

The AWS deployment

Instances (1/1) Info									
<div>Find Instance by attribute or tag (case-sensitive)</div> <div>Instance state: running Clear filters</div>									
Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS	Public IPv4 ...	Elastic IP	IPv6 IPs	Monitoring	Security g
t2.medium	Initializing	View alarms +	us-east-1b	ec2-107-22-138-66.co...	107.22.138.66	-	-	disabled	lab3-sg

Security group and port configuration details:

Inbound rules (2)							
<div>Search</div> <div>Manage tags Edit inbound rules</div>							
<input type="checkbox"/>	Name	Security group rule ID	IP version	Type	Protocol	Port range	Source
<input type="checkbox"/>	-	sgr-076609712137fefa3	IPv4	Custom TCP	TCP	8091	0.0.0.0/0
<input type="checkbox"/>	-	sgr-04870da0f07eaa4e6	IPv4	SSH	TCP	22	0.0.0.0/0

Outbound rules configuration, confirming full communication capability from the instance.

Outbound rules (1)							
<div>Search</div> <div>Manage tags Edit outbound rules</div>							
<input type="checkbox"/>	Name	Security group rule ID	IP version	Type	Protocol	Port range	Destination
<input type="checkbox"/>	-	sgr-013c6e3438d429c92	IPv4	All traffic	All	All	0.0.0.0/0

Two Clients running concurrently:

```
{'data': {'name': 'BoarCo', 'price': 25.0, 'quantity': 94}}
Give details of stock: BoarCo
{'data': {'name': 'BoarCo', 'price': 25.0, 'quantity': 94}}
Give details of stock: RottenFishCo
{'data': {'name': 'RottenFishCo', 'price': 15.0, 'quantity': 162}}

Trade request sent...
Give details of order number: 2725
{'data': {'order_num': 2725, 'name': 'RottenFishCo', 'type': 'buy', 'quantity': 9}}
Give details of stock: AMZN
{'data': {'name': 'AMZN', 'price': 65.0, 'quantity': 302}}
Give details of stock: NFLX
{'data': {'name': 'NFLX', 'price': 80.0, 'quantity': 191}}
Give details of stock: GOOGL
{'data': {'name': 'GOOGL', 'price': 60.0, 'quantity': 160}}
Give details of stock: RottenFishCo
{'data': {'name': 'RottenFishCo', 'price': 15.0, 'quantity': 153}}
Give details of stock: MenhirCo
{'data': {'name': 'MenhirCo', 'price': 40.0, 'quantity': 11}}
Give details of stock: MenhirCo
{'data': {'name': 'MenhirCo', 'price': 40.0, 'quantity': 11}}

Trade request sent...
Give details of order number: 2728
{'data': {'order_num': 2728, 'name': 'MenhirCo', 'type': 'sell', 'quantity': 8}}

Trade request sent...
Give details of order number: 3240
{'data': {'order_num': 3240, 'name': 'META', 'type': 'buy', 'quantity': 4}}
Give details of stock: NFLX
{'data': {'name': 'NFLX', 'price': 80.0, 'quantity': 236}}

Trade request sent...
Give details of order number: 3241
{'data': {'order_num': 3241, 'name': 'NFLX', 'type': 'sell', 'quantity': 4}}
Give details of stock: GOOGL
{'data': {'name': 'GOOGL', 'price': 60.0, 'quantity': 143}}

Trade request sent...
Give details of order number: 3242
{'data': {'order_num': 3242, 'name': 'GOOGL', 'type': 'buy', 'quantity': 2}}
Give details of stock: MenhirCo
{'data': {'name': 'MenhirCo', 'price': 40.0, 'quantity': 0}}
Give details of stock: RottenFishCo
{'data': {'name': 'RottenFishCo', 'price': 15.0, 'quantity': 122}}

Trade request sent...
Give details of order number: 3243
{'data': {'order_num': 3243, 'name': 'RottenFishCo', 'type': 'buy', 'quantity': 10}}
Give details of stock: RottenFishCo
{'data': {'name': 'RottenFishCo', 'price': 15.0, 'quantity': 112}}

Trade request sent...
Give details of order number: 3244
```

Confirming startup of catalog, three order replicas on ports 8093,8094,8095 and frontend service on port 8091.

```
(.venv) (base) mnswdhw@Manass-MacBook-Pro-2 src % ./native_build.sh
[INFO] Cleaning up old Python microservices...
Starting Stock Bazaar microservices natively...
Starting Catalog Service on port 8092
Starting Order Service Replicas...
--> Order Replica 1 on port 8093
--> Order Replica 2 on port 8094
--> Order Replica 3 on port 8095
Starting Frontend Service on port 8091
```

Catalog and frontend logs verifying successful request forwarding from frontend to catalog, confirming uncached lookups and correct response propagation.

```
src > logs > catalog.log
215 [Thread-1 (write_to_disk)] catalog written to CSV.
216 [Thread-1 (write_to_disk)] catalog written to CSV.
217 [Thread-1 (write_to_disk)] catalog written to CSV.
218 [ThreadPoolExecutor-0_0] is running
219 Lookup Request Received
220 stock_name: "BoarCo"
221
222 name: "BoarCo"
223 price: 25
224 quantity: 31
225 code: 200
226
227 [ThreadPoolExecutor-0_0] is running
228 Lookup Request Received
229 stock_name: "RottenFishCo"
230
231 name: "RottenFishCo"
232 price: 15
233 quantity: 149
234 code: 200
235
236 [ThreadPoolExecutor-0_0] is running
237 Lookup Request Received
238 stock_name: "GOOGL"
239
240 name: "GOOGL"
241 price: 60
242 quantity: 207
243 code: 200
244
245 [ThreadPoolExecutor-0_0] is running
246 Lookup Request Received
247 stock_name: "AAPL"
248
249 name: "AAPL"
250 price: 55
251 quantity: 80
252 code: 200
253
254 [ThreadPoolExecutor-0_0] is running
255 Trade Request Received
256 name: "AAPL"

src > logs > frontend.log
1 (Frontend): Notified replica 1 about leader 3
2 (Frontend): Notified replica 2 about leader 3
3 Server running ...
4
5 Handling get stock lookup requests
6 Client address: ('127.0.0.1', 60590)
7 Connection: <socket.socket fd=6, family=2, type=1, proto=0, laddr=('127.0.0.1', 8091)
8 GET [Thread-1 (process_request_thread)] is running to serve ('127.0.0.1', 60590)
9 Could not find BoarCo in cache calling catalog microservice
10
11 name: "BoarCo"
12 price: 25
13 quantity: 31
14 code: 200
15
16 127.0.0.1 -- [06/May/2025 23:31:23] "GET /stocks/BoarCo HTTP/1.1" 200 -
17 Handling get stock lookup requests
18 Client address: ('127.0.0.1', 60590)
19 Connection: <socket.socket fd=6, family=2, type=1, proto=0, laddr=('127.0.0.1', 8091)
20 GET [Thread-1 (process_request_thread)] is running to serve ('127.0.0.1', 60590)
21 Could not find RottenFishCo in cache calling catalog microservice
22
23 name: "RottenFishCo"
24 price: 15
25 quantity: 149
26 code: 200
27
28 127.0.0.1 -- [06/May/2025 23:31:23] "GET /stocks/RottenFishCo HTTP/1.1" 200 -
29 Handling get stock lookup requests
30 Client address: ('127.0.0.1', 60590)
31 Connection: <socket.socket fd=6, family=2, type=1, proto=0, laddr=('127.0.0.1', 8091)
32 GET [Thread-1 (process_request_thread)] is running to serve ('127.0.0.1', 60590)
33 Could not find GOOGL in cache calling catalog microservice
34
35 name: "GOOGL"
36 price: 60
37 quantity: 207
38 code: 200
39
40 127.0.0.1 -- [06/May/2025 23:31:23] "GET /stocks/GOOGL HTTP/1.1" 200 -
41 Handling get stock lookup requests
42 Client address: ('127.0.0.1', 60590)
```

Order logs from all three replicas confirming consistent transaction replication, sync-up behavior, and final log agreement.

```
src > logs > order_1.log
1 Replicas of (Order 1): are [(2, 'localhost', '8094'), (3, 'localhost', '8095'), (1, 'localhost', '8093')]
2 {'TransactionNumber': '1919', 'Name': 'GameStart', 'Type': 'sell', 'Volume': 6}
3 (Order 1): This is the starting transaction num: 1919
4 (Order 1): Started
5 Starting syncup
6 (Order 1): In Syncup No new entries to write
7 (Order 1): Notified replica with id 1 of leader with id 3
8 (Order 1): Syncup Request received from 2
9 received last transaction num 1919
10 (Order 1): Syncup Request received from 3
11 received last transaction num 1919
12 (Order 1): Received request to replicate order from the leader with id 3
13 (Order 1): Received request to replicate order from the leader with id 3
14 (Order 1): Received request to replicate order from the leader with id 3
15 (Order 1): Received request to replicate order from the leader with id 3
16 (Order 1): Received request to replicate order from the leader with id 3
17 (Order 1): Received request to replicate order from the leader with id 3
18 (Order 1): Received request to replicate order from the leader with id 3
19 (Order 1): Received request to replicate order from the leader with id 3
20 (Order 1): Received request to replicate order from the leader with id 3
21 (Order 1): Received request to replicate order from the leader with id 3
22 (Order 1): Received request to replicate order from the leader with id 3

src > logs > order_3.log
1 Replicas of (Order 3): are [(1, 'localhost', '8093'), (2, 'localhost', '8094'), (3, 'localhost', '8095')]
2 {'TransactionNumber': '1919', 'Name': 'GameStart', 'Type': 'sell', 'Volume': 6}
3 (Order 3): This is the starting transaction num: 1919
4 (Order 3): Started
5 (Order 3): Syncup Request received from 1
6 received last transaction num 1919
7 (Order 3): Checking heartbeat of order service id 3
8 (Order 3): Syncup Request received from 2
9 received last transaction num 1919
10 Starting syncup
11 (Order 3): In Syncup No new entries to write
12 [ThreadPoolExecutor-0_0] is running
13 (Order 3): Trade Request Received
14 name: "AAPL"
15 type: "buy"
16
17 (Order 3): Get Order Details Request received
18 [ThreadPoolExecutor-0_0] is running
19 (Order 3): Trade Request Received
20 name: "META"
21 number_of_items: 6
22 type: "sell"

src > logs > order_2.log
412 (Order 2): Received request to replicate order from the leader with id 3
413 (Order 2): Received request to replicate order from the leader with id 3
414 (Order 2): Received request to replicate order from the leader with id 3
415 (Order 2): Received request to replicate order from the leader with id 3
416 (Order 2): Received request to replicate order from the leader with id 3
417 (Order 2): Received request to replicate order from the leader with id 3
418 (Order 2): Received request to replicate order from the leader with id 3
419 (Order 2): Received request to replicate order from the leader with id 3
420 (Order 2): Received request to replicate order from the leader with id 3
421 (Order 2): Received request to replicate order from the leader with id 3
422 (Order 2): Received request to replicate order from the leader with id 3
423 (Order 2): Received request to replicate order from the leader with id 3
424 (Order 2): Received request to replicate order from the leader with id 3
425 (Order 2): Received request to replicate order from the leader with id 3
426 (Order 2): Received request to replicate order from the leader with id 3
427 (Order 2): Received request to replicate order from the leader with id 3
428 (Order 2): Received request to replicate order from the leader with id 3
429 (Order 2): Received request to replicate order from the leader with id 3
430 (Order 2): Received request to replicate order from the leader with id 3
431 (Order 2): Received request to replicate order from the leader with id 3
432 (Order 2): Received request to replicate order from the leader with id 3
433 (Order 2): Received request to replicate order from the leader with id 3
```