

# RENAT

**Library version:** RENAT 0.1.10  
**Library scope:** global  
**Named arguments:** supported

## Introduction

Document for RENAT framework  
All in one pdf [renat.pdf](#)

## Libraries

RENAT includes following libraries:

- Common:**  
Common library of RENAT
- VChannel:**  
Library controls connection to targets (servers, routers, ...)
- Logger:**  
Library provides enhanced logging keywords
- Optical:**  
Library provides keywords to control L1 switches, includes [mod\\_calient](#) mod, [mod\\_ntm](#) mod
- Router:**  
Library provides keywords to control routers, includes [mod\\_juniper](#) mod , [mod\\_cisco](#) mod and [mod\\_gr](#) mod
- Tester:**  
Library provides keywords to control testers, includes [mod\\_ixnet](#) , [mod\\_ixload](#) and [mod\\_ixbps](#)
- WebApp:**  
Common library for web application, includes 2 child libraries: [Samurai](#) and [Arbor](#)
- Hypervisor:**  
Library provides keywords to control Hypervisor, included [mod\\_vmware](#)
- LabKeyword:**  
Common lab keywords

## Others

- Changes:**  
Changes information

Choose each libraries for detail information and samples about keywords.

## Shortcuts

## Keywords

Keyword	Arguments	Documentation
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Altogether 0 keywords.  
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# Common

**Library version:** RENAT 0.1.10  
**Library scope:** global  
**Named arguments:** supported

## Introduction

Common library for RENAT

It loads config files and create necessary variables. 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)

**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'
init:
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 authentication type has following format:

```

plain-text
<profile>
  user: <user name>
  password: <password>

```

or

```

public-key:
<profile>:
  user: <user name>
  key: <public key path>

```

Where <profile> is the name of the authentication profile specified 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 or its sub test cases. Test cases could include 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 have 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 cases 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 create new `local.yaml` or not. `local.yaml` could be edited and inserted new information later to hold more information for the test case.

When a test is run, it will display its current active `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 necessary 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

```

```
# web application information
webapp:
  arbor-sp-a:
    device: arbor-sp-a
    proxy:
      http: 10.128.8.210:8080
      ssl: 10.128.8.210:8080
      socks: 10.128.8.210:8080

# Tester information
tester:
  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
default:
  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 · Convert Html To Pdf · Count Keyword · Count Keyword Line · Count Match Regexp · Create Sequence · Csv Concat · 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 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 · Set Multi Item Variable · Set Result Folder · Slack · Str 2 Seq · Version · Wait

## Keywords

Keyword	Arguments	Documentation
<b>Change Mod</b>	<i>name, mod, relative=False</i>	Changes file mod, likes Unix chmod  <code>mod</code> is a string specifying the privilege mode <code>relative</code> is <code>False</code> or <code>True</code>  Examples: <div>Common.<a href="#">Change Mod</a> tmp 0775</div>
<b>Cleanup Result</b>	<i>ignore=^(log.html output.xml report.html)\$</i>	Cleans up the result folder  Deletes all files in current active folder that does not match the <code>ignore</code> expression and are older than the time the test has started.  <b>Note:</b> The keyword only removes files but not folders
<b>Convert Html To Pdf</b>	<i>html_file, pdf_file</i>	Converts html file to pdf file
<b>Count Keyword</b>	<i>keyword, *pattern_list</i>	Count the keyword in files. Keyword is not case-sensitive
<b>Count Keyword Line</b>	<i>keyword, *pattern_list</i>	Count the number of lines contains the <code>keyword</code>  <b>Notes:</b> Keyword is matched partially. For example, <code>error</code> or <code>errorXXX</code> will be matched by <code>error</code> keyword.
<b>Count Match Regexp</b>	<i>regexp, *pattern_list</i>	Count the number of <code>regex</code> found in <code>pattern_list</code>  Examples: <div>\$(err_num)= <a href="#">Count Match RegExp</a> .*error.* result/*.csv result/*.txt</div>
<b>Create Sequence</b>	<i>start, end, interval, option=float</i>	Creates a list with number from <code>start</code> to <code>end</code> with <code>interval</code>  Example: <div></div>

		<div>@{list}= <a href="#">Create Sequence</a> 10 15 0.5</div> <div>will create a list of [11.0, 11.5, 12.0, 12.5, 13.0, 13.5, 14.0, 14.5]</div>																																
Csv Concat	<div>src_pattern, dst_name, input_header=None, result_header=True</div>	<div>Concatinates CSV files vertically If the CSV files has header, set has_header to \${TRUE}</div> <div>Examples:</div> <table><tr><td>Common.<a href="#">CSV Concat</a></td><td>config/data0[3,4].csv</td><td>result/result2.csv</td><td></td></tr><tr><td>Common.<a href="#">CSV Concat</a></td><td>config/data0[3,4].csv</td><td>result/result2.csv</td><td>has_header=\${TRUE}</td></tr></table>	Common. <a href="#">CSV Concat</a>	config/data0[3,4].csv	result/result2.csv		Common. <a href="#">CSV Concat</a>	config/data0[3,4].csv	result/result2.csv	has_header=\${TRUE}																								
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Common. <a href="#">CSV Concat</a>	config/data0[3,4].csv	result/result2.csv	has_header=\${TRUE}																															
Csv Merge	<div>src_pattern, dst_name, input_header=None, key=0, select_column=:, result_header=True</div>	<div>Merges all CSV files horizontally by key key from src_pattern</div> <div>input_header defines whether the input files has header row or not. If input_header is \${NULL}, the keyword assume that input files have no header and automatically define columns name. When input_header is not null (default is zero), the row define by input_header will be used as header and data is counted from the next row.</div> <div>select_column is a string that define the output columns and key is the column name that used to merge. When input_header is \${NULL}, select_column and key is the index of columns. Otherwise, they are column name.</div> <div>The result header (column names) is decided by result_header (True or False)</div> <div>The keyword returns False if no file is found by the pattern</div> <div>Examples:</div> <table><tr><td>Common.<a href="#">CSV Merge</a></td><td>config/data0[3,4].csv</td><td>result/result2.csv</td><td></td></tr><tr><td>Common.<a href="#">CSV Merge</a></td><td>config/data0[3,4].csv</td><td>result/result2.csv</td><td>input_header=0</td></tr><tr><td>Common.<a href="#">CSV Merge</a></td><td>src_pattern=\${RESULT_FOLDER}/balance*.csv</td><td>input_header=0</td><td></td></tr><tr><td>...</td><td>dst_name=\${RESULT_FOLDER}/result.csv</td><td>result_header=\${FALSE}</td><td></td></tr><tr><td>...</td><td>key=Stat Name</td><td>select_column=Valid Frames Rx.</td><td></td></tr><tr><td>Common.<a href="#">CSV Merge</a></td><td>src_pattern=\${RESULT_FOLDER}/balance*.csv</td><td>input_header=\${NULL}</td><td></td></tr><tr><td>...</td><td>dst_name=\${RESULT_FOLDER}/result.csv</td><td>result_header=\${FALSE}</td><td></td></tr><tr><td>...</td><td>key=0</td><td>select_column=5</td><td></td></tr></table>	Common. <a href="#">CSV Merge</a>	config/data0[3,4].csv	result/result2.csv		Common. <a href="#">CSV Merge</a>	config/data0[3,4].csv	result/result2.csv	input_header=0	Common. <a href="#">CSV Merge</a>	src_pattern=\${RESULT_FOLDER}/balance*.csv	input_header=0		...	dst_name=\${RESULT_FOLDER}/result.csv	result_header=\${FALSE}		...	key=Stat Name	select_column=Valid Frames Rx.		Common. <a href="#">CSV Merge</a>	src_pattern=\${RESULT_FOLDER}/balance*.csv	input_header=\${NULL}		...	dst_name=\${RESULT_FOLDER}/result.csv	result_header=\${FALSE}		...	key=0	select_column=5	
Common. <a href="#">CSV Merge</a>	config/data0[3,4].csv	result/result2.csv																																
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...	key=0	select_column=5																																
Csv Select	<div>src_file, dst_file, str_row=:, str_col=:, has_header=None</div>	<div>Select part of the CSV file and write it to other file str_row and str_col are used to specify necessary rows and columns. They are using the same format with slice for Python list.</div> <div><div>■ : and : means all rows and columns</div><div>■ :2 and : means first 2 rows and all columns</div><div>■ : and 1,2 means all rows and 2nd and 3rd columns</div><div>■ 0:3 and 1 means 3 rows from the 1st one(0,1,2) and second column</div><div>■ 0:5:2 and 1 means 3 rows(0,3,5) and second column</div></div> <div>Notes:</div> <div><div>■ Rows and columns are indexed from zero</div><div>■ When ':' is used, the string has format: &lt;start&gt;:&lt;stop&gt; or &lt;start&gt;:&lt;stop&gt;:&lt;step&gt; For convenience, ':' means all the data, 'x' means first 'x' data</div></div> <div>Examples:</div> <table><tr><td><a href="#">CSV Select</a></td><td>result/data05.csv</td><td>result/result3.csv</td><td>0,1,2</td><td>0,1</td></tr><tr><td><a href="#">CSV Select</a></td><td>result/data05.csv</td><td>result/result4.csv</td><td>:</td><td>0,1</td></tr><tr><td><a href="#">CSV Select</a></td><td>result/data05.csv</td><td>result/result5.csv</td><td>:2</td><td>:</td></tr><tr><td><a href="#">CSV Select</a></td><td>result/data05.csv</td><td>result/result6.csv</td><td>0:3</td><td>:</td></tr><tr><td><a href="#">CSV Select</a></td><td>result/data05.csv</td><td>result/result7.csv</td><td>0:5:2</td><td>:</td></tr></table>	<a href="#">CSV Select</a>	result/data05.csv	result/result3.csv	0,1,2	0,1	<a href="#">CSV Select</a>	result/data05.csv	result/result4.csv	:	0,1	<a href="#">CSV Select</a>	result/data05.csv	result/result5.csv	:2	:	<a href="#">CSV Select</a>	result/data05.csv	result/result6.csv	0:3	:	<a href="#">CSV Select</a>	result/data05.csv	result/result7.csv	0:5:2	:							
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<a href="#">CSV Select</a>	result/data05.csv	result/result7.csv	0:5:2	:																														
Diff File	<div>path1, path2, newline=True</div>	<div>Shows difference between files</div> <div>Returns the diff result (multi lines) path1 , path2 are absolute paths.</div>																																
Err	<div>msg</div>	<div>Prints error msg to console</div>																																
Error Line Should Not Be Bigger Than	<div>num, *pattern_list</div>	<div>Checks whether the number of lines that contains error be less than a number</div>																																
Error Should Not Be Bigger Than	<div>num, *pattern_list</div>	<div>Checks whether the number of error be less than a number</div>																																
Explicit Run		<div>skip the test case if global_variable RUN_ME is not defined</div> <div>Sample scenario:</div> <table><tr><td>00. Cabling</td><td></td></tr><tr><td>Common.<a href="#">Explicit Run</a></td><td></td></tr><tr><td>Log To Console</td><td>cabling...</td></tr></table> <div>run.sh will bypass 00. Cabling by default. In other to run this test case \${FORCE} needs declared globally run.sh -X -v FORCE</div>	00. Cabling		Common. <a href="#">Explicit Run</a>		Log To Console	cabling...																										
00. Cabling																																		
Common. <a href="#">Explicit Run</a>																																		
Log To Console	cabling...																																	
File Md5	<div>path</div>	<div>Returns MD5 hash of a file</div> <div>path is an absolute path</div>																																
Fold Str	<div>str</div>	<div>Folds a string by adding Non-Width-Space char (0x200b) at 6th char</div>																																
Follow Syslog And Trap	<div>pattern, log_file_name=syslog-trap.log, delay_str=1s</div>	<div>Pauses the execution and wait for the pattern is matched if the file log_file_name located in the current result folder.</div>																																

		<p>By default the <code>log_file_name</code> is <code>./result/syslog-trap.log</code> which is created by <a href="#">Follow Syslog and Trap</a> keyword.</p> <p>The keyword should be in tests between <i>Follow Syslog adn Trap Start</i> and <i>Follow Syslog and Trap Stop</i> keywords.</p>																
Get Config Path		Returns absolute path of RENAT config folder path																
Get Config Value	<code>key, base=default</code>	Returns value of a key for renat configuration with this other LOCAL[base][key] > GLOBAL[base][key] > None																
Get File Without Error	<code>file_path</code>	Get content of the file and return null string if the file does not exist																
Get Item Config Path		Returns absolute path of current item config folder																
Get Item Name		Returns the name of the running item																
Get Myid																		
Get Renat Path		Returns the absolute path of RENAT folder																
Get Result Folder		Returns current result folder name. Default is <code>result</code> in current test case.  <b>Note:</b> the keyword only returns the <code>name</code> of the result folder not its absloue 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  <b>Notes:</b> Device number could less than node number																
Is Stable	<code>seq, threshold, percentile=90</code>	Checks if the value sequence is stable or not																
Keyword Line Should Not Be Bigger Than	<code>num, keyword, *pattern_list</code>	Checks whether the number of line containing the keyword be less than a number																
Keyword Should Not Be Bigger Than	<code>num, keyword, *pattern_list</code>	Checks whether the number of keyword be less than a number																
Load Plugin		Load plugin in renat/plugin folder																
Log	<code>msg, level=1</code>	<p>Logs <code>msg</code> to the current log file (not console)</p> <p>The <code>msg</code> will logged only if the level is bigger than the global level <code>\$(DEBUG)</code> which could be defined at runtime. If <code>\$(DEBUG)</code> is not defined, it will be considered as the default <code>level</code> as 1.</p> <p>Examples:</p> <table><tr><td>Common.<a href="#">Log</a></td><td>XXX</td><td># this always be logged</td><td></td></tr><tr><td>Common.<a href="#">Log</a></td><td>AAA</td><td>level=2</td><td># this will not be logged with common run.sh</td></tr><tr><td>Common.<a href="#">Log</a></td><td>BBB</td><td>level=2</td><td># ./run.sh -v DEBUG:2 will log the message</td></tr></table> <p><b>Notes:</b> For common use</p> <ul style="list-style-type: none"><li>level 1: is default</li><li>level 2: is debug mode</li><li>level 3: is very informative mode</li></ul>	Common. <a href="#">Log</a>	XXX	# this always be logged		Common. <a href="#">Log</a>	AAA	level=2	# this will not be logged with common run.sh	Common. <a href="#">Log</a>	BBB	level=2	# ./run.sh -v DEBUG:2 will log the message				
Common. <a href="#">Log</a>	XXX	# this always be logged																
Common. <a href="#">Log</a>	AAA	level=2	# this will not be logged with common run.sh															
Common. <a href="#">Log</a>	BBB	level=2	# ./run.sh -v DEBUG:2 will log the message															
Log Csv	<code>csv_file, index=False, border=0</code>	<p>Logs a content of <code>csv_file</code> into default log.html</p> <p><code>index, border</code> are table attributes</p>																
Log To Console	<code>msg, level=1</code>	<p>Logs a message to console</p> <p>See Common.<i>Print</i> for more details about debug level</p>																
Loop For Node Tag	<code>var, tags, *keywords</code>	<p>Repeatedly executes RF <code>keyword</code> for nodes that has tag <code>tags</code></p> <p>multi tags are separated by <code>:</code> keywords has same meaning with <code>keywords</code> used by <i>Run Keywords</i> of RobotFramework (keyword and its arguments are separated by <code>AND</code> with the others.</p> <p>Example:</p> <table><tr><td><a href="#">Loop For Node Tag</a></td><td><code>\\${node}</code></td><td>tag1</td><td></td></tr><tr><td>...</td><td><i>Switch</i></td><td><code>\\${node}</code></td><td>AND</td></tr><tr><td>...</td><td><i>Cmd</i></td><td>show system user</td><td>AND</td></tr><tr><td>...</td><td><i>Cmd</i></td><td>show system uptime</td><td></td></tr></table> <p><b>Note:</b> <code>\$</code> in variable name must be escaped</p>	<a href="#">Loop For Node Tag</a>	<code>\\${node}</code>	tag1		...	<i>Switch</i>	<code>\\${node}</code>	AND	...	<i>Cmd</i>	show system user	AND	...	<i>Cmd</i>	show system uptime	
<a href="#">Loop For Node Tag</a>	<code>\\${node}</code>	tag1																
...	<i>Switch</i>	<code>\\${node}</code>	AND															
...	<i>Cmd</i>	show system user	AND															
...	<i>Cmd</i>	show system uptime																
Md 5	<code>str</code>	Returns MD5 hash of a string																
Merge Files	<code>path_name, file_name</code>	<p>Merges all the text files defined by <code>path_name</code> to <code>file_name</code></p> <p>Example:</p> <table><tr><td><a href="#">Merge Files</a></td><td><code>./result/*.csv</code></td><td><code>./result/test.csv</code></td></tr></table>	<a href="#">Merge Files</a>	<code>./result/*.csv</code>	<code>./result/test.csv</code>													
<a href="#">Merge Files</a>	<code>./result/*.csv</code>	<code>./result/test.csv</code>																
Mib For Node	<code>node</code>	<p>Returns the mib file name for this <code>node</code> mib file is define by <code>mib</code> keyword under the <code>node</code> in <code>local.yaml</code></p> <pre>... node:   vmx11:     device: vmx11     snmp_polling: yes     mib: mib11.txt ...</pre> <p>Default value is defined by <code>mib</code> keyword from global <code>config/snmp-template.yaml</code> for the <code>type</code> of the node</p> <p>Example:</p>																

		<div><div>\$(mib)=</div><div>Common.</div><div>MIB For Node</div><div>vmx11</div></div>
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 <pre>vmx11:   device: vmx11   snmp_polling: yes   tag:     - tag1     - tag2</pre> Examples: <div><div>\$(test3)=</div><div>Common.</div><div>Node With Tag</div><div>tag1</div><div>tag3</div></div>
Node Without Tag	*tag_list	Returns list of node from local.yaml that does not has ANY tags defined by tag_list  Tag was defined like this in local.yaml <pre>vmx11:   device: vmx11   snmp_polling: yes   tag:     - tag1     - tag2</pre> Examples: <div><div>\$(test3)=</div><div>Common.</div><div>Node Without Tag</div><div>tag1</div><div>tag3</div></div>
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 timeout occurs. Otherwise, it will continue the test.  <b>Notes:</b> If the variable \${RENAT_BATCH} was defined, the keyword will print out the message and keeps running without pausing.  Examples: <div><div>Common.</div><div>Pause</div><div>Waiting...</div><div>10s</div><div>error_on_timeout=\${TRUE}</div><div>default input</div></div> <div><div>Common.</div><div>Pause</div><div>Waiting...</div><div>10s</div><div></div><div></div></div>
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 -c 3
Random Name	base, a=0, b=99	Returns a random name by a base and a random number between [a,b]  Example: <div><div>\$(FOLDER)=</div><div>Random Name</div><div>capture_%05d</div><div>0</div><div>99</div></div>
Random Number	a=0, b=99	Returns a random number between [a,b]
Renat Version		Returns RENAT version string
Set Multi Item Variable	*vars	Set multiple variables to be suite variable at the same time  Suite variables (or item variable) could be access anywhere in all the item scenario.
Set Result Folder	folder	Sets the result folder to folder and return the old result folder. The result folder contains all output files from the test likes tester ouput, config file ...  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  <b>Note:</b> Result folder should be set at the beginning of the test. Changing result folder only has effect on up comming connection
Slack	msg, channel=#automation_dev, user=renat, host=10.128.3.103:4713	Post a message to Slack
Str 2 Seq	str_index, size	Returns a sequence from string format  Samples: <div><div>Str2Seq</div><div>::</div><div>5</div><div># (0,1,2,3,4)</div></div> <div><div>Str2Seq</div><div>:2</div><div>5</div><div># (0,1)</div></div> <div><div>Str2Seq</div><div>1:3</div><div>5</div><div># (1,2)</div></div> <div><div>Str2Seq</div><div>0:5:2</div><div>5</div><div># (0,2,4)</div></div>
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: <div><div>Common.</div><div>Wait</div><div>wait_time=30s</div><div>size=10</div></div>



# VChannel

**Library version:** RENAT 0.1.10  
**Library scope:** test suite  
**Named arguments:** supported

## Introduction

A basic library that provides Terminal connection to routers/hosts

VChannel is a core RENAT library that maintains input/output to nodes with an attached virtual terminal. It encapsulates the SSH/Telnet connections behind and provides common usage of access and execute commands to the nodes. Each channel instance has its own log file and a virtual terminal.

## Table of Contents

- [Device, Node and Channel](#)
- [Connections](#)
- [Shortcuts](#)
- [Keywords](#)

## Device, Node and Channel

RENAT has 3 types of connection target. Device, Node and Channel.

### Device

Each device stands for a real physical box that has its own IP address and is defined in the master file `device.yaml`. Users do not directly use device in keywords.

### Node

Node is a logical instance of a device. It could stand for a logical instance of a router or just a virtual terminal to the router. Nodes were defined in `local.yaml` of the test case. Several nodes could point to a same device.

### Channel

Each channel holds a session to a node. Each channel has its own log file and a virtual terminal. Any command used by `Cmd`, `Write` or `Read` will be logged to the log file. Each channel is identified by a name when it is created with `Connect` keyword and is released with `Close` keyword.

**Notes:** multi sessions to a same device could be done with predefined multi nodes to same device in the `local.yaml` file or by using multi `Connect` with different `name`.

## Connections

The library provides a channel to a target node. Each channel is attached with a virtual terminal. Input and output to the node are made through this virtual terminal. This will help to provide the output looks like the output when operator is using the real terminal.

When keywords `Read`, `Write`, `Cmd` are used, if the connection is not available anymore, the system will try to reconnect to the host with the information provided in the 1st connect. It will try `max_retry_for_connect` times and wait for `interval_between_retry` seconds between retries. The values of `max_retry_for_connect` and `interval_between_retry` are defined in `./config/config.yaml`

Usually when RENAT could not make the connections to the target, the system will raise an exception. But if the `ignore_dead_node` is defined as `yes` in the current active `local.yaml`, the system will ignore the dead node, remove it from the global variable `LOCAL[node]` and `NODE` and keep running the test.

## Shortcuts

Change Log · Change Prompt · Close · Close All · Cmd · Cmd And Wait For · Cmd Yesno · Connect · Connect All · Current Prompt · Exec File · Flush All · Get Channel · Get Channels · Get Current Channel · Get Ip · Log · Read · Reconnect · Set Log Separator · Snap · Snap Diff · Start Screen Mode · Stop Screen Mode · Switch · Write

## Keywords

Keyword	Arguments	Documentation												
Change Log	<code>log_file</code> , <code>mode=w</code>	Stops current log file and create a new log file. Every log from that point will be saved to the new log file Return old log filename												
Change Prompt	<code>str_prompt</code>	Changes the current prompt of the channel  Returns previous prompt. User should change the prompt before execute the new command that expects to see new prompt.  Example: <table><tr><td>Router.<code>Switch</code></td><td>vmx11</td><td></td></tr><tr><td>\${prompt}=</td><td>VChannel.<code>Change Prompt</code></td><td>%</td></tr><tr><td>VChannel.<code>Cmd</code></td><td>start shell</td><td></td></tr><tr><td>VChannel.<code>Cmd</code></td><td>ls</td><td></td></tr></table>	Router. <code>Switch</code>	vmx11		\${prompt}=	VChannel. <code>Change Prompt</code>	%	VChannel. <code>Cmd</code>	start shell		VChannel. <code>Cmd</code>	ls	
Router. <code>Switch</code>	vmx11													
\${prompt}=	VChannel. <code>Change Prompt</code>	%												
VChannel. <code>Cmd</code>	start shell													
VChannel. <code>Cmd</code>	ls													



		<table><tr><td>VChannel.<a href="#">Change Prompt</a></td><td>\$(prompt)</td><td></td></tr><tr><td>Vchannel.<a href="#">Cmd</a></td><td>exit</td><td></td></tr></table>	VChannel. <a href="#">Change Prompt</a>	\$(prompt)		Vchannel. <a href="#">Cmd</a>	exit							
VChannel. <a href="#">Change Prompt</a>	\$(prompt)													
Vchannel. <a href="#">Cmd</a>	exit													
Close		Closes current connection and returns the active channel name												
Close All		Closes all current sessions and flush out all log files.  Current node name was reset to <code>None</code>												
Cmd	<i>command=, prompt=, match_err=(unknown command./syntax error, expecting &lt;command&gt;.)</i>	Executes a <code>command</code> and wait until for the prompt.  This is a blocking keyword. Execution of the test case will be postponed until the prompt appears. If <code>prompt</code> is a null string (default), its value is defined in the <code>./config/template.yaml</code>  Output will be automatically logged to the channel current log file.  See <a href="#">Common</a> for details about the config files.												
Cmd And Wait For	<i>command, keyword, interval=30s, max_num=10, error_with_max_num=True</i>	Execute a <code>command</code> and expect <code>keyword</code> occurs in the output. If not wait for <code>interval</code> and repeat the process again  After <code>max_num</code> , if <code>error_with_max_num</code> is <code>True</code> then the keyword will fail. Otherwise the test continues.												
Cmd Yesno	<i>cmd, ans=yes, question=? [yes,no]</i>	Executes a <code>cmd</code> , waits for <code>question</code> and answers that by <code>ans</code>												
Connect	<i>node, name, log_file, timeout=20m, w=80, h=32, mode=w</i>	Connects to the node and create a VChannel instance  Login information is automatically extracted from yaml configuration. By default a virtual terminal (vty100) with size 80x64 is attached to this channel.  If a login was successful, VChannel will create a log file name <code>log_file</code> for the connection in the current result folder of the test case. This log file will contain any command input/output executed on this channel.  Multi sessions to the same node could be open with different names. Use <a href="#">Switch</a> to change the current active session by its name  Examples: <table><tr><td><a href="#">Connect</a></td><td>vmx11</td><td>vmx11</td><td>vmx11.log</td><td></td><td></td></tr><tr><td><a href="#">Connect</a></td><td>vmx11</td><td>vmx11</td><td>vmx11.log</td><td>80</td><td>64</td></tr></table> See <code>Common</code> for more detail about the yaml config files.	<a href="#">Connect</a>	vmx11	vmx11	vmx11.log			<a href="#">Connect</a>	vmx11	vmx11	vmx11.log	80	64
<a href="#">Connect</a>	vmx11	vmx11	vmx11.log											
<a href="#">Connect</a>	vmx11	vmx11	vmx11.log	80	64									
Connect All	<i>prefix=</i>	Connects to <b>all</b> nodes that are defined in active <code>local.yaml</code> .  A prefix <code>prefix</code> was appended to the alias name of the connection. A new log file by <code>&lt;alias&gt;.log</code> was automaticocally created.  See <code>Common</code> for more detail about active <code>local.yaml</code>												
Current Prompt		Return current prompt												
Exec File	<i>file_name, vars=, comment=#, step=False, str_error=syntax,rror</i>	Executes commands listed in <code>file_name</code> Lines started with <code>comment</code> character is considered as comments  <code>file_name</code> is a file located inside the <code>config</code> folder of the test case.  This command file could be written in Jinja2 format. Default usable variables are <code>LOCAL</code> and <code>GLOBAL</code> which are identical to <code>Common.LOCAL</code> and <code>Common.GLOBAL</code> . More variables could be supplied to the template by <code>vars</code> .  <code>vars</code> has the format: <code>var1=value1,var2=value2</code>  If <code>step</code> is <code>True</code> , after very command the output is check agains an error list. And if a match is found, execution will be stopped. Error list is define by <code>str_err</code> , that contains multi regular expression separated by a comma. Default value of <code>str_err</code> is <code>error</code>  A sample for command list with Jinja2 template: <pre>show interface {{ LOCAL['extra']['line1'] }} show interface {{ LOCAL['extra']['line2'] }}  {% for i in range(2) %} show interface et-0/0/{{ i }} {% endfor %}</pre> Examples: <table><tr><td>Router.<a href="#">Exec File</a></td><td>cmd.lst</td><td></td></tr><tr><td>Router.<a href="#">Exec File</a></td><td>step=\${TRUE}</td><td>str_error=syntax,error</td></tr></table> <b>Note:</b> Comment in the middle of the line is not supported For example if <code>comment</code> is <code>"# "</code> <pre># this is comment line &lt;-- this line will be ignored ## this is not an comment line, and will be enterd to the router cli,</pre> but the router might ignore this	Router. <a href="#">Exec File</a>	cmd.lst		Router. <a href="#">Exec File</a>	step=\${TRUE}	str_error=syntax,error						
Router. <a href="#">Exec File</a>	cmd.lst													
Router. <a href="#">Exec File</a>	step=\${TRUE}	str_error=syntax,error												
Flush All														
Get Channel	<i>name</i>	Returns a channel by its <code>name</code>												

Get Channels		Returns all current vchannel instances				
Get Current Channel		Returns the current active channel				
Get Ip		Returns the IP address of current node Examples: <div><code>\${router_ip}= Router.<a href="#">Get IP</a></code></div>				
Log	msg	Writes the log message msg to current log file of the channel				
Read	silence=False	Returns the current output of the virtual terminal and automatically logs to file. In normal mode this will return the unread output only, not all the content of the screen.				
Reconnect	name	Reconnects to the name node using existed information The only difference is that the mode of the log file is set to `a+` by default				
Set Log Separator	sep=	Set a separator between the log of read, write or cmd keywords				
Snap	name, *cmd_list	Remembers the result of a list of command defined by cmd_list  Use this keyword with <a href="#">Snap Diff</a> to get the difference between the command's result. The a new snapshot will override the previous result.  Each snap is identified by its name				
Snap Diff	name	Executes the comman that have been executed before by name snapshot and return the difference.  Difference is in context diff format				
Start Screen Mode		Starts the screen mode.  In the screen mode, the output is just the same with the real terminal. It means that any real-time application likes top will be captured as-is. Consecutive <a href="#">read</a> from this VChannel instance may produce redundancy ouput.				
Stop Screen Mode		Stops the screen mode and returns to normal mode  In screen mode, <a href="#">Write</a> does not return any thing and no output is logged. In normal mode, escape sequences are not processed by the virtual terminal.				
Switch	name	Switches the current active channel to name. There only one active channel at any time  Examples: <div><code>VChannel.<a href="#">Switch</a> vmx12</code></div>				
Write	str_cmd=, str_wait=0s, start_screen_mode=False	Sends str_cmd to the target node and return after str_wait time.  If start_screen_mode is True, the channel will be shifted to Screen Mode. Default value of screen_mode is False.  In normal mode, a new line char will be added automatically to the str_cmd and the command return the output it could get at that time from the terminal and also logs that to the log file.  In screen Mode, if it is necessary you need to add the new line char by your own and the ouput is not be logged or returned from the keyword.  Parameters: <ul style="list-style-type: none"><li>str_cmd: the command</li><li>str_wait: time to wait after apply the command</li><li>start_screen_mode: whether start the screen mode right after writes the command</li></ul> Special input likes Ctrl-C etc. could be used with global variable \${CTRL-<char>}  Returns the output after writing the command the the channel.  When str_wait is not 0s, the keyword read and return the output after waiting str_wait. Otherwise, the keyword return without any output.  <b>Notes:</b> This is a non-blocking command.  Examples: <div><table><tr><td>VChannel.<a href="#">Write</a> monitor interface traffic</td><td>start_screen_mode=\${TRUE}</td></tr><tr><td>VChannel.<a href="#">Write</a> \${CTRL_C}</td><td># simulates Ctrl-C</td></tr></table></div>	VChannel. <a href="#">Write</a> monitor interface traffic	start_screen_mode=\${TRUE}	VChannel. <a href="#">Write</a> \${CTRL_C}	# simulates Ctrl-C
VChannel. <a href="#">Write</a> monitor interface traffic	start_screen_mode=\${TRUE}					
VChannel. <a href="#">Write</a> \${CTRL_C}	# simulates Ctrl-C					

Altogether 26 keywords.

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# Logger

**Library version:** RENAT 0.1.10  
**Library scope:** test suite  
**Named arguments:** supported

## Introduction

Provides advanced logging functions. Every [Logger](#) instance has one [VChannel](#) object and the is synchronized with the current active [VChannel](#).

**Notes:** log file is not updated pararelly. Anytime a terminal is switched to, it will update its log file.

## Shortcuts

Log · Log All · Switch

## Keywords

Keyword	Arguments	Documentation								
Log	<i>msg,</i> <i>with_time=False,</i> <i>mark=***</i>	Inserts a message <code>msg</code> to the current <i>VChannel</i> log file. A default mark of <code>***</code> will be added at the beginning ant the end of this message.  Example: <table><tr><td>Logger.<a href="#">Log</a></td><td>START TRAFFIC FROM HERE</td><td>\${TRUE}</td><td></td></tr><tr><td>Logger.<a href="#">Log</a></td><td>START TRAFFIC FROM HERE</td><td>\${False}</td><td>===</td></tr></table>	Logger. <a href="#">Log</a>	START TRAFFIC FROM HERE	\${TRUE}		Logger. <a href="#">Log</a>	START TRAFFIC FROM HERE	\${False}	===
Logger. <a href="#">Log</a>	START TRAFFIC FROM HERE	\${TRUE}								
Logger. <a href="#">Log</a>	START TRAFFIC FROM HERE	\${False}	===							
Log All	<i>msg,</i> <i>with_time=False,</i> <i>mark=***</i>	inserts a message <code>msg</code> to current <b>all</b> <a href="#">VChannel</a> log files.  A default <code>mark</code> of <code>***</code> and newline will be added at the beggining and the end of this message.  Example: <table><tr><td>Logger.<a href="#">Log All</a></td><td>START TRAFFIC FROM HERE</td><td>\${TRUE}</td><td></td></tr><tr><td>Logger.<a href="#">Log All</a></td><td>START TRAFFIC FROM HERE</td><td>\${TRUE}</td><td>===</td></tr></table> The log file will look likes this: <pre>user@vmx12&gt;  *** 06:01PM on August 13, 2017: START TRAFFIC FROM HERE ***  === 06:01PM on August 13, 2017: START TRAFFIC FROM HERE ===  configure</pre>	Logger. <a href="#">Log All</a>	START TRAFFIC FROM HERE	\${TRUE}		Logger. <a href="#">Log All</a>	START TRAFFIC FROM HERE	\${TRUE}	===
Logger. <a href="#">Log All</a>	START TRAFFIC FROM HERE	\${TRUE}								
Logger. <a href="#">Log All</a>	START TRAFFIC FROM HERE	\${TRUE}	===							
Switch	<i>name</i>	Switches the current <a href="#">VChannel</a> instance to <code>name</code> . <code>name</code> is the name of the <a href="#">VChannel</a> (usually is the node name defined in the current active <code>local.yaml</code> ) .  Example: <table><tr><td>Logger.<a href="#">Switch</a></td><td>vmx11</td></tr></table>	Logger. <a href="#">Switch</a>	vmx11						
Logger. <a href="#">Switch</a>	vmx11									

Altogether 3 keywords.

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# OpticalSwitch

**Library version:** RENAT 0.1.10  
**Library scope:** test suite  
**Named arguments:** supported

## Introduction

A library provides control for L1 Optical Switch

Unlike other device, there is no *Switch* keywork with optical switch. Usually user only need to care about the interfaces not the ports of the switches.

## Shortcuts

**Add** · **Clear By File** · **Close All** · **Connect All** · **Delete** · **Get Connection Info** · **Load From File** · **Save To File**

## Keywords

Keyword	Arguments	Documentation						
Add	dev1, intf1, dev2, intf2, direction=bi, force=False	Adds a connection. See details in each module help						
Clear By File	file_name=, comment=#	Clears all x-connections defined in the connection file Default connection file is defined in optic/connection of config/local.yaml						
Close All		Close all connections						
Connect All		Connect to all L1 switch and read all necessary information						
Delete	dev1, intf1, dev2, intf2, direction=bi, force=False	Deletes a connection. See details in each module help						
Get Connection Info	dev, intf	Returns connection information. See details in each module help.						
Load From File	file_name=, force=True, comment=#	Loads the connection file and set the connections  filename is the name of the connection file under the current config folder. If filename is empty, the value of optic/connection from config/local.yaml will be used.  The connection file supports jinja2 template language. Besides, # is the default comment char which could be changed  The format of connection file follows: <ul style="list-style-type: none"><li>■ each connection is described by 1 line</li><li>■ source and destination are separated by ` - or &gt; , which mean `bidirection or unidirection (unidirection connects source tx to dest rx</li></ul> Connection file sample: <pre>device1:port1 - device2:port2 device1:port3 &gt; device2:port</pre> Examples: <table><tr><td>OpticalSwitch.</td><td>Load From File</td><td></td></tr><tr><td>OpticalSwitch.</td><td>Load From File</td><td>save1.conn</td></tr></table>	OpticalSwitch.	Load From File		OpticalSwitch.	Load From File	save1.conn
OpticalSwitch.	Load From File							
OpticalSwitch.	Load From File	save1.conn						
Save To File	file_name	Saves the current connection of all devices in this test.  By default, all interfaces of the devices are save. If a connection file is given, only interfaces specified in the connection file are saved  Examples: <table><tr><td>OpticalSwitch.</td><td>Save To File</td><td>save1.conn</td></tr></table>	OpticalSwitch.	Save To File	save1.conn			
OpticalSwitch.	Save To File	save1.conn						

Altogether 8 keywords.  
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# calient

Library scope: global  
Named arguments: supported

## Introduction

A library provides control for Calient Optical Switch

### Table of Contents

- Master file
- Connection file Format
- Shortcuts
- Keywords

## Master file

The L1 switch provides a mechanism to remotely connect device interface. Each device interface has been wired to L1 switch already. The connection was described in the master file located specific by *calient-master-path* in the configuration file *renat/config/config.yaml*.  
The master file includes several Calients in each tab. The column meaning and order is trivial.

## Connection file Format

Keywords *Load From File*, *Clear By File* and *Save To File* use the x-connection file. X-connection files are text files and have the following format:

```
# this is the comment
device1,interface1,-,device2,interface2
device1,interface1,>,device2,interface2
```

The separator `-` means a bidirection connection and `>` means a unidirection connection. For a unidirection connection, `device1/interface1` TX will be connected to `device2/interface2` RX.  
**Note:** The separator character must be surrounded by spaces or commas.  
The connection file also support jinja2 template format. After the template is evaluated, comment could be used by `comment char`  
There is no need to specify which L1 switch for the x-connection. The system will automatically find the appropriate switch.

## Shortcuts

Add · Delete · Get Connection Info

## Keywords

Keyword	Arguments	Documentation
Add	self, dev1, intf1, dev2, intf2, direction=bi, force=False	<p>Adds x-connection between <code>dev1:intf1</code> and <code>dev2:intf2</code></p> <p><code>direction</code> is <code>bi</code> for bi-direction or <code>uni</code> for uni-direction. If <code>direction</code> is <code>uni</code>, the tx of <code>dev 1:port 1</code> will be connected to <code>dev 2:port 2</code>.</p> <p>With <code>force</code> mode, existed connection that use those ports will be deleted. Without <code>force</code> mode, an existed connection will make the keyword fails</p> <p>Examples:</p> <div>OpticalSwitch.<i>Add</i> mx2008-31-33 xe-3/0/0 mx2008-31-33 xe-3/0/1 bi \${TRUE}</div> <p><b>Note:</b> when <code>force</code> is <code>False</code> but the current ports is owned by the same connection endpoints, keyword will succeed.</p> <p>For a bidirection connection, 2 single uni-direction connection will be made instead of 1 bi-direction connection. This will make the link could be simulated tx/rx failure later.</p>
Delete	self, dev1, intf1, dev2, intf2, direction=bi, force=False	<p>Deletes the connection between <code>dev1:intf1</code> - <code>dev2:intf2</code></p> <p>Examples:</p> <div>OpticalSwitch.<i>Delete</i> mx2008-31-33 xe-3/0/1 mx2008-31-33 xe-3/0/1 uni</div>
Get Connection Info	self, dev, intf	<p>Returns information of the optic switch port that connected to <code>dev:intf</code>. The information is in jason format.</p> <p>Examples:</p> <div>OpticalSwitch.<i>Get Connection Info</i> mx2008-31-33 xe-3/0/1</div> <p>return information looks like below:</p> <div>result = {u'outoc': u'NOHW', u'outopwdh': u'-20.0', u'inos': u'OOS', u'outalias': u'', u'inowner': u'TRANSIT', u'outopwct': u'-23.0', u'inpower': u'-3.4', u'inas': u'IS', u'outpower': u'-4.8', u'outas': u'OOS-NP', u'inopt': u'-17.0', u'inoph': u'13.0', u'incircuit': u'3.3.1&gt;3.3.2', u'inalias': u''</div>

	<code>u'inoc': u'NOHW', u'inopte': u'-20.0', u'outos': u'OOS', u'port': u'3.3.1', u'outowner': u'NONE', u'outcircuit': u''}</code>
--	--

Altogether 3 keywords.

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# g4ntm

**Library scope:** global  
**Named arguments:** supported

## Introduction

A library provides control for Telescent Network Topology Management (NTM) robot patch.

## Shortcuts

**Add** · **Delete** · **Get Connection Info**

## Keywords

Keyword	Arguments	Documentation
<b>Add</b>	<i>self, dev1, intf1, dev2, intf2, direction=bi, force=False</i>	
<b>Delete</b>	<i>self, dev1, intf1, dev2, intf2, direction=bi, force=False</i>	Deletes the connection between dev1:intf1 - dev2:intf2
<b>Get Connection Info</b>	<i>self, dev, intf</i>	Returns information about the connection by router/interface

Altogether 3 keywords.  
Generated by [Libdoc](#) on 2018-09-25 13:57:52.



# Router

**Library version:** RENAT 0.1.10  
**Library scope:** test suite  
**Named arguments:** supported

## Introduction

A class provides keywords for router control. An instance of Router class automatically assigned methods of a VChannel class (**Note:** this is not an inheritance but rather 1-to-1 relation)

See [VChannel](#) for more details about *VChannel*.

Device's `type` is defined in master `device.yaml`. The system will load appropriate modules for each device.

Details about keywords provided by modules could be found in document of each module likes:

- [Juniper module](#)
- [Cisco module](#)
- [GR module](#)

Keywords provides by above module could be executed through *Xrun* keyword or directly called from `Router`. Examples:

Router. <i>Switch</i>	vmx12
Router. <i>Xrun</i>	Load Config
Router. <i>Load Config</i>	

## Shortcuts

Follow Mib · Xrun

## Keywords

Keyword	Arguments	Documentation
Follow Mib	<i>node_list</i> , <i>wait_time=10s</i> , <i>interval_time=5s</i> , <i>len=12</i> , <i>percentile=80</i> , <i>threshold=75</i> , <i>max_len=300</i> , <i>factor=1</i>	<p>Waits until all the nodes defined in <code>node_list</code> become <code>stable</code>.</p> <p>Stableness is checked by SNMP polling result. The MIB list is define by <code>mib</code> in <code>node</code> section Parameter:</p> <ul style="list-style-type: none"><li>▪ <code>wait_time(1)</code>: the time before the evaluation starting</li><li>▪ <code>interval_time(2)</code>: interval between SNMP polling time</li><li>▪ <code>threshold</code>: below this value is evaluated as <code>stable</code></li><li>▪ <code>len(3)</code>: the size of the evaluation window (number of values that are used in each valuation)</li><li>▪ <code>percentile</code>: real useful percentage of data (ignore top 100-percentile percent)</li><li>▪ <code>max_len(4)</code>: maximum waiting <code>lend</code> for this checking</li></ul> <p>time sequence: --(1)--(2)- ----- ----- ----- </p> <p>&lt;-----(3)-----&gt; poll poll</p> <p>&lt;-----(3)-----&gt;</p> <p>&lt;------(4)-----&gt;</p>
Xrun	<i>cmd</i> , <i>*args</i> , <i>**kwargs</i>	<p>Runs the vendor independent keywords.</p> <p>Parametes:</p> <ul style="list-style-type: none"><li>▪ <code>cmd</code>: a keyword</li><li>▪ <code>args</code>: other argumemts</li></ul> <p>Examples:</p> <p>Router.<i>Xrun</i> Flap Interface ge-0/0/0</p> <p>This keyword will then actually calling the correspond keyword for the device type.</p>





# cisco

**Library scope:** global  
**Named arguments:** supported

## Introduction

Documentation for test library `cisco`.

## Shortcuts

Get User · Get Version

## Keywords

Keyword	Arguments	Documentation
Get User	<i>self</i>	Return the current login user
Get Version	<i>self</i>	return router version information

Altogether 2 keywords.  
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# gr

**Library scope:** global  
**Named arguments:** supported

## Introduction

Provides keywords for Hitachi GR platform

## Shortcuts

**Get Chassis Serial** · **Get Version**

## Keywords

Keyword	Arguments	Documentation
<b>Get Chassis Serial</b>	<i>self</i>	Returns the serial number of the chassis
<b>Get Version</b>	<i>self</i>	return router version information

Altogether 2 keywords.

Generated by [Libdoc](#) on 2018-09-25 13:57:48.



# juniper

**Library scope:** global  
**Named arguments:** supported

## Introduction

Provides keywords for Juniper platform

**Notes:** Ignore the *self* parameters when using those keywords.

## Shortcuts

Create Best Path Select Data · Disable Interface · Enable Interface · Flap Interface · Get Chassis Serial · Get Cli Mode · Get Config · Get Current Datetime · Get File · Get Intf Addr · Get Route Number · Get Version · Link Status · Load Config · Number Of Bgp Neighbor · Number Of Ospf Neighbor · Number Of Ospf3 Neighbor

## Keywords

Keyword	Arguments	Documentation
Create Best Path Select Data	<i>self</i> , <i>route_content</i> , <i>output_excel=best.xlsx</i>	Creates the matrix of best path selection  Provides the test described in <i>smb://10.128.3.91/SharePoint01/31_VerificationRoom/31_13_検証環境セット/BGP-Best-Path-SelectionのAll-in-One設定_20161118改良/</i> The test uses predefined Ixia config and follows predefined steps
Disable Interface	<i>self</i> , <i>intf</i>	Disables an interface <i>intf</i>
Enable Interface	<i>self</i> , <i>intf</i>	Enables an interface <i>intf</i>
Flap Interface	<i>self</i> , <i>intf</i> , <i>time_str=10s</i>	Simulates an interface flap for interface <i>intf</i>  Disables the interface and wait for a while before turning it up again
Get Chassis Serial	<i>self</i>	Returns the serial number of the chassis
Get Cli Mode	<i>self</i>	Returns current mode of the CLI.  Return value is <i>config</i> for configuration mode or <i>command</i> for command mode
Get Config	<i>self</i> , <i>dst_name=</i>	Gets the current configuration file of the router to current <i>result</i> folder.  Default <i>dst_name</i> is <i>juniper.conf.gz</i>
Get Current Datetime	<i>self</i> , <i>time_format=%H:%M:%S</i> , <i>delta_time=0s</i> , <i>dir=+</i> , <i>**kwargs</i>	Returns the current date time with vendor format <i>delta_time</i> will be added or subtracted to current time, default is <i>0s</i>  <i>time_format</i> decides the time part of the output. Example result are : <div>May 24 04:14:25 May 4 04:14:25</div> <b>Note:</b> The date part is padded by space, and the result is allways 15 characters
Get File	<i>self</i> , <i>src_file</i> , <i>dst_file=</i>	Gets a file from router  <ul style="list-style-type: none"><li><i>src_file</i> is a absolute path insides the router</li><li><i>dst_file</i> is a file name under <i>result</i> folder</li></ul>
Get Intf Addr	<i>self</i> , <i>intf_name</i> , <i>family=inet</i>	Returns the tuple of address and netmask of an interface  <i>family</i> should be <i>inet</i> or <i>inet6</i> If the address is not set, (" <i>,"</i> ) will be returned.
Get Route Number	<i>self</i> , <i>table=inet.0</i>	Returns number of active route in the <i>table</i>  <i>table</i> could be <i>inet.0</i> or <i>inet.6</i>
Get Version	<i>self</i>	Returns router version information
Link Status	<i>self</i> , <i>if_name</i>	Returns link physical status as string (aka: "up down", "up up")
Load Config	<i>self</i> , <i>mode=set</i> , <i>config_file=</i> , <i>confirm=0s</i> , <i>vars=</i> , <i>err_match=(error:)</i>	Loads configuration to a router. Usable <i>mode</i> is <i>set</i> , <i>override</i> , <i>merge</i> and <i>replace</i>  <i>set</i> mode uses configuration that contains <i>set</i> command. Mode <i>override</i> , <i>merge</i> and <i>replace</i> use ordinary JunOS configuration file with appropriate mode. <i>config_file</i> is a configuration file inside the <i>config</i> folder of the current test case.  Config file could includes jinja2 template. The template will be evaluated with <i>LOCAL</i> , <i>GLOBAL</i> and variables defined by <i>vars</i> . The <i>vars</i> has the format: <i>var1=value1,var2=value2 ...</i>  If the loading has no error that match the <i>error_match</i> , the configuration will be committed.  The keywordl waits for <i>confirm</i> seconds before rollback the committed configuration. A zero value indicates an immediatly commit
Number Of Bgp Neighbor	<i>self</i> , <i>state=Established</i>	Returns number of BGP neighbor in <i>state</i> state

<b>Number Of Ospf Neighbor</b>	<i>self, state=Full</i>	Returns number of OPSF neighbors with status <i>state</i>
<b>Number Of Ospf3 Neighbor</b>	<i>self, state=Full</i>	Returns number of OPSFv3 neighbors with status <i>state</i>

Altogether 17 keywords.  
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# WebApp

**Library version:** RENAT 0.1.10  
**Library scope:** test suite  
**Named arguments:** supported

## Introduction

A library provides common keywords for web applications (aka Samurai, Arbor TMS)

The library utilize *Selenium2Library* and adds more functions to control Samurai application easily.

The *WebApp* uses the configuration in `local.yaml` in `webapp` section. The webapp device has following format:

```
<test node name>:
  device:  <device name>
  proxy:
    http:  <proxy for http>
    https: <proxy for http>
    ssl:   <proxy for http>
```

Where `<device name>` is defined in master `device.yaml`, `proxy` section could be optional.

Samples:

```
...
webapp:
  samurai-1:
    device: samurai-b
    proxy:
      http:  10.128.8.210:8080
      ssl:   10.128.8.210:8080
      socks: 10.128.8.210:8080
  arbor-1:
    device: arbor-sp-a
    proxy:
      http:  10.128.8.210:8080
      ssl:   10.128.8.210:8080
      socks: 10.128.8.210:8080
...
```

*Selenium2Library* keywords still could be used along with this library like this:

Click Link	//a[contains(.,'ユーザ設定')]
Sleep	2s
Click Link	Home設定
Sleep	2s
Samurai.Capture Screenshot	

See [Selenium2Library](#) for more details.

The module *Samurai* and *Arbor* based on this module. See [Arbor](#), [Samurai](#) for details about keywords of each application.

## Shortcuts

Capture Screenshot · **R**eset Capture Counter · **S**et Ajax Wait · **S**et Capture Counter · **S**et Capture Format

## Keywords

Keyword	Arguments	Documentation															
<b>Capture Screenshot</b>	<i>filename=None</i> , <i>extra=</i>	<p>Captures the current screen to file</p> <p>Using the internal counter for filename if <code>filename</code> is not specified. In this case, the filename is defined by a pre-set format. <a href="#">Set Capture Format</a> could be used to change the current format.</p> <p>An extra information will be add to the filename if <code>extra</code> is defined</p> <p>Examples:</p> <table><tr><td>Samurai.<a href="#">Capture Screenshot</a></td><td></td><td># samurai_0000000001.png</td></tr><tr><td>Samurai.<a href="#">Capture Screenshot</a></td><td>extra=_list</td><td># samurai_0000000002_list.png</td></tr><tr><td>Arbor.<a href="#">Capture Screenshot</a></td><td></td><td># arbor_0000000001.png</td></tr><tr><td>Arbor.<a href="#">Capture Screenshot</a></td><td>extra=_xxx</td><td># arbor_0000000001_xxx.png</td></tr><tr><td>Samurai.<a href="#">Capture Screenshot</a></td><td>filename=1111.png</td><td># 1111.png</td></tr></table>	Samurai. <a href="#">Capture Screenshot</a>		# samurai_0000000001.png	Samurai. <a href="#">Capture Screenshot</a>	extra=_list	# samurai_0000000002_list.png	Arbor. <a href="#">Capture Screenshot</a>		# arbor_0000000001.png	Arbor. <a href="#">Capture Screenshot</a>	extra=_xxx	# arbor_0000000001_xxx.png	Samurai. <a href="#">Capture Screenshot</a>	filename=1111.png	# 1111.png
Samurai. <a href="#">Capture Screenshot</a>		# samurai_0000000001.png															
Samurai. <a href="#">Capture Screenshot</a>	extra=_list	# samurai_0000000002_list.png															
Arbor. <a href="#">Capture Screenshot</a>		# arbor_0000000001.png															
Arbor. <a href="#">Capture Screenshot</a>	extra=_xxx	# arbor_0000000001_xxx.png															
Samurai. <a href="#">Capture Screenshot</a>	filename=1111.png	# 1111.png															
<b>Reset Capture Counter</b>		Resets the counter of the screen capture															
<b>Set Ajax Wait</b>	<i>wait_time=2s</i>	Set the ajax wait time															
<b>Set Capture</b>	<i>value=0</i>	Sets the counter of the screen capture to <code>value</code>															

Counter Set Capture Format	<i>format</i>	<p>Sets the format for the screen capture file</p> <p>The format does not include the default prefix <code>.png</code> The default format is <code>&lt;mod&gt;_%010d.</code> <code>mod</code> could be <code>samurai</code> or <code>arbor</code></p> <p>See <a href="https://docs.python.org/2/library/string.html#format-specification-mini-language">https://docs.python.org/2/library/string.html#format-specification-mini-language</a> for more details about the format string.</p> <p>Examples:</p> <div>Samurai.<i>Set Capture Format</i> \${case}_%010d # \${case} is a predefined variable</div>
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# Samurai

**Library version:** RENAT 0.1.10  
**Library scope:** test suite  
**Named arguments:** supported

## Introduction

A library provides functions to control Samurai application

The library utilize *Selenium2Library* and adds more functions to control Samurai application easily. Without other furthur mentions, all of the concepts of `user`, `user group` are Samurai concepts. By default, RENAT will try to connec to all Samurai nodes defined in active `local.yaml` at the beginning of the test and disconnect from them at the end of the test automatically. Usually user does not need to use `ConnectAll` and `Close` explicitly.

Currently, this module supposed that Samurai is used in Japanese locale. When Samurai module has error, it tried to make the last snapshot in `result/selenium-screenshot-x.png`. Checking this capture will help to understand the reason of the error.

Currently the module support Samurai 09/14/16

Some keywords of `Samurai` is using `xpath` to identify elements. See *Selenium2Library* for more details about xpath.

See [WebApp](#) for common keywords of web applications and how to configure the `local.yaml` file.

*Selenium2Library* keywords still could be used together within this library. See [Selenium2Library](#) for more details.

## Shortcuts

**Add Policy** · **Add Policy Group** · **Add User** · **Capture Screenshot** · **Change Policy View Group** · **Click All Elements** · **Close** · **Close All** · **Close Window** · **Connect** · **Connect All** · **Delete Policy** · **Delete Policy Group** · **Delete User** · **Edit Mitigation Controller** · **Edit Policy** · **Get Mitigation List** · **Left Menu** · **Login** · **Logout** · **Make Item Map** · **Reconnect** · **Reset Capture Counter** · **Select Items In Table** · **Select Window** · **Set Ajax Wait** · **Set Capture Counter** · **Set Capture Format** · **Show Detail Mitigation** · **Show Policy Basic** · **Show Policy Mitigation** · **Show Policy Mo** · **Show Policy Monitor** · **Start Mitigation** · **Stop Mitigation** · **Switch**

## Keywords

Keyword	Arguments	Documentation																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
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		<table><tr><th>key</th><th>meaning</th><th>mandatory</th><th>sample</th></tr><tr><td>name</td><td>name of the policy</td><td>yes</td><td>test001</td></tr><tr><td>basic_alias</td><td>alias name of the policy</td><td></td><td>test001</td></tr><tr><td>basic_port_id</td><td>another alias</td><td></td><td></td></tr><tr><td>basic_facing</td><td>customer or backbone</td><td></td><td>customer</td></tr><tr><td>basic_intf_list</td><td>list of router and interface pair, separated by comma</td><td>yes</td><td>10.128.18.31:xe-0/0/0.1</td></tr><tr><td>basic_cidr_list</td><td>list of CIDR separate by comma</td><td></td><td></td></tr><tr><td>basic_option_filter</td><td>optinal filter</td><td></td><td></td></tr><tr><td>basic_direction</td><td>direction of the traffic (incoming or outgoing)</td><td></td><td>Incoming</td></tr><tr><td>traffic_enabled</td><td>Enable traffic monitoring or not</td><td>yes</td><td>\${TRUE} or \${FALSE}</td></tr><tr><td>detection_enabled</td><td>Enable detection or not</td><td>yes</td><td>\${TRUE} or \${FALSE}</td></tr><tr><td>mitigation_enabled</td><td>Enable Mitigation or not</td><td>yes</td><td>\${TRUE} or \${FALSE}</td></tr><tr><td>mitigation_zone_name</td><td>Name of the zone for mitigation</td><td></td><td>zone001</td></tr><tr><td>mitigation_zone_prefix</td><td>Prefixes that could mitigate</td><td></td><td>1.1.1.1/32</td></tr><tr><td>mitigation_thr_bps</td><td>Upper limit (bps)</td><td></td><td>800,000,000</td></tr><tr><td>mitigation_thr_pps</td><td>Upper limit (pps)</td><td></td><td>54,000,000</td></tr><tr><td>mitigation_auto_enabled</td><td>Enable automitgation or not</td><td></td><td>\${TRUE} or \${FALSE}</td></tr><tr><td>mitigation_auto_level</td><td>Automitigation level</td><td></td><td>0:overLow 1:overMedium 2:High</td></tr><tr><td>mitigation_auto_time</td><td>Automitigation detect attack time (min)</td><td></td><td>default is 15</td></tr><tr><td>mitigation_mo_enabled</td><td>Using Arbor TMS MO or not</td><td>yes</td><td>\${TRUE} or \${FALSE}</td></tr><tr><td>mitigation_auto_stop_enabled</td><td>Enable automitigation stop or not</td><td></td><td>\${TRUE} or \${FALSE}</td></tr><tr><td>mitigation_auto_stop_level</td><td>Automitigation level</td><td></td><td>0:overLow 2:High</td></tr><tr><td>mitigation_auto_stop_time</td><td>Automitigation stop detect attack time (min)</td><td></td><td>default is 15</td></tr><tr><td>mitigation_device_list</td><td>Devices used for TMS, separated by comma</td><td></td><td>ArborSP-A</td></tr><tr><td>mitigation_mo_name</td><td>MO name, separated by comma</td><td></td><td>OCN12(ALU)_LOOSE</td></tr><tr><td>mitigation_comm_list</td><td>commna separated peer/community list</td><td></td><td>1.10(180.0.1.10)/2914:666,1.11(180.0.1.11)/2914:777</td></tr><tr><td>nw_monitor_gre1</td><td>1st GRE address for NW monitor</td><td></td><td>210.0.1.1</td></tr><tr><td>nw_monitor_gre2</td><td>2nd GRE address for NW monitor</td><td></td><td>210.0.1.1</td></tr><tr><td>nw_monitor_ce1</td><td>1st CE address for NW monitor</td><td></td><td>210.0.1.2</td></tr><tr><td>nw_monitor_ce2</td><td>2nd CE address for NW 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		<table><tr><td>nw_monitor_pe1</td><td>1st PE for NW monitor (list)</td><td></td><td>edge01hige-MX2020-15(118.23.176.244)</td></tr><tr><td>nw_monitor_pe2</td><td>2nd PE for NW monitor (list)</td><td></td><td>edge01hige-MX2020-15(118.23.176.244)</td></tr><tr><td>event_name</td><td>name of the message event to make</td><td></td><td>info 1</td></tr><tr><td>event_addr</td><td>address to send the events</td><td></td><td>user@mail.com</td></tr><tr><td>view_group</td><td>user group that could view this policy, separated by comma</td><td>yes</td><td>SuperGroup,test_group_007</td></tr></table>	nw_monitor_pe1	1st PE for NW monitor (list)		edge01hige-MX2020-15(118.23.176.244)	nw_monitor_pe2	2nd PE for NW monitor (list)		edge01hige-MX2020-15(118.23.176.244)	event_name	name of the message event to make		info 1	event_addr	address to send the events		user@mail.com	view_group	user group that could view this policy, separated by comma	yes	SuperGroup,test_group_007																																	
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		Example: <table><tr><td>Samurai.<a href="#">Switch</a></td><td>samurai-1</td><td></td><td></td></tr><tr><td>Samurai.<a href="#">Add Policy</a></td><td>name=\${POLICY_NAME}</td><td></td><td>basic_alias=\${POLICY_NAME}</td></tr><tr><td>...</td><td>basic_facing=customer</td><td></td><td>basic_intf_list=10.128.18.31:xe-0/0/0.1</td></tr><tr><td>...</td><td>basic_cidr_list=1.1.1.0/24</td><td></td><td>basic_direction=incoming</td></tr><tr><td>...</td><td>traffic_enabled=\${TRUE}</td><td></td><td></td></tr><tr><td>...</td><td>detection_enabled=\${TRUE}</td><td></td><td></td></tr><tr><td>...</td><td>mitigation_zone_name=test_zone001</td><td></td><td>mitigation_zone_prefix=1.1.1.1/32</td></tr><tr><td>...</td><td>mitigation_device_list=ArborSP-A,ArborSP-B</td><td></td><td></td></tr><tr><td>...</td><td>mitigation_mo_enabled=\${TRUE}</td><td></td><td></td></tr><tr><td>...</td><td>mitigation_mo_name=N000000012_LOOSE</td><td></td><td></td></tr><tr><td>...</td><td>mitigation_comm_list=1.10(180.0.1.10)/2914:666,1.11(180.0.1.11)/2914:777</td><td></td><td></td></tr><tr><td>...</td><td>event_name=test</td><td></td><td>event_addr=user@mail.com</td></tr><tr><td>...</td><td>view_group=SuperGroup</td><td></td><td></td></tr></table>		Samurai. <a href="#">Switch</a>	samurai-1			Samurai. <a href="#">Add Policy</a>	name=\${POLICY_NAME}		basic_alias=\${POLICY_NAME}	...	basic_facing=customer		basic_intf_list=10.128.18.31:xe-0/0/0.1	...	basic_cidr_list=1.1.1.0/24		basic_direction=incoming	...	traffic_enabled=\${TRUE}			...	detection_enabled=\${TRUE}			...	mitigation_zone_name=test_zone001		mitigation_zone_prefix=1.1.1.1/32	...	mitigation_device_list=ArborSP-A,ArborSP-B			...	mitigation_mo_enabled=\${TRUE}			...	mitigation_mo_name=N000000012_LOOSE			...	mitigation_comm_list=1.10(180.0.1.10)/2914:666,1.11(180.0.1.11)/2914:777			...	event_name=test		event_addr=user@mail.com	...	view_group=SuperGroup		
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...	view_group=SuperGroup																																																						
Add Policy Group	group_name, policy_list=*, limit_bps=4000000000, limit_pps=2700000	Add a new policy group  group_name is the name of the new group. policy_list is a comma separated of existed policy that should be bound to this policy. An asterisk for this parameter (*) means all of the existed policy. limit_bps and limit_pps are the mitigation capacity threshold of this group.																																																					
Add User	group, **user_info	Adds user to the current group user_info is a dictionary contains user information that has following keys: name , password , privilege and policy  privilege is existed privilege that has been created (e.g: system_admin.  policy could be * for all current policies or a list of policy names that are binded to this user.  group is the user group. Dot(.) means current group  Examples: <table><tr><td>Samurai.<a href="#">Add User</a></td><td>OCNDDoS</td><td>name=user000</td><td>password=Test12345678</td></tr><tr><td>...</td><td>privilege=system_admin</td><td>policy=*</td><td></td></tr><tr><td>Samurai.<a href="#">Add User</a></td><td>OCNDDoS</td><td>username=user001</td><td>password=Test12345678</td></tr><tr><td>...</td><td>privilege=system_admin</td><td>policy=OCN11,OCN12</td><td></td></tr></table>		Samurai. <a href="#">Add User</a>	OCNDDoS	name=user000	password=Test12345678	...	privilege=system_admin	policy=*		Samurai. <a href="#">Add User</a>	OCNDDoS	username=user001	password=Test12345678	...	privilege=system_admin	policy=OCN11,OCN12																																					
Samurai. <a href="#">Add User</a>	OCNDDoS	name=user000	password=Test12345678																																																				
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...	privilege=system_admin	policy=OCN11,OCN12																																																					
Capture Screenshot	filename=None, extra=	Captures the current screen to file  Using the internal counter for filename if filename is not specified. In this case, the filename is defined by a pre-set format. <a href="#">Set Capture Format</a> could be used to change the current format.  An extra information will be add to the filename if extra is defined  Examples: <table><tr><td>Samurai.<a href="#">Capture Screenshot</a></td><td></td><td># samurai_0000000001.png</td></tr><tr><td>Samurai.<a href="#">Capture Screenshot</a></td><td>extra=_list</td><td># samurai_0000000002_list.png</td></tr><tr><td>Arbor.<a href="#">Capture Screenshot</a></td><td></td><td># arbor_0000000001.png</td></tr><tr><td>Arbor.<a href="#">Capture Screenshot</a></td><td>extra=_xxx</td><td># arbor_0000000001_xxx.png</td></tr><tr><td>Samurai.<a href="#">Capture Screenshot</a></td><td>filename=1111.png</td><td># 1111.png</td></tr></table>		Samurai. <a href="#">Capture Screenshot</a>		# samurai_0000000001.png	Samurai. <a href="#">Capture Screenshot</a>	extra=_list	# samurai_0000000002_list.png	Arbor. <a href="#">Capture Screenshot</a>		# arbor_0000000001.png	Arbor. <a href="#">Capture Screenshot</a>	extra=_xxx	# arbor_0000000001_xxx.png	Samurai. <a href="#">Capture Screenshot</a>	filename=1111.png	# 1111.png																																					
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Samurai. <a href="#">Capture Screenshot</a>	filename=1111.png	# 1111.png																																																					
Change Policy View Group	name, *group_name	Changes the groups that could see this policy  name is the policy name. group_name is a list of policies  Example: <table><tr><td>Samurai.<a href="#">Change Policy View Group</a></td><td>super_admin</td><td>test_group001</td></tr></table>		Samurai. <a href="#">Change Policy View Group</a>	super_admin	test_group001																																																	
Samurai. <a href="#">Change Policy View Group</a>	super_admin	test_group001																																																					
Click All Elements	xpath	Click all element in current page defined by xpath																																																					
Close		Returns the number of elements that have been clicked Closes the current active browser																																																					
Close All		Closes all current opened applications																																																					
Close Window		Closes the current window																																																					
Connect	app, name	Opens a web browser and connects to application and assigns a name.  If not defined in local.yaml those following key will have default values: <table><tr><td>browser</td><td>firefox</td><td>optional</td></tr><tr><td>login_url</td><td>/</td><td>optiona</td></tr><tr><td>proxy:</td><td></td><td>optional</td></tr><tr><td>http: 10.128.8.210:8080</td><td>optional</td><td></td></tr><tr><td>ssl: 10.128.8.210:8080</td><td>optional</td><td></td></tr><tr><td>socks: 10.128.8.210:8080</td><td>optional</td><td></td></tr><tr><td>profile_dir</td><td>./config/samurai.profile</td><td>optional</td></tr></table>		browser	firefox	optional	login_url	/	optiona	proxy:		optional	http: 10.128.8.210:8080	optional		ssl: 10.128.8.210:8080	optional		socks: 10.128.8.210:8080	optional		profile_dir	./config/samurai.profile	optional																															
browser	firefox	optional																																																					
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socks: 10.128.8.210:8080	optional																																																						
profile_dir	./config/samurai.profile	optional																																																					
Connect All		Connects to all applications defined in local.yaml  The name of the connection will be the same of the webapp name																																																					
Delete Policy	*policy_names	Deletes poilcies by their names																																																					



		<p>Returned the number of deleted users</p> <p><b>Notes:</b> If the policy does not exists, the system will not report any error.</p> <p>Examples:</p> <table><tr><td>Samurai.</td><td><a href="#">Delete Policy</a></td><td>test001</td><td>test002</td></tr></table>	Samurai.	<a href="#">Delete Policy</a>	test001	test002																
Samurai.	<a href="#">Delete Policy</a>	test001	test002																			
Delete Policy Group	*group_list	<p>Deletes policy groups</p> <p>Returns the number of deleted policy groups Example:</p> <table><tr><td>Samurai.</td><td><a href="#">Delete Policy Group</a></td><td>test_group001</td><td>test_group002</td></tr></table>	Samurai.	<a href="#">Delete Policy Group</a>	test_group001	test_group002																
Samurai.	<a href="#">Delete Policy Group</a>	test_group001	test_group002																			
Delete User	group, *user_list	<p>Deletes user from the user group</p> <p>group is the user group. And . means current group Returns the number of deleted users</p> <p>Examples:</p> <table><tr><td>Samurai.</td><td><a href="#">Delete User</a></td><td>SuperGroup</td><td>user001</td><td>user002</td></tr><tr><td>Samurai.</td><td><a href="#">Delete User</a></td><td>.</td><td>user002</td><td></td></tr></table>	Samurai.	<a href="#">Delete User</a>	SuperGroup	user001	user002	Samurai.	<a href="#">Delete User</a>	.	user002											
Samurai.	<a href="#">Delete User</a>	SuperGroup	user001	user002																		
Samurai.	<a href="#">Delete User</a>	.	user002																			
Edit Mitigation Controller	controller, **config	<p>Change the setting of the mitigation control</p> <ul style="list-style-type: none"><li>control: name of the mitigation controller</li><li>config: configuration need to be changed. Currently only tms_group is configurable with the following format: groupname1:action1.groupname2:action2. groupname is currently set TMS group name and action could be click,check or uncheck.</li></ul> <p>Example:</p> <table><tr><td>Samurai.</td><td><a href="#">Edit Mitigation Controller</a></td><td>controller=vSP-A</td><td>tms_group=Logical0_SOCN_IPv4:uncheck</td></tr></table>	Samurai.	<a href="#">Edit Mitigation Controller</a>	controller=vSP-A	tms_group=Logical0_SOCN_IPv4:uncheck																
Samurai.	<a href="#">Edit Mitigation Controller</a>	controller=vSP-A	tms_group=Logical0_SOCN_IPv4:uncheck																			
Edit Policy	**policy	<p>Edits a Samurai policy</p> <p>policy contains information about the policy. See <a href="#">Add Policy</a> for more details about policy format</p>																				
Get Mitigation List	status=実行中	<p>Gets current mitigation list</p> <p>Return current active mitigation name, ID and the number of them</p> <p>Example:</p> <table><tr><td>\$(MITI)</td><td>\$(IDS)</td><td>\$(NUM)=</td><td>Samurai.</td><td><a href="#">Get Mitigation List</a></td></tr></table>	\$(MITI)	\$(IDS)	\$(NUM)=	Samurai.	<a href="#">Get Mitigation List</a>															
\$(MITI)	\$(IDS)	\$(NUM)=	Samurai.	<a href="#">Get Mitigation List</a>																		
Left Menu	menu, locator=None, ignore_first_element=True	<p>Chooses the left panel menu by its displayed name</p> <p>When locator is not null, the keyword will return a list of text attribute of all elements specified by the locator. locator could be a xpath or a predefined string.</p> <p>locator predefined strings are: MITIGATE_REALTIME, MITIGATE_LIST, DETECT_LIST</p> <p>For example, a xpath //div[@id='infoareain2']*/td[1]/a means the list of link of all elements in a 1st column of a table insides a div with id infoareain2.</p> <p>Examples:</p> <table><tr><td>Samurai.</td><td><a href="#">Left Menu</a></td><td>Traffic</td><td></td><td></td></tr><tr><td>Samurai.</td><td><a href="#">Left Menu</a></td><td>Detection</td><td></td><td></td></tr><tr><td>Samurai.</td><td><a href="#">Left Menu</a></td><td>ポリシー管理</td><td></td><td></td></tr><tr><td>@(LIST)=</td><td>Samurai.</td><td><a href="#">Left Menu</a></td><td>Active Mitigation</td><td>//div[@id='infoareain2']*/td[1]/a</td></tr></table>	Samurai.	<a href="#">Left Menu</a>	Traffic			Samurai.	<a href="#">Left Menu</a>	Detection			Samurai.	<a href="#">Left Menu</a>	ポリシー管理			@(LIST)=	Samurai.	<a href="#">Left Menu</a>	Active Mitigation	//div[@id='infoareain2']*/td[1]/a
Samurai.	<a href="#">Left Menu</a>	Traffic																				
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Samurai.	<a href="#">Left Menu</a>	ポリシー管理																				
@(LIST)=	Samurai.	<a href="#">Left Menu</a>	Active Mitigation	//div[@id='infoareain2']*/td[1]/a																		
Login		<p>Logs-in into the application</p> <p>User and password is set by the template and authentication methods in the master files</p>																				
Logout		<p>Logs-out the current application, the browser remains</p>																				
Make Item Map	xpath	<p>Makes a item/webelement defined xpath</p> <p>The map is a dictionary from item to the WebElement Items name found by xpath are used as keys</p>																				
Reconnect		<p>Reconnects to the server</p>																				
Reset Capture Counter		<p>Resets the counter of the screen capture</p>																				
Select Items In Table	xpath, xpath2, *item_list	<p>Checks items in Samurai table by xpath</p> <p>xpath points to the column that used as key and xpath2 is the relative xpath contains the target column.</p> <p>item_list is a list of item that need to check. Item in the list could be a regular expression with the format re:&lt;regular expression&gt;.</p> <p>The keyword is called with assuming that the table is already visible.</p> <p>Returns the tuple of all items and selected items</p> <p><b>Note:</b> Non-width-space (\u200b) will be take care by the keyword.</p> <p><b>Note:</b> if the first item_list is * then the keywork will try to click a link named すべてを選択.</p>																				
Select Window	title	<p>Selects a window by its title</p>																				
Set Ajax Wait	wait_time=2s	<p>Set the ajax wait time</p>																				
Set Capture Counter	value=0	<p>Sets the counter of the screen capture to value</p>																				
Set Capture Format	format	<p>Sets the format for the screen capture file</p> <p>The format does not include the default prefix .png The default format is &lt;mod&gt;_%010d. mod could be samurai or arbor</p> <p>See <a href="https://docs.python.org/2/library/string.html#format-specification-mini-language">https://docs.python.org/2/library/string.html#format-specification-mini-language</a> for more details about the format string.</p> <p>Examples:</p> <table><tr><td>Samurai.</td><td><a href="#">Set Capture Format</a></td><td>\${case}_%010d</td><td># \${case} is a predefined variable</td></tr></table>	Samurai.	<a href="#">Set Capture Format</a>	\${case}_%010d	# \${case} is a predefined variable																
Samurai.	<a href="#">Set Capture Format</a>	\${case}_%010d	# \${case} is a predefined variable																			



# Arbor

**Library version:** RENAT 0.1.10  
**Library scope:** test suite  
**Named arguments:** supported

## Introduction

A library provides functions to control Arbor application

The library utilize *Selenium2Library* and adds more functions to control Arbor application easily.

See [WebApp](#) for common keywords of web applications.

*Selenium2Library* keywords still could be used along with this library. See [Selenium2Library](#) for more details.

## Shortcuts

Capture Screenshot · Close · Close All · Connect · Connect All · Detail First Mitigation · Login · Logout · Menu · Reconnect · Reset Capture Counter · Set Ajax Wait · Set Capture Counter · Set Capture Format · Show All Mitigations · Show Detail Countermeasure · Show Detail First Mitigation · Show Detail Mitigation · Show Detail Mitigation With Order · Switch

## Keywords

Keyword	Arguments	Documentation															
Capture Screenshot	filename=None, extra=	<p>Captures the current screen to file</p> <p>Using the internal counter for filename if filename is not specified. In this case, the filename is defined by a pre-set format. <u>Set Capture Format</u> could be used to change the current format.</p> <p>An extra information will be add to the filename if extra is defined</p> <p>Examples:</p> <table><tr><td>Samurai.<u>Capture Screenshot</u></td><td></td><td># samurai_0000000001.png</td></tr><tr><td>Samurai.<u>Capture Screenshot</u></td><td>extra=_list</td><td># samurai_0000000002_list.png</td></tr><tr><td>Arbor.<u>Capture Screenshot</u></td><td></td><td># arbor_0000000001.png</td></tr><tr><td>Arbor.<u>Capture Screenshot</u></td><td>extra=_xxx</td><td># arbor_0000000001_xxx.png</td></tr><tr><td>Samurai.<u>Capture Screenshot</u></td><td>filename=1111.png</td><td># 1111.png</td></tr></table>	Samurai. <u>Capture Screenshot</u>		# samurai_0000000001.png	Samurai. <u>Capture Screenshot</u>	extra=_list	# samurai_0000000002_list.png	Arbor. <u>Capture Screenshot</u>		# arbor_0000000001.png	Arbor. <u>Capture Screenshot</u>	extra=_xxx	# arbor_0000000001_xxx.png	Samurai. <u>Capture Screenshot</u>	filename=1111.png	# 1111.png
Samurai. <u>Capture Screenshot</u>		# samurai_0000000001.png															
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Arbor. <u>Capture Screenshot</u>	extra=_xxx	# arbor_0000000001_xxx.png															
Samurai. <u>Capture Screenshot</u>	filename=1111.png	# 1111.png															
Close		Closes the current active browser															
Close All		Closes all current opened applications															
Connect	app, name	<p>Opens a web browser and connects to application and assigns a name .</p> <p>Extra information could be added to the webapp sections likes login_url , browser or profile_dir . Default values are:</p> <table><tr><td>browser</td><td>firefox</td></tr><tr><td>login_url</td><td>/</td></tr><tr><td>profile_dir</td><td>./config/samurai.profile</td></tr></table>	browser	firefox	login_url	/	profile_dir	./config/samurai.profile									
browser	firefox																
login_url	/																
profile_dir	./config/samurai.profile																
Connect All		<p>Connects to all applications defined in local.yaml</p> <p>The name of the connection will be the same of the webapp name</p>															
Detail First Mitigation																	
Login		Logs into the Arbor application															
Logout		Logs-out the current application, the browser remains															
Menu	order, wait=2s, capture_all=False, prefix=menu_, suffix=.png, partial_match=False	<p>Access to Arbor menu</p> <p>Parameters</p> <ul style="list-style-type: none"><li>order is the list of top menu items separated by '/'</li><li>wait is the wait time after the last item is clicked</li><li>if capture_all is True then a screenshot is captured for each menu item automtically. In this case, the image file is appended by prefix and suffix .</li><li>by default, the system try to match the menu item in full, when partial_match is True , partial match is applied.</li></ul> <p>Samples:</p> <table><tr><td>Arbor.<u>Menu</u></td><td>order=Alerts/Ongoing</td><td></td></tr><tr><td>Arbor.<u>Capture Screenshot</u></td><td></td><td></td></tr></table>	Arbor. <u>Menu</u>	order=Alerts/Ongoing		Arbor. <u>Capture Screenshot</u>											
Arbor. <u>Menu</u>	order=Alerts/Ongoing																
Arbor. <u>Capture Screenshot</u>																	

		<div>Arbor.<a href="#">Menu</a></div> <div>order=Alerts/All Alerts</div> <div>Arbor.<a href="#">Capture Screenshot</a></div> <div>Arbor.<a href="#">Menu</a></div> <div>order=System/Status/Deployment Status</div> <div>Arbor.<a href="#">Capture Screenshot</a></div> <div>Arbor.<a href="#">Menu</a></div> <div>order=System/Status/Signaling Status/Appliance Status</div> <div>Arbor.<a href="#">Capture Screenshot</a></div> <div>partial_match=\${TRUE}</div>																								
Reconnect		Reconnect to server if necessary																								
Reset Capture Counter		Resets the counter of the screen capture																								
Set Ajax Wait	wait_time=2s	Set the ajax wait time																								
Set Capture Counter	value=0	Sets the counter of the screen capture to value																								
Set Capture Format	format	<p>Sets the format for the screen capture file</p> <p>The format does not include the default prefix .png The default format is &lt;mod&gt;_%010d. mod could be samurai or arbor</p> <p>See <a href="https://docs.python.org/2/library/string.html#format-specification-mini-language">https://docs.python.org/2/library/string.html#format-specification-mini-language</a> for more details about the format string.</p> <p>Examples:</p> <div>Samurai.<a href="#">Set Capture Format</a> \${case}_%010d # \${case} is a predefined variable</div>																								
Show All Mitigations		Shows all mitigations																								
Show Detail Countermeasure	name, *method_list	<p>Shows detail informatin about a countermeasure</p> <p>name is used to search the the mitigation and method_list is a list of countermeasures that are listed in Arbor Countermeasures panel</p> <p>Example:</p> <table><tr><td>\$(NAME)</td><td>\$(ID)=</td><td><a href="#">Show Detail First Mitigation</a></td><td></td></tr><tr><td>Arbor.<a href="#">Show Detail Countermeasure</a></td><td>\$(NAME)</td><td>DNS Malformed</td><td></td></tr><tr><td>Arbor.<a href="#">Capture Screenshot</a></td><td></td><td></td><td></td></tr><tr><td>Sleep</td><td>10s</td><td></td><td></td></tr><tr><td>Arbor.<a href="#">Show Detail Countermeasure</a></td><td>\$(NAME)</td><td>Zombie Detection</td><td>HTTP Malformed</td></tr><tr><td>Arbor.<a href="#">Capture Screenshot</a></td><td></td><td></td><td></td></tr></table>	\$(NAME)	\$(ID)=	<a href="#">Show Detail First Mitigation</a>		Arbor. <a href="#">Show Detail Countermeasure</a>	\$(NAME)	DNS Malformed		Arbor. <a href="#">Capture Screenshot</a>				Sleep	10s			Arbor. <a href="#">Show Detail Countermeasure</a>	\$(NAME)	Zombie Detection	HTTP Malformed	Arbor. <a href="#">Capture Screenshot</a>			
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Arbor. <a href="#">Capture Screenshot</a>																										
Show Detail First Mitigation		<p>Shows details about the 1st mitigation on the list</p> <p>The keyword returns the mitigation ID and its name</p>																								
Show Detail Mitigation	search_str	<p>Shows detail information of a mitigation by its search_str</p> <p><b>Note:</b> the result could include multi mitigations</p>																								
Show Detail Mitigation With Order	order	<p>Shows details about the order(th) mitigation in the current list</p> <p>order is counted from 1. The keyword returns the mitigation_id and its name</p> <p>Example:</p> <table><tr><td>\$(NAME)</td><td>\$(ID)=</td><td>Arbor.<a href="#">Show Detail Mitigation With Order</a></td><td>3</td></tr><tr><td>Log To Console</td><td>\$(NAME):\$(ID)</td><td></td><td></td></tr><tr><td>Arbor.<a href="#">Capture Screenshot</a></td><td></td><td></td><td></td></tr></table>	\$(NAME)	\$(ID)=	Arbor. <a href="#">Show Detail Mitigation With Order</a>	3	Log To Console	\$(NAME):\$(ID)			Arbor. <a href="#">Capture Screenshot</a>															
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Log To Console	\$(NAME):\$(ID)																									
Arbor. <a href="#">Capture Screenshot</a>																										
Switch	name	Switches the current browser to name																								



# Tester

**Library version:** RENAT 0.1.10  
**Library scope:** test suite  
**Named arguments:** supported

## Introduction

A class provides keywords for controlling testers and traffic generators.

It could load predefined traffic file, manipulate traffic items, start and stop traffic flows. It also could generate traffic reports and support QuickTest for IxNetwork.

Tester information is stored in the active `local.yaml` likes this:

```
tester:  
  tester01:  
    device: ixnet03_8009  
    config: vmx_20161129.ixncfg  
    real_port:  
      - description: to egde router
```

chassis: 10.128.32.71

```
card: 6  
port: 11  
- description: to backbone router
```

chassis: 10.128.32.71

```
card: 6  
port: 9
```

where `device` is the tester defined in the master `device.yaml` file. If `real_port` does not exist, port remapping will not take place. Otherwise, port remapping will use the `real_port` information to reassign all existed ports and map to Ixia ports.

In this case, the order will be the order when user created the port in Ixia GUI.

**Note:** User can always confirm the created order by `clear sorting` in Ixia GUI.

Examples:

Tester. <a href="#">Connect All</a>	
Tester. <a href="#">Switch</a>	tester01
Tester. <a href="#">Load And Start Traffic</a>	
<a href="#">Sleep</a>	30s
Tester. <a href="#">Stop Traffic</a>	

Time format used in this module is same with `time string` format of Robot Framework. For more details about this, see [DateTime](#) library of Robot Framework.

**Note:** See [IxNet module](#), [IxLoad module](#) for details about keyword of each module.

## Shortcuts

Close All · Connect · Connect All · Switch

## Keywords

Keyword	Arguments	Documentation
<b>Close All</b>		Closes all connections
<b>Connect</b>	<i>name</i>	Connect to the tester <i>name</i>
<b>Connect All</b>		Connects to all testers
<b>Switch</b>	<i>name</i>	Switchs the current tester to <i>name</i>

Altogether 4 keywords.

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# ixload

**Library scope:** global  
**Named arguments:** supported

## Introduction

provides functions for IxLoad

To use IxLoad module, a IxLoad TCL server should be started properly.

RENAT runs a virtual IxLoad client locally in the background that connects to a Windows App server. Keywords from test case will send control messages to the client, which in turn will control the test ports.

Different to IxNetwork, an IxLoad test case usually stops within predefined time before `Stop Traffic` was called.

**Notes:** Ignore the *self* parameters when using those keywords.

## Shortcuts

Close · Collect Data · Get Test Report · Load Config · Load Traffic · Start Traffic · Stop Traffic

## Keywords

Keyword	Arguments	Documentation
Close	<i>self</i>	Disconnects the current tester client
Collect Data	<i>self</i> , <i>prefix</i> =, <i>more_file</i> =, <i>ignore_not_found</i> =True	<p>Collects all result data and save them to the current active <code>result</code> folder</p> <p>A <code>prefix</code> will be automatically added to the file names.</p> <p>Currently the follow data will be downloaded to the local machine</p> <ul style="list-style-type: none"><li>■ HTTP_Server.csv</li><li>■ HTTP_Client.csv</li><li>■ HTTP_Client - Per URL.csv</li><li>■ HTTP_Server - Per URL.csv</li><li>■ L2-3 Stats for Client Ports.csv</li><li>■ L2-3 Stats for Server Ports.csv</li><li>■ L2-3 Throughput Stats.csv</li><li>■ Port CPU Statistics.csv</li></ul> <p>Extra files could be add by <code>more_file</code> which is a comma separated filename string</p> <p>When <code>ignore_not_found</code> is True, the keyword will not terminate even when the expected file is not found.</p>
Get Test Report	<i>self</i> , <i>prefix</i> =	Get the test report(PDF) and put it into the active result folder
Load Config	<i>self</i> , <i>config_name</i> =	<p>Loads the test traffic defined by <code>config_name</code></p> <p><code>file_path</code> is the path of the test file on the <b>remote</b> App server A path to a remote network drive could be use to load a config file on Renat server.</p>
Load Traffic	<i>self</i> , <i>file_path</i>	
Start Traffic	<i>self</i>	Starts the test traffic
Stop Traffic	<i>self</i>	<p>Stops the current running test</p> <p>Returns the elapsed time in seconds</p>

Altogether 7 keywords.

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# ixnet

**Library scope:** global  
**Named arguments:** supported

## Introduction

provides functions for IxNetwork

To use IxNetwork module, a IxNetwork TCL server should be started properly.

RENAT will connect to the App server and control the test ports. Test files and result will be inside the RENAT server.

In order to run RENAT test case with *IxLoad*, the *TCLServer* must be activated with *Administrator* privileges on the Ixia App server.

**Notes:** Ignore the *self* parameters when using those keywords.

## Shortcuts

**Add Port** · **Add Quicktest** · **Apply Traffic** · **Change Frame Rate** · **Change Frame Rate Dynamic** · **Change Frame Size** · **Close** · **Collect All Data** · **Collect Data** · **Get All Test Result** · **Get Quicktest List** · **Get Quicktest Result** · **Get Quicktest Result Path** · **Get Test Composer Result** · **Get Test Report** · **Get Test Result** · **Load And Start Traffic** · **Load Config** · **Load Traffic** · **Loss From File** · **Ping** · **Regenerate** · **Reset Config** · **Run Quicktest** · **Set All Traffic Item** · **Set Bgp Items** · **Set Bgp Neighbor** · **Set Capture Port** · **Set Traffic Item** · **Should Be Pingable** · **Start Capture** · **Start Protocol** · **Start Test Composer** · **Start Traffic** · **Stop All Protocols** · **Stop And Save Capture** · **Stop Quicktest** · **Stop Test Composer** · **Stop Traffic** · **Wait Until Connected**

## Keywords

Keyword	Arguments	Documentation
<b>Add Port</b>	<i>self</i> , <i>force=True</i> , <i>time_out=2m</i> , <i>learn_time=2m</i>	<p>Add ports using the information from active local config</p> <ul style="list-style-type: none"><li><code>time_out</code> is the wait time until port is connected (default is 2m)</li><li><code>learn_time</code> is the time waiting for arp to be learned (default is 2m)</li></ul> <p>Sample of local config  tester:</p> <pre>tester:   device: ixnet03_8009   config: quicktest.ixncfg   real_port:     - chassis: 10.128.4.41       card: 4       port: 3       ip: 10.100.11.2       mask: 24       gw: 10.100.11.1     - chassis: 10.128.4.41       card: 4</pre> <p>port: 4</p> <pre>ip: 10.100.14.2 mask: 24 gw: 10.100.14.1</pre>
<b>Add Quicktest</b>	<i>self</i> , <i>name</i> , <i>test_type=rfc2544throughput</i> , <i>tx_mode=interleaved</i> , <i>clear_all=True</i>	<p>Create a new Quicktest with default value</p> <p>Type could be one of following: <code>rfc2544throughput</code>, <code>rfc2544frameLoss</code>, <code>rfc2544back2back</code>. Use Tester.<a href="#">Load Config</a> to load a customized quicktest</p> <p>When <code>clear_all</code> is True, any existed quicktests will be cleared.</p> <p>Transmit mode <code>tx_mode</code> takes following values: <code>interleaved</code> (default) or <code>sequential</code>. The mode should be identical with the transmit mod of the ports.</p> <p><b>Notes:</b> The keyword <b>does not</b> create necessary ports. It should be used with a existed configuration by Tester.<a href="#">Load Config</a> or Tester.<a href="#">Add Port</a> keyword.</p>
<b>Apply Traffic</b>	<i>self</i> , <i>refresh=True</i>	<p>Applies the current traffic configuration</p> <p><code>refresh</code>: Refreshed the learned information before apply the traffic or not <b>Note:</b> This is a blocking command</p>
<b>Change Frame Rate</b>	<i>self</i> , <i>value</i> , <i>pattern=.</i> *	<p>Changes the frame rate</p> <p>Parameter:</p> <ul style="list-style-type: none"><li><code>value</code>: value to set. Depends on the current configuration, this could be <code>percent line rate</code> or <code>bit per second</code> etc.</li><li><code>traffic_pattern</code>: a regular expression to identify traffic item name, default is everything <code>.*</code></li></ul>
<b>Change Frame Rate Dynamic</b>	<i>self</i> , <i>value</i> , <i>pattern=.</i> *	<p>Changes the traffic flow rate on-fly</p> <p>No need to stop the running traffic to change the rate</p> <p>Parameter:</p> <ul style="list-style-type: none"><li><code>value</code>: value to set. Depend on the current configuration, this could be <code>percent line rate</code> or <code>bit per second</code> etc.</li><li><code>pattern</code>: a regular expression to identify traffic item name, default is everything <code>.*</code></li></ul>
<b>Change Frame Size</b>	<i>self</i> , <i>type</i> , <i>value</i> , <i>pattern=.</i> *	<p>Changes the frame size</p>

Size		<p>Parameter:</p> <ul style="list-style-type: none"> <li>■ <code>type</code>: could be <code>fixed size</code>, <code>increment_from</code>, <code>increment_step</code> or <code>increment_to</code></li> <li>■ <code>value</code>: value to set</li> <li>■ <code>traffic_pattern</code>: a regular expression to identify traffic item name, default is everything <code>.*</code></li> </ul>
Close	<code>self</code>	Disconnects the current tester client
Collect All Data	<code>self, prefix=stat_</code>	Deprecated. Use
Collect Data	<code>self, view, prefix=stat_</code>	Deprecated. Use <a href="#">Get Test Result</a>
Get All Test Result	<code>self, prefix=stat_</code>	<p>Collects all Ixia traffic data after traffic is stopped.</p> <p>Results are CSV files that are stored in <code>result</code> folder. The prefix <code>prefix</code> is appended to the original view name</p>
Get Quicktest List	<code>self</code>	Returns current loaded Quicktest list
Get Quicktest Result	<code>self, test_index=-1, prefix=, enable_all=True</code>	<p>Get the result.csv file from the latest Quicktests</p> <p><code>test_index</code> is a index of the current Quicktest. <code>-1</code> means that last one.</p>
Get Quicktest Result Path	<code>self, test_index=-1</code>	<p>Returns the path of the newest run of a Quicktest</p> <p><code>test_index</code> is a index of the current Quicktest. <code>-1</code> means that last one.</p>
Get Test Composer Result	<code>self, result_file=composer.log</code>	Get the result of test composer script
Get Test Report	<code>self, local_name=ixnet_report.pdf, enable_all=True</code>	<p>Generates and get report of the current active test in PDF format</p> <p><code>local_name</code>: name of the report on local machine. Default is <code>ixnet_report.pdf</code></p>
Get Test Result	<code>self, view, prefix=stat_</code>	<p>Collects traffic data of a <code>view</code> and export to a CSV file in <code>result</code> folder</p> <p>Currently, supported views are:</p> <p>Port Statistics, Global Protocol Statistics, BGP Aggregated Statistics, BGP Aggregated State Counts, OSPF Aggregated Statistics, OSPF Aggregated State Counts, OSPFv3 Aggregated Statistics, OSPFv3 Aggregated State Counts, L2-L3 Test Summary Statistics, Flow Statistics, Flow Detective, Data Plane Port Statistics, User Defined Statistics, Traffic Item Statistics</p> <p>Result were store as CSV files in <code>result</code> folder. If there is no valid data, view will be silently ignored</p> <p>The prefix <code>prefix</code> is appended to the view name for the CSV file.</p>
Load And Start Traffic	<code>self, wait_time1=10s, wait_time2=10s</code>	Combines <a href="#">Load Traffic</a> and <a href="#">Start Traffic</a> to one keyword.
Load Config	<code>self, config_name=, wait_time=2m, wait_time2=2m, apply=True, protocol=True, force=True, wait_time3=30s</code>	<p>loads traffic configuration, applies and start protocol if necessary.</p> <p>The config file name was defined in the <code>local.yaml</code> which is a Ixia Network configuration file and located in the <code>config</code> folder of the test.</p> <p>The keyword remap the vports to real port when data is specified in the local configuration file. For some reasons, the txMode is cleared when remapping happens. Use <code>tx_mode</code> to set the TxMode of the remapped ports.</p> <p>Parameters:</p> <ul style="list-style-type: none"> <li>■ <code>apply</code>: applies traffic when <code>True</code> otherwise</li> <li>■ <code>protocol</code>: starts all protocols when <code>True</code> otherwise</li> <li>■ <code>force</code>: force to reclaim the ports when <code>True</code> otherwise</li> <li>■ <code>wait_time</code>: wait time after applying protocols</li> <li>■ <code>wait_time2</code>: maximum wait time befor all ports become available. In common case, this is calculated automatically so user does not need to change this value.</li> <li>■ <code>wait_time3</code>: default waiting time after config file is loaded (30s)</li> </ul> <p>More information about ports could be define in <code>real_port</code> section like this:</p> <pre># tester information tester:    tester:     device: ixnet03_8009     config: bgp.ixncfg     real-port:       - chassis: 10.128.4.41         card: 4         port: 7         media: fiber         tx_mode: interleaved</pre> <p>Configurable port parameters ares:</p> <ul style="list-style-type: none"> <li>■ <code>tx_mode</code>: <code>sequential</code> or <code>interleaved</code>(default)</li> <li>■ <code>media</code>: <code>copper</code> or <code>fiber</code> ( <b>Note</b>: no default value)</li> </ul> <p>See <a href="#">Common</a> for more details about the yaml configuration files.</p>
Load Traffic	<code>self, wait_time=2m, wait_time2=2m, apply=True, protocol=True, force=True, tx_mode=interleaved</code>	
Loss From File	<code>self,</code>	Returns <code>packet loss</code> by milliseconds and delta frame.



	<code>file_name=Flow_Statistics.csv, tx_frame_i=3, frame_delta_i=5, time1_i=23, time2_i=24</code>	The calculation should be performed when traffic is stopped. The calculation supposed traffic is configured by frame per second										
Ping	<code>self, dst_ip, src_port_index=0, src_intf_index=0</code>	<p>Ping from Ixia to <code>dst_ip</code></p> <p>The keyword return the output string as it is. The return could be</p> <div><ul style="list-style-type: none"><li>- Port &lt;portName&gt;: ping failed: port not assigned</li><li>- Response received from &lt;sourceIp&gt;/unknown . Sequence Number &lt;sequenceNumber&gt;</li><li>- Ping request to &lt;destinationIp&gt;/unknown ip failed: &lt;GenericPingError&gt;/&lt;error&gt;: &lt;genericError&gt;unknown reason</li><li>- Error: Couldn't find any source interface for Send Ping to &lt;destinationIp&gt; on &lt;portName&gt; Id &lt;id&gt;</li><li>- Error: Couldn't find any source IP for Send Ping to &lt;destinationIp&gt; on &lt;portName&gt; Id &lt;id&gt;</li></ul></div> <p>Parameters:</p> <ul style="list-style-type: none"><li>▪ <code>src_port_index</code>: index of Ixia port (starts from 0)</li><li>▪ <code>src_intf_index</code>: index of interface insides the port (starts from 0)</li></ul> <p>Examples:</p> <table><tr><td>Tester.<a href="#">Ping</a></td><td>1.1.1.1</td><td>0</td><td>0</td></tr><tr><td>Tester.<a href="#">Ping</a></td><td>1.1.1.1</td><td></td><td></td></tr></table>	Tester. <a href="#">Ping</a>	1.1.1.1	0	0	Tester. <a href="#">Ping</a>	1.1.1.1				
Tester. <a href="#">Ping</a>	1.1.1.1	0	0									
Tester. <a href="#">Ping</a>	1.1.1.1											
Regenerate	<code>self</code>	Regenerates <b>all</b> flow of current traffic items										
Reset Config	<code>self</code>	Clears current config and creates new blank config										
Run Quicktest	<code>self, test_index=0, wait_until_finish=True</code>	<p>Runs the Quicktest and wait until it finishes</p> <p><b>Warning:</b> it could take a long time to finish a quicktest</p>										
Set All Traffic Item	<code>self, enabled=True</code>	Enables/Disables <b>all</b> traffic items at once										
Set Bgp Items	<code>self, port_index, neighbor_index, route_range_index, is_enable</code>	<p>Enables/Disables BGP entry by a set of port,neighbor,route_range index</p> <p>Parameters:</p> <ul style="list-style-type: none"><li>▪ <code>port_index</code>: index of the port</li><li>▪ <code>neighbor_index</code>: index of the neighbor or *</li><li>▪ <code>route_range_index</code>: index of the route range or *</li><li>▪ <code>is_enable</code>: \${TRUE} or \${FALSE}</li></ul> <p>Note</p> <p>Examples:</p> <table><tr><td>Tester.<a href="#">Set BGP Items</a></td><td>0</td><td>*</td><td>*</td><td>\${FALSE}</td></tr><tr><td>Tester.<a href="#">Set BGP Items</a></td><td>0</td><td>*</td><td>*</td><td>\${TRUE}</td></tr></table>	Tester. <a href="#">Set BGP Items</a>	0	*	*	\${FALSE}	Tester. <a href="#">Set BGP Items</a>	0	*	*	\${TRUE}
Tester. <a href="#">Set BGP Items</a>	0	*	*	\${FALSE}								
Tester. <a href="#">Set BGP Items</a>	0	*	*	\${TRUE}								
Set Bgp Neighbor	<code>self, *indexes, **kwargs</code>	<p>Enables/Disables BGP entry by neighbor index</p> <p><code>kwargs</code> contains following parameters:</p> <ul style="list-style-type: none"><li>▪ <code>indexes</code>: is a list of index of BGP neighbor (index is started from zero)</li><li>▪ <code>vport_index</code>: is the target vport index</li><li>▪ <code>enabled</code>: TRUE or FALSE</li></ul> <p>Examples:</p> <table><tr><td>Tester.<a href="#">Set BGP Item</a></td><td>0</td><td>1</td><td>vport_index=0</td><td>enabled=\${FALSE}</td></tr><tr><td>Tester.<a href="#">Set BGP Item</a></td><td>0</td><td>1</td><td>vport_index=1</td><td>enabled=\${TRUE}</td></tr></table>	Tester. <a href="#">Set BGP Item</a>	0	1	vport_index=0	enabled=\${FALSE}	Tester. <a href="#">Set BGP Item</a>	0	1	vport_index=1	enabled=\${TRUE}
Tester. <a href="#">Set BGP Item</a>	0	1	vport_index=0	enabled=\${FALSE}								
Tester. <a href="#">Set BGP Item</a>	0	1	vport_index=1	enabled=\${TRUE}								
Set Capture Port	<code>self, data_mode=True, control_mode=True, port_index=0</code>	<p>Capture packets for follow port</p> <p><code>port_index</code>: is a index of current test port (start from 0) <code>data_mode</code>: capture data packets and save in &lt;intf&gt;_HW.cap file <code>control_mode</code>: capture controls packets and save in &lt;intf&gt;_SW.cap file</p> <p><b>Note:</b> <code>control_mode</code> saves all control packets and <code>data_mode</code> only saves data packets.</p> <p><b>Note:</b> <code>control_mode</code> saves all control packets and <code>data_mode</code> only saves data packet</p> <p>Examples:</p> <table><tr><td>Tester.<a href="#">Set Capture Port</a></td><td>0</td><td></td><td></td></tr><tr><td>Tester.<a href="#">Set Capture Port</a></td><td>control_mode=\${TRUE}</td><td>0</td><td>1</td></tr></table>	Tester. <a href="#">Set Capture Port</a>	0			Tester. <a href="#">Set Capture Port</a>	control_mode=\${TRUE}	0	1		
Tester. <a href="#">Set Capture Port</a>	0											
Tester. <a href="#">Set Capture Port</a>	control_mode=\${TRUE}	0	1									
Set Traffic Item	<code>self, *items, **kwargs</code>	<p>Enables/Disables some traffic items <code>items</code></p> <p>Parameters:</p> <ul style="list-style-type: none"><li>▪ <code>items</code>: a list of Ixia traffic item name</li><li>▪ <code>enabled</code>: False or True ,the mode to set traffic item to, default is <code>True</code> (enabled)</li></ul> <p><b>Note:</b> traffic item could be specified by ::&lt;num&gt; format. In this case the <code>num</code> is the order of traffic item count from zero.</p> <p>Returns <code>True</code> if all items are set coordinately or otherwise</p> <p>Examples:</p> <table><tr><td>Set Traffic Item</td><td>Traffic Item 1</td><td>Traffic Item 2</td></tr><tr><td>Set Traffic Item</td><td>@{item_list}</td><td></td></tr></table>	Set Traffic Item	Traffic Item 1	Traffic Item 2	Set Traffic Item	@{item_list}					
Set Traffic Item	Traffic Item 1	Traffic Item 2										
Set Traffic Item	@{item_list}											
Should Be Pingable	<code>self, dst_ip, src_port_index=0, src_intf_index=0</code>	<p>Ping from Ixia and raise an error if ping fails</p> <p>The keyword return <code>True</code> if succeeds</p>										

Start Capture	self, wait_time=30s	Start packet capture  Target ports are set by the configuration file or by [Set Capture] keyword								
Start Protocol	self, wait_time=1m	Starts all protocols and wait for wait_time  Default wait_time is 1 minute. Make sure wait_time is big enough to start all protocols.								
Start Test Composer	self, script_name=Main_Procedure, run_num=1, wait_for_test=True, parameter=, wait=10s	Run a test composer script.  The test composer script should be included in an Ixia Network configuration file and loaded properly with <a href="#">Load Config</a>  Parameters: <ul style="list-style-type: none"><li>script_name is the name of the script to run. Default value is Main_Procedure.</li><li>wait_for_test: if \${TRUE} then wait until the script finishes.</li><li>parameter: parameter that is passed to the script. Parameter could be in 2 formats: {{VAR1 VALUE1}} {VAR2 VALUE2}} or simply as VALUE1 VALUE2.</li></ul> The script must prepare VAR1 and VAR2 properly by Test parameter. See Ixia Network anout composer script for more details. <ul style="list-style-type: none"><li>wait: wait time before go to next keyword</li></ul> Examples: <table><tr><td>Tester.<a href="#">Start Test Composer</a></td><td>parameter=XXX YYY</td></tr><tr><td>Tester.<a href="#">Get Test Composer Result</a></td><td>result_file=script1.log</td></tr><tr><td>Tester.<a href="#">Start Test Composer</a></td><td>parameter={{VAR1 AAA}} {VAR2 BBB}}</td></tr><tr><td>Tester.<a href="#">Get Test Composer Result</a></td><td>result_file=script1.log</td></tr></table>	Tester. <a href="#">Start Test Composer</a>	parameter=XXX YYY	Tester. <a href="#">Get Test Composer Result</a>	result_file=script1.log	Tester. <a href="#">Start Test Composer</a>	parameter={{VAR1 AAA}} {VAR2 BBB}}	Tester. <a href="#">Get Test Composer Result</a>	result_file=script1.log
Tester. <a href="#">Start Test Composer</a>	parameter=XXX YYY									
Tester. <a href="#">Get Test Composer Result</a>	result_file=script1.log									
Tester. <a href="#">Start Test Composer</a>	parameter={{VAR1 AAA}} {VAR2 BBB}}									
Tester. <a href="#">Get Test Composer Result</a>	result_file=script1.log									
Start Traffic	self, wait_time=30s	Starts the current traffic settiing and wait for wait_time .  <b>Note:</b> This is a asynchrnous action. After called, the keyword finishes immediatly but it will take a while before traffic starts  By default the keyword will wait for 30 seconds.								
Stop All Protocols	self, wait_time=30s	Stop all running protocols								
Stop And Save Capture	self, prefix=, wait_until_finish=True, monitor_interval=5s	Stop current capture and save the results to folder specified by path  Captured files will be saved in current result folder with prefix appended in their names.  Examples: <table><tr><td>Tester.<a href="#">Start Capture</a></td><td></td></tr><tr><td>Sleep</td><td>10s</td></tr><tr><td>Tester.<a href="#">Stop And Save Capture</a></td><td>\${RESULT_FOLDER}/capture.zip</td></tr></table>	Tester. <a href="#">Start Capture</a>		Sleep	10s	Tester. <a href="#">Stop And Save Capture</a>	\${RESULT_FOLDER}/capture.zip		
Tester. <a href="#">Start Capture</a>										
Sleep	10s									
Tester. <a href="#">Stop And Save Capture</a>	\${RESULT_FOLDER}/capture.zip									
Stop Quicktest	self, test_index=0	Stops a running test								
Stop Test Composer	self, wait=10s	Stop a running composer  Do nothing when a test composer has already stopped or no composer has been prepared.								
Stop Traffic	self, stop_protocol=False, wait_time=10s	Stops the current traffic and wait for wait_time  Parameters: <ul style="list-style-type: none"><li>stop_protocol: if True also stops all running protocols</li><li>wait_time: time to wait after apply the command</li></ul>								
Wait Until Connected	self, timeout_str=5m	Waits until ports become enabled and connected								



# ixbps

**Library scope:** global  
**Named arguments:** supported

## Introduction

provides functions for Ixia Breaking Point

Breaking Point testers setting is set by `tester` section in `local.yaml`. Users need to specify the physical ports used by the test by its card and port number.

Setting example:

```
ixbps01:  
  device: ixbps01  
  config: test.bpt  
  real-port:  
    - card: 1  
      port: 0  
    - card: 1  
      port: 1
```

**Notes:** Ignore the *self* parameters when using those keywords. The module requires Breaking Point Python library installedd properly to work.

## Shortcuts

Cleanup Tests · Close · Get Card Config · Get Card Mode · Get Test Report · Load Config · Set Card Config · Start Test · Stop Test · Wait Until Finish

## Keywords

Keyword	Arguments	Documentation
Cleanup Tests	<i>self</i>	Cleans up running test and release their ports
Close	<i>self</i>	Closes the connection to the BP box
Get Card Config	<i>self</i> , <i>slot_num</i>	Get card configuration for <i>slot_num</i>  Parameter: <ul style="list-style-type: none"><li><i>slot_num</i> is <i>all</i> or an integer start from 1</li></ul> Result is a json formatted string contains the informaiton for specific slot or <i>all</i> slots.
Get Card Mode	<i>self</i> , <i>slot_num</i>	Gets the <i>mode</i> of a specific slot
Get Test Report	<i>self</i> , <i>report_name=result</i> , <i>format=csv</i>	Gets and saves the test report to local disk  The report will be in PDF format. If <code>export_csv</code> is <code>True</code> then test results are also exported by CSV format.
Load Config	<i>self</i> , <i>config_name=</i> , <i>force=True</i>	Loads test configuration <i>config_name</i> is defined in <code>local.yaml</code> or specific by user in the main scenario.
Set Card Config	<i>self</i> , <i>slot</i> , <i>action=mode</i> , <i>param=ixload</i>	Changes the configuration of BPS card  Parameters: <ul style="list-style-type: none"><li>slot: slot number</li><li>action: <code>mode</code> or <code>perfacc</code></li><li>param: depending on <i>action</i></li></ul> Values of <i>param</i> : <ul style="list-style-type: none"><li>if <i>action</i> is <code>mode</code> then <i>param</i> should be <code>ixload</code>, <code>bp</code> or <code>bpl23</code> (BreakingPoint L2/3)</li><li>if <i>action</i> is <code>perfacc</code> then <i>param</i> should be <code>\$(TRUE)</code> or <code>\$(FALSE)</code></li></ul>
Start Test	<i>self</i> , <i>test_name=None</i> , <i>force=True</i>	Starts a test by its name  The system automatically reserve the ports defined in <code>local.yaml</code> . The reserved ports are released when the test is stopped  <i>test_name</i> is the name of the testmodel saved in the configuration. If <i>test_name</i> is <i>None</i> , the 1st testmodel will be used.  If <i>force</i> is <i>True</i> then all running tests and their reserved ports will be released.
Stop Test	<i>self</i> , <i>wait=5s</i>	Stops a running test
Wait Until Finish	<i>self</i> , <i>interval=30s</i> , <i>timeout=30m</i> , <i>verbose=False</i>	Waits until the test finished or timeout  <b>Notes:</b> This is a blocking keyword

Altogether 10 keywords.

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# Hypervisor

**Library version:** RENAT 0.1.10  
**Library scope:** test suite  
**Named arguments:** supported

## Introduction

A module controls Hypervisors

A hypervisor is declared in `local.yaml` like this:

```
# esxi information
hypervisor:
  esxi-server:
    device: esxi-3-15
```

**Notes:** Currently support VMWare(Esxi) only

## Shortcuts

Capture Mks Screenshot · **C**lose · **C**lose All · **C**onnect · **C**onnect All · **G**et Mks Ticket · **G**et Vm Id · **G**et Vm List · **G**et Vm Power State · **O**pen Console · **P**ower Off · **P**ower On · **R**eset Capture Counter · **S**end Mks Cmd · **S**end Mks Key · **S**et Capture Format · **S**witch · **X**run

## Keywords

Keyword	Arguments	Documentation
Capture Mks Screenshot	<i>*args, **kwargs</i>	
Close		Closes and disconnects from a hypervisor
Close All		Closes all current opend hypervisor connection
Connect	<i>hyper, name</i>	Connects to a Hypervisor
Connect All	<i>prefix=</i>	Connect to <b>all</b> hypervisor listed in local config yaml
Get Mks Ticket	<i>*args, **kwargs</i>	
Get Vm Id	<i>*args, **kwargs</i>	
Get Vm List	<i>*args, **kwargs</i>	
Get Vm Power State	<i>*args, **kwargs</i>	
Open Console	<i>*args, **kwargs</i>	
Power Off	<i>*args, **kwargs</i>	
Power On	<i>*args, **kwargs</i>	
Reset Capture Counter	<i>*args, **kwargs</i>	
Send Mks Cmd	<i>*args, **kwargs</i>	
Send Mks Key	<i>*args, **kwargs</i>	
Set Capture Format	<i>*args, **kwargs</i>	
Switch	<i>name</i>	Switch the current hypervisor to a new one
Xrun	<i>cmd, *args, **kwargs</i>	

Altogether 18 keywords.

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# vmware

Library scope: global  
Named arguments: supported

## Introduction

provides function for VMware ESXI

Although this module provides some keywords for interact with the console (WebConsole), they only support very primitive actions. Do not use this to accomplish complex tasks. Instead, using VChannel through a SSH/Telnet channel.

## Shortcuts

Capture Mks Screenshot · Get Mks Ticket · Get Vm Id · Get Vm List · Get Vm Power State · Open Console · Power Off · Power On · Reset Capture Counter · Send Mks Cmd · Send Mks Key · Set Capture Format

## Keywords

Keyword	Arguments	Documentation																														
Capture Mks Screenshot	self, filename=None, extra=	<p>Captures the current web console to <i>filename</i></p> <p>If <i>filename</i> is <code>None</code>, the captured filename will be decided by the current <code>format</code> with an auto-increment counter and a <code>extra</code> at the end.</p> <p>Example:</p> <table><tr><td>Hypervisor.Capture MKS Screenshot</td><td># will create a file console_0000000001.png</td><td></td></tr><tr><td>Hypervisor.Capture MKS Screenshot</td><td>xxx.png</td><td># will create a file xxx.png</td></tr><tr><td>Hypervisor.Capture MKS Screenshot</td><td># will create a file console_0000000002.png</td><td></td></tr></table>	Hypervisor.Capture MKS Screenshot	# will create a file console_0000000001.png		Hypervisor.Capture MKS Screenshot	xxx.png	# will create a file xxx.png	Hypervisor.Capture MKS Screenshot	# will create a file console_0000000002.png																						
Hypervisor.Capture MKS Screenshot	# will create a file console_0000000001.png																															
Hypervisor.Capture MKS Screenshot	xxx.png	# will create a file xxx.png																														
Hypervisor.Capture MKS Screenshot	# will create a file console_0000000002.png																															
Get Mks Ticket	self, vm_name	Returns a MSK ticket for WebConsole																														
Get Vm Id	self, vm_name	Returns a VMID of a VM																														
Get Vm List	self	Returns current VM name list of the hypervisor																														
Get Vm Power State	self, vm_name	<p>Get vm power status</p> <p>Return <code>on</code> or <code>off</code></p>																														
Open Console	self, vm_name	<p>Opens a web console for a VM <i>vm_name</i></p> <p>Examples:</p> <table><tr><td>Hypervisor.<a href="#">Set Capture Format</a></td><td>console_%010d</td><td></td></tr><tr><td><a href="#">Open Console</a></td><td>\${VM_NAME}</td><td></td></tr><tr><td>Hypervisor.<a href="#">Capture MKS Screenshot</a></td><td></td><td></td></tr><tr><td><a href="#">Send MKS Cmd</a></td><td>root</td><td></td></tr><tr><td><a href="#">Send MKS Cmd</a></td><td>password</td><td>wait=10s</td></tr><tr><td><a href="#">Send MKS Cmd</a></td><td>ls</td><td></td></tr><tr><td>Hypervisor.<a href="#">Capture MKS Screenshot</a></td><td></td><td></td></tr><tr><td><a href="#">Send MKS Key</a></td><td>\${CTRL_L}</td><td></td></tr><tr><td><a href="#">Send MKS Cmd</a></td><td>whoami</td><td></td></tr><tr><td>Hypervisor.Capture MKS Screenshot`</td><td></td><td></td></tr></table>	Hypervisor. <a href="#">Set Capture Format</a>	console_%010d		<a href="#">Open Console</a>	\${VM_NAME}		Hypervisor. <a href="#">Capture MKS Screenshot</a>			<a href="#">Send MKS Cmd</a>	root		<a href="#">Send MKS Cmd</a>	password	wait=10s	<a href="#">Send MKS Cmd</a>	ls		Hypervisor. <a href="#">Capture MKS Screenshot</a>			<a href="#">Send MKS Key</a>	\${CTRL_L}		<a href="#">Send MKS Cmd</a>	whoami		Hypervisor.Capture MKS Screenshot`		
Hypervisor. <a href="#">Set Capture Format</a>	console_%010d																															
<a href="#">Open Console</a>	\${VM_NAME}																															
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<a href="#">Send MKS Cmd</a>	whoami																															
Hypervisor.Capture MKS Screenshot`																																
Power Off	self, vm_name, graceful=True	<p>Shutowns a VM</p> <p>If <i>graceful</i> is <code>True</code>, a graceful shutdown is tried before a power off.</p> <p><b>Note:</b> if VMware tools is not install on the VM, graceful shutdown is not available</p>																														
Power On	self, vm_name	Power on a VM																														
Reset Capture Counter	self																															
Send Mks Cmd	self, cmd, wait=2s	<p>Sends command to current web console and wait for a while</p> <p>By default, <i>wait</i> time is <code>2s</code> and the keyword will automaticall add a <code>Newline</code> char after sending the <i>cmd</i></p>																														
Send Mks Key	self, key, wait=1s	<p>Sends key strokes to current web console</p> <p>Special Ctrl char could be use by <code>\${CTRL_A}</code> to <code>\${CTRL_Z}</code></p> <p>Examples:</p> <table><tr><td><a href="#">Send MKS Key</a></td><td>\${CTRL_L}</td></tr></table>	<a href="#">Send MKS Key</a>	\${CTRL_L}																												
<a href="#">Send MKS Key</a>	\${CTRL_L}																															
Set Capture Format	self, format	<p>Set console capture format</p> <p>Initialized format is <code>'vmware_%010d'</code></p>																														

