexed from zero</li> <li>When ':' is used, the string has format: <start>:<stop> or <start>:<stop>:<step> For convenience</step></stop></start></stop></start></li> <li>':' means all the data, ':x' means first 'x' data</li> </ul>			
		Examples:			
		<u>CSV Select</u> re	sult/data05.csv result/result3.csv 0,1,2 0,1		
			sult/data05.csv result/result4.csv : 0,1		
			sult/data05.csv result/result5.csv :2 : sult/data05.csv result/result6.csv 0:3 :		
			sult/data05.csv result/result7.csv 0.5:2 :		
Diff File	path1, path2, newline=True	Shows difference	e between files		
		Returns the diff i	result (multi lines) path1, path2 are absolute p	paths.	
Err	msg	Prints error msg to console			
Error Line Should Not Be	num, *pattern_list	Checks whether the number of lines that contains error be less than a number			
Bigger Than Error Should Not Be Bigger	num, *pattern_list	Checks whether the number of error be less than a number			
Than					
Explicit Run		ckin the test one	e if global_variable RUN_ME is not defined		

		Sample scenario:		
		00. Cabling  Common. <u>Explicit Run</u> Log To Console cabling		
		run.sh will bypass 00. Cabling by default. In other to run this test case \${FORCE} needs declared globally run.sh -X -v FORCE		
File Md5	path	Returns MD5 hash of a file		
		path is an absolute path		
Fold Str	str	Folds a string by adding Non-Width-Space char (0x200b) at 6th char		
Follow Syslog And Trap	pattern, log_file_name=syslog-trap.log, delay_str=1s	Pauses the execution and wait for the pattern is matched if the file <i>log_file_name</i> located in the cresult folder.		
		By default the <code>log_file_name</code> is <code>./result/syslog-trap.log</code> which is created by <code>Follow Syslog and Trap.keyword</code> .		
		The keyword should be in tests between Follow Syslog adn Trap Start and Follow Syslog and Trap keywords.		
Get Config Path		Returns absolute path of RENAT config folder path		
Get Config Value	key, base=default, default=None	Returns value of a key for renat configuration with this other LOCAL[base][key] > GLOBAL[base][None		
Get File Without Error	file_path	Get content of the file and return null string if the file does not exist		
Get Item Config Path Get Item Name		Returns absolute path of current item config folder  Returns the name of the running item		
	data, index	Returns the name of the running item  Returns multiple lines from text data using index.		
GEL MUILI LINES	uaia, IIIuu	Returns multiple lines from text data using <i>index</i>		
Get Myid		index uses python rule.		
Get Renat Path		Returns the absolute path of RENAT folder		
Get Result		Returns current result folder name. Default is result in current test case.		
Folder		Note: the keyword only returns the name of the result folder not its absolue path.		
Get Result Path		Returns absolute path of the current result folder		
Get Test Device		Return a list of all test device that is used in this test		
		Notes: Device number could less than node number		
Is Stable	seq, threshold, percentile=90	Notes: Device number could less than node number  Checks if the value sequence is stable or not		
Keyword Line Should Not Be Bigger Than	num, keyword, *pattem_list	Checks whether the number of line containing the keyword be less than a number		
Keyword Should Not Be Bigger Than	num, keyword, *pattem_list	Checks whether the number of keyword be less than a number		
Load Plugin		Load plugin in renat/plugin folder		
Log	msg, level=1	Logs msg to the current log file (not console)  The msg will logged only if the level is bigger than the global level \${DEBUG} which could be defiruntime. If \${DEBUG} is not defined, it will be considered as the default level as 1.		
		Examples:		
		Common. <u>Log</u> XXX # this always be logged		
		Common. <u>Log</u> AAA level=2 # this will not be logged with common run.sh  Common. <u>Log</u> BBB level=2 # ./run.sh -v DEBUG:2 will log the message		
		Notes: For common use		
		<ul> <li>level 1: is default</li> <li>level 2: is debug mode</li> <li>level 3: is very informative mode</li> </ul>		
Log Csv	csv_file, index=False, border=0	Logs a content of csv_file into default log.html		
		index, border are table attributes		
Log To Console	msg, level=1	Logs a message to console  See Common. Print for more details about debug level		
Loop For Node	var, tags, *keywords	Repeatly executes RF keyword for nodes that has tag tags		
Tag		multi tags are separated by : keywords has same meaning with keywords used by Run Keywords RobotFramework ( keyword and its arguments are separated by AND with the others.		
		Example:		
		Loop For Node Tag \\${node} tag1		
		Switch \\${node} AND		
		Cmd show system user AND		
		Cmd   show system uptime		
		Note: \$ in variable name must be escaped		

Md 5 str  Merge Files path_name, file_name		Merges all the text files defined by path_name to file_name	
		Example:	
		Merge Files //result/*.csv //result/test.csv	
Mib For Node	node	Returns the mib file name for this node mib file is define by mib keyword under the node in local.ya	
MID I OI NOGE	noce	node: vmx11: device: vmx11 snmp_polling: yes mib: mib11.txt  Default value is defined by mib keyword from global config/snmp-template.yaml for the type of the no Example:	
		\${mib}= Common. <u>MIB For Node</u> vmx11	
Node With Attr	attr_name, value	Returns a list of nodes which have attribute attr_name with value value	
Node With Tag	*tag_list	Returns list of node or webapp from local.yaml that has ALL tags defined by tag_list	
		Tag was defined like this in local.yaml	
		vmx11:     device: vmx11     snmp_polling: yes     tag:         - tag1         - tag2	
		Examples:	
		\${test3}= Common.Node With Tag tag1 tag3	
Node Without Tag	*tag_list	Returns list of node from local.yaml that does not has ANY tags defined by tag_list	
9		Tag was defined like this in local.yaml  vmx11:     device: vmx11     snmp_polling: yes     tag:     - tag1     - tag2	
		Examples:  \${test3}= Common. Node Without Tag   tag1   tag3	
Pause	msg=, time_out=3h, error_on_timeout=True, default_input=  Displays the message msg and pauses the test execution and wait for user input In case of error_on_timeout is True(default), the keyword will raise an error when to Otherwise, it will continue the test.  Notes: If the variable \${RENAT_BATCH} was defined, the keyword will print out th running without pausing.  Examples:  Common_Pause Waiting 10s error_on_timeout=\${TRUE} default input Common_Pause Waiting 10s		
Ping Until Ok	node, wait_str=5s, extra=-c 3	Ping a node until it gets response. Then wait for more wait_str Default extra option is -c3	
Random Name	base, a=0, b=99	Returns a random name by a <i>base</i> and a random number between [a,b]	
	5000, 0 0, 2 00	Example:  \$\{\text{FOLDER}\= \begin{array}{c} \text{Random Name} \text{ capture \\ \%05d \ 0 \ 99 \end{array}	
Random Number	a=0, b=99	Returns a random number between [a,b]	
Renat Version		Returns RENAT version string	
Screenshot	file_path	Capture whole display to a file specified by file_path  Notes: This keyword saves the whole virtual screen(monitor), while the familiar WebApp. Screenshot Capture only saves the portion of the web browser. But in contrast, the WebApp. Screenshot Capture could do fullpage capture depending on the content of the browser.	
Send	sock, data, recv_buffer_size=1024, encode=utf-8	Sends bytes of data by socket sock and reicve the response	
Set Multi Item Variable	*vars	When recv_buffer_size is zero, the function does not execpt a response from the remote.  Set multiple varibles to be suite variable at the same time	
Set Result Folder	folder	Suite variables (or item variable) could be access anywhere in all the item scenario.  Sets the result folder to folder and return the old result folder. The result folder contains all output file from the test likes tester ouput, config file	
i Oldei		folder is a folder name that under current test case folder	
		The system will create a new folder if it does not exist and set its mode to 0775	
		Note: Result folder should be set at the begining of the test. Changing result folder only has effect or	

Slack	msg, channel=#automation_dev, user=renat, host=10.128.3.103:4713	comming connection Post a message to Slack	
Start Display		Starts a virtual display	
Str 2 Seq	str_index, size	Returns a sequence from string format  Samples:    Str2Seq ::   5   # (0,1,2,3,4)     Str2Seq :2   5   # (0,1)     Str2Seq   1:3   5   # (1,2)     Str2Seq   0:5:2   5   # (0,2,4)	
Version		Returns the current version of RENAT	
Wait	wait_time, size=10	Waits for wait-time and display the proress bar  wait_time used RF DateTime format.  Examples:  Common.Wait wait_time=30s size=10	

Altogether 61 keywords.
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