

Initial Testing Report

Near-RT RIC Platform (I Release)

2024-07-17

Progress so far.

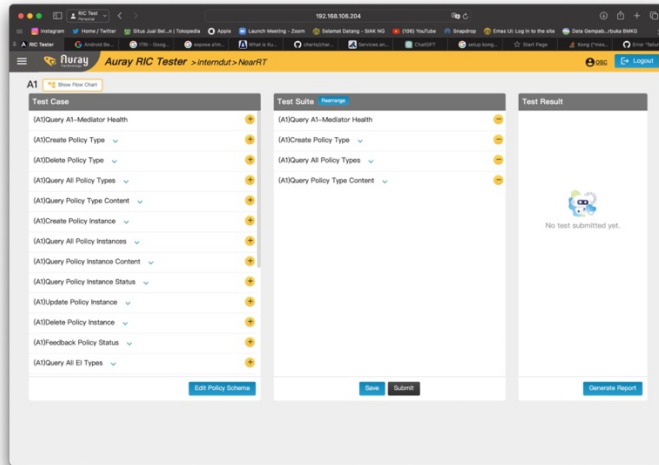


Figure 1 RIC Tester Dashboard

Currently have learned about the how-to for the RIC tester tool and have done initial testing to the existing Near-RT RIC (the one that already deployed)

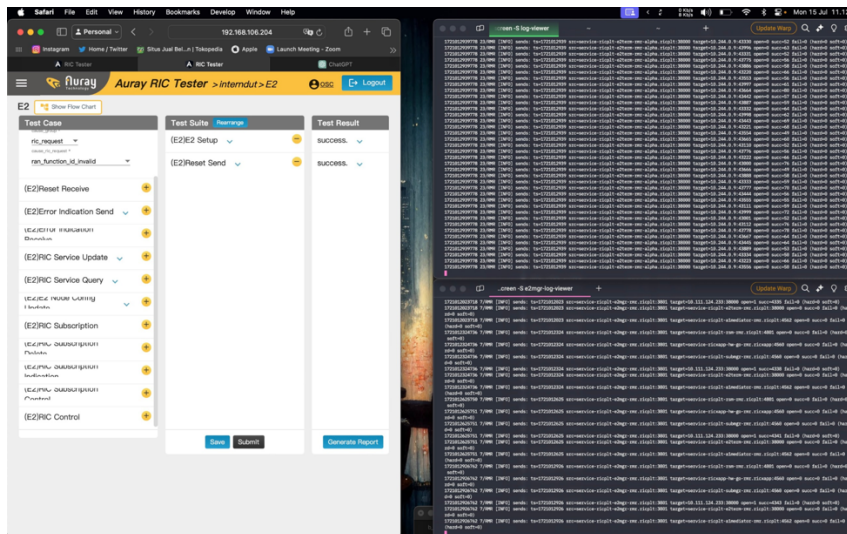


Figure 2 Testing the new Near-RT RIC

Currently still working on testing the new Near-RT RIC as the DUT.

Encountered problems

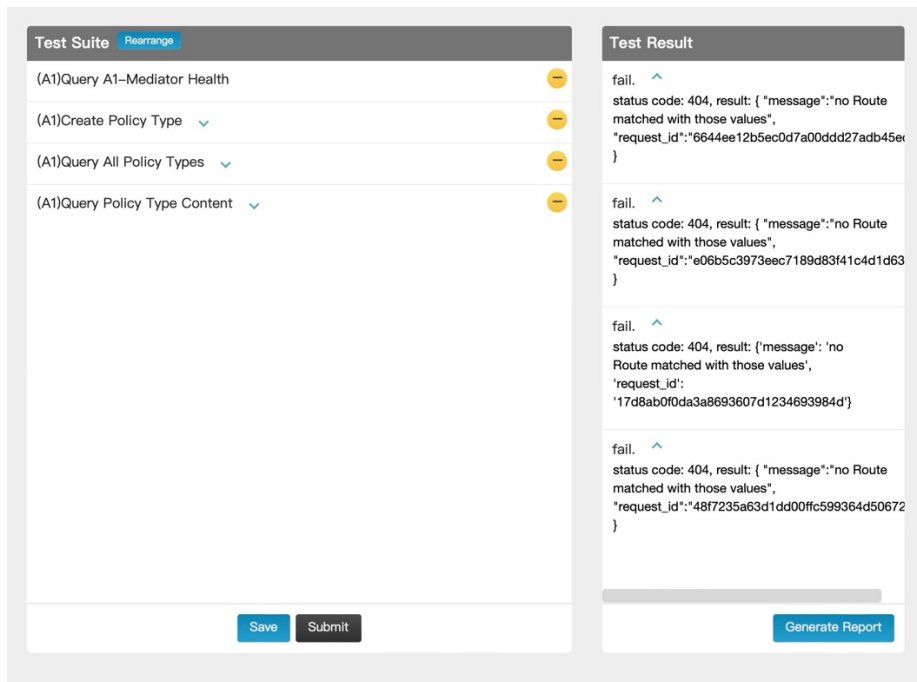


Figure 3 Error message when testing the A1 Interface

The RIC tester cannot access the A1 mediator inside the DUT.

Possible cause

Initially thought the problem is in the a1mediator itself, but after doing from the same machine using the pod IP it gives the expected response.

```
ricplt. service-ricplt-a1mediator-http ClusterIP 0.96.102.138 <none> 10000/TCP 8d

root@ricintern-virtual-machine ~/kong-setup (0.0/1s)
curl -v 10.96.102.138:10000/A1-P/v2/healthcheck
* Trying 10.96.102.138:10000...
* TCP_NODELAY set
* Connected to 10.96.102.138 (10.96.102.138) port 10000 (#0)
> GET /A1-P/v2/healthcheck HTTP/1.1
> Host: 10.96.102.138:10000
> User-Agent: curl/7.68.0
> Accept: */*
>
* Mark bundle as not supporting multiuse
< HTTP/1.1 200 OK
< Date: Wed, 17 Jul 2024 04:43:56 GMT
< Content-Length: 0
< Connection: close
<
* Closing connection 0
```

Figure 4 Response when using manual GET request to the pod IP

So, it is not likely to be in the a1mediator

Another possibility is with the kong proxy, which handles the routing from the machine IP to the veth interface IP used by the k8s pods.

r4-infrastructure-kong-proxy	LoadBalancer	10.104.222.44	<pending>	80:32080/TCP,443:32443/TCP
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Figure 5 Kong proxy k8s service

Still need to investigate more about this possibility

Possible Solution:

- Fixing the kong proxy if the problem is actually in there.
- Use different ingress controller (probably nginx). But still need to determine if changing the ingress controller will affect the other component, possibly stability or compatibility issues.

Last possibility which discovered after today's meeting is the with RIC tester.

Northbound API Specification

This section shows the Open API specification for the A1 Mediator's northbound interface, which accepts policy type and policy instance requests. Following are the api and the response:

```
#. Healthcheck
```

```
$ curl -v -X GET "http://localhost/A1-P/v2/healthcheck"
```

Figure 6 Healthcheck API from ORAN Docs.

407 4.4710976354	192.168.106.204	192.168.106.157	TCP	74 32080 → 49606 [SYN, ACK] Seq=0 Ack=1 Win=64368 Len=0 MSS=1460
408 4.471096922	192.168.106.157	192.168.106.204	TCP	66 49606 → 32080 [ACK] Seq=1 Ack=1 Win=64256 Len=0 TSval=20185
409 4.471256041	192.168.106.204	192.168.106.157	TCP	66 49606 → 32080 [ACK] Seq=1 Ack=1 Win=64256 Len=0 TSval=20185
410 4.471328145	192.168.106.204	192.168.106.157	HTTP	245 GET /a1mediator/a1-p/healthcheck HTTP/1.1
411 4.471359709	192.168.106.157	192.168.106.204	TCP	66 32080 → 49606 [ACK] Seq=1 Ack=180 Win=64256 Len=0 TSval=245
412 4.471847737	192.168.106.157	192.168.106.204	HTTP	425 HTTP/1.1 404 Not Found (application/json)
413 4.471946285	192.168.106.204	192.168.106.157	TCP	66 49606 → 32080 [ACK] Seq=180 Ack=360 Win=64128 Len=0 TSval=245
414 4.473212753	192.168.106.204	192.168.106.157	TCP	66 49606 → 32080 [FIN, ACK] Seq=180 Ack=360 Win=64128 Len=0 TSval=245
415 4.473463996	192.168.106.157	192.168.106.204	TCP	66 32080 → 49606 [FIN, ACK] Seq=360 Ack=181 Win=64256 Len=0 TSval=245

Figure 7 Captured API sent from the RIC tester

Notice on how the route differ between those two. [http://\[ip-address\]/A1-P/v2/healthcheck](http://[ip-address]/A1-P/v2/healthcheck) on the ORAN docs vs [http://\[ip-address\]/A1-P/healthcheck](http://[ip-address]/A1-P/healthcheck) on the tester. If we use the same route as the RIC tester used it gives 404 response

```
root@ricintern-virtual-machine ~/kong-setup (0.059s)
curl http://10.96.102.138:10000/a1-p/healthcheck
{"code":404,"message":"path /a1-p/healthcheck was not found"}
```

Figure 8 404 Response when using the same route as the RIC Tester

Whereas when we use route in the ORAN Docs it successfully sent OK response as expected (check Figure 4).

Does the RIC tester needs some reconfiguration first?