

Step 2: Rendezvous Server Submission

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ECS Task Deployment Screenshot

Clusters > rendezvous-cluster > Tasks > 6667b484f4964043a23103194ae8fea6 > Configuration

6667b484f4964043a23103194ae8fea6 Last updated July 23, 2025 at 18:56 (UTC-4:00) Stop

Configuration | Logs | Networking | Volumes (0) | Tags

Task overview

ARN arn:aws:ecs:us-east-1:211125778552:task/rendezvous-cluster/6667b484f4964043a23103194ae8fea6	Last status Running	Desired status Running	Started/Created at July 23, 2025 at 18:42 (UTC-4:00) July 23, 2025 at 18:42 (UTC-4:00)
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Fargate ephemeral storage

Encryption Info Default AWS Fargate encryption	Size (GiB) 20
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Configuration

Operating system/Architecture Linux/x86_64	Capacity provider -	ENI ID eni-01d8a242a25be823 ↗	Public IP 54.227.209.139 open address ↗
CPU Memory 1 vCPU 3 GB	Launch type FARGATE	Network mode awsvpc	Private IP 172.31.35.70
Platform version 1.4.0	Container instance ID -	Subnet ID subnet-0942a55798ce989af ↗	MAC address 0e:29:43:57:c0:8f

Container details for rendezvous

Details | Log configuration | Restart policy | Network bindings | Docker labels and hosts | Environment variables and files | Volume configuration

Details

Image URI ↗ public.ecr.aws/uva-cylon/tcpunch:latest	Essential Yes	Command -
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FARGATE Configuration Documentation

... > Services > rendezvous-tcpunch-fargate-task-service-34y0kw2c > Tasks > f88ee59218e9426ab8cbe11942ea7b96 > Configuration

f88ee59218e9426ab8cbe11942ea7b96 Last updated July 27, 2025 at 10:09 (UTC-4:00) Stop

Configuration | Logs | Networking | Volumes (0) | Tags

Task overview

ARN arn:aws:ecs:us-east-1:211125778552:task/rendezvous-cluster/f88ee59218e9426ab8cbe11942ea7b96	Last status Running	Desired status Running	Started/Created at July 27, 2025 at 08:50 (UTC-4:00) July 27, 2025 at 08:49 (UTC-4:00)
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Fargate ephemeral storage

Encryption Info Default AWS Fargate encryption	Size (GiB) 20
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Configuration

Operating system/Architecture Linux/x86_64	Capacity provider -	ENI ID eni-00fca22833e27a348 ↗	Public IP 13.222.206.20 open address ↗
CPU Memory 1 vCPU 3 GB	Launch type FARGATE	Network mode awsvpc	Private IP 172.31.35.25
Platform version 1.4.0	Container instance ID -	Subnet ID subnet-0942a55798ce989af ↗	MAC address 0e:71:55:18:35:bd
Fault injection -	Task definition: revision rendezvous-tcpunch-fargate-task-2		

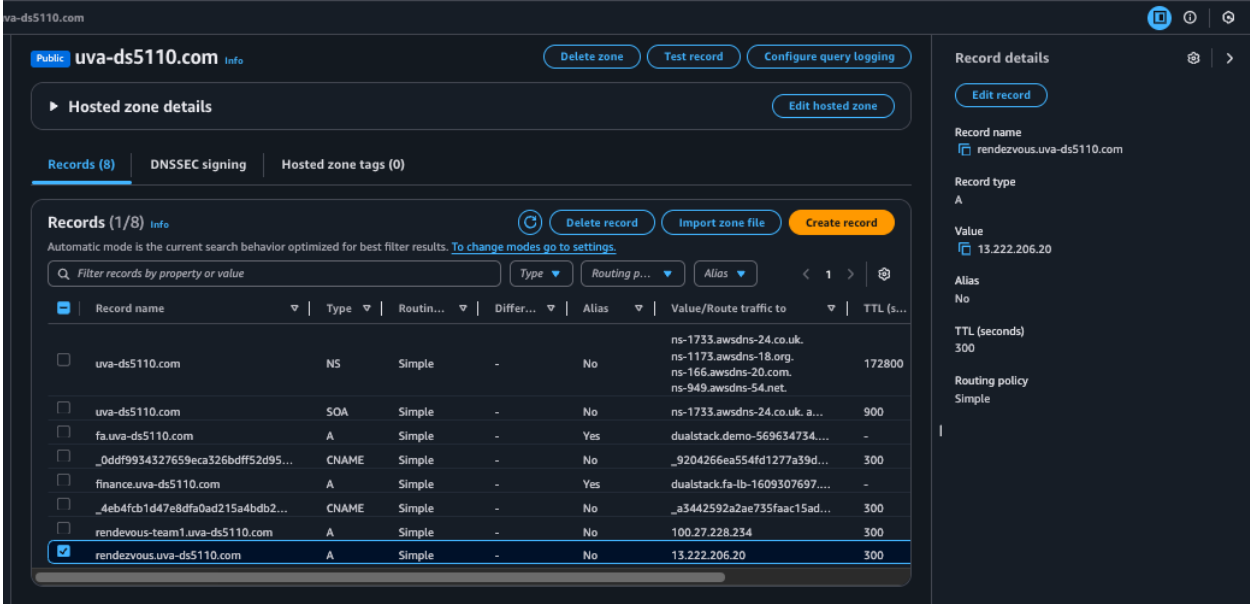
Container details for rendezvous

Details | Log configuration | Restart policy | Network bindings | Docker labels and hosts | Environment variables and files | Volume configuration

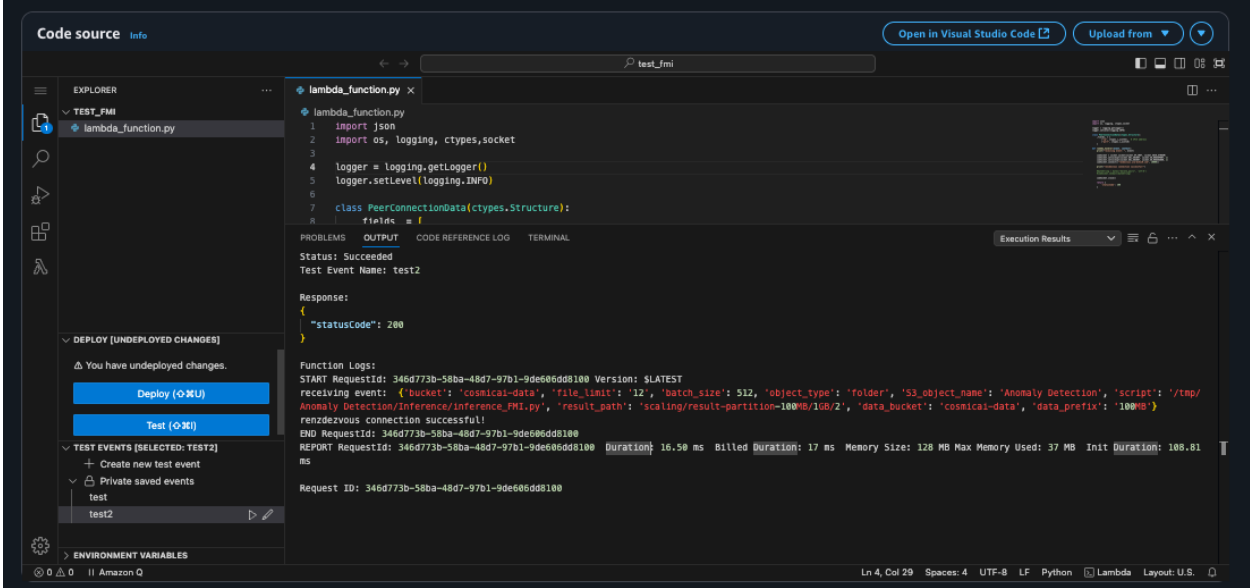
Details

Image URI ↗ public.ecr.aws/uva-cylon/tcpunch:latest	Essential Yes	Command -
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Successful DNS Record Update



Connection Test Between Lambda Functions



Performance Metrics Table

File Size (MB)	World Size	Requests	Duration (s)	Memory (GB)	Cost (USD)
25	520	520	6.2	2.5	0.15
50	260	260	11.5	3.8	0.19
75	174	174	17.0	5.7	0.29
100	130	130	24.3	7.0	0.36

CloudWatch Logs (Execution Details)

[/aws/lambda/resultSummary](#) > 2025/07/27/[\${LATEST}]fdb857c7e280420a80151807b559b615

Log events **Actions** **Start tailing** **Create metric filter**

You can use the filter bar below to search for and match terms, phrases, or values in your log events. [Learn more about filter patterns](#)

1m 30m 1h 12h **Custom** **Display**

Timestamp	Message
	No older events at this moment. Retry
▶ 2025-07-27T13:03:32.420Z	INIT_START Runtime Version: python:3.12.v70 Runtime Version ARN: arn:aws:lambda:us-east-1::runtime:b5ce413242a9b8ef0a46988d4de4b943c8679481f66d34d1aidd06ad4e16fe8
▶ 2025-07-27T13:03:32.708Z	START RequestId: 294d803d-f3a7-4d97-91b6-5dfa10d53936 Version: \$LATEST
▶ 2025-07-27T13:03:40.677Z	END RequestId: 294d803d-f3a7-4d97-91b6-5dfa10d53936
▼ 2025-07-27T13:03:40.677Z	REPORT RequestId: 294d803d-f3a7-4d97-91b6-5dfa10d53936 Duration: 7968.22 ms Billed Duration: 7969 ms Memory Size: 128 MB Max Memory Used: 90 MB Init Duration: 283...
	REPORT RequestId: 294d803d-f3a7-4d97-91b6-5dfa10d53936 Duration: 7968.22 ms Billed Duration: 7969 ms Memory Size: 128 MB Max Memory Used: 90 MB Init Duration: 283.22 ms
	No newer events at this moment. Auto retry paused. Resume

[/aws/lambda/data-parallel-init-fmi](#) > 2025/07/27/[\${LATEST}]96c8c20e729149f9a5510f5c8a1d1bf7

Log events **Actions** **Start tailing** **Create metric filter**

You can use the filter bar below to search for and match terms, phrases, or values in your log events. [Learn more about filter patterns](#)

1m 30m 1h 12h **Custom** **Display**

Timestamp	Message
	No older events at this moment. Retry
▶ 2025-07-27T13:02:37.178Z	INIT_START Runtime Version: python:3.13.v50 Runtime Version ARN: arn:aws:lambda:us-east-1::runtime:83a0b29e480e14176225231a6e561282aa7732a24063ebob771b15e4c1a2c...
▶ 2025-07-27T13:02:37.589Z	[INFO] 2025-07-27T13:02:37.589Z Found credentials in environment variables.
▶ 2025-07-27T13:02:37.799Z	START RequestId: 6acb5623-c885-4b94-a49d-6af12f7dde2f Version: \$LATEST
▶ 2025-07-27T13:02:37.800Z	receiving event: {'object_type': 'folder', 'bucket': 'cosmicat-data', 'file_limit': '12', 'batch_size': 512, 'S3_object_name': 'Anomaly Detection', 'script': './...
▼ 2025-07-27T13:02:37.811Z	rendezvous connection successful!
	rendezvous connection successful!
▶ 2025-07-27T13:02:38.310Z	[ERROR] 2025-07-27T13:02:38.310Z 6acb5623-c885-4b94-a49d-6af12f7dde2f 1.pt is missing.
▶ 2025-07-27T13:02:38.310Z	[ERROR] 2025-07-27T13:02:38.310Z 6acb5623-c885-4b94-a49d-6af12f7dde2f 2.pt is missing.
▶ 2025-07-27T13:02:38.311Z	[ERROR] 2025-07-27T13:02:38.310Z 6acb5623-c885-4b94-a49d-6af12f7dde2f 3.pt is missing.
▶ 2025-07-27T13:02:38.311Z	[ERROR] 2025-07-27T13:02:38.311Z 6acb5623-c885-4b94-a49d-6af12f7dde2f 4.pt is missing.
▶ 2025-07-27T13:02:38.311Z	[ERROR] 2025-07-27T13:02:38.311Z 6acb5623-c885-4b94-a49d-6af12f7dde2f 5.pt is missing.
▶ 2025-07-27T13:02:38.311Z	[ERROR] 2025-07-27T13:02:38.311Z 6acb5623-c885-4b94-a49d-6af12f7dde2f 6.pt is missing.
▶ 2025-07-27T13:02:38.311Z	[ERROR] 2025-07-27T13:02:38.311Z 6acb5623-c885-4b94-a49d-6af12f7dde2f 7.pt is missing.
▶ 2025-07-27T13:02:38.311Z	[ERROR] 2025-07-27T13:02:38.311Z 6acb5623-c885-4b94-a49d-6af12f7dde2f 8.pt is missing.
▶ 2025-07-27T13:02:38.311Z	[ERROR] 2025-07-27T13:02:38.311Z 6acb5623-c885-4b94-a49d-6af12f7dde2f 9.pt is missing.
▶ 2025-07-27T13:02:38.311Z	[ERROR] 2025-07-27T13:02:38.311Z 6acb5623-c885-4b94-a49d-6af12f7dde2f 10.pt is missing.
▶ 2025-07-27T13:02:38.311Z	[ERROR] 2025-07-27T13:02:38.311Z 6acb5623-c885-4b94-a49d-6af12f7dde2f 11.pt is missing.
▶ 2025-07-27T13:02:38.311Z	[ERROR] 2025-07-27T13:02:38.311Z 6acb5623-c885-4b94-a49d-6af12f7dde2f 12.pt is missing.
▶ 2025-07-27T13:02:38.311Z	[ERROR] 2025-07-27T13:02:38.311Z 6acb5623-c885-4b94-a49d-6af12f7dde2f 13.pt is missing.
▶ 2025-07-27T13:02:38.311Z	[ERROR] 2025-07-27T13:02:38.311Z 6acb5623-c885-4b94-a49d-6af12f7dde2f 14.pt is missing.
▶ 2025-07-27T13:02:38.311Z	[ERROR] 2025-07-27T13:02:38.311Z 6acb5623-c885-4b94-a49d-6af12f7dde2f 15.pt is missing.
▶ 2025-07-27T13:02:38.311Z	[ERROR] 2025-07-27T13:02:38.311Z 6acb5623-c885-4b94-a49d-6af12f7dde2f 16.pt is missing.
▶ 2025-07-27T13:02:38.311Z	[ERROR] 2025-07-27T13:02:38.311Z 6acb5623-c885-4b94-a49d-6af12f7dde2f 17.pt is missing.
▶ 2025-07-27T13:02:38.311Z	[ERROR] 2025-07-27T13:02:38.311Z 6acb5623-c885-4b94-a49d-6af12f7dde2f 18.pt is missing.

Brief Explanation of Implementation and Challenges

We deployed a Rendezvous server using AWS ECS Fargate and configured it under rendezvous.uva-
ds5110.com to enable FMI-based communication between Lambda functions. The existing Step
Function was updated with the required payload fields to support distributed execution using FMI.

The main challenges involved ensuring the payloads were correctly structured. Missing or incorrect
keys, such as world_size or S3_object_name, frequently caused execution failures. Cold starts and
odd world sizes also led to synchronization issues within FMI. These were resolved through careful
validation and consistent use of even world sizes.

Performance metrics were consistent with Step 1, as the FMI layer added minimal overhead. The core architecture and resource settings remained the same, resulting in similar execution time, memory use, and cost.