

CDRouter Tips and Tricks for 2024

An open panel with Jason, Matt, Brad, and Brian



Jason Walls

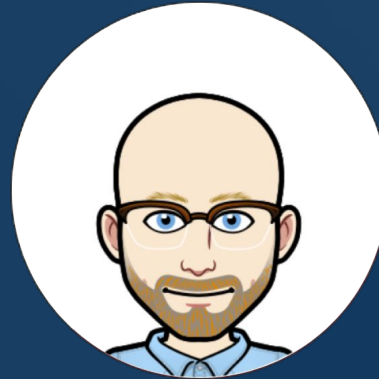
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Tip #1: Connect to a DUT's UI During a Test Run

With the device manager UI feature



Tip #1: Connect to a DUT During a Test Run

You can see which interface are in use during a test run...



Which **interfaces** are already in use?

Package Name
Scaling Tests

Notes
N/A

Other packages **cannot** include this package's testlist in their own testlist.

Options Summary
1 testcases, runs normally

Configuration
TP-Link AX6000 -Scaling

Device
TP-Link Archer AX6000

Owner
brian

Tags

Schedule
This package would run at 12:00 am, but its schedule is currently disabled

Interfaces
eth9 wifi1-ax

CDROUTER | Results

20231108145402

Filter Tests
Status: All Tests

Scaling Tests
Search: Enter test name

Test Navigation
Analyze: Enter test name

Interfases
eth9 wifi1-ax

Package
Scaling Tests - 1 testcases, runs normally

Configuration File
TP-Link AX6000 -Scaling

Device
TP-Link Archer AX6000

Tags
Edit tags
N/A

Notes
Edit notes
N/A

Started
2023-11-08 at 2:54 PM

TIME	TEST NAME	DESCRIPTION	Skip reasons	LOG	SEQ
00:45	start	CDRouter Startup		log	1 2 3
00:00	cdrouter_scale_2	Verify all DHCP clients with multiple TCP connections			1 2 3
00:00	final	CDRouter Shutdown Sequence			1 2 3

3 tests | go to page

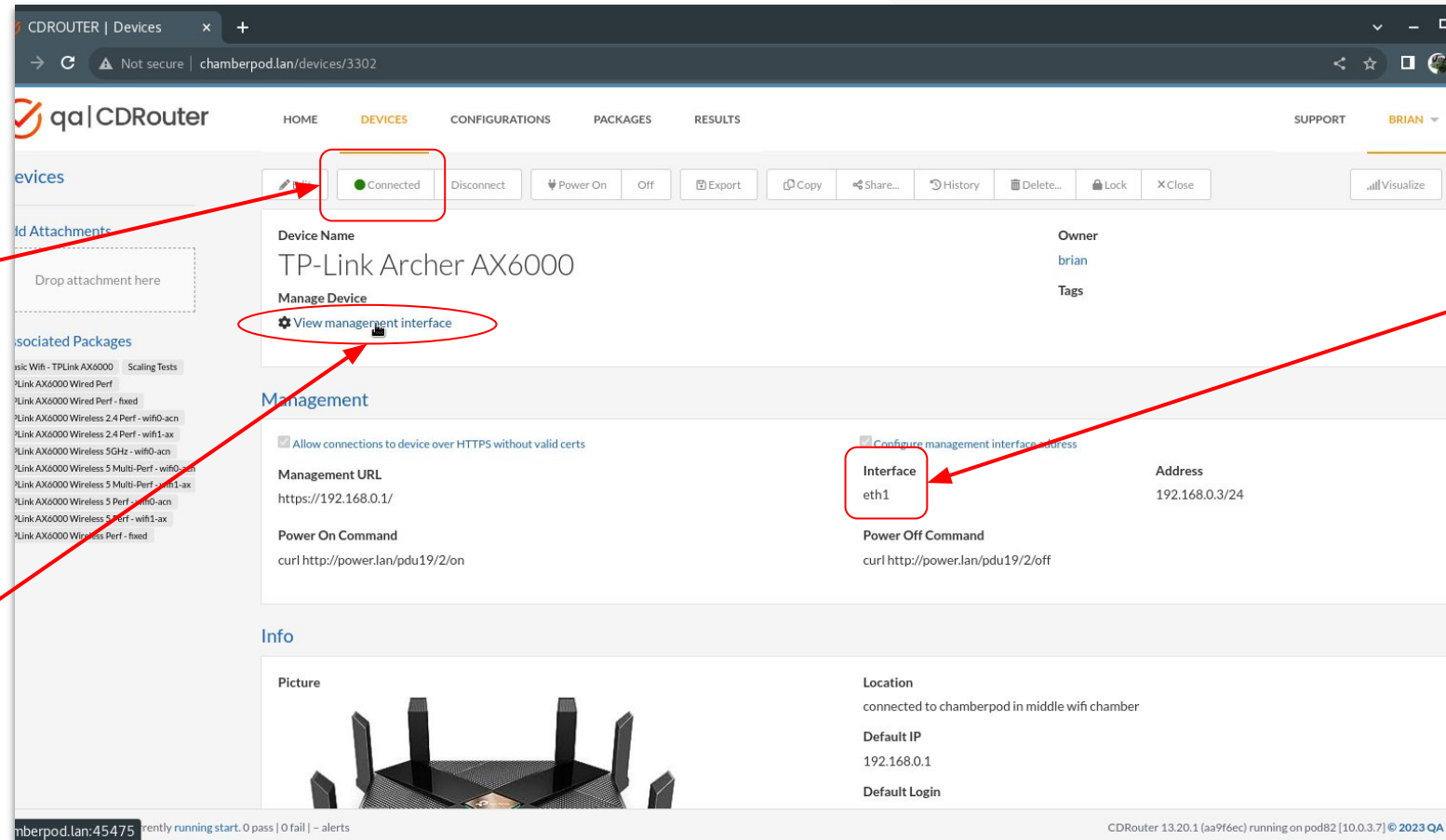
Running: Scaling Tests is currently running start. 0 pass | 0 fail | - alerts

CDRouter 13.20.1 (aa9f6ec) running on pod82 [10.0.3.7] © 2023 QA Cafe

... or which ones will be in use by looking at the test package details



Tip #1: Connect to a DUT During a Test Run



1. Make sure to use an interface NOT being used in the test.

2. **Connect** - sets up a web proxy to the DUT's main UI

3. Open a browser tab to DUT's UI

(see next slide)

Tip #1: Connect to a DUT During a Test Run

CDROUTER | Devices x AX6000 Next-Gen Wi-Fi x +

→ C Not secure | chamberpod.lan:45475/webpages/index.html?t=ea3f7fe8#networkMap

tp-link | AX6000 Next-Gen Wi-Fi Router

Search TP-Link ID Log Out

Network Map Internet Wireless HomeCare Advanced

Type	Information	Real-time Rate	Interface	Rate(Mbps)	Duration	Block
IBASE	00-03-2D-51-7F-5B 192.168.0.3	↑ 0 KB/s ↓ 0 KB/s		--	4 min	⊘
client1	B0-75-0C-0C-58-A6 192.168.0.188	↑ 0.69 KB/s ↓ 1.6 KB/s	5G	2402 / 2402	0 min	⊘
client10	B0-75-0C-BF-12-5D 192.168.0.124	↑ 0 KB/s ↓ 0 KB/s	5G	2402 / 2402	0 min	⊘
client11	B0-75-0C-D8-91-F7 192.168.0.88	↑ 0 KB/s ↓ 0 KB/s	5G	2268 / 2402	0 min	⊘
client12	B0-75-0C-D0-57-0F 192.168.0.97	↑ 0 KB/s ↓ 0 KB/s	5G	2268 / 2402	0 min	⊘
client13	B0-75-0C-66-F3-59 192.168.0.25	↑ 0 KB/s ↓ 0 KB/s	5G	2402 / 2402	0 min	⊘

SUPPORT BACK TO TOP

Watch as the clients connect while the scaling test is running!

See this [KB article](#) for a reminder on the Device Manager feature



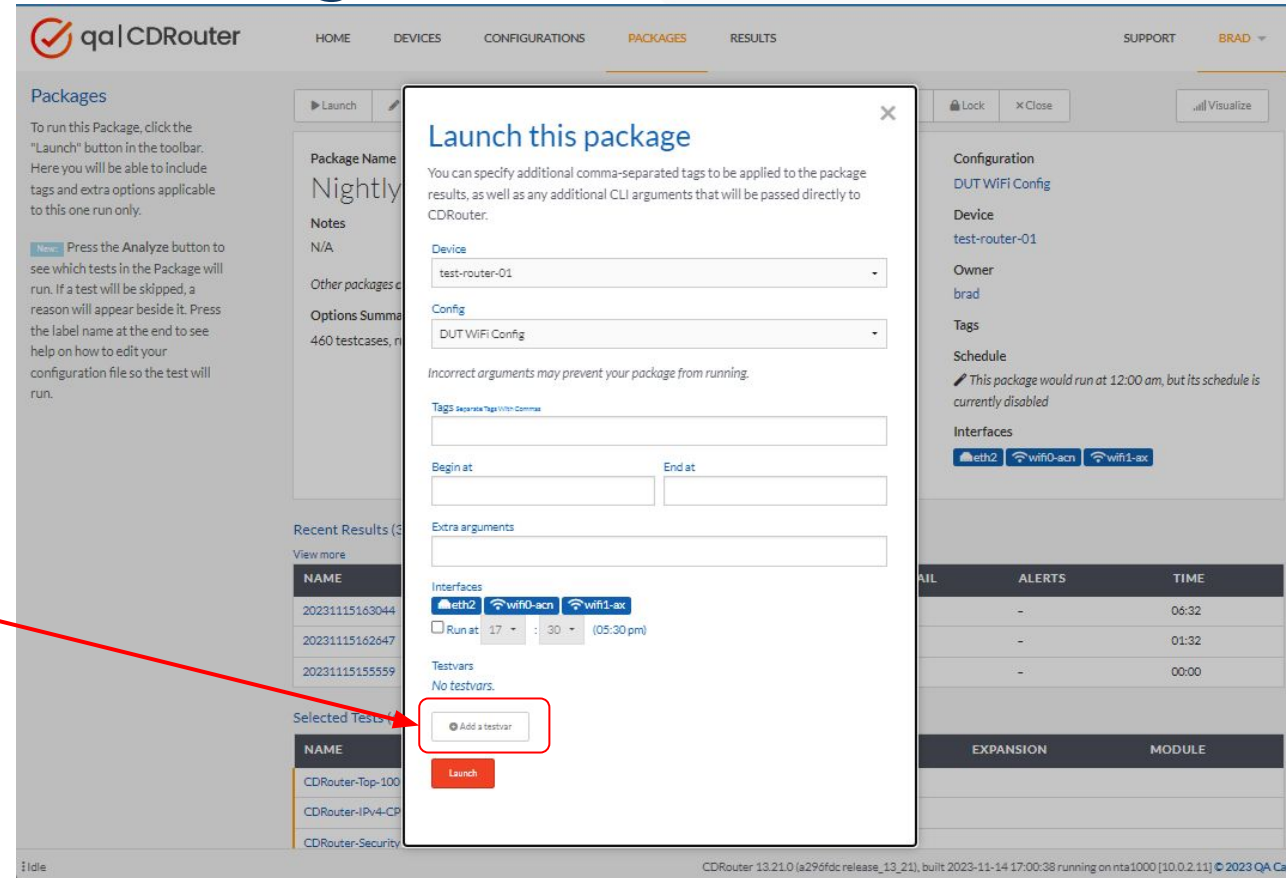
Tip #2: Overriding Testvars

*Change testvar settings without
modifying the config file*



Tip #2: Overriding Testvars

New "Add a testvar" button added to Launch popup



The screenshot displays the qa|CDRouter interface with a 'Launch this package' modal open. The modal contains the following fields and sections:

- Device:** test-router-01
- Config:** DUT WiFi Config
- Tags:** A text input field with a 'Secure Tags With Commas' warning.
- Begin at:** A date and time input field.
- End at:** A date and time input field.
- Extra arguments:** A text input field.
- Interfaces:** eth2, wifi0-acn, wifi1-ax
- Testvars:** No testvars. A red box highlights the 'Add a testvar' button.
- Launch:** A red button at the bottom of the modal.

The background interface shows the 'Packages' section with a 'Launch' button and a 'Nightly' package. The 'Selected Tests' section lists: CDRouter-Top-100, CDRouter-IPv4-CP, and CDRouter-Security.

Tip #2: Overriding Testvars

Set Testvar

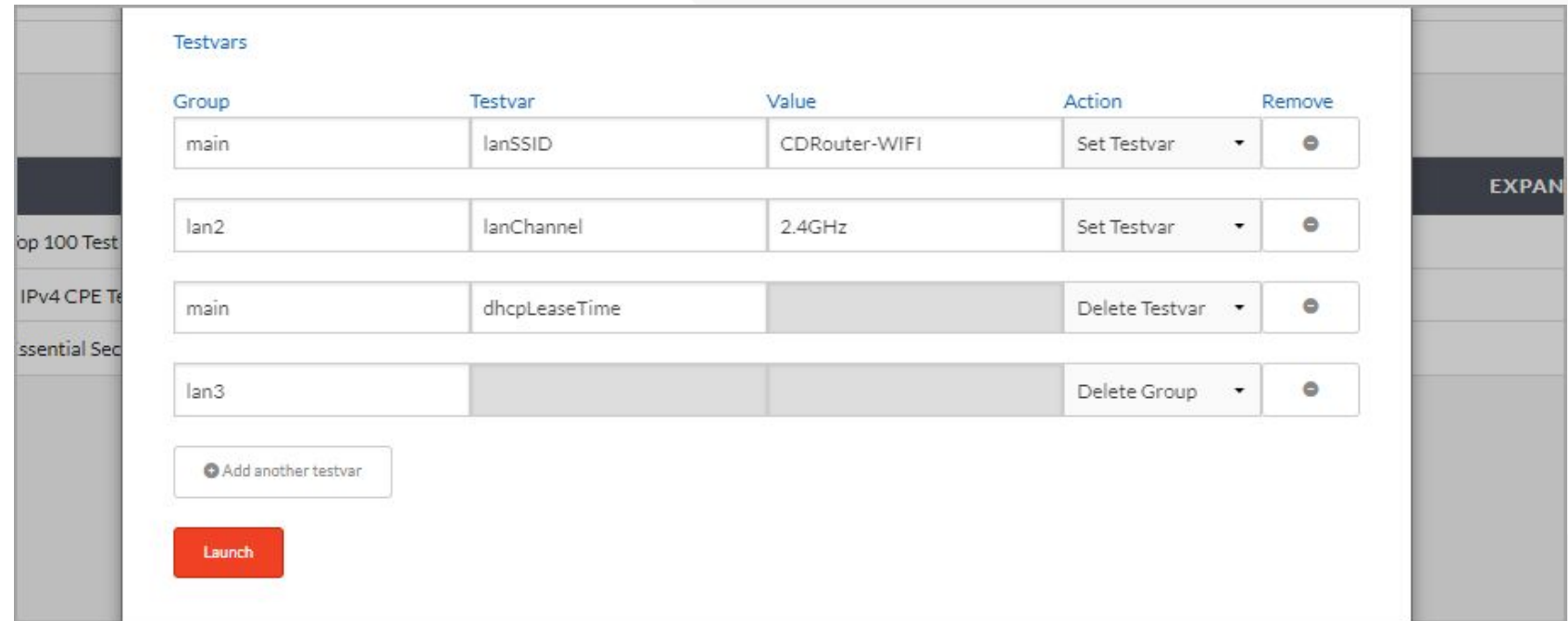
Override testvar values in the **main** section or within a **testvar_group**

Delete Testvar

Remove custom setting to revert it back to its default value

Delete Group

Remove an entire testvar_group so it is no longer defined



The screenshot shows a 'Testvars' configuration window with a table of test variables. The table has columns for Group, Testvar, Value, Action, and Remove. Below the table is a button to 'Add another testvar' and a red 'Launch' button.

Group	Testvar	Value	Action	Remove
main	lanSSID	CDRouter-WIFI	Set Testvar	⊖
lan2	lanChannel	2.4GHz	Set Testvar	⊖
main	dhcpLeaseTime		Delete Testvar	⊖
lan3			Delete Group	⊖

⊕ Add another testvar

Launch

Tip #2: Overriding Testvars

Start procedure log file shows which testvars were modified

```
47 16:30:47.852 INFO(setup): Creating log directory '/usr/cdrouter-data/results/20231115/20231115163044'  
48 16:30:47.852 INFO(setup): Loading test configuration file '/usr/cdrouter-data/results/20231115/20231115163044'  
49 16:30:47.852 NOTICE(setup): Overriding config from command line: -testvar lanSSID=CDRouter-WIFI  
50 16:30:47.852 NOTICE(setup): Overriding config from command line: -testvar_group lan2:lanChannel=2.4GHz  
51 16:30:47.852 NOTICE(setup): Overriding config from command line: -delete-testvar dhcpLeaseTime  
52 16:30:47.852 NOTICE(setup): Overriding config from command line: -delete-group lan3  
53 16:30:47.852 INFO(setup): Adding test module "dhcp-c.tcl" to execution list  
54 16:30:47.852 INFO(setup): Adding test module "dhcp-s.tcl" to execution list
```

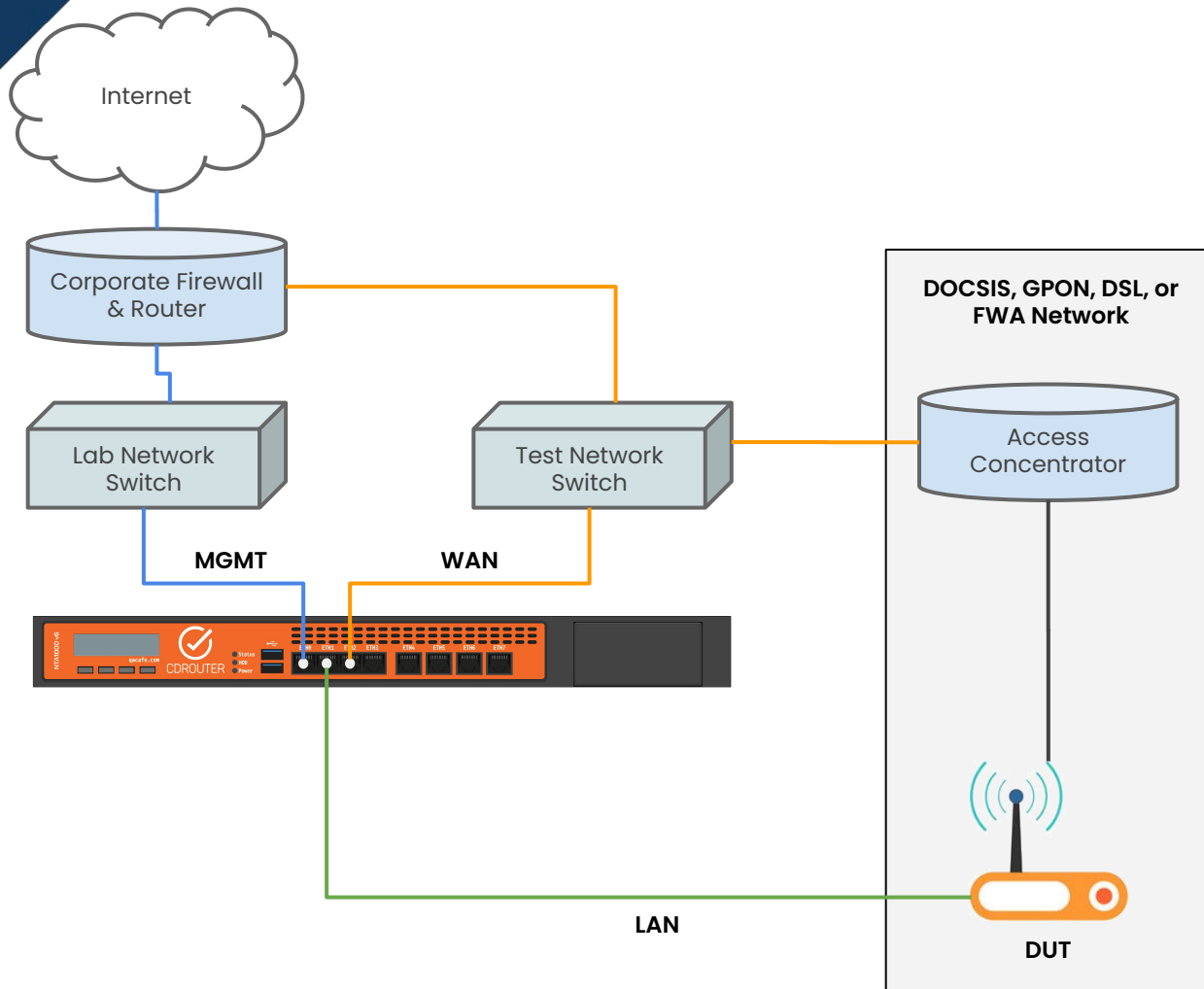


Tip #3: Use Stable WAN MACs

Useful and important in shared test setups



Tip #3: Use Stable WAN MACs



By default, CDRouter assigns unique, randomized MAC addresses to all primary WAN test stacks during every test run.

All MAC addresses share the same 24-bit OUI. The OUI is configurable using the testvar `cdrouterOui`.

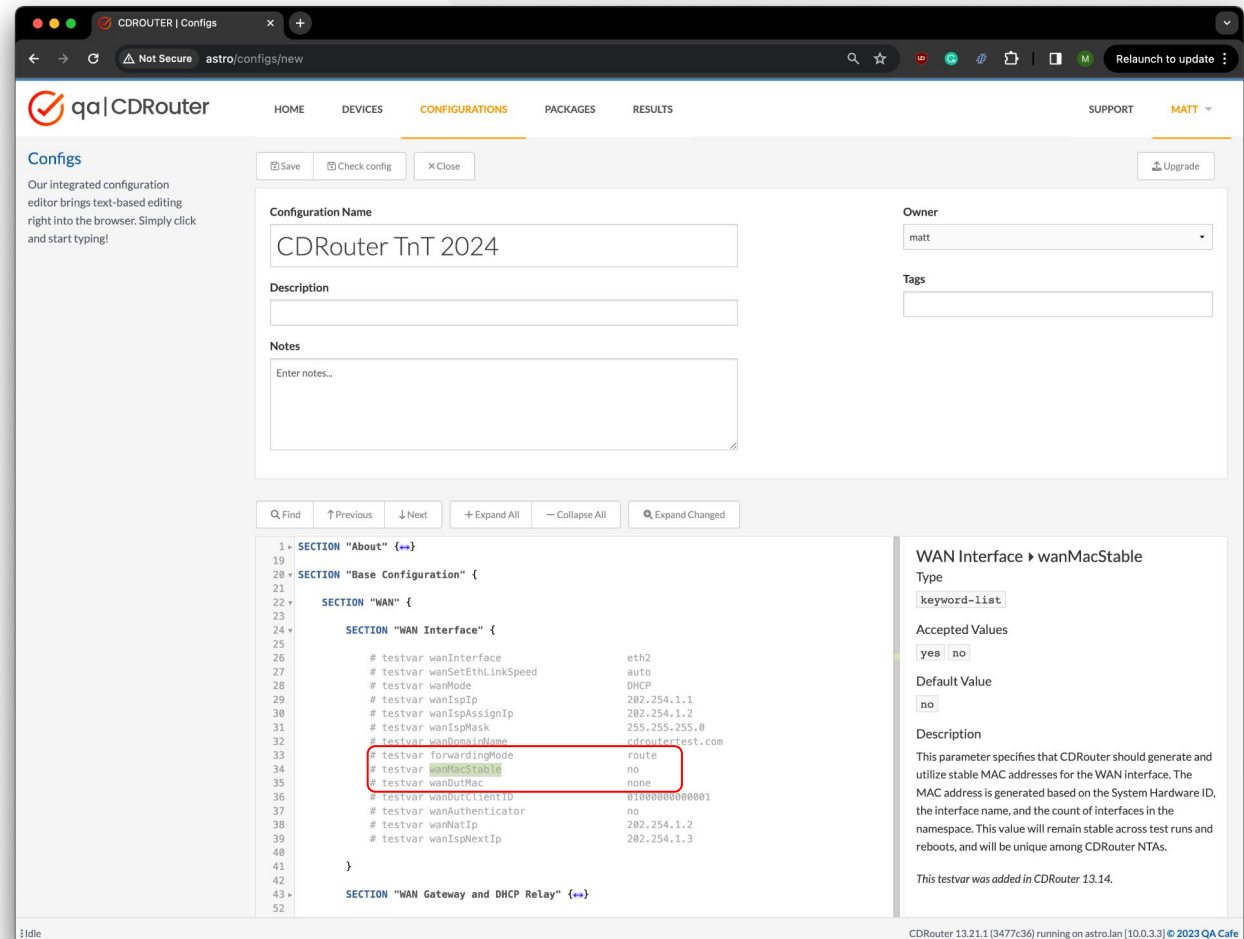
In some shared test setups, randomized WAN MAC addresses may lead to stale entries in upstream ARP tables and NDP caches, preventing test cases from running properly.

Tip #3: Use Stable WAN MACs

The **wanMacStable** testvar makes CDRouter assign stable MAC addresses to all primary WAN stacks.

Stable MAC addresses are consistent across test runs and unique per system to avoid collisions in environments where multiple CDRouter systems or test instances are present.

We recommend always using wanMacStable in shared test environments!



The screenshot shows the CDRouter configuration interface. The configuration name is "CDRouter TnT 2024". The configuration code is displayed in a text editor, and the `testvar wanMacStable` line is highlighted with a red box. The right sidebar shows the configuration details for the `wanMacStable` testvar, including its type, accepted values, and description.

```
19 SECTION "About" {↔}
20 SECTION "Base Configuration" {
21
22 SECTION "WAN" {
23
24 SECTION "WAN Interface" {
25
26 # testvar wanInterface eth2
27 # testvar wanSetEthLinkSpeed auto
28 # testvar wanMode DHCP
29 # testvar wanIsIp 202.254.1.1
30 # testvar wanIsAssignIp 202.254.1.2
31 # testvar wanIsMask 255.255.255.0
32 # testvar wanDomainName cdrouter.test.com
33 # testvar forwardingMode route
34 # testvar wanMacStable
35 # testvar wanOutMac none
36 # testvar wanOutClientID 01000000000001
37 # testvar wanAuthenticator no
38 # testvar wanNatIp 202.254.1.2
39 # testvar wanIsNextIp 202.254.1.3
40
41 }
42
43 SECTION "WAN Gateway and DHCP Relay" {↔}
44
45 }
```

WAN Interface ▶ wanMacStable
Type
keyword-List
Accepted Values
yes no
Default Value
no
Description
This parameter specifies that CDRouter should generate and utilize stable MAC addresses for the WAN interface. The MAC address is generated based on the System Hardware ID, the interface name, and the count of interfaces in the namespace. This value will remain stable across test runs and reboots, and will be unique among CDRouter NTAs.
This testvar was added in CDRouter 13.14.



Tip #4: Automatically Retry Test Case Failures

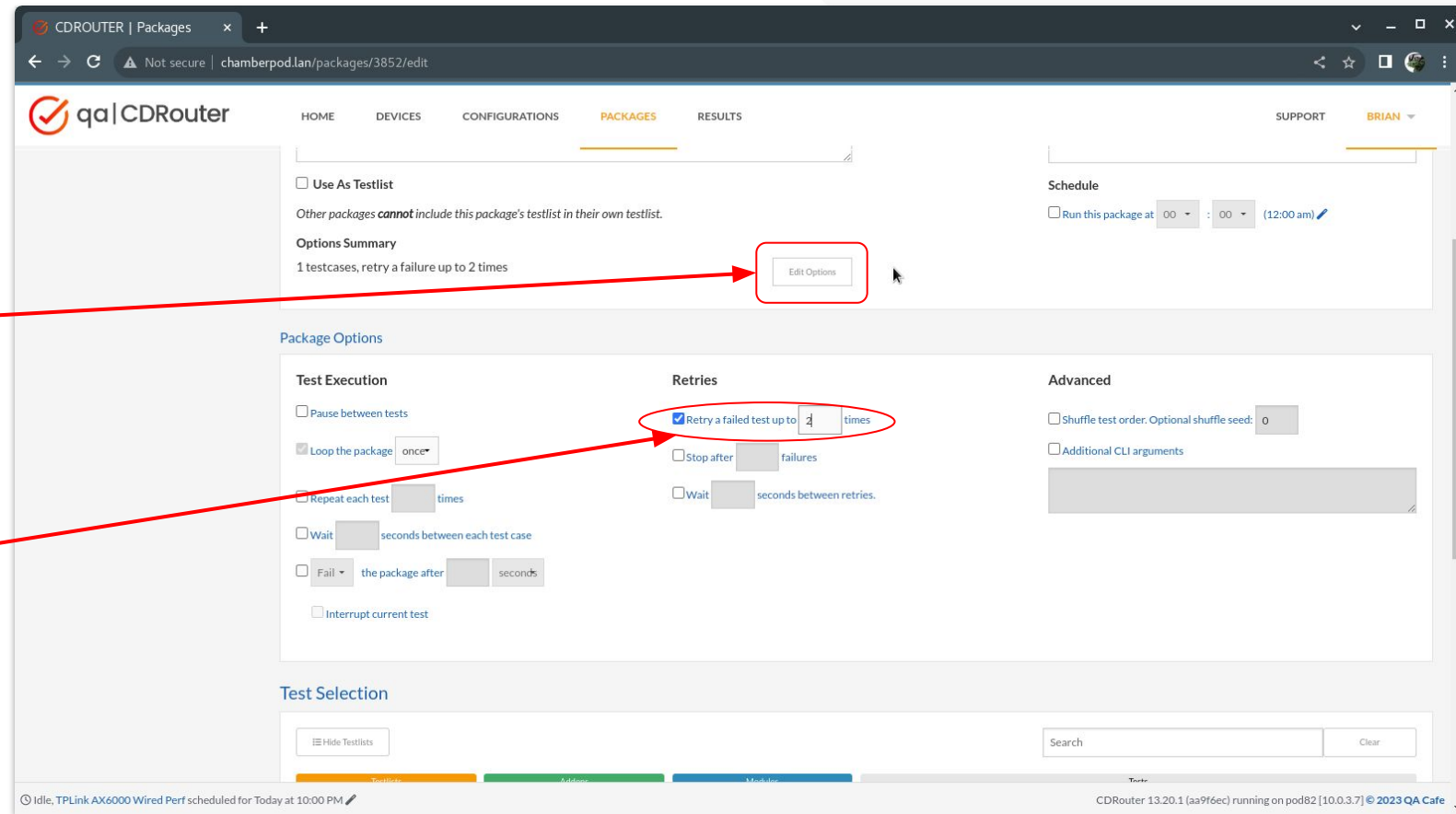
Using package run-time options



Tip #4: Automatically Retry Test Case Failures

Edit your existing test package and display *run-time options*

Enable retries and enter a value for the *number of attempts*



Tip #4: Automatically Retry Test Case Failures

```
378 19:10:33.329 INFO(wan): Sending ARP Reply 202.254.1.1 is at b0:75:0c:7f:3e:7e
379 19:10:33.330 O>>>(wan):      b0:75:0c:7f:3e:7e      80:cc:9c:3e:3b:96      ARP
380 19:10:35.184 I<<<(wan):      3001::2      2620:108:700f::3424:e0d3      TCP
381 19:10:35.295 INFO(wan): Sending out periodic IPv6 Router Advertisement for 3001::/64
382 19:10:35.296 O>>>(wan):      fe80::b275:cff:fe7f:3e7e      ff02::1      ICMPv6
383 19:10:40.874 FAIL: UDP performance test ended unexpectedly
384 19:10:40.874 INFO(cdrouter-5433): stdout:
```

When retries are enabled and the test case encounters a failure...

CDRouter automatically will **retry** the test case (*before moving on to the next one defined in the test package*).

```
473
474 19:10:41.361 ↕ SECTION(cdrouter-5433): Retrying test perf_4 (5433) after test result of FAIL
475
476 19:10:41.371 ↕ SECTION(cdrouter-5433): Setting up LAN and WAN performance test
```

```
1602 19:16:05.577 INFO(cdrouter-5433): UDP upload throughput over 30.0 seconds is 1113 Mbits/sec
1603 19:16:05.577 INFO(cdrouter-5433): UDP jitter is 0.008 ms with a loss rate of 0.00380806%
1604 19:16:05.577 PASS: UDP upload throughput of 1113 Mbits/sec is greater than UDP low threshold of 850.0 Mbits/sec
1605
```

Hopefully the test case will pass on the next attempt. (*It will try the number of times specified in the package options*)

CDRouter will note how many times the test was retried

```
1732
1733 19:16:05.972 ↕ SECTION(cdrouter-5433): Test perf_4 (5433) was tried 3 times 1
1734 19:16:05.972 PASS: Test perf_4 (5433) passed
```

Tip #4: Automatically Retry Test Case Failures

✓	🛡️	TIME	🚩
✓		02:42	○
✓		00:39	○
✓		00:39	○
✓		00:37	○
✓ (2)		07:42	○
✓		00:39	○
✓		00:39	○
✓		00:37	○
✓		00:37	○
✓		00:39	○
✓		00:39	○

On the Results page, if a test was retried, the number of attempts made will be listed next to the **green** ✓ or the **red** x

Read this Knowledge Base [article](#) for additional information



Tip #5: Resource Locking

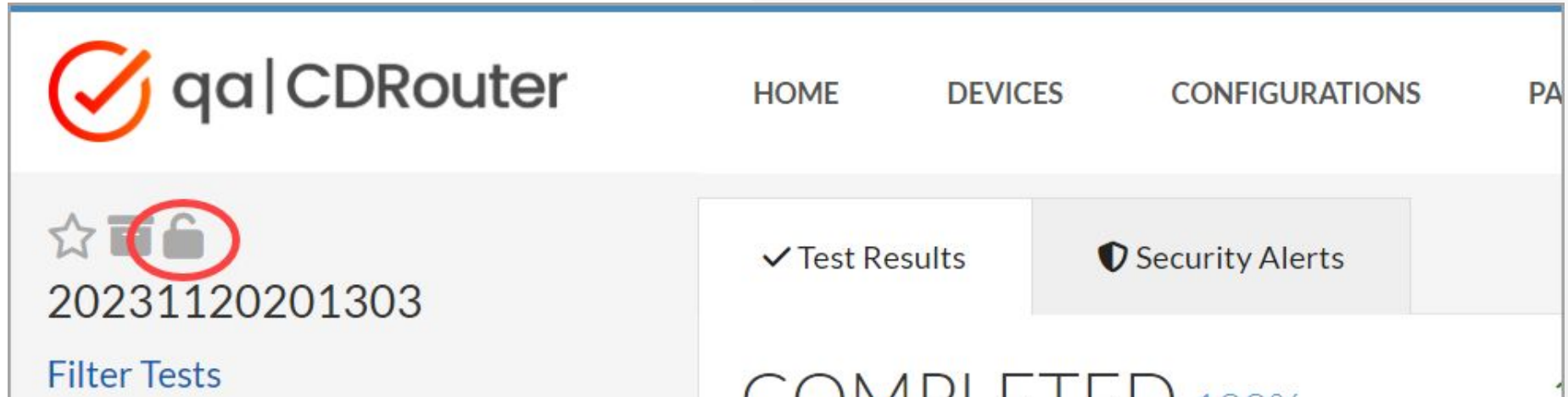
Protect your configs, packages and devices from accidental changes



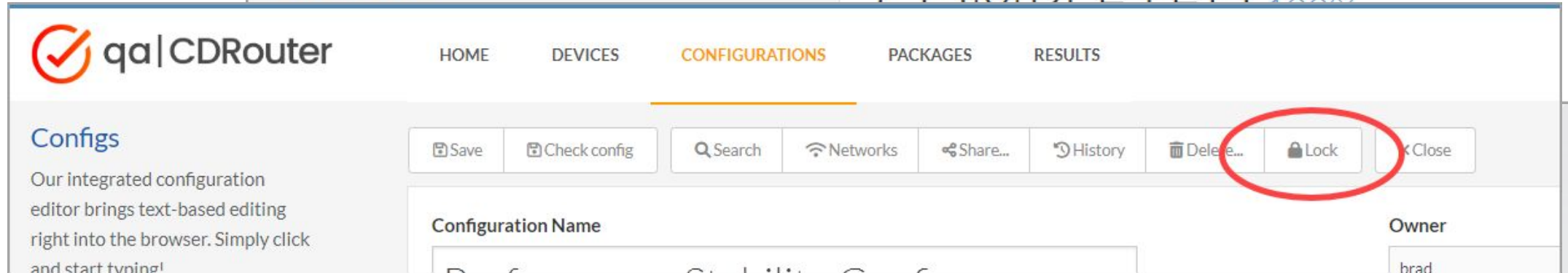
Tip #5: Resource Locking

Lock buttons protect resources from being modified or deleted

Results



Configs



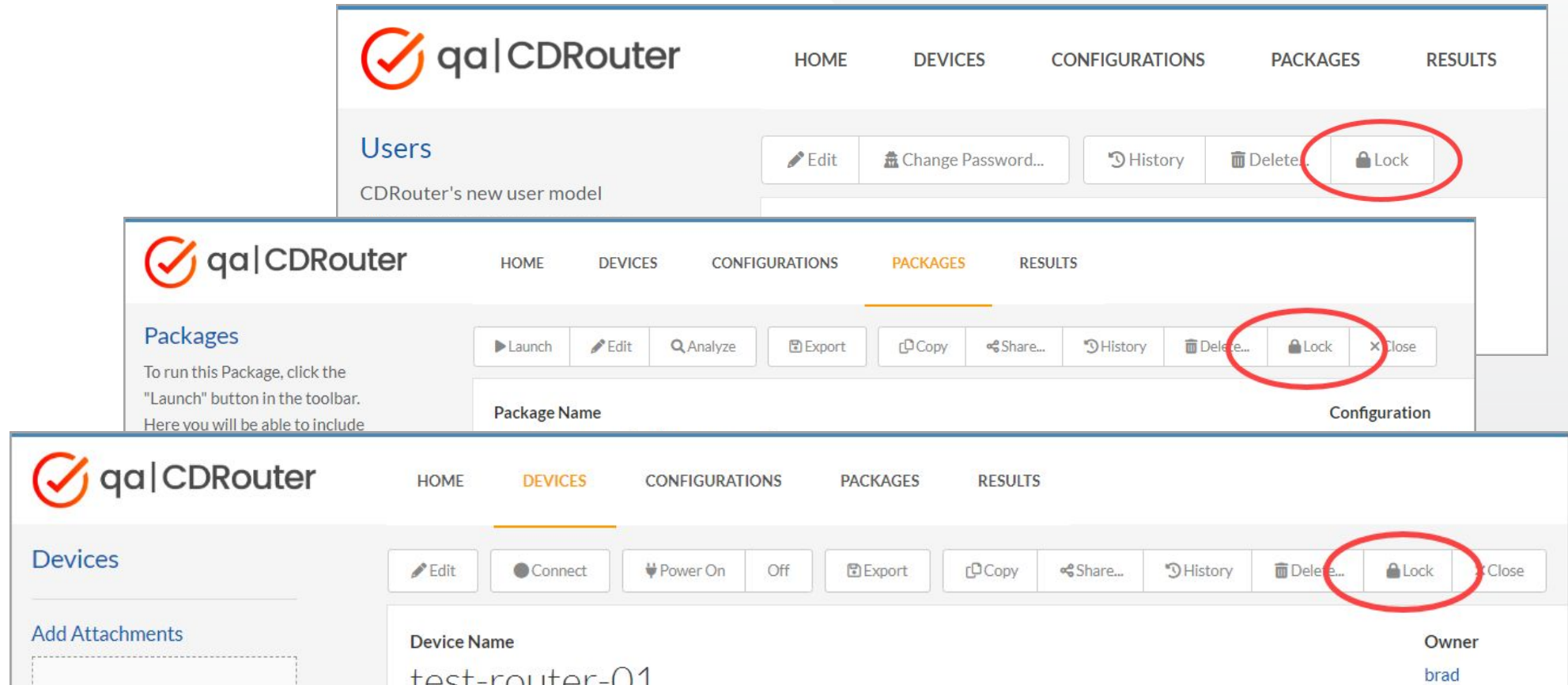
Tip #5: Resource Locking

You can also lock:

Users

Packages

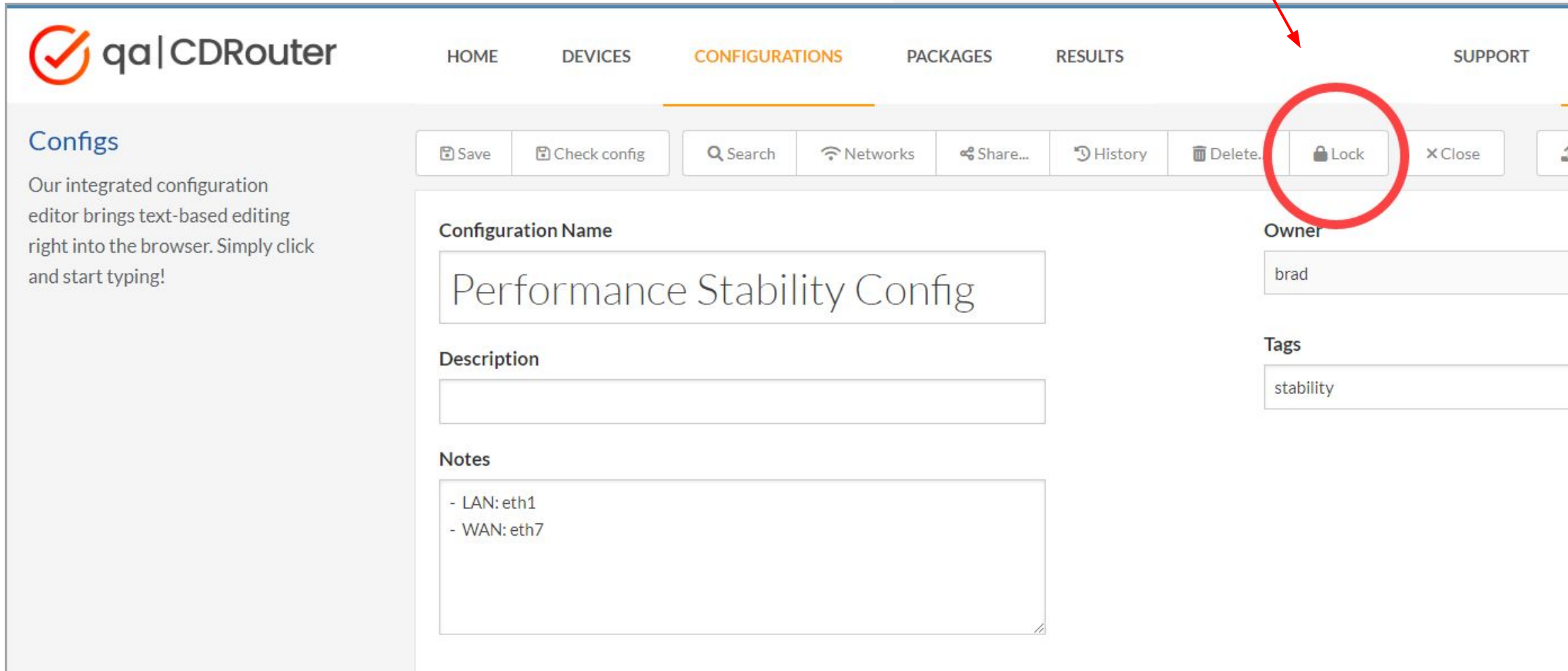
Devices



The image displays three overlapping screenshots of the qa|CDRouter web interface, each highlighting the 'Lock' button in a different section. The top screenshot shows the 'Users' section with the 'Lock' button circled in red. The middle screenshot shows the 'Packages' section with the 'Lock' button circled in red. The bottom screenshot shows the 'Devices' section with the 'Lock' button circled in red. The interface includes a navigation bar with 'HOME', 'DEVICES', 'CONFIGURATIONS', 'PACKAGES', and 'RESULTS' tabs. The 'Users' section has buttons for 'Edit', 'Change Password...', 'History', 'Delete...', and 'Lock'. The 'Packages' section has buttons for 'Launch', 'Edit', 'Analyze', 'Export', 'Copy', 'Share...', 'History', 'Delete...', 'Lock', and 'Close'. The 'Devices' section has buttons for 'Edit', 'Connect', 'Power On', 'Off', 'Export', 'Copy', 'Share...', 'History', 'Delete...', 'Lock', and 'Close'. The 'Devices' section also shows a table with columns for 'Device Name' and 'Owner', with the example device 'test-router-01' and owner 'brad'.

Tip #5: Resource Locking

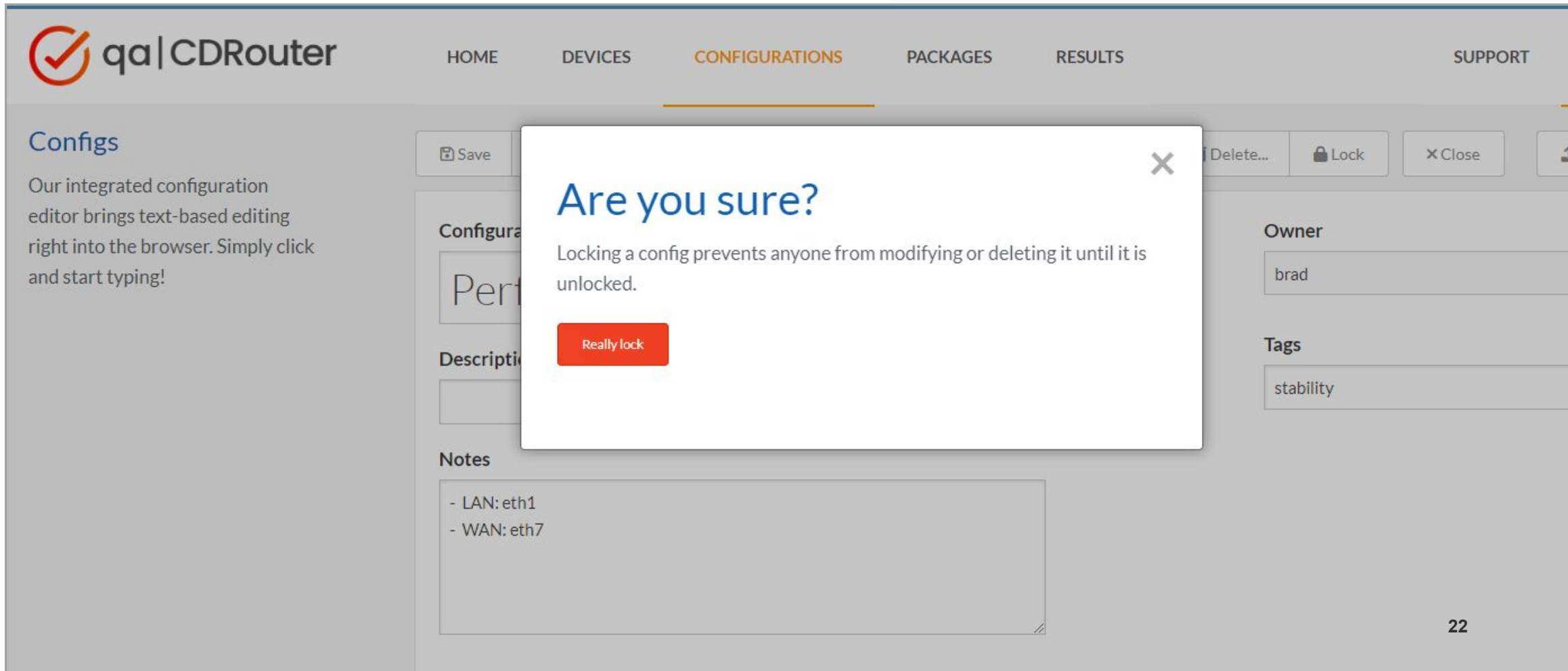
Click the "Lock" button to lock or unlock



The screenshot shows the qa|CDRouter interface. The top navigation bar includes 'HOME', 'DEVICES', 'CONFIGURATIONS' (highlighted), 'PACKAGES', 'RESULTS', and 'SUPPORT'. Below the navigation bar is a toolbar with buttons for 'Save', 'Check config', 'Search', 'Networks', 'Share...', 'History', 'Delete', 'Lock', and 'Close'. The 'Lock' button is circled in red. The main content area displays configuration details for 'Performance Stability Config', including fields for 'Configuration Name', 'Description', and 'Notes' (containing LAN: eth1 and WAN: eth7). On the right side, there are fields for 'Owner' (brad) and 'Tags' (stability).

Tip #5: Resource Locking

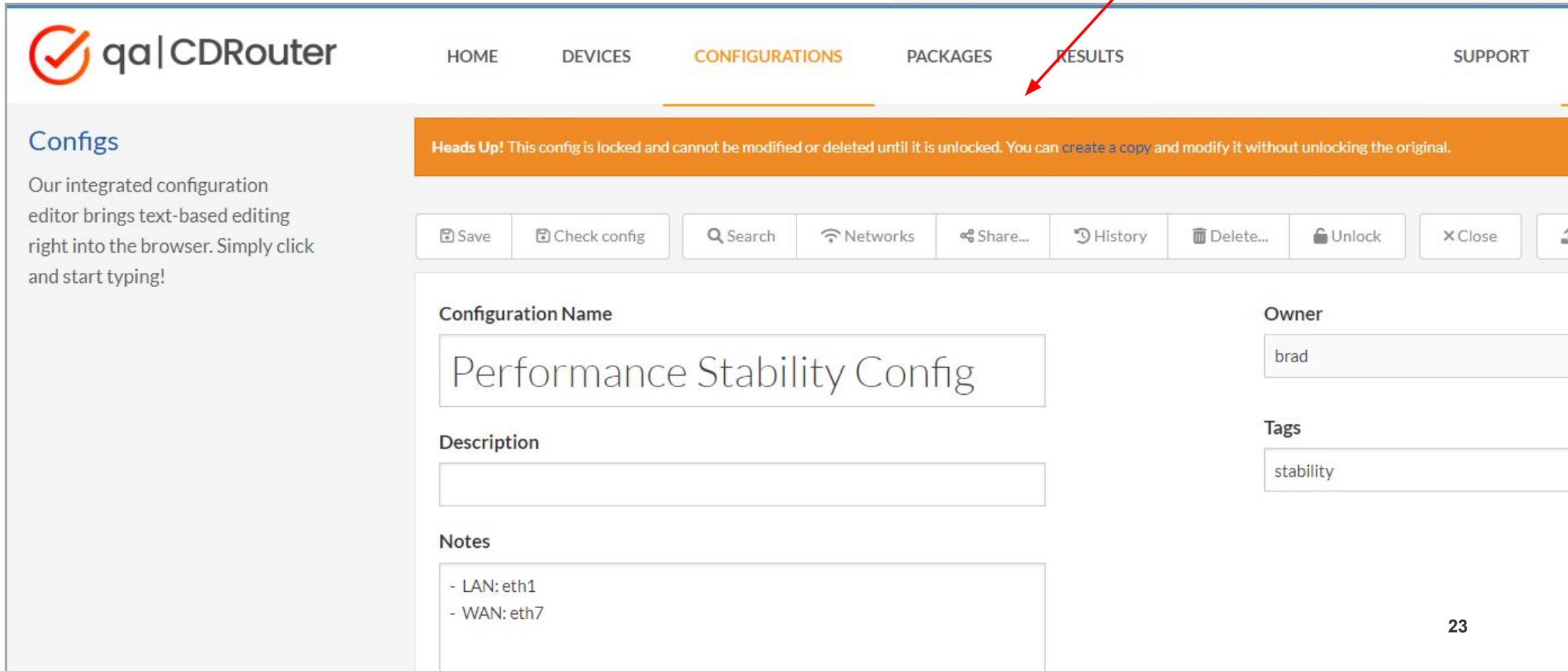
Any admin-level user can lock or unlock ANY resource no matter who owns it



The screenshot shows the qa|CDRouter web interface. The navigation bar includes HOME, DEVICES, CONFIGURATIONS (highlighted), PACKAGES, RESULTS, and SUPPORT. The main content area is titled "Configs" and contains a "Save" button, a "Delete..." button, a "Lock" button, and a "Close" button. A modal dialog is open in the center, asking "Are you sure?" and providing the following text: "Locking a config prevents anyone from modifying or deleting it until it is unlocked." Below the text is a red "Really lock" button. The background shows a configuration page with fields for "Configura", "Per", "Descripti", "Notes" (containing "- LAN: eth1" and "- WAN: eth7"), "Owner" (brad), and "Tags" (stability).

Tip #5: Resource Locking

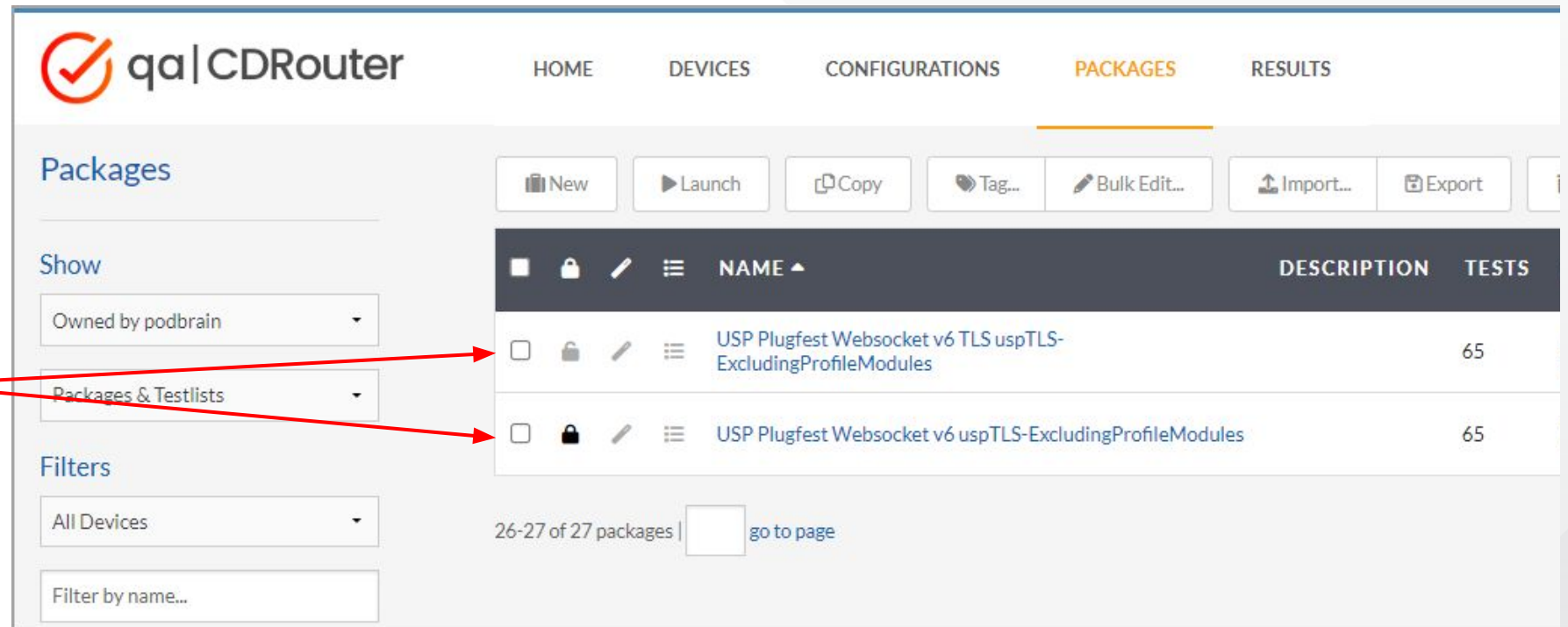
Banner is displayed when resource is locked



The screenshot shows the qa|CDRouter interface. At the top, there is a navigation bar with the following items: qa|CDRouter logo, HOME, DEVICES, CONFIGURATIONS (highlighted), PACKAGES, RESULTS, and SUPPORT. Below the navigation bar, there is a main content area. On the left side, there is a sidebar with the heading "Configs" and a description: "Our integrated configuration editor brings text-based editing right into the browser. Simply click and start typing!". The main content area features a prominent orange banner with the text: "Heads Up! This config is locked and cannot be modified or deleted until it is unlocked. You can create a copy and modify it without unlocking the original." Below the banner, there is a toolbar with buttons for Save, Check config, Search, Networks, Share..., History, Delete..., Unlock, and Close. The configuration details are displayed in a form with the following fields: Configuration Name (Performance Stability Config), Description (empty), Notes (LAN: eth1, WAN: eth7), Owner (brad), and Tags (stability).

Tip #5: Resource Locking

Lock and Unlock by clicking the icons on the index page



The screenshot shows the qa|CDRouter interface with the 'PACKAGES' tab selected. The 'Packages' section includes a toolbar with buttons for New, Launch, Copy, Tag..., Bulk Edit..., Import..., and Export. Below the toolbar is a table with columns for NAME, DESCRIPTION, and TESTS. Two packages are listed, both with a lock icon in the first column. Red arrows point from the text on the left to these lock icons.

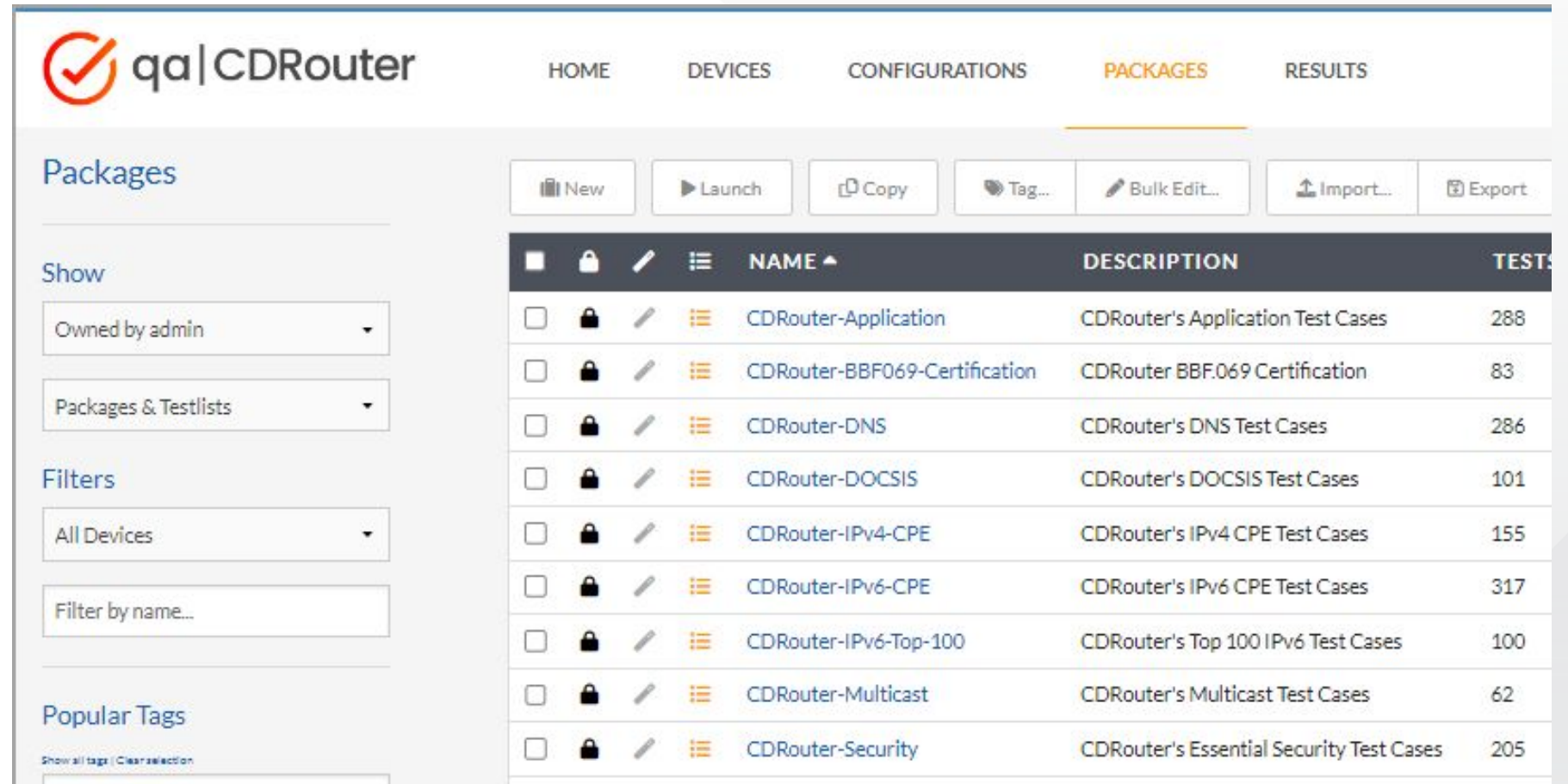
	NAME	DESCRIPTION	TESTS
<input type="checkbox"/>	USP Plugfest Websocket v6 TLS uspTLS-ExcludingProfileModules		65
<input type="checkbox"/>	USP Plugfest Websocket v6 uspTLS-ExcludingProfileModules		65

26-27 of 27 packages | go to page

Tip #5: Resource Locking

Locks do NOT protect pre-installed testlist packages

Changes you make will be overwritten when you upgrade CDRouter

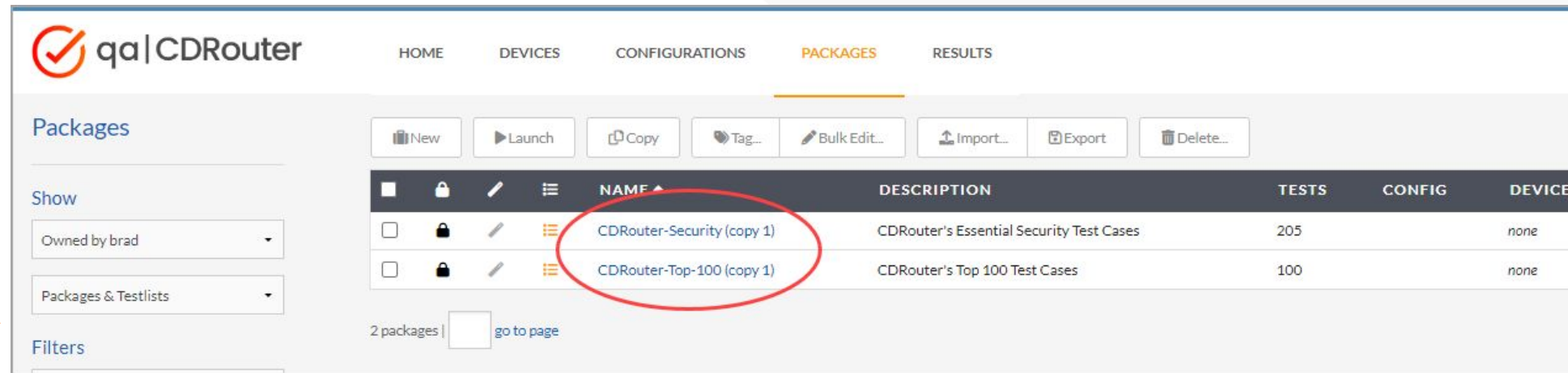


The screenshot shows the qa|CDRouter interface with the 'PACKAGES' tab selected. The interface includes a navigation bar with 'HOME', 'DEVICES', 'CONFIGURATIONS', 'PACKAGES', and 'RESULTS'. Below the navigation bar, there are several action buttons: 'New', 'Launch', 'Copy', 'Tag...', 'Bulk Edit...', 'Import...', and 'Export'. The main content area displays a table of packages with columns for 'NAME', 'DESCRIPTION', and 'TESTS'. Each row in the table has a checkbox, a lock icon, an edit icon, and a list icon. The table lists the following packages:

				NAME	DESCRIPTION	TESTS
<input type="checkbox"/>				CDRouter-Application	CDRouter's Application Test Cases	288
<input type="checkbox"/>				CDRouter-BBF069-Certification	CDRouter BBF.069 Certification	83
<input type="checkbox"/>				CDRouter-DNS	CDRouter's DNS Test Cases	286
<input type="checkbox"/>				CDRouter-DOCSIS	CDRouter's DOCSIS Test Cases	101
<input type="checkbox"/>				CDRouter-IPv4-CPE	CDRouter's IPv4 CPE Test Cases	155
<input type="checkbox"/>				CDRouter-IPv6-CPE	CDRouter's IPv6 CPE Test Cases	317
<input type="checkbox"/>				CDRouter-IPv6-Top-100	CDRouter's Top 100 IPv6 Test Cases	100
<input type="checkbox"/>				CDRouter-Multicast	CDRouter's Multicast Test Cases	62
<input type="checkbox"/>				CDRouter-Security	CDRouter's Essential Security Test Cases	205

Tip #5: Resource Locking

Make copies of pre-installed testlist packages if you want to modify them



The screenshot shows the qa|CDRouter interface with the 'PACKAGES' tab selected. The 'Packages' section displays a table of installed packages. Two packages are highlighted with a red circle: 'CDRouter-Security (copy 1)' and 'CDRouter-Top-100 (copy 1)'. Both packages have a lock icon in the first column, indicating they are locked. The table columns are NAME, DESCRIPTION, TESTS, CONFIG, and DEVICE.

	NAME	DESCRIPTION	TESTS	CONFIG	DEVICE
<input type="checkbox"/>	CDRouter-Security (copy 1)	CDRouter's Essential Security Test Cases	205		none
<input type="checkbox"/>	CDRouter-Top-100 (copy 1)	CDRouter's Top 100 Test Cases	100		none



Tip #6: Make Analysis Easier

With these useful log viewer features



Tip #6: Make Analysis Easier

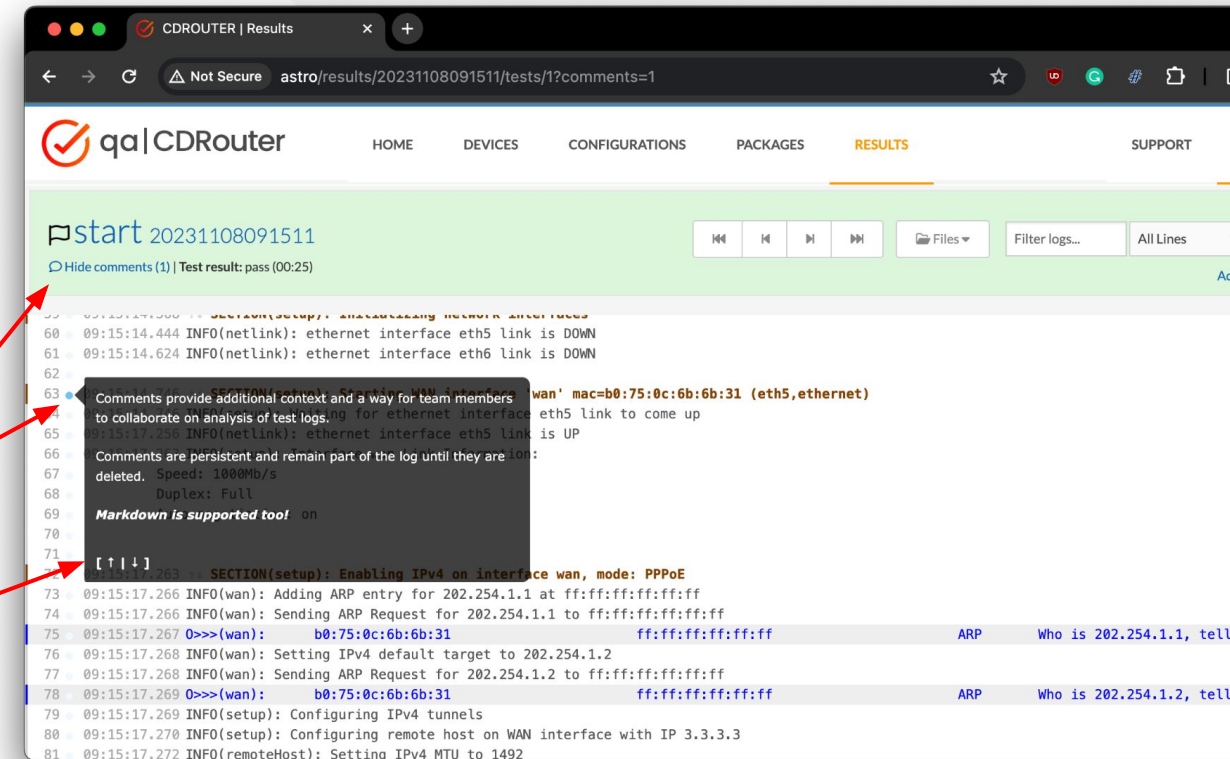
and collaborative with comments

Use **comments** to add additional information to test logs. Click the dot next to the log line number to add a new comment.

Markdown is supported making it possible to add formatted text, links, and numbered lists to comments.

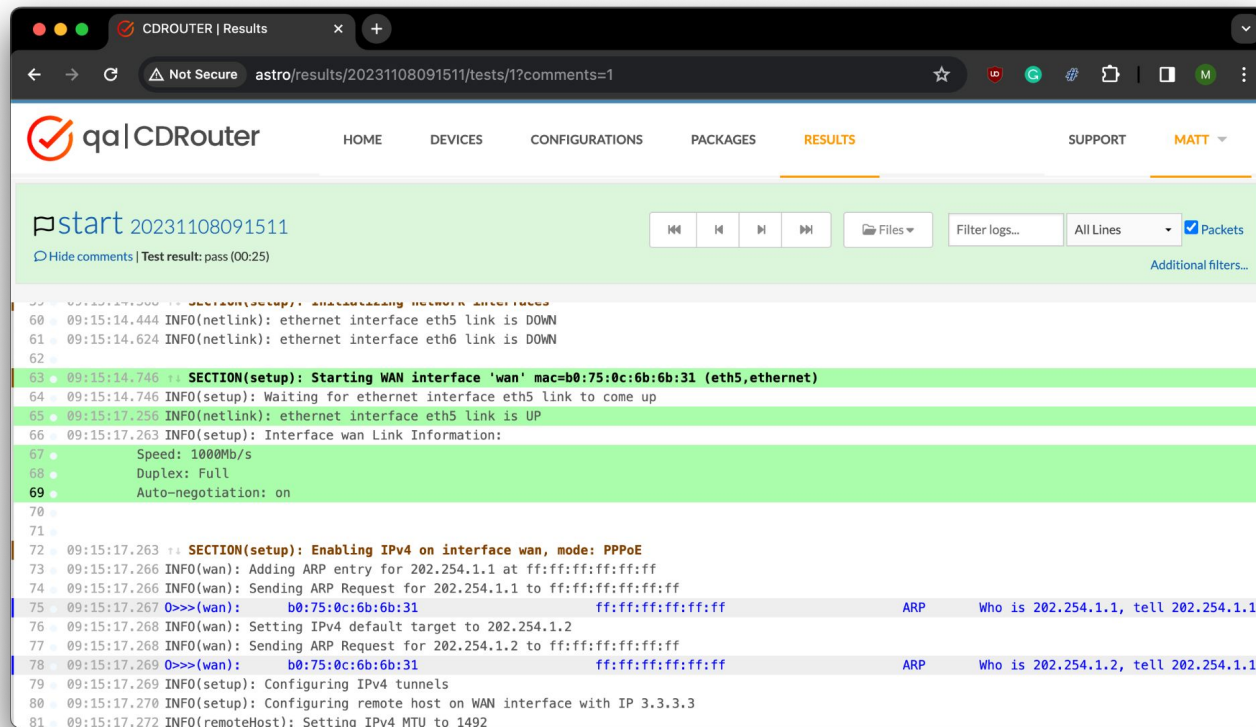
Comments may be toggled on or off by clicking the dot next to the log line number or the Show/Hide comments link at the top.

Navigation arrows make it easy to jump between comments.



Tip #6: Make Analysis Easier

with log line highlighting



Log line **highlighting** is an easy way to call attention to important information and aid navigation.

Click on a log line number to toggle between four built-in highlight colors (yellow, blue, red, and green).

Highlights are persistent just like comments.

Use highlights and comments together to bubble information up.

Tip #6: Make Analysis Easier

with relative timestamps

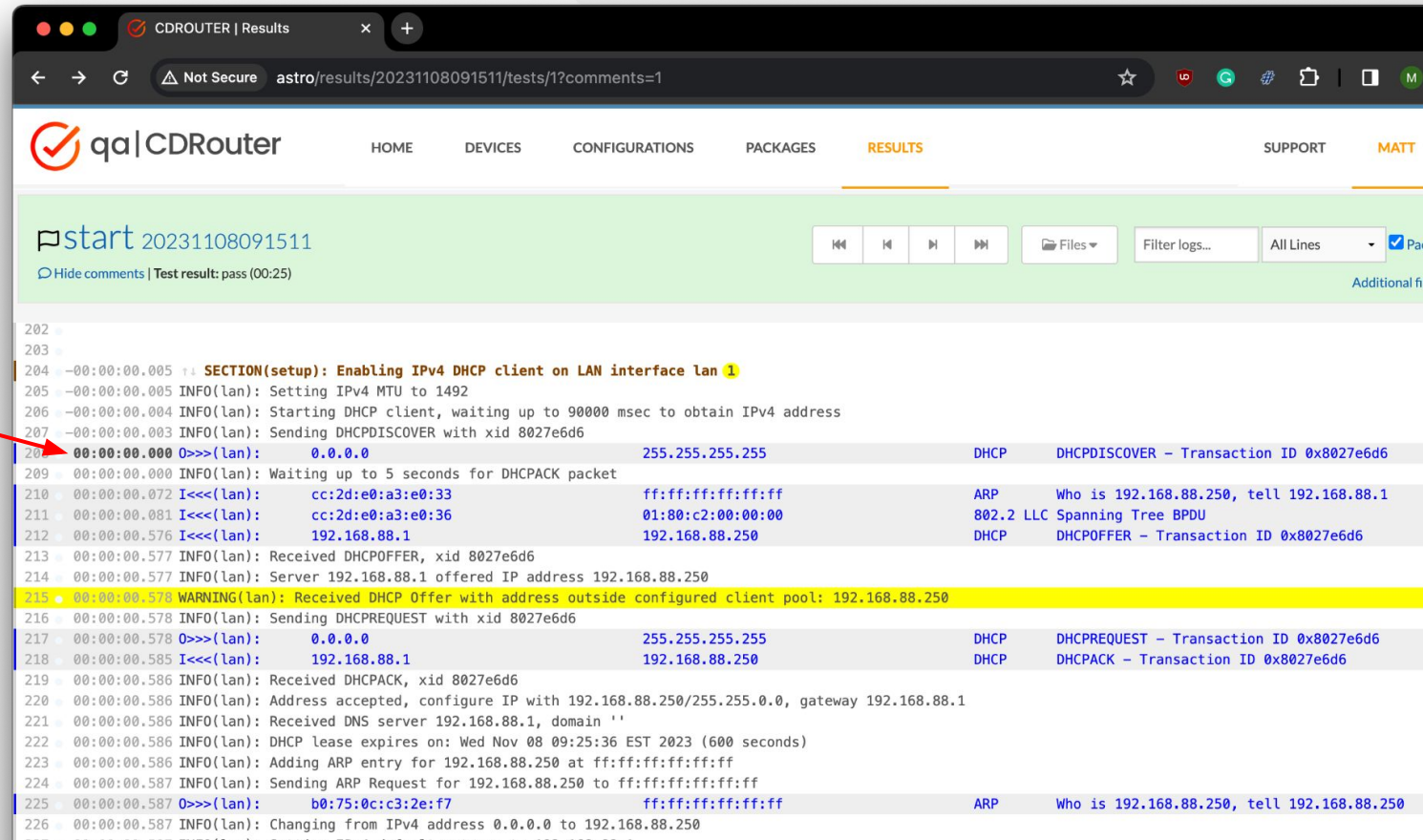
CDRouter supports both absolute and relative timestamps.

Absolute timestamps are displayed by default. Relative timestamps are very useful in certain situations.

Click on a timestamp to set it as the new zero reference and toggle between absolute and relative displays.

Pro tip: Visit the system preferences page to select from two timestamp formats:

1. hh:mm:ss.sss
2. YYYY-MM-DD hh:mm:ss.sss



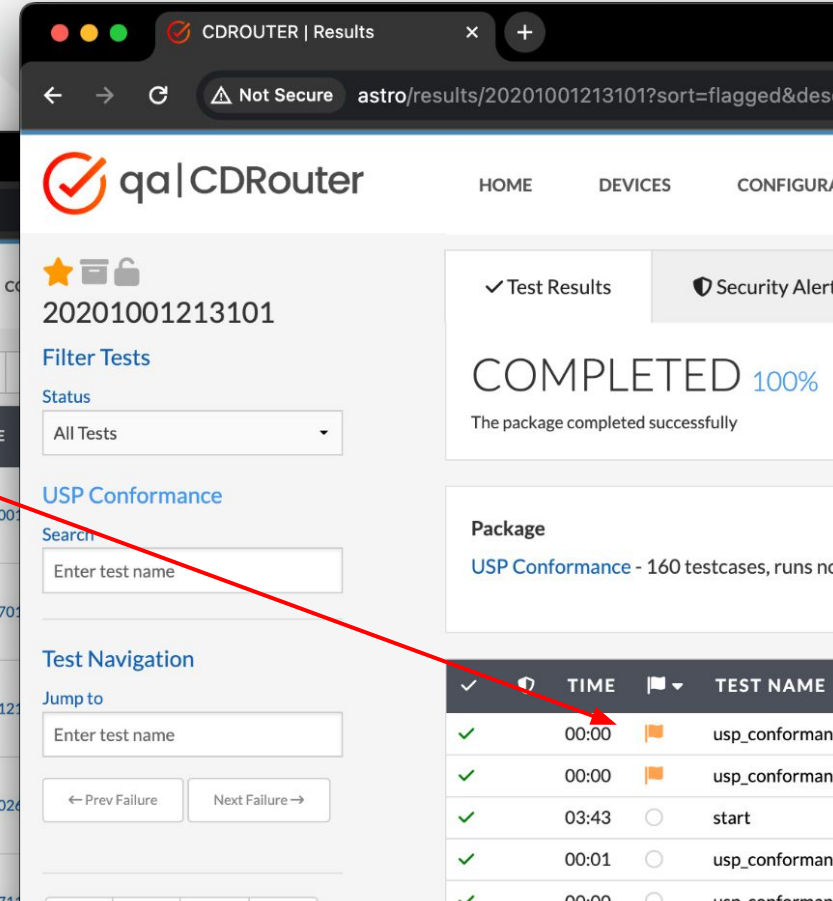
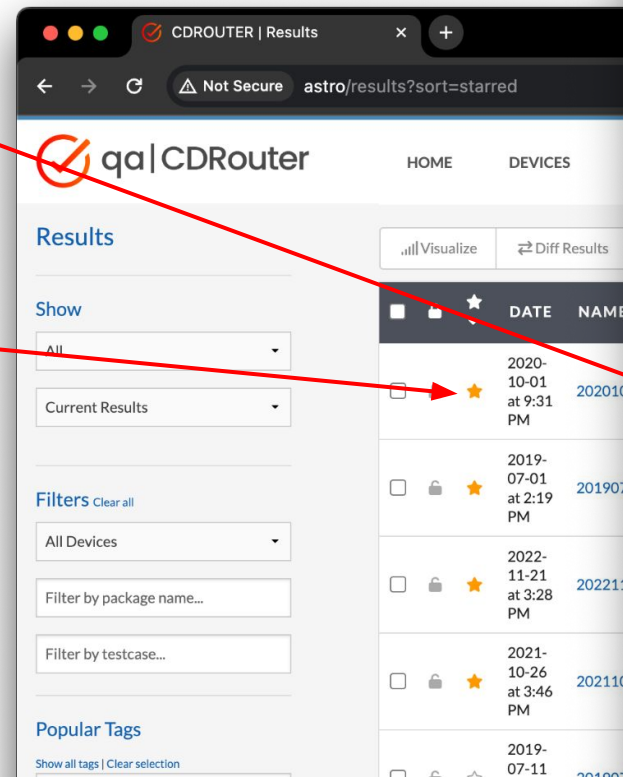
Tip #6: Make Analysis Easier

with stars and flags

Plant a flag on specific test logs that are important. Sort on the flag column to quickly bring these tests to the top of the list.

Like flags on test logs, important test results can also be starred.

Use flags, stars, and tags to organize your CDRouter data!





Tip #7: Configure Performance Settings for Each Client

Run the new perf-client test cases

Tip #7: Configure Perf Settings for Each Client

```
1 SECTION "About" {
2
3   # Cable/DSL Router Test Suite
4   #
5   # Auto-generated by cdrouter-cli -new-config on 2023-11-15 09:59:12
6   # Version: 13.20.1 (aa9f6ec), built 2023-10-19 12:08:30 by build@cdr-forge7.c
7   #
8   # Local.conf
9   #
10  # This is the main configuration file for CDRouter. This file defines the
11  # configuration of the router under test and controls various aspects of
12  # CDRouter's behavior. This file consists of a number of unique testvars
13  # called 'testvars' which are grouped by interface, protocol, or functionality.
14  # The basic syntax for all testvars is:
15  #
16  # testvar NAME VALUE
17
18 }
19
20 SECTION "Base Configuration" {
```

Save Check config XClose

Configuration Name:

Owner:

Description:

Check your existing configuration file...

... and **Upgrade**, if necessary.

Upgrade Config

Config files generated in previous releases of CDRouter can be upgraded to the latest config file format.

Please note that any comments in the original config file will be removed during the upgrade process.

For more information, please consult this knowledge base article:
<https://support.qacafe.com/cdrouter/knowledge-base/how-do-i-upgrade-a-config-file/>

Backup original config during upgrade process

Ideally, you should upgrade your configuration files each time you install newer CDRouter s

You can also **Upgrade** multiple configurations at the same time!

HOME DEVICES CONFIGURATIONS PACKAGES RESULTS

New Edit Copy View Diff Tag... Bulk Edit... **Bulk Upgrade...** Import... Export Delete...

	NAME	DESCRIPTION	LAST MODIFIED
<input checked="" type="checkbox"/>	Netgear RAXE300 Basic Perf - wifi0-acn - 5 - 80MHz		2023-10-27
<input checked="" type="checkbox"/>	Test DHCP on 802.11ax in 802.11ac mode		2023-04-11
<input checked="" type="checkbox"/>	TP-Link AX6000 Basic Perf - wifi0-acn - 2.4 - 20MHz		2023-10-05
<input checked="" type="checkbox"/>	TP-Link AX6000 Basic Perf - wifi0-acn - 5 - 80MHz		2023-10-27
<input checked="" type="checkbox"/>	TP-Link AX6000 Basic Perf - wifi1-ax - 2.4 - 20MHz		2023-10-05
<input checked="" type="checkbox"/>	TP-Link AX6000 Basic Perf - wifi1-ax - 5 - 80MHz		2023-10-05

Understand these caveats before you use this feature!

Tip #7: Configure Perf Settings for Each Client

Find the **Multiport** section within the CDRouter configuration file.

```
1 > SECTION "About" {--}
19
20 > SECTION "Base Configuration" {--}
928
929 > SECTION "CDRouter DOCSIS Add-On" {--}
1122
1123 > SECTION "CDRouter IKE Add-On" {--}
1191
1192 > SECTION "CDRouter IPv6 Add-On" {--}
1425
1426 > SECTION "CDRouter Multiport Add-On" {
1427
1428 > SECTION "Additional WAN Interface Setup" {--}
1739
1740 > SECTION "Additional LAN Interface Setup" {
1741
1742     # testvar useSameLanInterface          no
1743
1744 > IGNORE testvar_group lan2 {--}
2060
2061 }
2062
2063 }
2064
2065 > SECTION "CDRouter Performance Add-On" {--}
2210
```

*Remember to remove
the **IGNORE**
keyword!*

Tip #7: Configure Perf Settings for Each Client

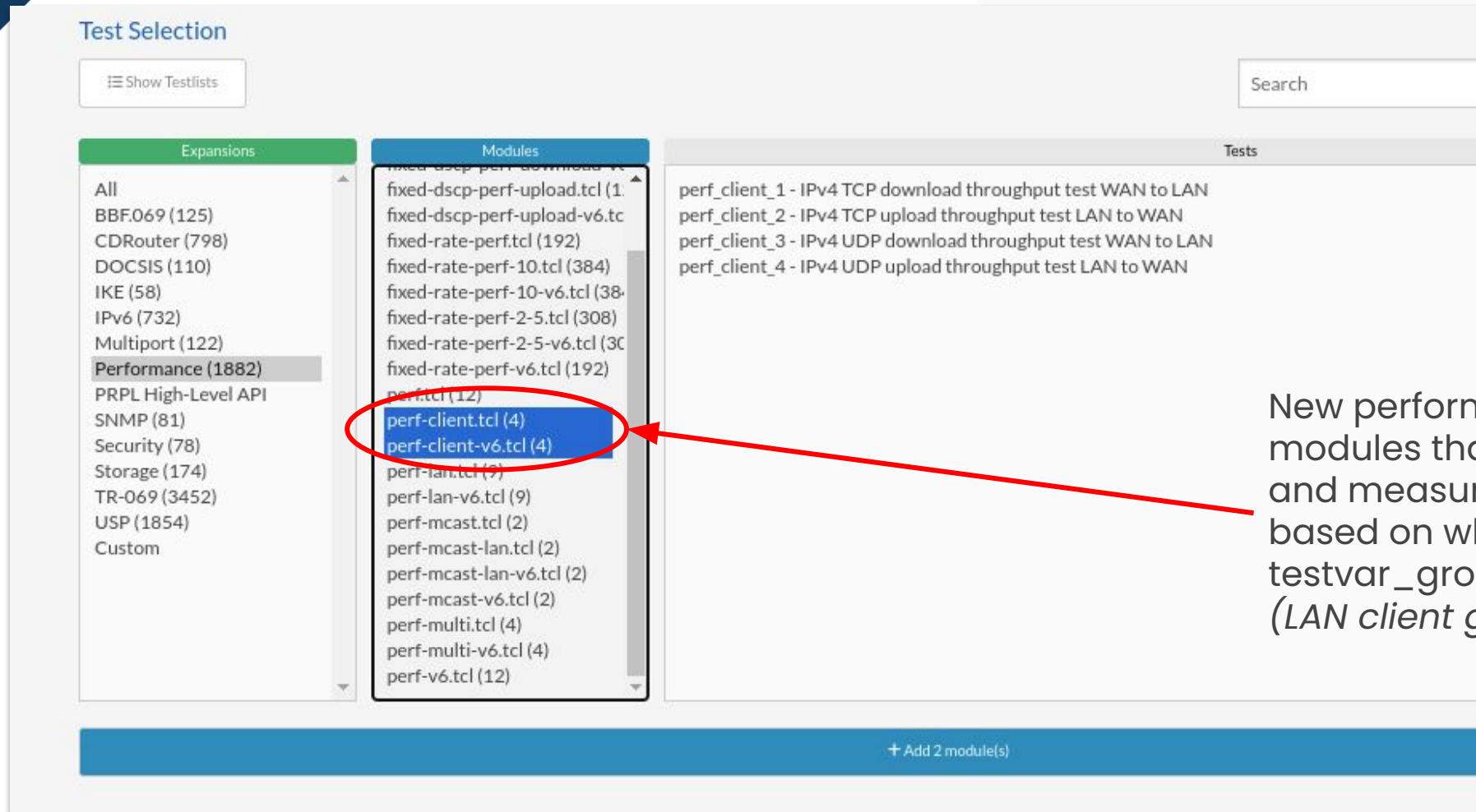
```
1744 testvar_group lan2 {
1745     SECTION "IPv4 LAN" {↔}
1746
1747     SECTION "IPv6 LAN" {↔}
1748
1749     SECTION "Parental Controls" {↔}
1750
1751     SECTION "CDRouter Performance Add-On" {
1752         SECTION "Basic Configuration" {↔}
1753         SECTION "Performance Settings" {↔}
1754         SECTION "WAN Download Thresholds" {↔}
1755         SECTION "WAN Upload Thresholds" {↔}
1756         SECTION "LAN to LAN Thresholds" {↔}
1757         SECTION "Application Thresholds" {↔}
1758         SECTION "Advanced Options" {↔}
1759     }
1760 }
1761
1762 }
1763
1764 SECTION "CDRouter Performance Add-On" {
1765     # testvar supportsPerformance          no
1766
1767     SECTION "Basic Configuration" {↔}
1768     SECTION "Performance Settings" {↔}
1769     SECTION "WAN Download Thresholds" {↔}
1770     SECTION "WAN Upload Thresholds" {↔}
1771     SECTION "LAN to LAN Thresholds" {↔}
1772 }
```

Edit the performance settings for each testvar_group (LAN client group)...

...just like you would for the main/initial client group.

The main Performance configuration section is still used for the 'main' group of LAN clients that were defined

Tip #7: Configure Perf Settings for Each Client



The screenshot displays the 'Test Selection' interface. On the left, under 'Expansions', 'Performance (1882)' is selected. The 'Modules' list on the right contains several performance test modules, with 'perf-client.tcl (4)' and 'perf-client-v6.tcl (4)' circled in red. The 'Tests' section on the right lists four tests: 'perf_client_1 - IPv4 TCP download throughput test WAN to LAN', 'perf_client_2 - IPv4 TCP upload throughput test LAN to WAN', 'perf_client_3 - IPv4 UDP download throughput test WAN to LAN', and 'perf_client_4 - IPv4 UDP upload throughput test LAN to WAN'. A red arrow points from the circled modules to the text on the right.

Expansions	Modules	Tests
All	fixed-dscp-perf-download.tcl (1)	perf_client_1 - IPv4 TCP download throughput test WAN to LAN
BBF.069 (125)	fixed-dscp-perf-upload.tcl (1)	perf_client_2 - IPv4 TCP upload throughput test LAN to WAN
CDRouter (798)	fixed-dscp-perf-upload-v6.tcl (1)	perf_client_3 - IPv4 UDP download throughput test WAN to LAN
DOCSIS (110)	fixed-rate-perf.tcl (192)	perf_client_4 - IPv4 UDP upload throughput test LAN to WAN
IKE (58)	fixed-rate-perf-10.tcl (384)	
IPv6 (732)	fixed-rate-perf-10-v6.tcl (384)	
Multipoint (122)	fixed-rate-perf-2-5.tcl (308)	
Performance (1882)	fixed-rate-perf-2-5-v6.tcl (308)	
PRPL High-Level API	fixed-rate-perf-v6.tcl (192)	
SNMP (81)	perf.tcl (12)	
Security (78)	perf-client.tcl (4)	
Storage (174)	perf-client-v6.tcl (4)	
TR-069 (3452)	perf-lan.tcl (9)	
USP (1854)	perf-lan-v6.tcl (9)	
Custom	perf-mcast.tcl (2)	
	perf-mcast-lan.tcl (2)	
	perf-mcast-lan-v6.tcl (2)	
	perf-mcast-v6.tcl (2)	
	perf-multi.tcl (4)	
	perf-multi-v6.tcl (4)	
	perf-v6.tcl (12)	

+ Add 2 module(s)

New performance test modules that will generate and measure data traffic based on what is set per testvar_group (LAN client group)



Tip #8: USP Scenario Scripts

Customize your USP testing



Tip #8: USP Scenario Scripts

Design your scenario script from these available Commands

Basic Actions	Description
Get	Sends a USP Get message to the agent from the configured controller.
Set	Sends a USP Set message to the agent from the configured controller.
Add	Sends a USP Add message to the agent from the configured controller.
Delete	Sends a USP Delete message to the agent from the configured controller.
GetSupportedDM	Sends a USP GetSupportedDM message to the agent from the configured controller.
GetInstances	Sends a USP GetInstances message to the agent from the configured controller.
GetSupportedProtocol	Sends a USP GetSupportedProtocol message to the agent from the configured controller.
Operate	Sends a USP Operate message to the agent from the configured controller.
Open	Opens a connection to the agent from the configured controller.
Delay	Pauses execution of the next action for a specified amount of time.
WaitFor	Waits for a Notify message of a specific type from the agent.
MetricEval	Controls whether or not the actions will trigger PASS or FAIL metrics.

Tip #8: **USP Scenario Scripts**

*Scenario scripts
allow you to retrieve and
validate data on the DUT*

```
USP my_scenario {  
  
    GetSupportedProtocol  
  
    Get {  
        parameter Device.LocalAgent.EndpointID  
        verify Device.LocalAgent.EndpointID "os::012345-0242CAFE0502"  
    }  
  
}
```

Tip #8: USP Scenario Scripts

*Scenario scripts can also
configure your DUT and
verify events*

```
USP my_scenario {  
  
    Set {  
        parameter Device.LocalAgent.Controller.1.ProvisioningCode "newcode" 1  
    }  
  
    WaitFor {  
        timeout 60  
        ValueChange {  
            verify_path Device.LocalAgent.Controller.1.ProvisioningCode  
            verify_value "newcode"  
        }  
    }  
}
```

Tip #8: **USP Scenario Scripts**

*Full documentation and instructions available
on the QA Cafe Support site:*

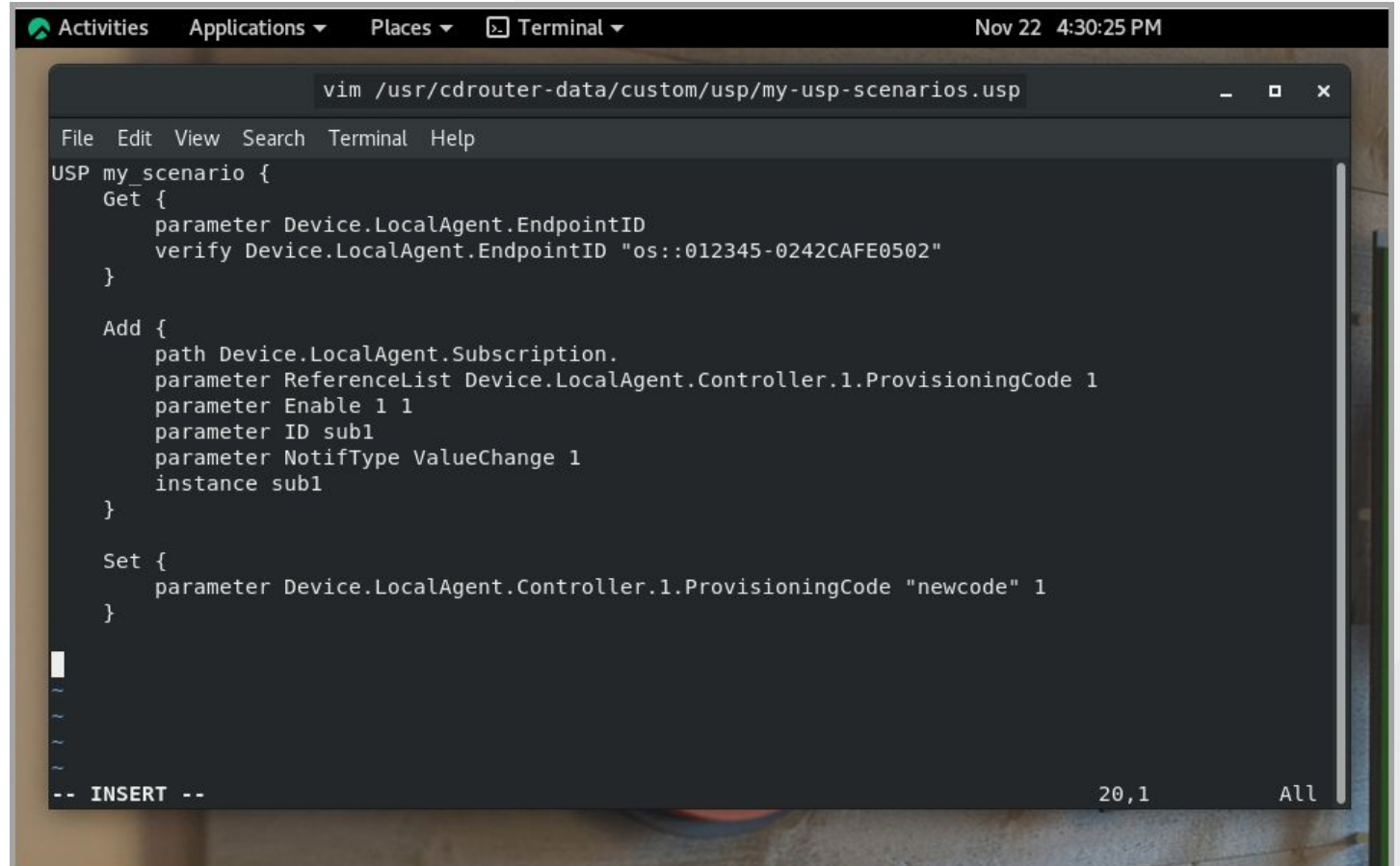
[USP Scenario Scripting Guide](https://support.qacafe.com/cdrouter/user-guide/usp-scenario-scripting/)

<https://support.qacafe.com/cdrouter/user-guide/usp-scenario-scripting/>

Tip #8: USP Scenario Scripts

Step 1:

Create and edit your scenario script on your CDRouter system



```
Activities Applications Places Terminal Nov 22 4:30:25 PM
vim /usr/cdrouter-data/custom/usp/my-usp-scenarios.usp
File Edit View Search Terminal Help
USP my_scenario {
  Get {
    parameter Device.LocalAgent.EndpointID
    verify Device.LocalAgent.EndpointID "os::012345-0242CAFE0502"
  }

  Add {
    path Device.LocalAgent.Subscription.
    parameter ReferenceList Device.LocalAgent.Controller.1.ProvisioningCode 1
    parameter Enable 1 1
    parameter ID sub1
    parameter NotifType ValueChange 1
    instance sub1
  }

  Set {
    parameter Device.LocalAgent.Controller.1.ProvisioningCode "newcode" 1
  }
}
-- INSERT -- 20,1 All
```

Tip #8: USP Scenario Scripts

Step 2:

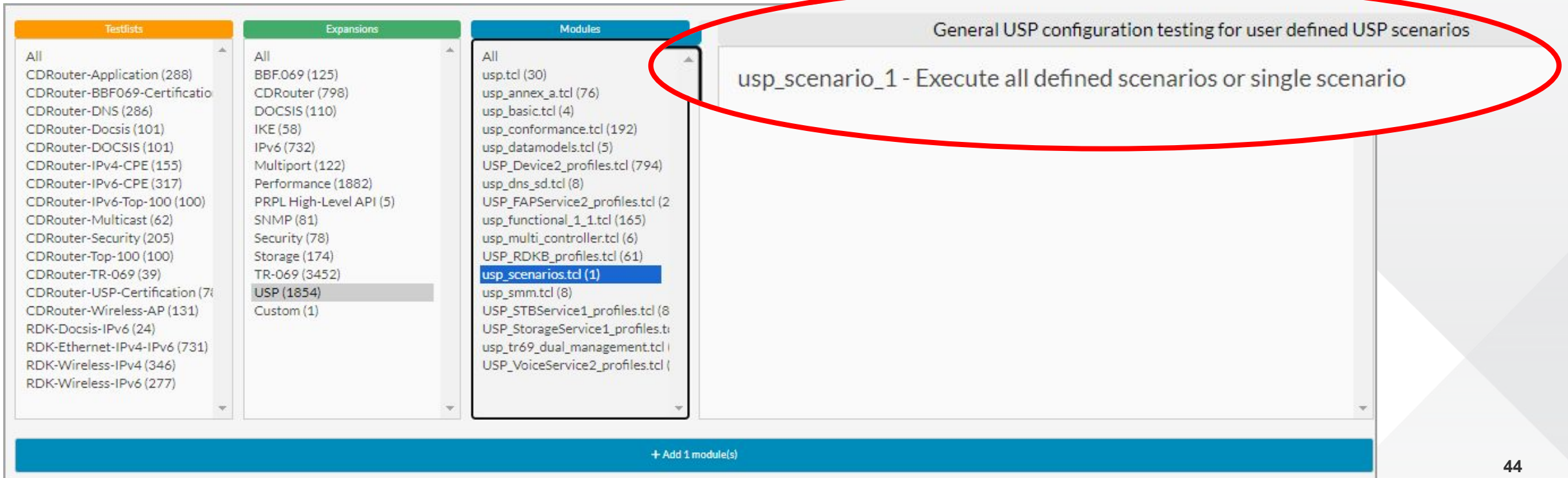
Update your config file with the path to your scenario script

```
SECTION "USP Scenarios" {  
    testvar uspScenarioPath    /usr/cdrouter-data/custom/usp/my-usp-scenarios.usp  
}
```

Tip #8: USP Scenario Scripts

Step 3:

Update your test package to run your scenario script



The screenshot displays a software interface for configuring USP tests. It features three columns: Testlists, Expansions, and Modules. The 'usp_scenarios.tcl' module is selected in the 'Modules' column and highlighted with a red circle. The main area shows the configuration for 'usp_scenario_1 - Execute all defined scenarios or single scenario'.

Testlists	Expansions	Modules	Configuration
All	All	All	General USP configuration testing for user defined USP scenarios
CDRouter-Application (288)	BBF.069 (125)	usp.tcl (30)	usp_scenario_1 - Execute all defined scenarios or single scenario
CDRouter-BBF069-Certificatio	CDRouter (798)	usp_annex_a.tcl (76)	
CDRouter-DNS (286)	DOCSIS (110)	usp_basic.tcl (4)	
CDRouter-Docsis (101)	IKE (58)	usp_conformance.tcl (192)	
CDRouter-DOCSIS (101)	IPv6 (732)	usp_datamodels.tcl (5)	
CDRouter-IPv4-CPE (155)	Multipoint (122)	USP_Device2_profiles.tcl (794)	
CDRouter-IPv6-CPE (317)	Performance (1882)	usp_dns_sd.tcl (8)	
CDRouter-IPv6-Top-100 (100)	PRPL High-Level API (5)	USP_FAPService2_profiles.tcl (2)	
CDRouter-Multicast (62)	SNMP (81)	usp_functional_1_1.tcl (165)	
CDRouter-Security (205)	Security (78)	usp_multi_controller.tcl (6)	
CDRouter-Top-100 (100)	Storage (174)	USP_RDKB_profiles.tcl (61)	
CDRouter-TR-069 (39)	TR-069 (3452)	usp_scenarios.tcl (1)	
CDRouter-USP-Certification (7)	USP (1854)	usp_smm.tcl (8)	
CDRouter-Wireless-AP (131)	Custom (1)	USP_STBService1_profiles.tcl (8)	
RDK-Docsis-IPv6 (24)		USP_StorageService1_profiles.tcl	
RDK-Ethernet-IPv4-IPv6 (731)		usp_tr69_dual_management.tcl	
RDK-Wireless-IPv4 (346)		USP_VoiceService2_profiles.tcl	
RDK-Wireless-IPv6 (277)			

+ Add 1 module(s)

Tip #8: USP Scenario Scripts

Each command from your script is given a pass/fail result in the log file

```
16:43:32.506 INFO(cdrouter-7602): Starting test usp_scenario_1 (7602)
16:43:32.532 ↑ SECTION(cdrouter-7602): Starting CWMP Scenario 'Scenario_1' 4
16:43:32.558 PASS: Controller received a GetResp
16:43:32.559 PASS: Device.LocalAgent.EndpointID matches the expected value: 'os::012345-0242CAFE0502'
16:43:32.559 INFO(cdrouter-7602): Not checking faultcodes for parameter Device.LocalAgent.EndpointID
16:43:32.597 PASS: USP Controller received a AddResp
16:43:32.634 PASS: USP Controller received a SetResp
16:43:32.635 ↑ SECTION(cdrouter-7602): Waiting 60 seconds for ValueChange 10
16:43:58.647 PASS: Found ValueChange event with the expected param_path: 'Device.LocalAgent.Controller.1.ProvisioningCode'
16:43:58.647 PASS: Found ValueChange event with the expected param_value: 'newcode'
16:43:58.683 PASS: USP Controller received a DeleteResp
16:43:58.895 PASS: USP Controller received a GetSupportedDMResp
16:43:58.898 PASS: Found Command Device.Reboot() in GetSupportedDMResp
16:43:58.898 PASS: Found Param Device.DeviceInfo.HardwareVersion in GetSupportedDMResp
16:43:58.898 PASS: Found Event Device.Boot! in GetSupportedDMResp
16:43:58.953 PASS: USP Controller received a GetInstancesResp
16:43:58.968 PASS: USP Controller received a GetSupportedProtocolResp
16:43:58.988 PASS: Test usp_scenario_1 (7602) passed
```

Tip #8: USP Scenario Scripts

*Bootstrap scenarios are run during "start"
to allow you to configure DUT before running tests*

```
SECTION "USP Scenarios" {  
    testvar uspScenarioPath      /usr/cdrouter-data/custom/usp/my-usp-scenarios.usp  
    testvar uspScenarioBootstrap /usr/cdrouter-data/custom/usp/boot-scenarios.usp  
}
```

Tip #8: USP Scenario Scripts

Scenario script files may contain multiple scenario instances. Each has a unique name

```
USP scenario_A {  
  
  GetSupportedProtocol  
  
  Get {  
    parameter Device.LocalAgent.EndpointID  
    verify Device.LocalAgent.EndpointID "os::012345-0242CAFE0502"  
  }  
  
}  
  
USP scenario_B {  
  
  Set {  
    parameter Device.LocalAgent.Controller.1.ProvisioningCode "newcode" 1  
  }  
  
}
```

Tip #8: USP Scenario Scripts

Enable "Single Mode" to run each individual "scenario" in a separate test instance

```
SECTION "USP Scenarios" {  
    testvar uspScenarioPath      /usr/cdrouter-data/custom/usp/my-usp-scenarios.usp  
    testvar uspScenarioSingleMode yes  
}
```

Tip #8: USP Scenario Scripts

In Single Mode, each scenario is run in a separate test instance and given its own pass/fail result

✓	🛡️	TIME	🚩	TEST NAME	DESCRIPTION
✓		00:30	○	usp_scenario_1	Execute all defined scenarios or single scenario
✗		01:01	○	usp_scenario_1	Execute all defined scenarios or single scenario



Tip #9: Define Stability Metrics

Run stability tests over defined time periods

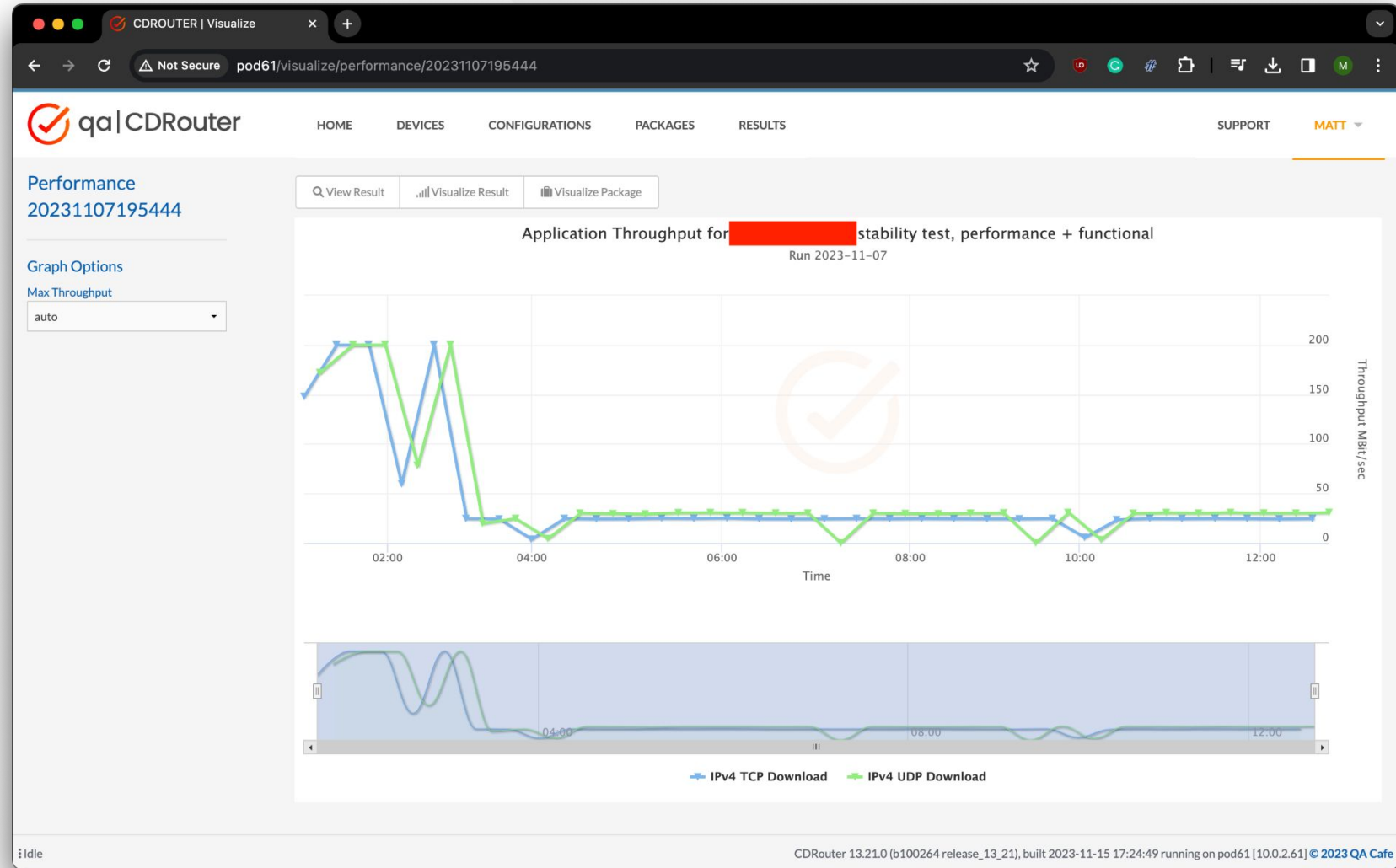


What is **stability testing** and why is it important?

- Stability testing is the continuous verification of device functionality **and** performance over long periods of time.
- It often reveals issues that may otherwise be hidden if testing is focused solely on functional *or* performance verification.
- Stability testing highlights how normal functional protocol interactions impact performance over time and vice-versa.

Why **stability testing** is important

Stability testing reveals time-based functional & performance issues like this

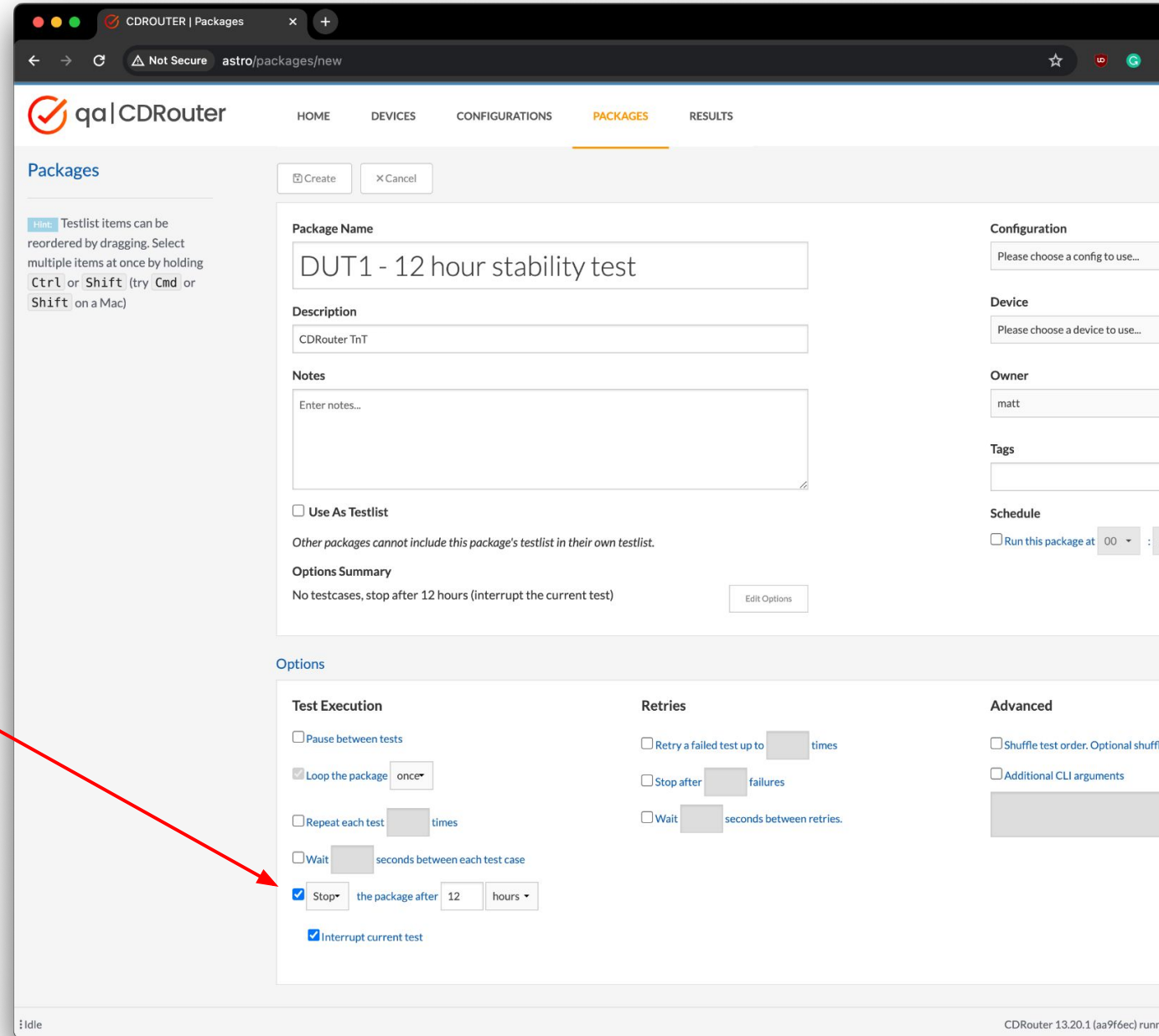


Tip #9: Define Stability Metrics

Define your stability test metrics in terms of time. For example, 6, 12, and 48 hours.

Create test packages that verify stability over these periods. [New package level options](#) added in CDRouter 13.17 make this very easy!

Run these test packages to measure stability and qualify/validate new devices and firmware.



CDROUTER | Packages

HOME DEVICES CONFIGURATIONS **PACKAGES** RESULTS

Packages

Hint: Testlist items can be reordered by dragging. Select multiple items at once by holding Ctrl or Shift (try Cmd or Shift on a Mac)

Create X Cancel

Package Name
DUT1 - 12 hour stability test

Description
CDRouter TnT

Notes
Enter notes...

Use As Testlist
Other packages cannot include this package's testlist in their own testlist.

Options Summary
No testcases, stop after 12 hours (interrupt the current test) Edit Options

Options

Test Execution

Pause between tests

Loop the package once

Repeat each test 1 times

Wait 0 seconds between each test case

Stop the package after 12 hours

Interrupt current test

Retries

Retry a failed test up to 0 times

Stop after 0 failures

Wait 0 seconds between retries.

Advanced

Shuffle test order. Optional shuffle

Additional CLI arguments

Configuration
Please choose a config to use...

Device
Please choose a device to use...

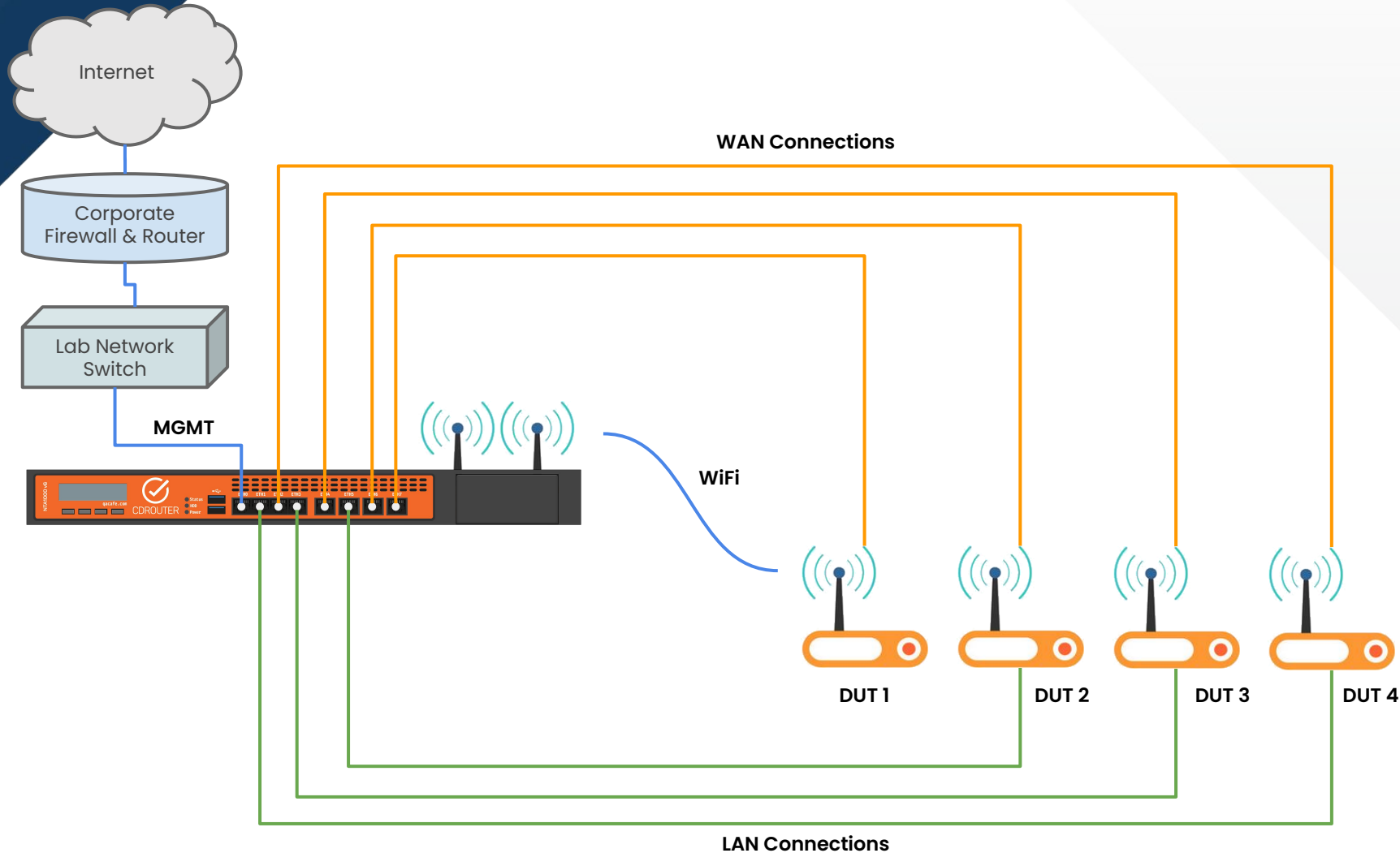
Owner
matt

Tags

Schedule
 Run this package at 00 : 00

Idle CDRouter 13.20.1 (aa9f6ec) run

Run stability tests in **parallel**



Stability testing takes time!

Add additional test instances to your system so that you can run functional, performance, and stability tests in parallel.

Parallel testing reduces test time and increase test throughput.

- Set Ethernet linkspeed
 - lanSetEthLinkSpeed & wanSetEthLinkSpeed
- New easy-to-use test lists included in CDRouter
 - RDK-B, DNS, Wireless, USP cert, & more
- Parallel testing support for wireless and ICS
- Synaccess remote power for restarting DUT

Other new features

Resources

<https://www.qacafe.com/cdrouter-training>

<https://www.qacafe.com/how-to-build-automated-test-strategy-guide/>

<https://www.qacafe.com/resources/cdrouter-tips-and-tricks-for-2023/>

Stay upgraded! Latest release: 13.21

