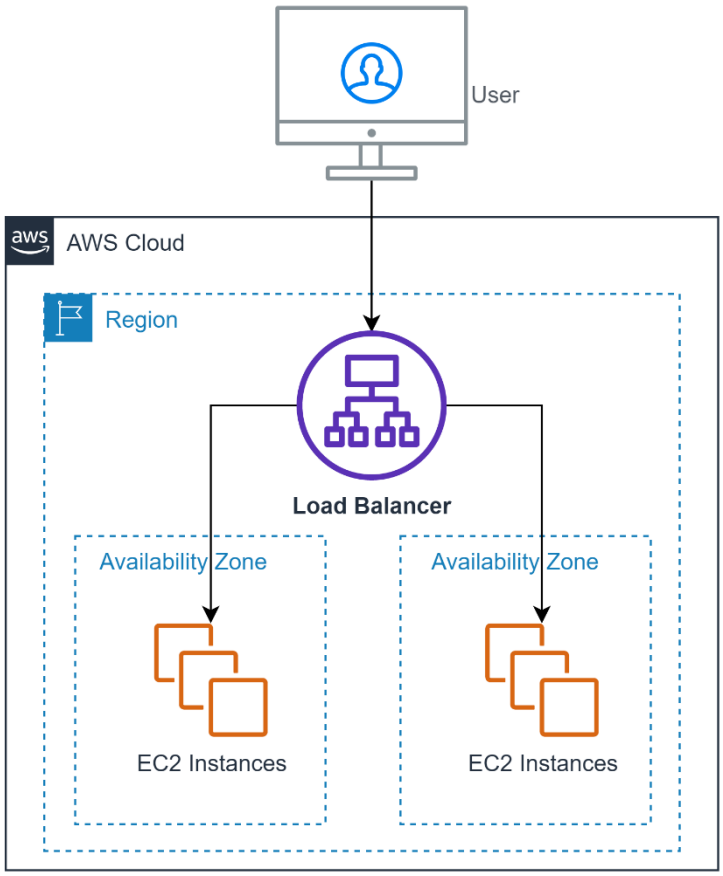
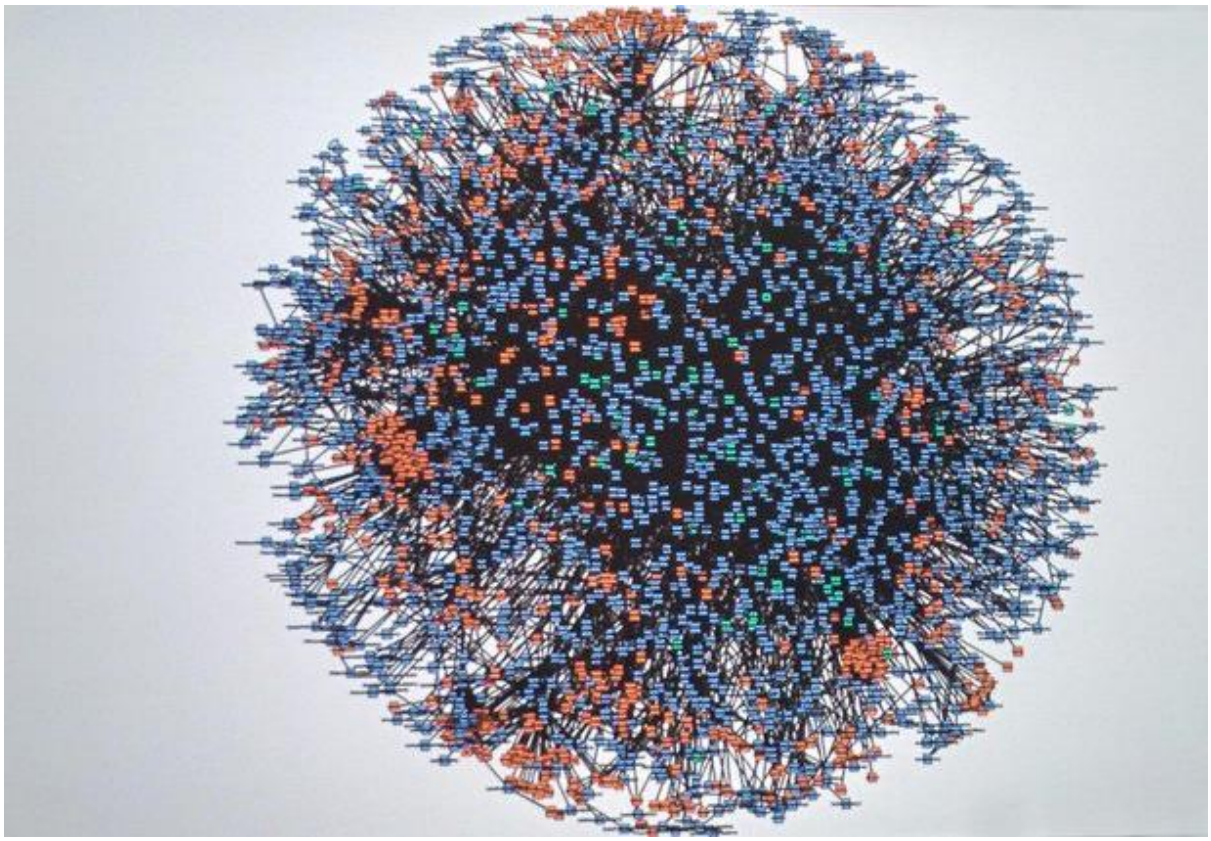
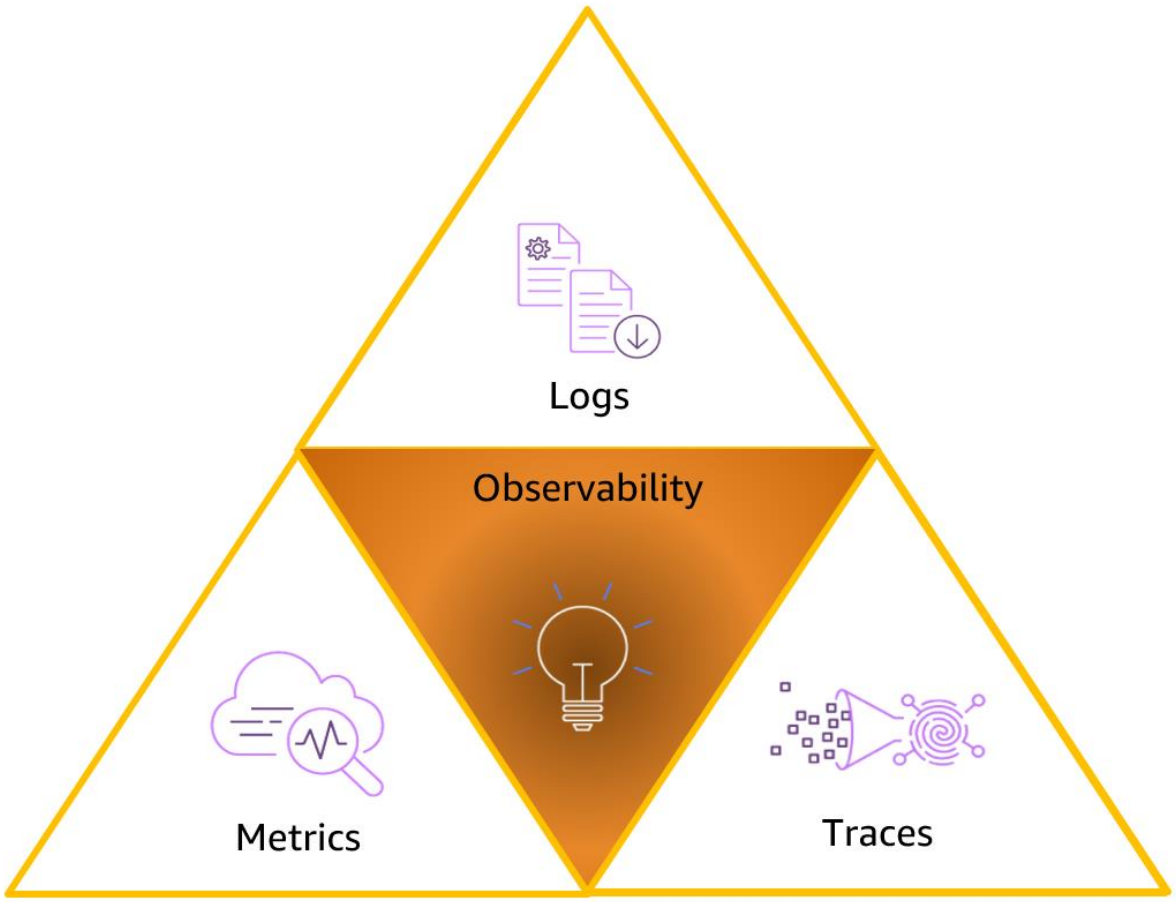
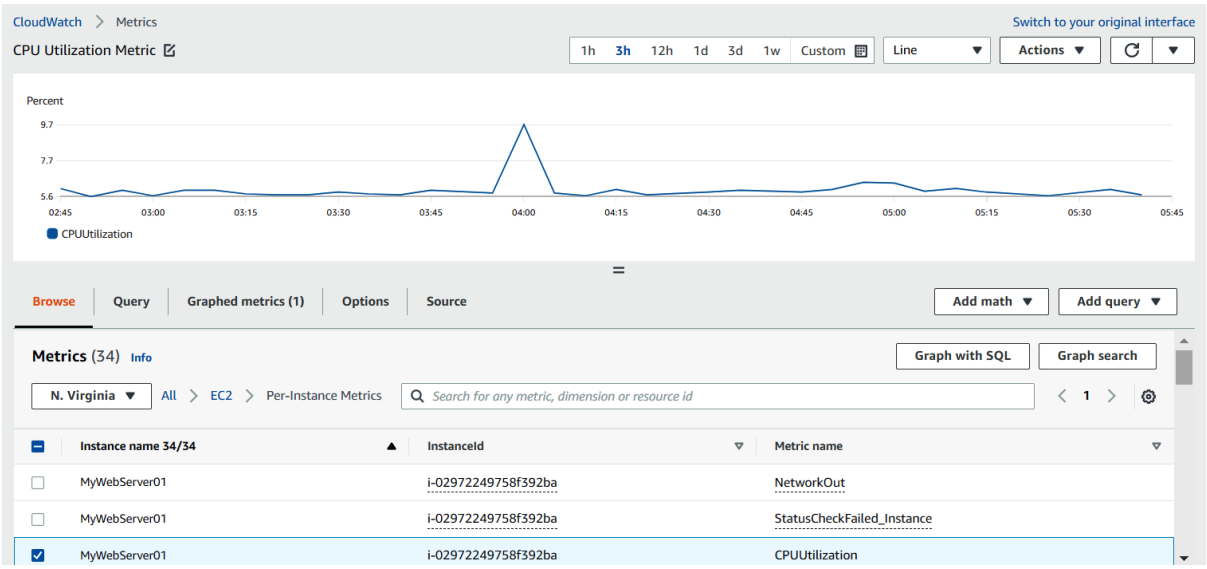
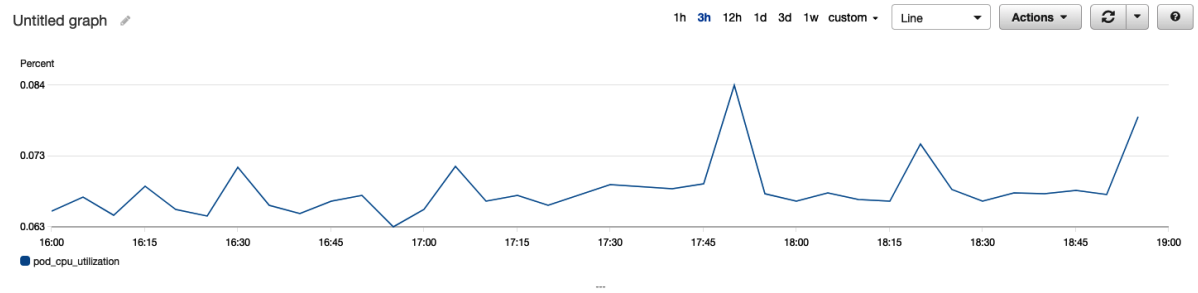
Chapter 1: Observability 101

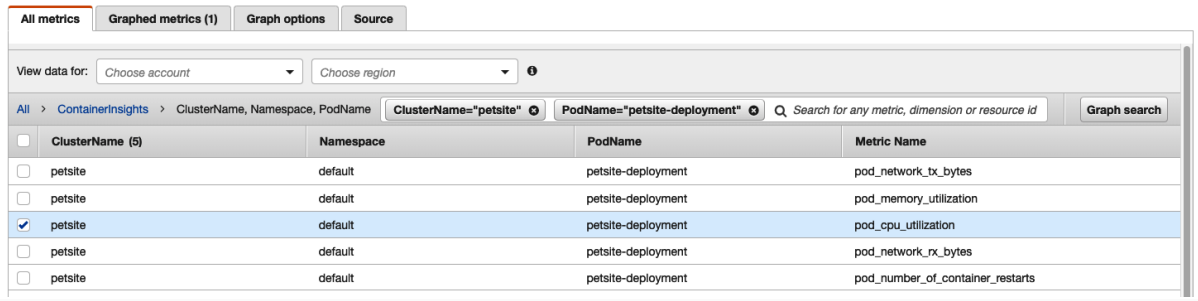


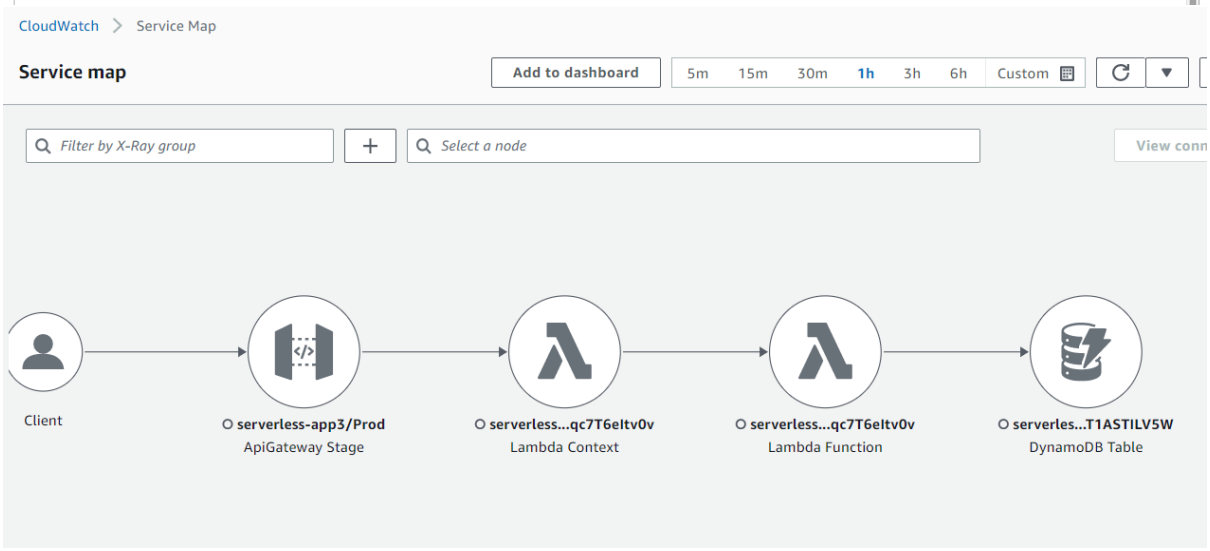



Logs
Observability
Metrics
Traces

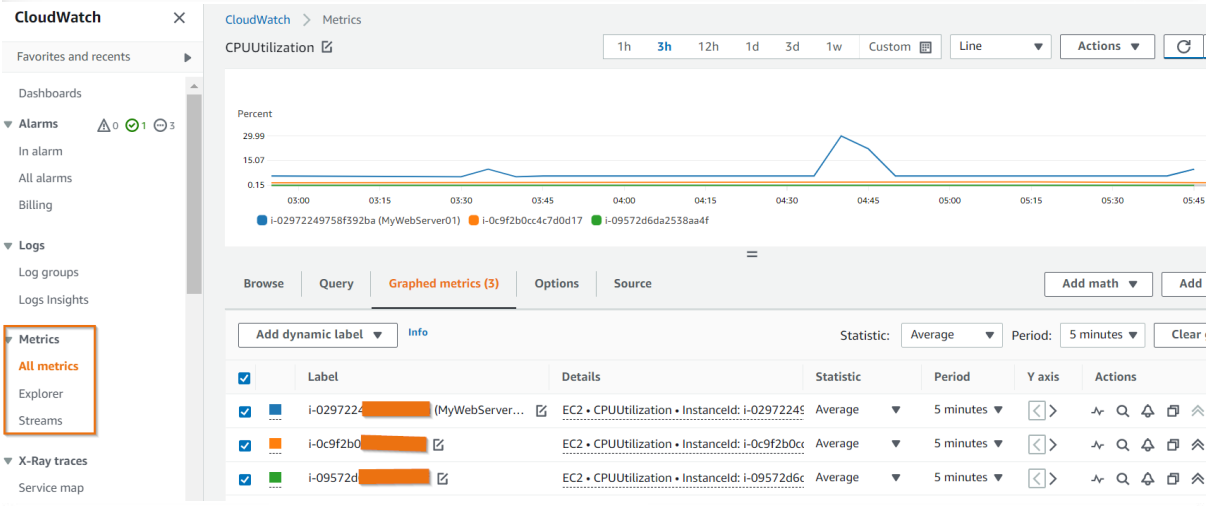

CloudWatch > Metrics
Switch to your original interface
CPU Utilization Metric
1h 3h 12h 1d 3d 1w Custom
Line
Actions
Percent
9.7
7.7
5.6
02:45 03:00 03:15 03:30 03:45 04:00 04:15 04:30 04:45 05:00 05:15 05:30 05:45
CPUUtilization
Browse
Query
Graphed metrics (1)
Options
Source
Add math
Add query
Metrics (34) Info
Graph with SQL
Graph search
N. Virginia
All > EC2 > Per-Instance Metrics
Search for any metric, dimension or resource id
1
Instance name 34/34
InstanceId
Metric name
MyWebServer01 i-02972249758f392ba NetworkOut
MyWebServer01 i-02972249758f392ba StatusCheckFailed_Instance
MyWebServer01 i-02972249758f392ba CPUUtilization

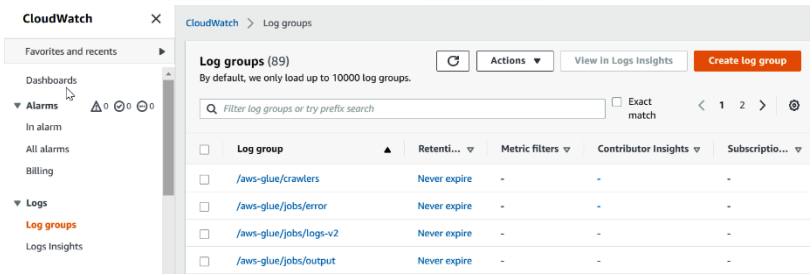

Untitled graph
1h 3h 12h 1d 3d 1w custom
Line
Actions
Percent
0.084
0.073
0.063
16:00 16:15 16:30 16:45 17:00 17:15 17:30 17:45 18:00 18:15 18:30 18:45 19:00
pod_cpu_utilization

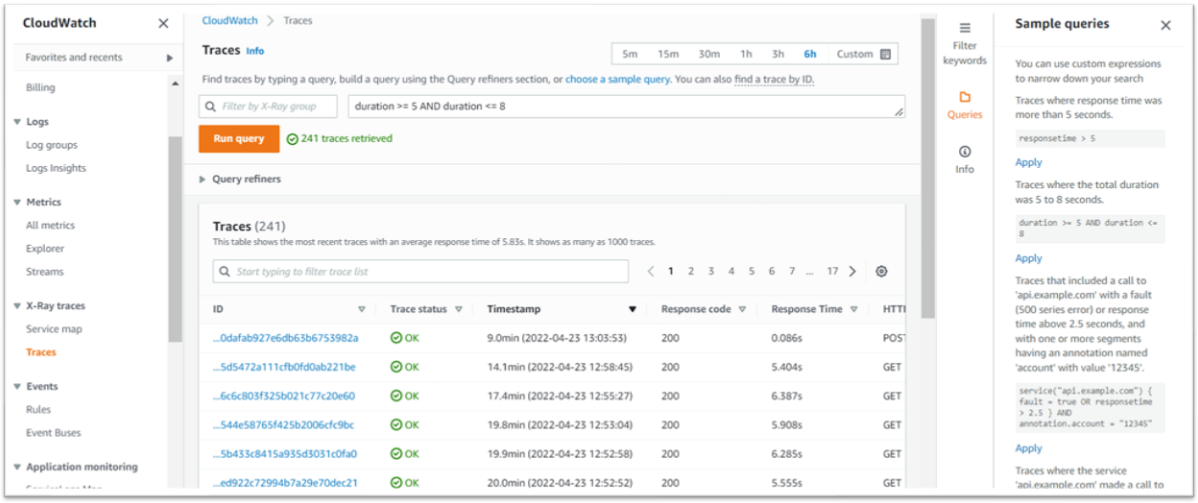

All metrics
Graphed metrics (1)
Graph options
Source
View data for:
Choose account
Choose region
All > ContainerInsights > ClusterName, Namespace, PodName
ClusterName="petsite"
PodName="petsite-deployment"
Search for any metric, dimension or resource id
Graph search
ClusterName (5)
Namespace
PodName
Metric Name
petsite default petsite-deployment pod_network_tx_bytes
petsite default petsite-deployment pod_memory_utilization
petsite default petsite-deployment pod_cpu_utilization
petsite default petsite-deployment pod_network_rx_bytes
petsite default petsite-deployment pod_number_of_container_restarts

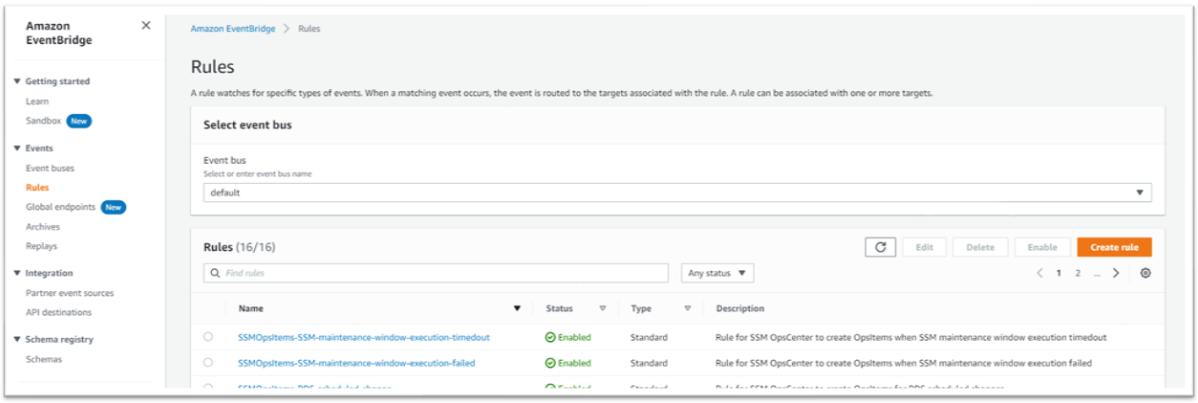

CloudWatch > Service Map
Service map
Add to dashboard
5m 15m 30m 1h 3h 6h Custom
Filter by X-Ray group
Select a node
Client
serverless-app3/Prod
ApiGateway Stage
serverless...qc7T6eltv0v
Lambda Context
serverless...qc7T6eltv0v
Lambda Function
serverles...T1ASTILV5W
DynamoDB Table

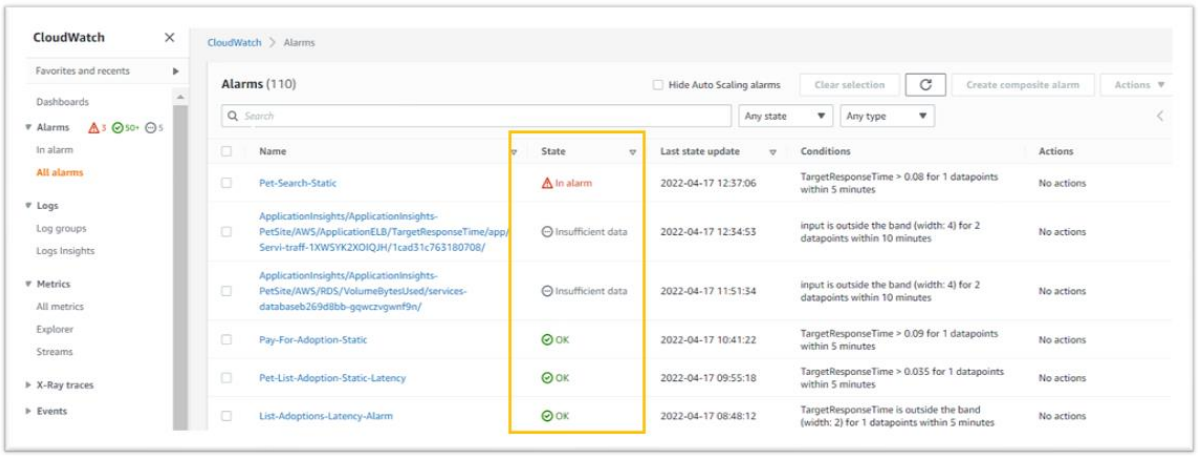
Chapter 2: Overview of the Observability Landscape on AWS

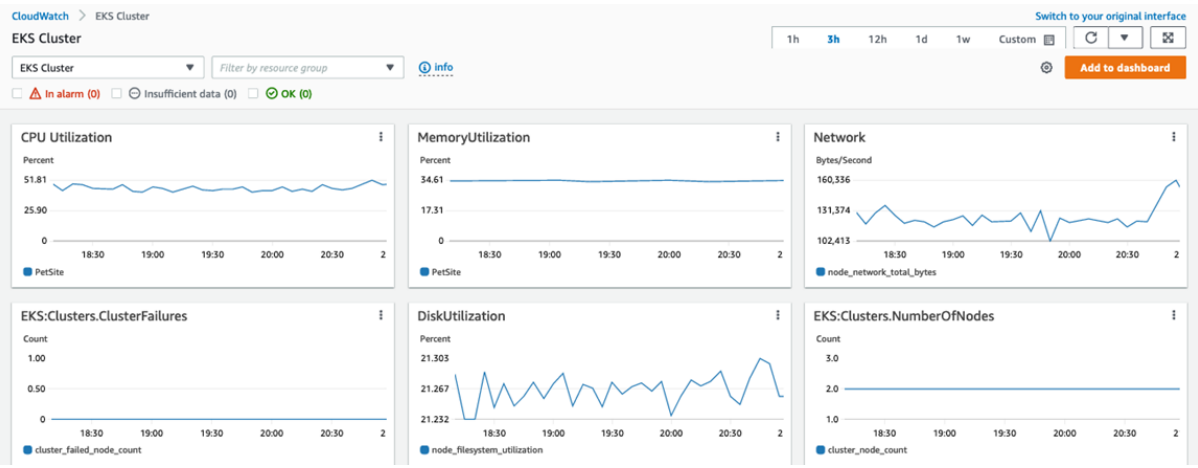


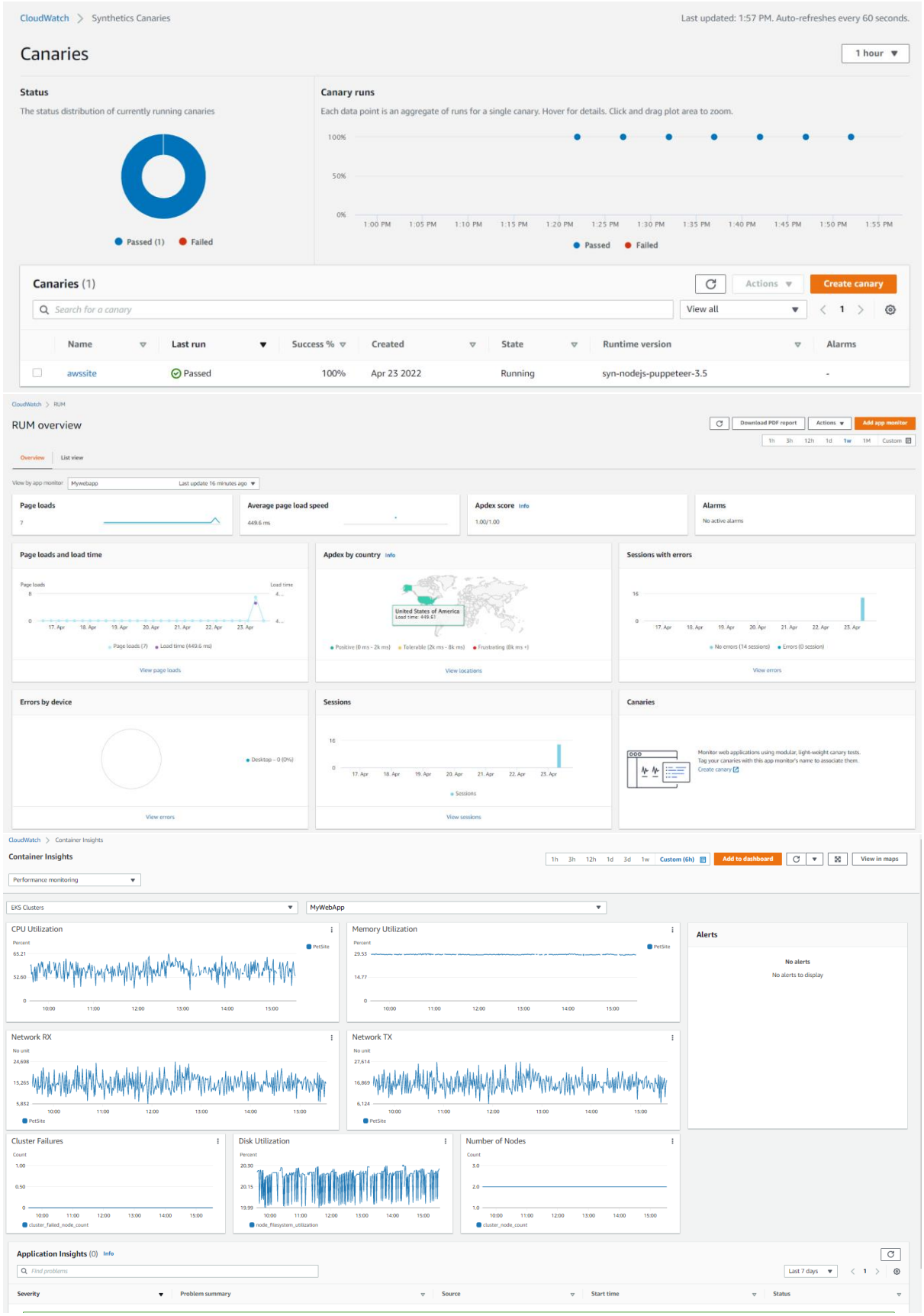


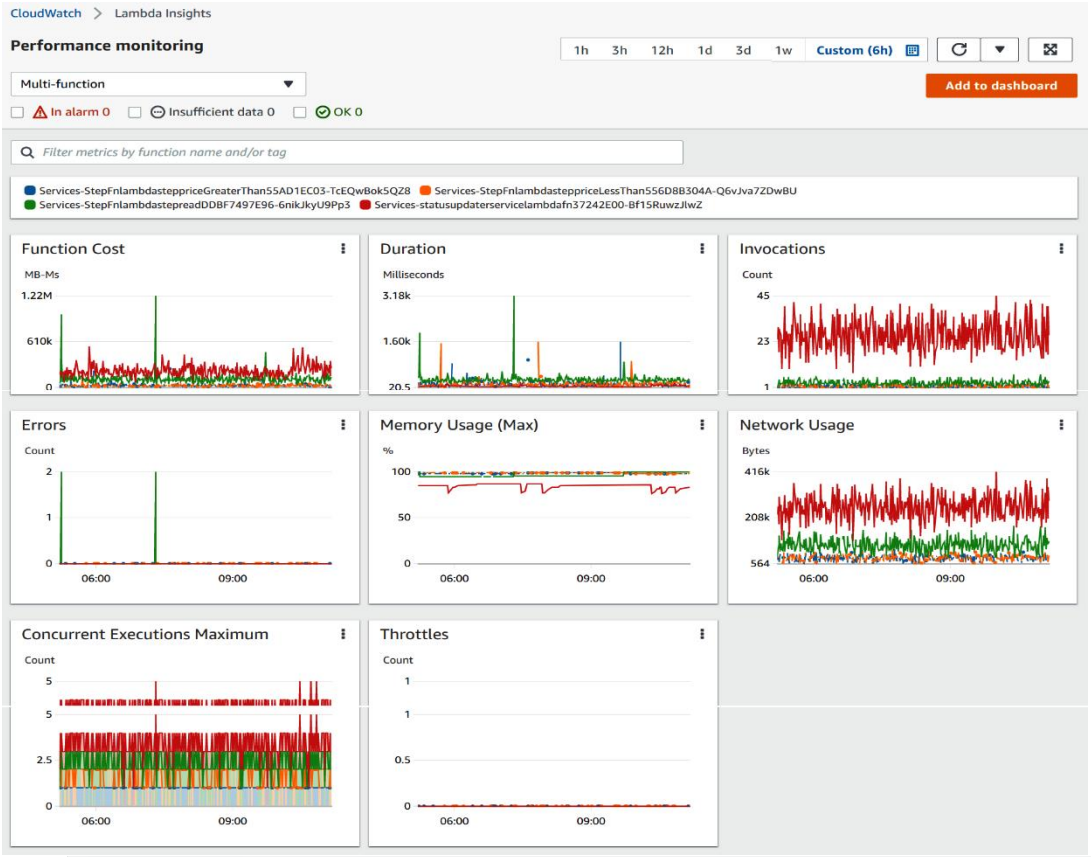

CloudWatch
Favorites and recents
Billing
Logs
Log groups
Logs Insights
Metrics
All metrics
Explorer
Streams
X-Ray traces
Service map
Traces
Events
Rules
Event Buses
Application monitoring
CloudWatch > Traces
Traces Info
5m 15m 30m 1h 3h 6h Custom
Find traces by typing a query, build a query using the Query refiners section, or choose a sample query. You can also find a trace by ID.
Filter by X-Ray group
duration >= 5 AND duration <= 8
Run query
241 traces retrieved
Query refiners
Traces (241)
This table shows the most recent traces with an average response time of 5.83s. It shows as many as 1000 traces.
Start typing to filter trace list
ID
Trace status
Timestamp
Response code
Response Time
...0dafab927e6db63b6753982a OK 9.0min (2022-04-23 13:03:53) 200 0.086s POST
...5d5472a111cfb0fd0ab221be OK 14.1min (2022-04-23 12:58:45) 200 5.404s GET
...6c6c803f325b021c77c20e60 OK 17.4min (2022-04-23 12:55:27) 200 6.387s GET
...544e58765f425b2006cfc9bc OK 19.8min (2022-04-23 12:53:04) 200 5.908s GET
...5b433c8415a935d3031c0fa0 OK 19.9min (2022-04-23 12:52:58) 200 6.285s GET
...ed922c72994b7a29e70dec21 OK 20.0min (2022-04-23 12:52:52) 200 5.555s GET
Filter keywords
Queries
Info
Sample queries
You can use custom expressions to narrow down your search
Traces where response time was more than 5 seconds.
responsetime > 5
Apply
Traces where the total duration was 5 to 8 seconds.
duration >= 5 AND duration <= 8
Apply
Traces that included a call to 'api.example.com' with a fault (500 series error) or response time above 2.5 seconds, and with one or more segments having an annotation named 'account' with value '12345'.
service("api.example.com") { fault = true OR responsetime > 2.5 } AND annotation.account = "12345"
Apply
Traces where the service 'api.example.com' made a call to

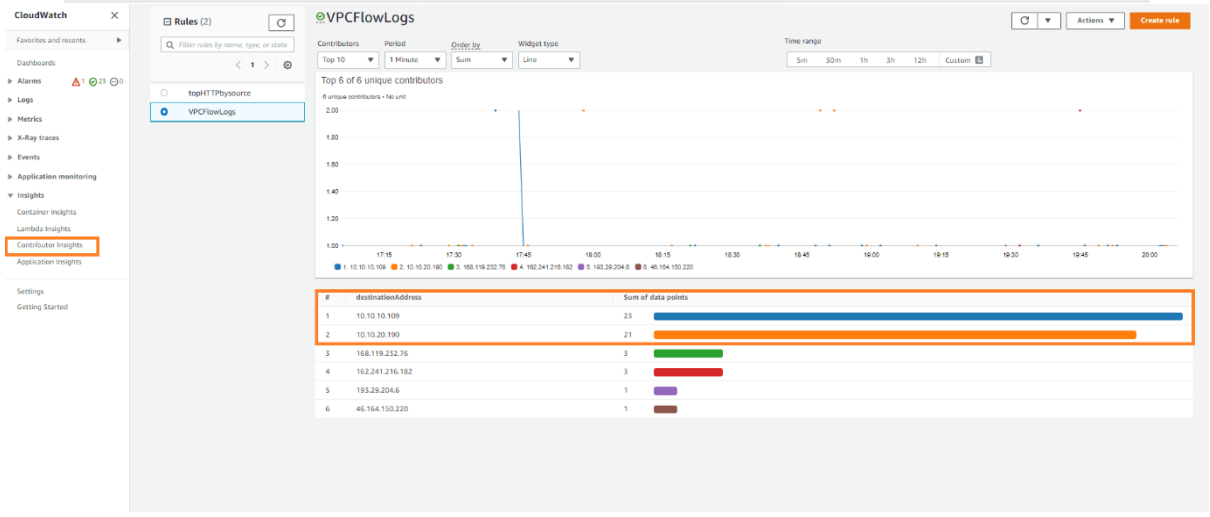

Amazon EventBridge
Getting started
Learn
Sandbox New
Events
Event buses
Rules
Global endpoints New
Archives
Replays
Integration
Partner event sources
API destinations
Schema registry
Schemas
Amazon EventBridge > Rules
Rules
A rule watches for specific types of events. When a matching event occurs, the event is routed to the targets associated with the rule. A rule can be associated with one or more targets.
Select event bus
Event bus
Select or enter event bus name
default
Rules (16/16)
Edit
Delete
Enable
Create rule
Find rules
Any status
Name
Status
Type
Description
SSMOpsItems-SSM-maintenance-window-execution-timedout Enabled Standard Rule for SSM OpsCenter to create OpsItems when SSM maintenance window execution timedout
SSMOpsItems-SSM-maintenance-window-execution-failed Enabled Standard Rule for SSM OpsCenter to create OpsItems when SSM maintenance window execution failed

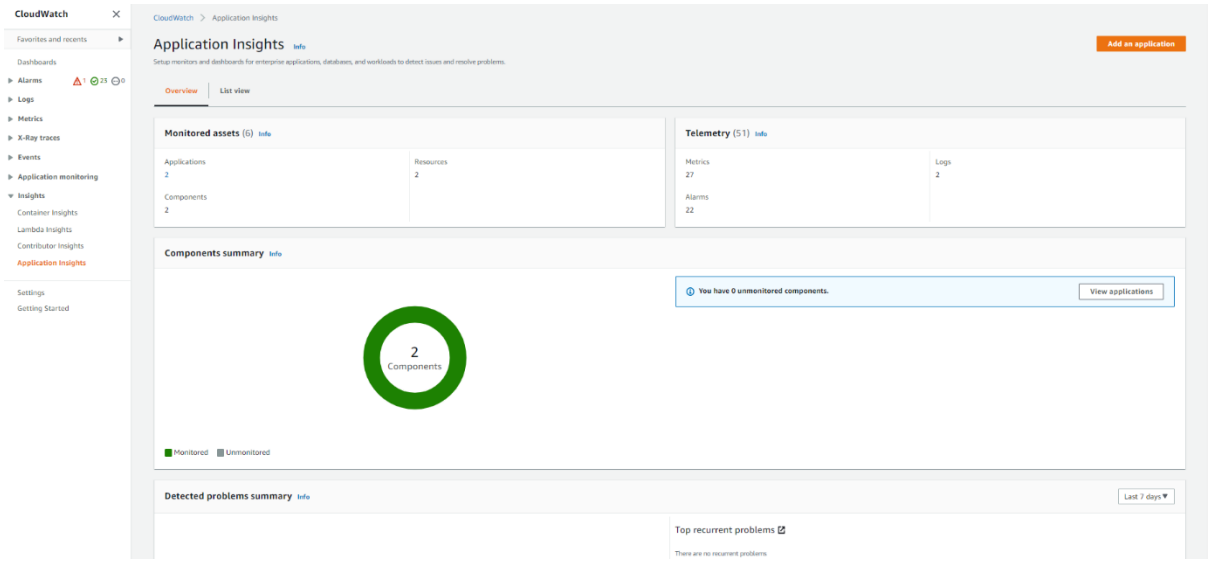

CloudWatch
Favorites and recents
Dashboards
Alarms
In alarm
All alarms
Logs
Log groups
Logs Insights
Metrics
All metrics
Explorer
Streams
X-Ray traces
Events
CloudWatch > Alarms
Alarms (110)
Hide Auto Scaling alarms
Clear selection
Create composite alarm
Actions
Search
Any state
Any type
Name
State
Last state update
Conditions
Actions
Pet-Search-Static In alarm 2022-04-17 12:37:06 TargetResponseTime > 0.08 for 1 datapoints within 5 minutes No actions
ApplicationInsights/ApplicationInsights-PetSite/AWS/ApplicationELB/TargetResponseTime/app/Servi-traff-1XWSYK2XIOIQJH/1cad31c763180708/ Insufficient data 2022-04-17 12:34:53 input is outside the band (width: 4) for 2 datapoints within 10 minutes No actions
ApplicationInsights/ApplicationInsights-PetSite/AWS/RDS/VolumeBytesUsed/services-databaseb269d8bb-gqwczvgwmf9n/ Insufficient data 2022-04-17 11:51:34 input is outside the band (width: 4) for 2 datapoints within 10 minutes No actions
Pay-For-Adoption-Static OK 2022-04-17 10:41:22 TargetResponseTime > 0.09 for 1 datapoints within 5 minutes No actions
Pet-List-Adoption-Static-Latency OK 2022-04-17 09:55:18 TargetResponseTime > 0.035 for 1 datapoints within 5 minutes No actions
List-Adoptions-Latency-Alarm OK 2022-04-17 08:48:12 TargetResponseTime is outside the band (width: 2) for 1 datapoints within 5 minutes No actions

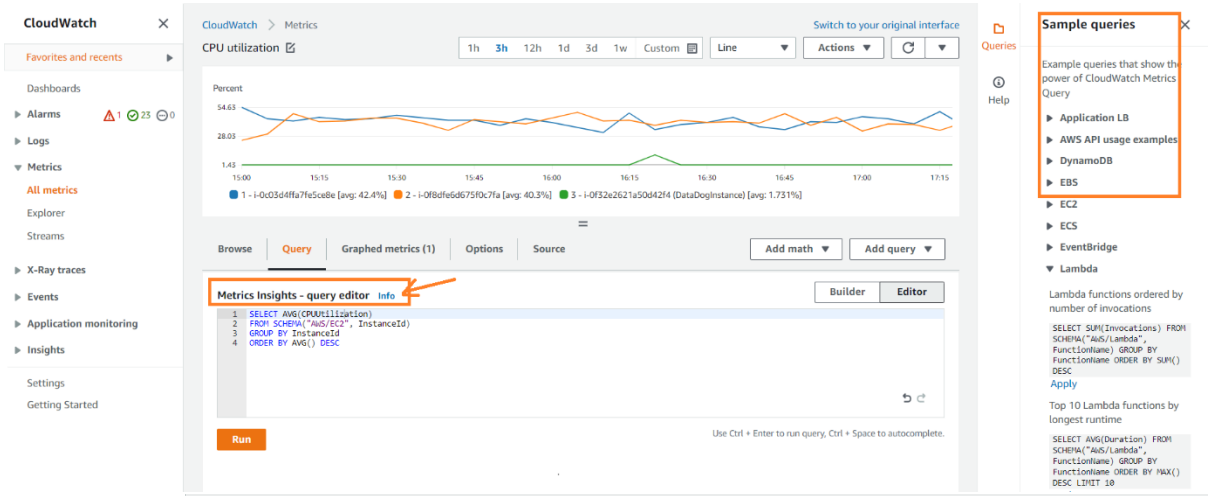

CloudWatch > EKS Cluster
EKS Cluster
Switch to your original interface
1h 3h 12h 1d 1w Custom
EKS Cluster
Filter by resource group
info
Add to dashboard
In alarm (0) Insufficient data (0) OK (0)
CPU Utilization
Percent
51.81
25.90
0
18:30 19:00 19:30 20:00 20:30 2
PetSite
MemoryUtilization
Percent
34.61
17.31
0
18:30 19:00 19:30 20:00 20:30 2
PetSite
Network
Bytes/Second
160,336
131,374
102,413
18:30 19:00 19:30 20:00 20:30 2
node_network_total_bytes
EKS:Clusters.ClusterFailures
Count
1.00
0.50
0
18:30 19:00 19:30 20:00 20:30 2
cluster_failed_node_count
DiskUtilization
Percent
21.303
21.267
21.232
18:30 19:00 19:30 20:00 20:30 2
node_filesystem_utilization
EKS:Clusters.NumberOfNodes
Count
3.0
2.0
1.0
18:30 19:00 19:30 20:00 20:30 2
cluster_node_count

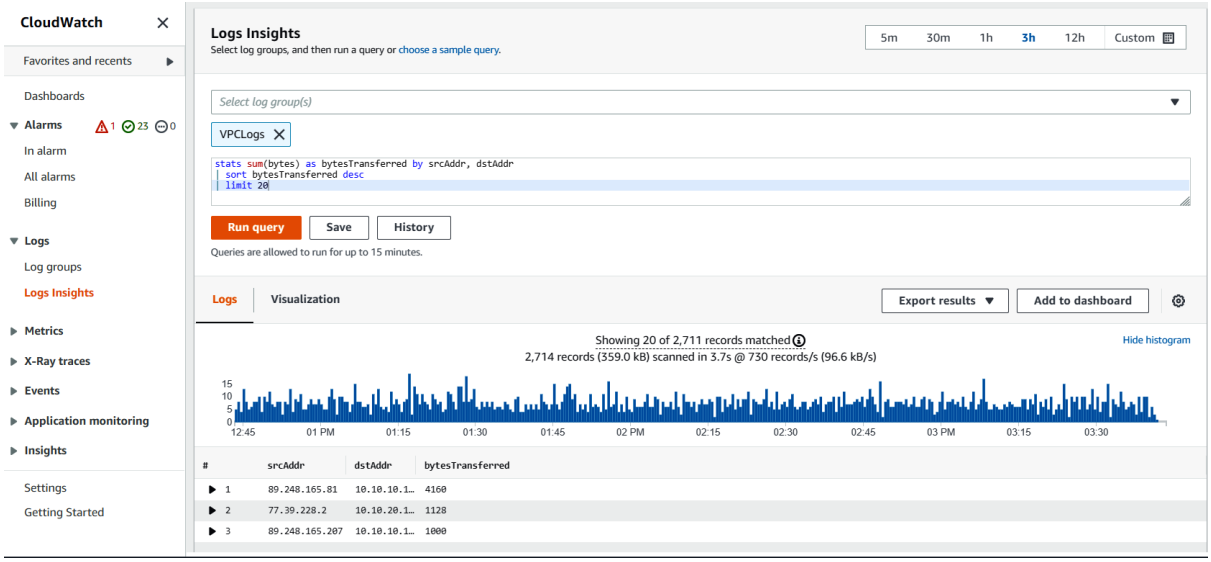

CloudWatch > Synthetics Canaries
Last updated: 1:57 PM. Auto-refreshes every 60 seconds.
Canaries
1 hour
Status
The status distribution of currently running canaries
Passed (1)
Failed
Canary runs
Each data point is an aggregate of runs for a single canary. Hover for details. Click and drag plot area to zoom.
100%
50%
0%
1:00 PM
1:05 PM
1:10 PM
1:15 PM
1:20 PM
1:25 PM
1:30 PM
1:35 PM
1:40 PM
1:45 PM
1:50 PM
1:55 PM
Passed
Failed
Canaries (1)
Actions
Create canary
Search for a canary
View all
Name
Last run
Success %
Created
State
Runtime version
Alarms
awssite
Passed
100%
Apr 23 2022
Running
syn-nodejs-puppeteer-3.5
-
CloudWatch > RUM
RUM overview
Download PDF report
Actions
Add app monitor
Overview
List view
Page loads
Average page load speed
Apdex score
Alarms
No active alarms
Page loads and load time
Apdex by country
Sessions with errors
View page loads
View locations
View errors
Errors by device
Sessions
Canaries
View errors
View sessions
Create canary
CloudWatch > Container Insights
Container Insights
Performance monitoring
Add to dashboard
View in maps
EKS Clusters
MyWebApp
CPU Utilization
Memory Utilization
Alerts
No alerts
No alerts to display
Network RX
Network TX
Cluster Failures
Disk Utilization
Number of Nodes
Application Insights (0)
Severity
Problem summary
Source
Start time
Status

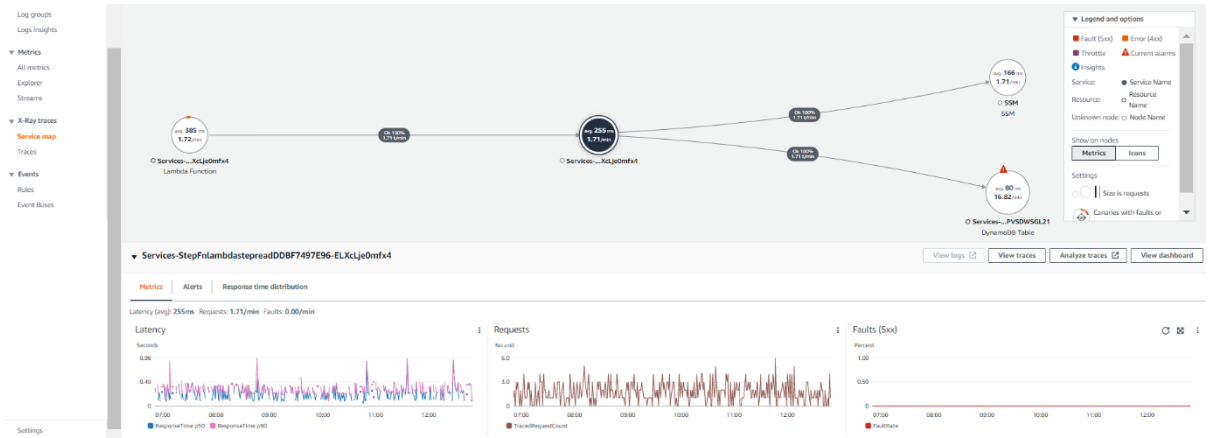

CloudWatch > Lambda Insights
Performance monitoring
1h 3h 12h 1d 3d 1w Custom (6h)
Add to dashboard
Multi-function
In alarm 0 Insufficient data 0 OK 0
Filter metrics by function name and/or tag
Services-StepFnlambdastepPriceGreaterThan55AD1EC03-TcEQwBok5QZ8
Services-StepFnlambdastepPriceLessThan556D8B304A-Q6vJva7ZDwBU
Services-StepFnlambdastepreadDDBF7497E96-6nikJkyU9Pp3
Services-statusupdaterservicelambdafn37242E00-Bf15RuwzJlwZ
Function Cost
MB-Ms
1.22M
610k
0
Duration
Milliseconds
3.18k
1.60k
20.5
Invocations
Count
45
23
1
Errors
Count
2
1
0
06:00
09:00
Memory Usage (Max)
%
100
50
0
06:00
09:00
Network Usage
Bytes
416k
208k
564
06:00
09:00
Concurrent Executions Maximum
Count
5
5
2.5
0
06:00
09:00
Throttles
Count
1
1
0.5
0
06:00
09:00


CloudWatch
Favorites and recents
Dashboards
Alarms
Logs
Metrics
X-Ray traces
Events
Application monitoring
Insights
Container Insights
Lambda Insights
Contributor Insights
Application Insights
Settings
Getting Started
Rules (2)
topHTTPbysource
VPCFlowLogs
VPCFlowLogs
Actions
Create rule
Contributors
Top 10
Period
1 Minute
Order by
Sum
Widget type
Line
Time range
Top 6 of 6 unique contributors
6 unique contributors - No unit
2.00
1.80
1.60
1.40
1.20
1.00
17:15
17:30
17:45
18:00
18:15
18:30
18:45
19:00
19:15
19:30
19:45
20:00
destinationAddress Sum of data points
1 10.10.10.109 23
2 10.10.20.190 21
3 168.119.232.76 3
4 162.241.216.182 3
5 193.29.204.6 1
6 46.164.150.220 1

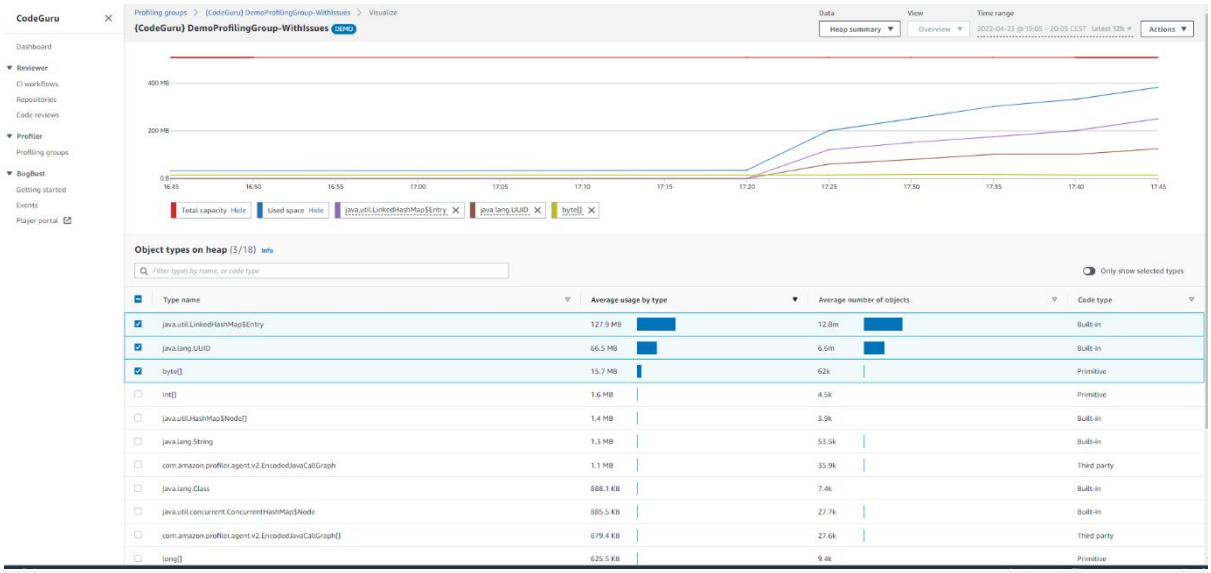

CloudWatch
Application Insights
Add an application
Overview
List view
Monitored assets (6)
Telemetry (51)
Components summary
2
Components
Monitored
Unmonitored
Detected problems summary
Top recurrent problems

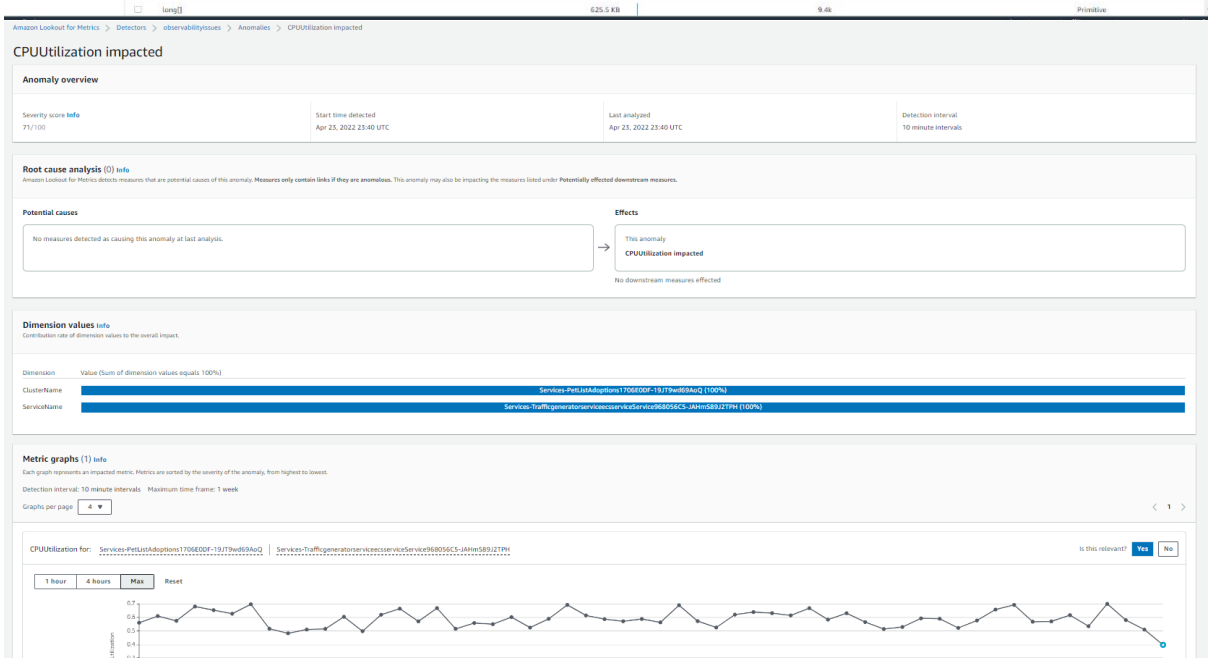

CloudWatch
CloudWatch > Metrics
CPU utilization
Switch to your original interface
Percent
Browse
Query
Graphed metrics (1)
Options
Source
Add math
Add query
Metrics Insights - query editor
Builder
Editor
SELECT AVG(CPUUtilization)
FROM SCHEMA("AWS/EC2", InstanceId)
GROUP BY InstanceId
ORDER BY AVG() DESC
Run
Use Ctrl + Enter to run query, Ctrl + Space to autocomplete.
Queries
Help
Sample queries
Example queries that show the power of CloudWatch Metrics Query
Application LB
AWS API usage examples
DynamoDB
EBS
EC2
ECS
EventBridge
Lambda
Lambda functions ordered by number of invocations
Apply
Top 10 Lambda functions by longest runtime


CloudWatch
Logs Insights
Select log groups, and then run a query or choose a sample query.
5m
30m
1h
3h
12h
Custom
Select log group(s)
VPCLogs
stats sum(bytes) as bytesTransferred by srcAddr, dstAddr
| sort bytesTransferred desc
| limit 20
Run query
Save
History
Queries are allowed to run for up to 15 minutes.
Logs
Visualization
Export results
Add to dashboard
Showing 20 of 2,711 records matched
2,714 records (359.0 kB) scanned in 3.7s @ 730 records/s (96.6 kB/s)
Hide histogram
#
srcAddr
dstAddr
bytesTransferred
1
89.248.165.81
10.10.10.1...
4160
2
77.39.228.2
10.10.20.1...
1128
3
89.248.165.207
10.10.10.1...
1000

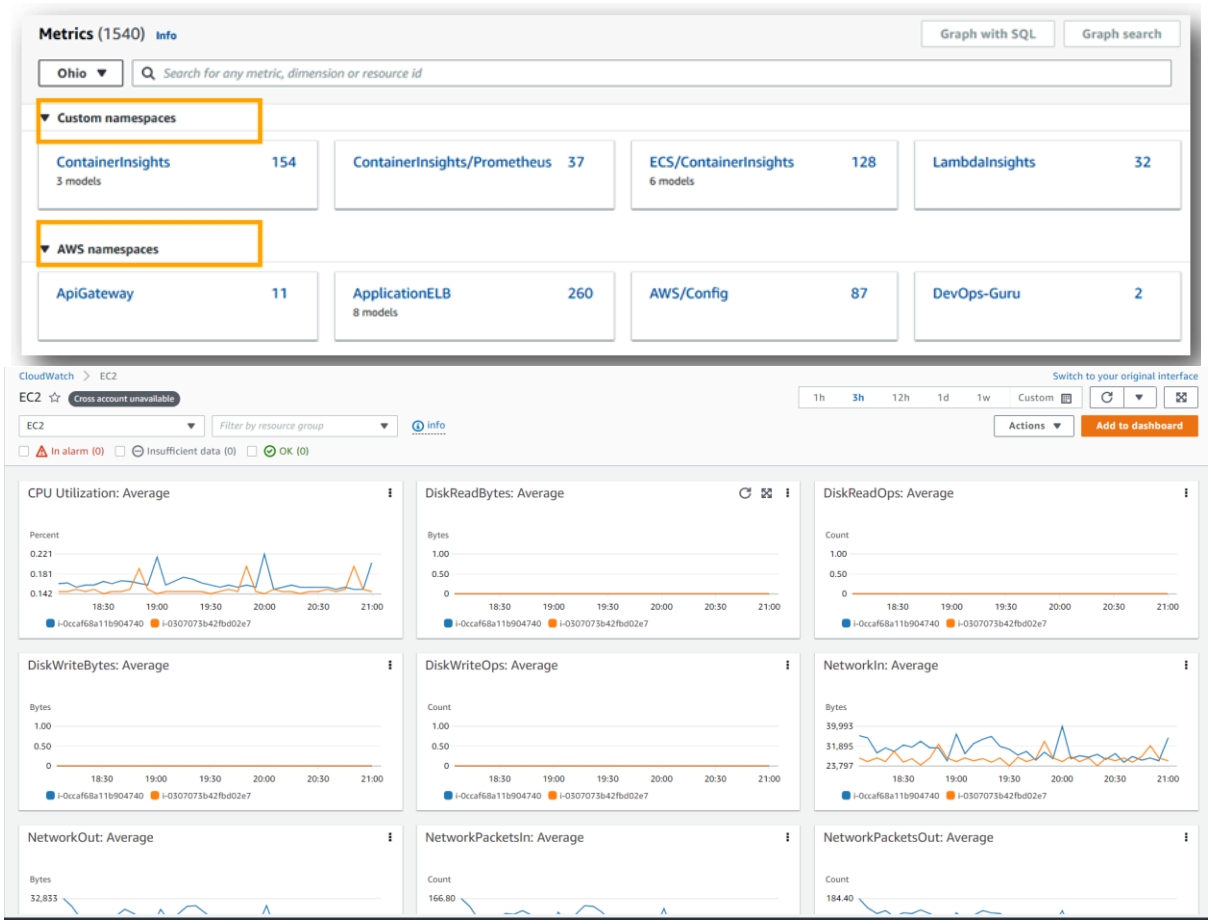

Log groups
Logs Insights
Metrics
All metrics
Explorer
Streams
X-Ray traces
Service map
Traces
Events
Rules
Event Buses
Legend and options
Fault (5xx)
Error (4xx)
Throttle
Current alarms
Insights
Service:
Service Name
Resource:
Resource Name
Unknown node:
Node Name
Show on nodes
Metrics
Icons
Settings
Size is requests
Canaries with faults or
SSM
Lambda Function
DynamoDB Table
Services-StepFnlambdastepreadDDBF7497E96-ELXcLje0mfx4
View logs
View traces
Analyze traces
View dashboard
Metrics
Alarms
Response time distribution
Latency
Requests
Faults (5xx)
Settings

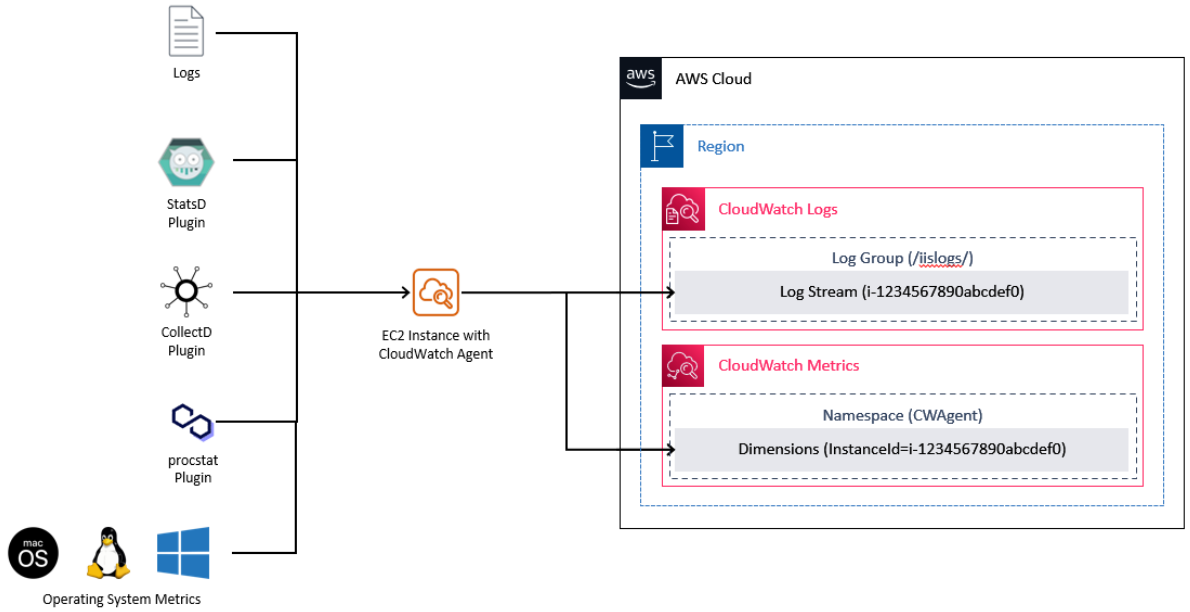

General / Amazon CloudWatch Logs
Last 6 hours
Data source
Amazon CloudWatch us-east-1
Region
default
Period [sec]
300
Incoming log events [count/sec]
IncomingLogEvents_Sum
Incoming bytes [bytes/sec]
Delivery errors [count]
No data
Delivery throttling [count]
No data


CodeGuru
Dashboard
Reviewer
CI workflows
Repositories
Code reviews
Profiler
Profiling groups
BugBust
Getting started
Events
Player portal
Profiling groups > (CodeGuru) DemoProfilingGroup-WithIssues > Visualize
(CodeGuru) DemoProfilingGroup-WithIssues
DEMO
Data
Heap summary
View
Overview
Time range
Actions
400 MB
200 MB
0 B
16:45
16:50
16:55
17:00
17:05
17:10
17:15
17:20
17:25
17:30
17:35
17:40
17:45
Total capacity Hide
Used space Hide
java.util.LinkedHashMap$Entry
java.lang.UUID
byte[]
Object types on heap (3/18) Info
Filter types by name, or code type
Only show selected types
Type name
Average usage by type
Average number of objects
Code type
java.util.LinkedHashMap$Entry 127.9 MB 12.8m Built-in
java.lang.UUID 66.5 MB 6.6m Built-in
byte[] 15.7 MB 62k Primitive
int[] 1.6 MB 4.5k Primitive
java.util.HashMap$Node[] 1.4 MB 3.9k Built-in
java.lang.String 1.3 MB 53.5k Built-in
com.amazon.profiler.agent.v2.EncodedJavaCallGraph 1.1 MB 35.9k Third party
java.lang.Class 888.1 KB 7.4k Built-in
java.util.concurrent.ConcurrentHashMap$Node 885.5 KB 27.7k Built-in
com.amazon.profiler.agent.v2.EncodedJavaCallGraph[] 679.4 KB 27.6k Third party
long[] 625.5 KB 9.4k Primitive


Amazon Lookout for Metrics > Detectors > observabilityIssues > Anomalies > CPUUtilization impacted
CPUUtilization impacted
Anomaly overview
Severity score Info
71/100
Start time detected
Apr 23, 2022 23:40 UTC
Last analyzed
Apr 23, 2022 23:40 UTC
Detection interval
10 minute intervals
Root cause analysis (0) Info
Amazon Lookout for Metrics detects measures that are potential causes of this anomaly. Measures only contain links if they are anomalous. This anomaly may also be impacting the measures listed under Potentially effected downstream measures.
Potential causes
No measures detected as causing this anomaly at last analysis.
Effects
This anomaly
CPUUtilization impacted
No downstream measures effected
Dimension values Info
Contribution rate of dimension values to the overall impact.
Dimension
Value (Sum of dimension values equals 100%)
ClusterName
Services-PetListAdoptions1706E0DF-19JT9wd69AoQ (100%)
ServiceName
Services-TrafficgeneratorservicececservicecService968056C5-JAHmSB9JZTPH (100%)
Metric graphs (1) Info
Each graph represents an impacted metric. Metrics are sorted by the severity of the anomaly, from highest to lowest.
Detection interval: 10 minute intervals Maximum time frame: 1 week
Graphs per page
4
CPUUtilization for:
Services-PetListAdoptions1706E0DF-19JT9wd69AoQ
Services-TrafficgeneratorservicececservicecService968056C5-JAHmSB9JZTPH
Is this relevant?
Yes
No
1 hour
4 hours
Max
Reset

Chapter 3: Gathering Operational Data and Alerting Using Amazon CloudWatch





Windows Service

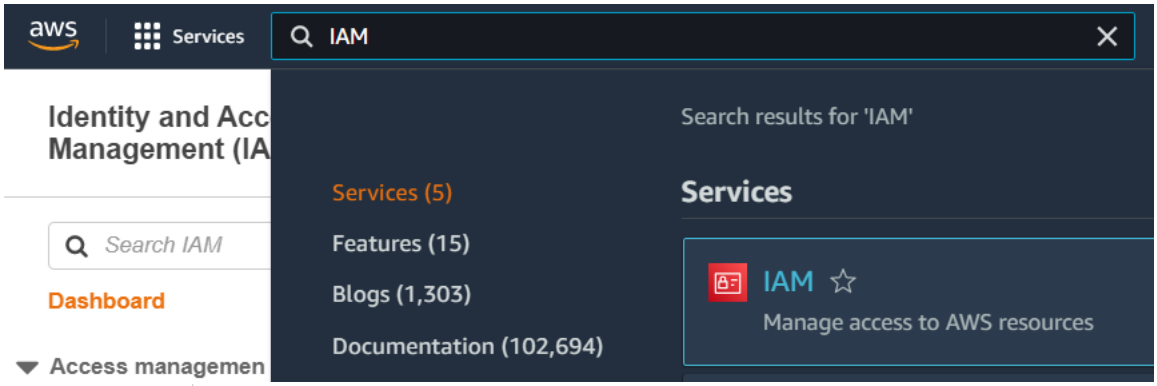
Configuration file

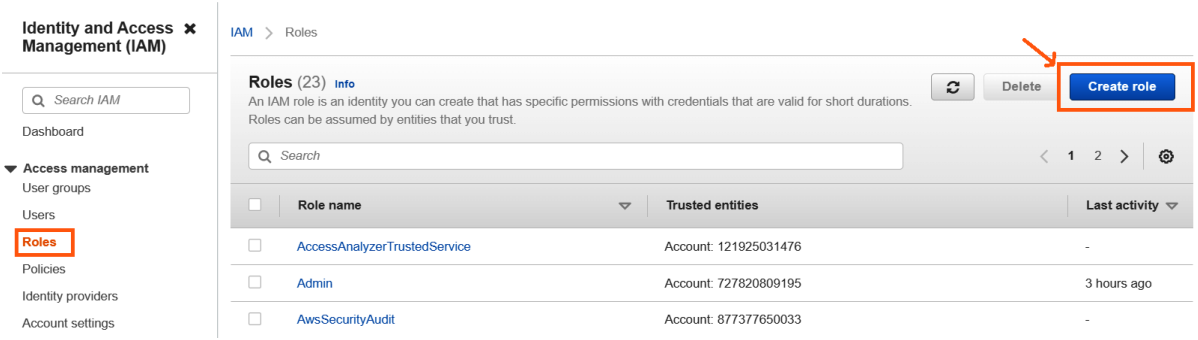
Amazon CloudWatch

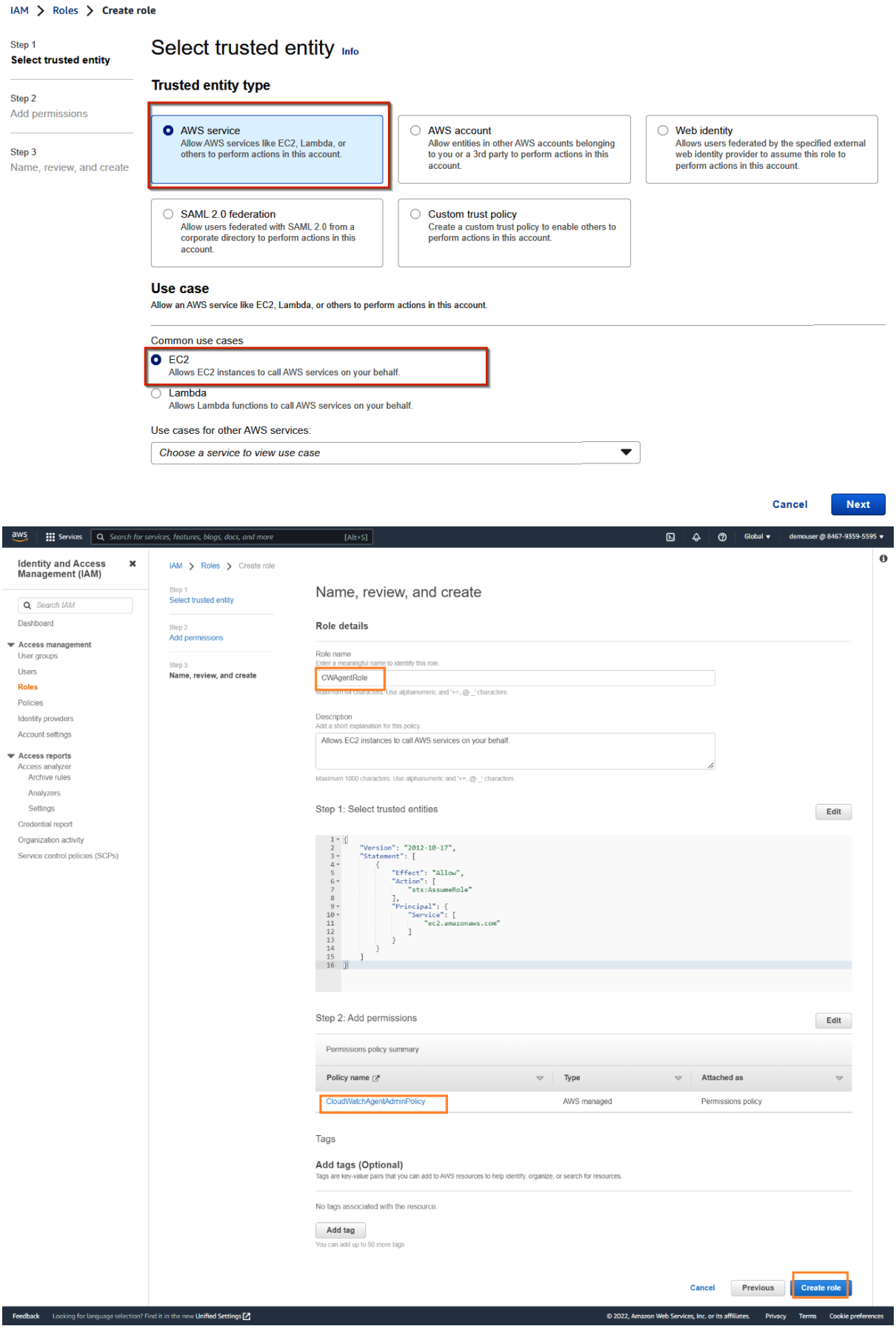
User data **Info**

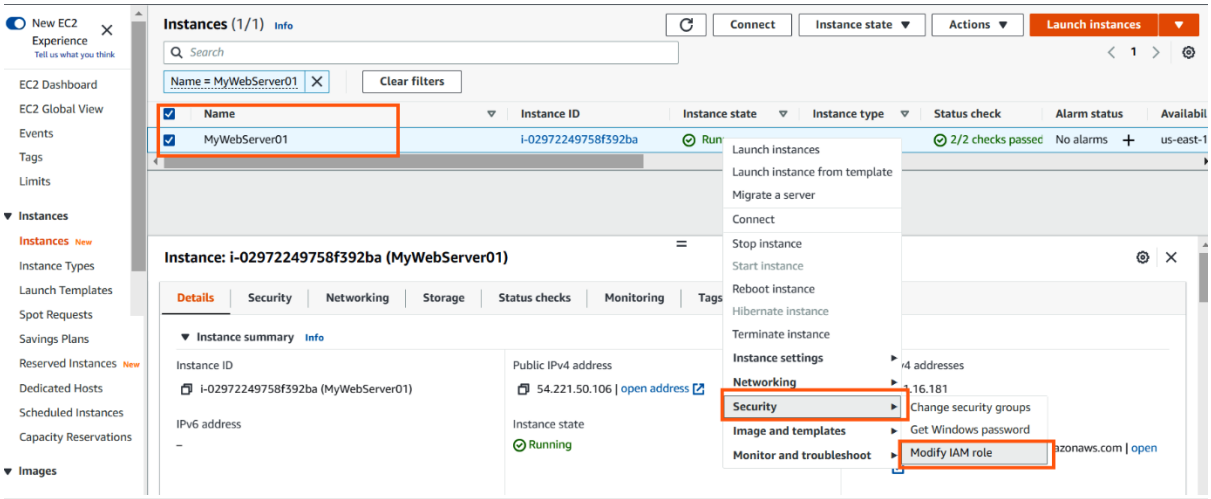
```
<powershell>
Install-WindowsFeature -name Web-Server -IncludeManagementTools
</powershell>
```

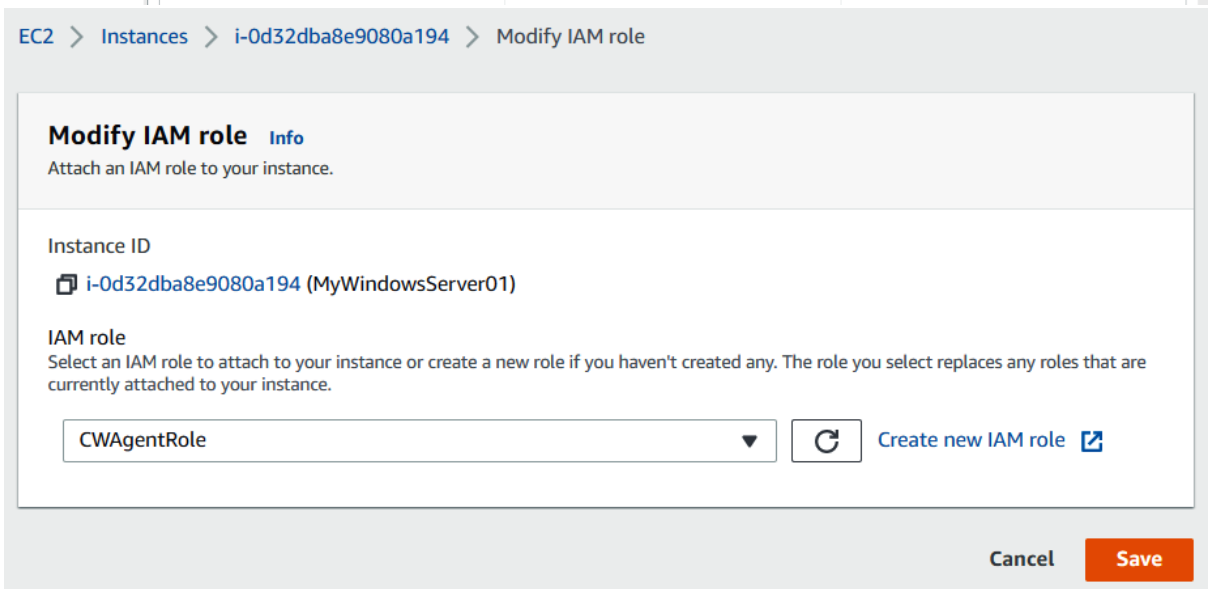
☐ User data has already been base64 encoded






IAM > Roles > Create role
Step 1
Select trusted entity
Step 2
Add permissions
Step 3
Name, review, and create
Select trusted entity Info
Trusted entity type
AWS service
Allow AWS services like EC2, Lambda, or others to perform actions in this account.
AWS account
Allow entities in other AWS accounts belonging to you or a 3rd party to perform actions in this account.
Web identity
Allows users federated by the specified external web identity provider to assume this role to perform actions in this account.
SAML 2.0 federation
Allow users federated with SAML 2.0 from a corporate directory to perform actions in this account.
Custom trust policy
Create a custom trust policy to enable others to perform actions in this account.
Use case
Allow an AWS service like EC2, Lambda, or others to perform actions in this account.
Common use cases
EC2
Allows EC2 instances to call AWS services on your behalf.
Lambda
Allows Lambda functions to call AWS services on your behalf.
Use cases for other AWS services:
Choose a service to view use case
Cancel
Next
Identity and Access Management (IAM)
Search IAM
Dashboard
Access management
User groups
Users
Roles
Policies
Identity providers
Account settings
Access reports
Access analyzer
Archive rules
Analyzers
Settings
Credential report
Organization activity
Service control policies (SCPs)
Name, review, and create
Role details
Role name
CWAgentRole
Description
Allows EC2 instances to call AWS services on your behalf.
Step 1: Select trusted entities
Edit
Step 2: Add permissions
Edit
Permissions policy summary
Policy name
Type
Attached as
CloudWatchAgentAdminPolicy
AWS managed
Permissions policy
Tags
Add tags (Optional)
No tags associated with the resource.
Add tag
Cancel
Previous
Create role
Feedback
© 2022, Amazon Web Services, Inc. or its affiliates.
Privacy
Terms
Cookie preferences






```
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

PS C:\Users\Administrator> Invoke-WebRequest -Uri https://s3.amazonaws.com/amazoncloudwatch-agent/windows/amd64/latest/amazon-cloudwatch-agent.msi -OutFile $env:USERPROFILE\Desktop\amazon-c
loudwatch-agent.msi
PS C:\Users\Administrator> Test-Path -Path $env:USERPROFILE\Desktop\amazon-cloudwatch-agent.msi
True
PS C:\Users\Administrator> msiexec /i $env:USERPROFILE\Desktop\amazon-cloudwatch-agent.msi
PS C:\Users\Administrator>
```

```
=============================================================
= Welcome to the Amazon Cloudwatch Agent Configuration Manager =
=                                                           =
= Cloudwatch Agent allows you to collect metrics and logs from =
= your host and send them to Cloudwatch. Additional cloudwatch =
= charges may apply.                                        =
=============================================================
On which OS are you planning to use the agent?
1. linux
2. windows
3. darwin
default choice: [2]:
2
Trying to fetch the default region based on ec2 metadata...
Are you using EC2 or On-Premises hosts?
1. EC2
2. On-Premises
default choice: [1]:
Do you want to turn on StatsD daemon?
1. yes
2. no
default choice: [1]:
2
```

```
Do you have any existing CloudWatch Log Agent configuration file to import for migration?
1. yes
2. no
default choice: [2]:
2
```

```
Do you want to monitor any host metrics? e.g. CPU, memory, etc.
1. yes
2. no
default choice: [1]:

Do you want to monitor cpu metrics per core?
1. yes
2. no
default choice: [1]:

Do you want to add ec2 dimensions (ImageId, InstanceId, InstanceType, AutoScalingGroupNam
ilable?
1. yes
2. no
default choice: [1]:

Do you want to aggregate ec2 dimensions (InstanceId)?
1. yes
2. no
default choice: [1]:
```

```
Would you like to collect your metrics at high resolution (sub-minute resolution)? This enables sub-minute resolution for all metrics,
but you can customize for specific metrics in the output json file.
1. 1s
2. 10s
3. 30s
4. 60s
default choice: [4]:
1
```

```
Which default metrics config do you want?
1. Basic
2. Standard
3. Advanced
4. None
default choice: [1]:
2
```

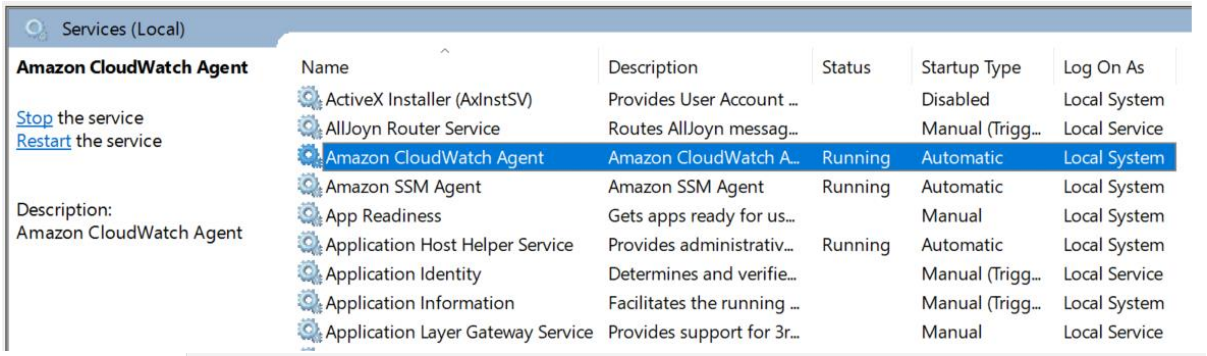
```
Are you satisfied with the above config? Note: it can be manually customized after the wizard completes to add additional items.
1. yes
2. no
default choice: [1]:
1
```

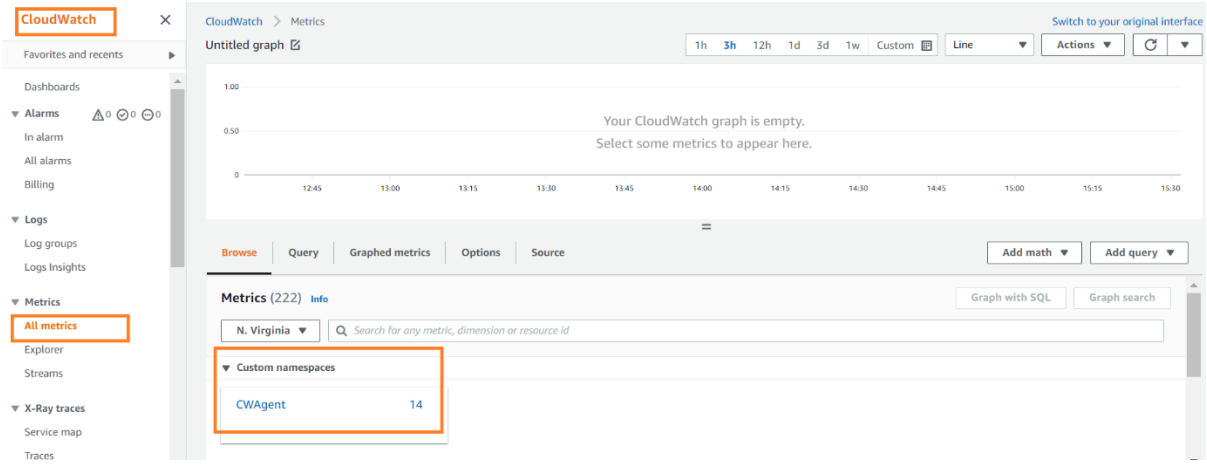
```
Do you want to monitor any customized log files?
1. yes
2. no
default choice: [1]:

Log file path:
C:\inetpub\logs\LogFiles\W3SVC1\*.log
Log group name:
default choice: [*.log]
IISLogs
Log stream name:
default choice: [{instance_id}]

Log Group Retention in days
1. -1
2. 1
3. 3
4. 5
5. 7
6. 14
7. 30
8. 60
9. 90
10. 120
11. 150
12. 180
13. 365
14. 400
15. 545
16. 731
17. 1827
18. 3653
default choice: [1]:
5
Do you want to specify any additional log files to monitor?
1. yes
2. no
default choice: [1]:
2
```

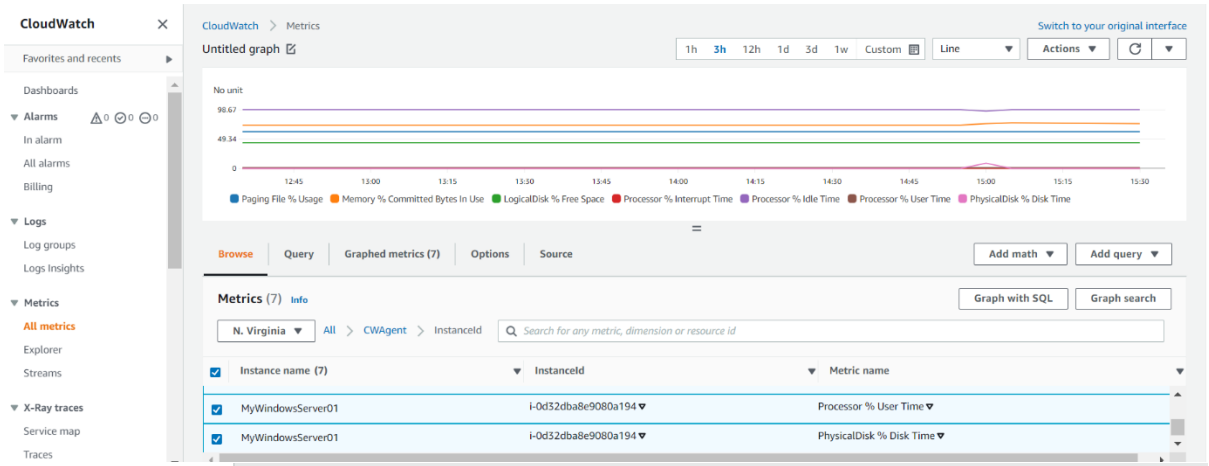
```
Do you want to monitor any Windows event log?
1. yes
2. no
default choice: [1]:
2
```

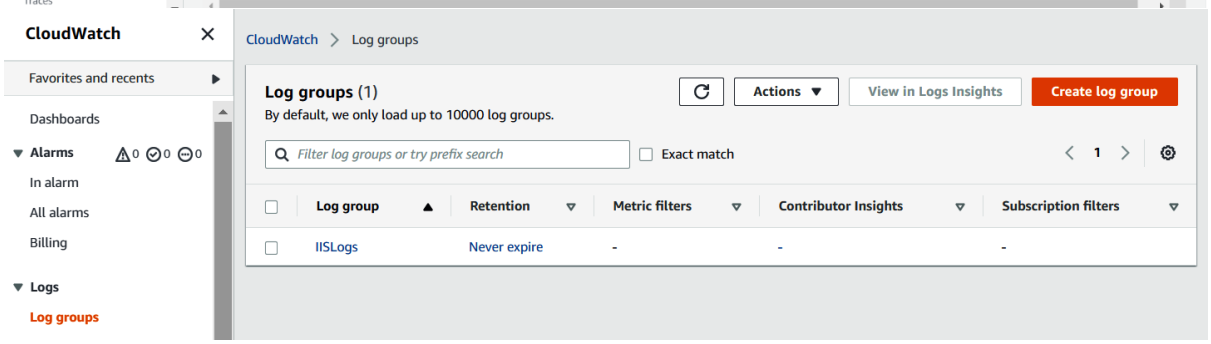
```
The config file is also located at config.json.
Edit it manually if needed.
Do you want to store the config in the SSM parameter store?
1. yes
2. no
default choice: [1]:

What parameter store name do you want to use to store your config? (Use 'AmazonCloudWatch-' prefix if you use our managed AWS policy)
default choice: [AmazonCloudWatch-windows]

Trying to fetch the default region based on ec2 metadata...
Which region do you want to store the config in the parameter store?
default choice: [us-east-1]

Which AWS credential should be used to send json config to parameter store?
1. ASIA4KKGU3LFQLUKGA4F(From SDK)
2. Other
default choice: [1]:

Successfully put config to parameter store AmazonCloudWatch-windows.
Please press Enter to exit...
```

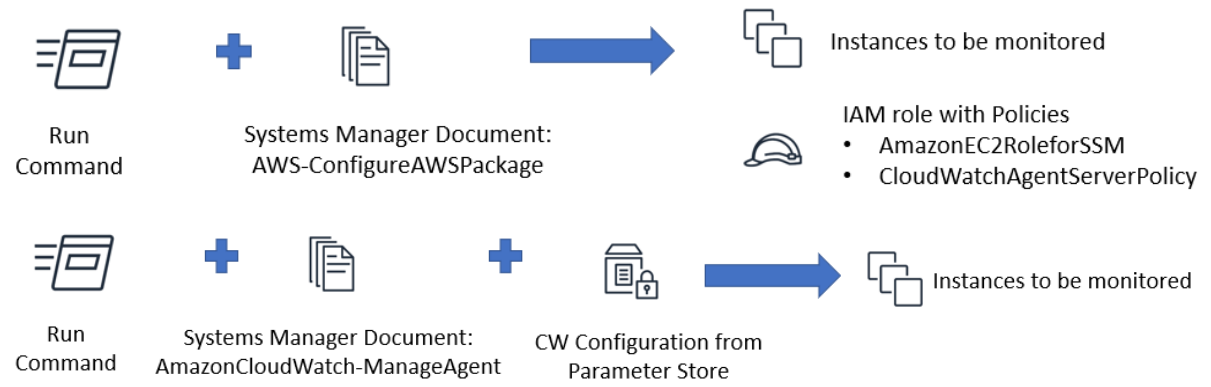
```
PS C:\Users\Administrator> & $env:ProgramFiles\Amazon\AmazonCloudWatchAgent\amazon-cloudwatch-agent-ctl.ps1 -a fetch-config -m ec2 -c file:$env:ProgramFiles\Amazon\AmazonCloudWatchAgent\con
fig.json -s
****** processing amazon-cloudwatch-agent ******
Successfully fetched the config and saved in C:\ProgramData\Amazon\AmazonCloudWatchAgent\Configs\file_config.json.tmp
Start configuration validation...
2022/05/20 21:27:16 Reading json config file path: C:\ProgramData\Amazon\AmazonCloudWatchAgent\Configs\file_config.json.tmp ...
Valid Json input schema.
No csm configuration found.
No windows event log configuration found.
Configuration validation first phase succeeded
Configuration validation second phase succeeded
Configuration validation succeeded
AmazonCloudWatchAgent has been stopped
AmazonCloudWatchAgent has been started
PS C:\Users\Administrator>
```

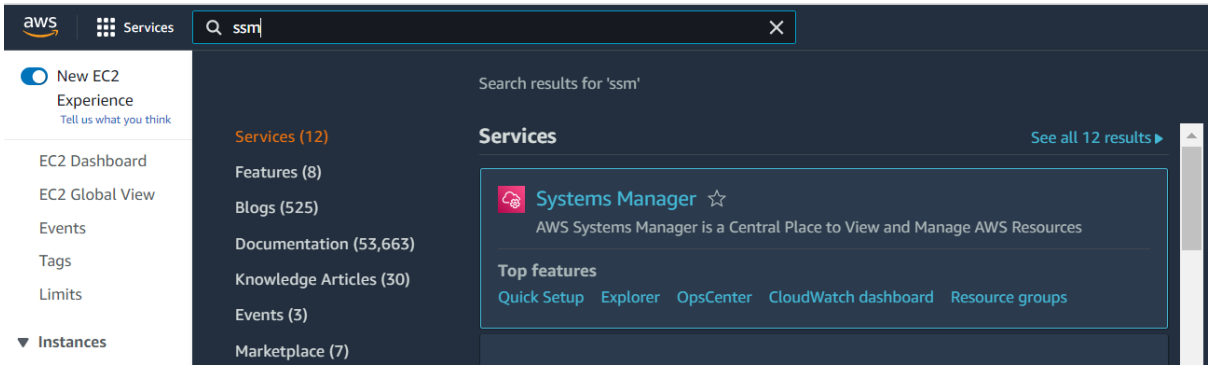


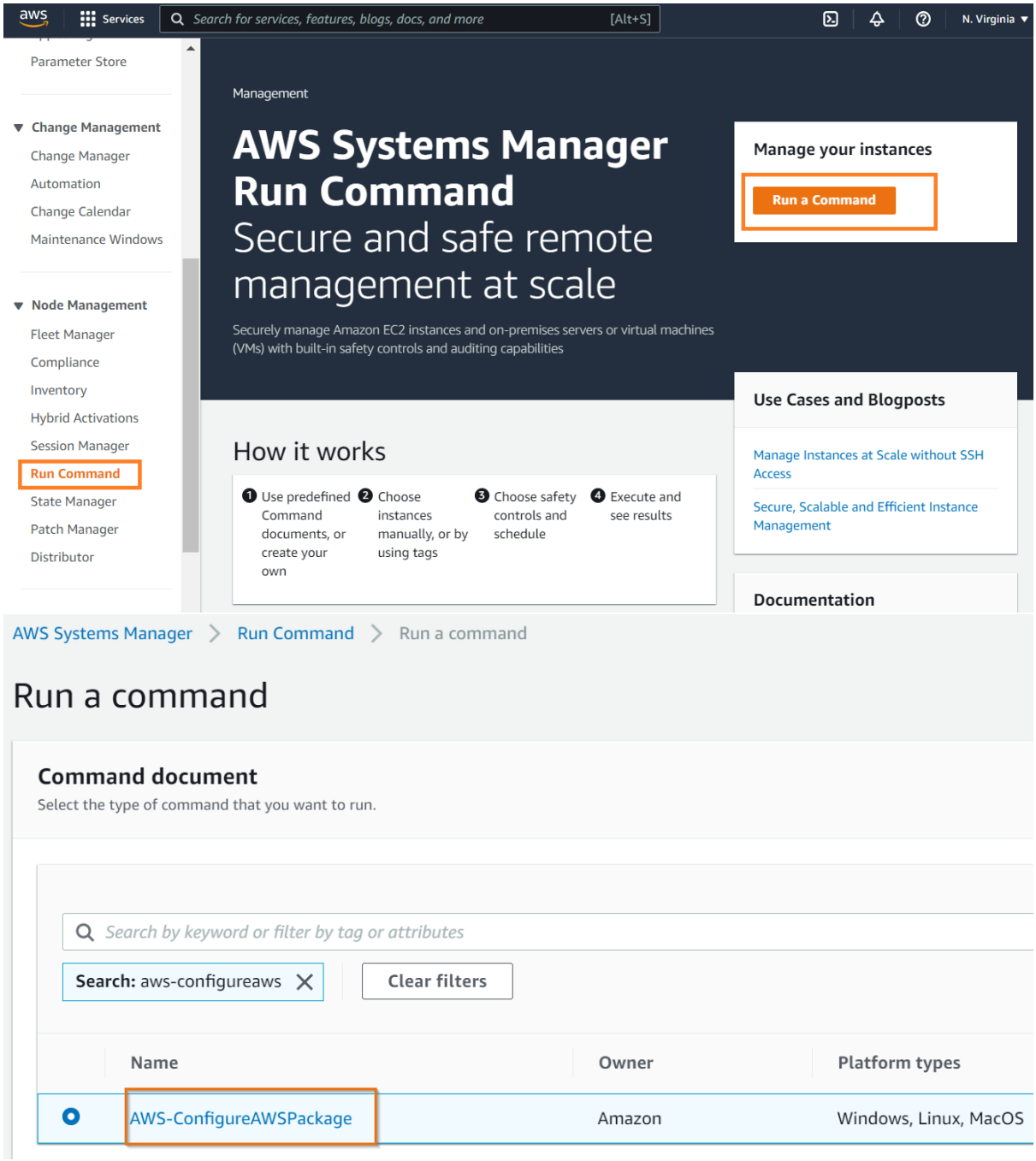



CloudWatch
Favorites and recents
Dashboards
Alarms
In alarm
All alarms
Billing
Logs
Log groups
Logs Insights
Metrics
All metrics
Explorer
Streams
X-Ray traces
Service map
Traces
CloudWatch > Metrics
Switch to your original interface
Untitled graph
1h 3h 12h 1d 3d 1w Custom
Line
Actions
No unit
98.67
49.34
0
12:45 13:00 13:15 13:30 13:45 14:00 14:15 14:30 14:45 15:00 15:15 15:30
Paging File % Usage
Memory % Committed Bytes In Use
LogicalDisk % Free Space
Processor % Interrupt Time
Processor % Idle Time
Processor % User Time
PhysicalDisk % Disk Time
Browse
Query
Graphed metrics (7)
Options
Source
Add math
Add query
Metrics (7) Info
Graph with SQL
Graph search
N. Virginia
All > CWAgent > InstanceId
Search for any metric, dimension or resource id
Instance name (7)
InstanceId
Metric name
MyWindowsServer01
i-0d32dba8e9080a194
Processor % User Time
MyWindowsServer01
i-0d32dba8e9080a194
PhysicalDisk % Disk Time


CloudWatch
Favorites and recents
Dashboards
Alarms
In alarm
All alarms
Billing
Logs
Log groups
CloudWatch > Log groups
Log groups (1)
By default, we only load up to 10000 log groups.
Actions
View in Logs Insights
Create log group
Filter log groups or try prefix search
Exact match
1
Log group
Retention
Metric filters
Contributor Insights
Subscription filters
IISLogs
Never expire
-
-
-


Run Command
Systems Manager Document: AWS-ConfigureAWSPackage
Instances to be monitored
IAM role with Policies
• AmazonEC2RoleforSSM
• CloudWatchAgentServerPolicy
Run Command
Systems Manager Document: AmazonCloudWatch-ManageAgent
CW Configuration from Parameter Store
Instances to be monitored


aws
Services
ssm
New EC2 Experience
Tell us what you think
EC2 Dashboard
EC2 Global View
Events
Tags
Limits
Instances
Search results for 'ssm'
Services (12)
Features (8)
Blogs (525)
Documentation (53,663)
Knowledge Articles (30)
Events (3)
Marketplace (7)
Services
See all 12 results
Systems Manager
AWS Systems Manager is a Central Place to View and Manage AWS Resources
Top features
Quick Setup
Explorer
OpsCenter
CloudWatch dashboard
Resource groups


aws
Services
Search for services, features, blogs, docs, and more
[Alt+S]
N. Virginia
Parameter Store
Change Management
Change Manager
Automation
Change Calendar
Maintenance Windows
Node Management
Fleet Manager
Compliance
Inventory
Hybrid Activations
Session Manager
Run Command
State Manager
Patch Manager
Distributor
Management
AWS Systems Manager
Run Command
Secure and safe remote management at scale
Securely manage Amazon EC2 instances and on-premises servers or virtual machines (VMs) with built-in safety controls and auditing capabilities
Manage your instances
Run a Command
Use Cases and Blogposts
Manage Instances at Scale without SSH Access
Secure, Scalable and Efficient Instance Management
Documentation
How it works
1 Use predefined Command documents, or create your own
2 Choose instances manually, or by using tags
3 Choose safety controls and schedule
4 Execute and see results

AWS Systems Manager > Run Command > Run a command
Run a command
Command document
Select the type of command that you want to run.
Search by keyword or filter by tag or attributes
Search: aws-configureaws
Clear filters
Name
Owner
Platform types
AWS-ConfigureAWSPackage
Amazon
Windows, Linux, MacOS

Command parameters

Action
(Required) Specify whether or not to install or uninstall the package.

Install

Installation Type
(Optional) Specify the type of installation. Uninstall and reinstall: The application is taken offline until the reinstallation process completes. In-place update: The application is available installation.

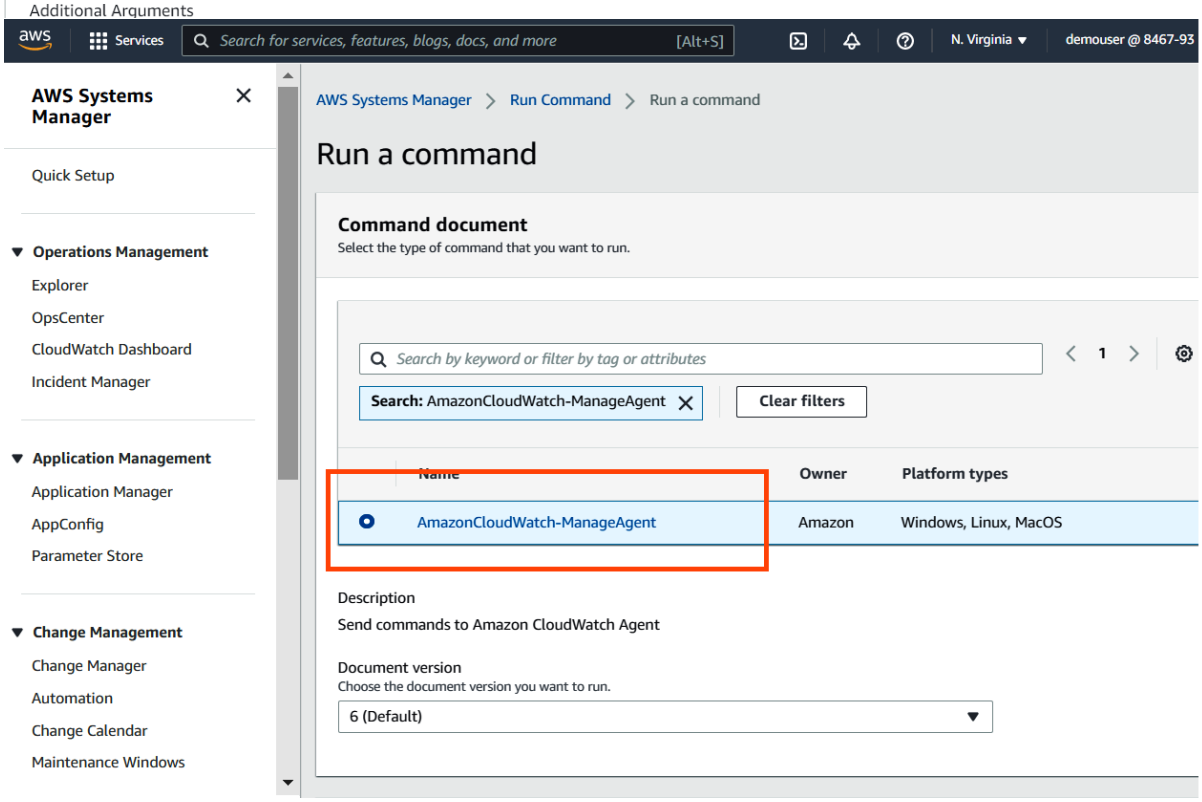
Uninstall and reinstall

Name
(Required) The package to install/uninstall.

AmazonCloudWatchAgent

Version
(Optional) The version of the package to install or uninstall. If you don't specify a version, the system installs the latest published version by default. The system will only attempt to uni
If no version of the package is installed, the system returns an error.

Additional Arguments



Command parameters

Action
The action CloudWatch Agent should take.
configure

Mode
Controls platform-specific default behavior such as whether to include EC2 Metadata in metrics.
ec2

Optional Configuration Source
Only for 'configure' related actions. Use 'ssm' to apply a ssm parameter as config. Use 'default' to apply default config for amazon-cloudwatch-agent. Use 'all' with 'configure (remove)' to clean all configs for amazon-cloudwatch-a
ssm

Optional Configuration Location
Only for 'configure' related actions. Only needed when Optional Configuration Source is set to 'ssm'. The value should be a ssm parameter name.
AmazonCloudWatch-windows

Optional Open Telemetry Collector Configuration Source
Only for 'configure' related actions. Use 'ssm' to apply a ssm parameter as config. Use 'default' to apply default config for amazon-cloudwatch-agent. Use 'all' with 'configure (remove)' to clean all configs for amazon-cloudwatch-a not support MacOS instance.
ssm

Optional Open Telemetry Collector Configuration Location
Only for 'configure' related actions. Only needed when Optional Configuration Source is set to 'ssm'. The value should be a ssm parameter name. It does not support MacOS instance.

Optional Restart
Only for 'configure' related actions. If 'yes', restarts the agent to use the new configuration. Otherwise the new config will only apply on the next agent restart.
yes

Targets

Targets
Choose a method for selecting targets.

- Specify instance tags — Specify one or more tag key-value pairs to select instances that share those tags.
- Choose instances manually — Manually select the instances you want to register as targets.
- Choose a resource group — Choose a resource group that includes the resources you want to target.

i-02972249758f392ba

Instances

Node ID	Source type	Source ID	Name	Ping status	Node state	Availability zone
i-02972249758f392ba	AWS::EC2::Instance	i-02972249758f392ba	MyWebServer01	Online	running	us-east-1d

AWS Systems Manager > Run Command > Command ID: 54f3eaf2-534a-4739-86e0-72b7bf46b110

Command ID: 54f3eaf2-534a-4739-86e0-72b7bf46b110

Cancel command | Rerun | Copy to new

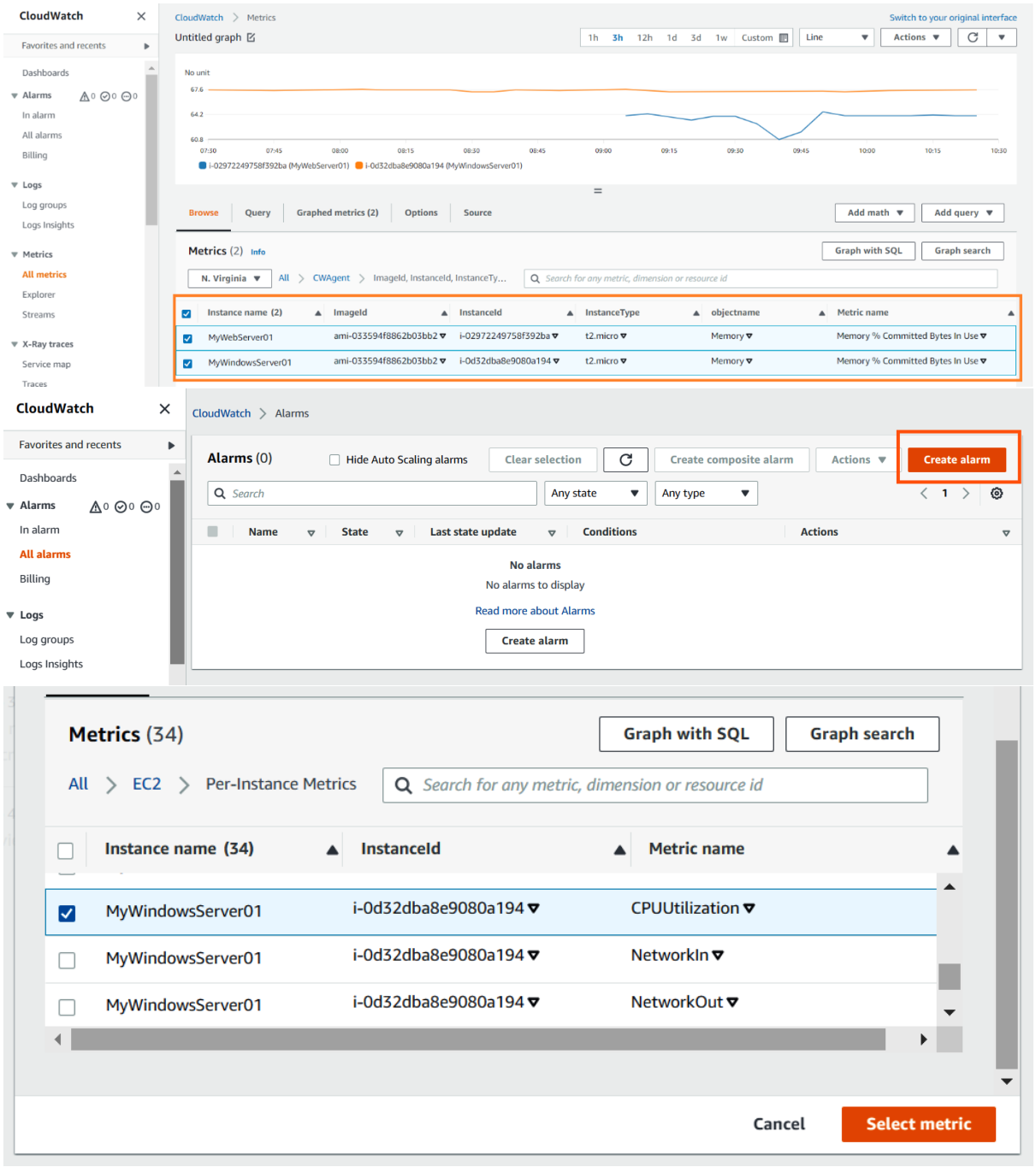
Command status

Overall status	Detailed status	# targets	# completed	# error	# delivery timed out
Success	Success	1	1	0	0

Targets and outputs

View output

Instance ID	Instance name	Status	Detailed Status	Start time	Finish time
i-02972249758f392ba	EC2AMAZ-9J5RQJ8.WORKGROUP	Success	Success	Sun, 22 May 2022 08:58:10 GMT	Sun, 22 May 2022 08:58:14 GMT


CloudWatch
Favorites and recents
Dashboards
Alarms
In alarm
All alarms
Billing
Logs
Log groups
Logs Insights
Metrics
All metrics
Explorer
Streams
X-Ray traces
Service map
Traces
CloudWatch > Metrics
Switch to your original interface
Untitled graph
1h 3h 12h 1d 3d 1w Custom
Line
Actions
No unit
67.6
64.2
60.8
07:30 07:45 08:00 08:15 08:30 08:45 09:00 09:15 09:30 09:45 10:00 10:15 10:30
i-02972249758f392ba (MyWebServer01)
i-0d32dba8e9080a194 (MyWindowsServer01)
Browse
Query
Graphed metrics (2)
Options
Source
Add math
Add query
Metrics (2) Info
Graph with SQL
Graph search
N. Virginia
All > CWAgent > ImageId, InstanceId, InstanceTy...
Search for any metric, dimension or resource id
Instance name (2)
ImageId
InstanceId
InstanceType
objectname
Metric name
MyWebServer01
ami-033594f8862b03bb2
i-02972249758f392ba
t2.micro
Memory
Memory % Committed Bytes In Use
MyWindowsServer01
ami-033594f8862b03bb2
i-0d32dba8e9080a194
t2.micro
Memory
Memory % Committed Bytes In Use
CloudWatch
Favorites and recents
Dashboards
Alarms
In alarm
All alarms
Billing
Logs
Log groups
Logs Insights
CloudWatch > Alarms
Alarms (0)
Hide Auto Scaling alarms
Clear selection
Create composite alarm
Actions
Create alarm
Search
Any state
Any type
1
Name
State
Last state update
Conditions
Actions
No alarms
No alarms to display
Read more about Alarms
Create alarm
Metrics (34)
Graph with SQL
Graph search
All > EC2 > Per-Instance Metrics
Search for any metric, dimension or resource id
Instance name (34)
InstanceId
Metric name
MyWindowsServer01
i-0d32dba8e9080a194
CPUUtilization
MyWindowsServer01
i-0d32dba8e9080a194
NetworkIn
MyWindowsServer01
i-0d32dba8e9080a194
NetworkOut
Cancel
Select metric

Threshold type

(●) Static
Use a value as a threshold

( ) Anomaly detection
Use a band as a threshold

Whenever CPUUtilization is...
Define the alarm condition.

(●) Greater
> threshold

( ) Greater/Equal
>= threshold

( ) Lower/Equal
<= threshold

( ) Lower
< threshold

than...
Define the threshold value.

70

Must be a number

▶ **Additional configuration**

Cancel **Next**

CloudWatch > Alarms > Create alarm

Step 1
Specify metric and conditions

Step 2
Configure actions

Step 3
Add name and description

Step 4
Preview and create

Configure actions

Notification

Alarm state trigger
Define the alarm state that will trigger this action.

Remove

(●) In alarm
The metric or expression is outside of the defined threshold.

( ) OK
The metric or expression is within the defined threshold.

( ) Insufficient data
The alarm has just started or not enough data is available.

Send a notification to the following SNS topic
Define the SNS (Simple Notification Service) topic that will receive the notification.

( ) Select an existing SNS topic
(●) Create new topic
( ) Use topic ARN to notify other accounts

Create a new topic...
The topic name must be unique.

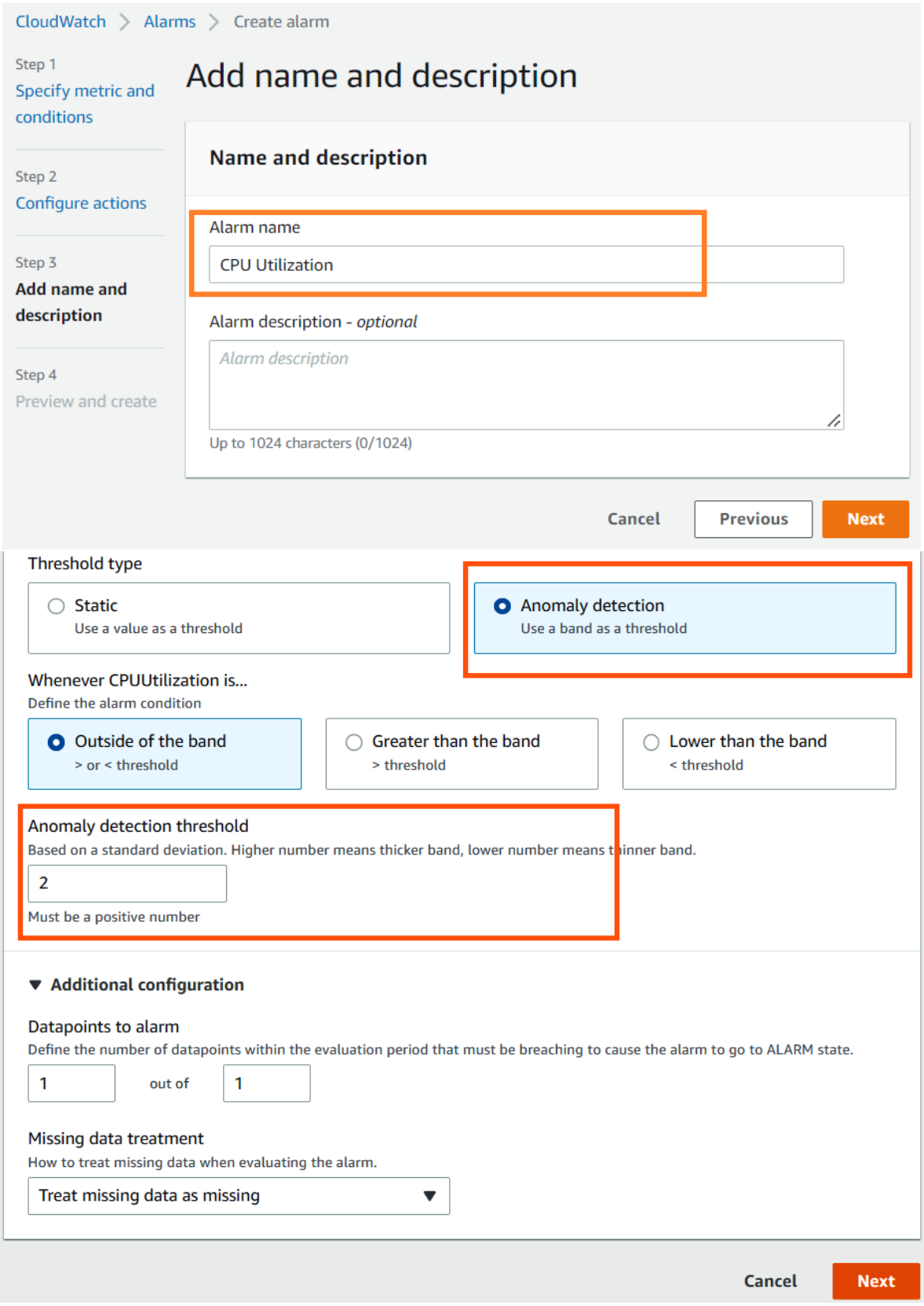
Default_CloudWatch_Alarms_Topic

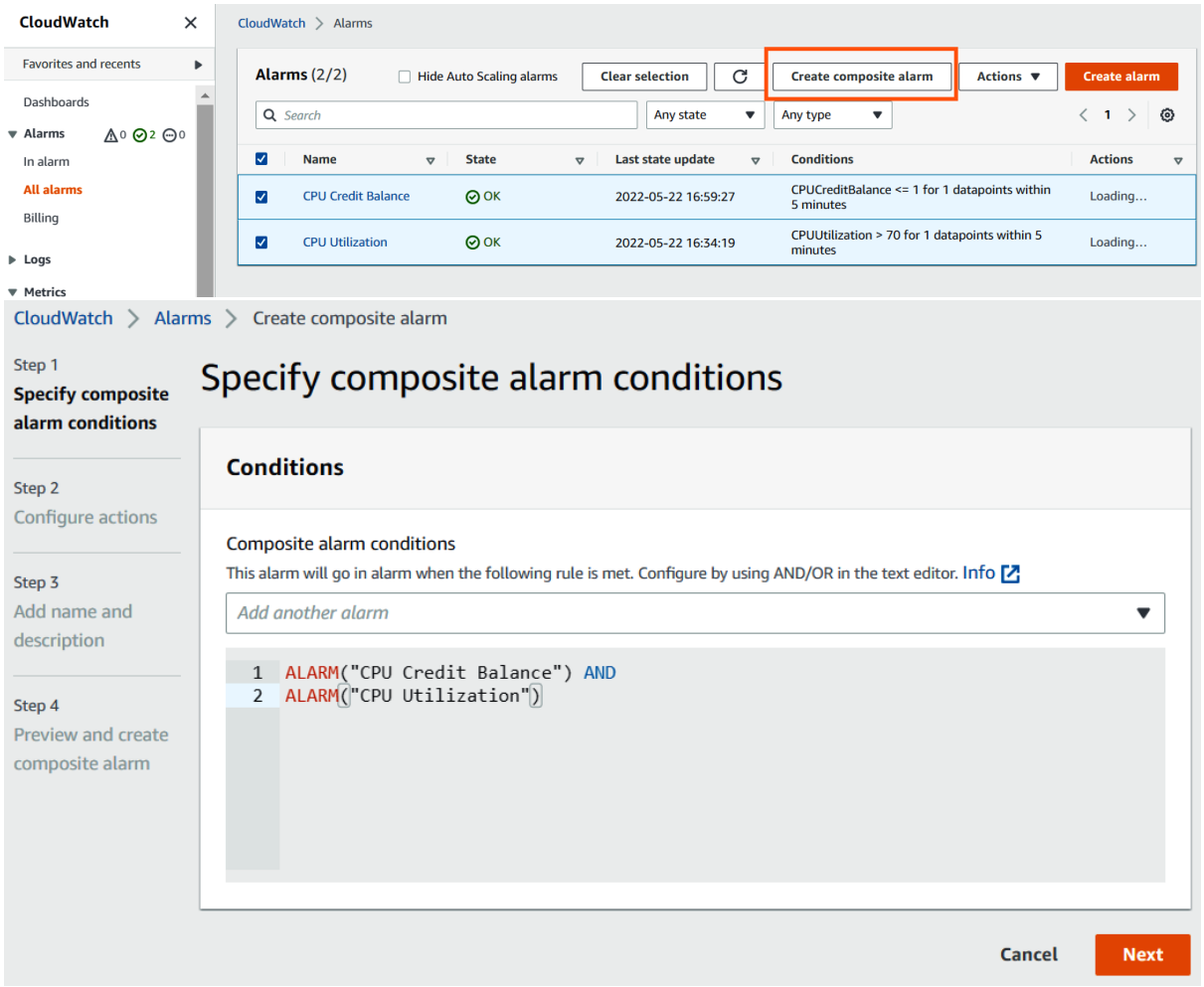
SNS topic names can contain only alphanumeric characters, hyphens (-) and underscores (_).

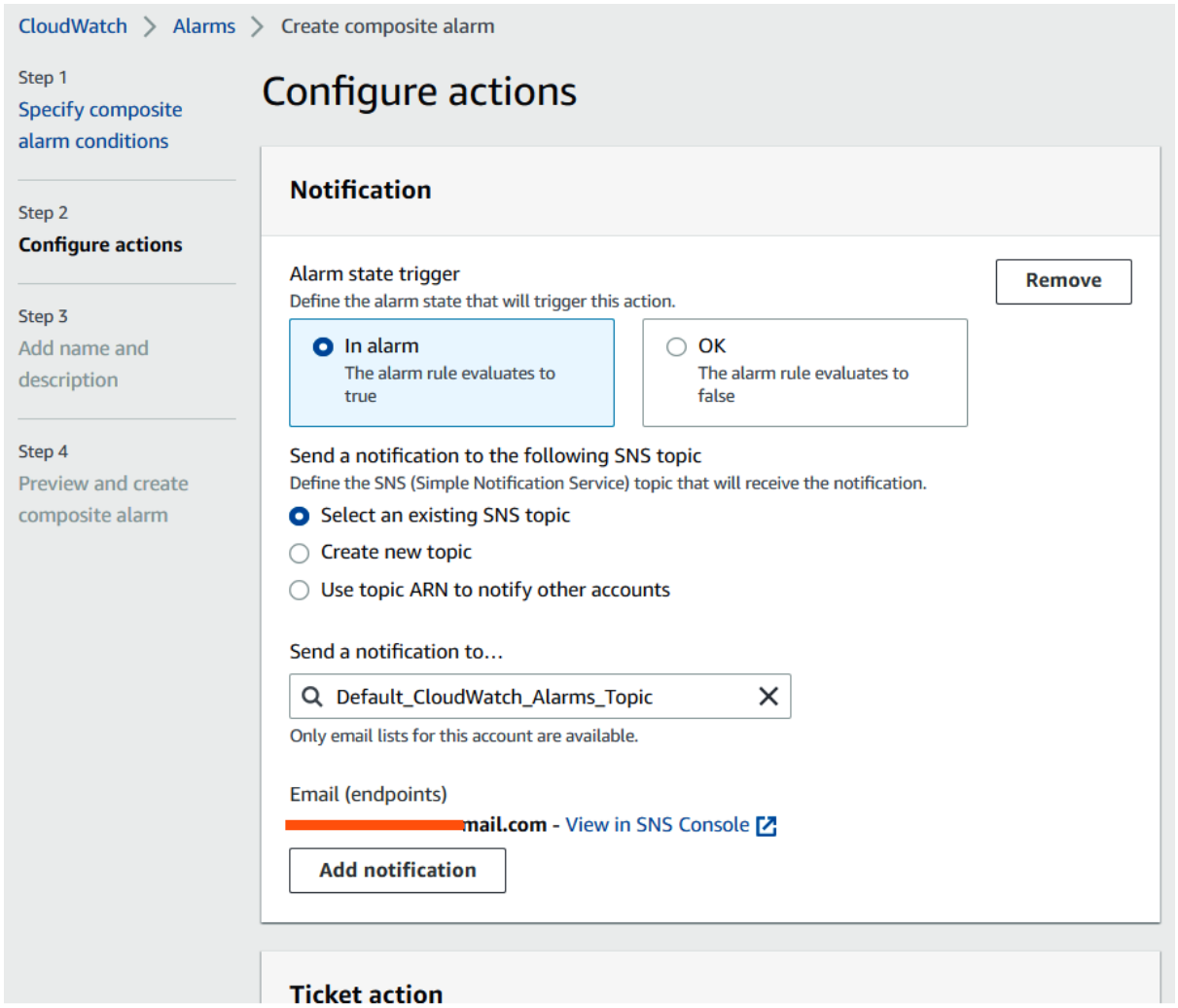
Email endpoints that will receive the notification...
Add a comma-separated list of email addresses. Each address will be added as a subscription to the topic above.

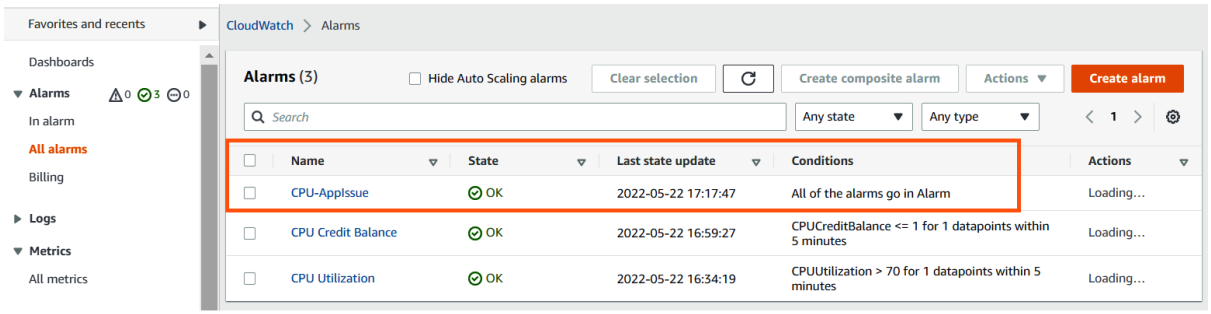
[redacted]ail.com

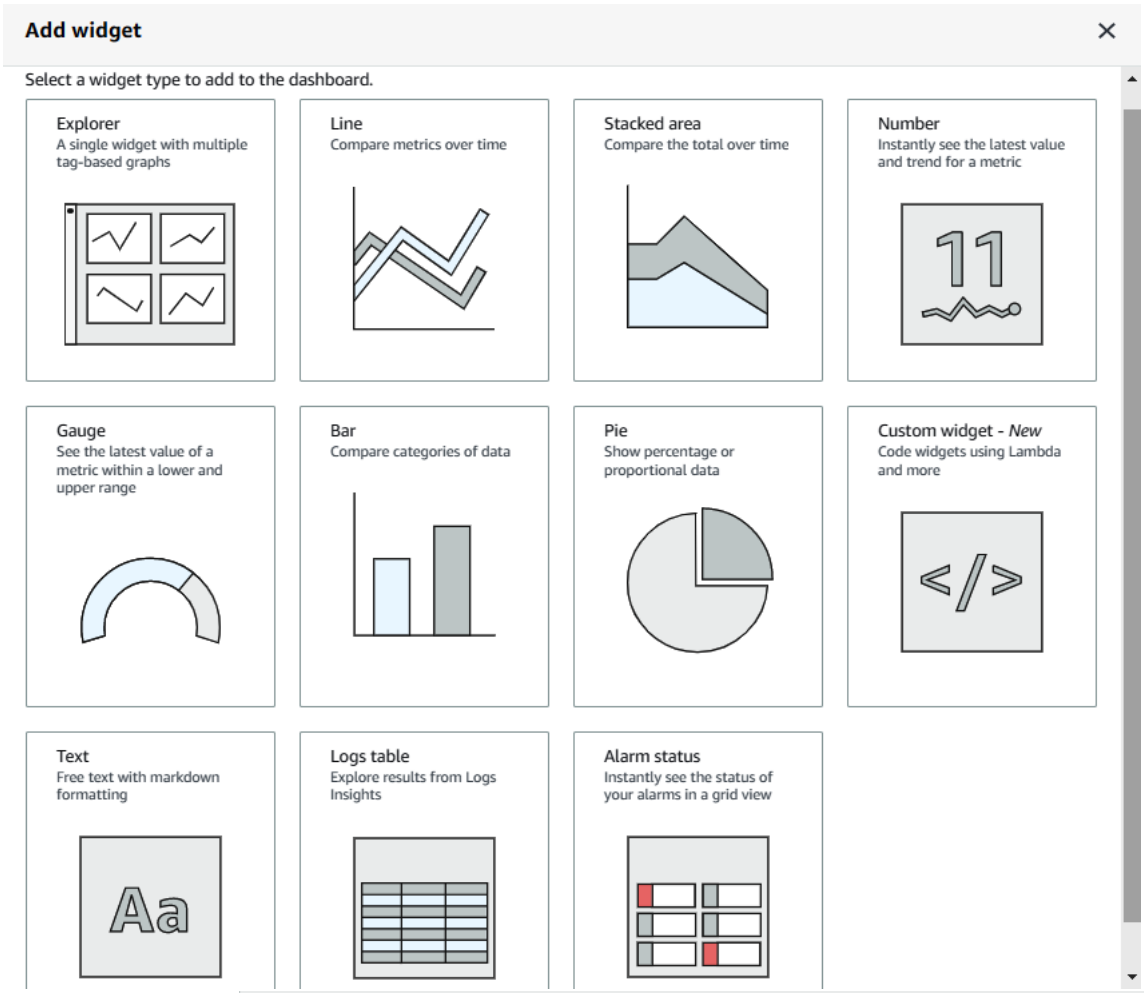
user1@example.com, user2@example.com

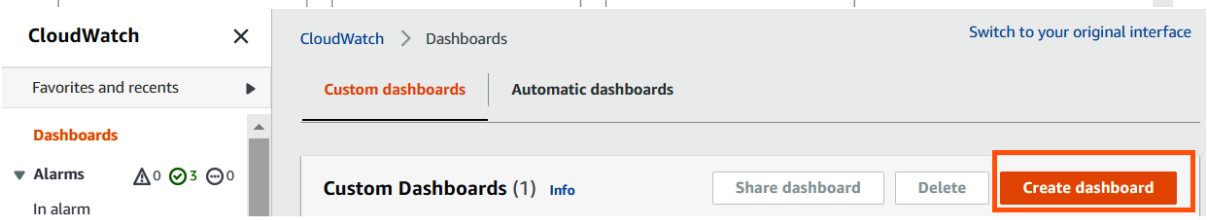

CloudWatch > Alarms > Create alarm
Step 1
Specify metric and conditions
Step 2
Configure actions
Step 3
Add name and description
Step 4
Preview and create
Add name and description
Name and description
Alarm name
CPU Utilization
Alarm description - optional
Alarm description
Up to 1024 characters (0/1024)
Cancel
Previous
Next
Threshold type
Static
Use a value as a threshold
Anomaly detection
Use a band as a threshold
Whenever CPUUtilization is...
Define the alarm condition
Outside of the band
> or < threshold
Greater than the band
> threshold
Lower than the band
< threshold
Anomaly detection threshold
Based on a standard deviation. Higher number means thicker band, lower number means thinner band.
2
Must be a positive number
Additional configuration
Datapoints to alarm
Define the number of datapoints within the evaluation period that must be breaching to cause the alarm to go to ALARM state.
1
out of
1
Missing data treatment
How to treat missing data when evaluating the alarm.
Treat missing data as missing
Cancel
Next

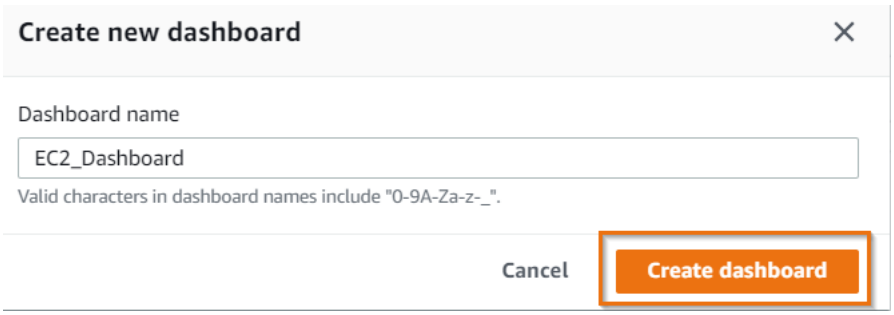

CloudWatch
Favorites and recents
Dashboards
Alarms 0 2 0
In alarm
All alarms
Billing
Logs
Metrics
CloudWatch > Alarms
Alarms (2/2)
Hide Auto Scaling alarms
Clear selection
Create composite alarm
Actions
Create alarm
Search
Any state
Any type
1
Name
State
Last state update
Conditions
Actions
CPU Credit Balance
OK
2022-05-22 16:59:27
CPUCreditBalance <= 1 for 1 datapoints within 5 minutes
Loading...
CPU Utilization
OK
2022-05-22 16:34:19
CPUUtilization > 70 for 1 datapoints within 5 minutes
Loading...
CloudWatch > Alarms > Create composite alarm
Step 1
Specify composite alarm conditions
Step 2
Configure actions
Step 3
Add name and description
Step 4
Preview and create composite alarm
Specify composite alarm conditions
Conditions
Composite alarm conditions
This alarm will go in alarm when the following rule is met. Configure by using AND/OR in the text editor. Info
Add another alarm
1 ALARM("CPU Credit Balance") AND
2 ALARM("CPU Utilization")
Cancel
Next


CloudWatch > Alarms > Create composite alarm
Step 1
Specify composite alarm conditions
Step 2
Configure actions
Step 3
Add name and description
Step 4
Preview and create composite alarm
Configure actions
Notification
Alarm state trigger
Define the alarm state that will trigger this action.
Remove
In alarm
The alarm rule evaluates to true
OK
The alarm rule evaluates to false
Send a notification to the following SNS topic
Define the SNS (Simple Notification Service) topic that will receive the notification.
Select an existing SNS topic
Create new topic
Use topic ARN to notify other accounts
Send a notification to...
Default_CloudWatch_Alarms_Topic
Only email lists for this account are available.
Email (endpoints)
mail.com - View in SNS Console
Add notification
Ticket action

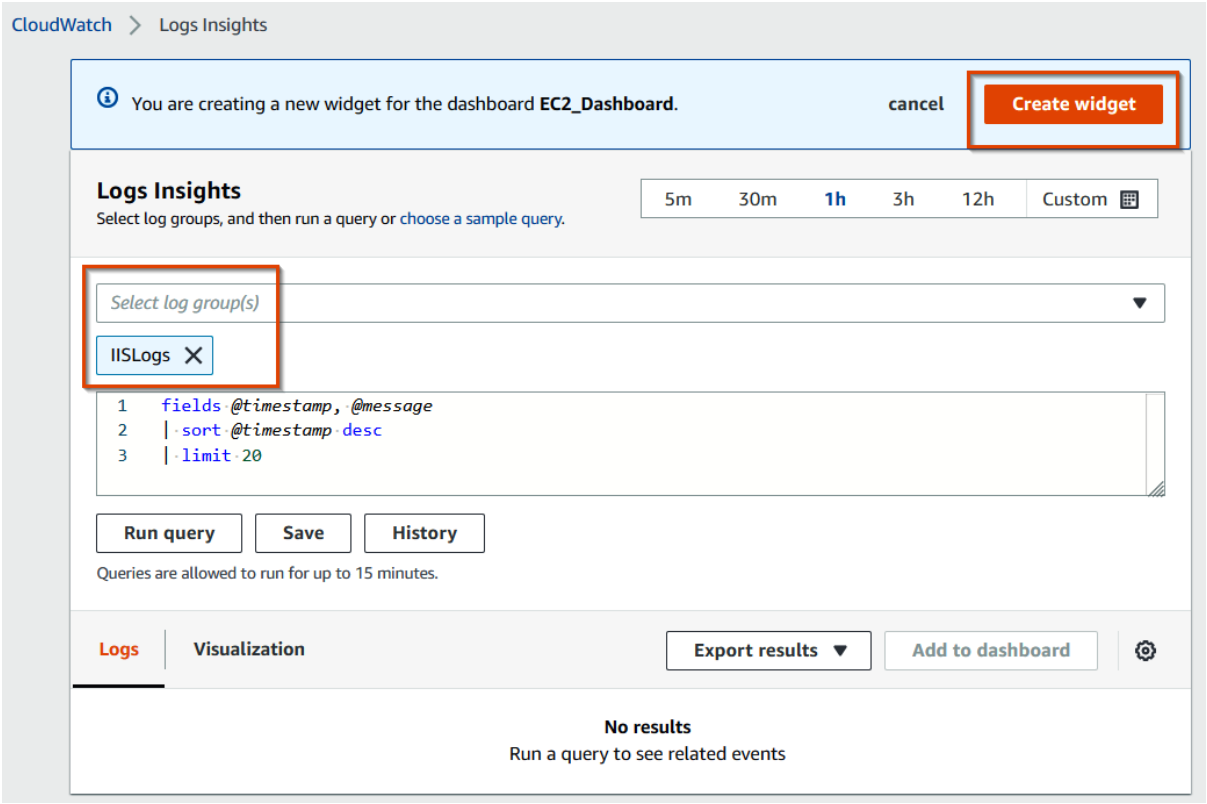

Favorites and recents
Dashboards
Alarms
In alarm
All alarms
Billing
Logs
Metrics
All metrics
CloudWatch > Alarms
Alarms (3)
Hide Auto Scaling alarms
Clear selection
Create composite alarm
Actions
Create alarm
Search
Any state
Any type
Name
State
Last state update
Conditions
Actions
CPU-AppIssue
OK
2022-05-22 17:17:47
All of the alarms go in Alarm
Loading...
CPU Credit Balance
OK
2022-05-22 16:59:27
CPUCreditBalance <= 1 for 1 datapoints within 5 minutes
Loading...
CPU Utilization
OK
2022-05-22 16:34:19
CPUUtilization > 70 for 1 datapoints within 5 minutes
Loading...

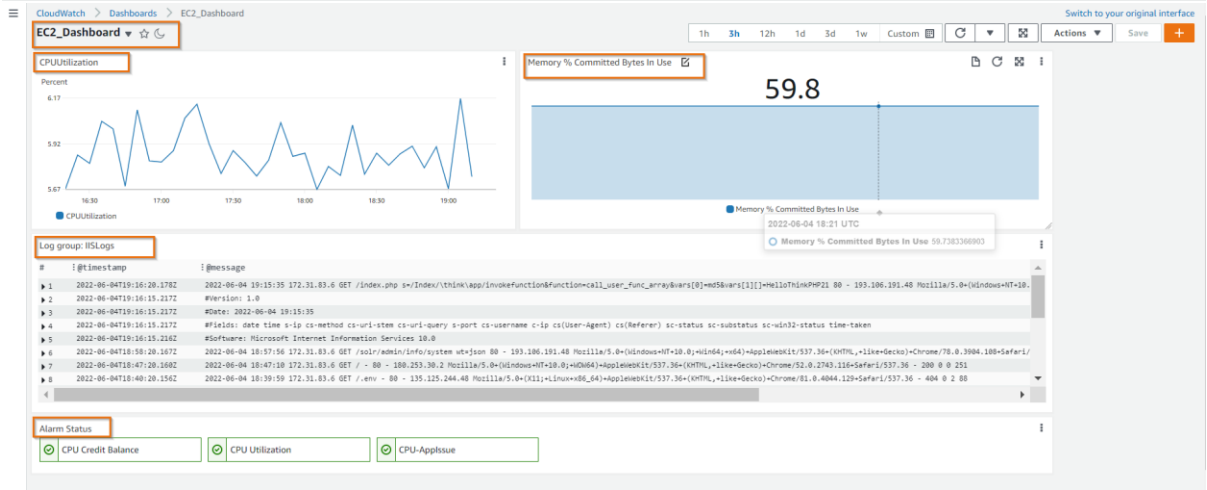

Add widget
Select a widget type to add to the dashboard.
Explorer
A single widget with multiple tag-based graphs
Line
Compare metrics over time
Stacked area
Compare the total over time
Number
Instantly see the latest value and trend for a metric
11
Gauge
See the latest value of a metric within a lower and upper range
Bar
Compare categories of data
Pie
Show percentage or proportional data
Custom widget - New
Code widgets using Lambda and more
</>
Text
Free text with markdown formatting
Aa
Logs table
Explore results from Logs Insights
Alarm status
Instantly see the status of your alarms in a grid view

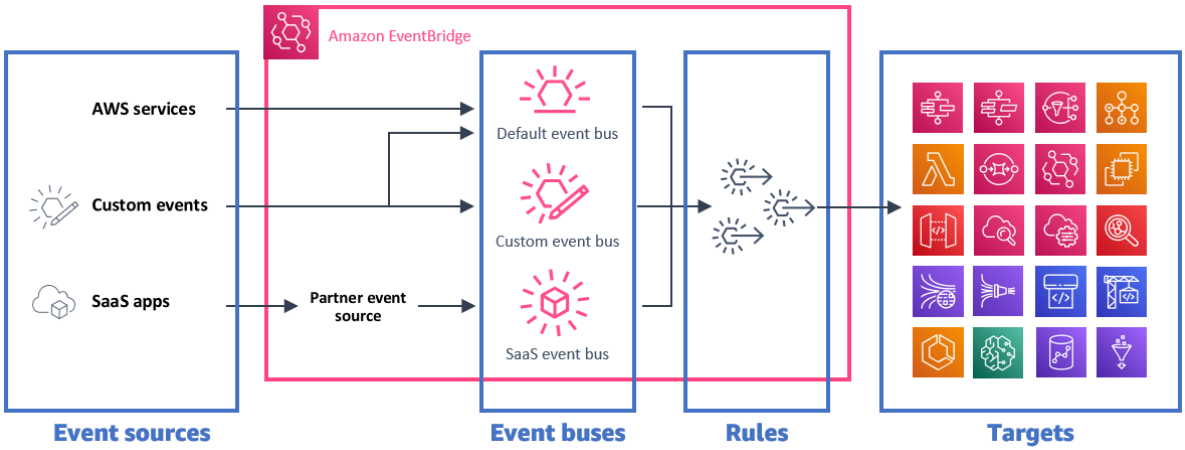

CloudWatch
Favorites and recents
Dashboards
Alarms
0
3
0
In alarm
CloudWatch > Dashboards
Switch to your original interface
Custom dashboards
Automatic dashboards
Custom Dashboards (1) Info
Share dashboard
Delete
Create dashboard

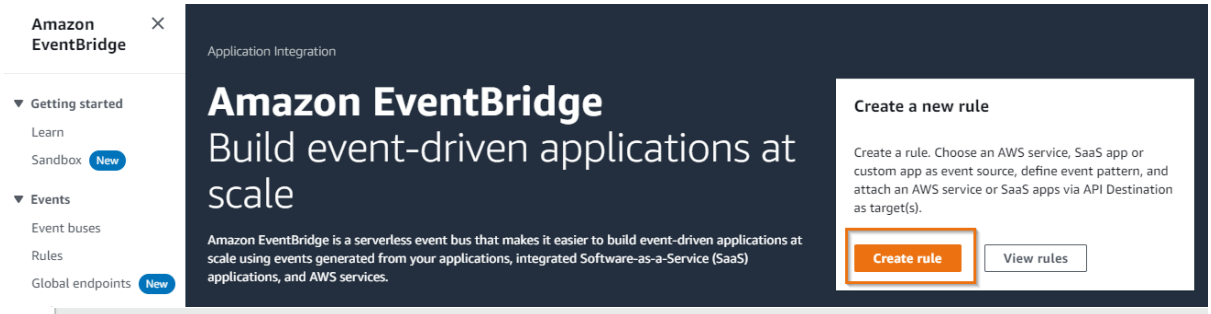

Create new dashboard
Dashboard name
EC2_Dashboard
Valid characters in dashboard names include "0-9A-Za-z-_".
Cancel
Create dashboard

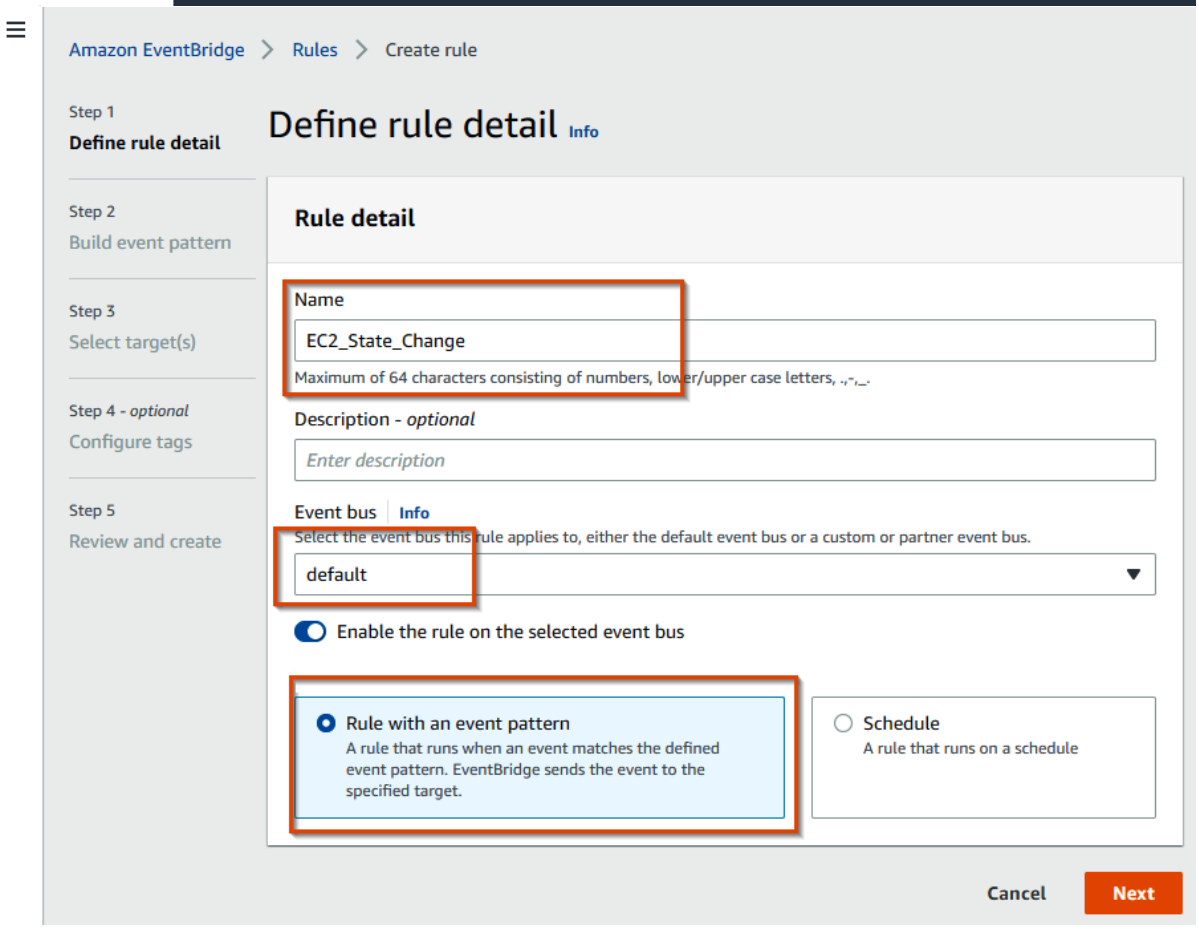

CloudWatch > Dashboards > EC2_Dashboard
Switch to your original interface
EC2_Dashboard
1h 3h 12h 1d 3d 1w Custom
Actions
Save
CPUUtilization
Percent
6.17
5.92
5.67
17:00
18:00
19:00
CPUUtilization


CloudWatch > Logs Insights
You are creating a new widget for the dashboard EC2_Dashboard.
cancel
Create widget
Logs Insights
Select log groups, and then run a query or choose a sample query.
5m 30m 1h 3h 12h Custom
Select log group(s)
IISLogs
1 fields @timestamp, @message
2 | sort @timestamp desc
3 | limit 20
Run query
Save
History
Queries are allowed to run for up to 15 minutes.
Logs
Visualization
Export results
Add to dashboard
No results
Run a query to see related events


CloudWatch > Dashboards > EC2_Dashboard
Switch to your original interface
EC2_Dashboard
CPUUtilization
Memory % Committed Bytes In Use
59.8
Log group: IISLogs
Alarm Status
CPU Credit Balance
CPU Utilization
CPU-AppIssue


Amazon EventBridge
AWS services
Custom events
SaaS apps
Partner event source
Default event bus
Custom event bus
SaaS event bus
Event sources
Event buses
Rules
Targets


Amazon EventBridge
Application Integration
Amazon EventBridge
Build event-driven applications at scale
Amazon EventBridge is a serverless event bus that makes it easier to build event-driven applications at scale using events generated from your applications, integrated Software-as-a-Service (SaaS) applications, and AWS services.
Getting started
Learn
Sandbox
New
Events
Event buses
Rules
Global endpoints
New
Create a new rule
Create a rule. Choose an AWS service, SaaS app or custom app as event source, define event pattern, and attach an AWS service or SaaS apps via API Destination as target(s).
Create rule
View rules


Amazon EventBridge > Rules > Create rule
Step 1
Define rule detail
Step 2
Build event pattern
Step 3
Select target(s)
Step 4 - optional
Configure tags
Step 5
Review and create
Define rule detail Info
Rule detail
Name
EC2_State_Change
Maximum of 64 characters consisting of numbers, lower/upper case letters, .,-,_.
Description - optional
Enter description
Event bus Info
Select the event bus this rule applies to, either the default event bus or a custom or partner event bus.
default
Enable the rule on the selected event bus
Rule with an event pattern
A rule that runs when an event matches the defined event pattern. EventBridge sends the event to the specified target.
Schedule
A rule that runs on a schedule
Cancel
Next

Step 1
Define rule detail

Step 2
Build event pattern

Step 3
Select target(s)

Step 4 - *optional*
Configure tags

Step 5
Review and create

Build event pattern Info

Event source

Event source
Select the event source from which events are sent.

- (•) AWS events or EventBridge partner events
  Events sent from AWS services or EventBridge partners.
- ( ) Other
  Custom events or events sent from more than one source, e.g. events from AWS services and partners.
- ( ) All events
  All events sent to your account.

Sample event - *optional*

You don't have to select or enter a sample event, but it's recommended so you can reference it when writing and testing the event pattern, or filter criteria.

You can reference the sample event when write the event pattern, or use the sample event to test if it matches the event pattern. Find a sample event, enter your own, or edit a sample event below.

Learn more about sample/test event in Test Event Pattern.

(•) AWS events | ( ) EventBridge partner events | ( ) Enter my own

Sample events
Filter by event source and type or by keyword.

Select

```
1
```

Enter the event JSON

Copy

Event pattern Info

Event pattern form | Custom patterns (JSON editor)

Event source
AWS service or EventBridge partner as source

AWS services

AWS service
The name of the AWS service as the event source

EC2

Event type
The type of events as the source of the matching pattern

EC2 Instance State-change Notification

- (•) Any state
- ( ) Specific state(s)

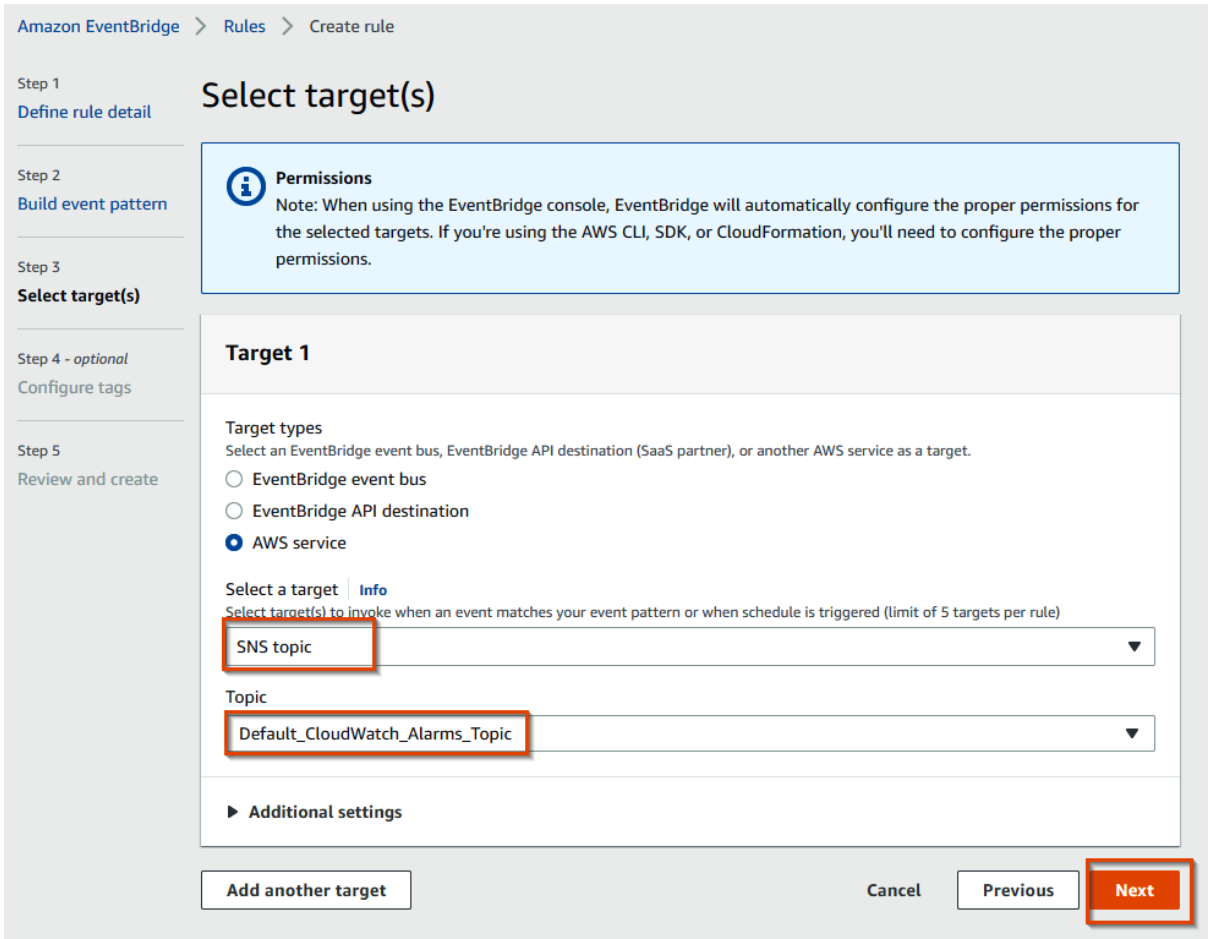
- (•) Any instance
- ( ) Specific instance Id(s)

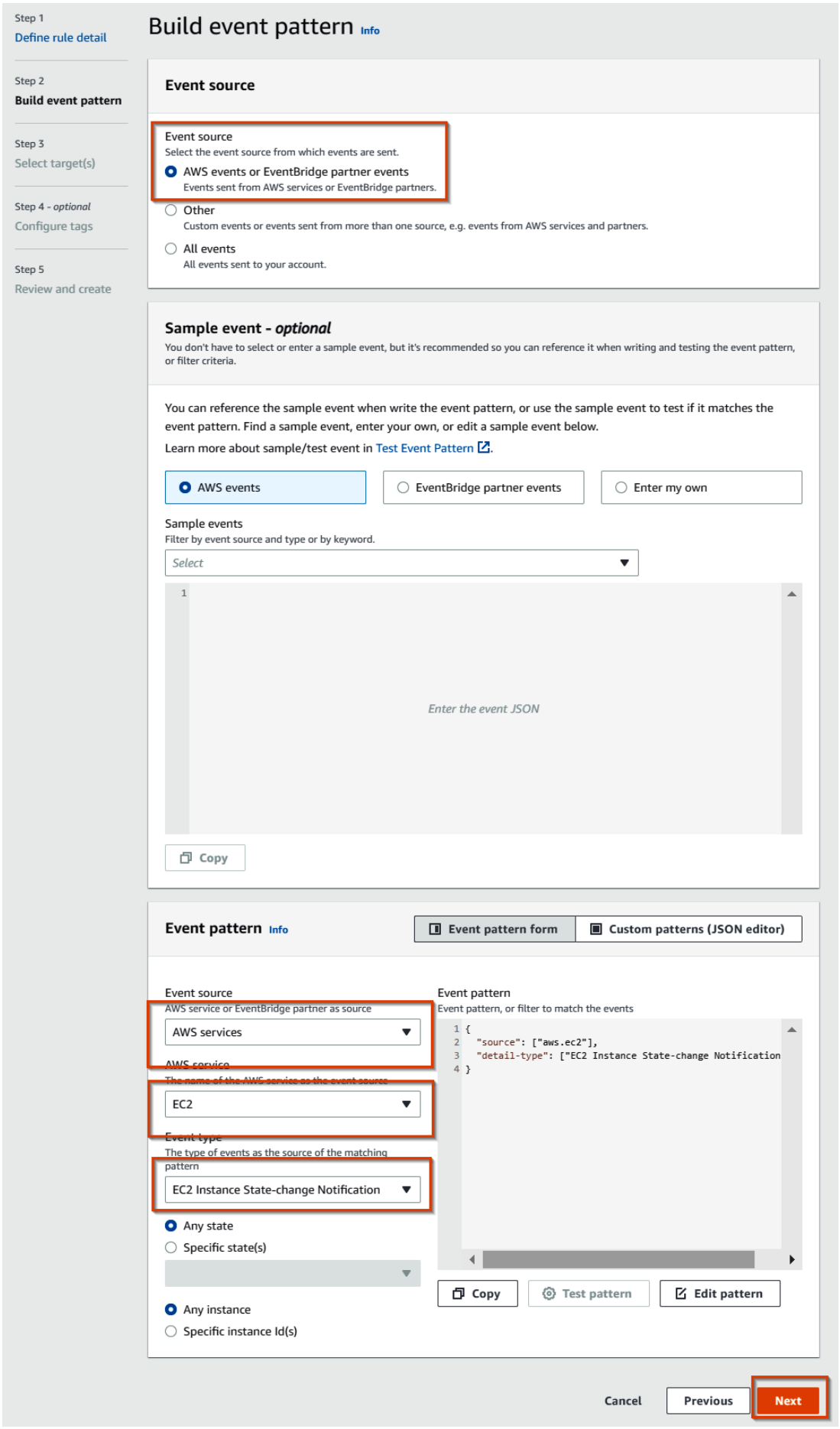
Event pattern
Event pattern, or filter to match the events

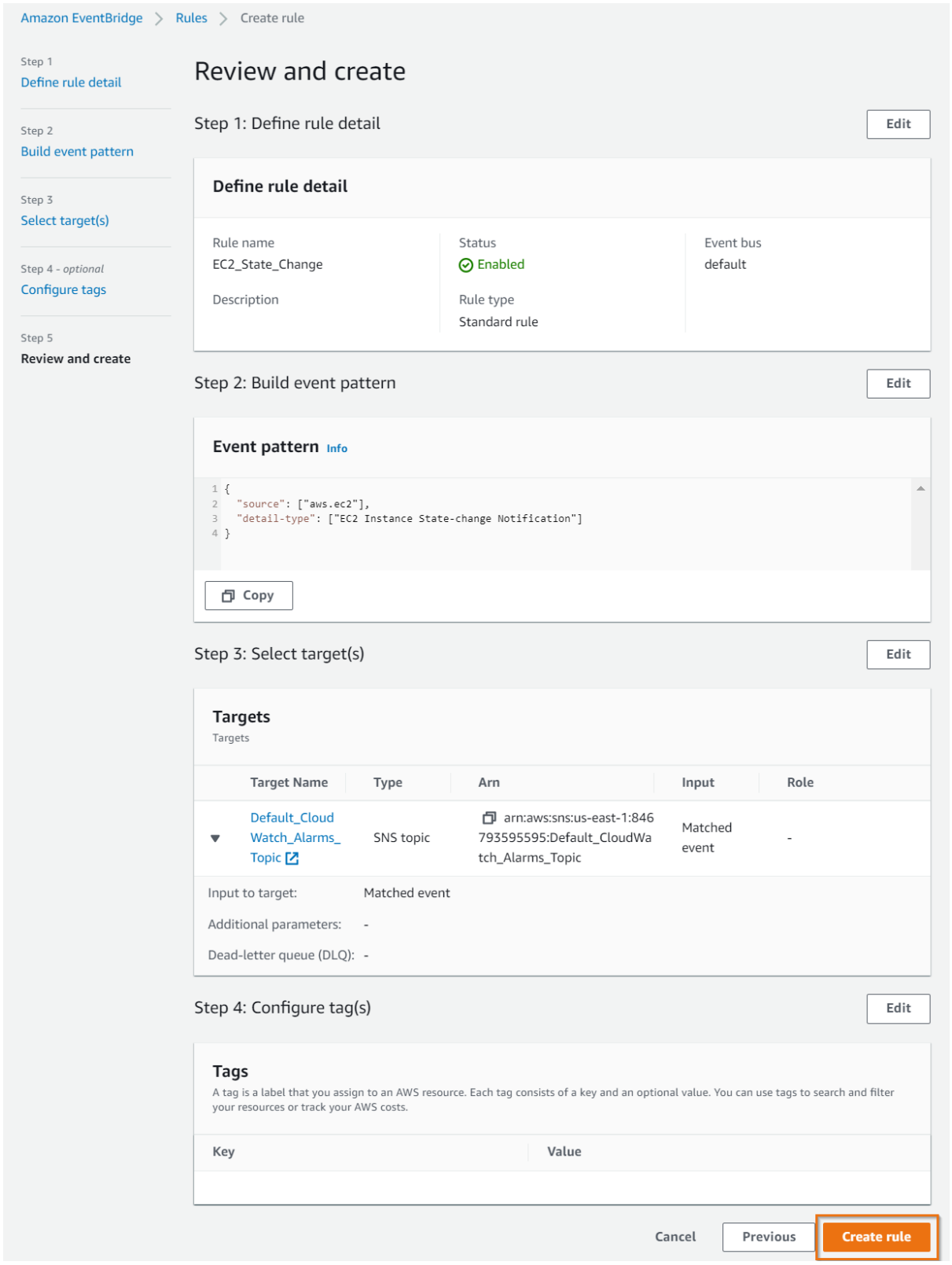
```
1 {
2   "source": ["aws.ec2"],
3   "detail-type": ["EC2 Instance State-change Notification
4 }
```

Copy | Test pattern | Edit pattern

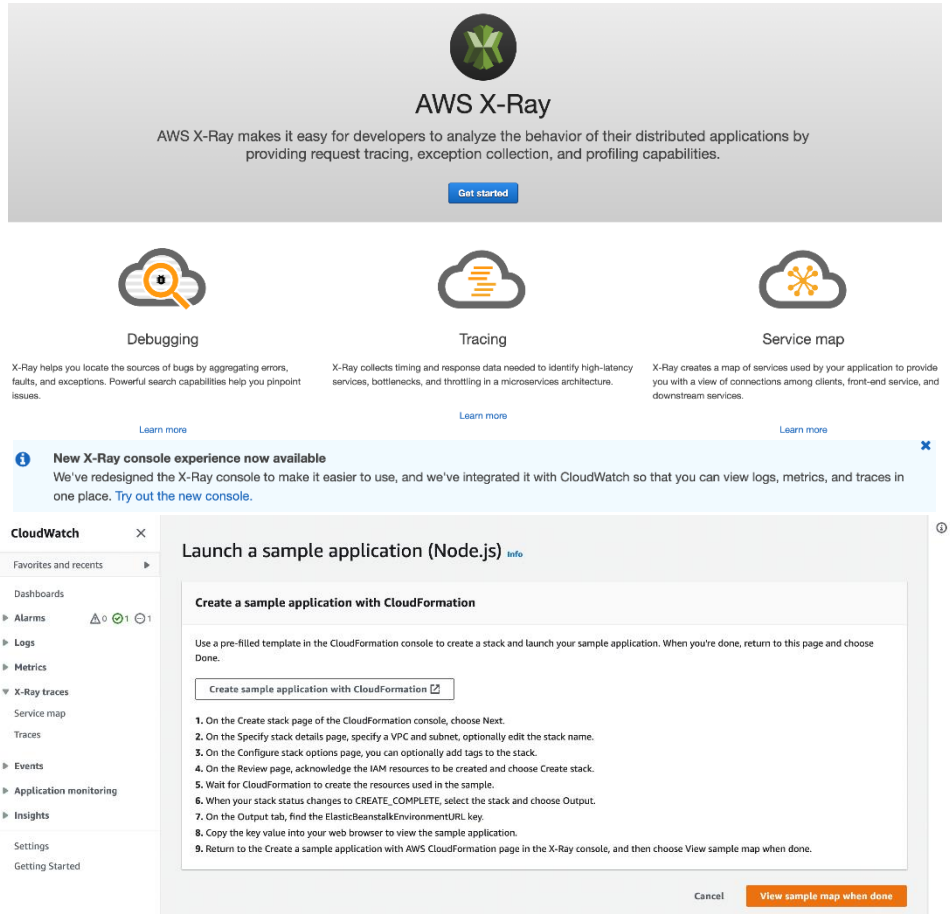
Cancel | Previous | Next

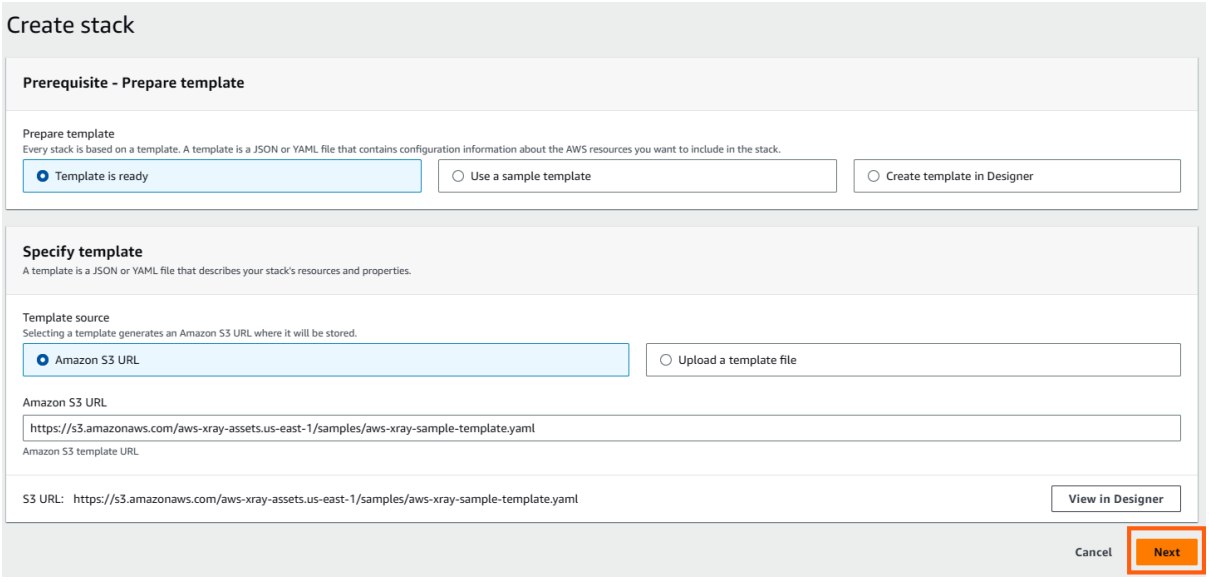

Amazon EventBridge > Rules > Create rule
Step 1
Define rule detail
Step 2
Build event pattern
Step 3
Select target(s)
Step 4 - optional
Configure tags
Step 5
Review and create
Select target(s)
Permissions
Note: When using the EventBridge console, EventBridge will automatically configure the proper permissions for the selected targets. If you're using the AWS CLI, SDK, or CloudFormation, you'll need to configure the proper permissions.
Target 1
Target types
Select an EventBridge event bus, EventBridge API destination (SaaS partner), or another AWS service as a target.
EventBridge event bus
EventBridge API destination
AWS service
Select a target
Info
Select target(s) to invoke when an event matches your event pattern or when schedule is triggered (limit of 5 targets per rule)
SNS topic
Topic
Default_CloudWatch_Alarms_Topic
Additional settings
Add another target
Cancel
Previous
Next


Step 1
Define rule detail
Step 2
Build event pattern
Step 3
Select target(s)
Step 4 - optional
Configure tags
Step 5
Review and create
Build event pattern Info
Event source
Event source
Select the event source from which events are sent.
AWS events or EventBridge partner events
Events sent from AWS services or EventBridge partners.
Other
Custom events or events sent from more than one source, e.g. events from AWS services and partners.
All events
All events sent to your account.
Sample event - optional
You don't have to select or enter a sample event, but it's recommended so you can reference it when writing and testing the event pattern, or filter criteria.
You can reference the sample event when write the event pattern, or use the sample event to test if it matches the event pattern. Find a sample event, enter your own, or edit a sample event below.
Learn more about sample/test event in Test Event Pattern.
AWS events
EventBridge partner events
Enter my own
Sample events
Filter by event source and type or by keyword.
Select
Enter the event JSON
Copy
Event pattern Info
Event pattern form
Custom patterns (JSON editor)
Event source
AWS service or EventBridge partner as source
AWS services
AWS service
EC2
Event type
The type of events as the source of the matching pattern
EC2 Instance State-change Notification
Any state
Specific state(s)
Any instance
Specific instance Id(s)
Event pattern
Event pattern, or filter to match the events
{
"source": ["aws.ec2"],
"detail-type": ["EC2 Instance State-change Notification
}
Copy
Test pattern
Edit pattern
Cancel
Previous
Next


Amazon EventBridge > Rules > Create rule
Step 1
Define rule detail
Step 2
Build event pattern
Step 3
Select target(s)
Step 4 - optional
Configure tags
Step 5
Review and create
Review and create
Step 1: Define rule detail
Edit
Define rule detail
Rule name
EC2_State_Change
Status
Enabled
Event bus
default
Description
Rule type
Standard rule
Step 2: Build event pattern
Edit
Event pattern Info
{
"source": ["aws.ec2"],
"detail-type": ["EC2 Instance State-change Notification"]
}
Copy
Step 3: Select target(s)
Edit
Targets
Targets
Target Name
Type
Arn
Input
Role
Default_CloudWatch_Alarms_Topic
SNS topic
arn:aws:sns:us-east-1:846793595595:Default_CloudWatch_Alarms_Topic
Matched event
-
Input to target:
Matched event
Additional parameters:
-
Dead-letter queue (DLQ):
-
Step 4: Configure tag(s)
Edit
Tags
A tag is a label that you assign to an AWS resource. Each tag consists of a key and an optional value. You can use tags to search and filter your resources or track your AWS costs.
Key
Value
Cancel
Previous
Create rule

Chapter 4: Implementing Distributed Tracing Using AWS X-Ray





Specify stack details

Stack name

Stack name

xray-sample

Stack name can include letters (A-Z and a-z), numbers (0-9), and dashes (-).

Parameters

Parameters are defined in your template and allow you to input custom values when you create or update a stack.

Subnet

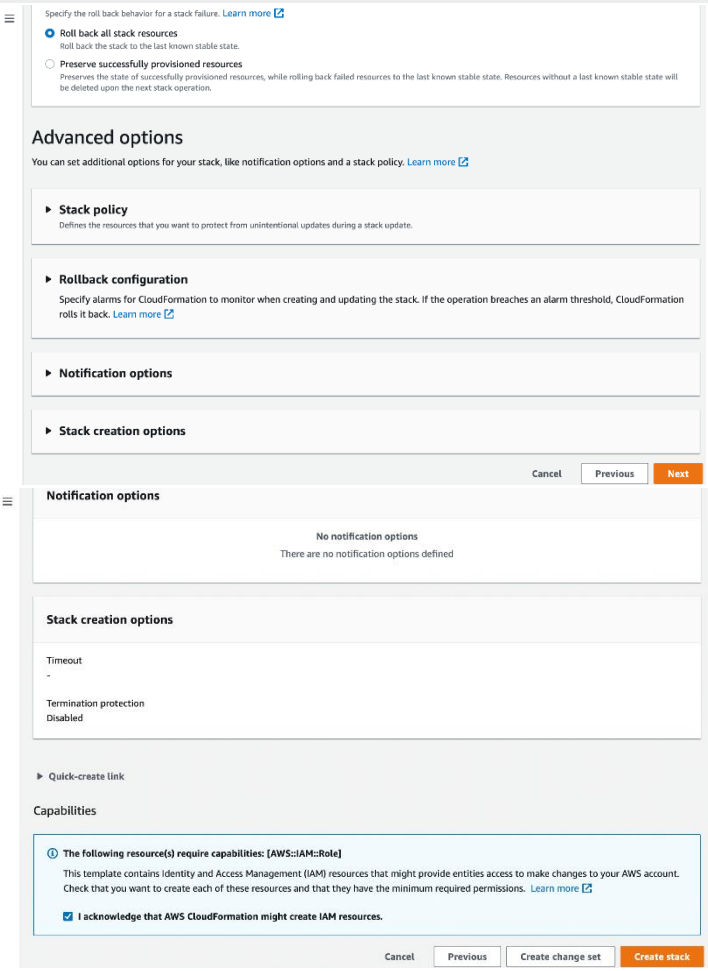
The ID for the Subnet in which the EC2 instance will be launched.

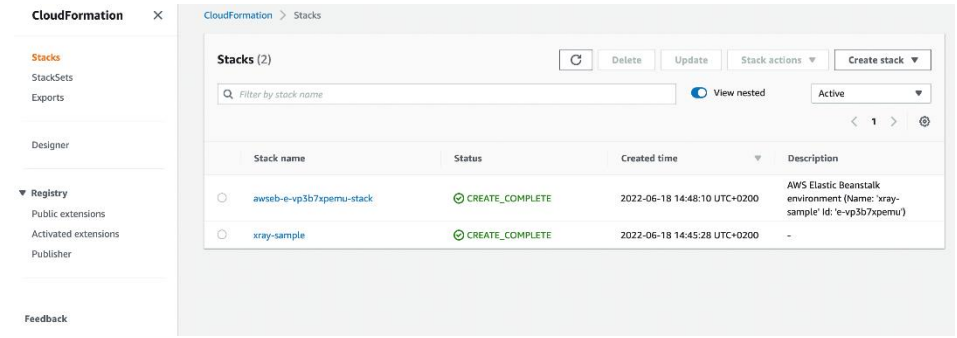
subnet-01d4c1[redacted]1

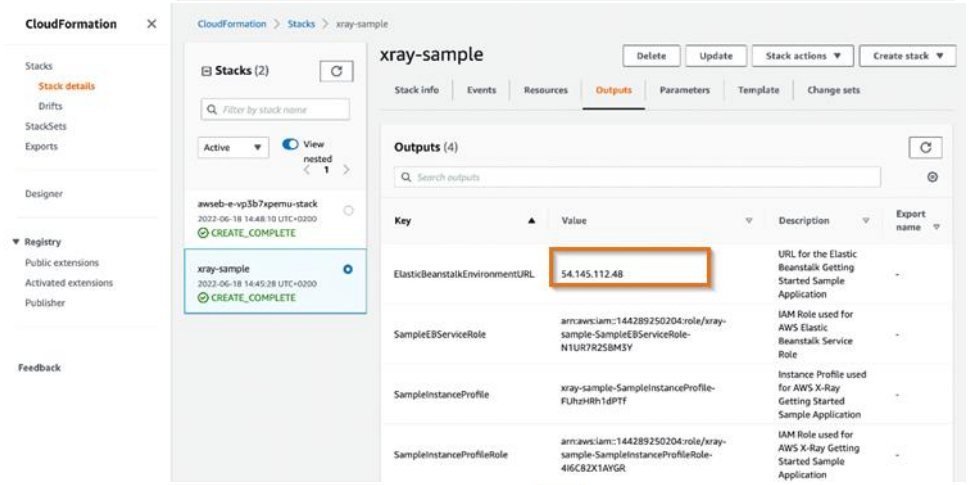
VPC

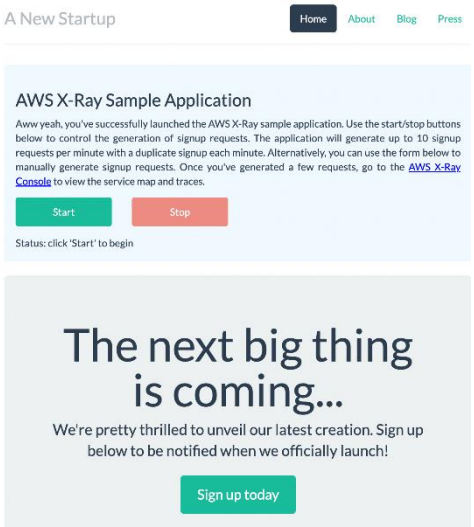
The ID for the VPC in which the EC2 instance will be launched.

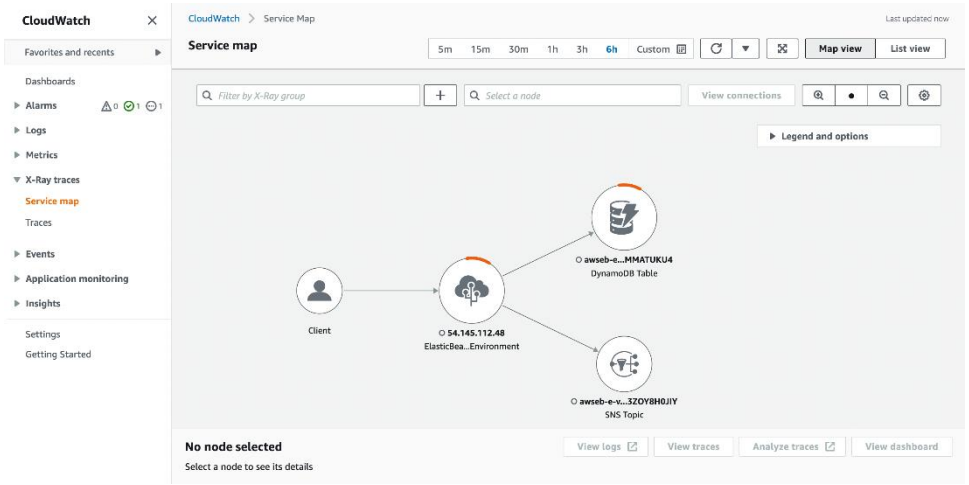
vpc-09f688c[redacted]f

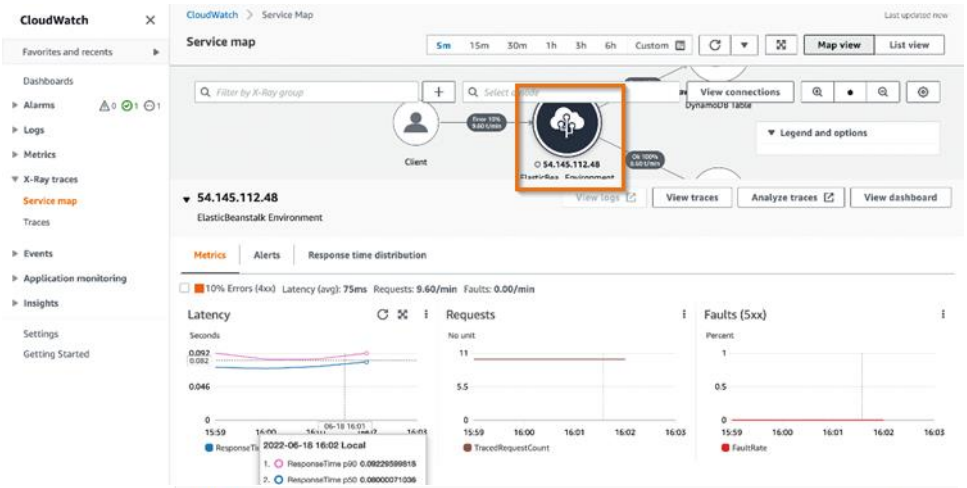


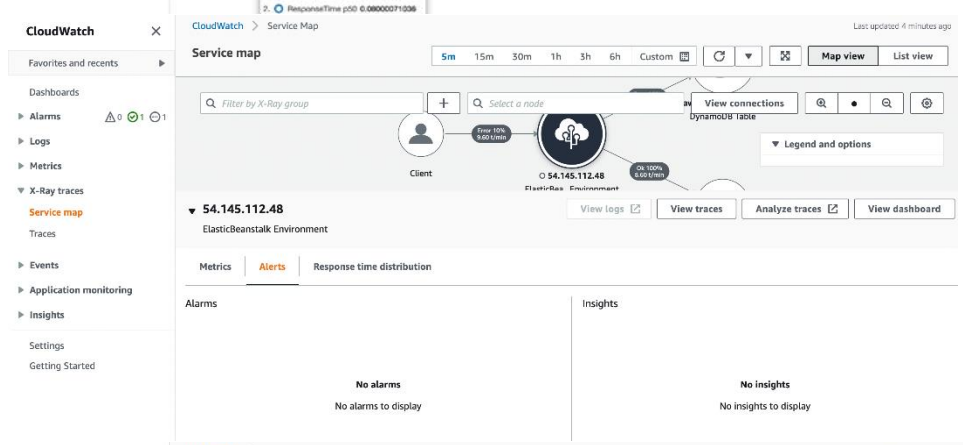

CloudFormation
Stacks
StackSets
Exports
Designer
Registry
Public extensions
Activated extensions
Publisher
Feedback
CloudFormation > Stacks
Stacks (2)
Delete
Update
Stack actions
Create stack
Filter by stack name
View nested
Active
Stack name
Status
Created time
Description
awseb-e-vp3b7xpemu-stack
CREATE_COMPLETE
2022-06-18 14:48:10 UTC+0200
AWS Elastic Beanstalk environment (Name: 'xray-sample' Id: 'e-vp3b7xpemu')
xray-sample
CREATE_COMPLETE
2022-06-18 14:45:28 UTC+0200
-

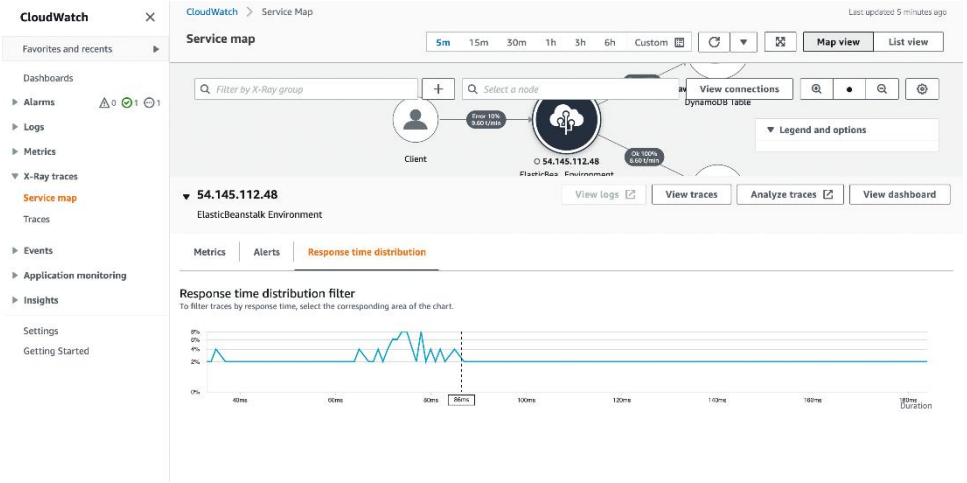

CloudFormation
Stacks
Stack details
Drifts
StackSets
Exports
Designer
Registry
Public extensions
Activated extensions
Publisher
Feedback
CloudFormation > Stacks > xray-sample
Stacks (2)
xray-sample
Delete
Update
Stack actions
Create stack
Stack info
Events
Resources
Outputs
Parameters
Template
Change sets
Outputs (4)
Key
Value
Description
Export name
ElasticBeanstalkEnvironmentURL
54.145.112.48
URL for the Elastic Beanstalk Getting Started Sample Application
SampleEBServiceRole
arn:aws:iam::144289250204:role/xray-sample-SampleEBServiceRole-N1UR7R2S8M3Y
IAM Role used for AWS Elastic Beanstalk Service Role
SampleInstanceProfile
xray-sample-SampleInstanceProfile-FUhzHRh1dPTF
Instance Profile used for AWS X-Ray Getting Started Sample Application
SampleInstanceProfileRole
arn:aws:iam::144289250204:role/xray-sample-SampleInstanceProfileRole-4I6C82X1AYGR
IAM Role used for AWS X-Ray Getting Started Sample Application

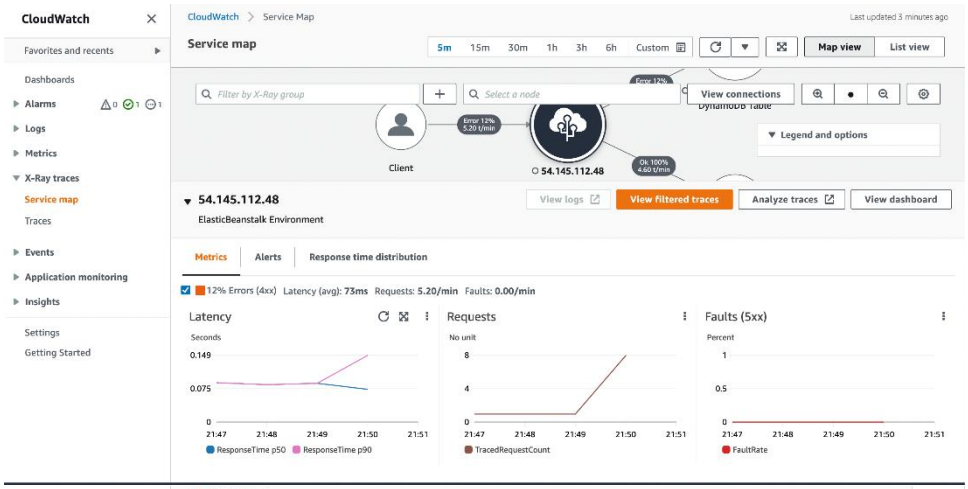

A New Startup
Home
About
Blog
Press
AWS X-Ray Sample Application
Aww yeah, you've successfully launched the AWS X-Ray sample application. Use the start/stop buttons below to control the generation of signup requests. The application will generate up to 10 signup requests per minute with a duplicate signup each minute. Alternatively, you can use the form below to manually generate signup requests. Once you've generated a few requests, go to the AWS X-Ray Console to view the service map and traces.
Start
Stop
Status: click 'Start' to begin
The next big thing is coming...
We're pretty thrilled to unveil our latest creation. Sign up below to be notified when we officially launch!
Sign up today

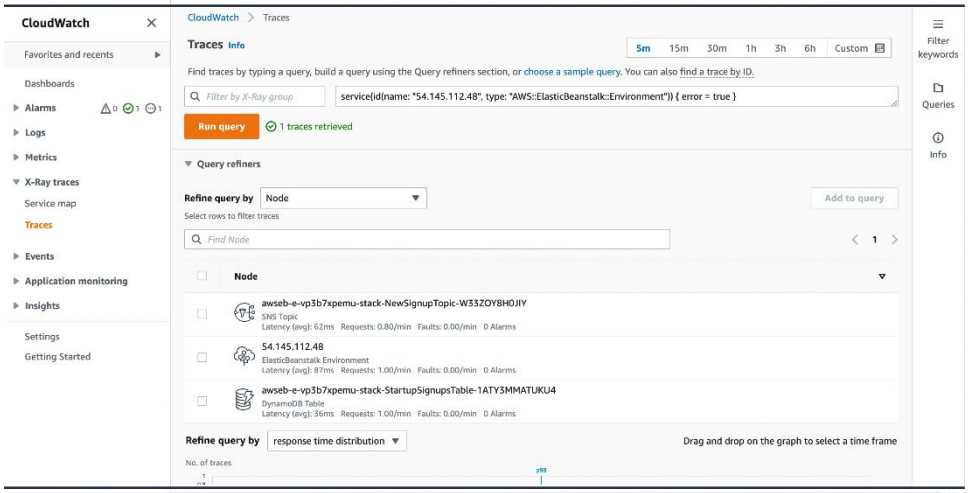

CloudWatch
Favorites and recents
Dashboards
Alarms
Logs
Metrics
X-Ray traces
Service map
Traces
Events
Application monitoring
Insights
Settings
Getting Started
CloudWatch > Service Map
Service map
Last updated now
5m
15m
30m
1h
3h
6h
Custom
Map view
List view
Filter by X-Ray group
Select a node
View connections
Legend and options
awseb-e...MMATUKU4
DynamoDB Table
Client
54.145.112.48
ElasticBea...Environment
awseb-e-v...SZOY8H0JIY
SNS Topic
No node selected
Select a node to see its details
View logs
View traces
Analyze traces
View dashboard

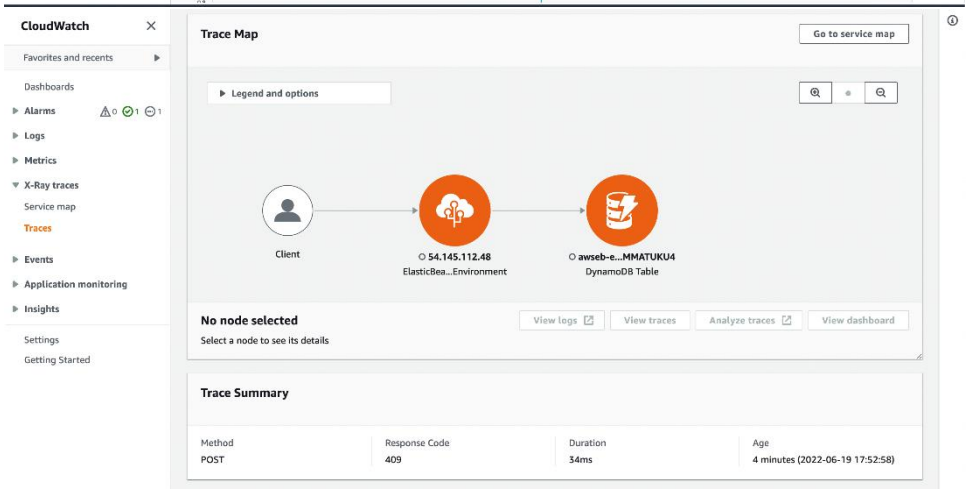

CloudWatch
Service Map
Service map
Map view
List view
Client
54.145.112.48
ElasticBeanstalk Environment
View traces
Analyze traces
View dashboard
Metrics
Alerts
Response time distribution
Latency
Requests
Faults (5xx)

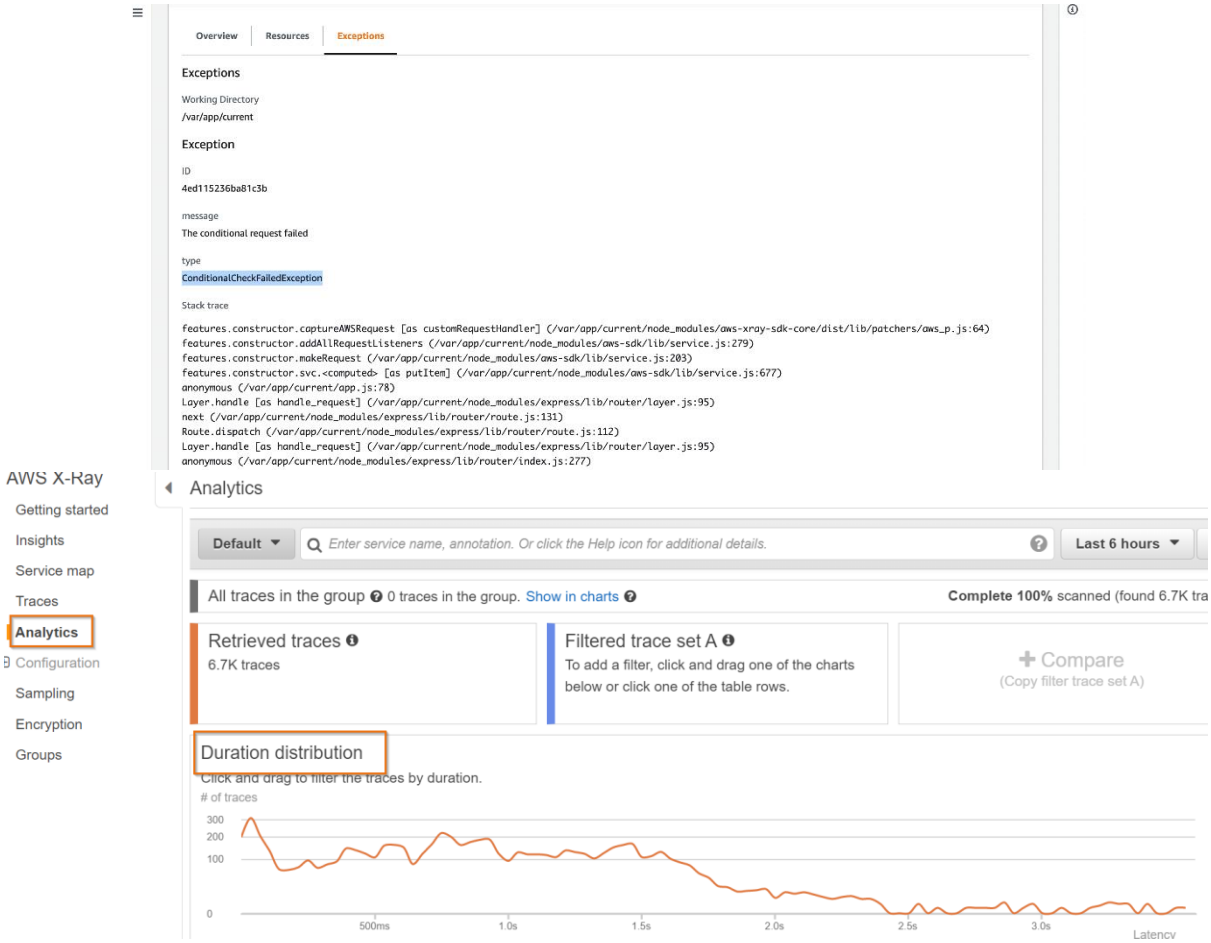

CloudWatch
Service Map
Service map
Map view
List view
Client
54.145.112.48
ElasticBeanstalk Environment
View traces
Analyze traces
View dashboard
Metrics
Alerts
Response time distribution
Alarms
No alarms
No alarms to display
Insights
No insights
No insights to display


CloudWatch
Service Map
Service map
Map view
List view
Client
54.145.112.48
ElasticBeanstalk Environment
View traces
Analyze traces
View dashboard
Metrics
Alerts
Response time distribution
Response time distribution filter
To filter traces by response time, select the corresponding area of the chart.

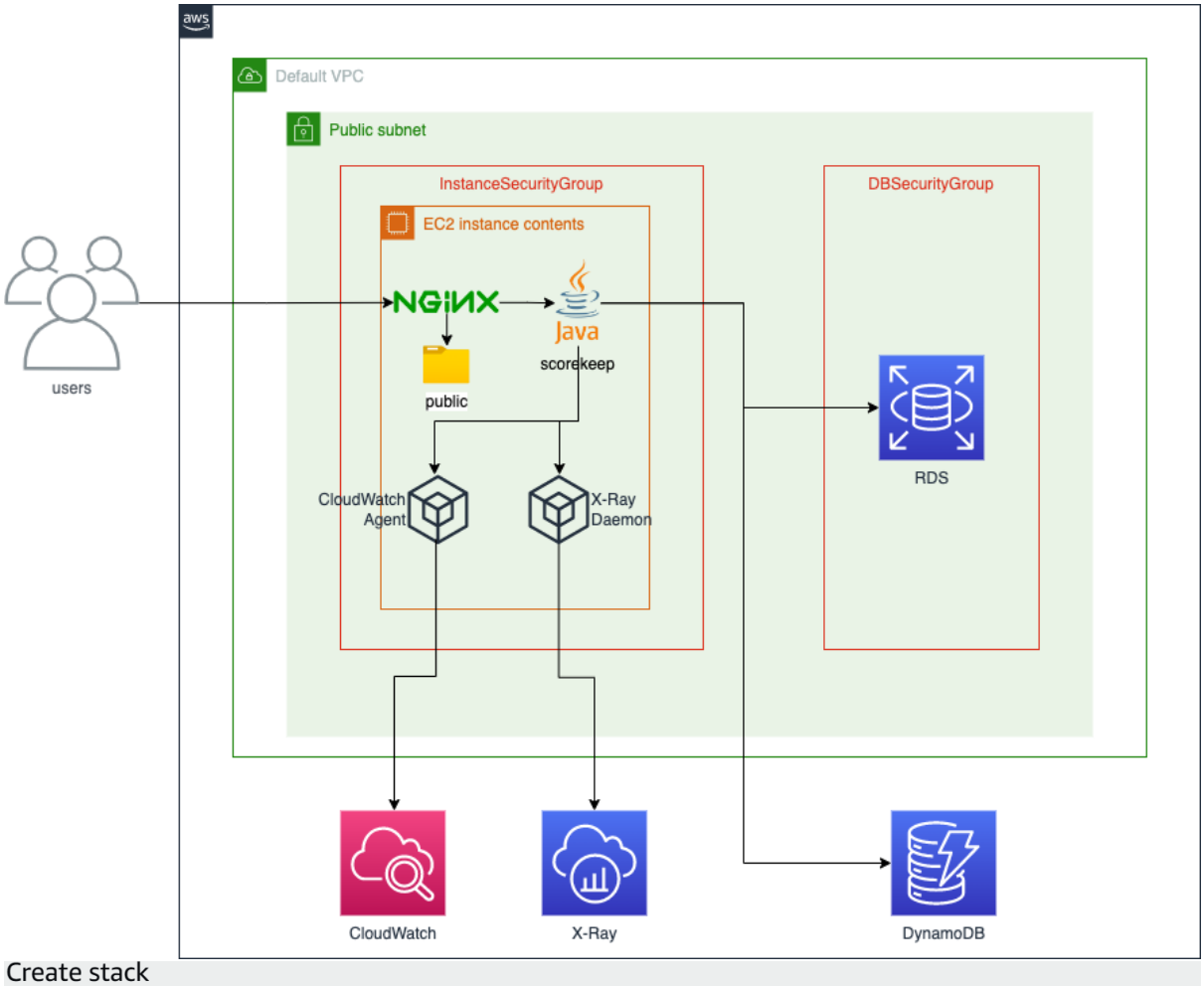

CloudWatch
Favorites and recents
Dashboards
Alarms
Logs
Metrics
X-Ray traces
Service map
Traces
Events
Application monitoring
Insights
Settings
Getting Started
CloudWatch > Service Map
Last updated 3 minutes ago
Service map
5m 15m 30m 1h 3h 6h Custom
Map view
List view
Filter by X-Ray group
Select a node
View connections
Legend and options
Client
Error 12%
5.20 t/min
54.145.112.48
Ok 100%
4.60 t/min
54.145.112.48
ElasticBeanstalk Environment
View logs
View filtered traces
Analyze traces
View dashboard
Metrics
Alerts
Response time distribution
12% Errors (4xx) Latency (avg): 73ms Requests: 5.20/min Faults: 0.00/min
Latency
Seconds
0.149
0.075
0
21:47 21:48 21:49 21:50 21:51
ResponseTime p50
ResponseTime p90
Requests
No unit
8
4
0
21:47 21:48 21:49 21:50 21:51
TracedRequestCount
Faults (5xx)
Percent
1
0.5
0
21:47 21:48 21:49 21:50 21:51
FaultRate


CloudWatch
Favorites and recents
Dashboards
Alarms
Logs
Metrics
X-Ray traces
Service map
Traces
Events
Application monitoring
Insights
Settings
Getting Started
CloudWatch > Traces
Traces Info
5m 15m 30m 1h 3h 6h Custom
Filter keywords
Queries
Info
Find traces by typing a query, build a query using the Query refiners section, or choose a sample query. You can also find a trace by ID.
Filter by X-Ray group
service(id(name: "54.145.112.48", type: "AWS::ElasticBeanstalk::Environment")) { error = true }
Run query
1 traces retrieved
Query refiners
Refine query by
Node
Add to query
Select rows to filter traces
Find Node
Node
awseb-e-vp3b7xpemu-stack-NewSignupTopic-W33ZOY8HOJIY
SNS Topic
Latency (avg): 62ms Requests: 0.80/min Faults: 0.00/min 0 Alarms
54.145.112.48
ElasticBeanstalk Environment
Latency (avg): 87ms Requests: 1.00/min Faults: 0.00/min 0 Alarms
awseb-e-vp3b7xpemu-stack-StartupSignupsTable-1ATY3MMATUKU4
DynamoDB Table
Latency (avg): 36ms Requests: 1.00/min Faults: 0.00/min 0 Alarms
Refine query by
response time distribution
Drag and drop on the graph to select a time frame
No. of traces


CloudWatch
Favorites and recents
Dashboards
Alarms
Logs
Metrics
X-Ray traces
Service map
Traces
Events
Application monitoring
Insights
Settings
Getting Started
Trace Map
Go to service map
Legend and options
Client
54.145.112.48
ElasticBea...Environment
awseb-e...MMATUKU4
DynamoDB Table
No node selected
Select a node to see its details
View logs
View traces
Analyze traces
View dashboard
Trace Summary
Method
POST
Response Code
409
Duration
34ms
Age
4 minutes (2022-06-19 17:52:58)


Overview
Resources
Exceptions
Exceptions
Working Directory
/var/app/current
Exception
ID
4ed115236ba81c3b
message
The conditional request failed
type
ConditionalCheckFailedException
Stack trace
features.constructor.captureAWSRequest [as customRequestHandler] (/var/app/current/node_modules/aws-xray-sdk-core/dist/lib/patchers/aws_p.js:64)
features.constructor.addAllRequestListeners (/var/app/current/node_modules/aws-sdk/lib/service.js:279)
features.constructor.makeRequest (/var/app/current/node_modules/aws-sdk/lib/service.js:203)
features.constructor.svc.<computed> [as putItem] (/var/app/current/node_modules/aws-sdk/lib/service.js:677)
anonymous (/var/app/current/app.js:78)
Layer.handle [as handle_request] (/var/app/current/node_modules/express/lib/router/layer.js:95)
next (/var/app/current/node_modules/express/lib/router/route.js:131)
Route.dispatch (/var/app/current/node_modules/express/lib/router/route.js:112)
Layer.handle [as handle_request] (/var/app/current/node_modules/express/lib/router/layer.js:95)
anonymous (/var/app/current/node_modules/express/lib/router/index.js:277)

AWS X-Ray
Getting started
Insights
Service map
Traces
Analytics
Configuration
Sampling
Encryption
Groups
Analytics
Default
Enter service name, annotation. Or click the Help icon for additional details.
Last 6 hours
All traces in the group 0 traces in the group. Show in charts
Complete 100% scanned (found 6.7K tra
Retrieved traces
6.7K traces
Filtered trace set A
To add a filter, click and drag one of the charts below or click one of the table rows.
Compare
(Copy filter trace set A)
Duration distribution
Click and drag to filter the traces by duration.
# of traces
300
200
100
0
500ms
1.0s
1.5s
2.0s
2.5s
3.0s
Latency



Create stack

Prerequisite - Prepare template

Prepare template

Every stack is based on a template. A template is a JSON or YAML file that contains configuration information about the AWS resources you want to include in the stack.

- (●) Template is ready
- ( ) Use a sample template
- ( ) Create template in Designer

Specify template

A template is a JSON or YAML file that describes your stack's resources and properties.

Template source

Selecting a template generates an Amazon S3 URL where it will be stored.

- ( ) Amazon S3 URL
- (●) Upload a template file

Upload a template file

Choose file *basic-ec2-template.yml*

JSON or YAML formatted file

S3 URL: https://s3.us-east-1.amazonaws.com/cf-templates-1b41xbsxfe6pa-us-east-1/2023-04-13T143830.501Zk4n-basic-ec2-template.yml

View in Designer

Cancel Next

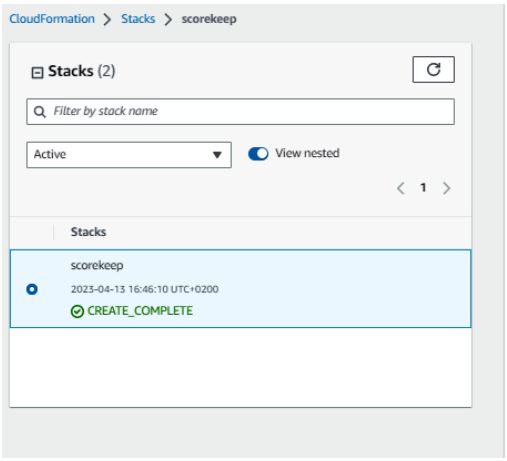
Capabilities

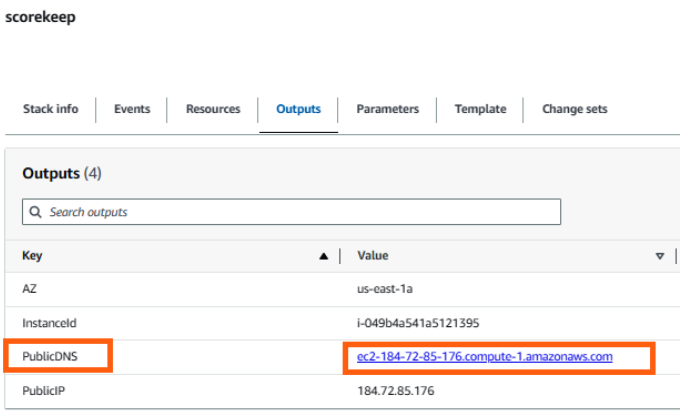
The following resource(s) require capabilities: [AWS::IAM::Role]

This template contains Identity and Access Management (IAM) resources that might provide entities access to make changes to your AWS account. Check that you want to create each of these resources and that they have the minimum required permissions. Learn more

[x] **I acknowledge that AWS CloudFormation might create IAM resources.**

Create change set Cancel Previous Submit

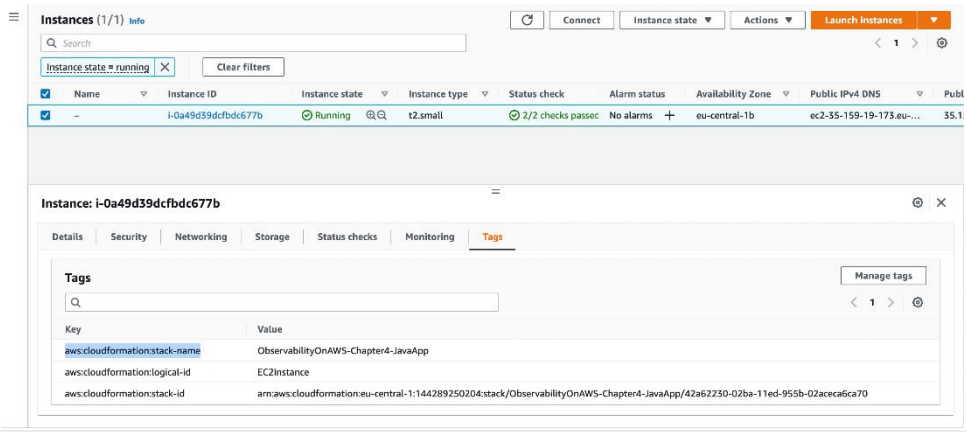

CloudFormation > Stacks > scorekeep
Stacks (2)
Filter by stack name
Active
View nested
1
Stacks
scorekeep
2023-04-13 16:46:10 UTC+0200
CREATE_COMPLETE

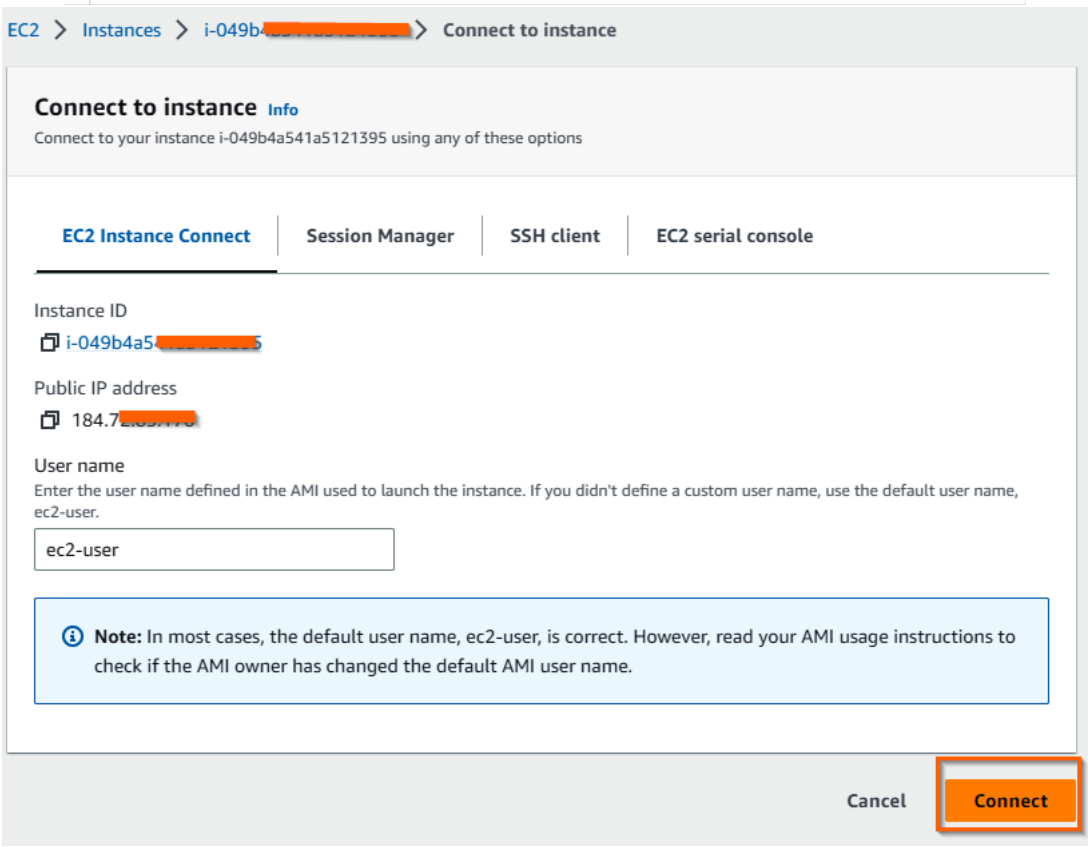

scorekeep
Stack info
Events
Resources
Outputs
Parameters
Template
Change sets
Outputs (4)
Search outputs
Key
Value
AZ
us-east-1a
InstanceId
i-049b4a541a5121395
PublicDNS
ec2-184-72-85-176.compute-1.amazonaws.com
PublicIP
184.72.85.176

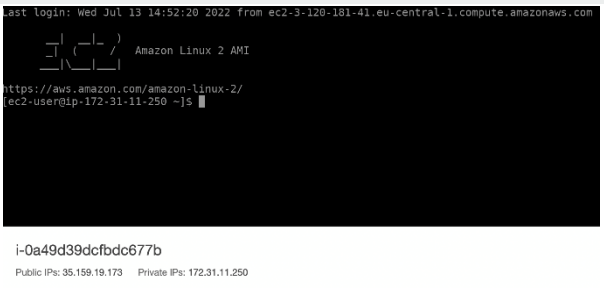

Scorekeep
Instructions
Powered by AWS X-Ray
Username
random
Session
games
Create
session ID
Join


Scorekeep
Instructions
Powered by AWS X-Ray
games
Charlie
Session ID: H7UNRD2L
Create a game
TicToc
Rules: Tic Tac Toe
Create
Games
View traces for this session


X-Ray traces
Service map
Traces
Events
Application monitoring
ServiceLens Map
Resource Health
Internet Monitor
New
Synthetics Canaries
Evidently
RUM
Insights
Container Insights
Lambda Insights
Contributor Insights
Application Insights
Settings
Getting Started
avg. 1.03 s
0.40/min
random-name
Lambda Context
avg. 223 ms
4.60/min
Scorekeep
EC2 Instance
Client
avg. 9 ms
18.60/min
scorekeep...KSNYQ13IBL
DynamoDB Table
avg. 15 ms
9.60/min
scoreke...Q9QVAW6W
DynamoDB Table
avg. 529 ms
0.40/min
random-name
Lambda Function







i-0a49d39dcfbdc677b

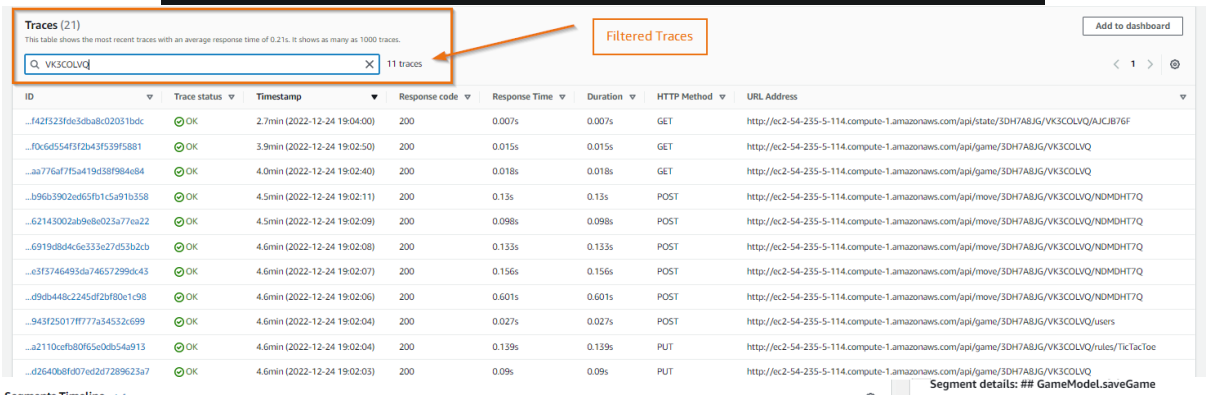
Public IPs: 35.159.19.173 Private IPs: 172.31.11.250

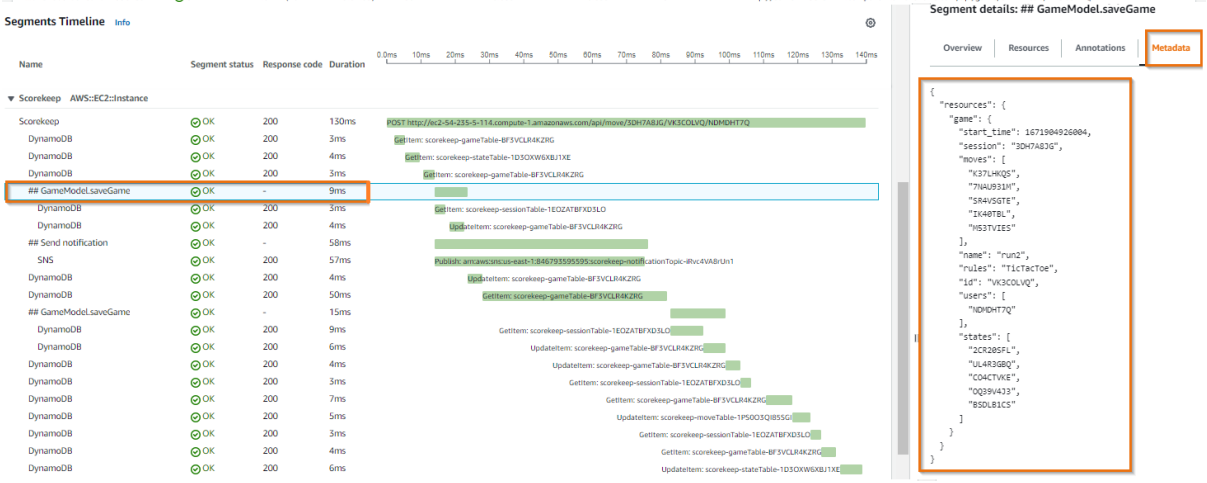
```java
public void saveGame(Game game) throws SessionNotFoundException {
    // wrap in subsegment
    Subsegment subsegment = AWSXRay.beginSubsegment("## GameModel.saveGame");
    try {
      // check session
      String sessionId = game.getSession();
      if (sessionModel.loadSession(sessionId) == null ) {
        throw new SessionNotFoundException(sessionId);
      }
      Segment segment = AWSXRay.getCurrentSegment();
      subsegment.putMetadata("resources", "game", game);
      segment.putAnnotation("gameid", game.getId());
      mapper.save(game);
    } catch (Exception e) {
      subsegment.addException(e);
      throw e;
    } finally {
      AWSXRay.endSubsegment();
    }
    mapper.save(game);
  }
```

X-Ray Subsegment

Metadata in Subsegment Trace

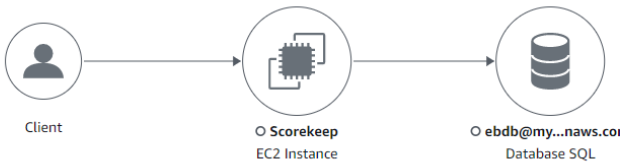
Annotation to Segment



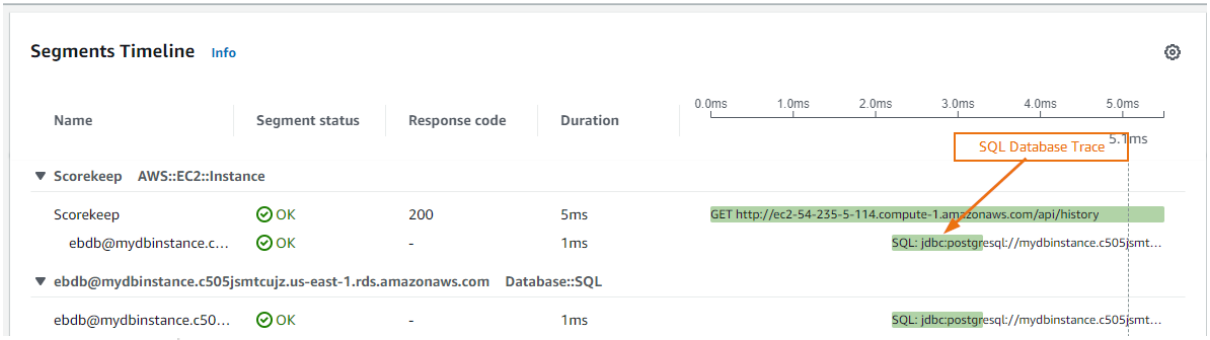



```
spring.datasource.continue-on-error=true
spring.jpa.show-sql=false
spring.datasource.jdbc-interceptors=com.amazonaws.xray.sql.postgres.TracingInterceptor
spring.jpa.database-platform=org.hibernate.dialect.PostgreSQL94Dialect
~
~
~
```

PostgreSQL Tracing Interceptor



=




```
RandomNameFunction:
  DependsOn: CopyZips
  Type: AWS::Lambda::Function
  Properties:
    FunctionName: random-name
    Handler: index.handler
    Runtime: nodejs14.x
    Role: !GetAtt 'FunctionRole.Arn'
    Code:
      S3Bucket: !Ref 'LambdaZipsBucket'
      S3Key: !Sub 'chapter-04/random-name-lambda.zip'
    Description: Generate random names
    Timeout: 10
    TracingConfig:
      Mode: Active
    Environment:
      Variables:
        TOPIC_ARN: !Ref notificationTopic
```

Tracing Lambda Function

```
@PostConstruct
public void schemaExport() {
  EntityManagerFactoryImpl entityManagerFactoryImpl = (EntityManagerFactoryImpl) localContainerEn
  SessionFactoryImplementor sessionFactoryImplementor = entityManagerFactoryImpl.getSessionFactor
  StandardServiceRegistry standardServiceRegistry = sessionFactoryImplementor.getSessionFactoryOp
  MetadataSources metadataSources = new MetadataSources(new BootstrapServiceRegistryBuilder().bui
  metadataSources.addAnnotatedClass(GameHistory.class);
  MetadataImplementor metadataImplementor = (MetadataImplementor) metadataSources.buildMetadata(s
  SchemaExport schemaExport = new SchemaExport(standardServiceRegistry, metadataImplementor);

  AWSXRay.beginSegment("Scorekeep-init");
  schemaExport.create(true, true);
  AWSXRay.endSegment();
}

static {
```

AWS X-Ray segment starting

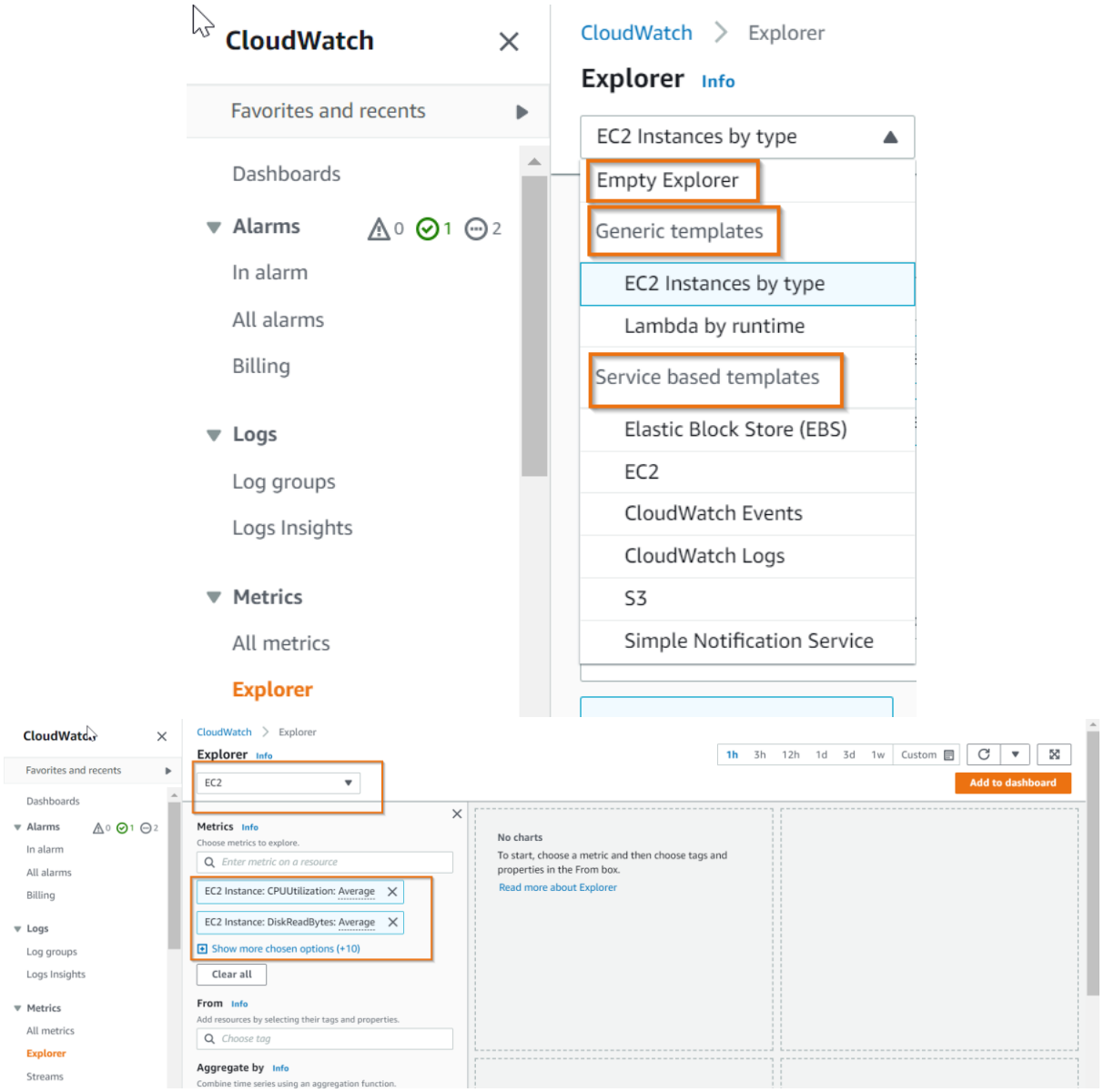
AWS X-Ray Segment Ending

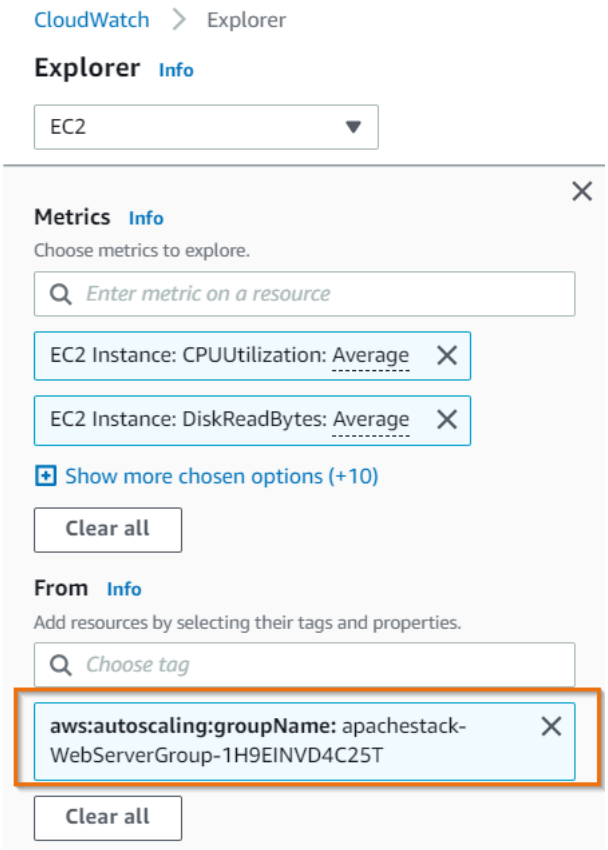
```
// send notification on game end
Entity segment = recorder.getTraceEntity();
if ( newStateText.startsWith("A") || newStateText.startsWith("B")) {
  Thread comm = new Thread() {
    public void run() {
      segment.run(() -> {
      Subsegment subsegment = AWSXRay.beginSubsegment("## Send notification");
      Sns.sendNotification("Scorekeep game completed", "Winner: " + userId);
      AWSXRay.endSubsegment();
      });
    }
  };
  comm.start();
}
```

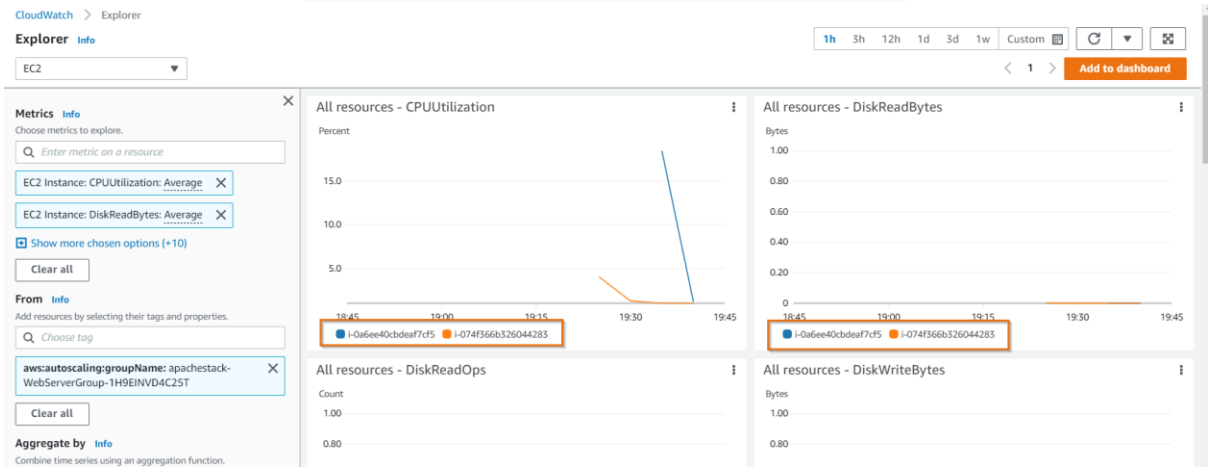
Segments Timeline Info

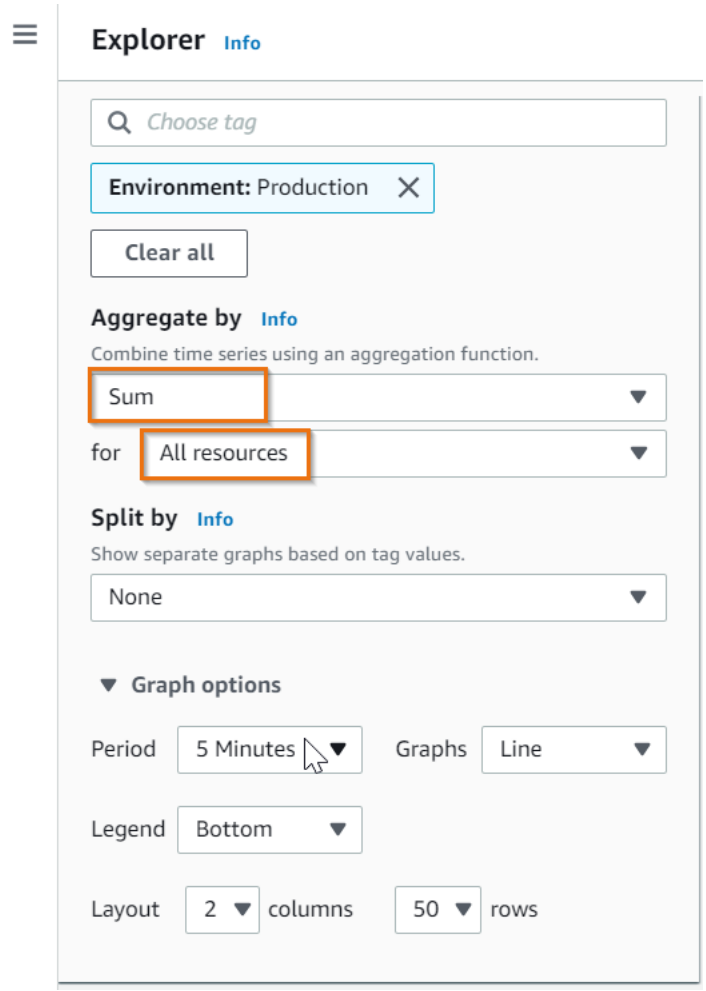
Name	Segment status	Response code	Duration	0.0ms 20ms 40ms 60ms 80ms 100ms 120ms
▼ Scorekeep AWS::EC2::Instance				
Scorekeep	OK	200	126ms	POST http://ec2-54-235-5-114.compute-1.amazonaws.com/api/move/8ILC5KA...
DynamoDB	OK	200	7ms	GetItem: scorekeep-gameTable-BF3VCLR4KZRG
DynamoDB	OK	200	4ms	GetItem: scorekeep-stateTable-1D3OXW6XBJ1XE
DynamoDB	OK	200	5ms	GetItem: scorekeep-gameTable-BF3VCLR4KZRG
## Send notification	OK	-	17ms	
SNS	OK	200	17ms	Publish: arn:aws:sns:us-east-1:846793595595:scorekeep-notification...
## GameModel.saveGa...	OK	-	15ms	
DynamoDB	OK	200	6ms	GetItem: scorekeep-sessionTable-1EOZATBFXD3LO
DynamoDB	OK	200	9ms	UpdateItem: scorekeep-gameTable-BF3VCLR4KZRG
DynamoDB	OK	200	7ms	UpdateItem: scorekeep-gameTable-BF3VCLR4KZRG
DynamoDB	OK	200	3ms	GetItem: scorekeep-gameTable-BF3VCLR4KZRG

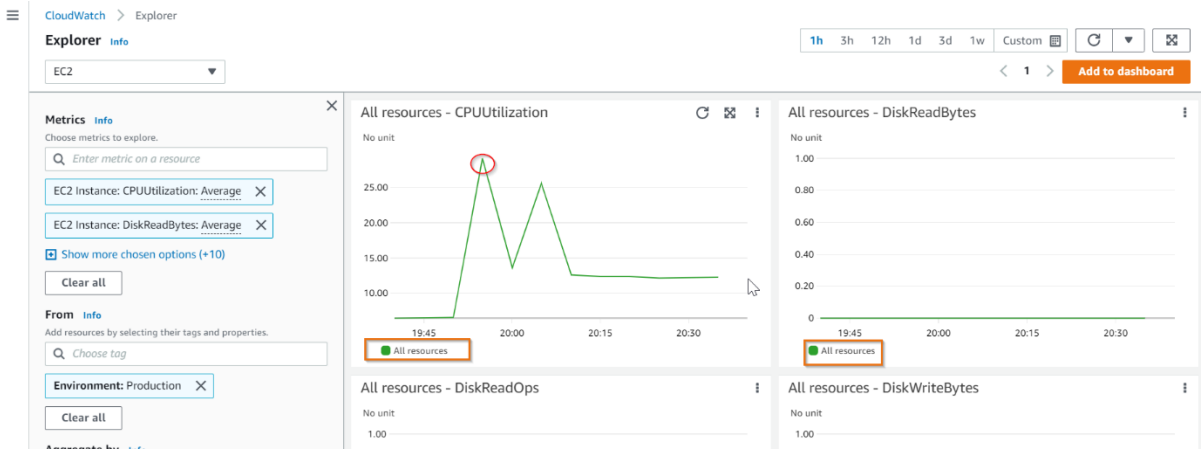
Chapter 5: Insights into Operational Data with CloudWatch

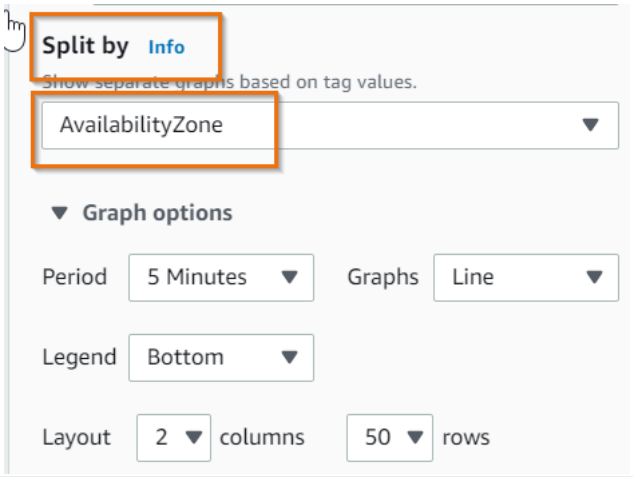


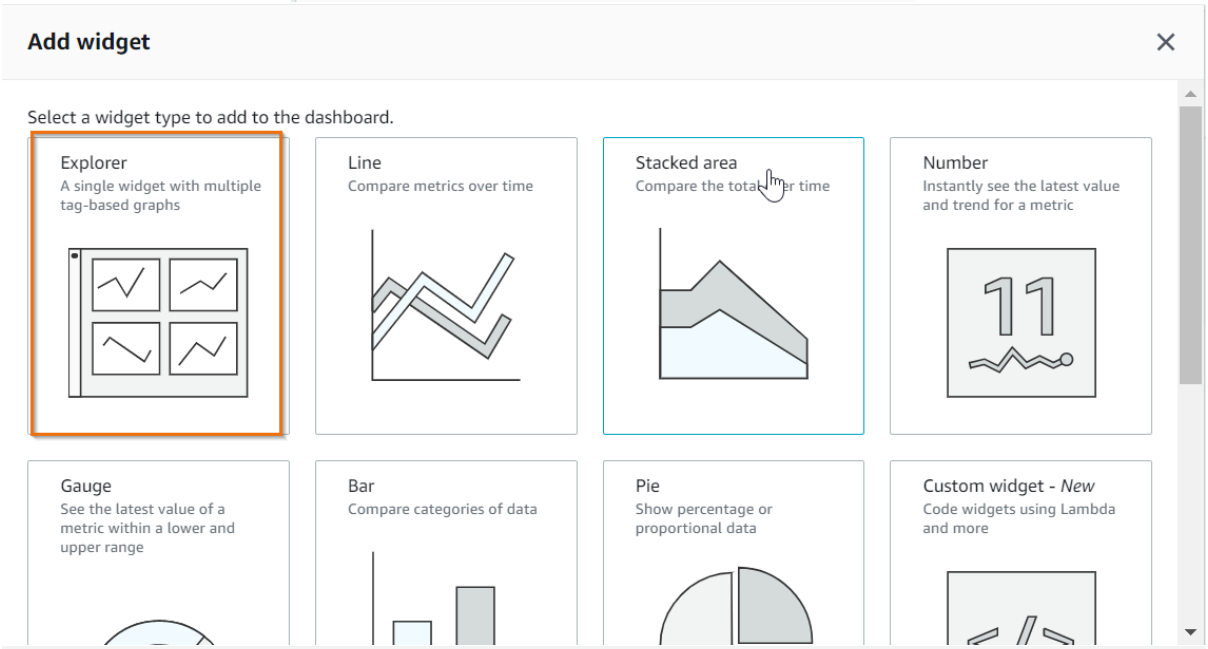

CloudWatch > Explorer
Explorer Info
EC2
Metrics Info
Choose metrics to explore.
Enter metric on a resource
EC2 Instance: CPUUtilization: Average
EC2 Instance: DiskReadBytes: Average
Show more chosen options (+10)
Clear all
From Info
Add resources by selecting their tags and properties.
Choose tag
aws:autoscaling:groupName: apachestack-WebServerGroup-1H9EINVD4C25T
Clear all

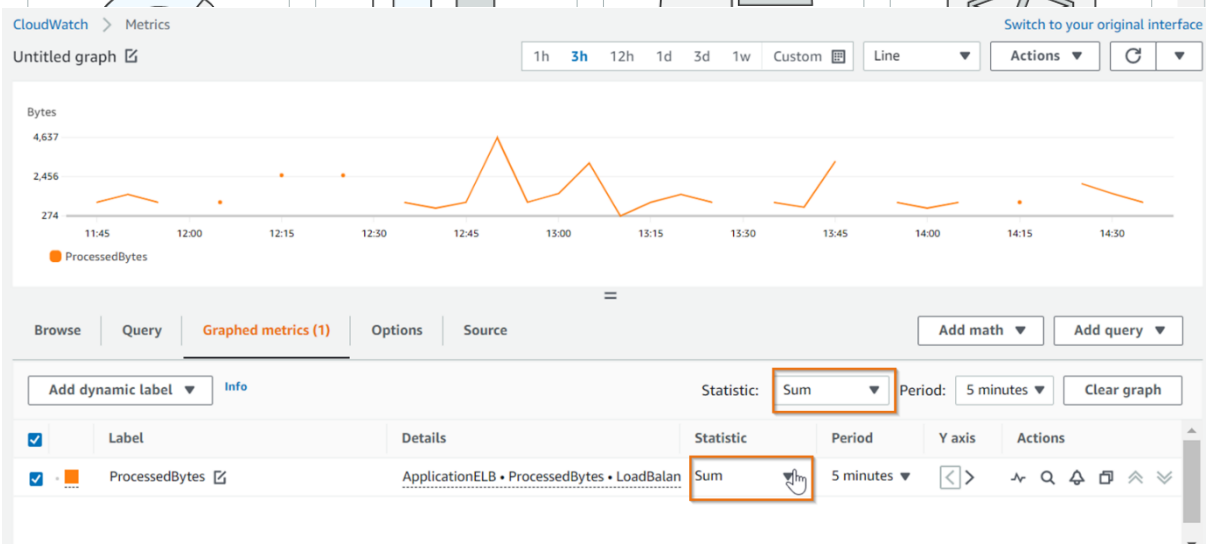

CloudWatch > Explorer
Explorer Info
EC2
1h 3h 12h 1d 3d 1w Custom
Add to dashboard
Metrics Info
Choose metrics to explore.
Enter metric on a resource
EC2 Instance: CPUUtilization: Average
EC2 Instance: DiskReadBytes: Average
Show more chosen options (+10)
Clear all
From Info
Add resources by selecting their tags and properties.
Choose tag
aws:autoscaling:groupName: apachestack-WebServerGroup-1H9EINVD4C25T
Clear all
Aggregate by Info
Combine time series using an aggregation function.
All resources - CPUUtilization
Percent
15.0
10.0
5.0
18:45
19:00
19:15
19:30
19:45
i-0a6ee40cbdeaf7cf5
i-074f366b326044283
All resources - DiskReadBytes
Bytes
1.00
0.80
0.60
0.40
0.20
0
All resources - DiskReadOps
Count
All resources - DiskWriteBytes
Bytes

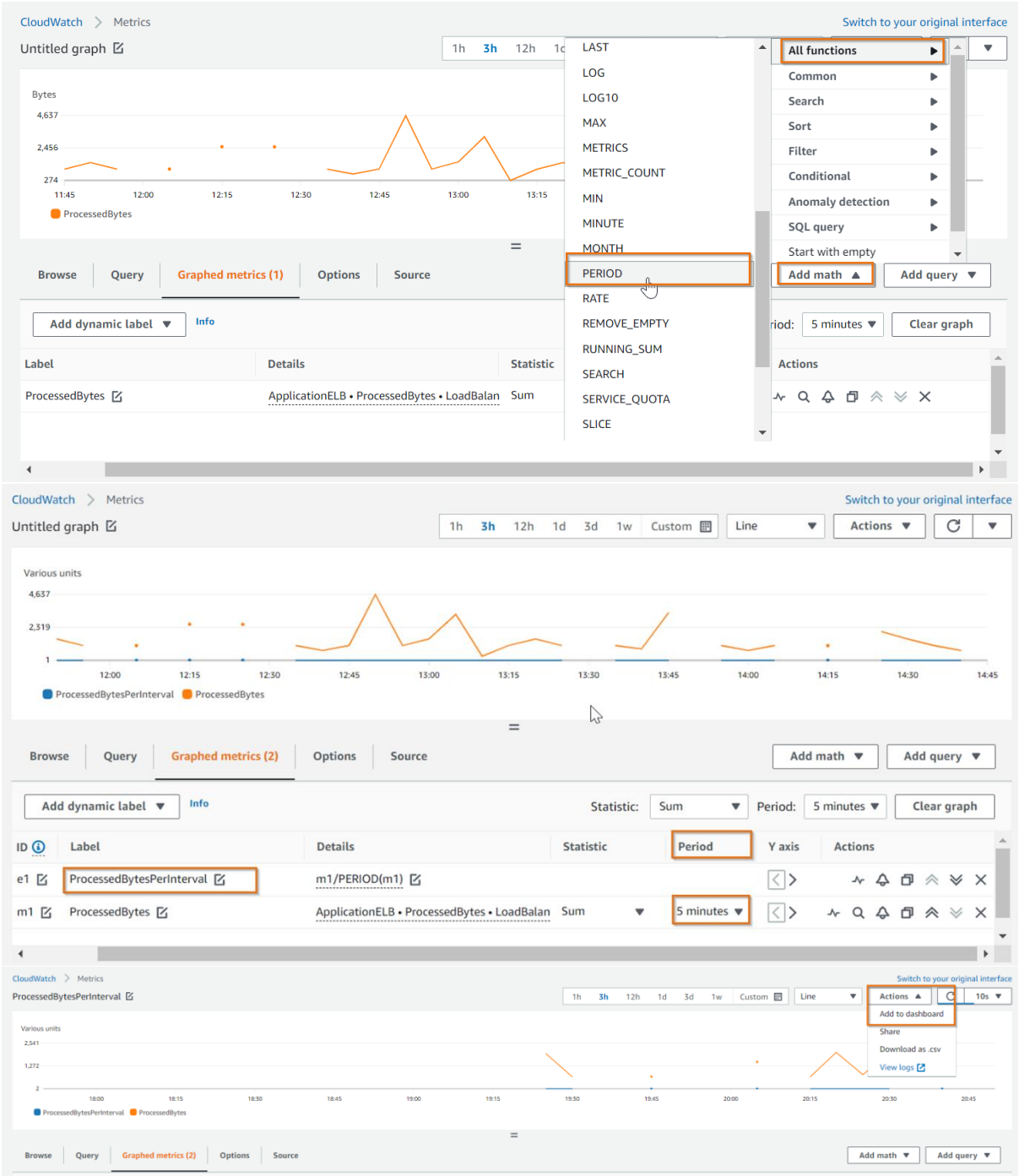

Explorer Info
Choose tag
Environment: Production
Clear all
Aggregate by Info
Combine time series using an aggregation function.
Sum
for
All resources
Split by Info
Show separate graphs based on tag values.
None
Graph options
Period
5 Minutes
Graphs
Line
Legend
Bottom
Layout
2
columns
50
rows


CloudWatch
Explorer
Explorer Info
EC2
1h
3h
12h
1d
3d
1w
Custom
Add to dashboard
Metrics Info
Choose metrics to explore.
Enter metric on a resource
EC2 Instance: CPUUtilization: Average
EC2 Instance: DiskReadBytes: Average
Show more chosen options (+10)
Clear all
From Info
Add resources by selecting their tags and properties.
Choose tag
Environment: Production
Clear all
All resources - CPUUtilization
No unit
25.00
20.00
15.00
10.00
19:45
20:00
20:15
20:30
All resources
All resources - DiskReadBytes
No unit
1.00
0.80
0.60
0.40
0.20
0
19:45
20:00
20:15
20:30
All resources
All resources - DiskReadOps
No unit
1.00
All resources - DiskWriteBytes
No unit
1.00


Split by Info
Show separate graphs based on tag values.
AvailabilityZone
Graph options
Period 5 Minutes
Graphs Line
Legend Bottom
Layout 2 columns 50 rows

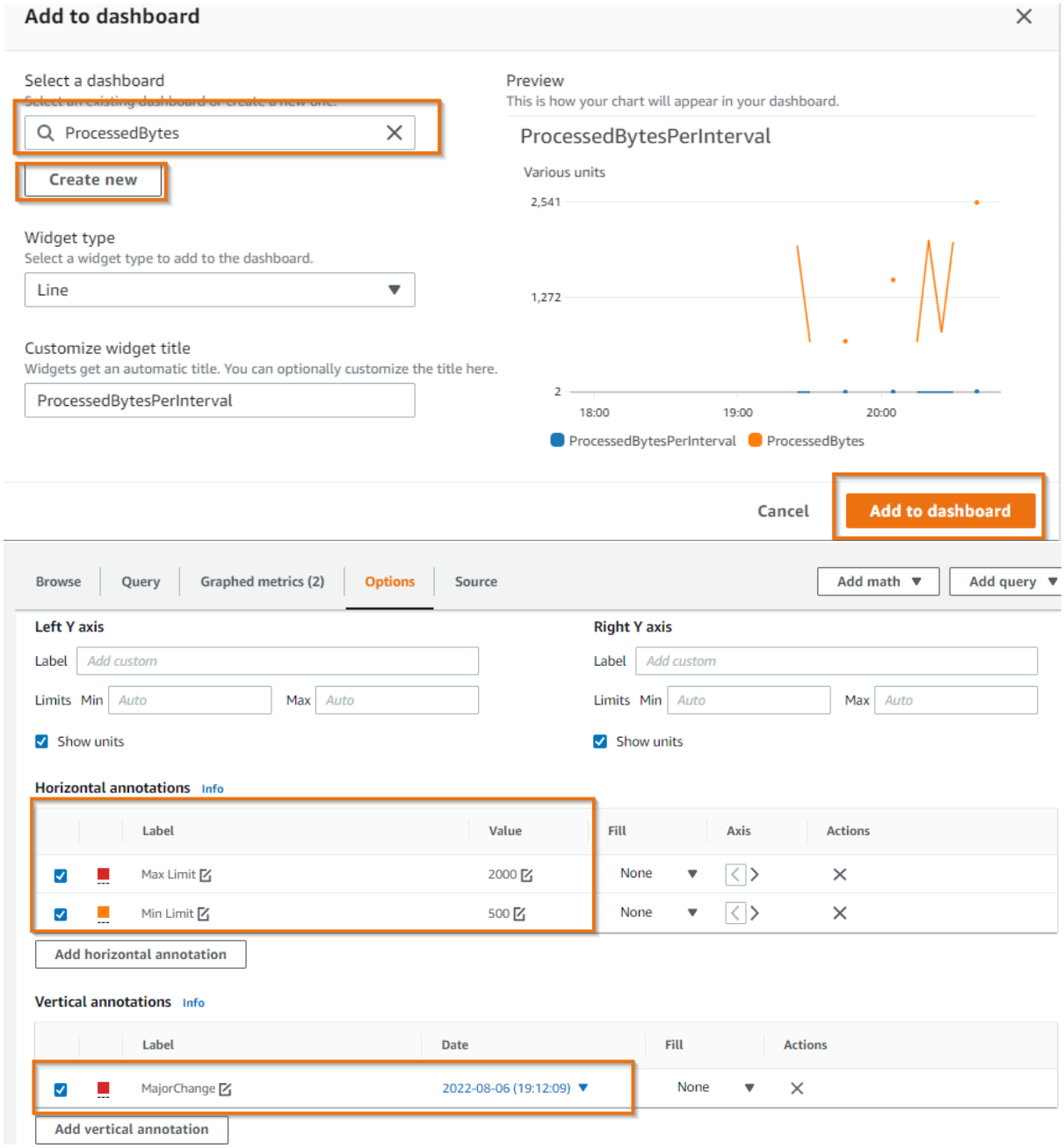

Add widget
Select a widget type to add to the dashboard.
Explorer
A single widget with multiple tag-based graphs
Line
Compare metrics over time
Stacked area
Compare the total over time
Number
Instantly see the latest value and trend for a metric
Gauge
See the latest value of a metric within a lower and upper range
Bar
Compare categories of data
Pie
Show percentage or proportional data
Custom widget - New
Code widgets using Lambda and more


CloudWatch > Metrics
Switch to your original interface
Untitled graph
1h 3h 12h 1d 3d 1w Custom
Line
Actions
Bytes
4,637
2,456
274
11:45 12:00 12:15 12:30 12:45 13:00 13:15 13:30 13:45 14:00 14:15 14:30
ProcessedBytes
Browse Query Graphed metrics (1) Options Source
Add math
Add query
Add dynamic label
Info
Statistic: Sum
Period: 5 minutes
Clear graph
Label Details Statistic Period Y axis Actions
ProcessedBytes
ApplicationELB • ProcessedBytes • LoadBalan
Sum
5 minutes

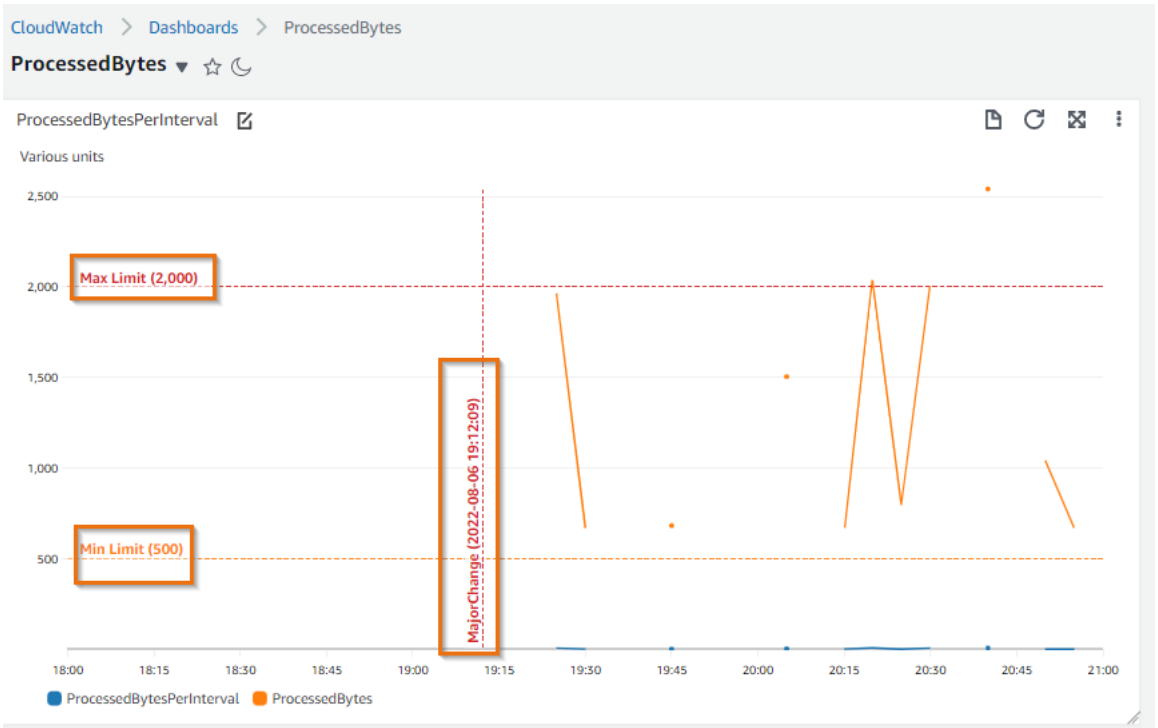

CloudWatch > Metrics
Switch to your original interface
Untitled graph
1h 3h 12h 1d
Bytes
4,637
2,456
274
11:45 12:00 12:15 12:30 12:45 13:00 13:15
ProcessedBytes
LAST
LOG
LOG10
MAX
METRICS
METRIC_COUNT
MIN
MINUTE
MONTH
PERIOD
RATE
REMOVE_EMPTY
RUNNING_SUM
SEARCH
SERVICE_QUOTA
SLICE
All functions
Common
Search
Sort
Filter
Conditional
Anomaly detection
SQL query
Start with empty
Browse
Query
Graphed metrics (1)
Options
Source
Add math
Add query
Add dynamic label
Info
5 minutes
Clear graph
Label
Details
Statistic
Actions
ProcessedBytes
ApplicationELB • ProcessedBytes • LoadBalan
Sum

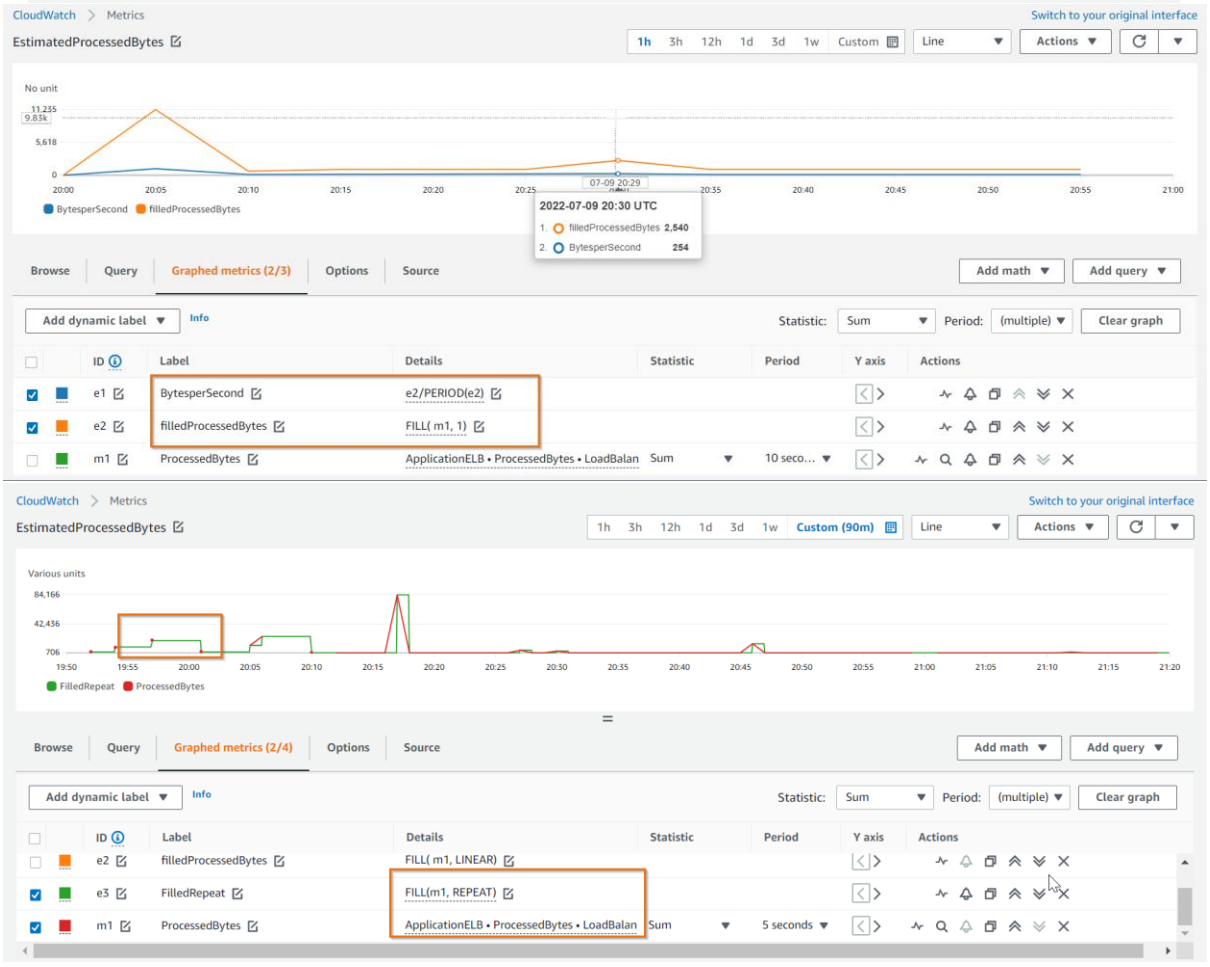
CloudWatch > Metrics
Switch to your original interface
Untitled graph
1h 3h 12h 1d 3d 1w Custom
Line
Actions
Various units
4,637
2,319
1
12:00 12:15 12:30 12:45 13:00 13:15 13:30 13:45 14:00 14:15 14:30 14:45
ProcessedBytesPerInterval
ProcessedBytes
Browse
Query
Graphed metrics (2)
Options
Source
Add math
Add query
Add dynamic label
Info
Statistic:
Sum
Period:
5 minutes
Clear graph
ID
Label
Details
Statistic
Period
Y axis
Actions
e1
ProcessedBytesPerInterval
m1/PERIOD(m1)
m1
ProcessedBytes
ApplicationELB • ProcessedBytes • LoadBalan
Sum
5 minutes

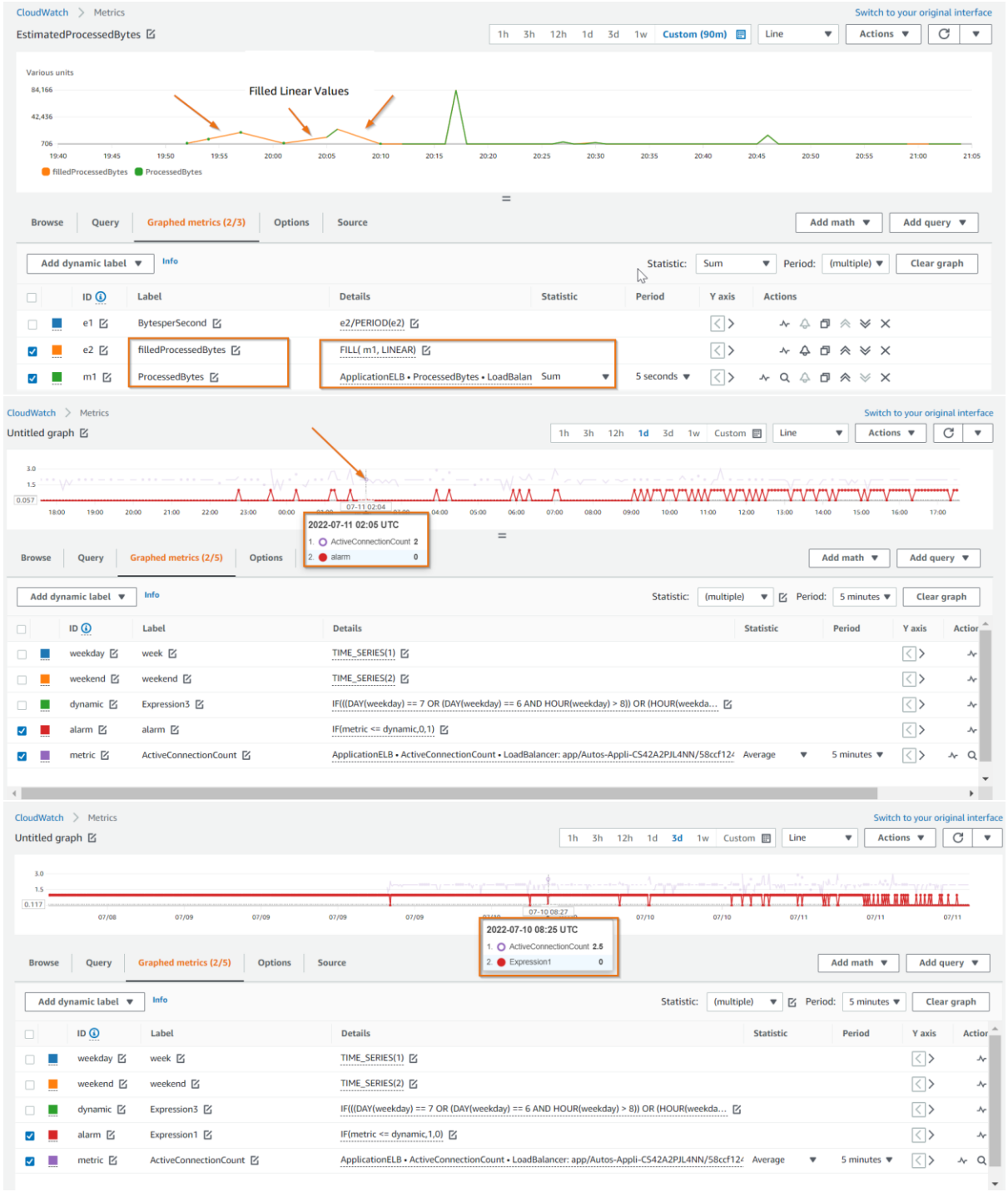
CloudWatch > Metrics
Switch to your original interface
ProcessedBytesPerInterval
1h 3h 12h 1d 3d 1w Custom
Line
Actions
10s
Add to dashboard
Share
Download as .csv
View logs
Various units
2,541
1,272
2
18:00 18:15 18:30 18:45 19:00 19:15 19:30 19:45 20:00 20:15 20:30 20:45
ProcessedBytesPerInterval
ProcessedBytes
Browse
Query
Graphed metrics (2)
Options
Source
Add math
Add query

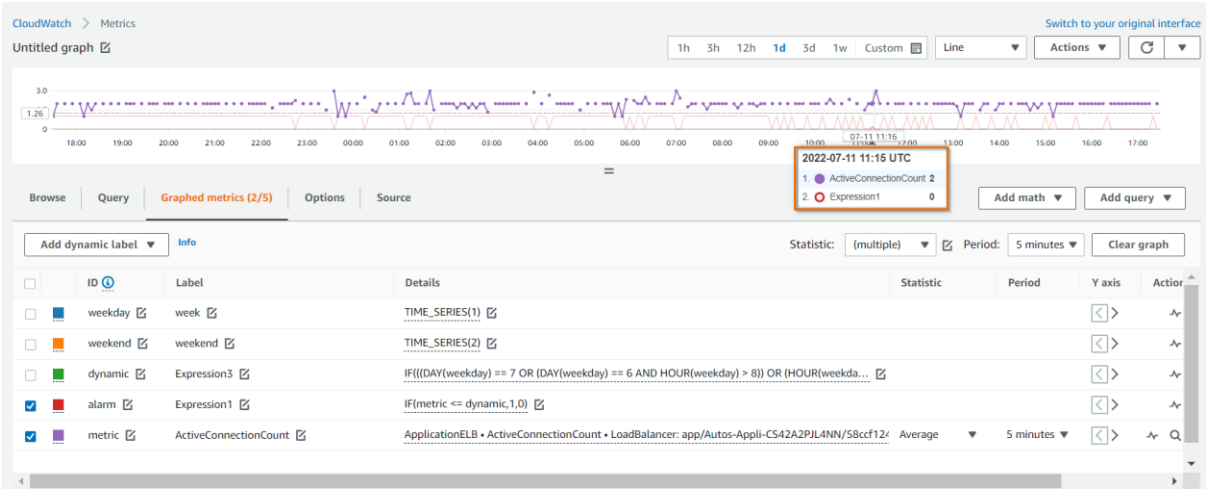

Add to dashboard
Select a dashboard
ProcessedBytes
Create new
Widget type
Select a widget type to add to the dashboard.
Line
Customize widget title
Widgets get an automatic title. You can optionally customize the title here.
ProcessedBytesPerInterval
Preview
This is how your chart will appear in your dashboard.
ProcessedBytesPerInterval
Various units
2,541
1,272
2
18:00
19:00
20:00
ProcessedBytesPerInterval
ProcessedBytes
Cancel
Add to dashboard

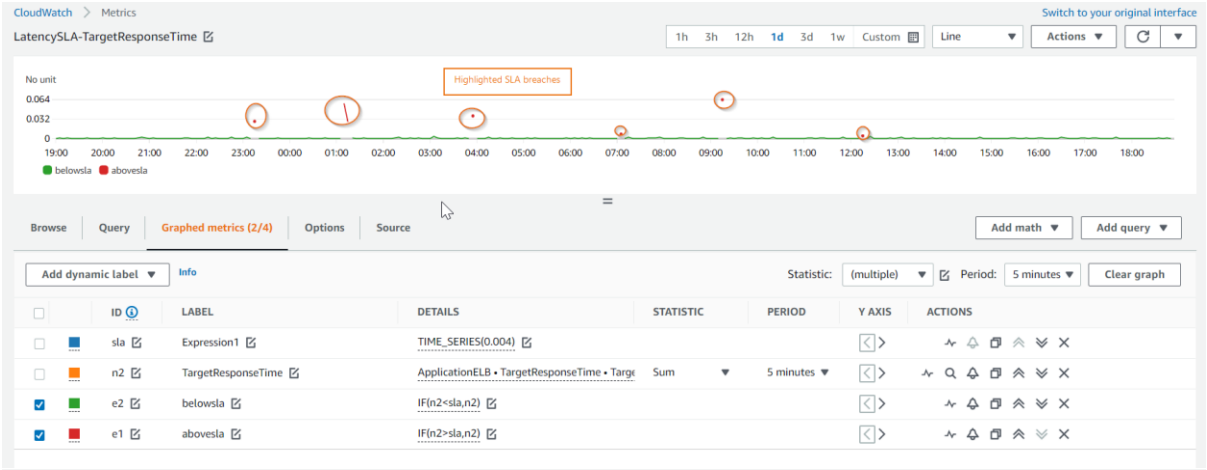
Browse
Query
Graphed metrics (2)
Options
Source
Add math
Add query
Left Y axis
Label
Add custom
Limits Min
Auto
Max
Auto
Show units
Right Y axis
Label
Add custom
Limits Min
Auto
Max
Auto
Show units
Horizontal annotations
Info
Label
Value
Fill
Axis
Actions
Max Limit
2000
None
Min Limit
500
None
Add horizontal annotation
Vertical annotations
Info
Label
Date
Fill
Actions
MajorChange
2022-08-06 (19:12:09)
None
Add vertical annotation

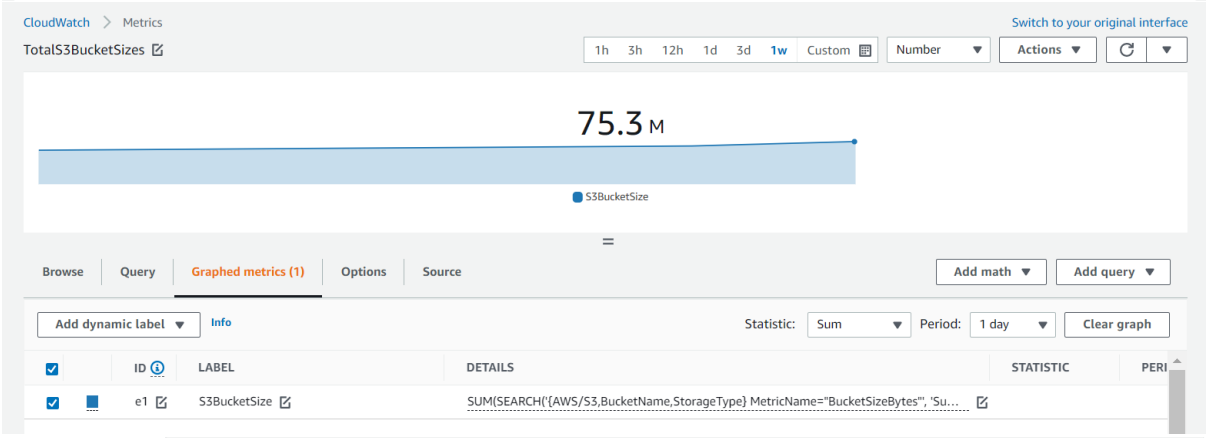

CloudWatch > Dashboards > ProcessedBytes
ProcessedBytes
ProcessedBytesPerInterval
Various units
2,500
2,000
1,500
1,000
500
Max Limit (2,000)
Min Limit (500)
MajorChange (2022-08-06 19:12:09)
18:00
18:15
18:30
18:45
19:00
19:15
19:30
19:45
20:00
20:15
20:30
20:45
21:00
ProcessedBytesPerInterval
ProcessedBytes

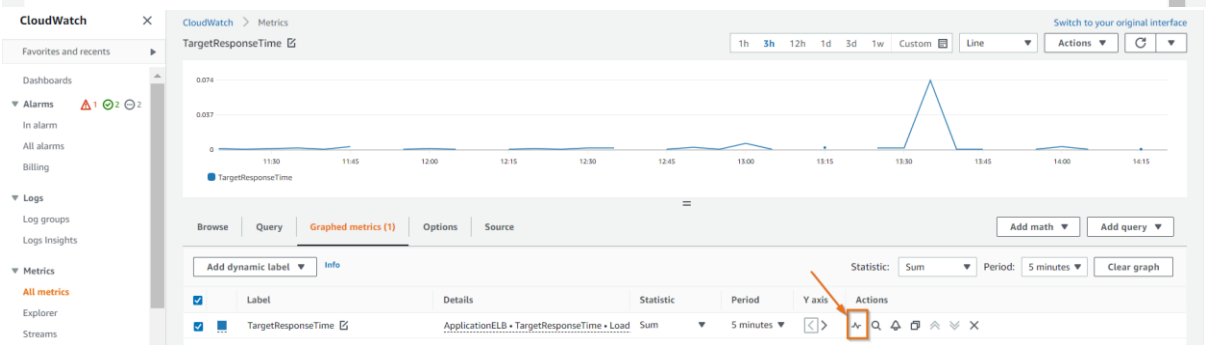

CloudWatch > Metrics
Switch to your original interface
EstimatedProcessedBytes
1h 3h 12h 1d 3d 1w Custom
Line
Actions
No unit
11,235
9.83k
5,618
0
20:00
20:05
20:10
20:15
20:20
20:25
07-09 20:29
20:35
20:40
20:45
20:50
20:55
21:00
BytesperSecond
filledProcessedBytes
2022-07-09 20:30 UTC
1. filledProcessedBytes 2,540
2. BytesperSecond 254
Browse
Query
Graphed metrics (2/3)
Options
Source
Add math
Add query
Add dynamic label
Info
Statistic: Sum
Period: (multiple)
Clear graph
ID
Label
Details
Statistic
Period
Y axis
Actions
e1
BytesperSecond
e2/PERIOD(e2)
e2
filledProcessedBytes
FILL(m1, 1)
m1
ProcessedBytes
ApplicationELB • ProcessedBytes • LoadBalan
Sum
10 seco...
CloudWatch > Metrics
Switch to your original interface
EstimatedProcessedBytes
1h 3h 12h 1d 3d 1w Custom (90m)
Line
Actions
Various units
84,166
42,436
706
19:50
19:55
20:00
20:05
20:10
20:15
20:20
20:25
20:30
20:35
20:40
20:45
20:50
20:55
21:00
21:05
21:10
21:15
21:20
FilledRepeat
ProcessedBytes
Browse
Query
Graphed metrics (2/4)
Options
Source
Add math
Add query
Add dynamic label
Info
Statistic: Sum
Period: (multiple)
Clear graph
ID
Label
Details
Statistic
Period
Y axis
Actions
e2
filledProcessedBytes
FILL(m1, LINEAR)
e3
FilledRepeat
FILL(m1, REPEAT)
m1
ProcessedBytes
ApplicationELB • ProcessedBytes • LoadBalan
Sum
5 seconds

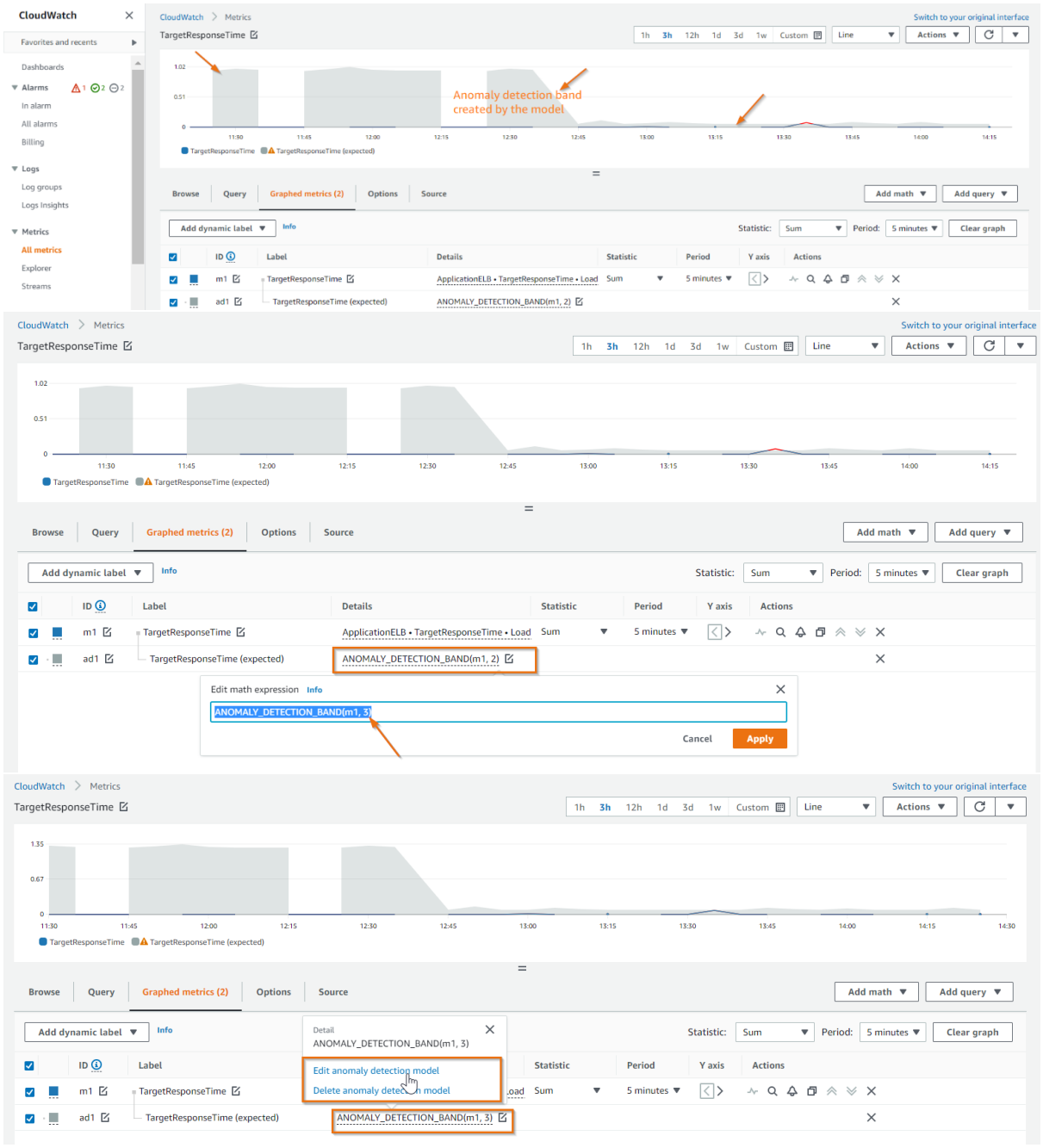

CloudWatch > Metrics
Switch to your original interface
EstimatedProcessedBytes
1h 3h 12h 1d 3d 1w Custom (90m)
Line
Actions
Various units
84,166
42,436
706
Filled Linear Values
19:40 19:45 19:50 19:55 20:00 20:05 20:10 20:15 20:20 20:25 20:30 20:35 20:40 20:45 20:50 20:55 21:00 21:05
filledProcessedBytes
ProcessedBytes
Browse
Query
Graphed metrics (2/3)
Options
Source
Add math
Add query
Add dynamic label
Info
Statistic: Sum
Period: (multiple)
Clear graph
ID
Label
Details
Statistic
Period
Y axis
Actions
e1 BytesperSecond e2/PERIOD(e2)
e2 filledProcessedBytes FILL(m1, LINEAR)
m1 ProcessedBytes ApplicationELB • ProcessedBytes • LoadBalan Sum 5 seconds
CloudWatch > Metrics
Switch to your original interface
Untitled graph
1h 3h 12h 1d 3d 1w Custom
Line
Actions
3.0
1.5
0.057
18:00 19:00 20:00 21:00 22:00 23:00 00:00 01:00 02:00 03:00 04:00 05:00 06:00 07:00 08:00 09:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00
07-11 02:04
2022-07-11 02:05 UTC
1. ActiveConnectionCount 2
2. alarm 0
Browse
Query
Graphed metrics (2/5)
Options
Add math
Add query
Add dynamic label
Info
Statistic: (multiple)
Period: 5 minutes
Clear graph
ID
Label
Details
Statistic
Period
Y axis
weekday week TIME_SERIES(1)
weekend weekend TIME_SERIES(2)
dynamic Expression3 IF(((DAY(weekday) == 7 OR (DAY(weekday) == 6 AND HOUR(weekday) > 8)) OR (HOUR(weekda...
alarm alarm IF(metric <= dynamic,0,1)
metric ActiveConnectionCount ApplicationELB • ActiveConnectionCount • LoadBalancer: app/Autos-Appli-CS42A2PJL4NN/58ccf12 Average 5 minutes
CloudWatch > Metrics
Switch to your original interface
Untitled graph
1h 3h 12h 1d 3d 1w Custom
Line
Actions
3.0
1.5
0.117
07/08 07/09 07/09 07/09 07/09 07/10 07/10 07/11 07/11 07/11
07-10 08:27
2022-07-10 08:25 UTC
1. ActiveConnectionCount 2.5
2. Expression1 0
Browse
Query
Graphed metrics (2/5)
Options
Source
Add math
Add query
Add dynamic label
Info
Statistic: (multiple)
Period: 5 minutes
Clear graph
ID
Label
Details
Statistic
Period
Y axis
weekday week TIME_SERIES(1)
weekend weekend TIME_SERIES(2)
dynamic Expression3 IF(((DAY(weekday) == 7 OR (DAY(weekday) == 6 AND HOUR(weekday) > 8)) OR (HOUR(weekda...
alarm Expression1 IF(metric <= dynamic,1,0)
metric ActiveConnectionCount ApplicationELB • ActiveConnectionCount • LoadBalancer: app/Autos-Appli-CS42A2PJL4NN/58ccf12 Average 5 minutes

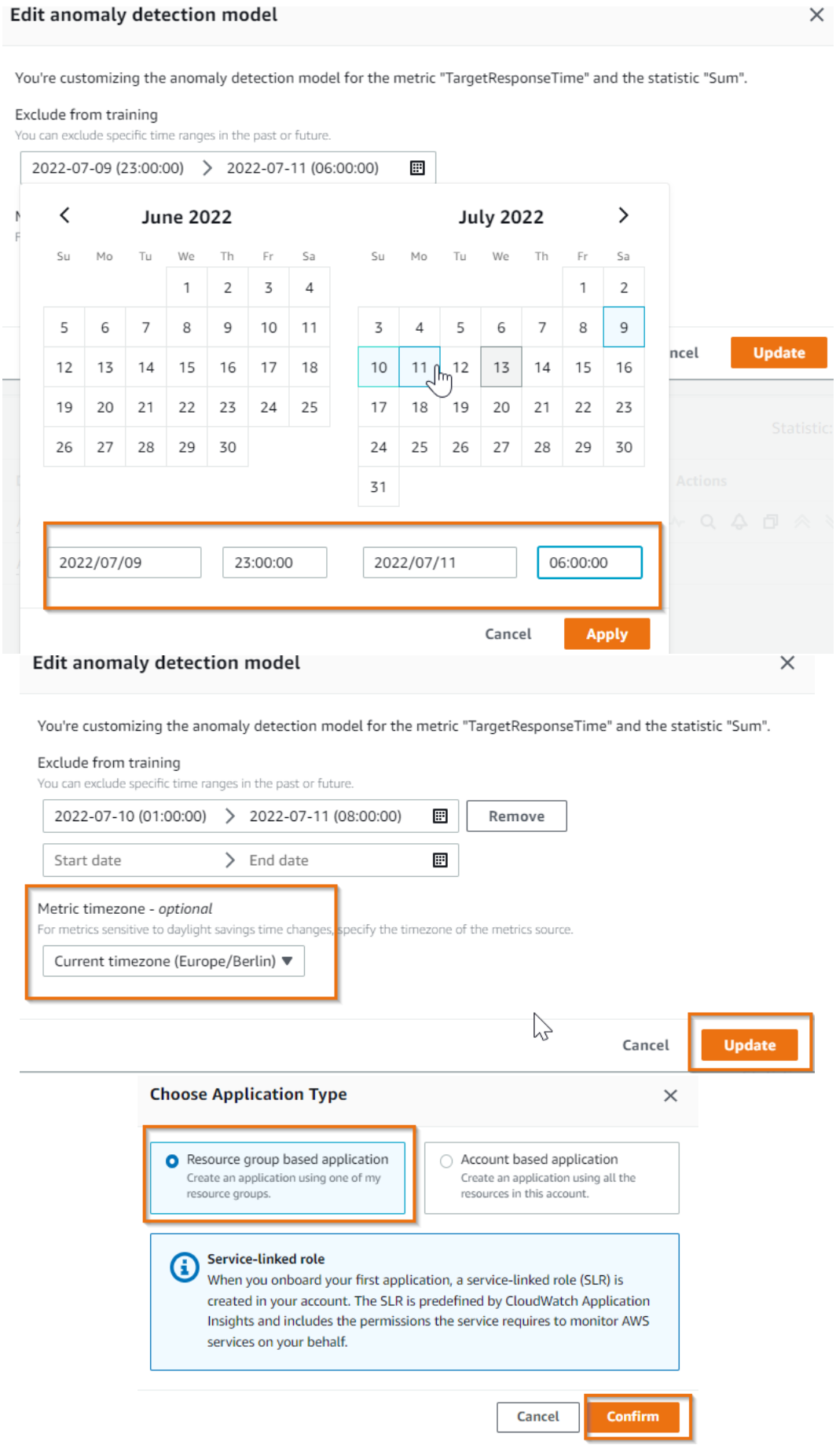

CloudWatch
Metrics
Switch to your original interface
Untitled graph
1h 3h 12h 1d 3d 1w Custom
Line
Actions
2022-07-11 11:15 UTC
1. ActiveConnectionCount 2
2. Expression1 0
Browse
Query
Graphed metrics (2/5)
Options
Source
Add math
Add query
Add dynamic label
Info
Statistic: (multiple)
Period: 5 minutes
Clear graph
ID
Label
Details
Statistic
Period
Y axis
weekday week TIME_SERIES(1)
weekend weekend TIME_SERIES(2)
dynamic Expression3 IF(((DAY(weekday) == 7 OR (DAY(weekday) == 6 AND HOUR(weekday) > 8)) OR (HOUR(weekda...
alarm Expression1 IF(metric <= dynamic,1,0)
metric ActiveConnectionCount ApplicationELB • ActiveConnectionCount • LoadBalancer: app/Autos-Appli-CS42A2PJL4NN/58ccf12 Average 5 minutes

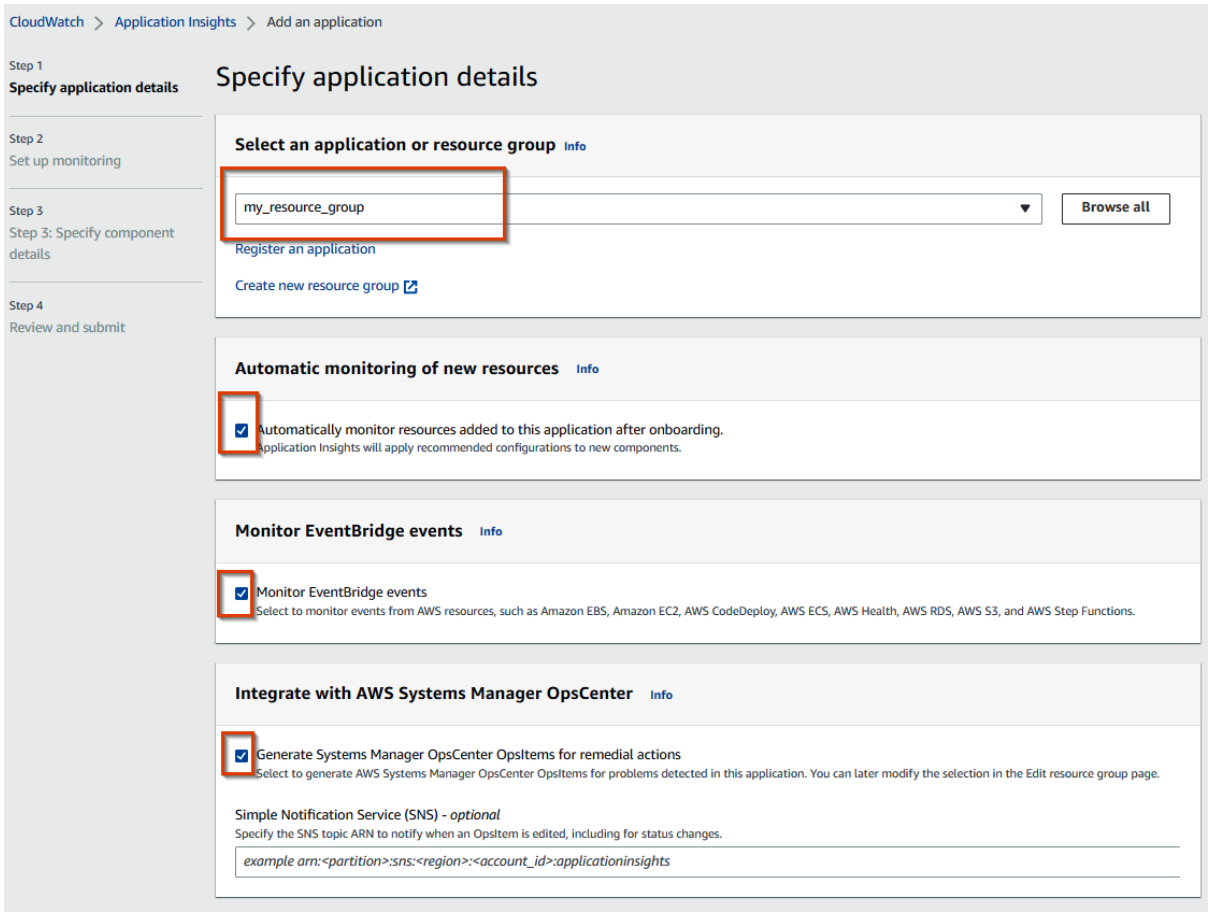

CloudWatch
Metrics
Switch to your original interface
LatencySLA-TargetResponseTime
1h 3h 12h 1d 3d 1w Custom
Line
Actions
Highlighted SLA breaches
No unit
belowsla
abovesla
Browse
Query
Graphed metrics (2/4)
Options
Source
Add math
Add query
Add dynamic label
Info
Statistic: (multiple)
Period: 5 minutes
Clear graph
ID
LABEL
DETAILS
STATISTIC
PERIOD
Y AXIS
ACTIONS
sla Expression1 TIME_SERIES(0.004)
n2 TargetResponseTime ApplicationELB • TargetResponseTime • Targ Sum 5 minutes
e2 belowsla IF(n2<sla,n2)
e1 abovesla IF(n2>sla,n2)

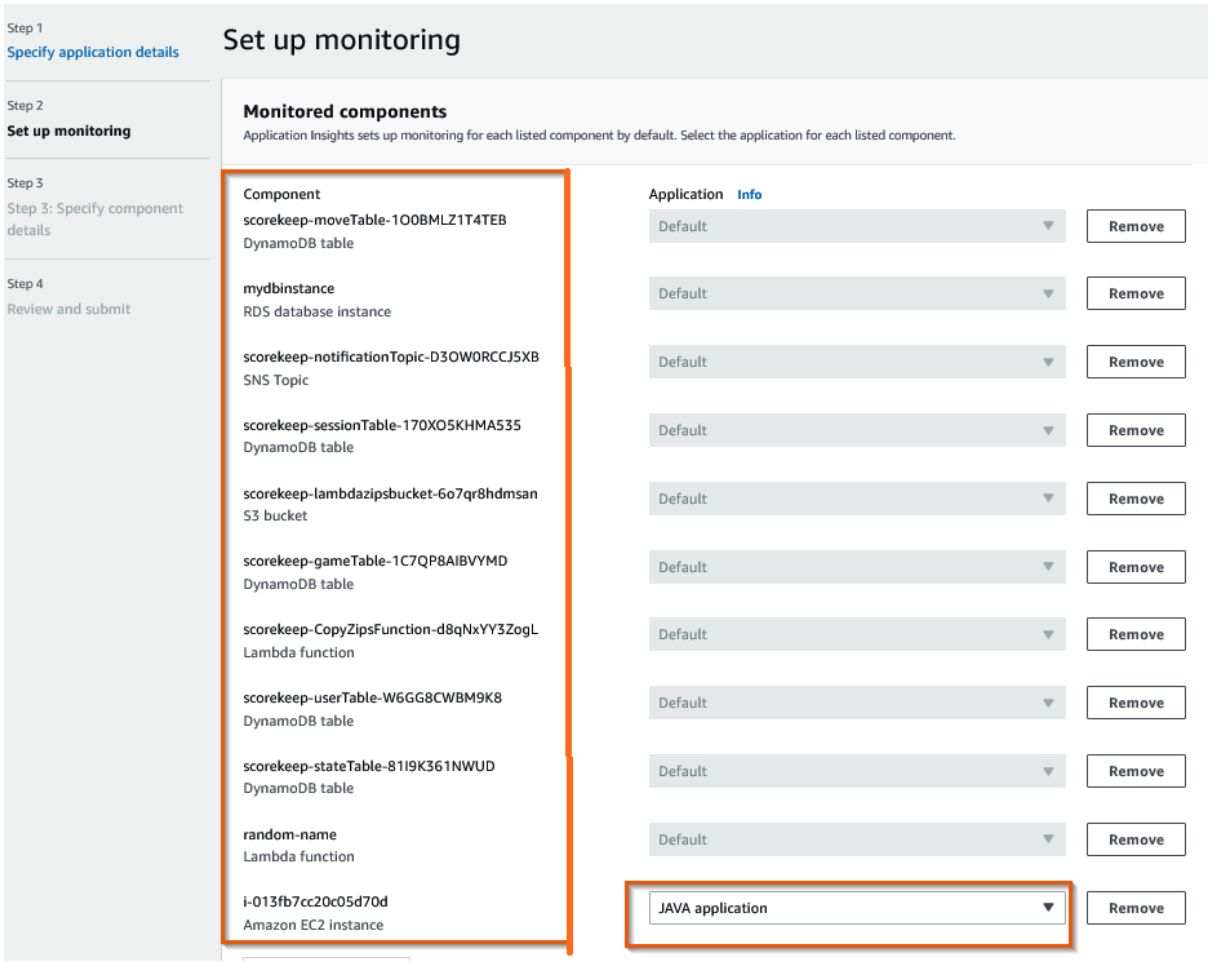

CloudWatch
Metrics
Switch to your original interface
TotalS3BucketSizes
1h 3h 12h 1d 3d 1w Custom
Number
Actions
75.3 M
S3BucketSize
Browse
Query
Graphed metrics (1)
Options
Source
Add math
Add query
Add dynamic label
Info
Statistic: Sum
Period: 1 day
Clear graph
ID
LABEL
DETAILS
STATISTIC
PERI
e1 S3BucketSize SUM(SEARCH('{AWS/S3,BucketName,StorageType} MetricName="BucketSizeBytes"', 'Su...

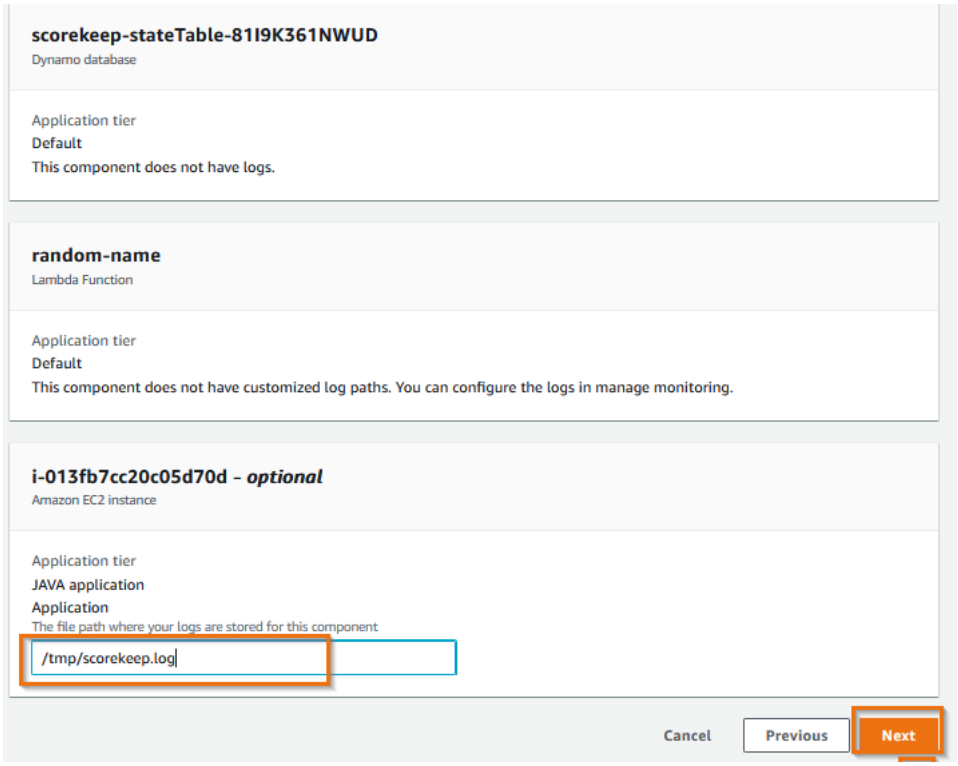

CloudWatch
Favorites and recents
Dashboards
Alarms
In alarm
All alarms
Billing
Logs
Log groups
Logs Insights
Metrics
All metrics
Explorer
Streams
CloudWatch
Metrics
Switch to your original interface
TargetResponseTime
1h 3h 12h 1d 3d 1w Custom
Line
Actions
TargetResponseTime
Browse
Query
Graphed metrics (1)
Options
Source
Add math
Add query
Add dynamic label
Info
Statistic: Sum
Period: 5 minutes
Clear graph
Label
Details
Statistic
Period
Y axis
Actions
TargetResponseTime ApplicationELB • TargetResponseTime • Load Sum 5 minutes

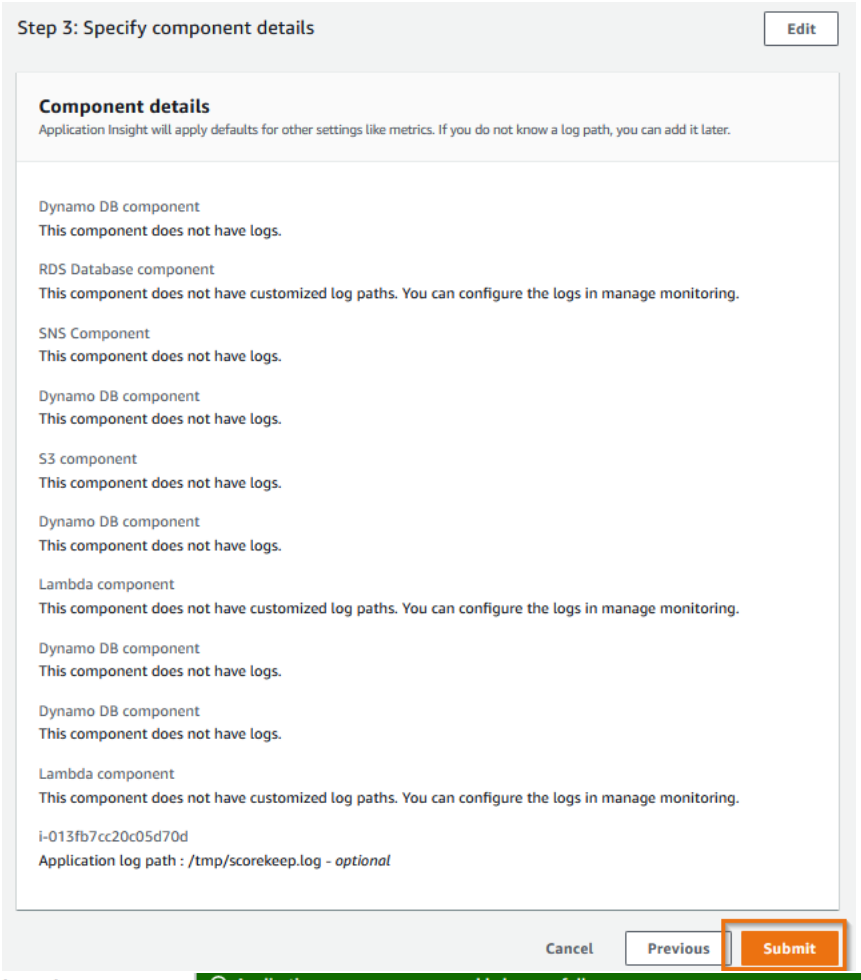

CloudWatch
Favorites and recents
Dashboards
Alarms
In alarm
All alarms
Billing
Logs
Log groups
Logs Insights
Metrics
All metrics
Explorer
Streams
CloudWatch > Metrics
TargetResponseTime
Switch to your original interface
1h 3h 12h 1d 3d 1w Custom
Line
Actions
Anomaly detection band created by the model
TargetResponseTime
TargetResponseTime (expected)
Browse
Query
Graphed metrics (2)
Options
Source
Add math
Add query
Add dynamic label
Info
Statistic:
Sum
Period:
5 minutes
Clear graph
ID
Label
Details
Statistic
Period
Y axis
Actions
m1
TargetResponseTime
ApplicationELB • TargetResponseTime • Load
ad1
TargetResponseTime (expected)
ANOMALY_DETECTION_BAND(m1, 2)
Edit math expression
Info
ANOMALY_DETECTION_BAND(m1, 3)
Cancel
Apply
Detail
ANOMALY_DETECTION_BAND(m1, 3)
Edit anomaly detection model
Delete anomaly detection model

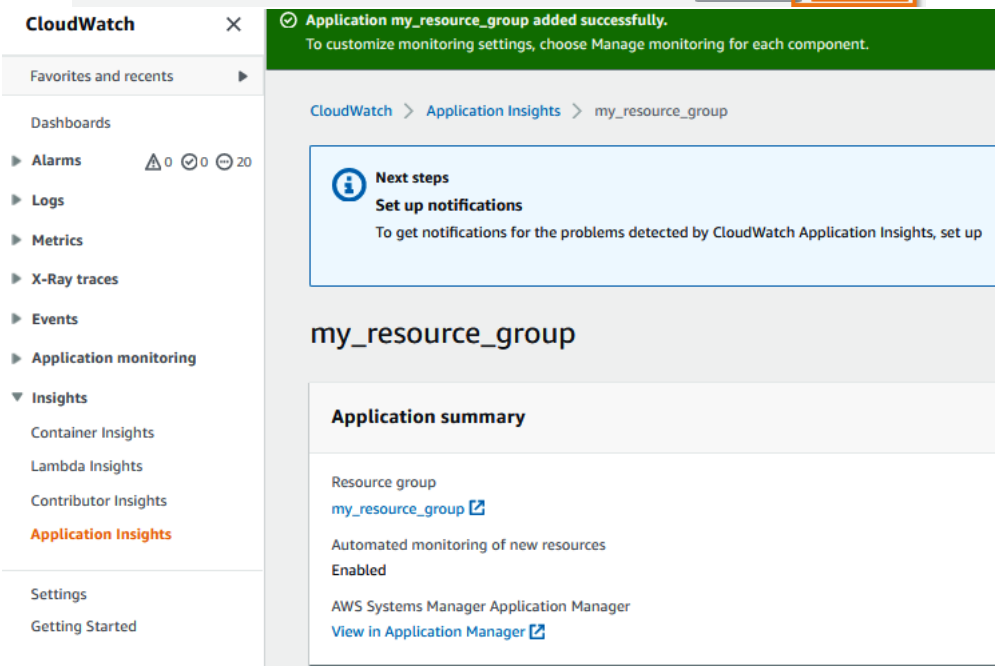

Edit anomaly detection model
You're customizing the anomaly detection model for the metric "TargetResponseTime" and the statistic "Sum".
Exclude from training
You can exclude specific time ranges in the past or future.
2022-07-09 (23:00:00)
2022-07-11 (06:00:00)
June 2022
July 2022
Su Mo Tu We Th Fr Sa
2022/07/09
23:00:00
2022/07/11
06:00:00
Cancel
Apply
Update
Edit anomaly detection model
You're customizing the anomaly detection model for the metric "TargetResponseTime" and the statistic "Sum".
Exclude from training
You can exclude specific time ranges in the past or future.
2022-07-10 (01:00:00)
2022-07-11 (08:00:00)
Remove
Start date
End date
Metric timezone - optional
For metrics sensitive to daylight savings time changes, specify the timezone of the metrics source.
Current timezone (Europe/Berlin)
Cancel
Update
Choose Application Type
Resource group based application
Create an application using one of my resource groups.
Account based application
Create an application using all the resources in this account.
Service-linked role
When you onboard your first application, a service-linked role (SLR) is created in your account. The SLR is predefined by CloudWatch Application Insights and includes the permissions the service requires to monitor AWS services on your behalf.
Cancel
Confirm

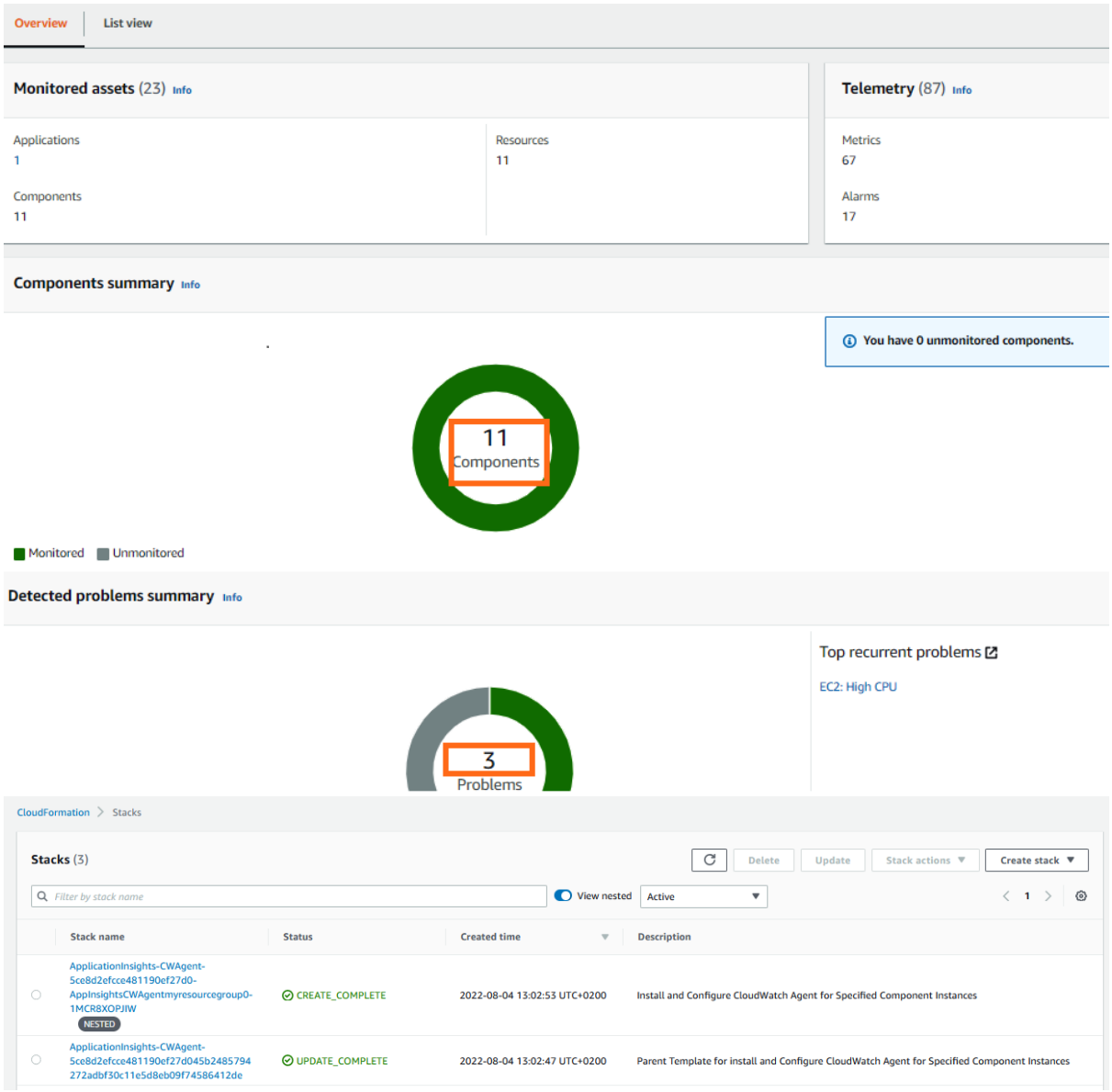

CloudWatch > Application Insights > Add an application
Step 1
Specify application details
Step 2
Set up monitoring
Step 3
Step 3: Specify component details
Step 4
Review and submit
Specify application details
Select an application or resource group Info
my_resource_group
Browse all
Register an application
Create new resource group
Automatic monitoring of new resources Info
Automatically monitor resources added to this application after onboarding.
Application Insights will apply recommended configurations to new components.
Monitor EventBridge events Info
Monitor EventBridge events
Select to monitor events from AWS resources, such as Amazon EBS, Amazon EC2, AWS CodeDeploy, AWS ECS, AWS Health, AWS RDS, AWS S3, and AWS Step Functions.
Integrate with AWS Systems Manager OpsCenter Info
Generate Systems Manager OpsCenter OpsItems for remedial actions
Select to generate AWS Systems Manager OpsCenter OpsItems for problems detected in this application. You can later modify the selection in the Edit resource group page.
Simple Notification Service (SNS) - optional
Specify the SNS topic ARN to notify when an OpsItem is edited, including for status changes.
example arn:<partition>:sns:<region>:<account_id>:applicationinsights


Step 1
Specify application details
Step 2
Set up monitoring
Step 3
Step 3: Specify component details
Step 4
Review and submit
Set up monitoring
Monitored components
Application Insights sets up monitoring for each listed component by default. Select the application for each listed component.
Component
Application Info
scorekeep-moveTable-1O0BMLZ1T4TEB
DynamoDB table
Default
Remove
mydbinstance
RDS database instance
Default
Remove
scorekeep-notificationTopic-D3OW0RCCJ5XB
SNS Topic
Default
Remove
scorekeep-sessionTable-170XO5KHMA535
DynamoDB table
Default
Remove
scorekeep-lambdazipsbucket-6o7qr8hdmsan
S3 bucket
Default
Remove
scorekeep-gameTable-1C7QP8AIBVYMD
DynamoDB table
Default
Remove
scorekeep-CopyZipsFunction-d8qNxYY3ZogL
Lambda function
Default
Remove
scorekeep-userTable-W6GG8CWBM9K8
DynamoDB table
Default
Remove
scorekeep-stateTable-81I9K361NWUD
DynamoDB table
Default
Remove
random-name
Lambda function
Default
Remove
i-013fb7cc20c05d70d
Amazon EC2 instance
JAVA application
Remove

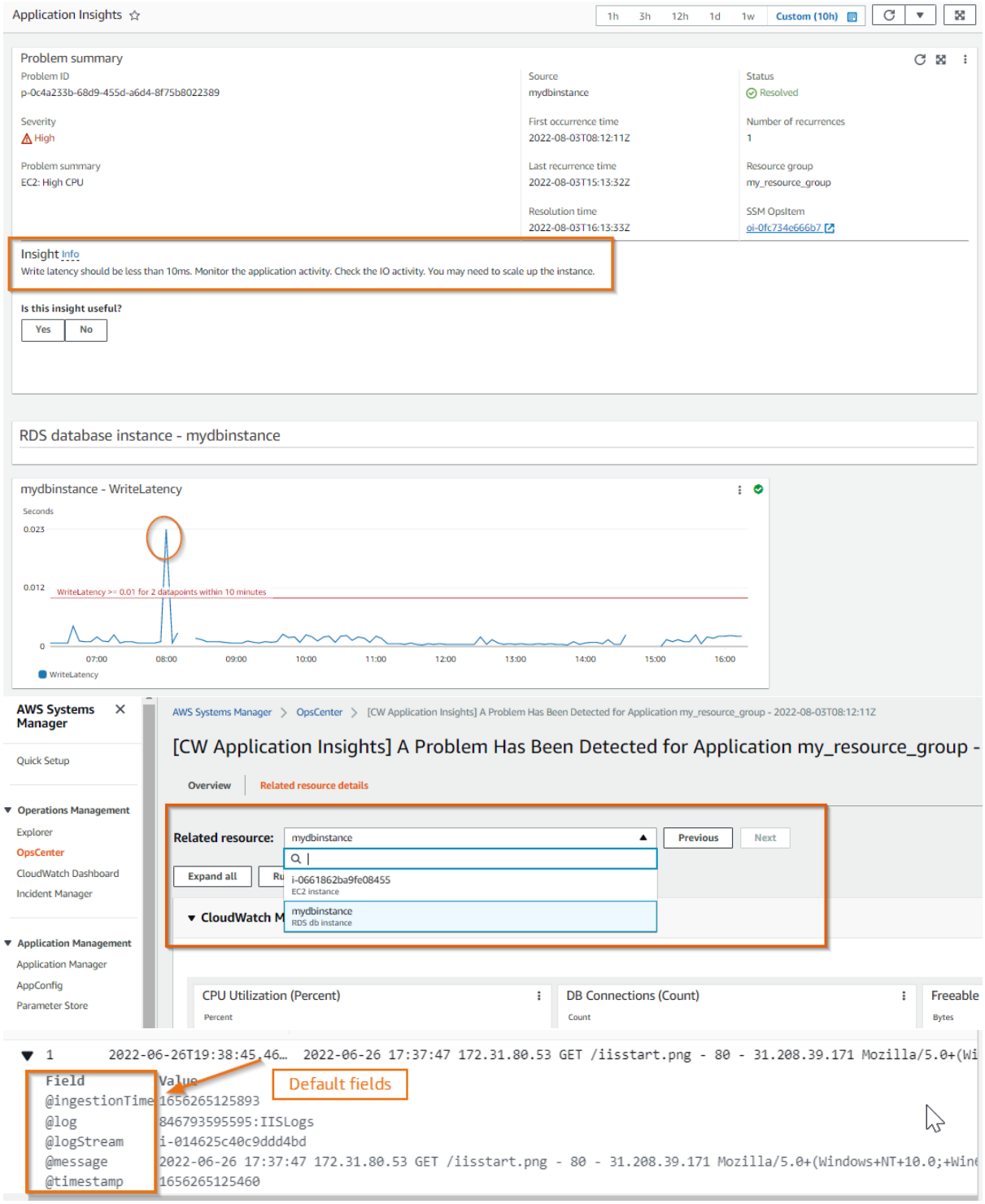

scorekeep-stateTable-81I9K361NWUD
Dynamo database
Application tier
Default
This component does not have logs.
random-name
Lambda Function
Application tier
Default
This component does not have customized log paths. You can configure the logs in manage monitoring.
i-013fb7cc20c05d70d - optional
Amazon EC2 instance
Application tier
JAVA application
Application
The file path where your logs are stored for this component
/tmp/scorekeep.log
Cancel
Previous
Next

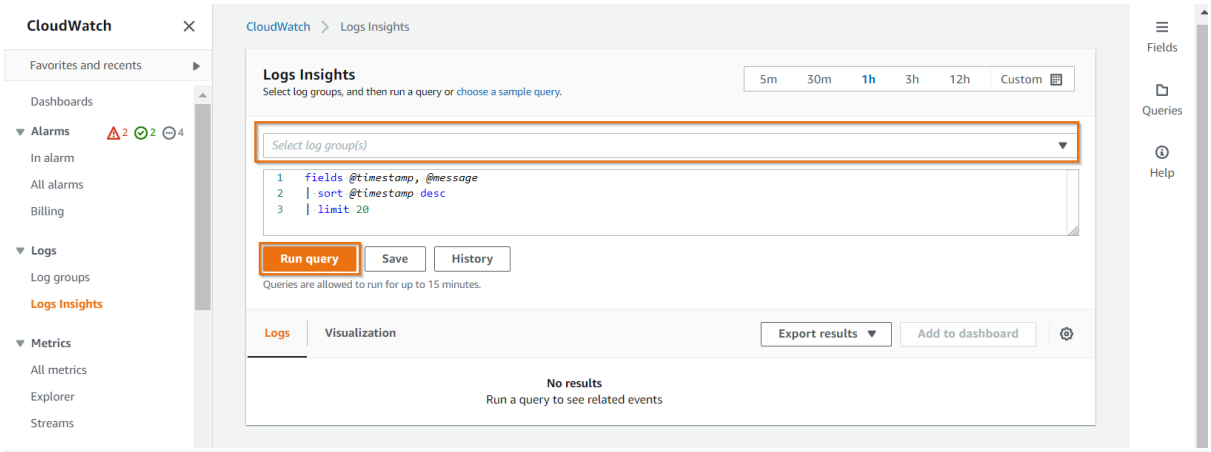

Step 3: Specify component details
Edit
Component details
Application Insight will apply defaults for other settings like metrics. If you do not know a log path, you can add it later.
Dynamo DB component
This component does not have logs.
RDS Database component
This component does not have customized log paths. You can configure the logs in manage monitoring.
SNS Component
This component does not have logs.
Dynamo DB component
This component does not have logs.
S3 component
This component does not have logs.
Dynamo DB component
This component does not have logs.
Lambda component
This component does not have customized log paths. You can configure the logs in manage monitoring.
Dynamo DB component
This component does not have logs.
Dynamo DB component
This component does not have logs.
Lambda component
This component does not have customized log paths. You can configure the logs in manage monitoring.
i-013fb7cc20c05d70d
Application log path : /tmp/scorekeep.log - optional
Cancel
Previous
Submit

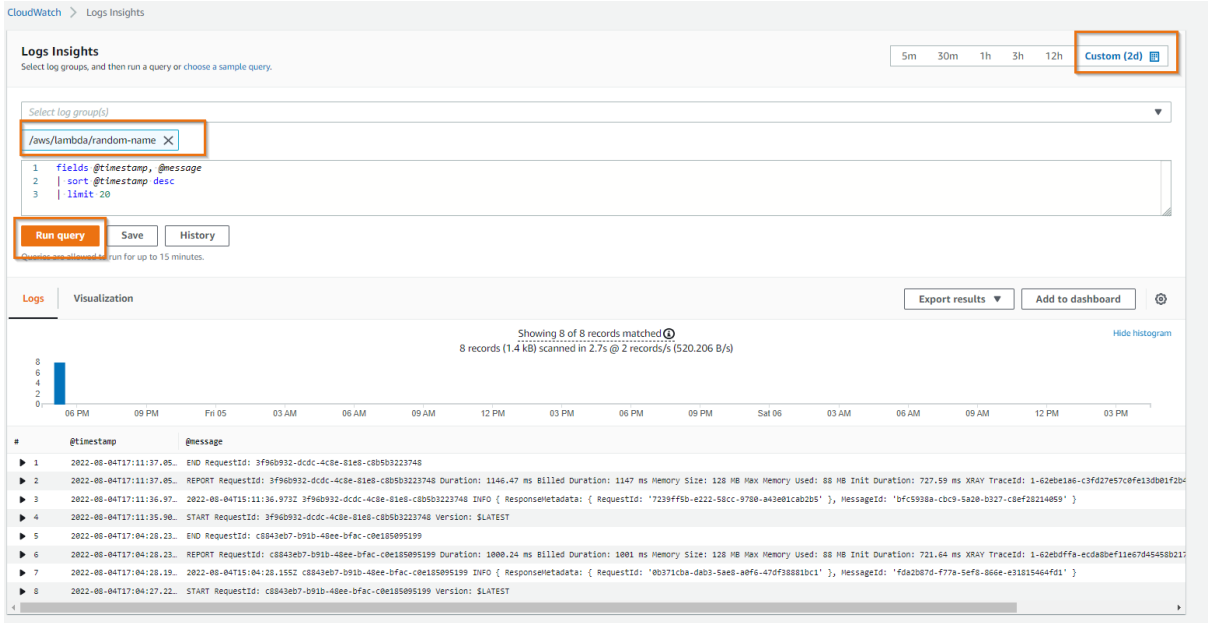

CloudWatch
Favorites and recents
Dashboards
Alarms 0 0 20
Logs
Metrics
X-Ray traces
Events
Application monitoring
Insights
Container Insights
Lambda Insights
Contributor Insights
Application Insights
Settings
Getting Started
Application my_resource_group added successfully.
To customize monitoring settings, choose Manage monitoring for each component.
CloudWatch > Application Insights > my_resource_group
Next steps
Set up notifications
To get notifications for the problems detected by CloudWatch Application Insights, set up
my_resource_group
Application summary
Resource group
my_resource_group
Automated monitoring of new resources
Enabled
AWS Systems Manager Application Manager
View in Application Manager

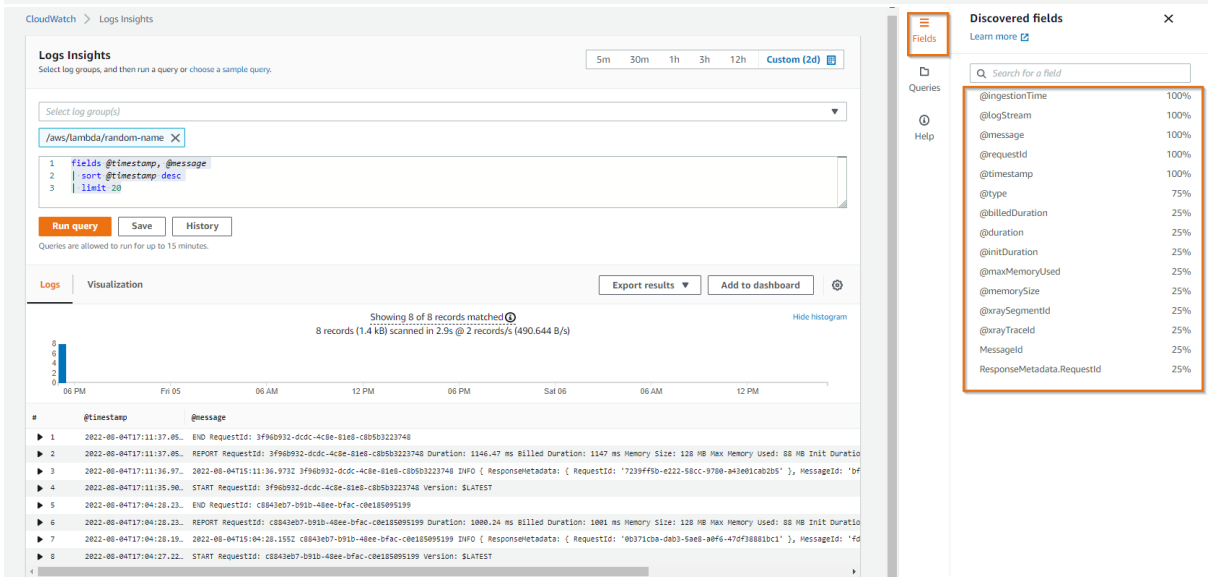

Overview
List view
Monitored assets (23) Info
Applications
1
Resources
11
Components
11
Telemetry (87) Info
Metrics
67
Alarms
17
Components summary Info
You have 0 unmonitored components.
11
Components
Monitored
Unmonitored
Detected problems summary Info
Top recurrent problems
EC2: High CPU
3
Problems

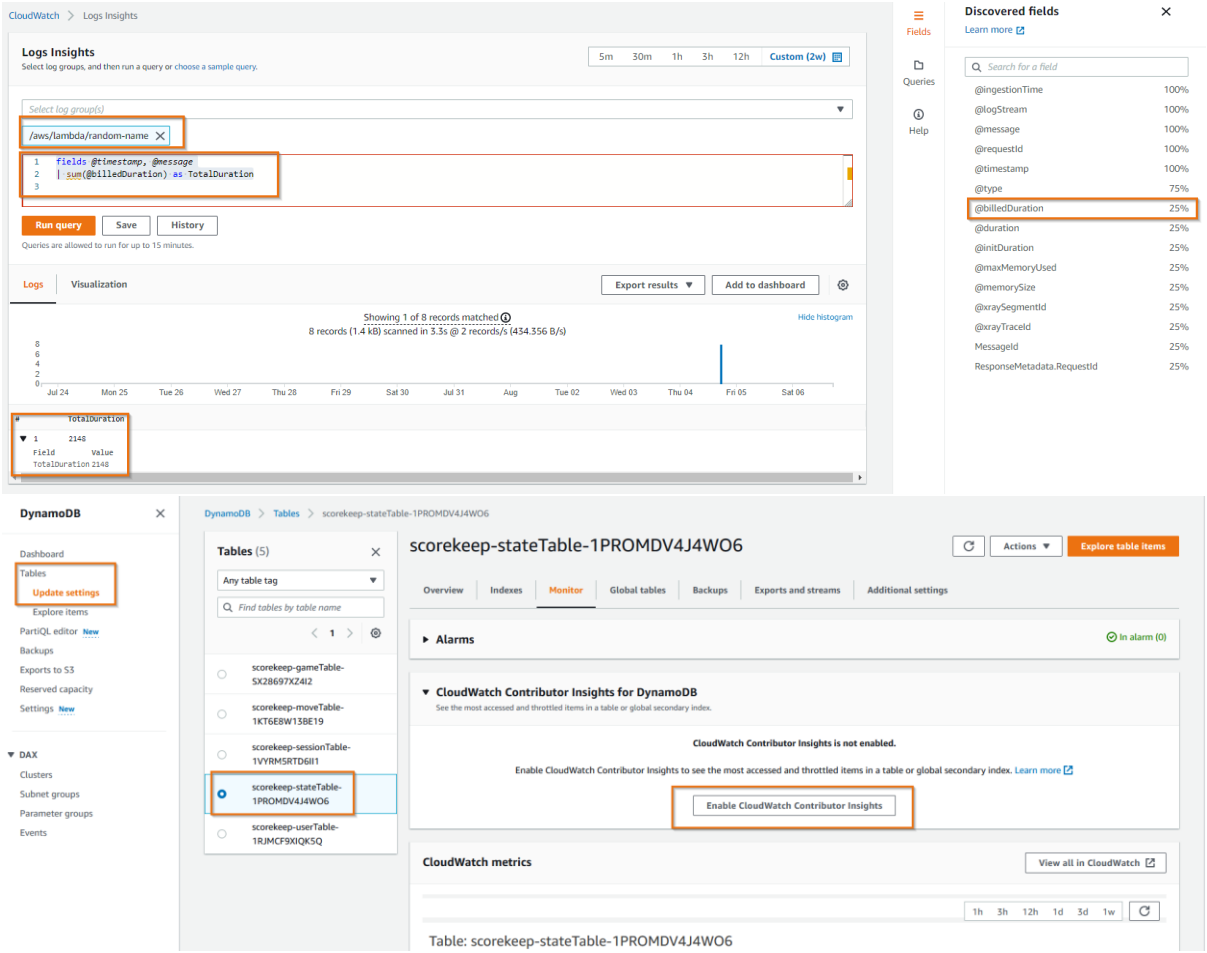
CloudFormation
Stacks
Stacks (3)
Delete
Update
Stack actions
Create stack
Filter by stack name
View nested
Active
1
Stack name
Status
Created time
Description
ApplicationInsights-CWAgent-5ce8d2efcce481190ef27d0-AppInsightsCWAgentmyresourcegroup0-1MCR8XOPJIW
NESTED
CREATE_COMPLETE
2022-08-04 13:02:53 UTC+0200
Install and Configure CloudWatch Agent for Specified Component Instances
ApplicationInsights-CWAgent-5ce8d2efcce481190ef27d045b2485794272adbf30c11e5d8eb09f74586412de
UPDATE_COMPLETE
2022-08-04 13:02:47 UTC+0200
Parent Template for install and Configure CloudWatch Agent for Specified Component Instances


Application Insights
1h 3h 12h 1d 1w Custom (10h)
Problem summary
Problem ID
p-0c4a233b-68d9-455d-a6d4-8f75b8022389
Severity
High
Problem summary
EC2: High CPU
Source
mydbinstance
First occurrence time
2022-08-03T08:12:11Z
Last recurrence time
2022-08-03T15:13:32Z
Resolution time
2022-08-03T16:13:33Z
Status
Resolved
Number of recurrences
1
Resource group
my_resource_group
SSM OpsItem
oi-0fc734e666b7
Insight Info
Write latency should be less than 10ms. Monitor the application activity. Check the IO activity. You may need to scale up the instance.
Is this insight useful?
Yes
No
RDS database instance - mydbinstance
mydbinstance - WriteLatency
Seconds
0.023
0.012
0
WriteLatency >= 0.01 for 2 datapoints within 10 minutes
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
WriteLatency
AWS Systems Manager
Quick Setup
Operations Management
Explorer
OpsCenter
CloudWatch Dashboard
Incident Manager
Application Management
Application Manager
AppConfig
Parameter Store
AWS Systems Manager > OpsCenter > [CW Application Insights] A Problem Has Been Detected for Application my_resource_group - 2022-08-03T08:12:11Z
[CW Application Insights] A Problem Has Been Detected for Application my_resource_group -
Overview
Related resource details
Related resource:
mydbinstance
Previous
Next
Expand all
i-0661862ba9fe08455
EC2 instance
mydbinstance
RDS db instance
CloudWatch M
CPU Utilization (Percent)
Percent
DB Connections (Count)
Count
Freeable
Bytes
1 2022-06-26T19:38:45.46… 2022-06-26 17:37:47 172.31.80.53 GET /iisstart.png - 80 - 31.208.39.171 Mozilla/5.0+(Wi
Field
Value
Default fields
@ingestionTime 1656265125893
@log 846793595595:IISLogs
@logStream i-014625c40c9ddd4bd
@message 2022-06-26 17:37:47 172.31.80.53 GET /iisstart.png - 80 - 31.208.39.171 Mozilla/5.0+(Windows+NT+10.0;+Win
@timestamp 1656265125460


CloudWatch
Favorites and recents
Dashboards
Alarms
In alarm
All alarms
Billing
Logs
Log groups
Logs Insights
Metrics
All metrics
Explorer
Streams
CloudWatch > Logs Insights
Logs Insights
Select log groups, and then run a query or choose a sample query.
5m 30m 1h 3h 12h Custom
Select log group(s)
1 fields @timestamp, @message
2 | sort @timestamp desc
3 | limit 20
Run query
Save
History
Queries are allowed to run for up to 15 minutes.
Logs
Visualization
Export results
Add to dashboard
No results
Run a query to see related events
Fields
Queries
Help


CloudWatch > Logs Insights
Logs Insights
Select log groups, and then run a query or choose a sample query.
5m 30m 1h 3h 12h Custom (2d)
Select log group(s)
/aws/lambda/random-name
1 fields @timestamp, @message
2 | sort @timestamp desc
3 | limit 20
Run query
Save
History
Logs
Visualization
Export results
Add to dashboard
Showing 8 of 8 records matched
8 records (1.4 kB) scanned in 2.7s @ 2 records/s (520.206 B/s)
Hide histogram
06 PM 09 PM Fri 05 03 AM 06 AM 09 AM 12 PM 03 PM 06 PM 09 PM Sat 06 03 AM 06 AM 09 AM 12 PM 03 PM
@timestamp @message


CloudWatch > Logs Insights
Logs Insights
Select log groups, and then run a query or choose a sample query.
5m 30m 1h 3h 12h Custom (2d)
Select log group(s)
/aws/lambda/random-name
1 fields @timestamp, @message
2 | sort @timestamp desc
3 | limit 20
Run query
Save
History
Queries are allowed to run for up to 15 minutes.
Logs
Visualization
Export results
Add to dashboard
Showing 8 of 8 records matched
8 records (1.4 kB) scanned in 2.9s @ 2 records/s (490.644 B/s)
Hide histogram
06 PM Fri 05 06 AM 12 PM 06 PM Sat 06 06 AM 12 PM
@timestamp @message
Fields
Queries
Help
Discovered fields
Learn more
Search for a field
@ingestionTime 100%
@logStream 100%
@message 100%
@requestId 100%
@timestamp 100%
@type 75%
@billedDuration 25%
@duration 25%
@initDuration 25%
@maxMemoryUsed 25%
@memorySize 25%
@xraySegmentId 25%
@xrayTraceId 25%
MessageId 25%
ResponseMetadata.RequestId 25%


CloudWatch > Logs Insights
Logs Insights
Select log groups, and then run a query or choose a sample query.
5m 30m 1h 3h 12h Custom (2w)
Select log group(s)
/aws/lambda/random-name
fields @timestamp, @message
| sum(@billedDuration) as TotalDuration
Run query
Save
History
Queries are allowed to run for up to 15 minutes.
Logs
Visualization
Export results
Add to dashboard
Showing 1 of 8 records matched
8 records (1.4 kB) scanned in 3.3s @ 2 records/s (434.356 B/s)
Hide histogram
Jul 24 Mon 25 Tue 26 Wed 27 Thu 28 Fri 29 Sat 30 Jul 31 Aug Tue 02 Wed 03 Thu 04 Fri 05 Sat 06
TotalDuration
1 2148
Field Value
TotalDuration 2148
Fields
Queries
Help
Discovered fields
Learn more
Search for a field
@ingestionTime 100%
@logStream 100%
@message 100%
@requestId 100%
@timestamp 100%
@type 75%
@billedDuration 25%
@duration 25%
@initDuration 25%
@maxMemoryUsed 25%
@memorySize 25%
@xraySegmentId 25%
@xrayTraceId 25%
MessageId 25%
ResponseMetadata.RequestId 25%

DynamoDB
Dashboard
Tables
Update settings
Explore items
PartiQL editor New
Backups
Exports to S3
Reserved capacity
Settings New
DAX
Clusters
Subnet groups
Parameter groups
Events
DynamoDB > Tables > scorekeep-stateTable-1PROMDV4J4WO6
Tables (5)
Any table tag
Find tables by table name
scorekeep-gameTable-SX28697XZ4I2
scorekeep-moveTable-1KT6E8W13BE19
scorekeep-sessionTable-1VYRM5RTD6II1
scorekeep-stateTable-1PROMDV4J4WO6
scorekeep-userTable-1RJMCF9XIQK5Q
scorekeep-stateTable-1PROMDV4J4WO6
Actions
Explore table items
Overview Indexes Monitor Global tables Backups Exports and streams Additional settings
Alarms
In alarm (0)
CloudWatch Contributor Insights for DynamoDB
See the most accessed and throttled items in a table or global secondary index.
CloudWatch Contributor Insights is not enabled.
Enable CloudWatch Contributor Insights to see the most accessed and throttled items in a table or global secondary index. Learn more
Enable CloudWatch Contributor Insights
CloudWatch metrics
View all in CloudWatch
1h 3h 12h 1d 3d 1w
Table: scorekeep-stateTable-1PROMDV4J4WO6

Manage CloudWatch Contributor Insights settings

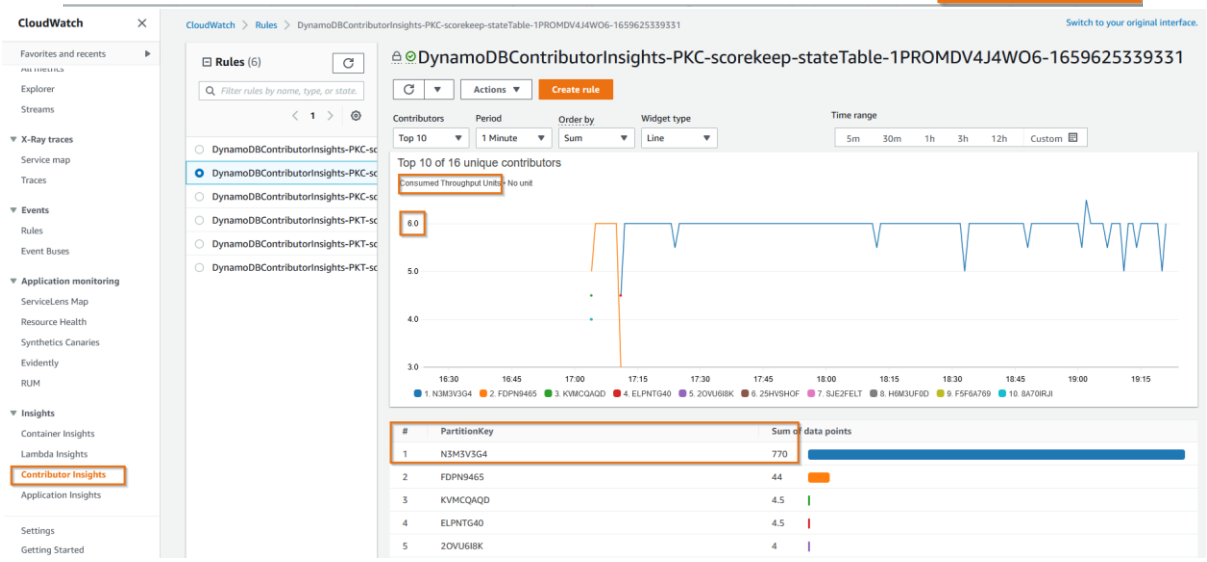
Use CloudWatch Contributor Insights for DynamoDB to see the most accessed and throttled items in a table or global secondary index. Additional costs might apply. Learn more

Name	Resource type	Partition key	Sort key	Enable
scorekeep-stateTable-1PROMDV4J4WO6	Table	id	-	
game-index	Index	game	-	

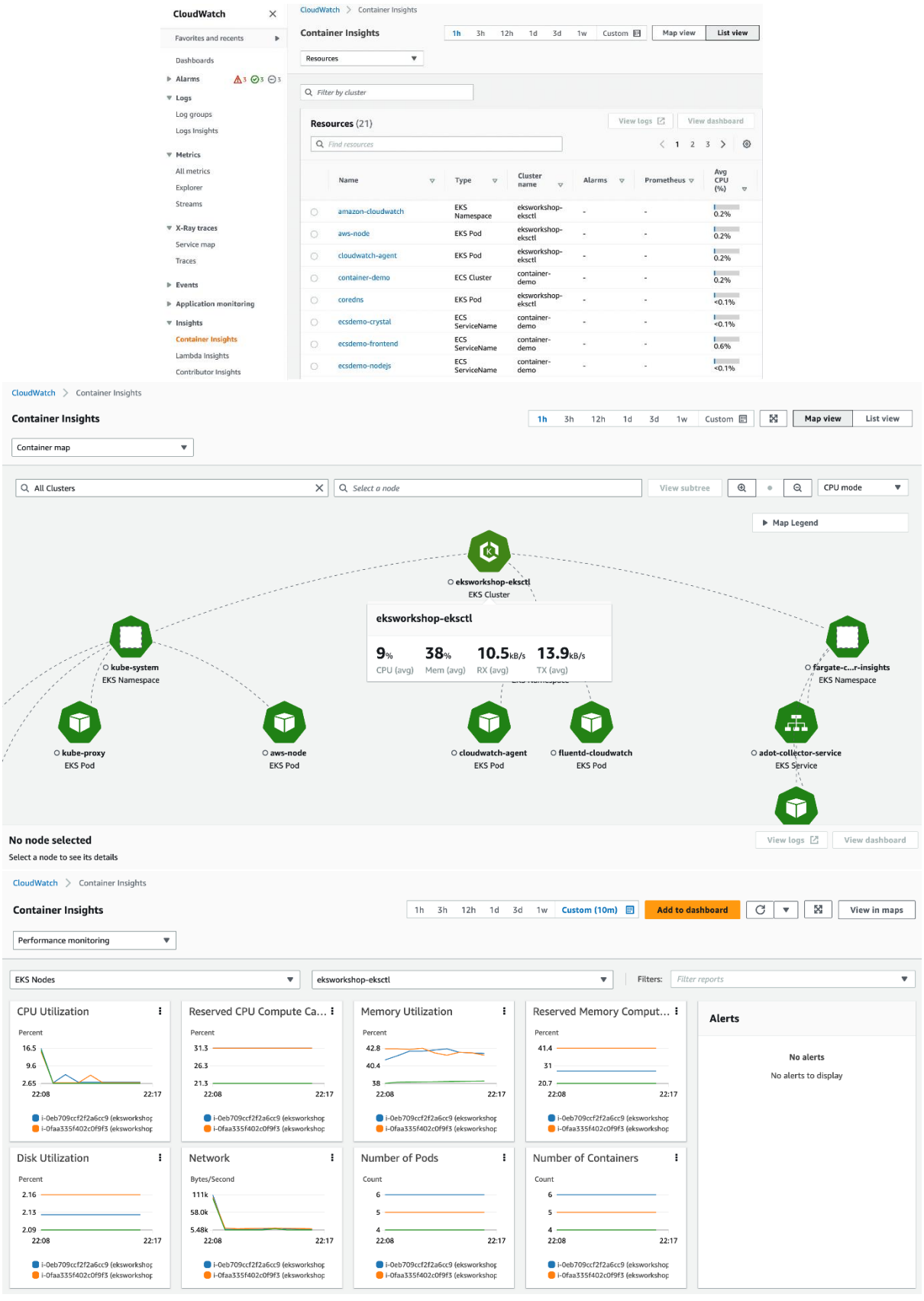
Users who have the appropriate CloudWatch permissions will be able to view primary keys protected by fine grained access control (FGAC) in CloudWatch Contributor Insights graphs. If the primary key contains FGAC-protected data that you don't want published to CloudWatch, you should not enable CloudWatch Contributor Insights for DynamoDB for this table.

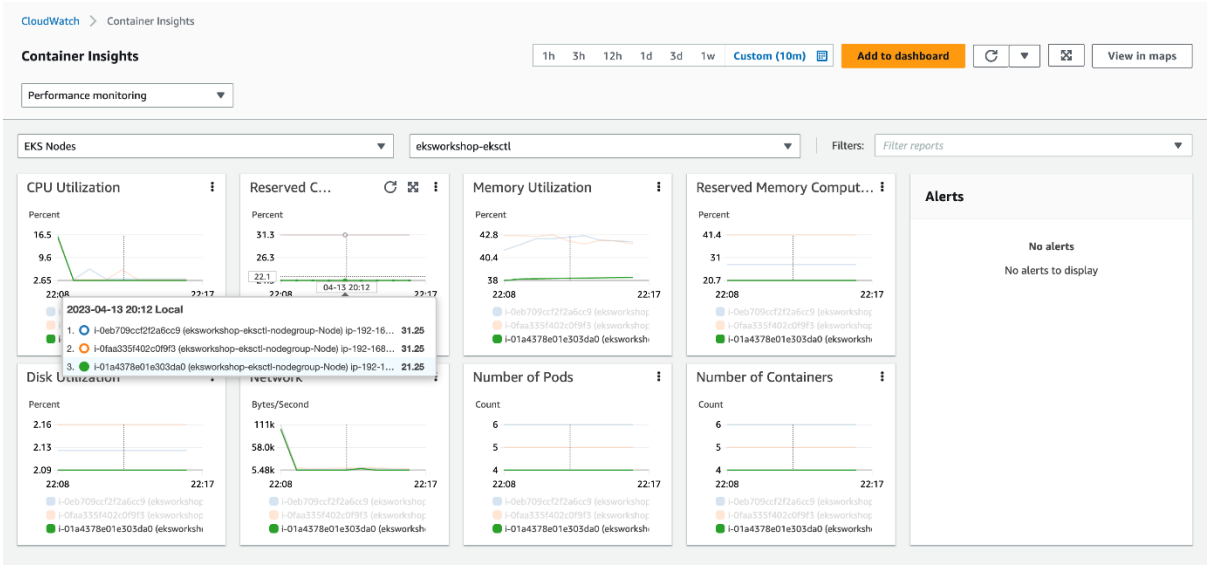
CloudWatch Contributor Insights for DynamoDB graphs display the partition key and (if applicable) sort key of frequently accessed items and frequently throttled items in plaintext. If you require the use of AWS Key Management Service (KMS) to encrypt this table's partition key and sort key data with an AWS managed key or customer managed key, you should not enable CloudWatch Contributor Insights for DynamoDB for this table.

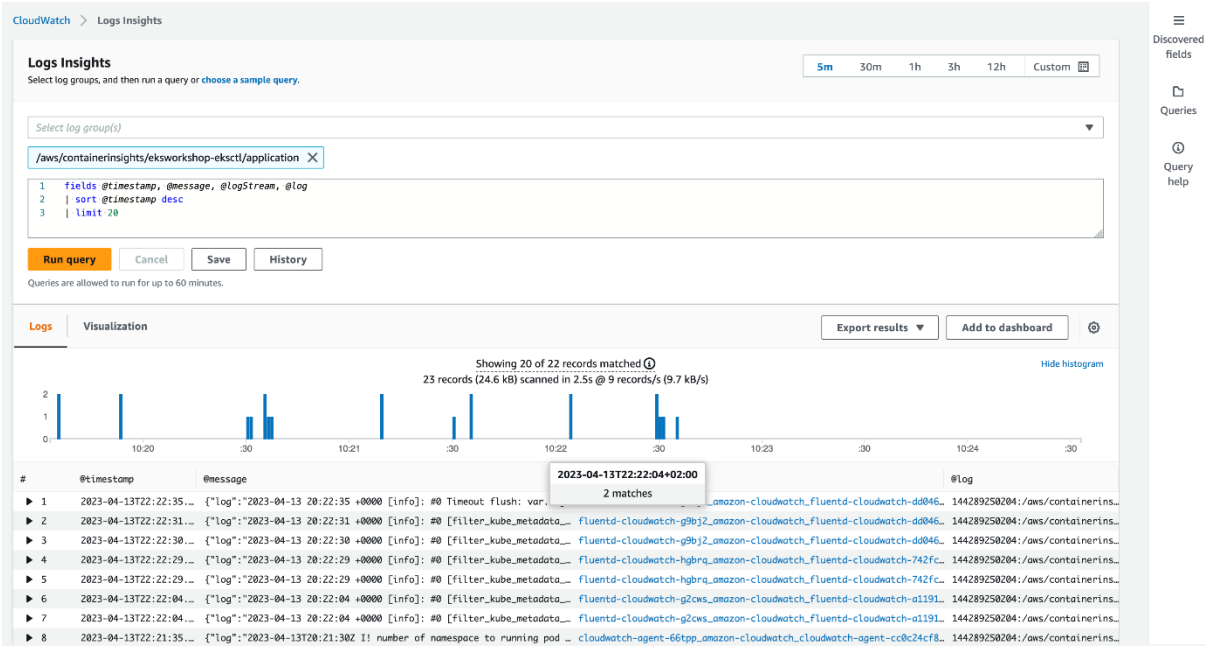
Cancel | Save changes

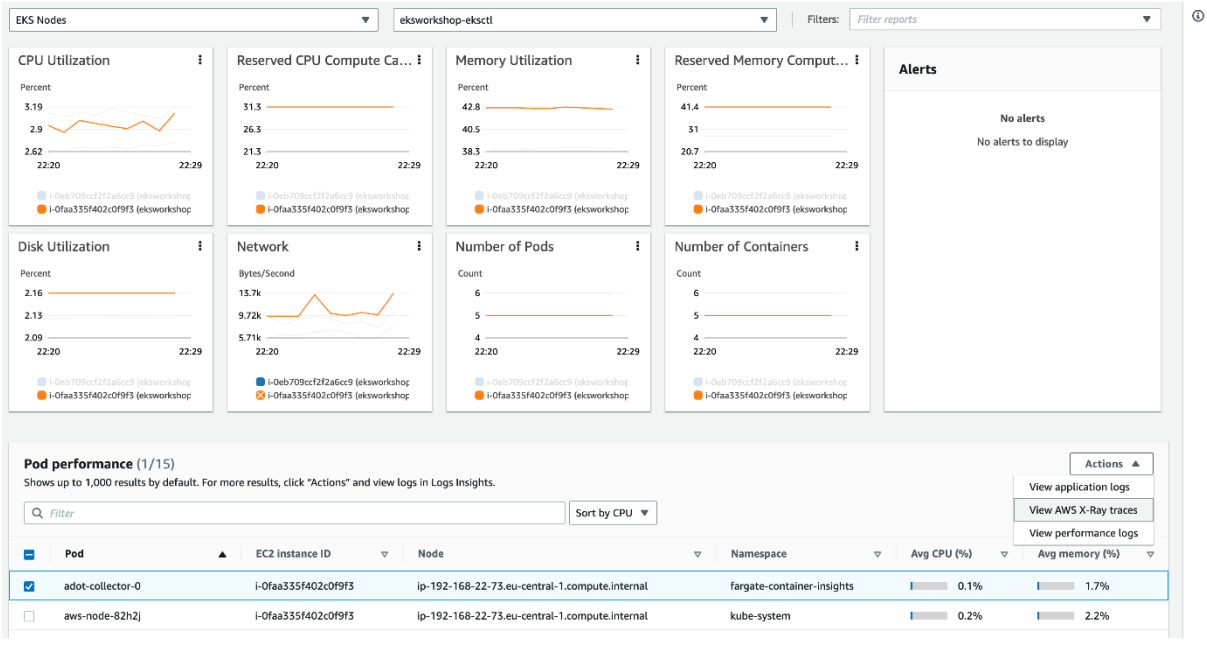


Chapter 6: Observability for Containerized Applications on AWS









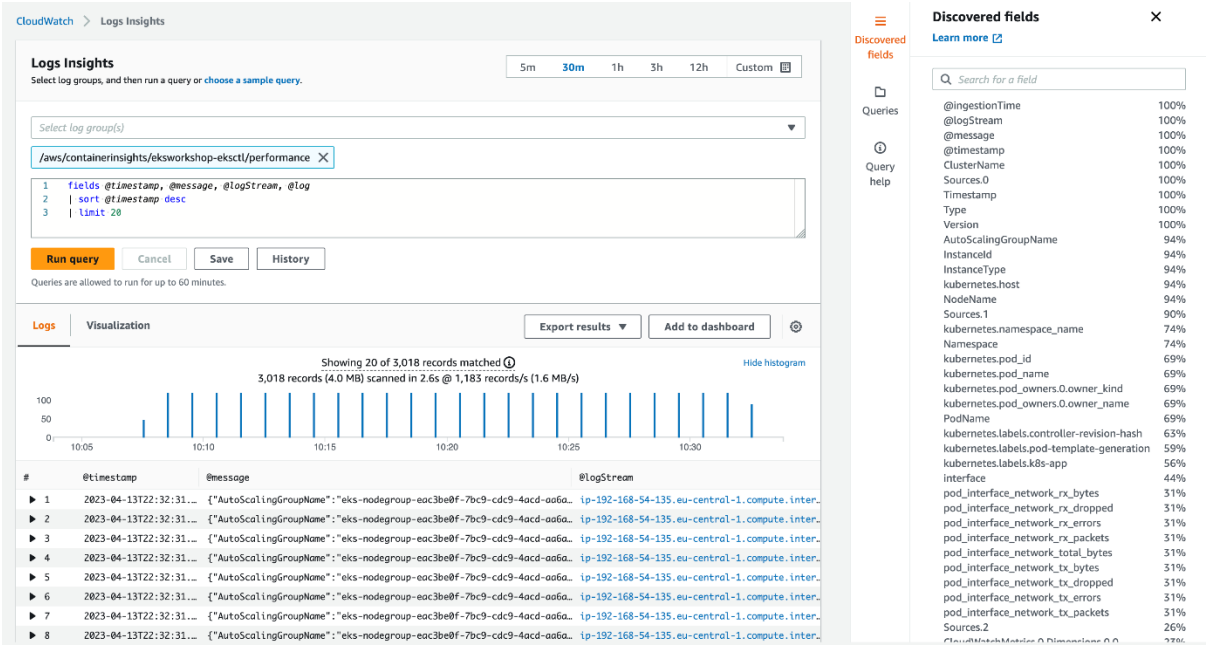
Pod performance (1/15)

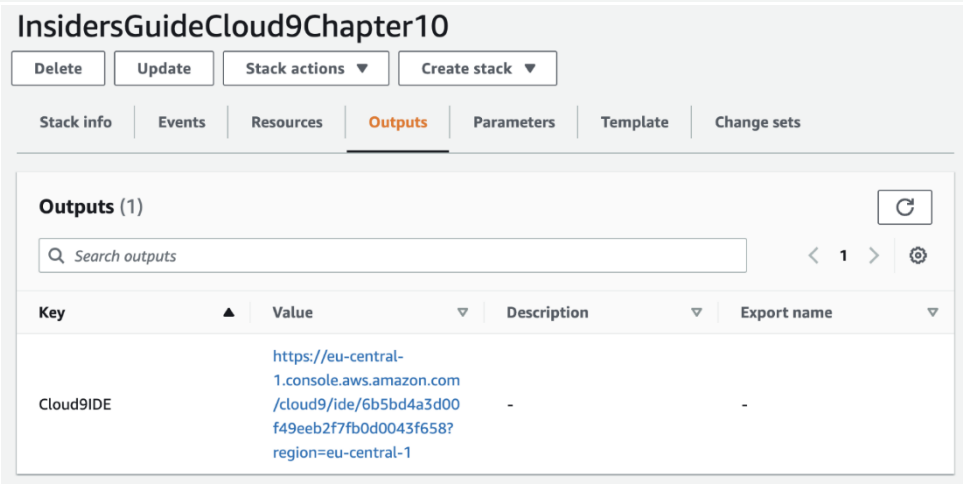
Shows up to 1,000 results by default. For more results, click "Actions" and view logs in Logs Insights.

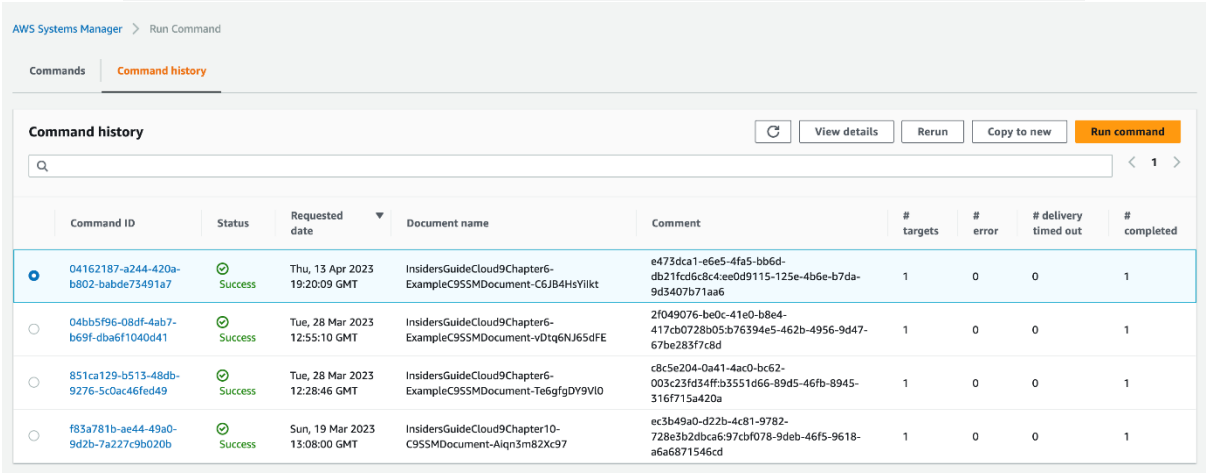
Actions ▲
- View application logs
- View AWS X-Ray traces
- View performance logs

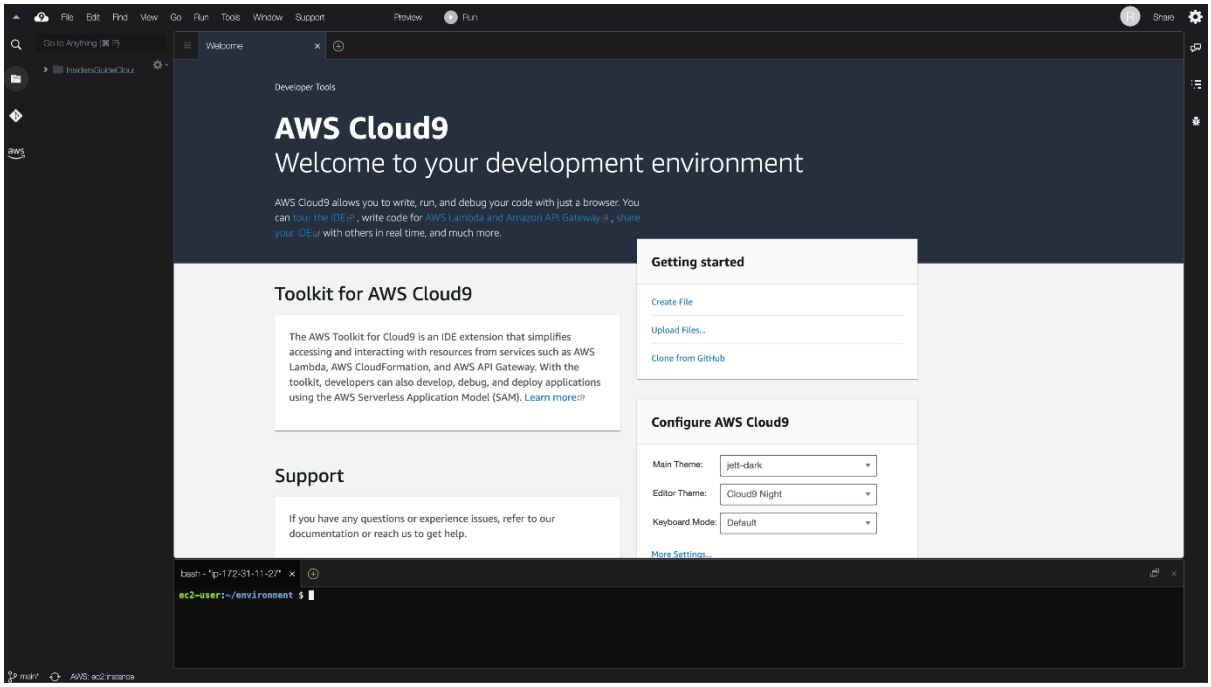
Filter | Sort by CPU

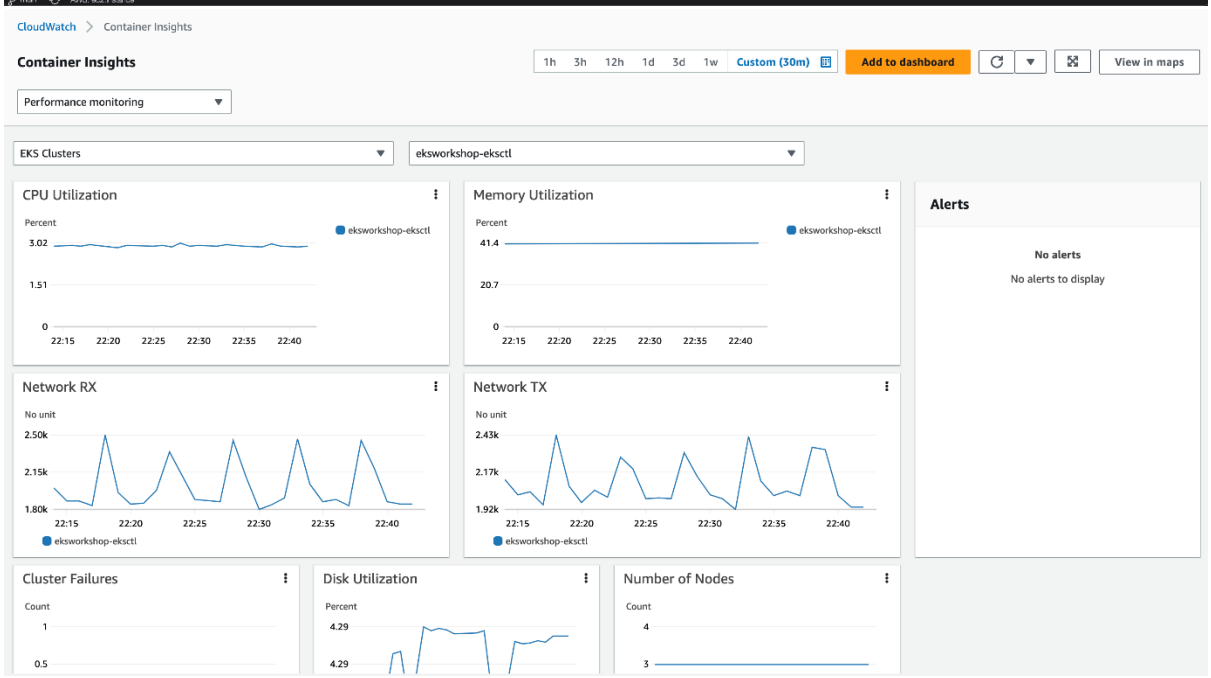
Pod	EC2 instance ID	Node	Namespace	Avg CPU (%)	Avg memory (%)
adot-collector-0	i-0faa335f402c0f9f3	ip-192-168-22-73.eu-central-1.compute.internal	fargate-container-insights	0.1%	1.7%
aws-node-82h2j	i-0faa335f402c0f9f3	ip-192-168-22-73.eu-central-1.compute.internal	kube-system	0.2%	2.2%

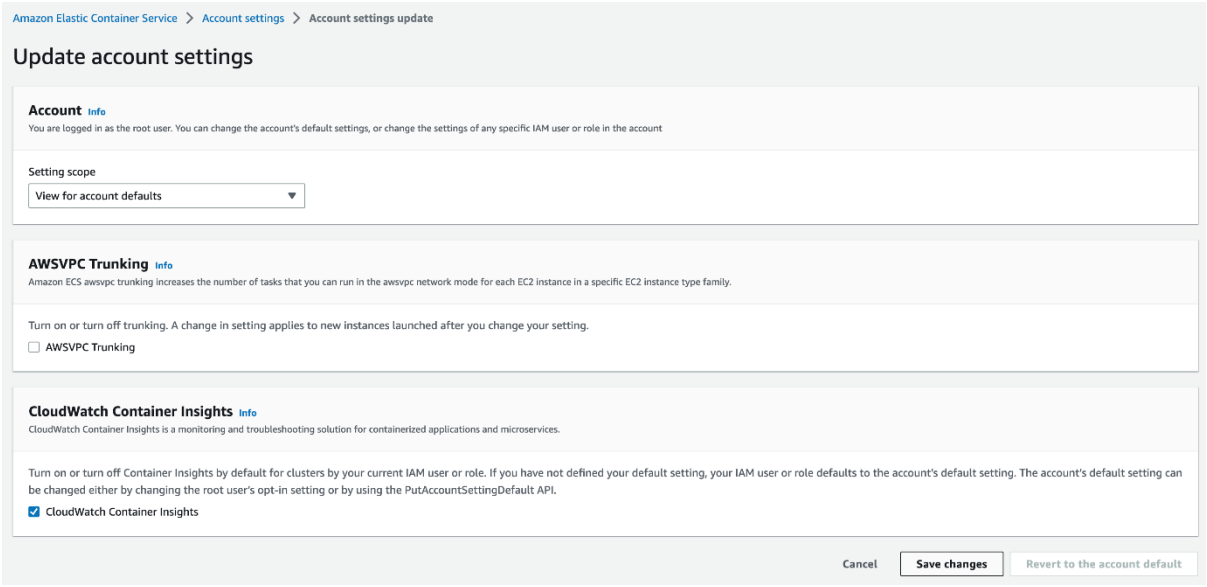

CloudWatch > Logs Insights
Logs Insights
Select log groups, and then run a query or choose a sample query.
5m 30m 1h 3h 12h Custom
Select log group(s)
/aws/containerinsights/eksworkshop-eksctl/performance
fields @timestamp, @message, @logStream, @log
| sort @timestamp desc
| limit 20
Run query Cancel Save History
Queries are allowed to run for up to 60 minutes.
Logs Visualization
Export results Add to dashboard
Showing 20 of 3,018 records matched
3,018 records (4.0 MB) scanned in 2.6s @ 1,183 records/s (1.6 MB/s)
Hide histogram
100
50
0
10:05 10:10 10:15 10:20 10:25 10:30
@timestamp @message @logStream
1 2023-04-13T22:32:31.... {"AutoScalingGroupName":"eks-nodegroup-eac3be0f-7bc9-cdc9-4acd-aa6a... ip-192-168-54-135.eu-central-1.compute.inter...
2 2023-04-13T22:32:31.... {"AutoScalingGroupName":"eks-nodegroup-eac3be0f-7bc9-cdc9-4acd-aa6a... ip-192-168-54-135.eu-central-1.compute.inter...
3 2023-04-13T22:32:31.... {"AutoScalingGroupName":"eks-nodegroup-eac3be0f-7bc9-cdc9-4acd-aa6a... ip-192-168-54-135.eu-central-1.compute.inter...
4 2023-04-13T22:32:31.... {"AutoScalingGroupName":"eks-nodegroup-eac3be0f-7bc9-cdc9-4acd-aa6a... ip-192-168-54-135.eu-central-1.compute.inter...
5 2023-04-13T22:32:31.... {"AutoScalingGroupName":"eks-nodegroup-eac3be0f-7bc9-cdc9-4acd-aa6a... ip-192-168-54-135.eu-central-1.compute.inter...
6 2023-04-13T22:32:31.... {"AutoScalingGroupName":"eks-nodegroup-eac3be0f-7bc9-cdc9-4acd-aa6a... ip-192-168-54-135.eu-central-1.compute.inter...
7 2023-04-13T22:32:31.... {"AutoScalingGroupName":"eks-nodegroup-eac3be0f-7bc9-cdc9-4acd-aa6a... ip-192-168-54-135.eu-central-1.compute.inter...
8 2023-04-13T22:32:31.... {"AutoScalingGroupName":"eks-nodegroup-eac3be0f-7bc9-cdc9-4acd-aa6a... ip-192-168-54-135.eu-central-1.compute.inter...
Discovered fields
Queries
Query help
Discovered fields
Learn more
Search for a field
@ingestionTime 100%
@logStream 100%
@message 100%
@timestamp 100%
ClusterName 100%
Sources.0 100%
Timestamp 100%
Type 100%
Version 100%
AutoScalingGroupName 94%
InstanceId 94%
InstanceType 94%
kubernetes.host 94%
NodeName 94%
Sources.1 90%
kubernetes.namespace_name 74%
Namespace 74%
kubernetes.pod_id 69%
kubernetes.pod_name 69%
kubernetes.pod_owners.0.owner_kind 69%
kubernetes.pod_owners.0.owner_name 69%
PodName 69%
kubernetes.labels.controller-revision-hash 63%
kubernetes.labels.pod-template-generation 59%
kubernetes.labels.k8s-app 56%
interface 44%
pod_interface_network_rx_bytes 31%
pod_interface_network_rx_dropped 31%
pod_interface_network_rx_errors 31%
pod_interface_network_rx_packets 31%
pod_interface_network_total_bytes 31%
pod_interface_network_tx_bytes 31%
pod_interface_network_tx_dropped 31%
pod_interface_network_tx_errors 31%
pod_interface_network_tx_packets 31%
Sources.2 26%


InsidersGuideCloud9Chapter10
Delete Update Stack actions Create stack
Stack info Events Resources Outputs Parameters Template Change sets
Outputs (1)
Search outputs
1
Key Value Description Export name
Cloud9IDE https://eu-central-1.console.aws.amazon.com/cloud9/ide/6b5bd4a3d00f49eeb2f7fb0d0043f658?region=eu-central-1 - -


AWS Systems Manager > Run Command
Commands Command history
Command history
View details Rerun Copy to new Run command
1
Command ID Status Requested date Document name Comment # targets # error # delivery timed out # completed
04162187-a244-420a-b802-babde73491a7 Success Thu, 13 Apr 2023 19:20:09 GMT InsidersGuideCloud9Chapter6-ExampleC9SSMDocument-C6JB4HsYilkt e473dca1-e6e5-4fa5-bb6d-db21fcd6c8c4:ee0d9115-125e-4b6e-b7da-9d3407b71aa6 1 0 0 1
04bb5f96-08df-4ab7-b69f-dba6f1040d41 Success Tue, 28 Mar 2023 12:55:10 GMT InsidersGuideCloud9Chapter6-ExampleC9SSMDocument-vDtq6NJ65dFE 2f049076-be0c-41e0-b8e4-417cb0728b05:b76394e5-462b-4956-9d47-67be283f7c8d 1 0 0 1
851ca129-b513-48db-9276-5c0ac46fed49 Success Tue, 28 Mar 2023 12:28:46 GMT InsidersGuideCloud9Chapter6-ExampleC9SSMDocument-Te6gfgDY9Vl0 c8c5e204-0a41-4ac0-bc62-003c23fd34ff:b3551d66-89d5-46fb-8945-316f715a420a 1 0 0 1
f83a781b-ae44-49a0-9d2b-7a227c9b020b Success Sun, 19 Mar 2023 13:08:00 GMT InsidersGuideCloud9Chapter10-C9SSMDocument-Aiqn3m82Xc97 ec3b49a0-d22b-4c81-9782-728e3b2dbca6:97cbf078-9deb-46f5-9618-a6a6871546cd 1 0 0 1


File Edit Find View Go Run Tools Window Support
Preview
Run
Share
Welcome
Developer Tools
AWS Cloud9
Welcome to your development environment
AWS Cloud9 allows you to write, run, and debug your code with just a browser. You can tour the IDE, write code for AWS Lambda and Amazon API Gateway, share your IDE or with others in real time, and much more.
Toolkit for AWS Cloud9
The AWS Toolkit for Cloud9 is an IDE extension that simplifies accessing and interacting with resources from services such as AWS Lambda, AWS CloudFormation, and AWS API Gateway. With the toolkit, developers can also develop, debug, and deploy applications using the AWS Serverless Application Model (SAM). Learn more
Support
If you have any questions or experience issues, refer to our documentation or reach us to get help.
Getting started
Create File
Upload Files...
Clone from GitHub
Configure AWS Cloud9
Main Theme: jett-dark
Editor Theme: Cloud9 Night
Keyboard Mode: Default
More Settings...
bash - "ip-172-31-11-27"
ec2-user:~/environment $


CloudWatch > Container Insights
Container Insights
1h 3h 12h 1d 3d 1w Custom (30m)
Add to dashboard
View in maps
Performance monitoring
EKS Clusters
eksworkshop-eksctl
CPU Utilization
Percent
3.02
1.51
0
22:15 22:20 22:25 22:30 22:35 22:40
eksworkshop-eksctl
Memory Utilization
Percent
41.4
20.7
0
22:15 22:20 22:25 22:30 22:35 22:40
eksworkshop-eksctl
Alerts
No alerts
No alerts to display
Network RX
No unit
2.50k
2.15k
1.80k
22:15 22:20 22:25 22:30 22:35 22:40
eksworkshop-eksctl
Network TX
No unit
2.43k
2.17k
1.92k
22:15 22:20 22:25 22:30 22:35 22:40
eksworkshop-eksctl
Cluster Failures
Count
1
0.5
Disk Utilization
Percent
4.29
4.29
Number of Nodes
Count
4
3



Default namespace - *optional*

Select the namespace to specify a group of services that make up your application. You can overwrite this value at the service level.

TestCluster

Infrastructure Info

Serverless

Your cluster is automatically configured for AWS Fargate (serverless) with two capacity providers. Add Amazon EC2 instances, or external instances using ECS Anywhere.

- [x] AWS Fargate (serverless)
  Pay as you go. Use if you have tiny, batch, or burst workloads or for zero maintenance overhead. The cluster has Fargate and Fargate Spot capacity providers by default.
- [ ] Amazon EC2 instances
  Manual configurations. Use for large workloads with consistent resource demands.
- [ ] External instances using ECS Anywhere
  Manual configurations. Use to add data center compute.

Monitoring - *optional* Info

Container Insights is off by default. When you use Container Insights, there is a cost associated with it.

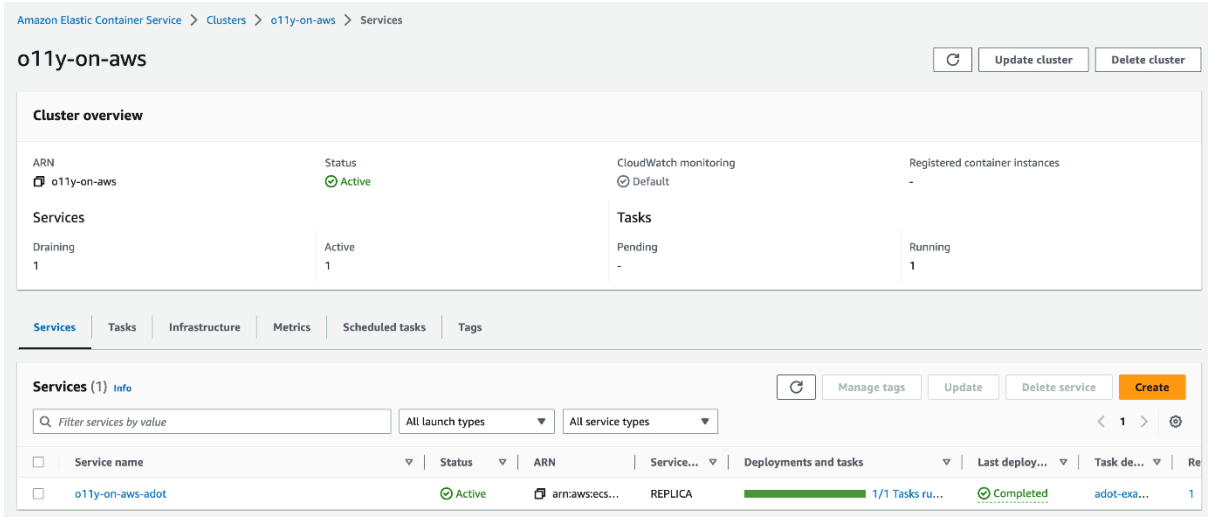
- [x] Use Container Insights

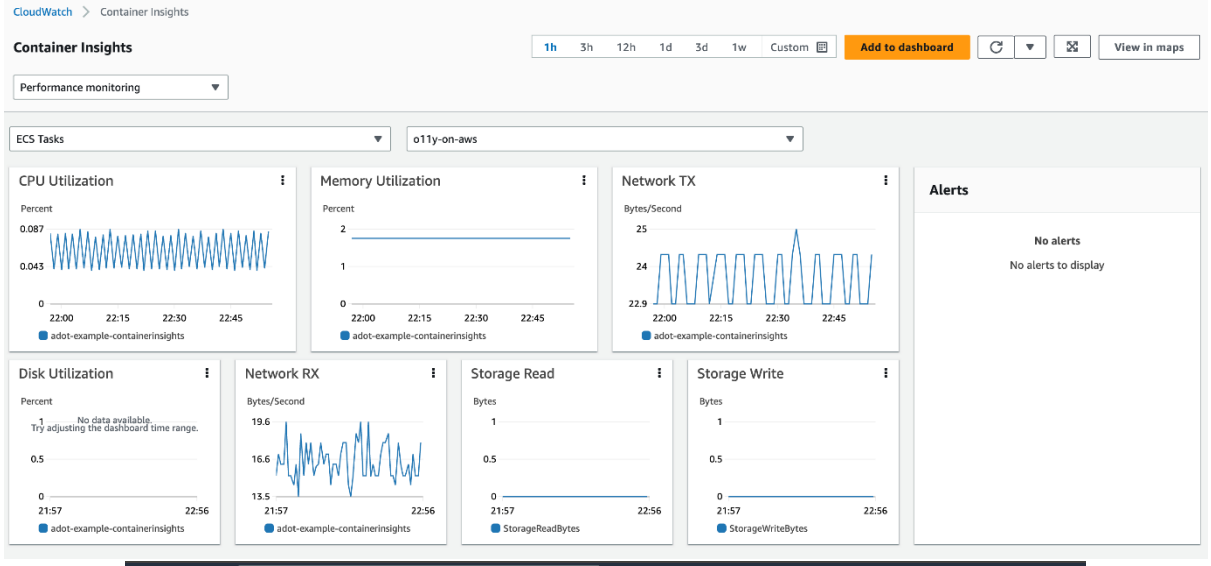
CloudWatch automatically collects metrics for many resources, such as CPU, memory, disk, and network. Container Insights also provides diagnostic information, such as container restart failures, that you use to isolate issues and resolve them quickly. You can also set CloudWatch alarms on metrics that Container Insights collects.

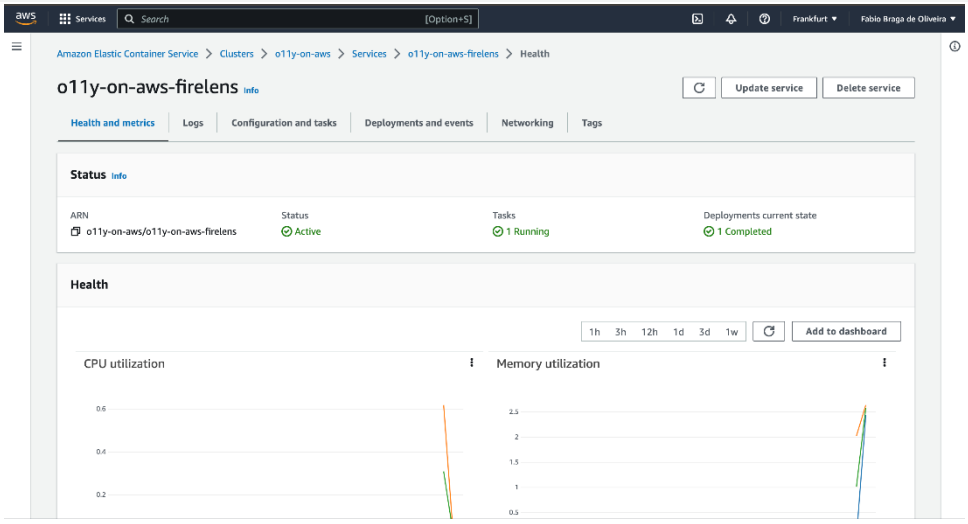
Tags - *optional* Info

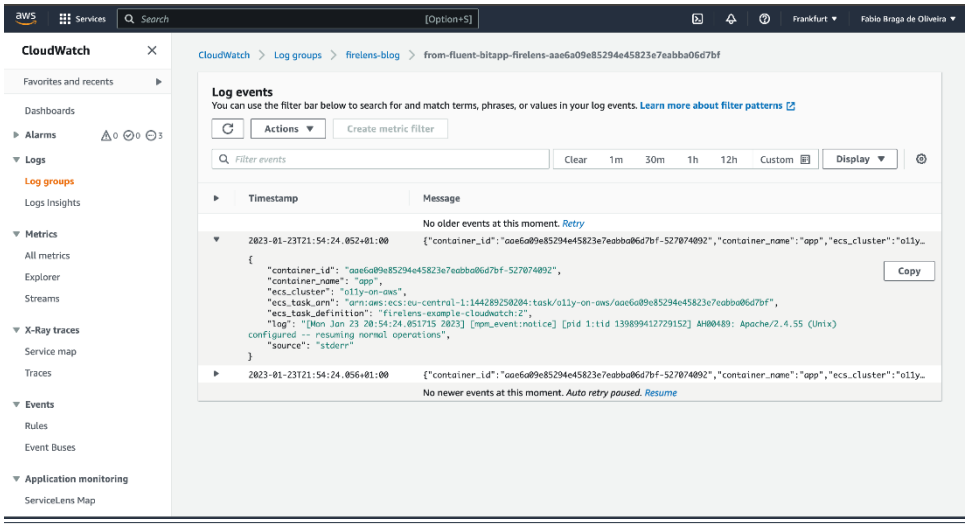
Tags help you to identify and organize your clusters.

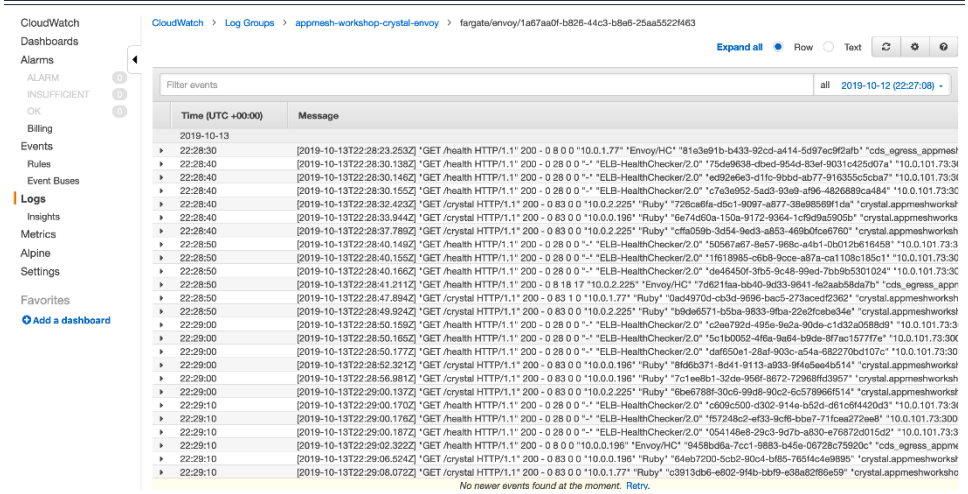
Cancel **Create**

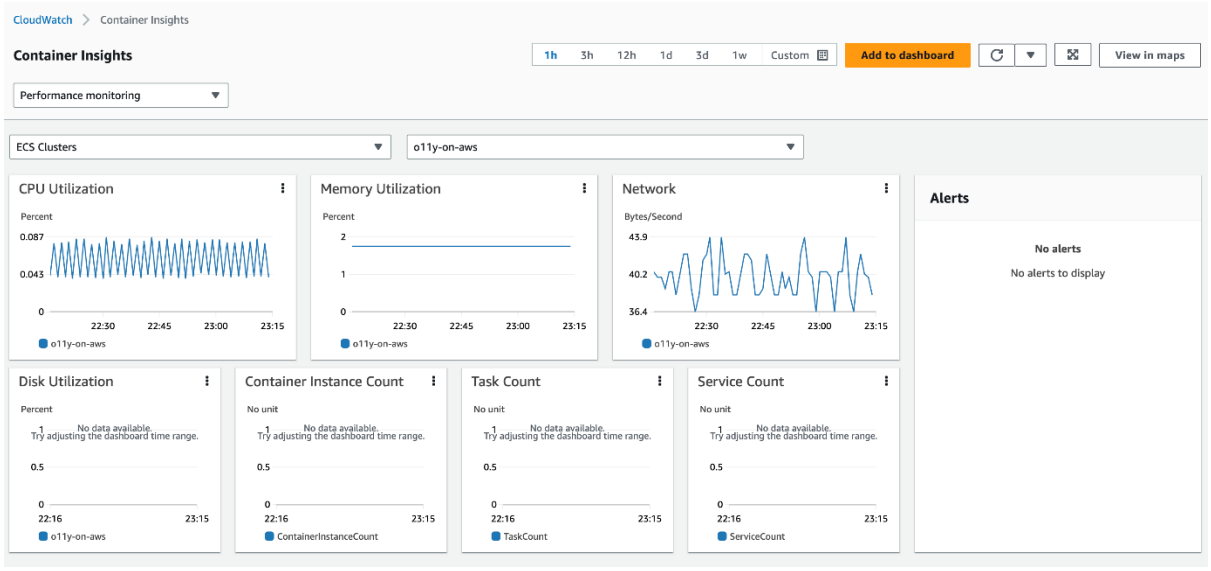

Amazon Elastic Container Service > Clusters > o11y-on-aws > Services
o11y-on-aws
Update cluster
Delete cluster
Cluster overview
ARN
o11y-on-aws
Status
Active
CloudWatch monitoring
Default
Registered container instances
-
Services
Draining
1
Active
1
Tasks
Pending
-
Running
1
Services
Tasks
Infrastructure
Metrics
Scheduled tasks
Tags
Services (1) Info
Manage tags
Update
Delete service
Create
Filter services by value
All launch types
All service types
Service name
Status
ARN
Service...
Deployments and tasks
Last deploy...
Task de...
o11y-on-aws-adot
Active
arn:aws:ecs...
REPLICA
1/1 Tasks ru...
Completed
adot-exa...

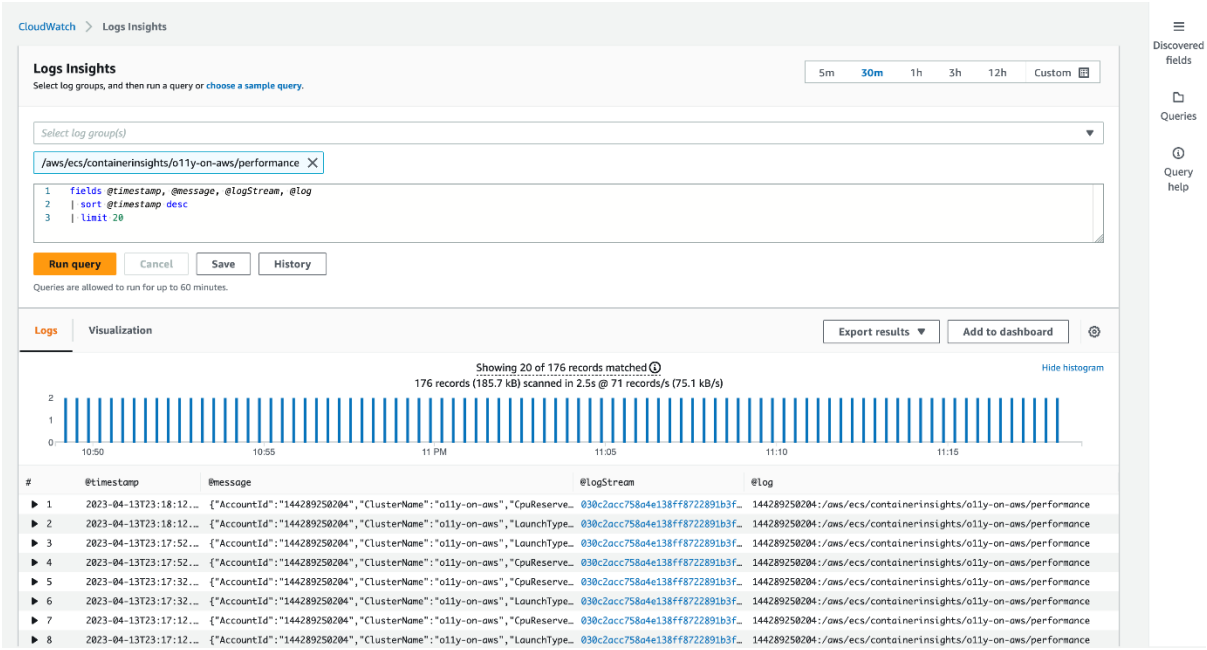

CloudWatch > Container Insights
Container Insights
1h
3h
12h
1d
3d
1w
Custom
Add to dashboard
View in maps
Performance monitoring
ECS Tasks
o11y-on-aws
CPU Utilization
Percent
adot-example-containerinsights
Memory Utilization
Percent
adot-example-containerinsights
Network TX
Bytes/Second
adot-example-containerinsights
Alerts
No alerts
No alerts to display
Disk Utilization
Percent
No data available.
Try adjusting the dashboard time range.
adot-example-containerinsights
Network RX
Bytes/Second
adot-example-containerinsights
Storage Read
Bytes
StorageReadBytes
Storage Write
Bytes
StorageWriteBytes


Services
Search
[Option+S]
Frankfurt
Fabio Braga de Oliveira
Amazon Elastic Container Service > Clusters > o11y-on-aws > Services > o11y-on-aws-firelens > Health
o11y-on-aws-firelens Info
Update service
Delete service
Health and metrics
Logs
Configuration and tasks
Deployments and events
Networking
Tags
Status Info
ARN
o11y-on-aws/o11y-on-aws-firelens
Status
Active
Tasks
1 Running
Deployments current state
1 Completed
Health
1h
3h
12h
1d
3d
1w
Add to dashboard
CPU utilization
Memory utilization

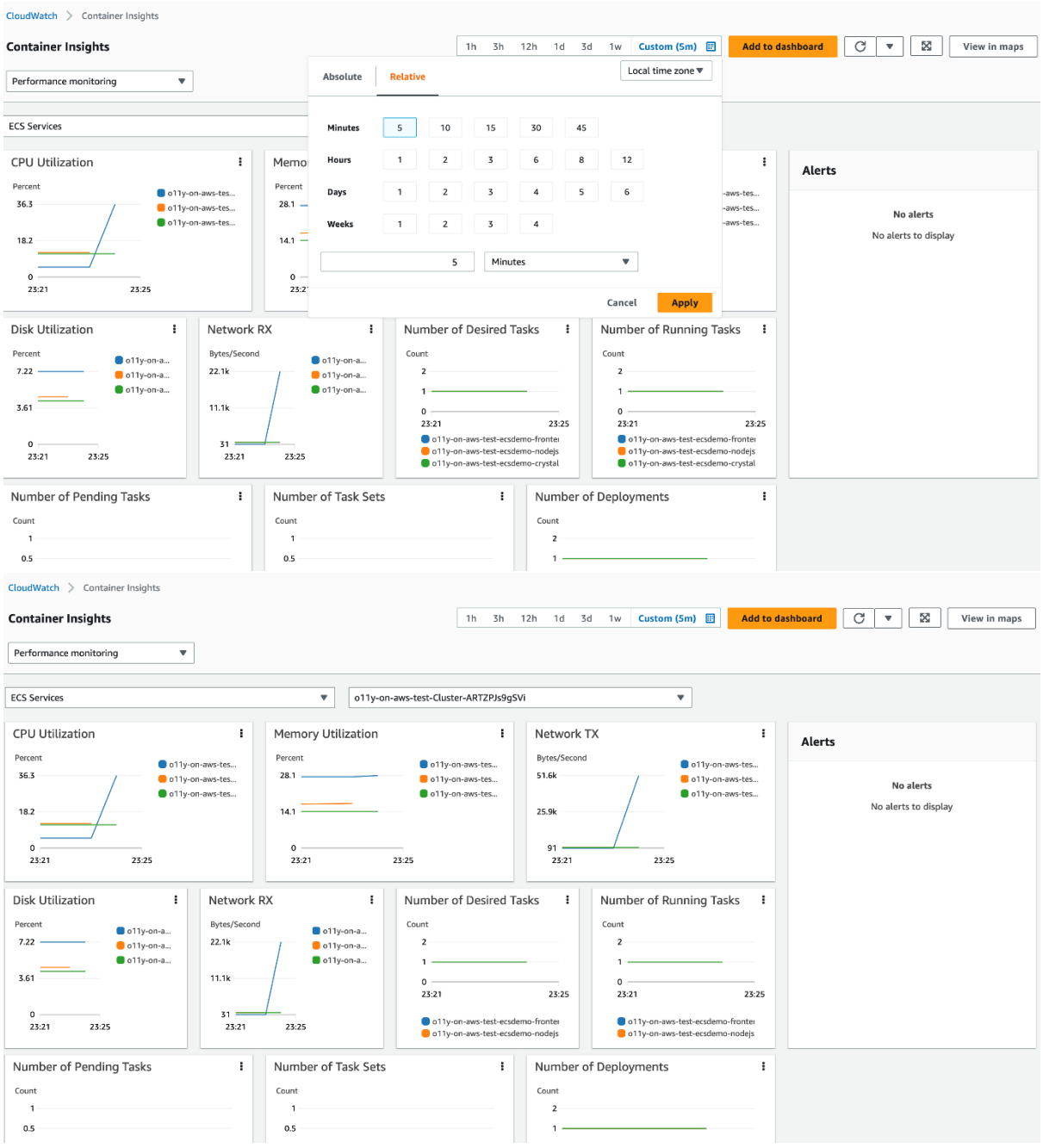

CloudWatch
Log groups
firelens-blog
from-fluent-bitapp-firelens-aae6a09e85294e45823e7eabba06d7bf
Log events
You can use the filter bar below to search for and match terms, phrases, or values in your log events. Learn more about filter patterns
Actions
Create metric filter
Filter events
Clear
1m
30m
1h
12h
Custom
Display
Timestamp
Message
No older events at this moment. Retry
2023-01-23T21:54:24.052+01:00
{"container_id":"aae6a09e85294e45823e7eabba06d7bf-527074092","container_name":"app","ecs_cluster":"o11y…
{
"container_id": "aae6a09e85294e45823e7eabba06d7bf-527074092",
"container_name": "app",
"ecs_cluster": "o11y-on-aws",
"ecs_task_arn": "arn:aws:ecs:eu-central-1:144289250204:task/o11y-on-aws/aae6a09e85294e45823e7eabba06d7bf",
"ecs_task_definition": "firelens-example-cloudwatch:2",
"log": "[Mon Jan 23 20:54:24.051715 2023] [mpm_event:notice] [pid 1:tid 139899412729152] AH00489: Apache/2.4.55 (Unix)
configured -- resuming normal operations",
"source": "stderr"
}
Copy
2023-01-23T21:54:24.056+01:00
No newer events at this moment. Auto retry paused. Resume

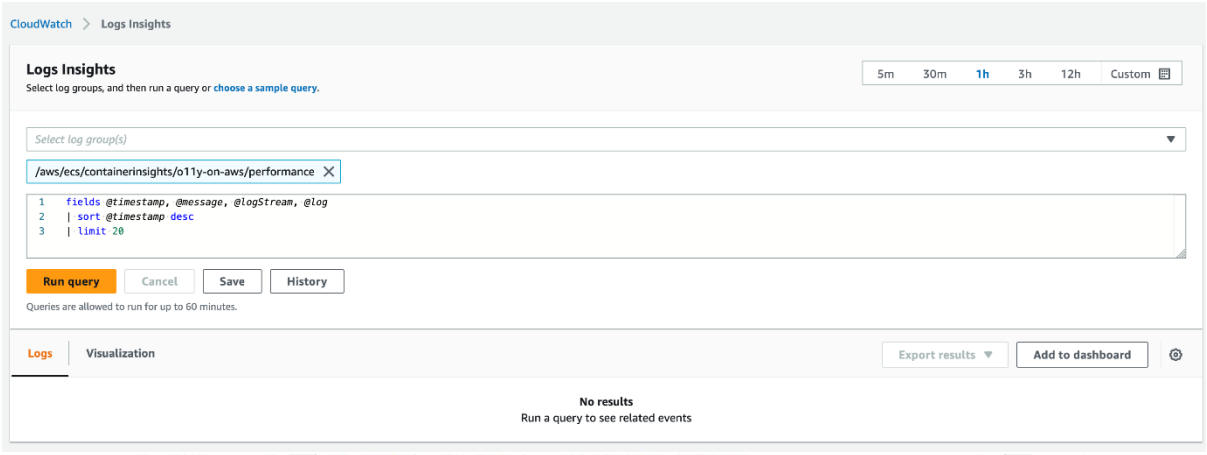

CloudWatch
Log Groups
appmesh-workshop-crystal-envoy
fargate/envoy/1a67aa0f-b826-44c3-b8e6-25aa5522f463
Expand all
Row
Text
Filter events
all
2019-10-12 (22:27:08)
Time (UTC +00:00)
Message
2019-10-13
No newer events found at the moment. Retry.

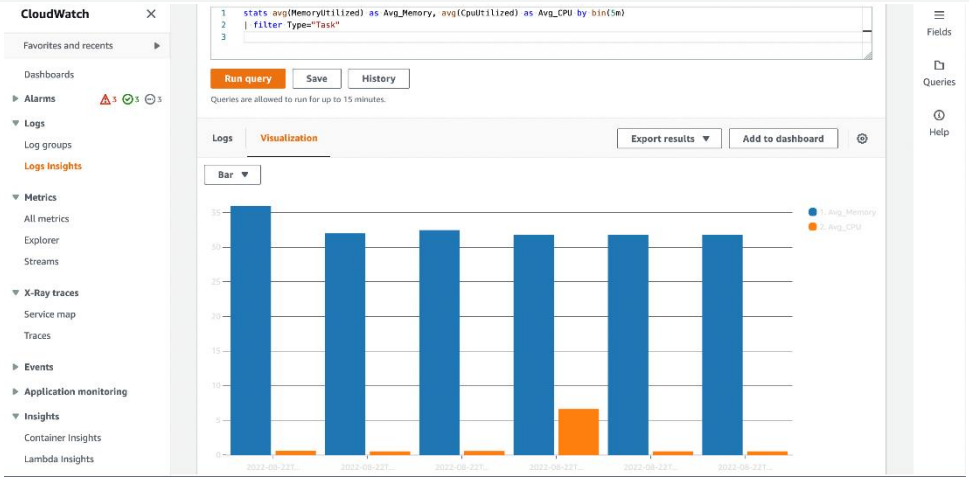

CloudWatch
Container Insights
1h
3h
12h
1d
3d
1w
Custom
Add to dashboard
View in maps
Performance monitoring
ECS Clusters
o11y-on-aws
CPU Utilization
Percent
Memory Utilization
Network
Bytes/Second
Alerts
No alerts
No alerts to display
Disk Utilization
Container Instance Count
Task Count
Service Count
No unit
No data available.
Try adjusting the dashboard time range.
ContainerInstanceCount
TaskCount
ServiceCount



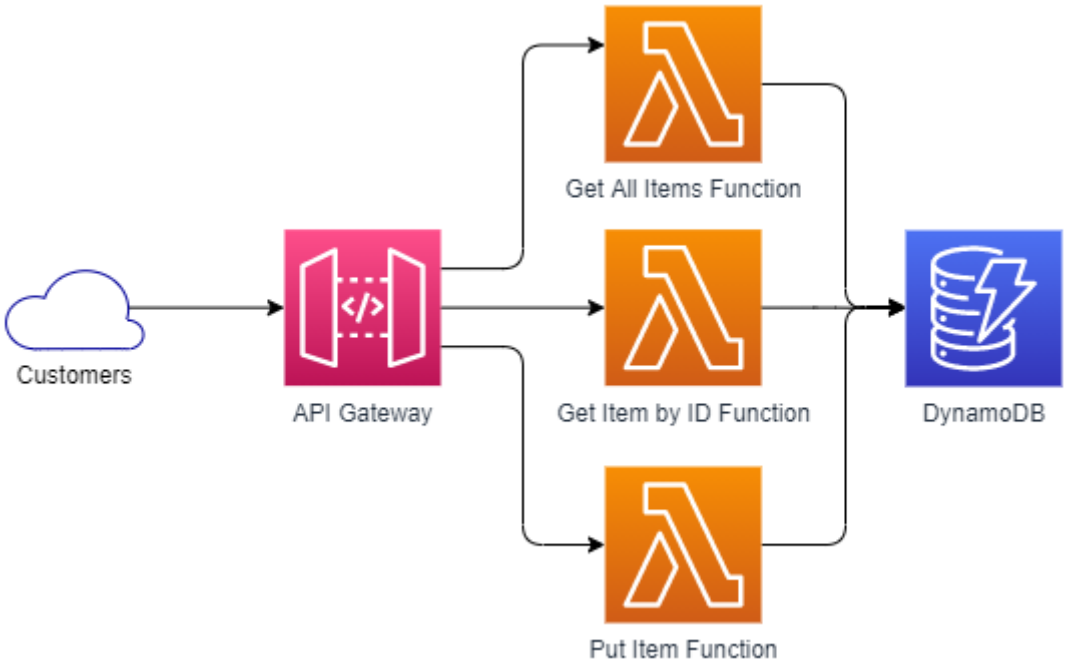

```
Admin:~/environment $ siege -c 200 -i conta-F                    .us-west-2.elb.amazonaws.com
** SIEGE 4.0.4
** Preparing 200 concurrent users for battle.
The server is now under siege...
HTTP/1.1 200     0.03 secs:      879 bytes ==> GET  /
HTTP/1.1 200     0.03 secs:      878 bytes ==> GET  /
HTTP/1.1 200     0.03 secs:      880 bytes ==> GET  /
HTTP/1.1 200     0.49 secs:      879 bytes ==> GET  /
HTTP/1.1 200     0.49 secs:      879 bytes ==> GET  /
HTTP/1.1 200     0.49 secs:      880 bytes ==> GET  /
HTTP/1.1 200     0.49 secs:      880 bytes ==> GET  /
HTTP/1.1 200     0.49 secs:      880 bytes ==> GET  /
HTTP/1.1 200     0.49 secs:      880 bytes ==> GET  /
HTTP/1.1 200     0.49 secs:      880 bytes ==> GET  /
HTTP/1.1 200     0.49 secs:      879 bytes ==> GET  /
HTTP/1.1 200     0.49 secs:      880 bytes ==> GET  /
HTTP/1.1 200     0.49 secs:      880 bytes ==> GET  /
HTTP/1.1 200     0.62 secs:      879 bytes ==> GET  /
HTTP/1.1 200     0.62 secs:      880 bytes ==> GET  /
HTTP/1.1 200     0.62 secs:      879 bytes ==> GET  /
HTTP/1.1 200     0.62 secs:      880 bytes ==> GET  /
HTTP/1.1 200     0.62 secs:      880 bytes ==> GET  /
HTTP/1.1 200     0.62 secs:      879 bytes ==> GET  /
HTTP/1.1 200     0.62 secs:      880 bytes ==> GET  /
HTTP/1.1 200     0.62 secs:      880 bytes ==> GET  /
HTTP/1.1 200     0.62 secs:      879 bytes ==> GET  /
HTTP/1.1 200     0.62 secs:      880 bytes ==> GET  /
HTTP/1.1 200     0.77 secs:      880 bytes ==> GET  /
HTTP/1.1 200     0.77 secs:      879 bytes ==> GET  /
HTTP/1.1 200     0.77 secs:      879 bytes ==> GET  /
HTTP/1.1 200     0.77 secs:      879 bytes ==> GET  /
HTTP/1.1 200     0.77 secs:      880 bytes ==> GET  /
HTTP/1.1 200     0.77 secs:      880 bytes ==> GET  /
HTTP/1.1 200     0.77 secs:      880 bytes ==> GET  /
HTTP/1.1 200     0.78 secs:      880 bytes ==> GET  /
HTTP/1.1 200     0.78 secs:      880 bytes ==> GET  /
HTTP/1.1 200     0.78 secs:      879 bytes ==> GET  /
HTTP/1.1 200     0.98 secs:      879 bytes ==> GET  /
HTTP/1.1 200     0.97 secs:    37055 bytes ==> GET  /assets/a-c-a-beb299b769db948e87f00723a6c36be022e63213dbe09d762cff0791fda6c4f1.svg
HTTP/1.1 200     1.01 secs:      880 bytes ==> GET  /
HTTP/1.1 200     1.00 secs:      880 bytes ==> GET  /
HTTP/1.1 200     1.01 secs:      880 bytes ==> GET  /
HTTP/1.1 200     1.01 secs:      880 bytes ==> GET  /
HTTP/1.1 200     0.99 secs:      880 bytes ==> GET  /
HTTP/1.1 200     1.00 secs:      880 bytes ==> GET  /
```

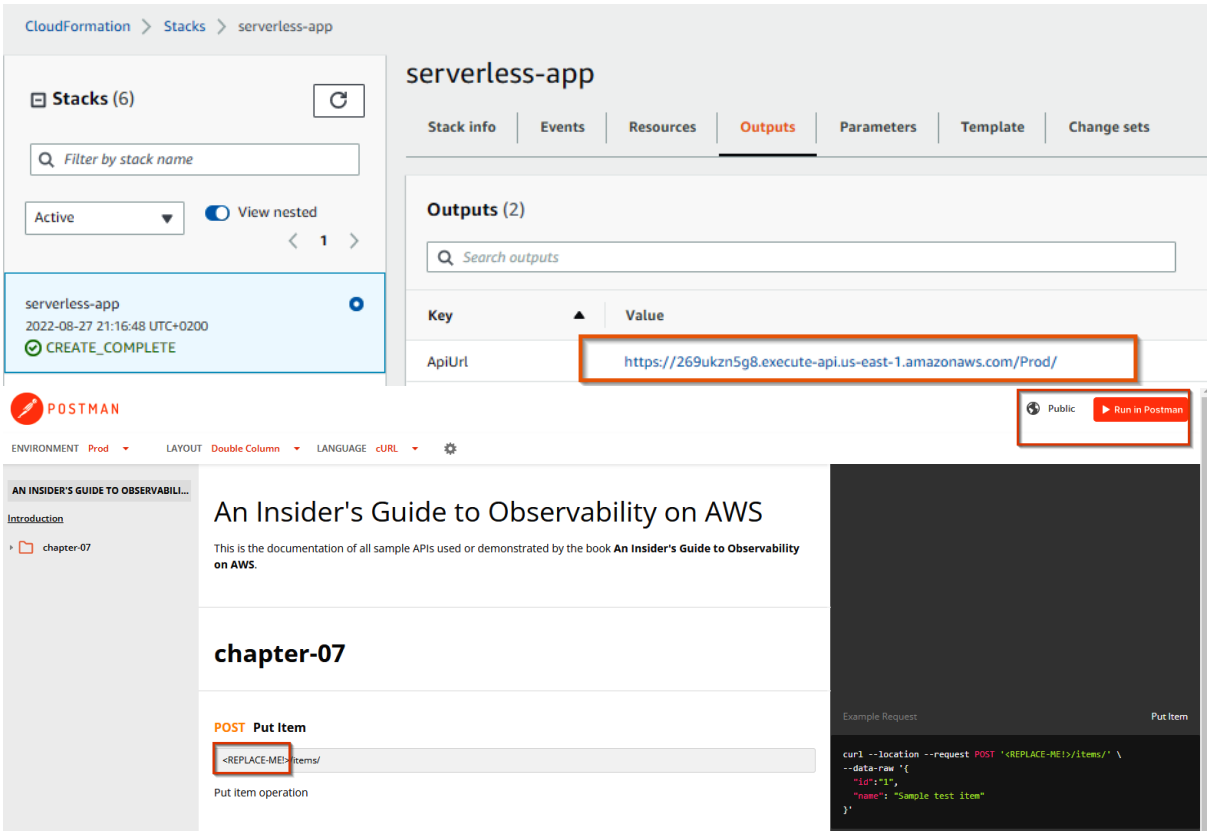

CloudWatch
Container Insights
Container Insights
1h 3h 12h 1d 3d 1w Custom (5m)
Add to dashboard
View in maps
Performance monitoring
Absolute
Relative
Local time zone
Minutes 5 10 15 30 45
Hours 1 2 3 6 8 12
Days 1 2 3 4 5 6
Weeks 1 2 3 4
5 Minutes
Cancel
Apply
ECS Services
CPU Utilization
Memory Utilization
Network TX
Network RX
Disk Utilization
Number of Desired Tasks
Number of Running Tasks
Number of Pending Tasks
Number of Task Sets
Number of Deployments
Alerts
No alerts
No alerts to display
o11y-on-aws-test-Cluster-ARTZPJs9gSVi

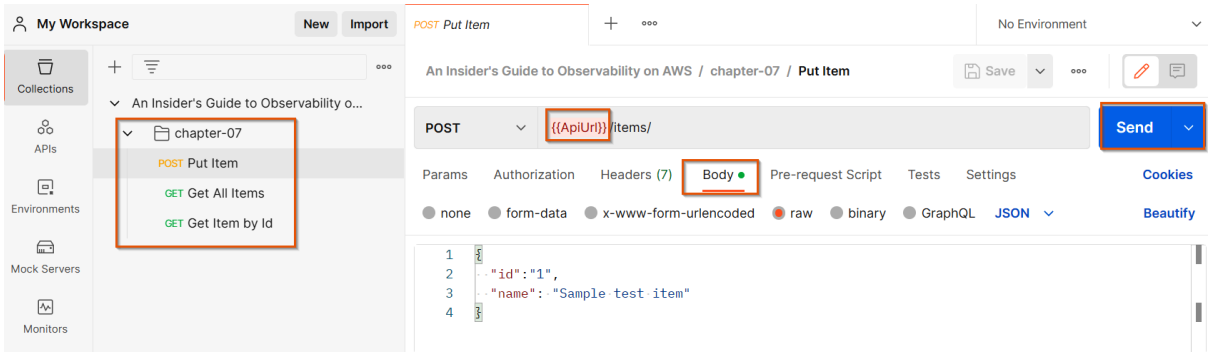

CloudWatch
Logs Insights
Logs Insights
Select log groups, and then run a query or choose a sample query.
5m
30m
1h
3h
12h
Custom
Select log group(s)
/aws/ecs/containerinsights/o11y-on-aws/performance
fields @timestamp, @message, @logStream, @log
| sort @timestamp desc
| limit 20
Run query
Cancel
Save
History
Queries are allowed to run for up to 60 minutes.
Logs
Visualization
Export results
Add to dashboard
No results
Run a query to see related events

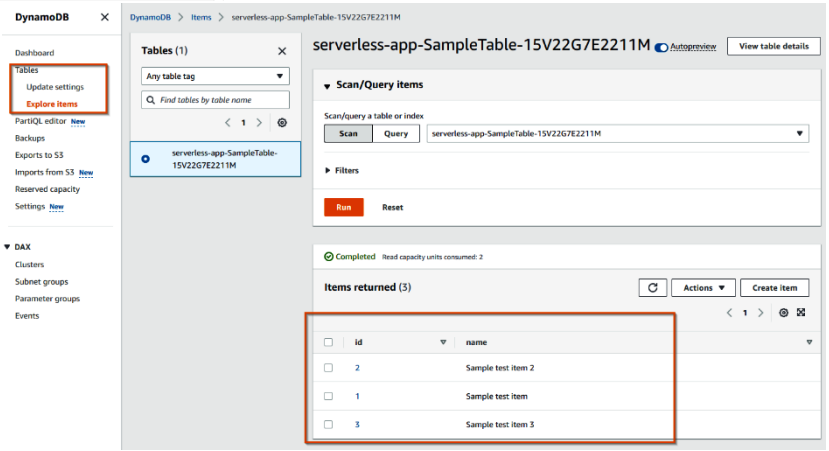

CloudWatch
Favorites and recents
Dashboards
Alarms
Logs
Log groups
Logs Insights
Metrics
All metrics
Explorer
Streams
X-Ray traces
Service map
Traces
Events
Application monitoring
Insights
Container Insights
Lambda Insights
stats avg(MemoryUtilized) as Avg_Memory, avg(CpuUtilized) as Avg_CPU by bin(5m)
| filter Type="Task"
Run query
Save
History
Queries are allowed to run for up to 15 minutes.
Logs
Visualization
Export results
Add to dashboard
Bar
Fields
Queries
Help

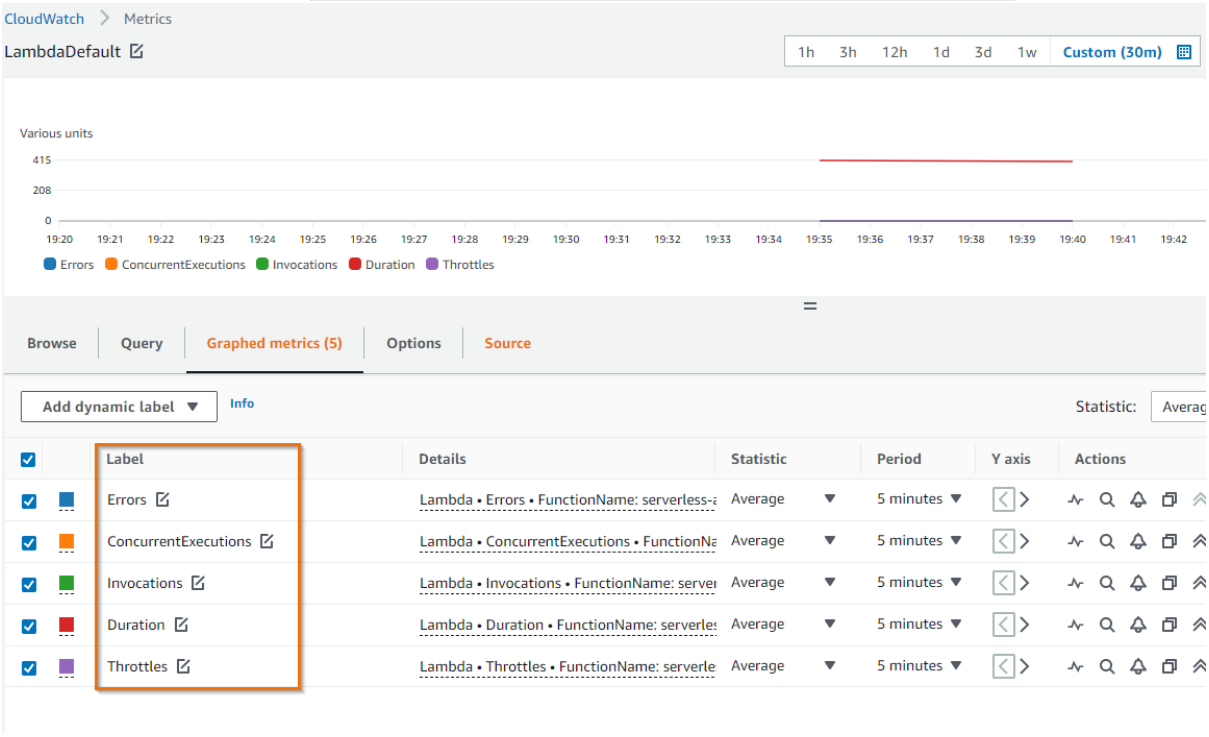
Chapter 7: Observability for Serverless Applications on AWS

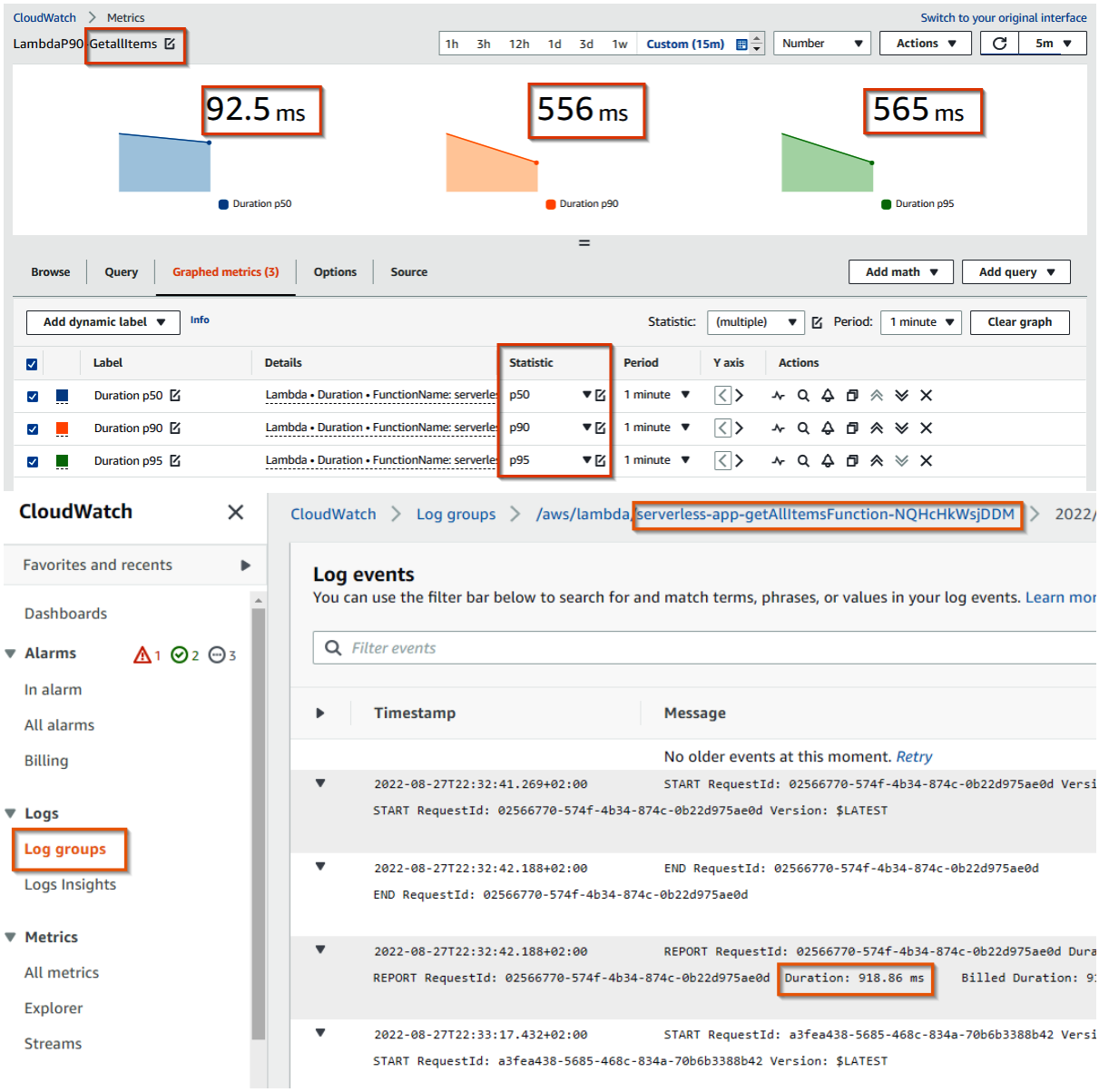





My Workspace
New
Import
POST Put Item
No Environment
Collections
APIs
Environments
Mock Servers
Monitors
An Insider's Guide to Observability o...
chapter-07
POST Put Item
GET Get All Items
GET Get Item by Id
An Insider's Guide to Observability on AWS / chapter-07 / Put Item
Save
POST
{{ApiUrl}}/items/
Send
Params
Authorization
Headers (7)
Body
Pre-request Script
Tests
Settings
Cookies
none
form-data
x-www-form-urlencoded
raw
binary
GraphQL
JSON
Beautify
1 {
2 "id":"1",
3 "name": "Sample test item"
4 }


DynamoDB
Dashboard
Tables
Update settings
Explore items
PartiQL editor
Backups
Exports to S3
Imports from S3
Reserved capacity
Settings
DAX
Clusters
Subnet groups
Parameter groups
Events
Tables (1)
Any table tag
serverless-app-SampleTable-15V22G7E2211M
serverless-app-SampleTable-15V22G7E2211M
Autopreview
View table details
Scan/Query items
Scan/query a table or index
Scan
Query
Filters
Run
Reset
Completed
Items returned (3)
Actions
Create item
id
name
2
Sample test item 2
1
Sample test item
3
Sample test item 3


CloudWatch
Metrics
LambdaDefault
1h
3h
12h
1d
3d
1w
Custom (30m)
Various units
415
208
0
19:20
19:21
19:22
19:23
19:24
19:25
19:26
19:27
19:28
19:29
19:30
19:31
19:32
19:33
19:34
19:35
19:36
19:37
19:38
19:39
19:40
19:41
19:42
Errors
ConcurrentExecutions
Invocations
Duration
Throttles
Browse
Query
Graphed metrics (5)
Options
Source
Add dynamic label
Info
Statistic:
Label
Details
Statistic
Period
Y axis
Actions
Errors
Lambda • Errors • FunctionName: serverless-
Average
5 minutes
ConcurrentExecutions
Lambda • ConcurrentExecutions • FunctionNa
Average
5 minutes
Invocations
Lambda • Invocations • FunctionName: serve
Average
5 minutes
Duration
Lambda • Duration • FunctionName: serverle
Average
5 minutes
Throttles
Lambda • Throttles • FunctionName: serverle
Average
5 minutes


CloudWatch > Metrics
Switch to your original interface
LambdaP90 GetallItems
1h 3h 12h 1d 3d 1w Custom (15m)
Number
Actions
5m
92.5 ms
556 ms
565 ms
Duration p50
Duration p90
Duration p95
Browse
Query
Graphed metrics (3)
Options
Source
Add math
Add query
Add dynamic label
Info
Statistic: (multiple)
Period: 1 minute
Clear graph
Label
Details
Statistic
Period
Y axis
Actions
Duration p50
Lambda • Duration • FunctionName: serverle
p50
1 minute
Duration p90
Lambda • Duration • FunctionName: serverle
p90
1 minute
Duration p95
Lambda • Duration • FunctionName: serverle
p95
1 minute

CloudWatch
Favorites and recents
Dashboards
Alarms
1 2 3
In alarm
All alarms
Billing
Logs
Log groups
Logs Insights
Metrics
All metrics
Explorer
Streams
CloudWatch > Log groups > /aws/lambda/serverless-app-getAllItemsFunction-NQHcHkWsjDDM > 2022/
Log events
You can use the filter bar below to search for and match terms, phrases, or values in your log events. Learn mor
Filter events
Timestamp
Message
No older events at this moment. Retry
2022-08-27T22:32:41.269+02:00 START RequestId: 02566770-574f-4b34-874c-0b22d975ae0d Versi
START RequestId: 02566770-574f-4b34-874c-0b22d975ae0d Version: $LATEST
2022-08-27T22:32:42.188+02:00 END RequestId: 02566770-574f-4b34-874c-0b22d975ae0d
END RequestId: 02566770-574f-4b34-874c-0b22d975ae0d
2022-08-27T22:32:42.188+02:00 REPORT RequestId: 02566770-574f-4b34-874c-0b22d975ae0d Dura
REPORT RequestId: 02566770-574f-4b34-874c-0b22d975ae0d Duration: 918.86 ms Billed Duration: 9
2022-08-27T22:33:17.432+02:00 START RequestId: a3fea438-5685-468c-834a-70b6b3388b42 Versi
START RequestId: a3fea438-5685-468c-834a-70b6b3388b42 Version: $LATEST

Logs Insights

Select log groups, and then run a query or choose a sample query.

Select log group(s)

/aws/lambda/serverless-app-getAllItemsFunction-NQHcHkWsjDDM ✕ /aws/lambda/serverless-app-getByIdFunction-ENu5NBXaiVs5 ✕ /aws/lambda/serverless-app-r

/aws/lambda/serverless-app-putItemFunction-0JOkwpygTJom ✕

Show fewer chosen log groups | Clear all

```
5   max(@initDuration) as maxColdStartTime,
6   avg(@duration) as averageDuration,
7   max(@duration) as maxDuration,
8   min(@duration) as minDuration,
9   avg(@maxMemoryUsed) as averageMemoryUsed,
10  max(@memorySize) as memoryAllocated, (avg(@maxMemoryUsed)/max(@memorySize))*100 as percentageMemoryUsed
11  by bin(5m) as timeFrame
```

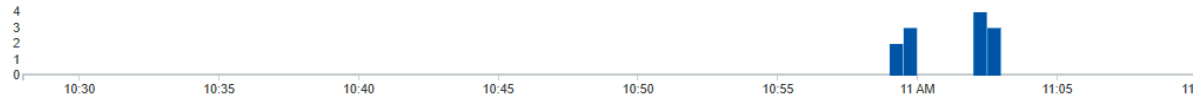
Run query | Save | Actions | History

Queries are allowed to run for up to 15 minutes.

Logs | Visualization

Showing 2 of 12 records matched

42 records (4.9 kB) scanned in 4.1s @ 10 records/s (1.2 kB/s)

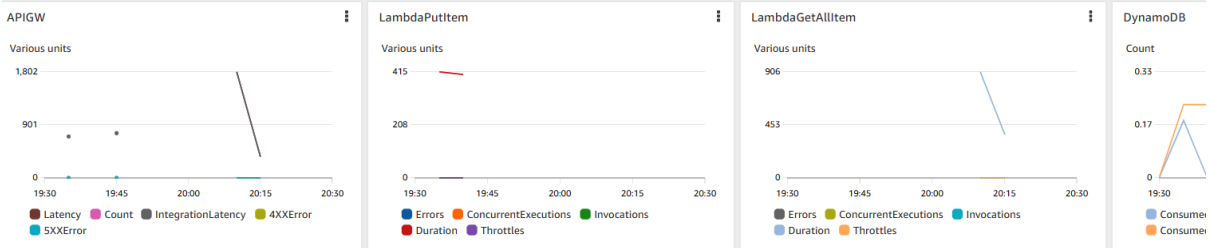


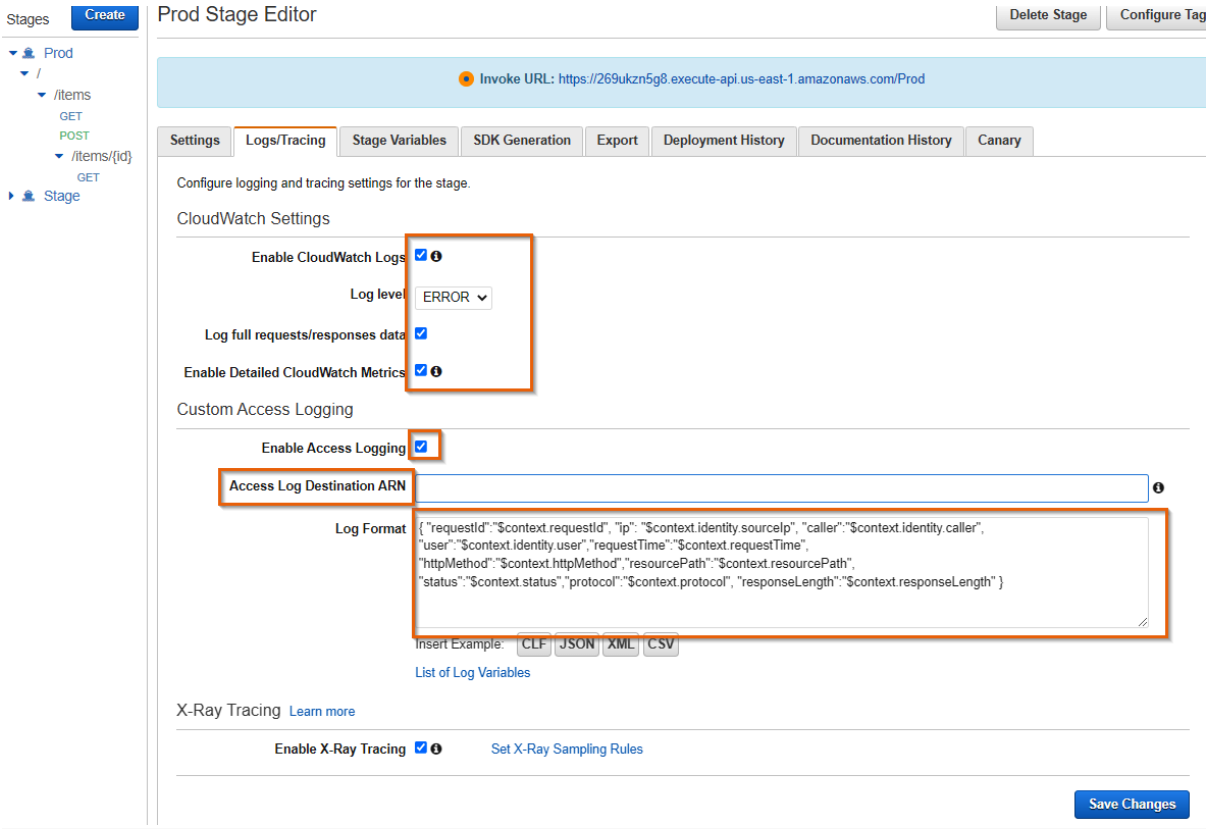
	timeFrame	countInvocations	countColdStarts	percentageColdStarts	maxColdStartTime	averageDuration	maxDuration	minDuration
▶ 1	2022-08-28T11:00:00.00…	7	2	28.5714	655.63	391.0057	1342.42	63.1

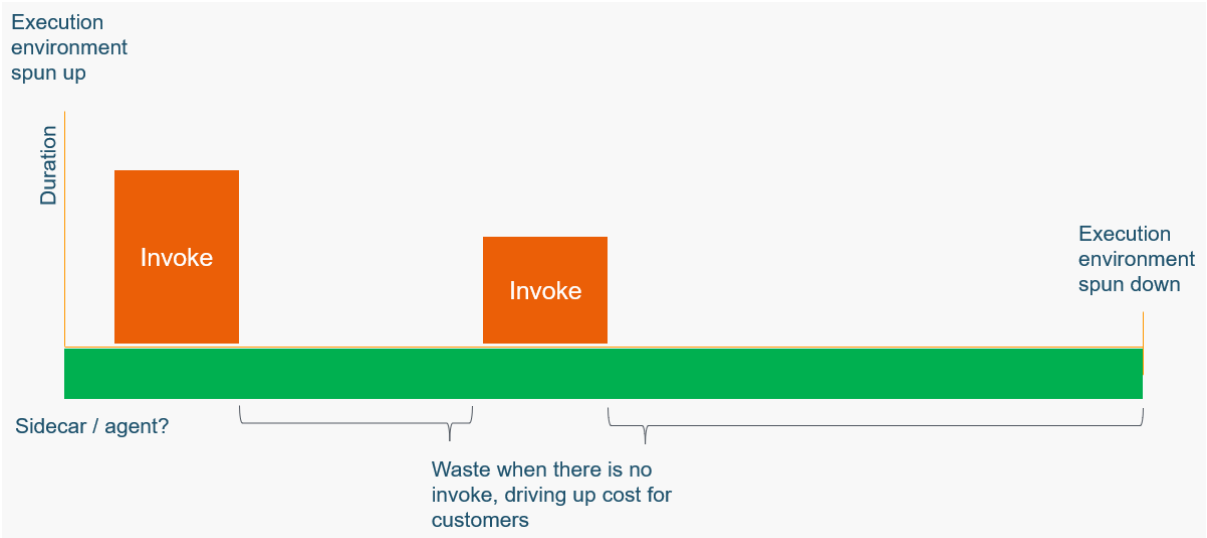
CloudWatch > Dashboards > ServerlessDashboard

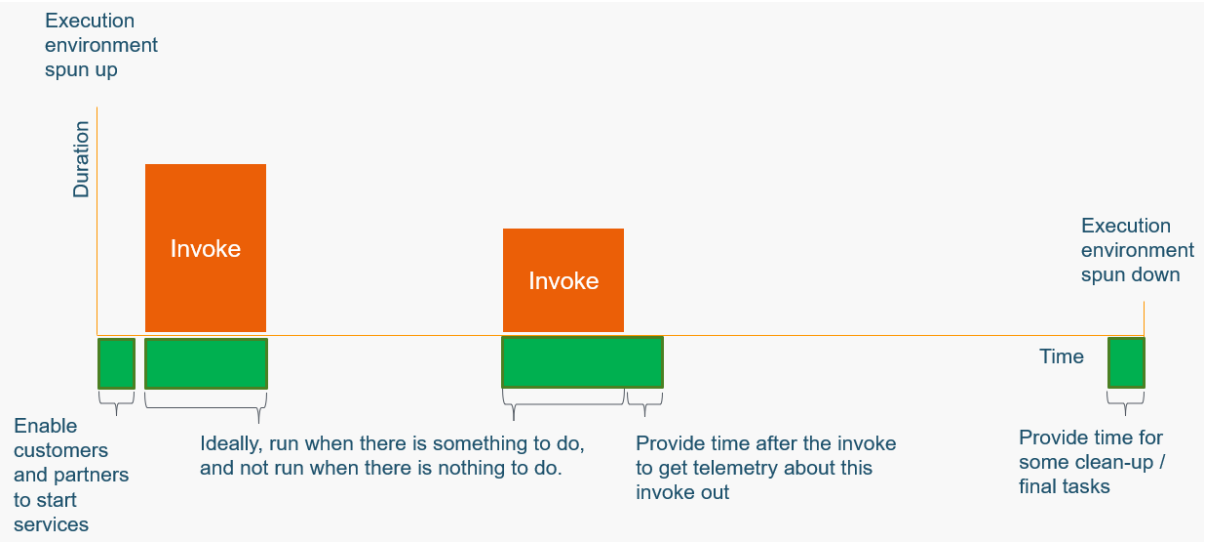
ServerlessDashboard ☆

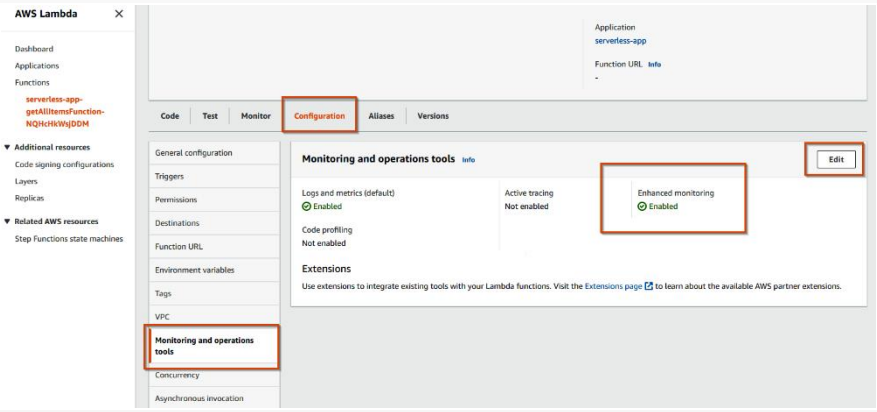
1h | 3h | 12h | 1d | 3d | 1w | Custom | 5m




Stages
Create
Prod
/
/items
GET
POST
/items/{id}
GET
Stage
Prod Stage Editor
Delete Stage
Configure Tag
Invoke URL: https://269ukzn5g8.execute-api.us-east-1.amazonaws.com/Prod
Settings
Logs/Tracing
Stage Variables
SDK Generation
Export
Deployment History
Documentation History
Canary
Configure logging and tracing settings for the stage.
CloudWatch Settings
Enable CloudWatch Logs
Log level
ERROR
Log full requests/responses data
Enable Detailed CloudWatch Metrics
Custom Access Logging
Enable Access Logging
Access Log Destination ARN
Log Format
{ "requestId":"$context.requestId", "ip": "$context.identity.sourceIp", "caller":"$context.identity.caller",
"user":"$context.identity.user","requestTime":"$context.requestTime",
"httpMethod":"$context.httpMethod","resourcePath":"$context.resourcePath",
"status":"$context.status","protocol":"$context.protocol", "responseLength":"$context.responseLength" }
Insert Example:
CLF
JSON
XML
CSV
List of Log Variables
X-Ray Tracing
Learn more
Enable X-Ray Tracing
Set X-Ray Sampling Rules
Save Changes


Execution environment spun up
Duration
Invoke
Invoke
Execution environment spun down
Sidecar / agent?
Waste when there is no invoke, driving up cost for customers





Code | Test | Monitor | Configuration | Aliases | Versions

Code source Info — Upload from

The deployment package of your Lambda function "serverless-app-getAllItemsFunction-NQHcHkWsjDDM" is too large to enable inline code editing. However, you can still invoke your function.

Code properties

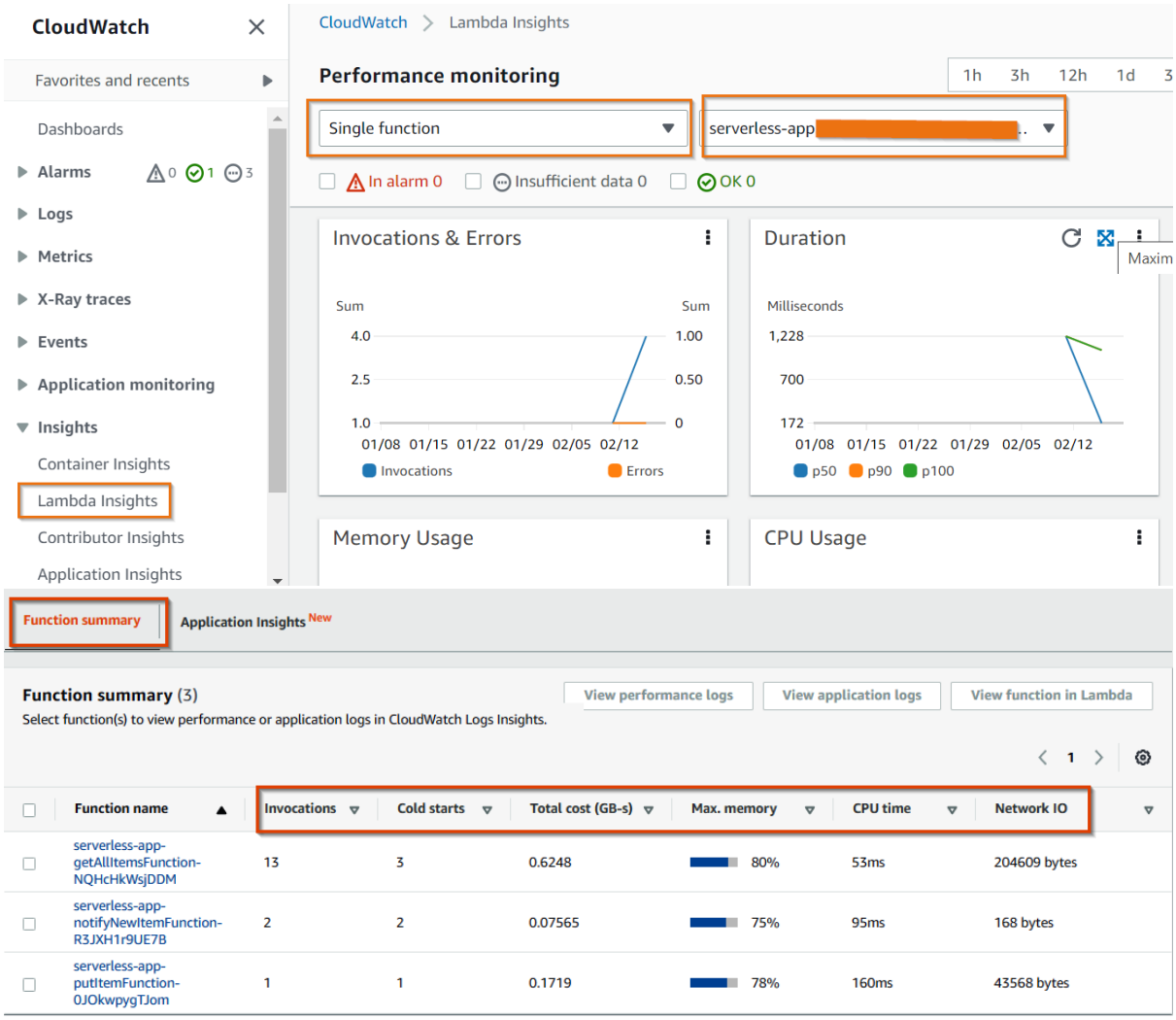
Package size	SHA256 hash	Last modified
12.1 MB	WKotegsR6+5tiFrS979xGpCDrFy7Y3+zOWJdDBU8BW8=	August 28, 2022 at 12:13 AM GMT+2

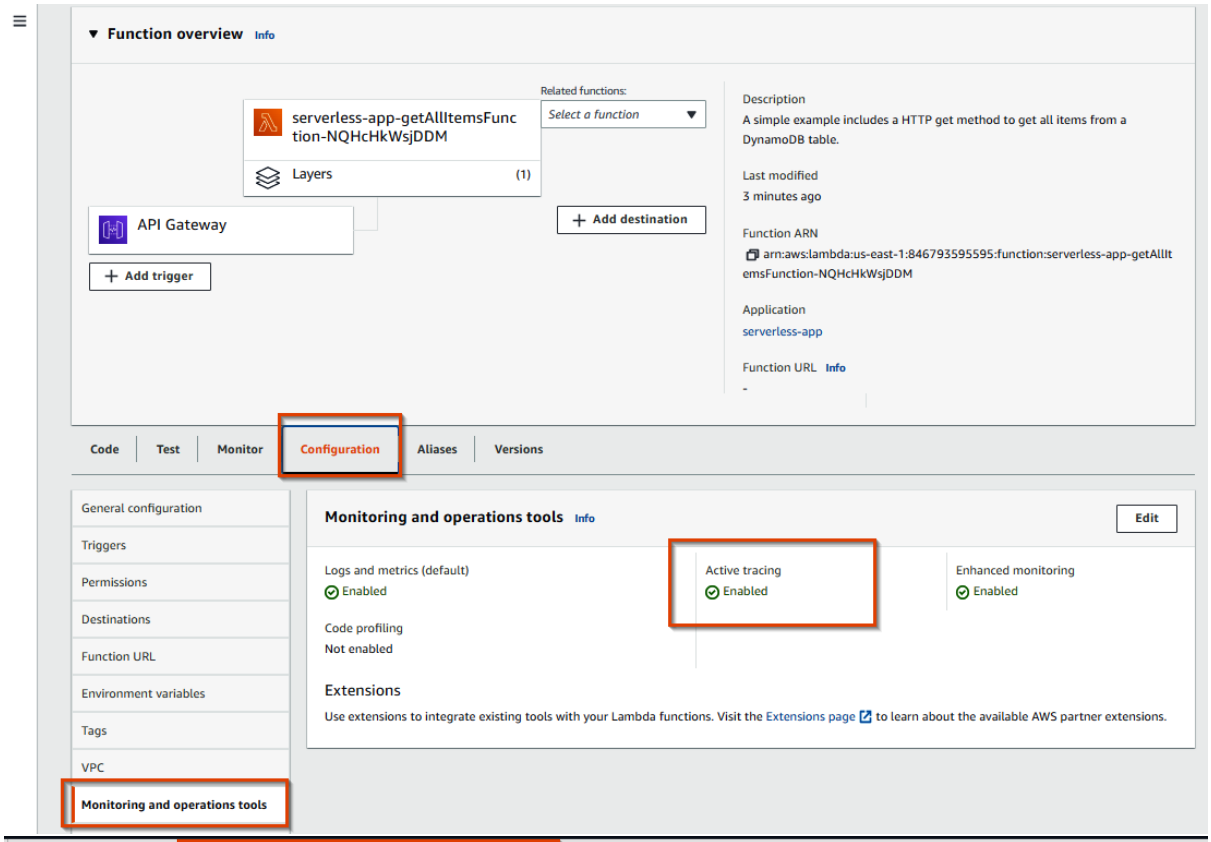
Runtime settings Info — Edit

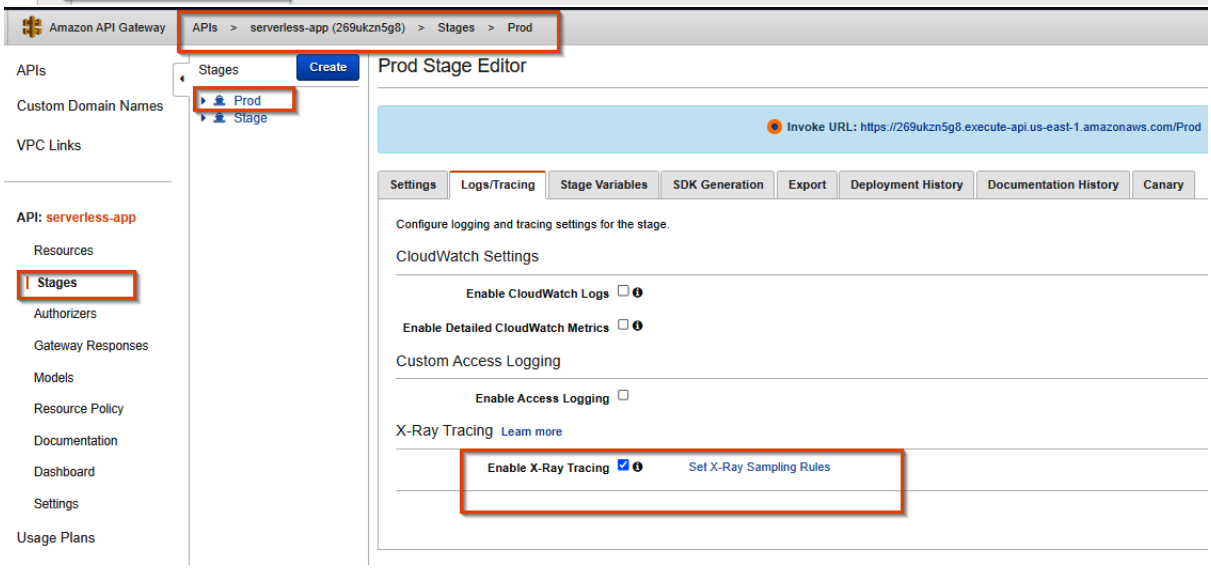
Runtime	Handler Info	Architecture Info
Node.js 16.x	src/handlers/get-all-items.getAllItemsHandler	x86_64

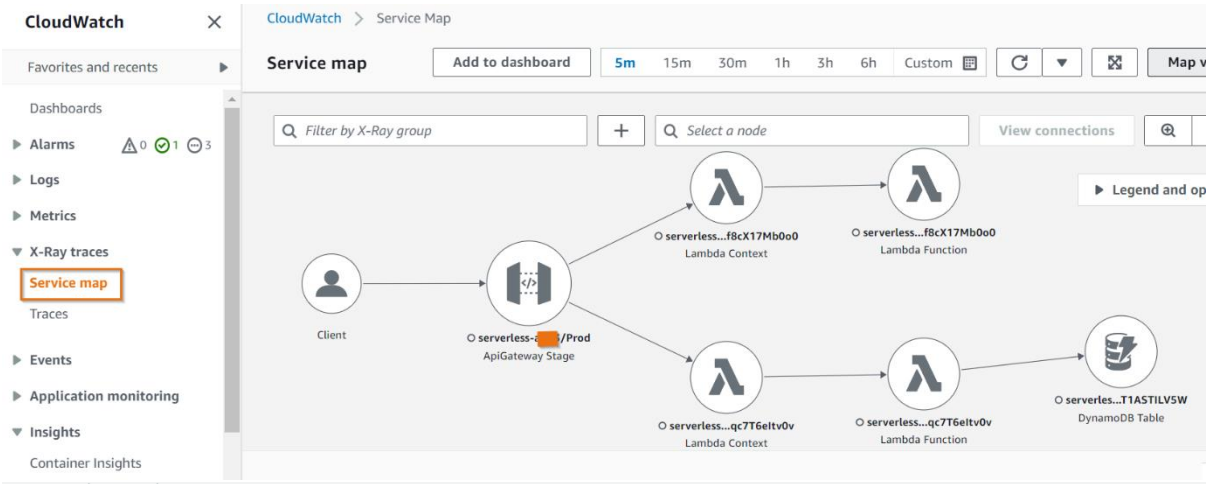
Layers Info — Edit | Add a layer

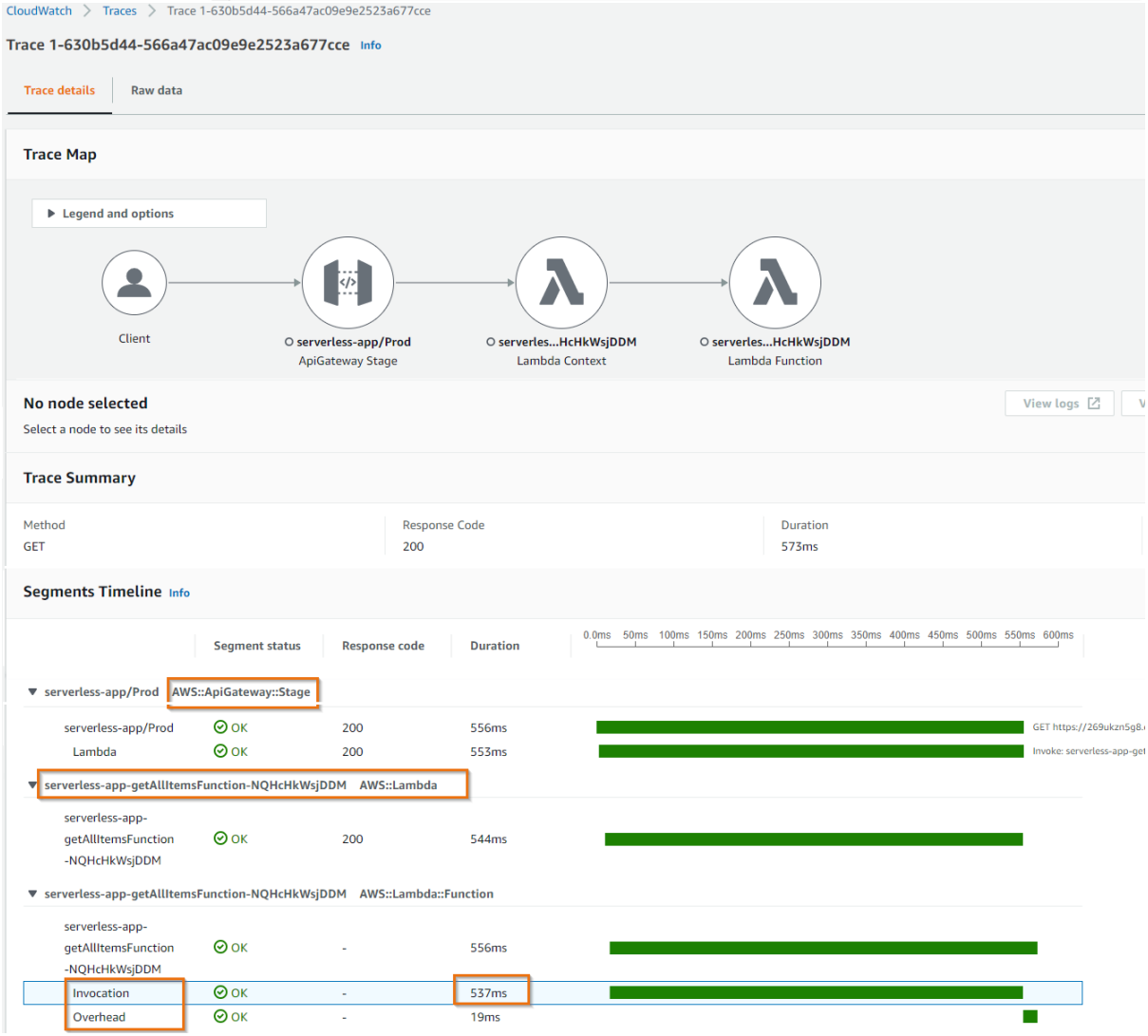
Merge order	Name	Layer version	Compatible runtimes	Compatible architectures	Version ARN
1	LambdaInsightsExtension	21	-	x86_64	arn:aws:lambda:us-east-1:580247275435:layer:LambdaInsightsExtension:21


CloudWatch
Favorites and recents
Dashboards
Alarms
Logs
Metrics
X-Ray traces
Events
Application monitoring
Insights
Container Insights
Lambda Insights
Contributor Insights
Application Insights
CloudWatch > Lambda Insights
Performance monitoring
1h 3h 12h 1d 3
Single function
serverless-app
In alarm 0
Insufficient data 0
OK 0
Invocations & Errors
Sum
Sum
4.0
2.5
1.0
1.00
0.50
0
01/08 01/15 01/22 01/29 02/05 02/12
Invocations
Errors
Duration
Milliseconds
1,228
700
172
01/08 01/15 01/22 01/29 02/05 02/12
p50 p90 p100
Memory Usage
CPU Usage
Function summary
Application Insights New
Function summary (3)
Select function(s) to view performance or application logs in CloudWatch Logs Insights.
View performance logs
View application logs
View function in Lambda
1
Function name
Invocations
Cold starts
Total cost (GB-s)
Max. memory
CPU time
Network IO
serverless-app-getAllItemsFunction-NQHcHkWsjDDM 13 3 0.6248 80% 53ms 204609 bytes
serverless-app-notifyNewItemFunction-R3JXH1r9UE7B 2 2 0.07565 75% 95ms 168 bytes
serverless-app-putItemFunction-0JOkwpygTJom 1 1 0.1719 78% 160ms 43568 bytes


Function overview Info
Related functions:
Select a function
serverless-app-getAllItemsFunction-NQHcHkWsjDDM
Layers (1)
API Gateway
Add trigger
Add destination
Description
A simple example includes a HTTP get method to get all items from a DynamoDB table.
Last modified
3 minutes ago
Function ARN
arn:aws:lambda:us-east-1:846793595595:function:serverless-app-getAllItemsFunction-NQHcHkWsjDDM
Application
serverless-app
Function URL Info
Code
Test
Monitor
Configuration
Aliases
Versions
General configuration
Triggers
Permissions
Destinations
Function URL
Environment variables
Tags
VPC
Monitoring and operations tools
Monitoring and operations tools Info
Edit
Logs and metrics (default)
Enabled
Active tracing
Enabled
Enhanced monitoring
Enabled
Code profiling
Not enabled
Extensions
Use extensions to integrate existing tools with your Lambda functions. Visit the Extensions page to learn about the available AWS partner extensions.


Amazon API Gateway
APIs > serverless-app (269ukzn5g8) > Stages > Prod
APIs
Custom Domain Names
VPC Links
API: serverless-app
Resources
Stages
Authorizers
Gateway Responses
Models
Resource Policy
Documentation
Dashboard
Settings
Usage Plans
Stages
Create
Prod
Stage
Prod Stage Editor
Invoke URL: https://269ukzn5g8.execute-api.us-east-1.amazonaws.com/Prod
Settings
Logs/Tracing
Stage Variables
SDK Generation
Export
Deployment History
Documentation History
Canary
Configure logging and tracing settings for the stage.
CloudWatch Settings
Enable CloudWatch Logs
Enable Detailed CloudWatch Metrics
Custom Access Logging
Enable Access Logging
X-Ray Tracing Learn more
Enable X-Ray Tracing
Set X-Ray Sampling Rules


CloudWatch
Favorites and recents
Dashboards
Alarms
Logs
Metrics
X-Ray traces
Service map
Traces
Events
Application monitoring
Insights
Container Insights
CloudWatch > Service Map
Service map
Add to dashboard
5m
15m
30m
1h
3h
6h
Custom
Filter by X-Ray group
Select a node
View connections
Legend and op
Client
ApiGateway Stage
Lambda Context
Lambda Function
DynamoDB Table


CloudWatch > Traces > Trace 1-630b5d44-566a47ac09e9e2523a677cce
Trace 1-630b5d44-566a47ac09e9e2523a677cce Info
Trace details
Raw data
Trace Map
Legend and options
Client
serverless-app/Prod
ApiGateway Stage
Lambda Context
Lambda Function
No node selected
Select a node to see its details
View logs
Trace Summary
Method
GET
Response Code
200
Duration
573ms
Segments Timeline Info
Segment status
Response code
Duration
0.0ms 50ms 100ms 150ms 200ms 250ms 300ms 350ms 400ms 450ms 500ms 550ms 600ms
serverless-app/Prod AWS::ApiGateway::Stage
serverless-app/Prod OK 200 556ms
Lambda OK 200 553ms
serverless-app-getAllItemsFunction-NQHcHkWsjDDM AWS::Lambda
serverless-app-getAllItemsFunction-NQHcHkWsjDDM OK 200 544ms
serverless-app-getAllItemsFunction-NQHcHkWsjDDM AWS::Lambda::Function
serverless-app-getAllItemsFunction-NQHcHkWsjDDM OK - 556ms
Invocation OK - 537ms
Overhead OK - 19ms

No older events at this moment. *Retry*

```
2022-09-02T22:34:25.154+02:00          LOGS Name: cloudwatch_lambda_agent State: Subscribed Types: [platform]
LOGS    Name: cloudwatch_lambda_agent   State: Subscribed       Types: [platform]

2022-09-02T22:34:25.761+02:00          EXTENSION Name: cloudwatch_lambda_agent State: Ready Events: [SHUTDOWN,INVOKE]
EXTENSION       Name: cloudwatch_lambda_agent   State: Ready    Events: [SHUTDOWN,INVOKE]

2022-09-02T22:34:25.762+02:00          START RequestId: 50cd15c4-358a-488a-b327-8b8090902077 Version: $LATEST
START RequestId: 50cd15c4-358a-488a-b327-8b8090902077 Version: $LATEST

2022-09-02T22:34:26.838+02:00          END RequestId: 50cd15c4-358a-488a-b327-8b8090902077
END RequestId: 50cd15c4-358a-488a-b327-8b8090902077

2022-09-02T22:34:26.838+02:00          REPORT RequestId: 50cd15c4-358a-488a-b327-8b8090902077 Duration: 1060.44 ms Billed Duration: 1061 ms Memory Size: 128 MB Max Memory Used: 100 MB Init Duration: 694.
REPORT RequestId: 50cd15c4-358a-488a-b327-8b8090902077  Duration: 1060.44 ms    Billed Duration: 1061 ms        Memory Size: 128 MB     Max Memory Used: 100 MB Init Duration: 694.27 ms
XRAY TraceId: 1-631268d0-53ac2f4f0f6a99134579f74a       SegmentId: 0617e3735720b453     Sampled: true
```

Log events

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

Filter events

Timestamp	Message

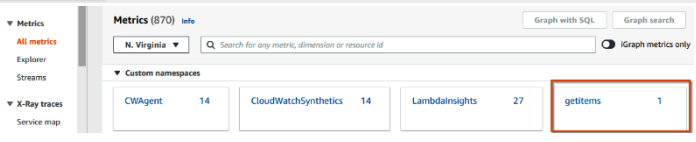
No older events at this moment. *Retry*

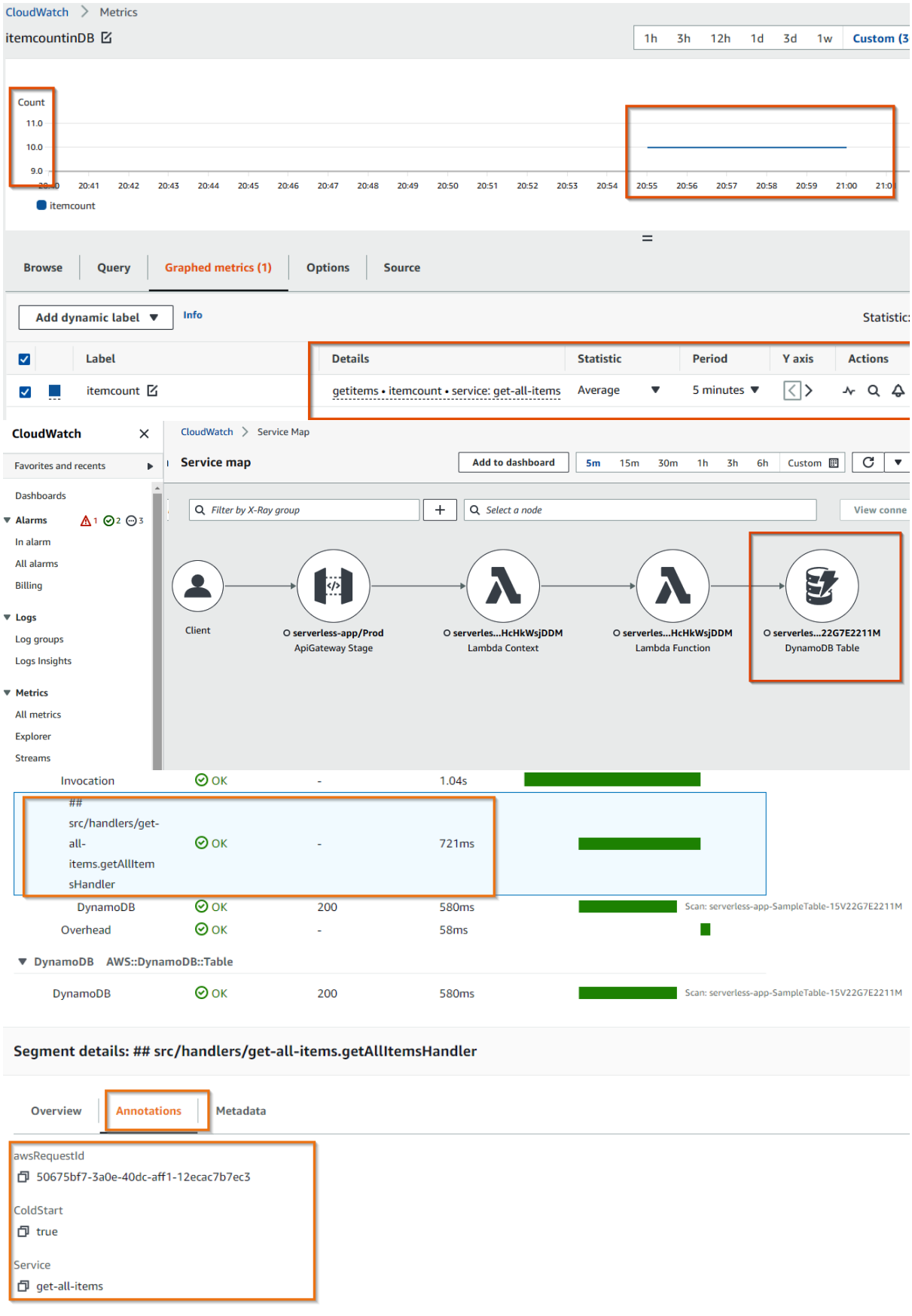
```
2022-09-02T22:45:42.728+02:00          LOGS Name: cloudwatch_lambda_agent State: Subscribed Types: [platform]
LOGS    Name: cloudwatch_lambda_agent   State: Subscribed       Types: [platform]

2022-09-02T22:45:43.338+02:00          EXTENSION Name: cloudwatch_lambda_agent State: Ready Events: [INVOKE,SHUTDOWN]
EXTENSION       Name: cloudwatch_lambda_agent   State: Ready    Events: [INVOKE,SHUTDOWN]

2022-09-02T22:45:43.338+02:00          START RequestId: 52198525-bbc4-4043-8d3c-c062efd62990 Version: $LATEST
START RequestId: 52198525-bbc4-4043-8d3c-c062efd62990 Version: $LATEST

2022-09-02T22:45:44.385+02:00          {"cold_start":true,"function_arn":"arn:aws:lambda:us-east-1:846793595595:function:serverless-app-getAllItemsFunction-NQHcHkWsjD
```

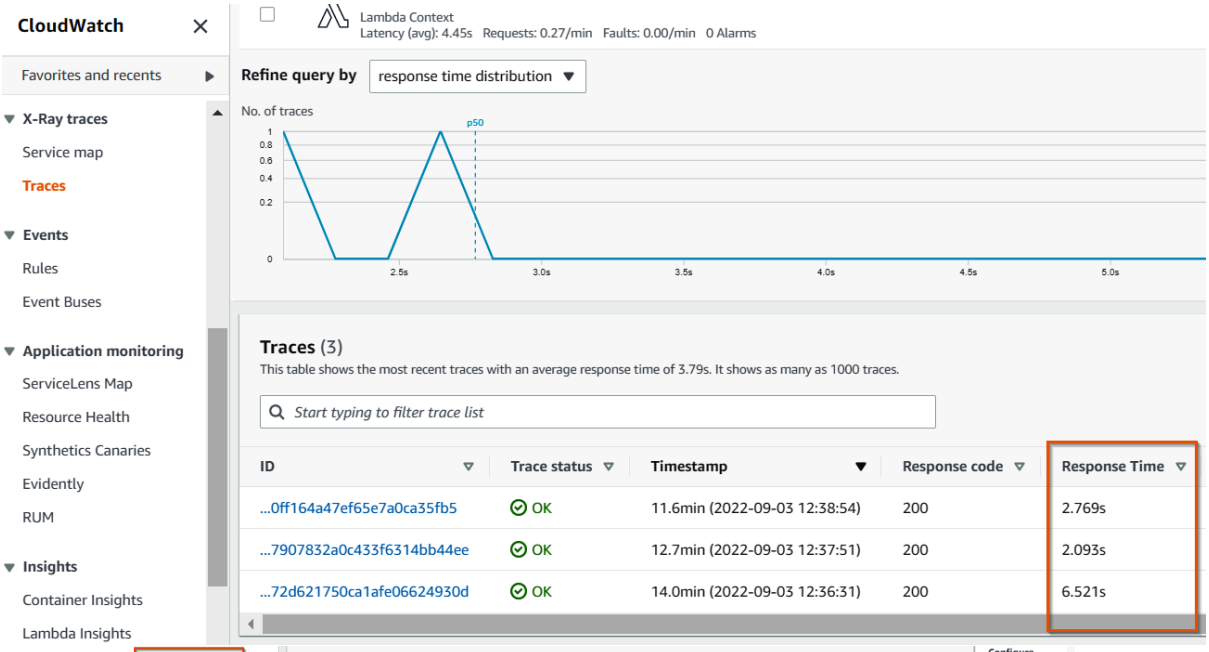

```
{
    "cold_start": true,
    "function_arn": "arn:aws:lambda:us-east-1:846793595595:function:serverless-app-getAllItemsFunction-NQHcHkWsjDDM",
    "function_memory_size": 128,
    "function_name": "serverless-app-getAllItemsFunction-NQHcHkWsjDDM",
    "function_request_id": "52198525-bbc4-4043-8d3c-c062efd62990",
    "level": "INFO",
    "message": "Items in list:",
    "service": "get-all-items",
    "timestamp": "2022-09-02T20:45:44.383Z",
    "xray_trace_id": "1-63126b76-24442d6e5f772bc51158c19f",
    "items": {
        "Items": [
            {
                "id": "2",
                "name": "Sample test item 2"
            },
            {
                "id": "8",
                "name": "Sample test item 8"
            },
            {
```

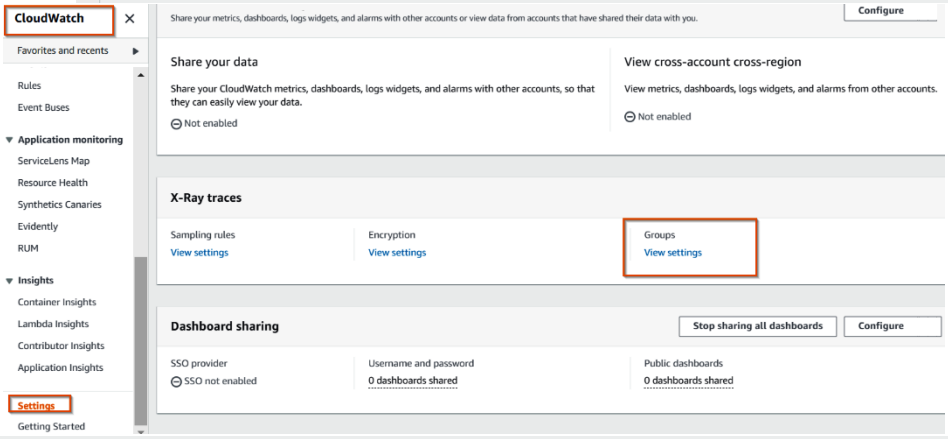

```
2022-09-02T23:02:39.559+02:00          2022-09-02T21:02:39.559Z 6e18e93e-2a47-45fb-97ba-b63167e54157 INFO {"_aws":{"Timestamp":1662152559559,
2022-09-02T21:02:39.559Z        6e18e93e-2a47-45fb-97ba-b63167e54157    INFO
```

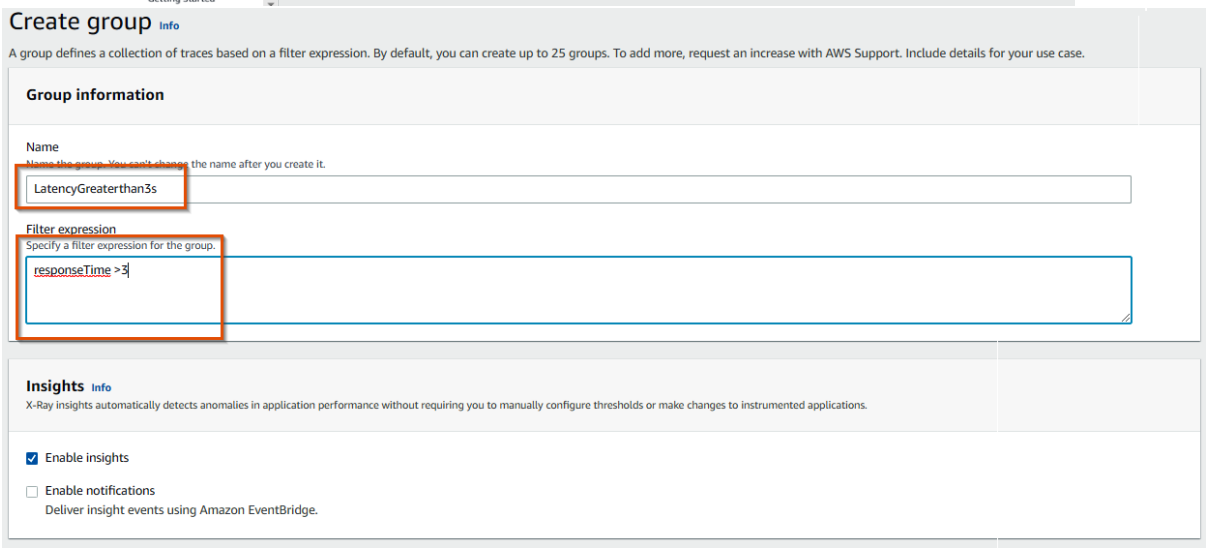

```
{
    "_aws": {
        "Timestamp": 1662152559559,
        "CloudWatchMetrics": [
            {
                "Namespace": "getitems",
                "Dimensions": [
                    [
                        "service"
                    ]
                ],
                "Metrics": [
                    {
                        "Name": "itemcount",
                        "Unit": "Count"
                    }
                ]
            }
        ]
    },
    "service": "get-all-items",
    "itemcount": 10
}
```

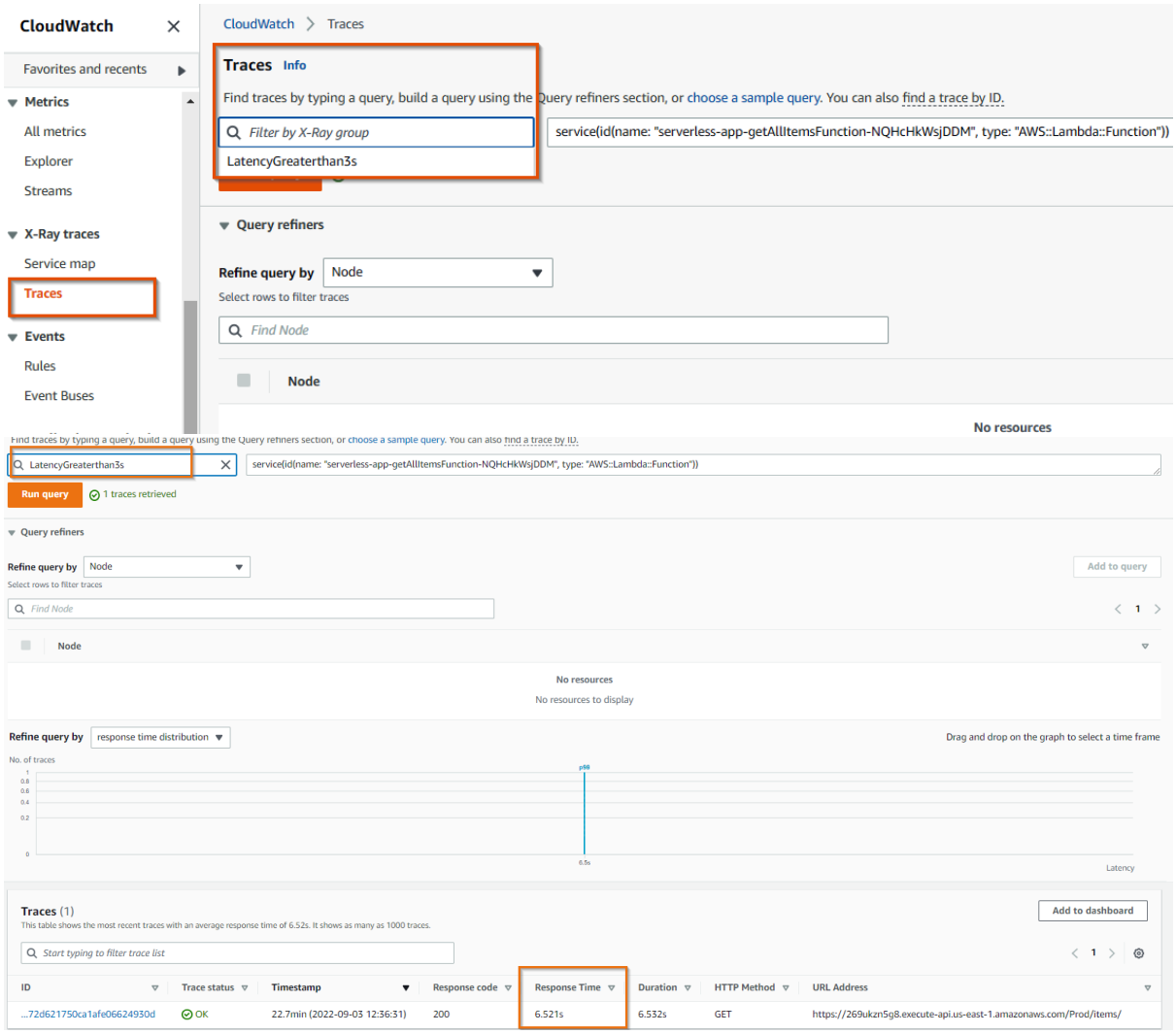




CloudWatch
Metrics
itemcountinDB
1h 3h 12h 1d 3d 1w Custom (3
Count
11.0
10.0
9.0
20:41 20:42 20:43 20:44 20:45 20:46 20:47 20:48 20:49 20:50 20:51 20:52 20:53 20:54 20:55 20:56 20:57 20:58 20:59 21:00
itemcount
Browse
Query
Graphed metrics (1)
Options
Source
Add dynamic label
Info
Statistic
Label
Details
Statistic
Period
Y axis
Actions
itemcount
getitems • itemcount • service: get-all-items
Average
5 minutes
CloudWatch
Favorites and recents
Dashboards
Alarms
In alarm
All alarms
Billing
Logs
Log groups
Logs Insights
Metrics
All metrics
Explorer
Streams
CloudWatch
Service Map
Service map
Add to dashboard
5m 15m 30m 1h 3h 6h Custom
Filter by X-Ray group
Select a node
View conne
Client
O serverless-app/Prod
ApiGateway Stage
O serverles...HcHkWsjDDM
Lambda Context
O serverles...HcHkWsjDDM
Lambda Function
O serverles...22G7E2211M
DynamoDB Table
Invocation
OK
-
1.04s
src/handlers/get-all-items.getAllItemsHandler
OK
-
721ms
DynamoDB
OK
200
580ms
Scan: serverless-app-SampleTable-15V22G7E2211M
Overhead
OK
-
58ms
DynamoDB AWS::DynamoDB::Table
DynamoDB
OK
200
580ms
Scan: serverless-app-SampleTable-15V22G7E2211M
Segment details: ## src/handlers/get-all-items.getAllItemsHandler
Overview
Annotations
Metadata
awsRequestId
50675bf7-3a0e-40dc-aff1-12ecac7b7ec3
ColdStart
true
Service
get-all-items


CloudWatch
Favorites and recents
X-Ray traces
Service map
Traces
Events
Rules
Event Buses
Application monitoring
ServiceLens Map
Resource Health
Synthetics Canaries
Evidently
RUM
Insights
Container Insights
Lambda Insights
Lambda Context
Latency (avg): 4.45s Requests: 0.27/min Faults: 0.00/min 0 Alarms
Refine query by
response time distribution
No. of traces
p50
1
0.8
0.6
0.4
0.2
0
2.5s
3.0s
3.5s
4.0s
4.5s
5.0s
Traces (3)
This table shows the most recent traces with an average response time of 3.79s. It shows as many as 1000 traces.
Start typing to filter trace list
ID
Trace status
Timestamp
Response code
Response Time
...0ff164a47ef65e7a0ca35fb5
OK
11.6min (2022-09-03 12:38:54)
200
2.769s
...7907832a0c433f6314bb44ee
OK
12.7min (2022-09-03 12:37:51)
200
2.093s
...72d621750ca1afe06624930d
OK
14.0min (2022-09-03 12:36:31)
200
6.521s


CloudWatch
Favorites and recents
Rules
Event Buses
Application monitoring
ServiceLens Map
Resource Health
Synthetics Canaries
Evidently
RUM
Insights
Container Insights
Lambda Insights
Contributor Insights
Application Insights
Settings
Getting Started
Share your metrics, dashboards, logs widgets, and alarms with other accounts or view data from accounts that have shared their data with you.
Configure
Share your data
Share your CloudWatch metrics, dashboards, logs widgets, and alarms with other accounts, so that they can easily view your data.
Not enabled
View cross-account cross-region
View metrics, dashboards, logs widgets, and alarms from other accounts.
Not enabled
X-Ray traces
Sampling rules
View settings
Encryption
View settings
Groups
View settings
Dashboard sharing
Stop sharing all dashboards
Configure
SSO provider
SSO not enabled
Username and password
0 dashboards shared
Public dashboards
0 dashboards shared


Create group Info
A group defines a collection of traces based on a filter expression. By default, you can create up to 25 groups. To add more, request an increase with AWS Support. Include details for your use case.
Group information
Name
Name the group. You can't change the name after you create it.
LatencyGreaterthan3s
Filter expression
Specify a filter expression for the group.
responseTime >3
Insights Info
X-Ray insights automatically detects anomalies in application performance without requiring you to manually configure thresholds or make changes to instrumented applications.
Enable insights
Enable notifications
Deliver insight events using Amazon EventBridge.


CloudWatch
Favorites and recents
Metrics
All metrics
Explorer
Streams
X-Ray traces
Service map
Traces
Events
Rules
Event Buses
CloudWatch > Traces
Traces Info
Find traces by typing a query, build a query using the Query refiners section, or choose a sample query. You can also find a trace by ID.
Filter by X-Ray group
LatencyGreaterthan3s
service(id(name: "serverless-app-getAllItemsFunction-NQHcHkWsjDDM", type: "AWS::Lambda::Function"))
Query refiners
Refine query by
Node
Select rows to filter traces
Find Node
Node
No resources
Run query
1 traces retrieved
Add to query
No resources to display
response time distribution
Drag and drop on the graph to select a time frame
No. of traces
Latency
Traces (1)
This table shows the most recent traces with an average response time of 6.52s. It shows as many as 1000 traces.
Add to dashboard
Start typing to filter trace list
ID
Trace status
Timestamp
Response code
Response Time
Duration
HTTP Method
URL Address
...72d621750ca1afe06624930d
OK
22.7min (2022-09-03 12:36:31)
200
6.521s
6.532s
GET
https://269ukzn5g8.execute-api.us-east-1.amazonaws.com/Prod/items/

Group information

Name

Name the group. You can't change the name after you create it.

coldstart

View metric

ARN

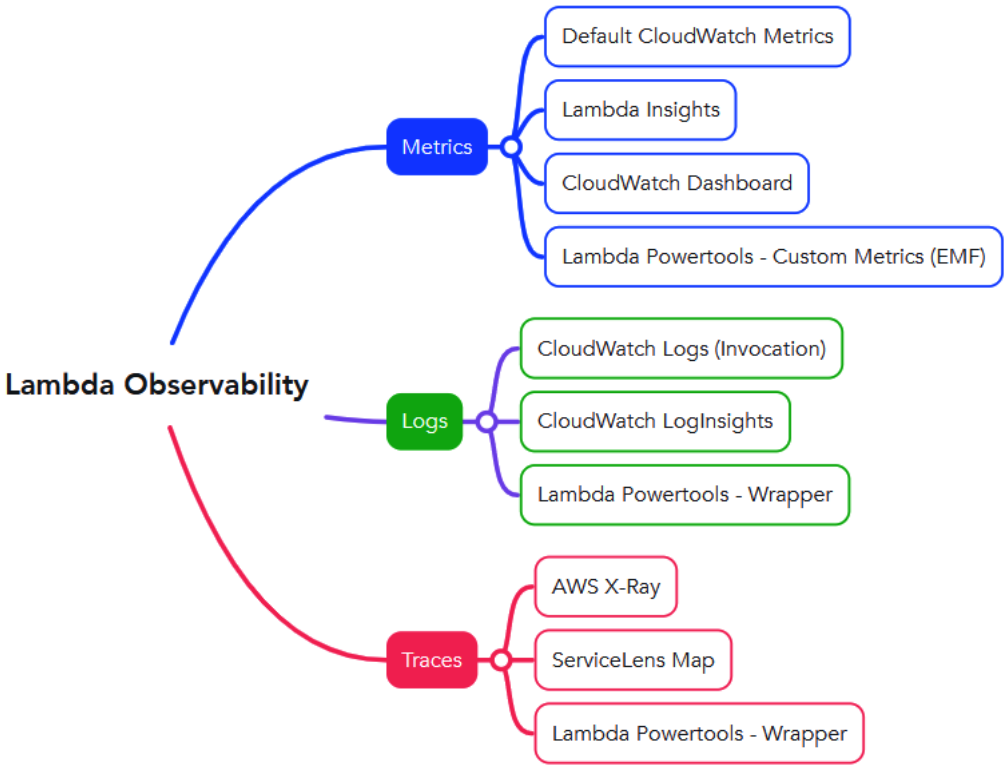
Amazon Resource Name.

arn:aws:xray:us-east-1:[redacted]roup/coldstart/KDG3MOXSHKXOJRYZYPEJKVG55HHNGRP5H2YIMY3NL7SWQLHVG6PQ

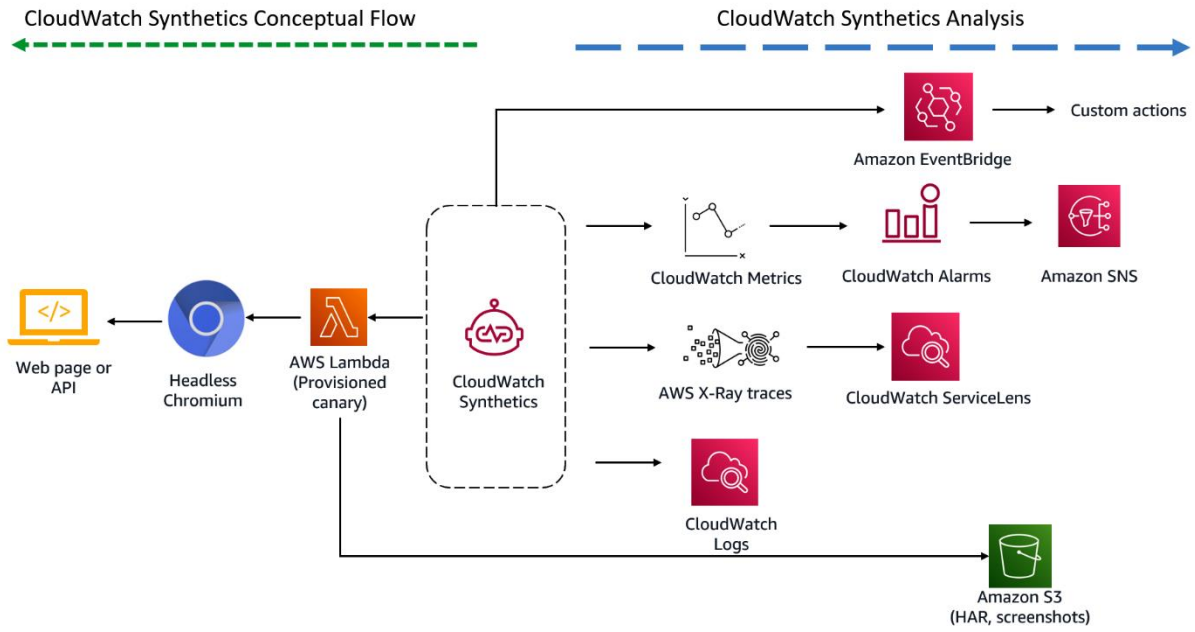
Filter expression

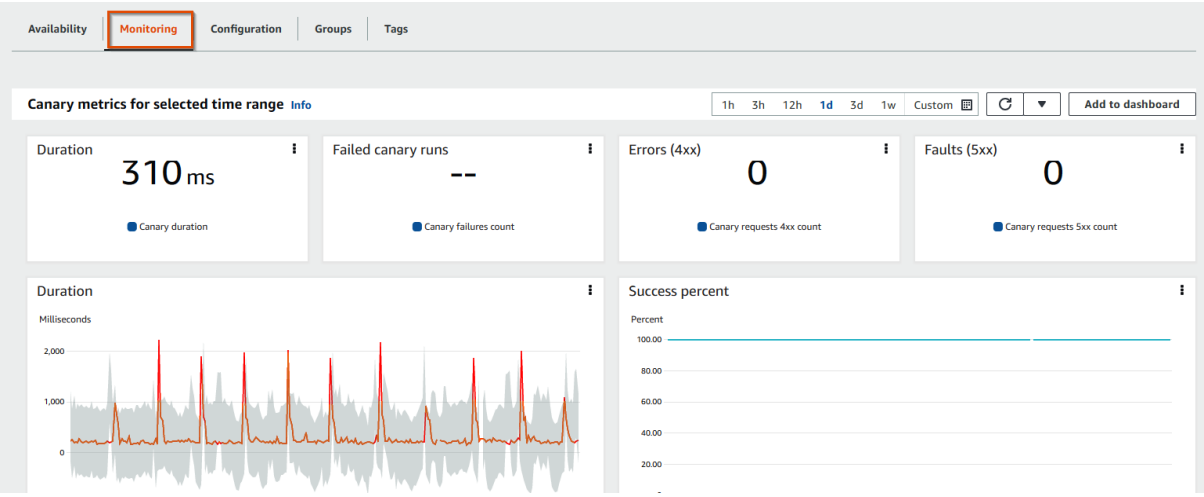
Specify a filter expression for the group.

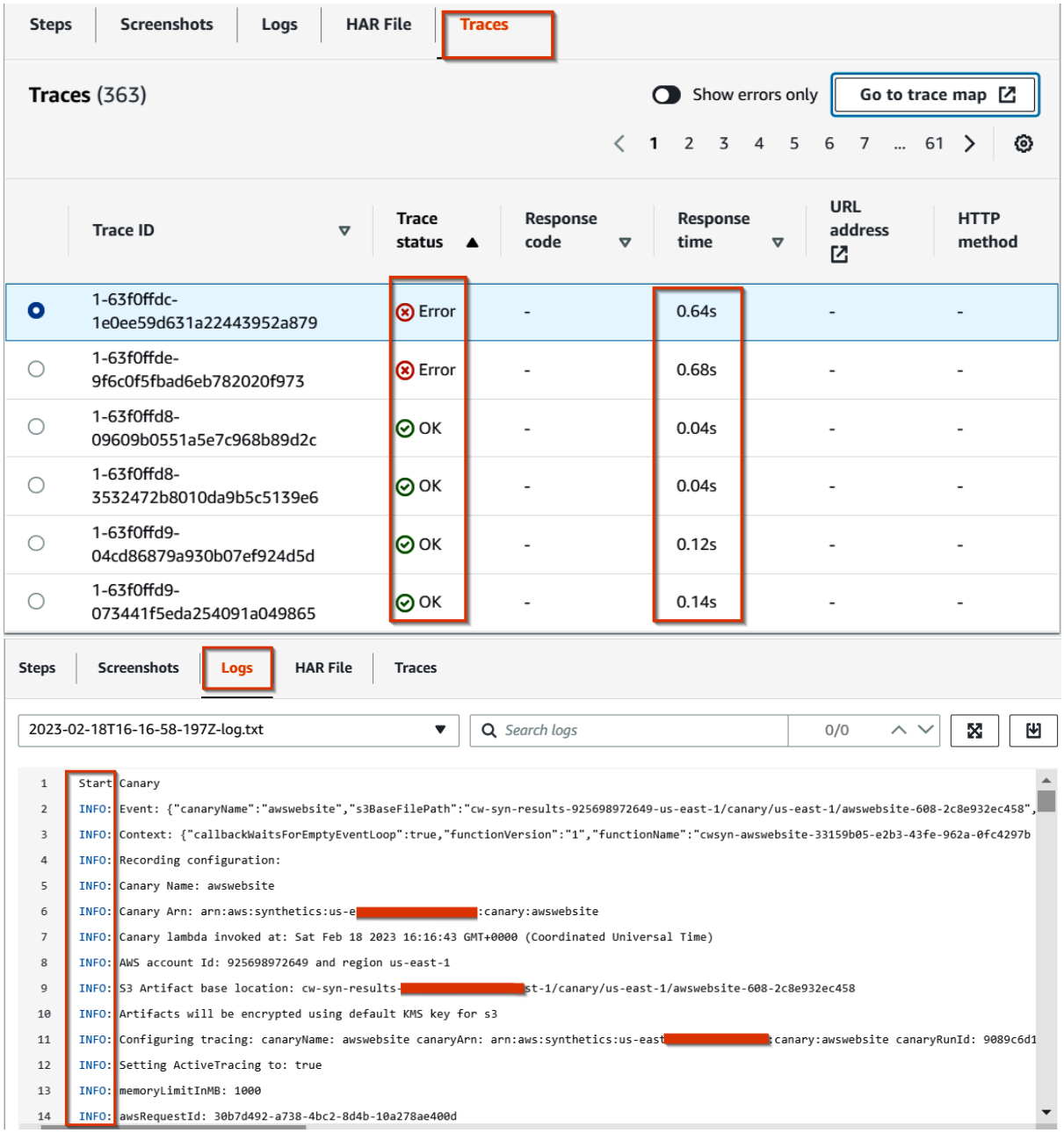
annotation.ColdStart = true

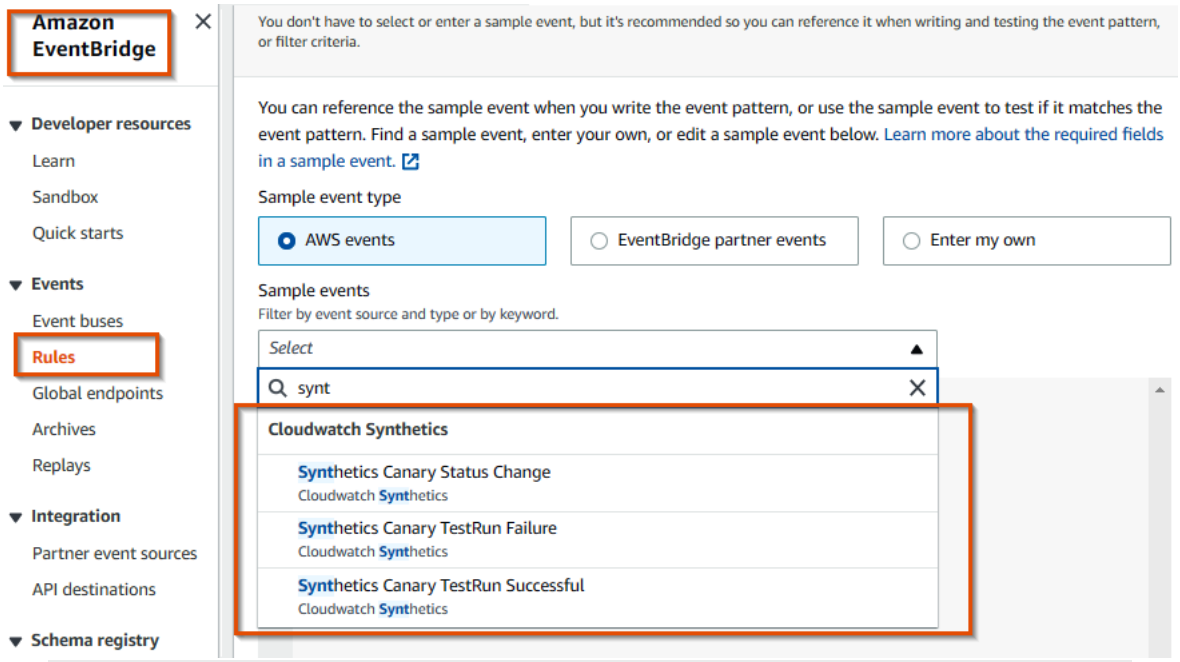


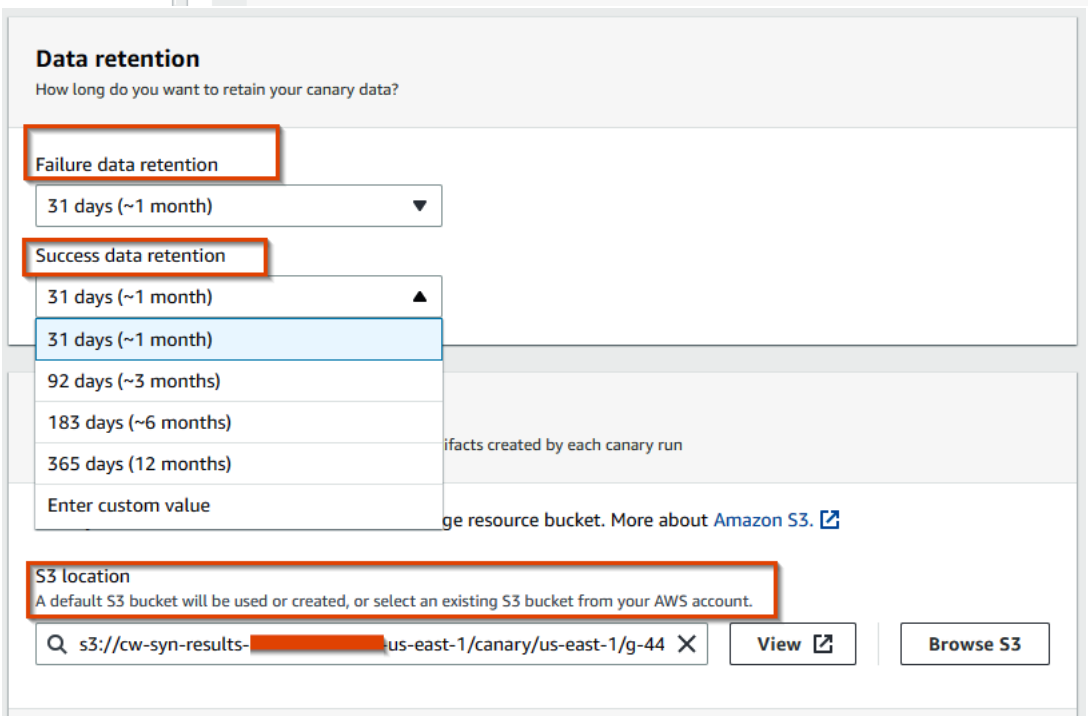
Chapter 8: End User Experience Monitoring on AWS

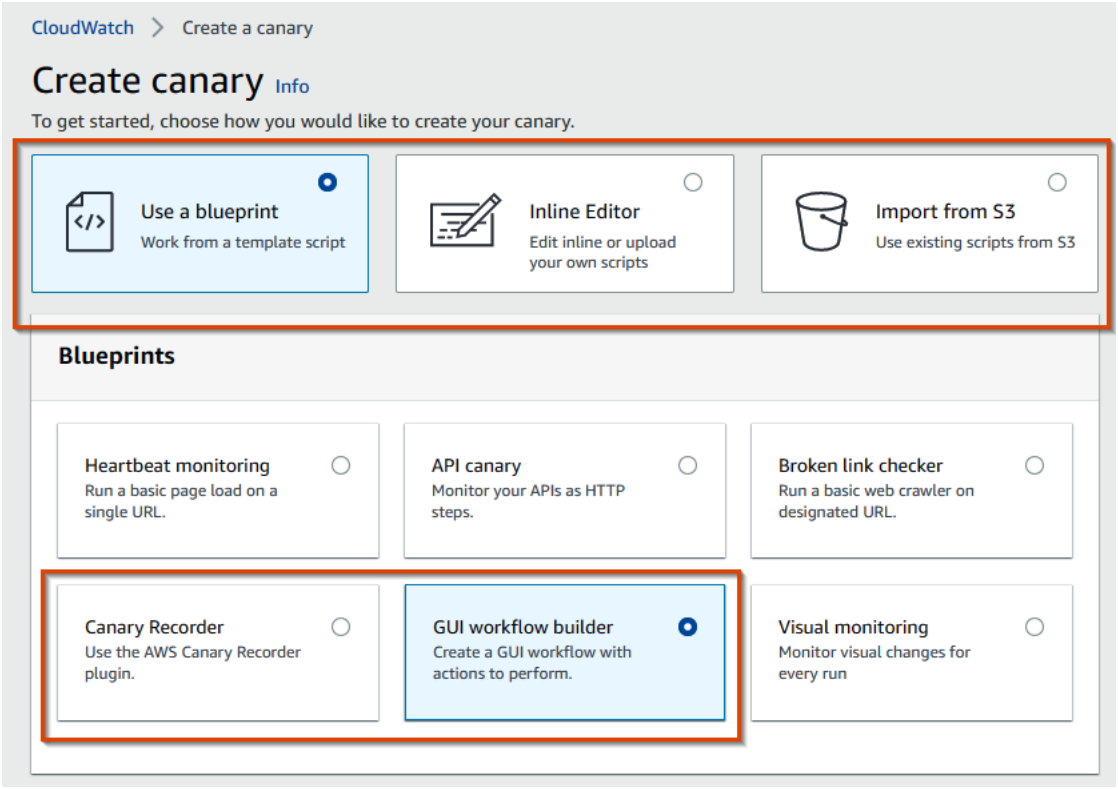


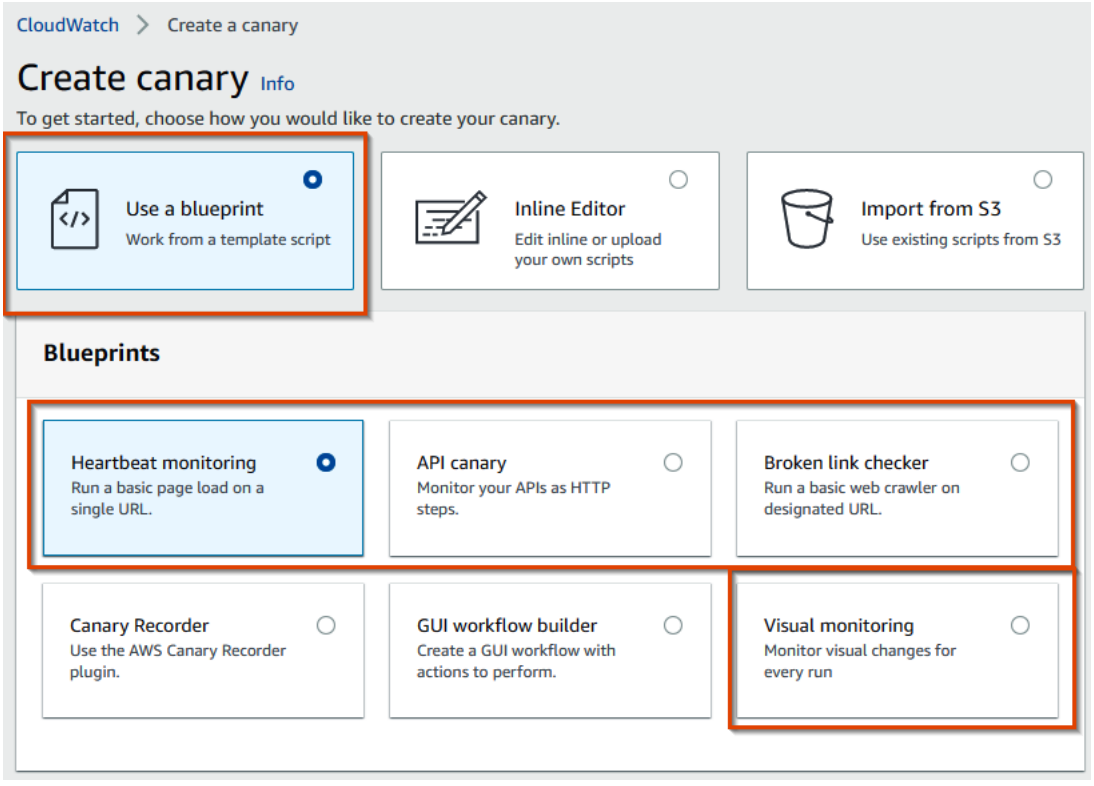


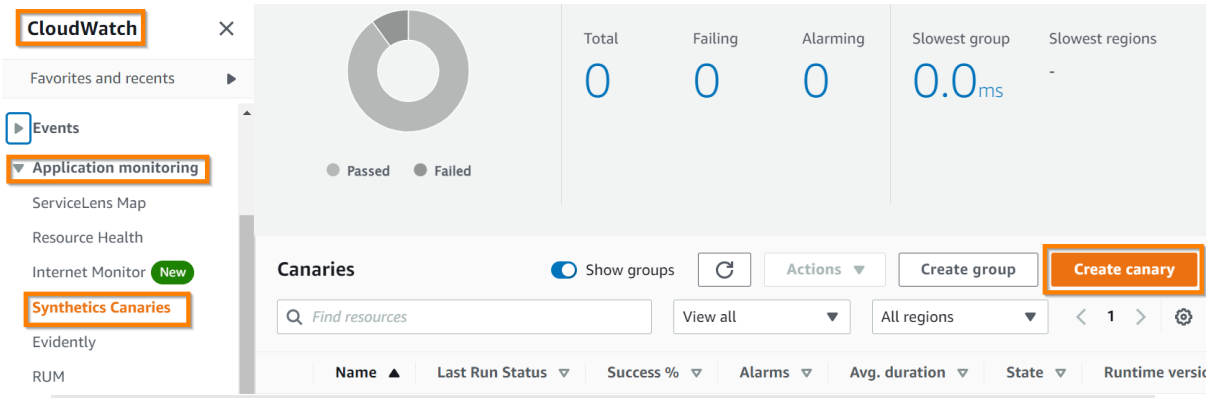

Steps
Screenshots
Logs
HAR File
Traces
Traces (363)
Show errors only
Go to trace map
1 2 3 4 5 6 7 ... 61
Trace ID
Trace status
Response code
Response time
URL address
HTTP method
1-63f0ffdc-1e0ee59d631a22443952a879
Error
-
0.64s
-
-
1-63f0ffde-9f6c0f5fbad6eb782020f973
Error
-
0.68s
-
-
1-63f0ffd8-09609b0551a5e7c968b89d2c
OK
-
0.04s
-
-
1-63f0ffd8-3532472b8010da9b5c5139e6
OK
-
0.04s
-
-
1-63f0ffd9-04cd86879a930b07ef924d5d
OK
-
0.12s
-
-
1-63f0ffd9-073441f5eda254091a049865
OK
-
0.14s
-
-
Steps
Screenshots
Logs
HAR File
Traces
2023-02-18T16-16-58-197Z-log.txt
Search logs
0/0
1 START Canary
2 INFO: Event: {"canaryName":"awswebsite","s3BaseFilePath":"cw-syn-results-925698972649-us-east-1/canary/us-east-1/awswebsite-608-2c8e932ec458",
3 INFO: Context: {"callbackWaitsForEmptyEventLoop":true,"functionVersion":"1","functionName":"cwsyn-awswebsite-33159b05-e2b3-43fe-962a-0fc4297b
4 INFO: Recording configuration:
5 INFO: Canary Name: awswebsite
6 INFO: Canary Arn: arn:aws:synthetics:us-e[redacted]:canary:awswebsite
7 INFO: Canary lambda invoked at: Sat Feb 18 2023 16:16:43 GMT+0000 (Coordinated Universal Time)
8 INFO: AWS account Id: 925698972649 and region us-east-1
9 INFO: S3 Artifact base location: cw-syn-results-[redacted]st-1/canary/us-east-1/awswebsite-608-2c8e932ec458
10 INFO: Artifacts will be encrypted using default KMS key for s3
11 INFO: Configuring tracing: canaryName: awswebsite canaryArn: arn:aws:synthetics:us-east[redacted]:canary:awswebsite canaryRunId: 9089c6d1
12 INFO: Setting ActiveTracing to: true
13 INFO: memoryLimitInMB: 1000
14 INFO: awsRequestId: 30b7d492-a738-4bc2-8d4b-10a278ae400d

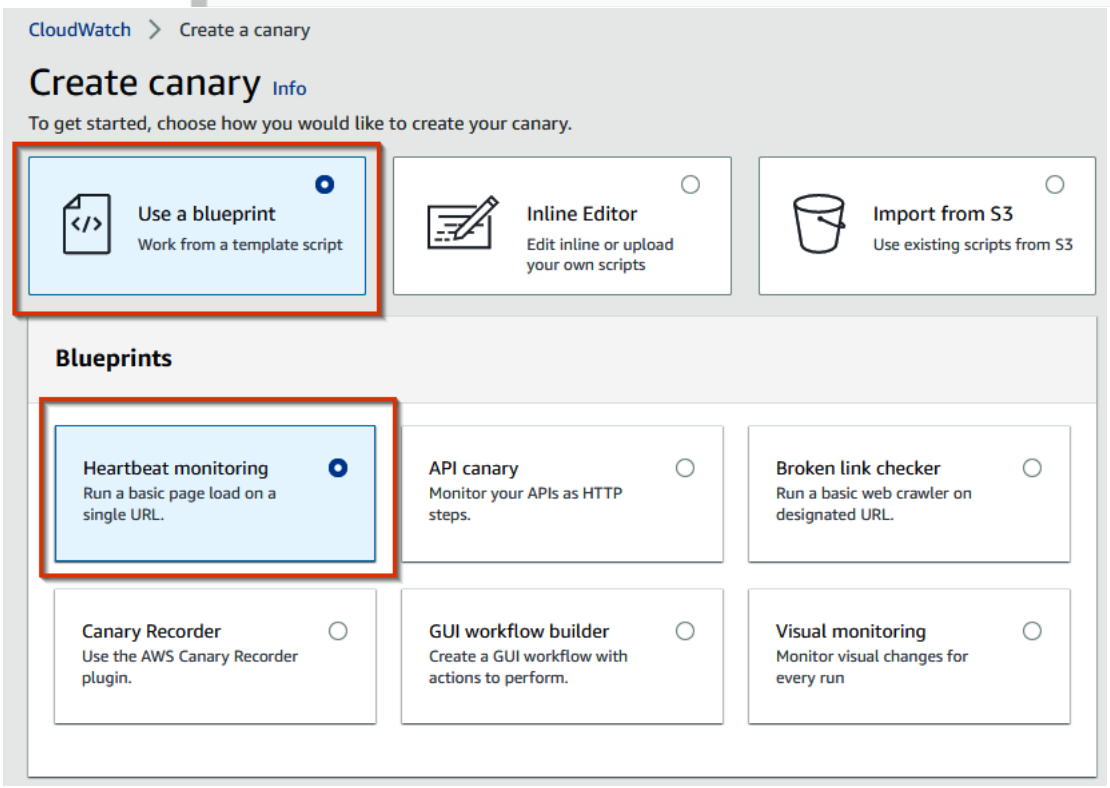

Amazon EventBridge
Developer resources
Learn
Sandbox
Quick starts
Events
Event buses
Rules
Global endpoints
Archives
Replays
Integration
Partner event sources
API destinations
Schema registry
You don't have to select or enter a sample event, but it's recommended so you can reference it when writing and testing the event pattern, or filter criteria.
You can reference the sample event when you write the event pattern, or use the sample event to test if it matches the event pattern. Find a sample event, enter your own, or edit a sample event below. Learn more about the required fields in a sample event.
Sample event type
AWS events
EventBridge partner events
Enter my own
Sample events
Filter by event source and type or by keyword.
Select
synt
Cloudwatch Synthetics
Synthetics Canary Status Change
Cloudwatch Synthetics
Synthetics Canary TestRun Failure
Cloudwatch Synthetics
Synthetics Canary TestRun Successful
Cloudwatch Synthetics

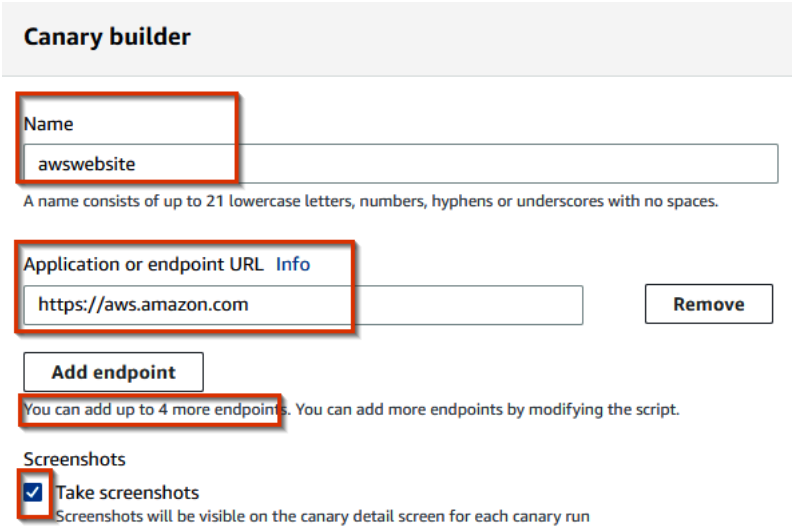

Data retention
How long do you want to retain your canary data?
Failure data retention
31 days (~1 month)
Success data retention
31 days (~1 month)
31 days (~1 month)
92 days (~3 months)
183 days (~6 months)
365 days (12 months)
Enter custom value
ifacts created by each canary run
ge resource bucket. More about Amazon S3.
S3 location
A default S3 bucket will be used or created, or select an existing S3 bucket from your AWS account.
s3://cw-syn-results-
us-east-1/canary/us-east-1/g-44
View
Browse S3

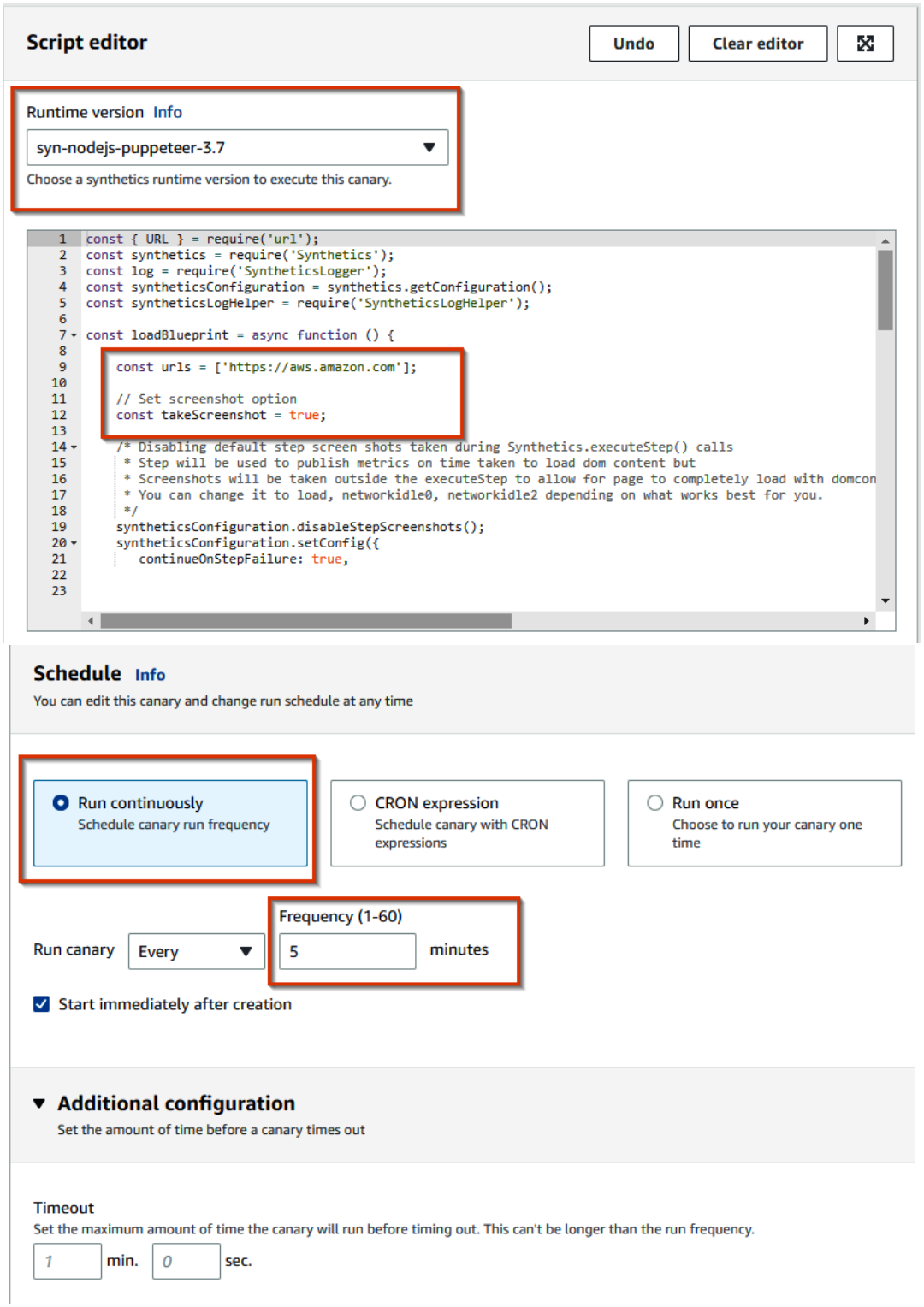

CloudWatch > Create a canary
Create canary Info
To get started, choose how you would like to create your canary.
Use a blueprint
Work from a template script
Inline Editor
Edit inline or upload your own scripts
Import from S3
Use existing scripts from S3
Blueprints
Heartbeat monitoring
Run a basic page load on a single URL.
API canary
Monitor your APIs as HTTP steps.
Broken link checker
Run a basic web crawler on designated URL.
Canary Recorder
Use the AWS Canary Recorder plugin.
GUI workflow builder
Create a GUI workflow with actions to perform.
Visual monitoring
Monitor visual changes for every run

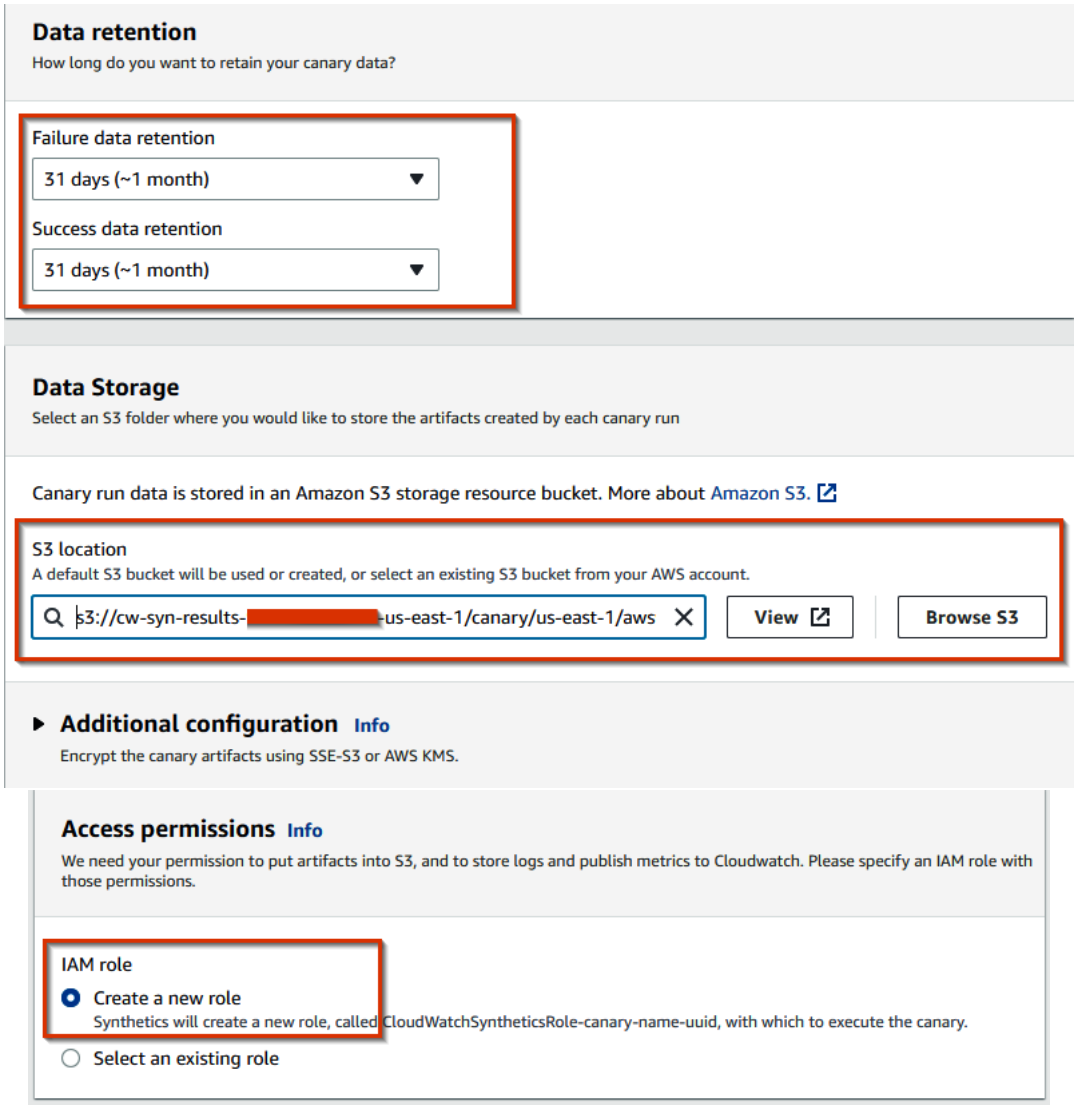

CloudWatch > Create a canary
Create canary Info
To get started, choose how you would like to create your canary.
Use a blueprint
Work from a template script
Inline Editor
Edit inline or upload your own scripts
Import from S3
Use existing scripts from S3
Blueprints
Heartbeat monitoring
Run a basic page load on a single URL.
API canary
Monitor your APIs as HTTP steps.
Broken link checker
Run a basic web crawler on designated URL.
Canary Recorder
Use the AWS Canary Recorder plugin.
GUI workflow builder
Create a GUI workflow with actions to perform.
Visual monitoring
Monitor visual changes for every run


CloudWatch
Favorites and recents
Events
Application monitoring
ServiceLens Map
Resource Health
Internet Monitor
New
Synthetics Canaries
Evidently
RUM
Passed
Failed
Total
0
Failing
0
Alarming
0
Slowest group
0.0ms
Slowest regions
-
Canaries
Show groups
Actions
Create group
Create canary
Find resources
View all
All regions
1
Name
Last Run Status
Success %
Alarms
Avg. duration
State
Runtime versio


CloudWatch
Create a canary
Create canary
Info
To get started, choose how you would like to create your canary.
Use a blueprint
Work from a template script
Inline Editor
Edit inline or upload your own scripts
Import from S3
Use existing scripts from S3
Blueprints
Heartbeat monitoring
Run a basic page load on a single URL.
API canary
Monitor your APIs as HTTP steps.
Broken link checker
Run a basic web crawler on designated URL.
Canary Recorder
Use the AWS Canary Recorder plugin.
GUI workflow builder
Create a GUI workflow with actions to perform.
Visual monitoring
Monitor visual changes for every run


Canary builder
Name
awswebsite
A name consists of up to 21 lowercase letters, numbers, hyphens or underscores with no spaces.
Application or endpoint URL Info
https://aws.amazon.com
Remove
Add endpoint
You can add up to 4 more endpoints. You can add more endpoints by modifying the script.
Screenshots
Take screenshots
Screenshots will be visible on the canary detail screen for each canary run


Script editor
Undo
Clear editor
Runtime version Info
syn-nodejs-puppeteer-3.7
Choose a synthetics runtime version to execute this canary.
const { URL } = require('url');
const synthetics = require('Synthetics');
const log = require('SyntheticsLogger');
const syntheticsConfiguration = synthetics.getConfiguration();
const syntheticsLogHelper = require('SyntheticsLogHelper');
const loadBlueprint = async function () {
const urls = ['https://aws.amazon.com'];
// Set screenshot option
const takeScreenshot = true;
/* Disabling default step screen shots taken during Synthetics.executeStep() calls
* Step will be used to publish metrics on time taken to load dom content but
* Screenshots will be taken outside the executeStep to allow for page to completely load with domcon
* You can change it to load, networkidle0, networkidle2 depending on what works best for you.
*/
syntheticsConfiguration.disableStepScreenshots();
syntheticsConfiguration.setConfig({
continueOnStepFailure: true,
Schedule Info
You can edit this canary and change run schedule at any time
Run continuously
Schedule canary run frequency
CRON expression
Schedule canary with CRON expressions
Run once
Choose to run your canary one time
Run canary
Every
Frequency (1-60)
5
minutes
Start immediately after creation
Additional configuration
Set the amount of time before a canary times out
Timeout
Set the maximum amount of time the canary will run before timing out. This can't be longer than the run frequency.
1
min.
0
sec.


Data retention
How long do you want to retain your canary data?
Failure data retention
31 days (~1 month)
Success data retention
31 days (~1 month)
Data Storage
Select an S3 folder where you would like to store the artifacts created by each canary run
Canary run data is stored in an Amazon S3 storage resource bucket. More about Amazon S3.
S3 location
A default S3 bucket will be used or created, or select an existing S3 bucket from your AWS account.
s3://cw-syn-results-[redacted]-us-east-1/canary/us-east-1/aws
View
Browse S3
Additional configuration Info
Encrypt the canary artifacts using SSE-S3 or AWS KMS.

Access permissions Info
We need your permission to put artifacts into S3, and to store logs and publish metrics to Cloudwatch. Please specify an IAM role with those permissions.
IAM role
Create a new role
Synthetics will create a new role, called CloudWatchSyntheticsRole-canary-name-uuid, with which to execute the canary.
Select an existing role

CloudWatch alarms - *optional* Info

You can let Synthetics create alarms for your canary automatically, and customize these later.

Metric name	Alarm condition	Threshold		Period	
SuccessPer...	Lower	90	%	5 minutes	Remove
Duration	Greater	30000	ms	5 minutes	Remove

Add new alarm

Set notifications for this canary

Select where to receive notifications when this canary reaches the level you define

Send a notification to the following SNS topic. Info

Define the SNS (Simple Notification Service) topic that will receive the notification

- (•) Select an existing SNS topic
- ( ) Create new topic

Select topic...

Select an email list

Only SNS topics for this account are available

VPC settings - *optional* Info

Use this if your endpoints are under your network

Virtual Private Cloud (VPC)

No VPC

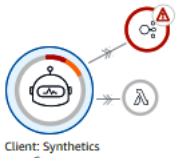
Active tracing - *optional* Info

Enable active tracing with AWS X-Ray to help troubleshoot and reduce the mean time to resolution.

[x] Trace my service with AWS X-Ray.

AWS X-Ray and Synthetics help you analyze and debug to find the root cause of ongoing failures, identify performance bottlenecks and trends, compare latency rates, and identify if you have enough canary coverage for your APIs and URLs.

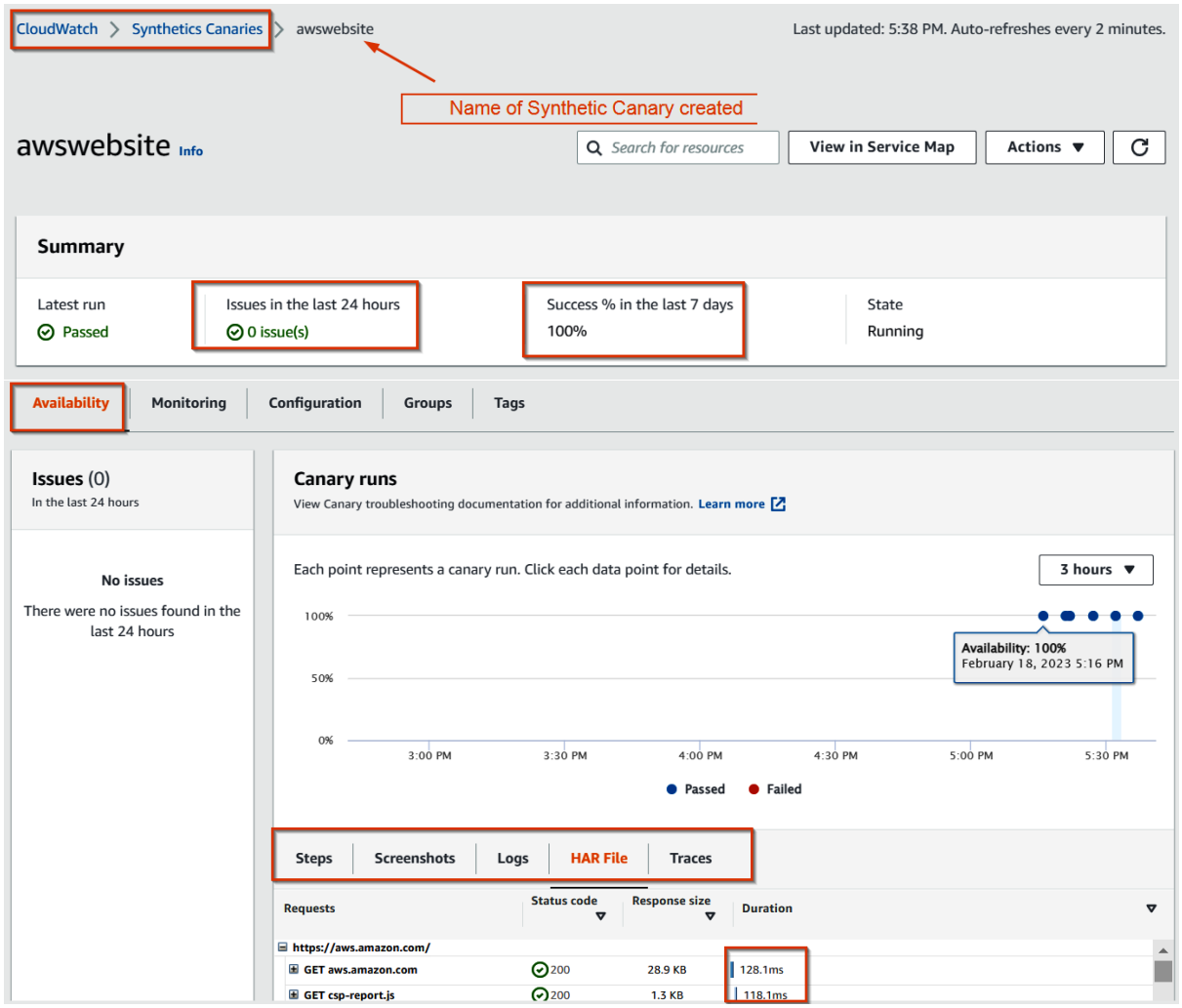
Learn more

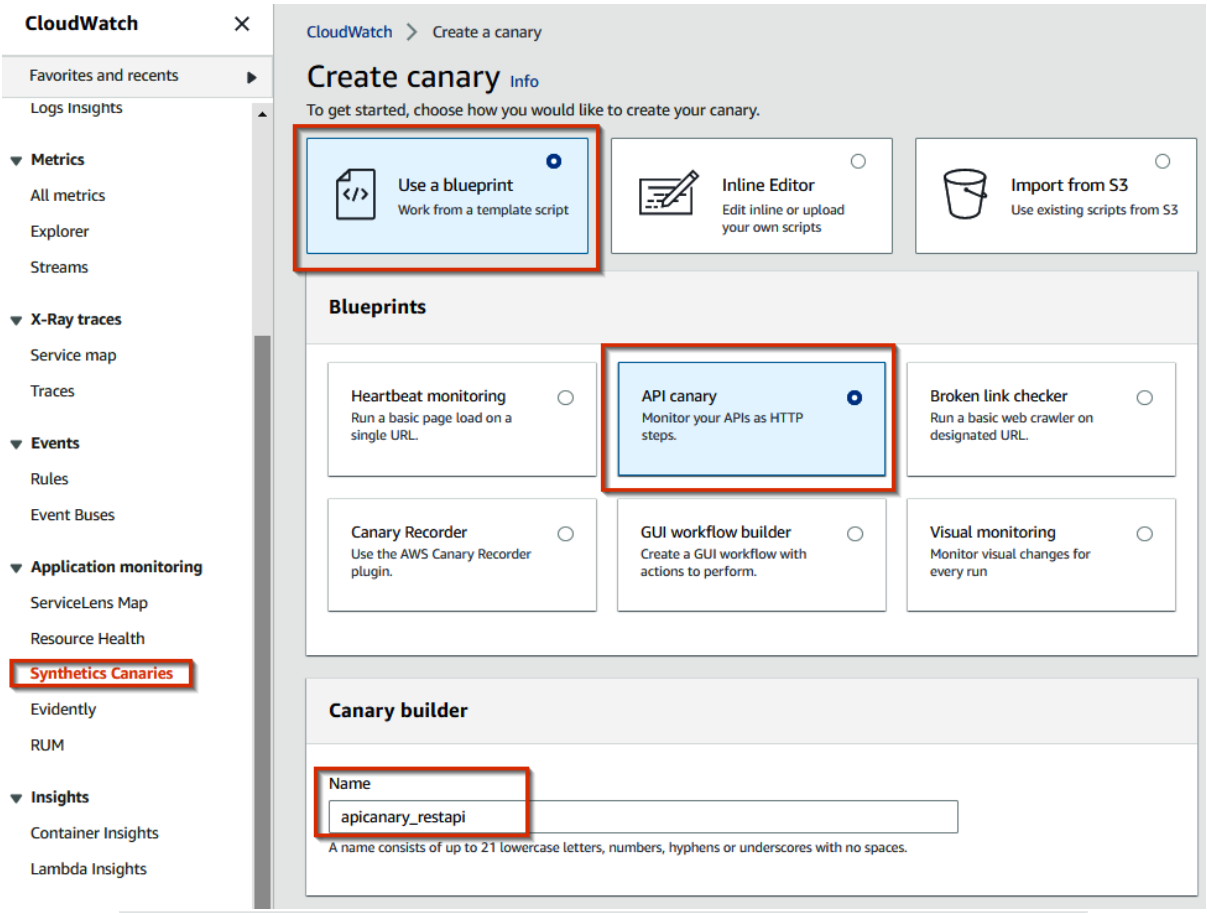


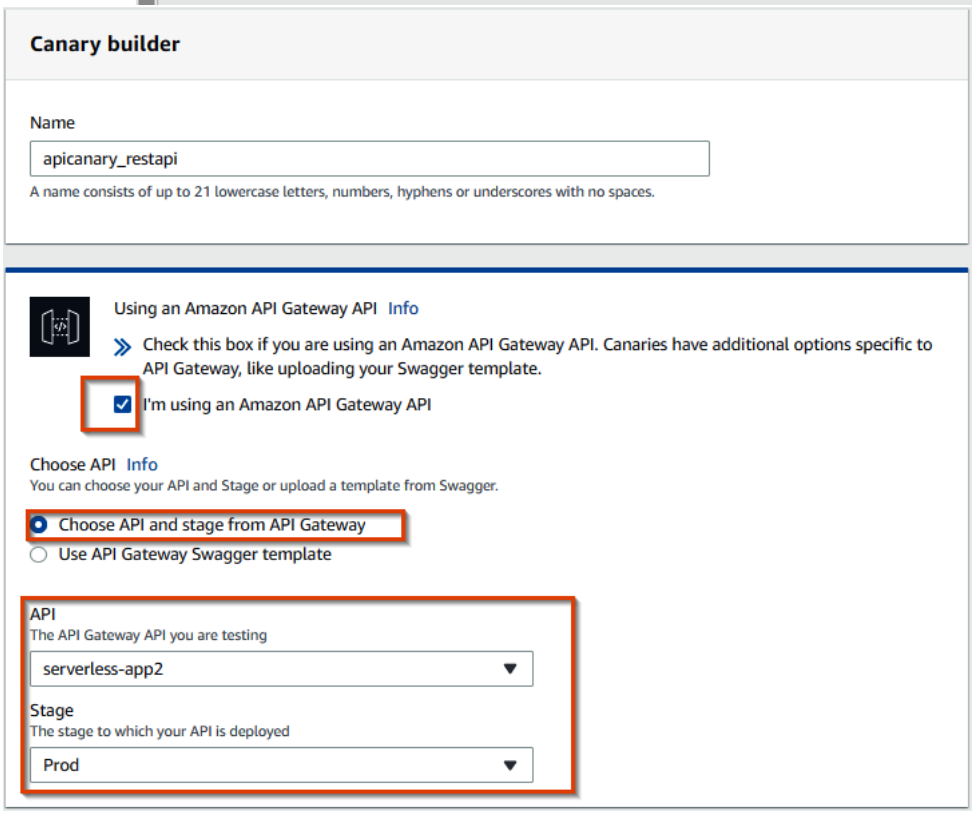
Additional benefits

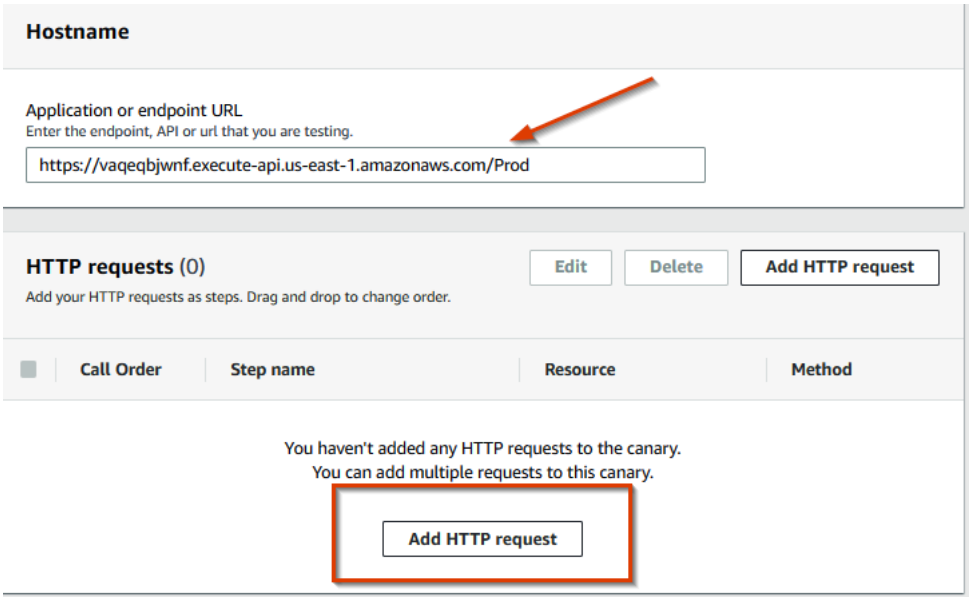
- View canaries in AWS X-Ray and CloudWatch ServiceLens service maps.
- View traces and segments for each canary run.
- View trends using AWS X-Ray analytics.

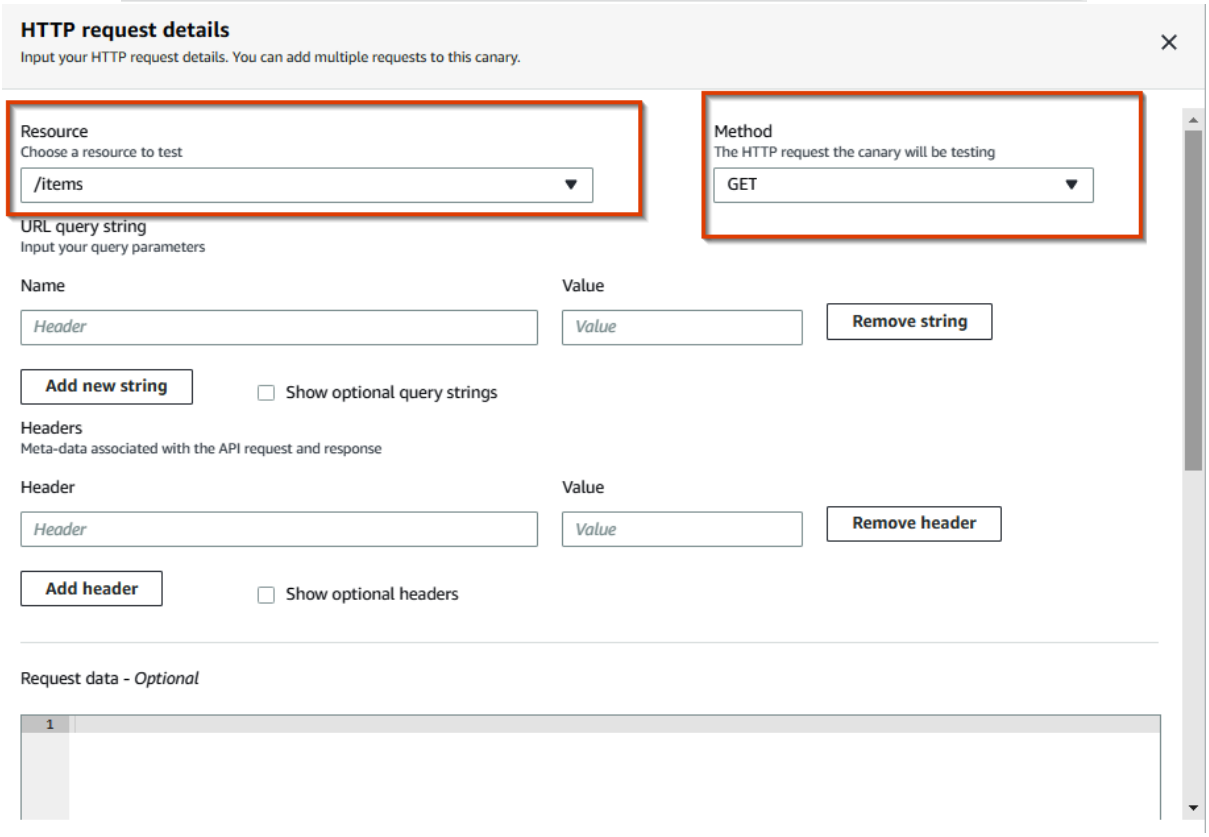
Cancel | Create canary

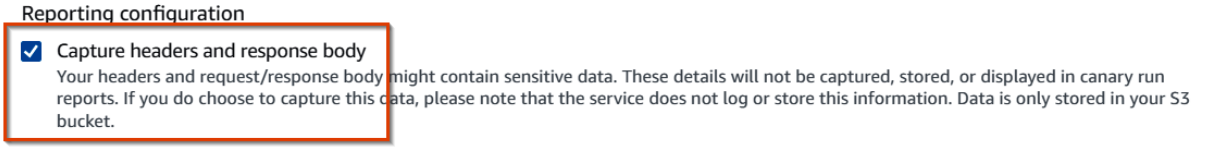

CloudWatch
Synthetics Canaries
awswebsite
Last updated: 5:38 PM. Auto-refreshes every 2 minutes.
Name of Synthetic Canary created
awswebsite Info
Search for resources
View in Service Map
Actions
Summary
Latest run
Passed
Issues in the last 24 hours
0 issue(s)
Success % in the last 7 days
100%
State
Running
Availability
Monitoring
Configuration
Groups
Tags
Issues (0)
In the last 24 hours
No issues
There were no issues found in the last 24 hours
Canary runs
View Canary troubleshooting documentation for additional information. Learn more
Each point represents a canary run. Click each data point for details.
3 hours
100%
50%
0%
Availability: 100%
February 18, 2023 5:16 PM
3:00 PM
3:30 PM
4:00 PM
4:30 PM
5:00 PM
5:30 PM
Passed
Failed
Steps
Screenshots
Logs
HAR File
Traces
Requests
Status code
Response size
Duration
https://aws.amazon.com/
GET aws.amazon.com
200
28.9 KB
128.1ms
GET csp-report.js
200
1.3 KB
118.1ms

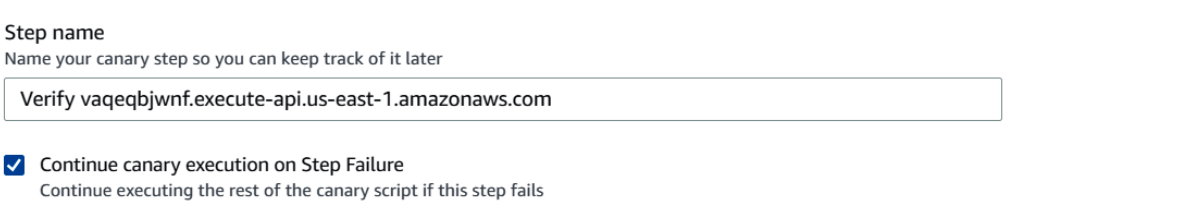

CloudWatch
Favorites and recents
Logs Insights
Metrics
All metrics
Explorer
Streams
X-Ray traces
Service map
Traces
Events
Rules
Event Buses
Application monitoring
ServiceLens Map
Resource Health
Synthetics Canaries
Evidently
RUM
Insights
Container Insights
Lambda Insights
CloudWatch > Create a canary
Create canary Info
To get started, choose how you would like to create your canary.
Use a blueprint
Work from a template script
Inline Editor
Edit inline or upload your own scripts
Import from S3
Use existing scripts from S3
Blueprints
Heartbeat monitoring
Run a basic page load on a single URL.
API canary
Monitor your APIs as HTTP steps.
Broken link checker
Run a basic web crawler on designated URL.
Canary Recorder
Use the AWS Canary Recorder plugin.
GUI workflow builder
Create a GUI workflow with actions to perform.
Visual monitoring
Monitor visual changes for every run
Canary builder
Name
apicanary_restapi
A name consists of up to 21 lowercase letters, numbers, hyphens or underscores with no spaces.

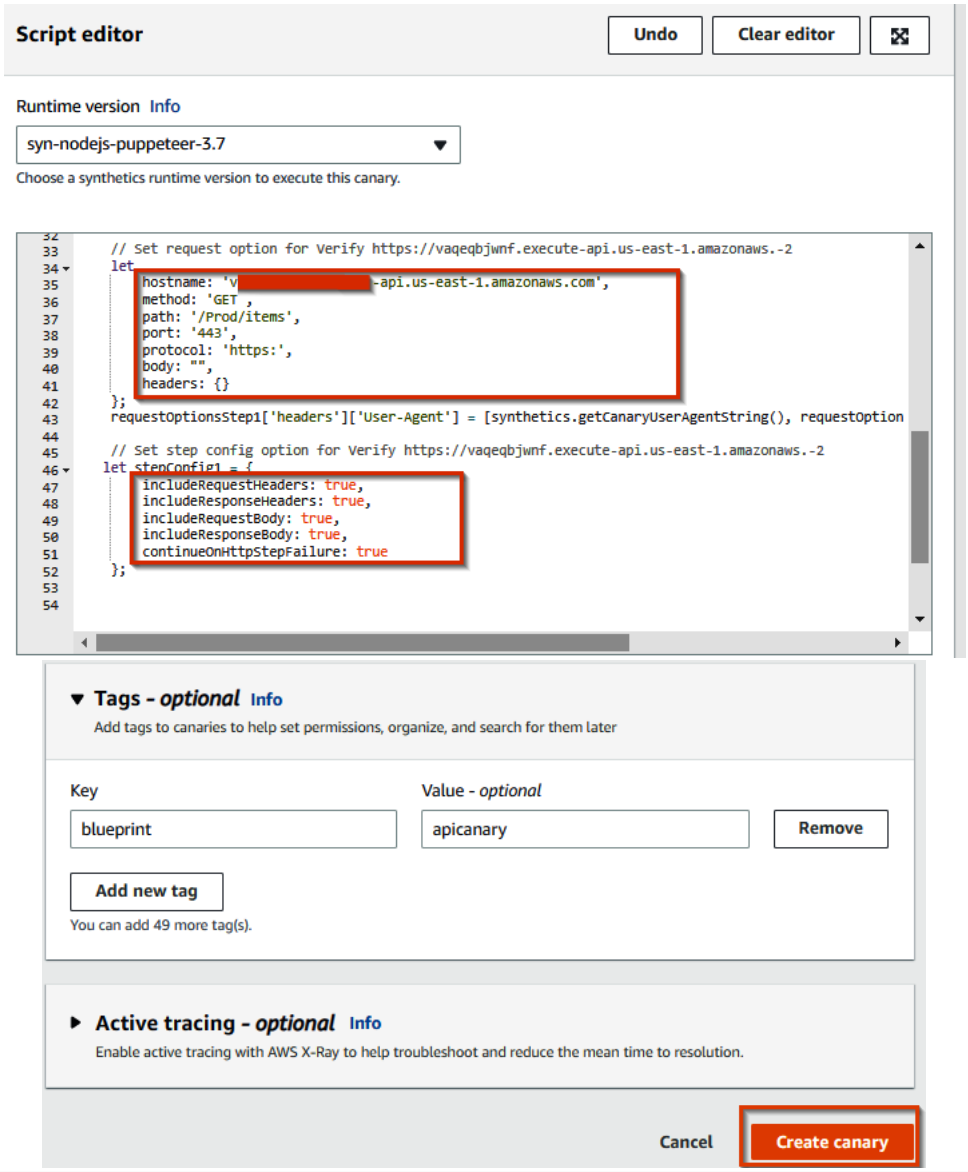

Canary builder
Name
apicanary_restapi
A name consists of up to 21 lowercase letters, numbers, hyphens or underscores with no spaces.
Using an Amazon API Gateway API Info
Check this box if you are using an Amazon API Gateway API. Canaries have additional options specific to API Gateway, like uploading your Swagger template.
I'm using an Amazon API Gateway API
Choose API Info
You can choose your API and Stage or upload a template from Swagger.
Choose API and stage from API Gateway
Use API Gateway Swagger template
API
The API Gateway API you are testing
serverless-app2
Stage
The stage to which your API is deployed
Prod


Hostname
Application or endpoint URL
Enter the endpoint, API or url that you are testing.
https://vaqeqbjwnf.execute-api.us-east-1.amazonaws.com/Prod
HTTP requests (0)
Edit
Delete
Add HTTP request
Add your HTTP requests as steps. Drag and drop to change order.
Call Order
Step name
Resource
Method
You haven't added any HTTP requests to the canary.
You can add multiple requests to this canary.
Add HTTP request

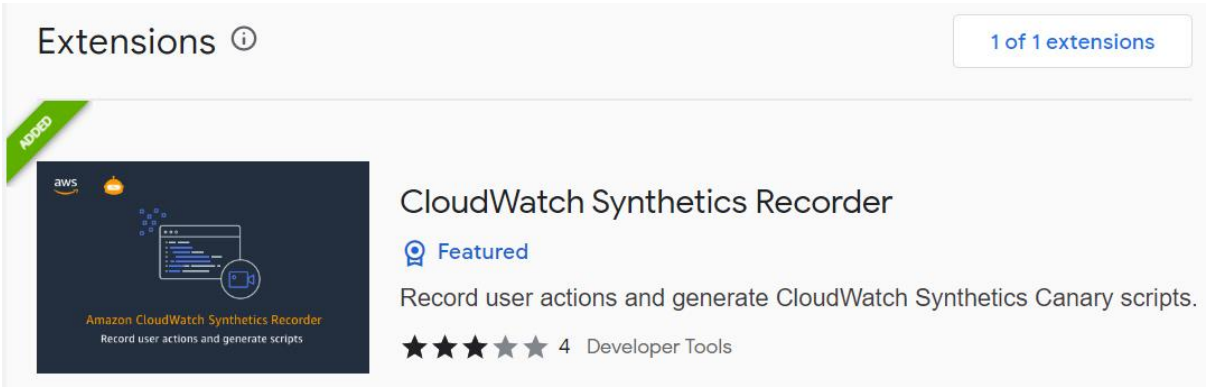

HTTP request details
Input your HTTP request details. You can add multiple requests to this canary.
Resource
Choose a resource to test
/items
Method
The HTTP request the canary will be testing
GET
URL query string
Input your query parameters
Name
Value
Header
Value
Remove string
Add new string
Show optional query strings
Headers
Meta-data associated with the API request and response
Header
Value
Header
Value
Remove header
Add header
Show optional headers
Request data - Optional
1

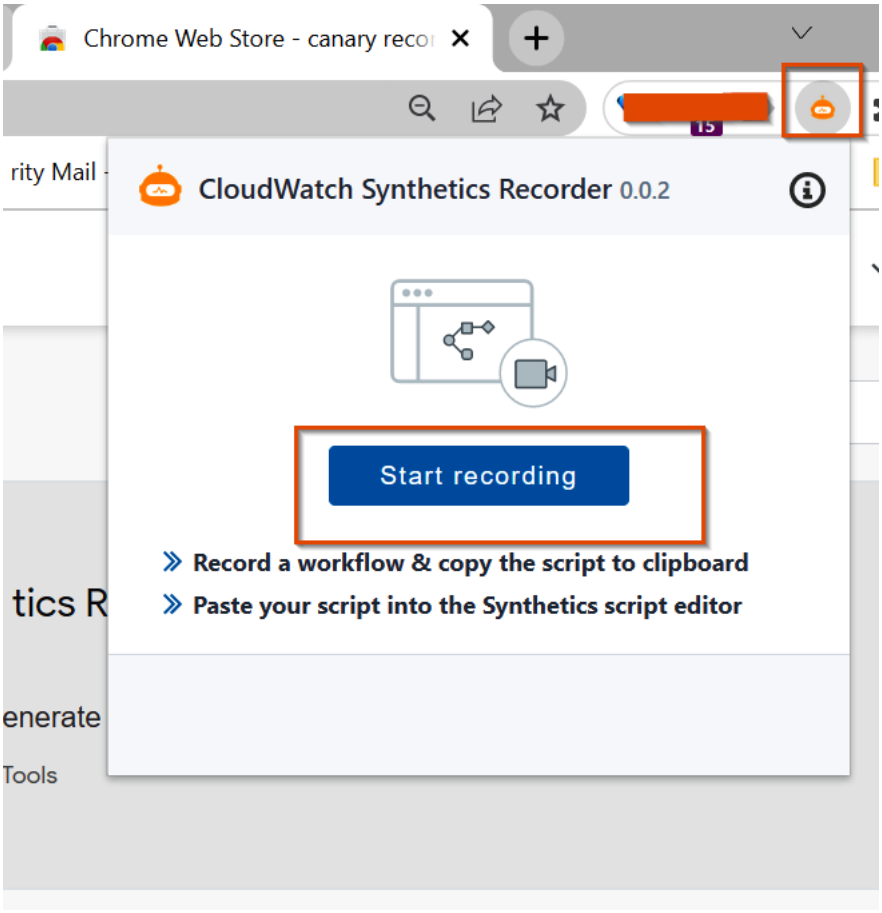

Reporting configuration
Capture headers and response body
Your headers and request/response body might contain sensitive data. These details will not be captured, stored, or displayed in canary run reports. If you do choose to capture this data, please note that the service does not log or store this information. Data is only stored in your S3 bucket.

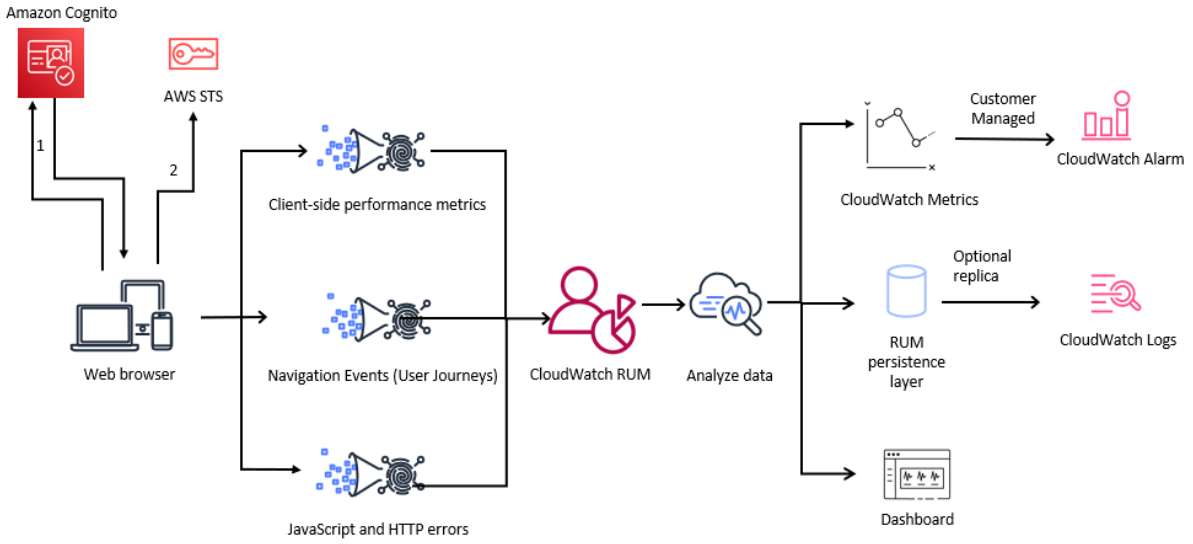

Step name
Name your canary step so you can keep track of it later
Verify vaqeqbjwnf.execute-api.us-east-1.amazonaws.com
Continue canary execution on Step Failure
Continue executing the rest of the canary script if this step fails

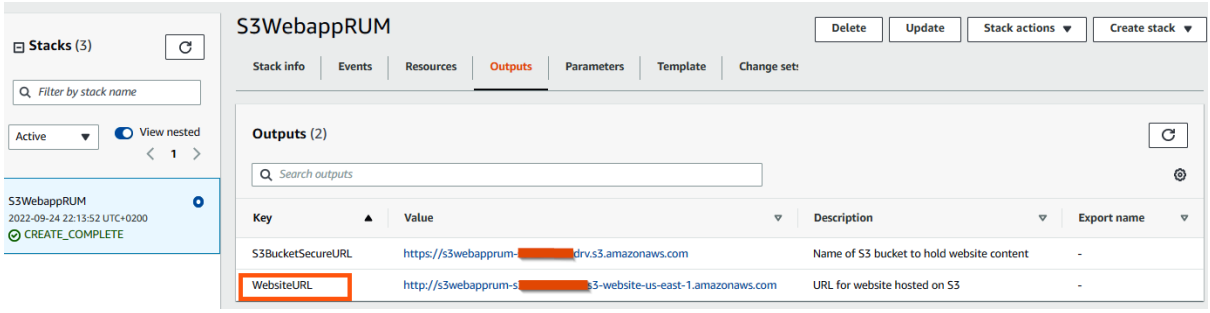

Script editor
Undo
Clear editor
Runtime version Info
syn-nodejs-puppeteer-3.7
Choose a synthetics runtime version to execute this canary.
// Set request option for Verify https://vaqeqbjwnf.execute-api.us-east-1.amazonaws.-2
let
hostname: 'v
-api.us-east-1.amazonaws.com',
method: 'GET',
path: '/Prod/items',
port: '443',
protocol: 'https:',
body: "",
headers: {}
};
requestOptionsStep1['headers']['User-Agent'] = [synthetics.getCanaryUserAgentString(), requestOption
// Set step config option for Verify https://vaqeqbjwnf.execute-api.us-east-1.amazonaws.-2
let stepConfig1 = {
includeRequestHeaders: true,
includeResponseHeaders: true,
includeRequestBody: true,
includeResponseBody: true,
continueOnHttpStepFailure: true
};

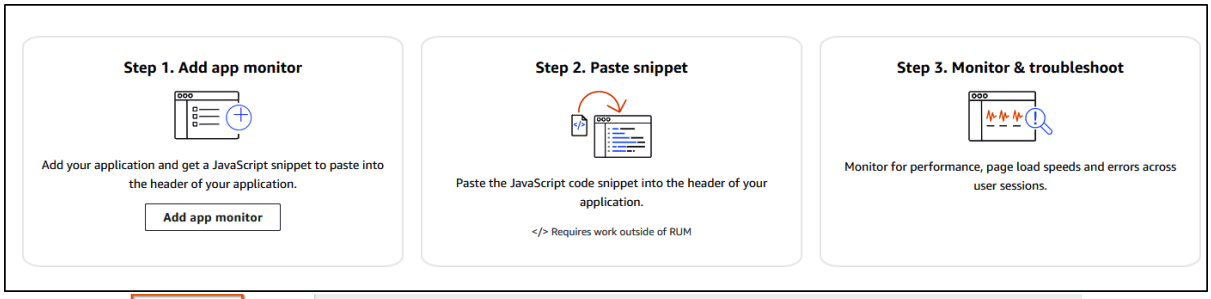
Tags - optional Info
Add tags to canaries to help set permissions, organize, and search for them later
Key
Value - optional
blueprint
apicanary
Remove
Add new tag
You can add 49 more tag(s).
Active tracing - optional Info
Enable active tracing with AWS X-Ray to help troubleshoot and reduce the mean time to resolution.
Cancel
Create canary

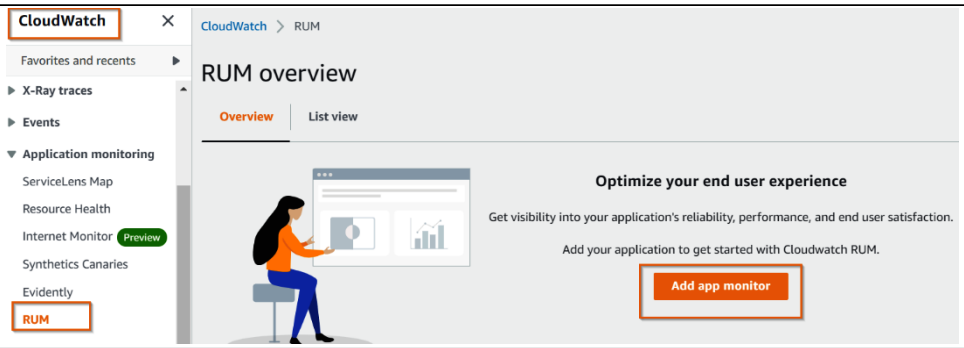

Extensions
1 of 1 extensions
ADDED
aws
Amazon CloudWatch Synthetics Recorder
Record user actions and generate scripts
CloudWatch Synthetics Recorder
Featured
Record user actions and generate CloudWatch Synthetics Canary scripts.
4
Developer Tools

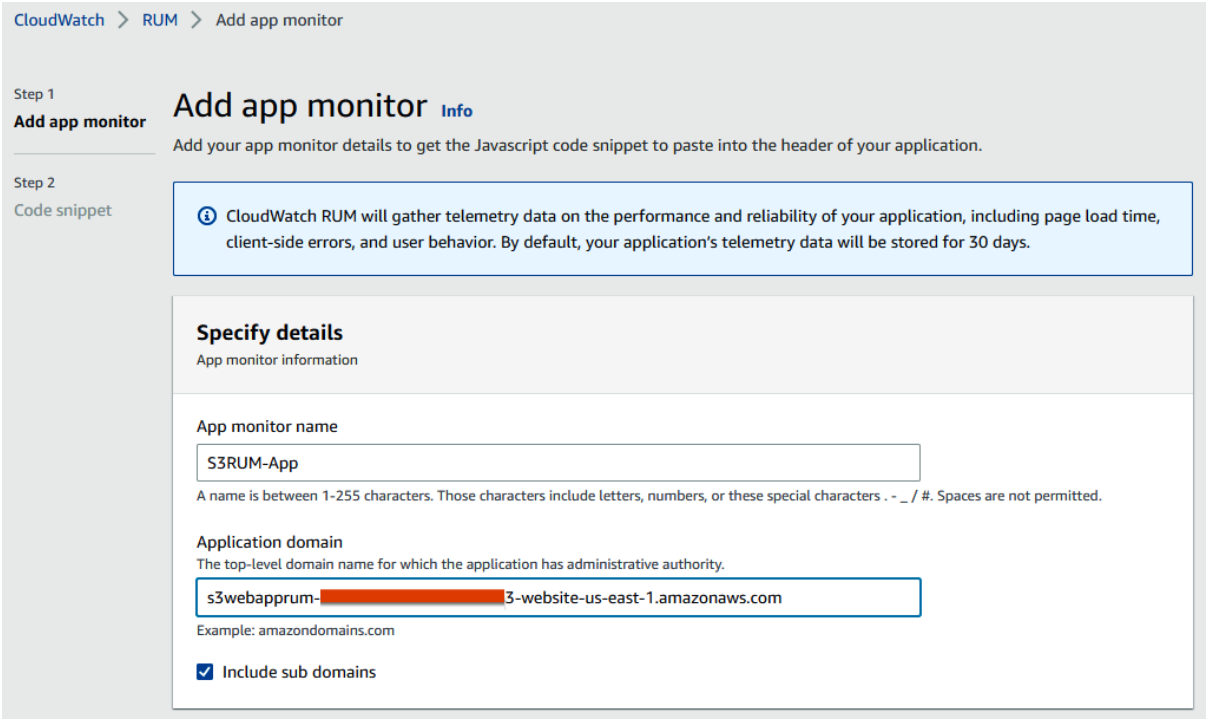

Chrome Web Store - canary reco
CloudWatch Synthetics Recorder 0.0.2
Start recording
Record a workflow & copy the script to clipboard
Paste your script into the Synthetics script editor
Tools

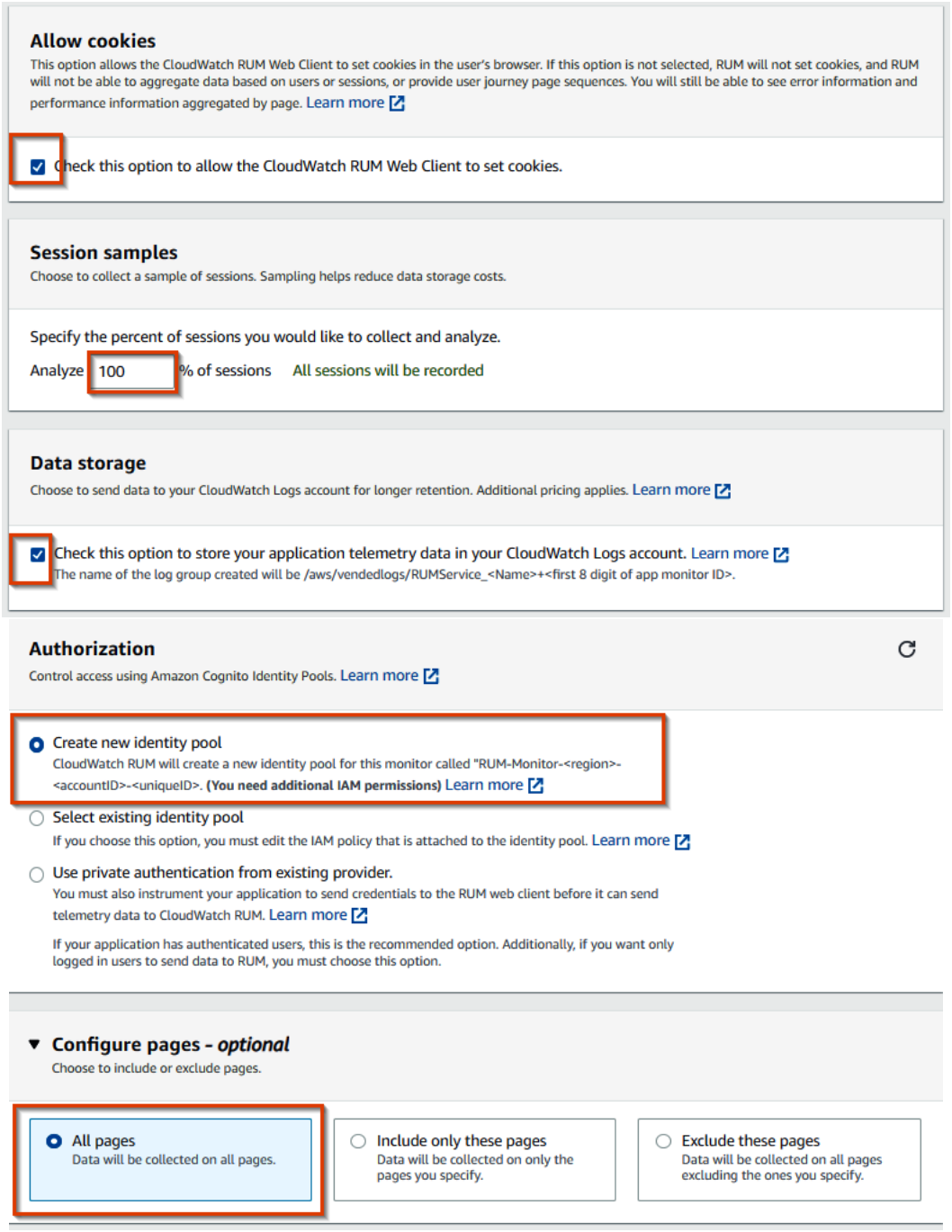

Amazon Cognito
AWS STS
1
2
Web browser
Client-side performance metrics
Navigation Events (User Journeys)
JavaScript and HTTP errors
CloudWatch RUM
Analyze data
CloudWatch Metrics
Customer Managed
CloudWatch Alarm
Optional replica
RUM persistence layer
CloudWatch Logs
Dashboard

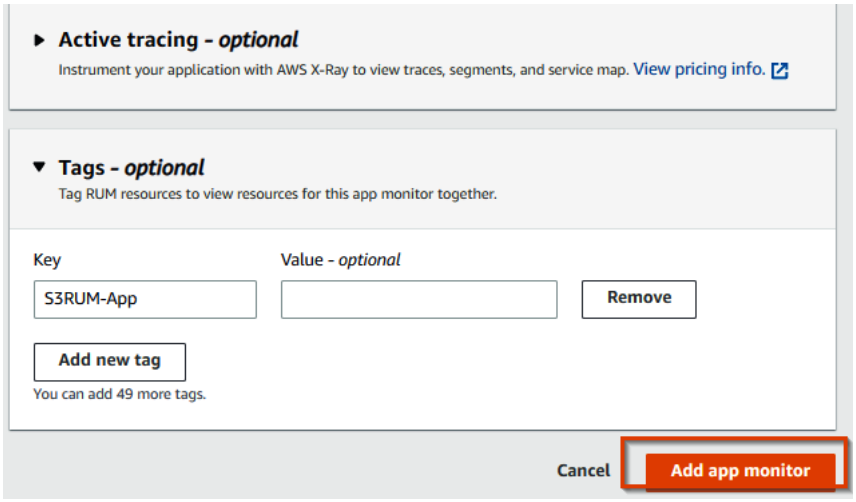

Stacks (3)
Filter by stack name
Active
View nested
S3WebappRUM
2022-09-24 22:13:52 UTC+0200
CREATE_COMPLETE
S3WebappRUM
Delete
Update
Stack actions
Create stack
Stack info
Events
Resources
Outputs
Parameters
Template
Change sets
Outputs (2)
Search outputs
Key
Value
Description
Export name
S3BucketSecureURL
https://s3webapprum-
drv.s3.amazonaws.com
Name of S3 bucket to hold website content
WebsiteURL
http://s3webapprum-s
s3-website-us-east-1.amazonaws.com
URL for website hosted on S3

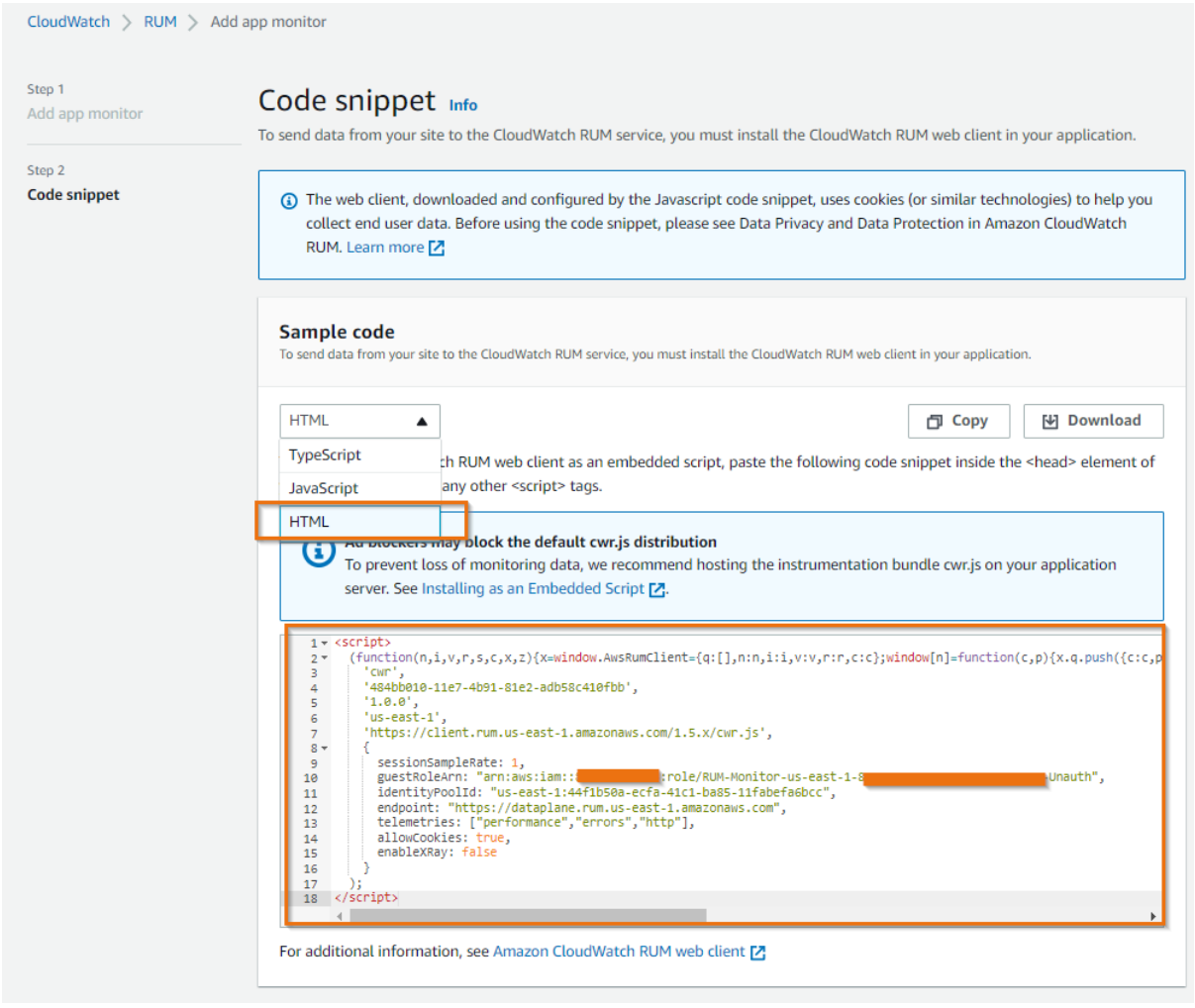

Step 1. Add app monitor
Add your application and get a JavaScript snippet to paste into the header of your application.
Add app monitor
Step 2. Paste snippet
Paste the JavaScript code snippet into the header of your application.
</> Requires work outside of RUM
Step 3. Monitor & troubleshoot
Monitor for performance, page load speeds and errors across user sessions.


CloudWatch
Favorites and recents
X-Ray traces
Events
Application monitoring
ServiceLens Map
Resource Health
Internet Monitor
Preview
Synthetics Canaries
Evidently
RUM
CloudWatch > RUM
RUM overview
Overview
List view
Optimize your end user experience
Get visibility into your application's reliability, performance, and end user satisfaction.
Add your application to get started with Cloudwatch RUM.
Add app monitor

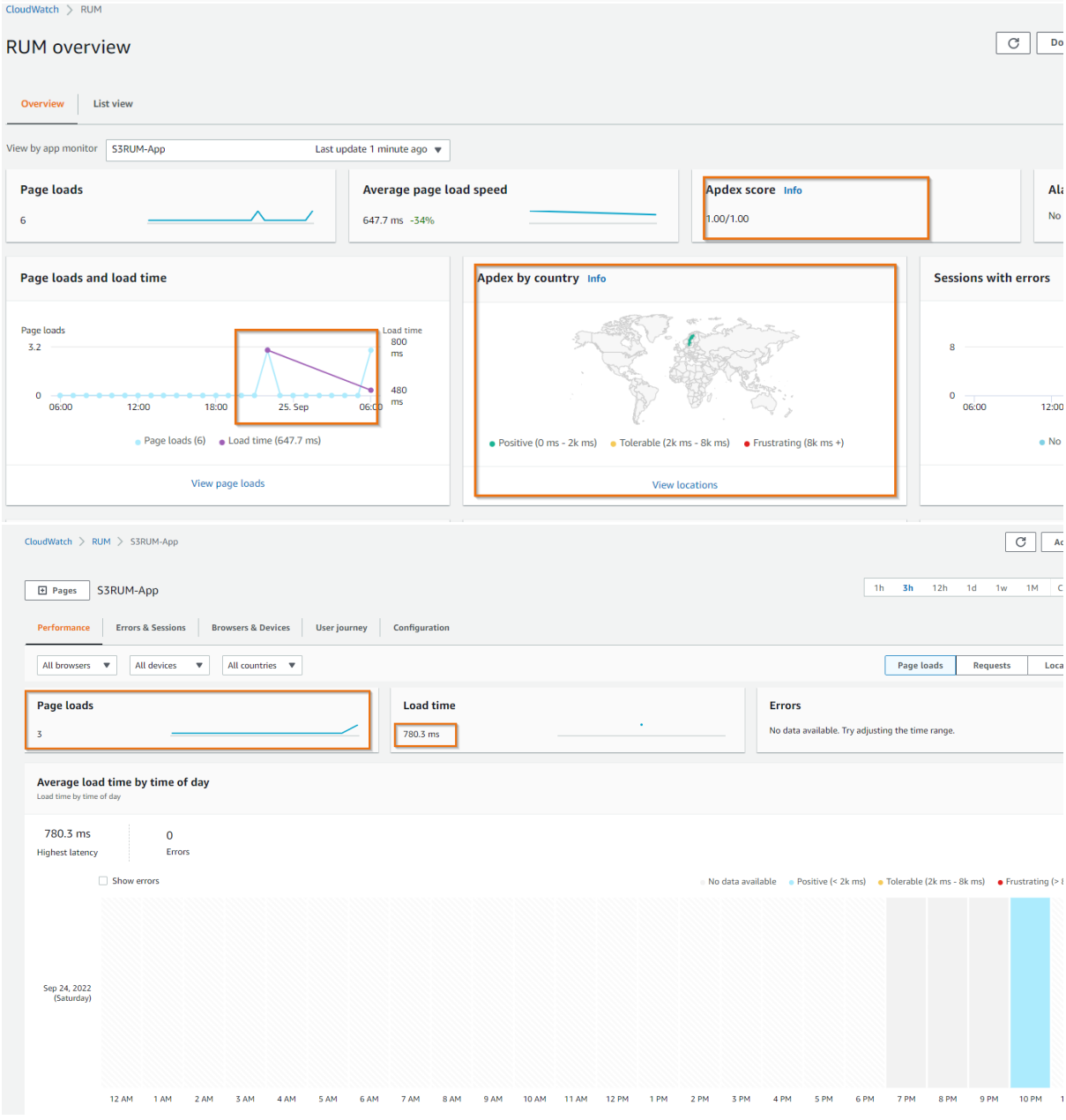

CloudWatch > RUM > Add app monitor
Step 1
Add app monitor
Step 2
Code snippet
Add app monitor Info
Add your app monitor details to get the Javascript code snippet to paste into the header of your application.
CloudWatch RUM will gather telemetry data on the performance and reliability of your application, including page load time, client-side errors, and user behavior. By default, your application's telemetry data will be stored for 30 days.
Specify details
App monitor information
App monitor name
S3RUM-App
A name is between 1-255 characters. Those characters include letters, numbers, or these special characters . - _ / #. Spaces are not permitted.
Application domain
The top-level domain name for which the application has administrative authority.
s3webapprum-[redacted]3-website-us-east-1.amazonaws.com
Example: amazondomains.com
Include sub domains

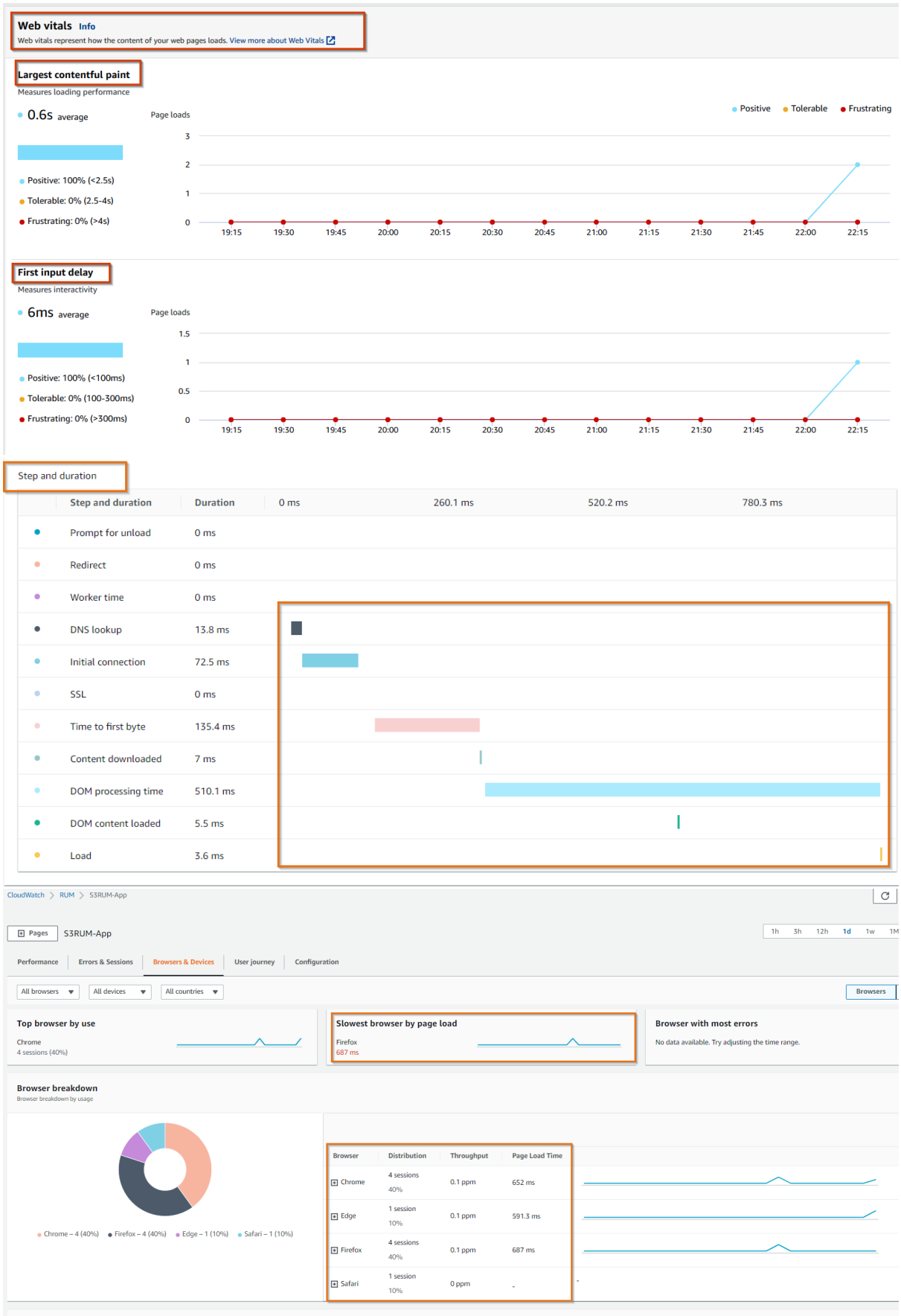

Allow cookies
This option allows the CloudWatch RUM Web Client to set cookies in the user's browser. If this option is not selected, RUM will not set cookies, and RUM will not be able to aggregate data based on users or sessions, or provide user journey page sequences. You will still be able to see error information and performance information aggregated by page. Learn more
Check this option to allow the CloudWatch RUM Web Client to set cookies.
Session samples
Choose to collect a sample of sessions. Sampling helps reduce data storage costs.
Specify the percent of sessions you would like to collect and analyze.
Analyze 100 % of sessions All sessions will be recorded
Data storage
Choose to send data to your CloudWatch Logs account for longer retention. Additional pricing applies. Learn more
Check this option to store your application telemetry data in your CloudWatch Logs account. Learn more
The name of the log group created will be /aws/vendedlogs/RUMService_<Name>+<first 8 digit of app monitor ID>.
Authorization
Control access using Amazon Cognito Identity Pools. Learn more
Create new identity pool
CloudWatch RUM will create a new identity pool for this monitor called "RUM-Monitor-<region>-<accountID>-<uniqueID>. (You need additional IAM permissions) Learn more
Select existing identity pool
If you choose this option, you must edit the IAM policy that is attached to the identity pool. Learn more
Use private authentication from existing provider.
You must also instrument your application to send credentials to the RUM web client before it can send telemetry data to CloudWatch RUM. Learn more
If your application has authenticated users, this is the recommended option. Additionally, if you want only logged in users to send data to RUM, you must choose this option.
Configure pages - optional
Choose to include or exclude pages.
All pages
Data will be collected on all pages.
Include only these pages
Data will be collected on only the pages you specify.
Exclude these pages
Data will be collected on all pages excluding the ones you specify.


Active tracing - optional
Instrument your application with AWS X-Ray to view traces, segments, and service map. View pricing info.
Tags - optional
Tag RUM resources to view resources for this app monitor together.
Key
Value - optional
S3RUM-App
Remove
Add new tag
You can add 49 more tags.
Cancel
Add app monitor

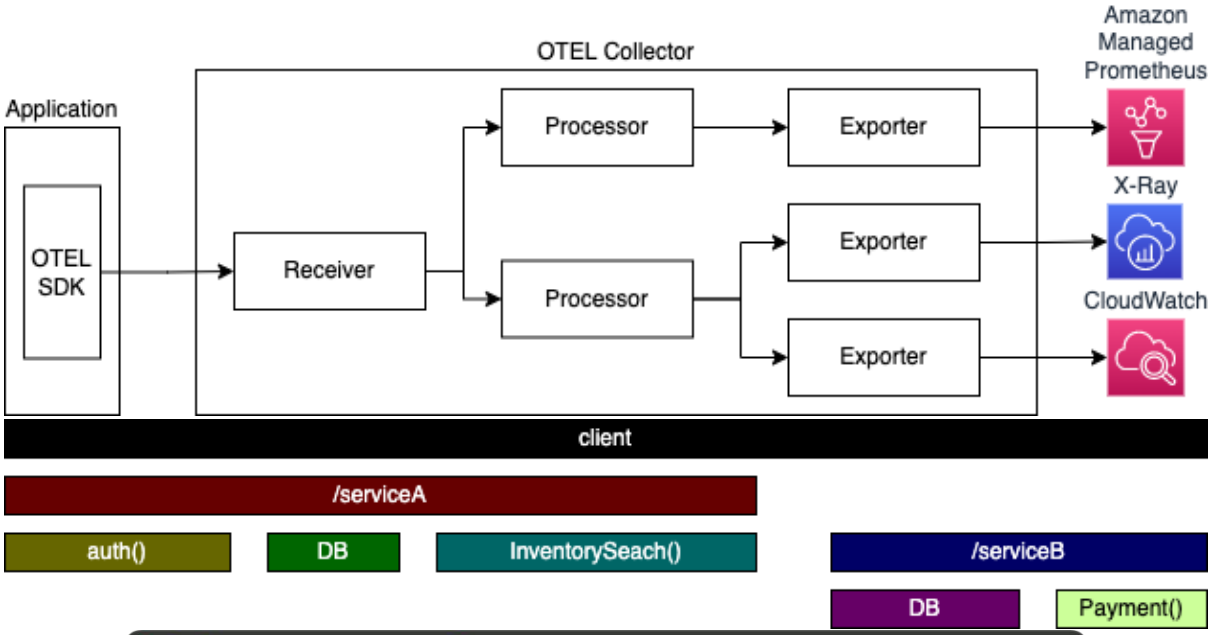

CloudWatch > RUM > Add app monitor
Step 1
Add app monitor
Step 2
Code snippet
Code snippet Info
To send data from your site to the CloudWatch RUM service, you must install the CloudWatch RUM web client in your application.
The web client, downloaded and configured by the Javascript code snippet, uses cookies (or similar technologies) to help you collect end user data. Before using the code snippet, please see Data Privacy and Data Protection in Amazon CloudWatch RUM. Learn more
Sample code
To send data from your site to the CloudWatch RUM service, you must install the CloudWatch RUM web client in your application.
HTML
Copy
Download
TypeScript
JavaScript
HTML
ch RUM web client as an embedded script, paste the following code snippet inside the <head> element of
any other <script> tags.
block the default cwr.js distribution
To prevent loss of monitoring data, we recommend hosting the instrumentation bundle cwr.js on your application server. See Installing as an Embedded Script.
<script>
(function(n,i,v,r,s,c,x,z){x=window.AwsRumClient={q:[],n:n,i:i,v:v,r:r,c:c};window[n]=function(c,p){x.q.push({c:c,p
'cwr',
'484bb010-11e7-4b91-81e2-adb58c410fbb',
'1.0.0',
'us-east-1',
'https://client.rum.us-east-1.amazonaws.com/1.5.x/cwr.js',
{
sessionSampleRate: 1,
guestRoleArn: "arn:aws:iam::
:role/RUM-Monitor-us-east-1-8
Unauth",
identityPoolId: "us-east-1:44f1b50a-ecfa-41c1-ba85-11fabefa6bcc",
endpoint: "https://dataplane.rum.us-east-1.amazonaws.com",
telemetries: ["performance","errors","http"],
allowCookies: true,
enableXRay: false
}
);
</script>
For additional information, see Amazon CloudWatch RUM web client

```
<!-- saved from url=(0087)https://insiders-guide-observability-on-aws-book.s3.amazonaws.com/chapter-08/index.html -->
<html>
<head>
<script>
  (function(n,i,v,r,s,c,x,z){x=window.AwsRumClient={q:[],n:n,i:i,v:v,r:r,c:c};window[n]=function(c,p){x.q.push({c:c,p:p});};z=document.creat
    'cwr',
    '19b5dd5e-d8b3-4048-a91a-090f29d681df',
    '1.0.0',
    'us-east-1',
    'https://client.rum.us-east-1.amazonaws.com/1.5.x/cwr.js',
    {
      sessionSampleRate: 1,
      guestRoleArn: "arn:aws:iam::[redacted]:role/RUM-Monitor-us-east-1-[redacted]-Unauth",
      identityPoolId: "us-east-1:ad8f7f25-c3ba-43cc-a5a4-ac6198281c6b",
      endpoint: "https://dataplane.rum.us-east-1.amazonaws.com",
      telemetries: ["performance","errors","http"],
      allowCookies: true,
      enableXRay: false
    }
  );
</script>
<meta http-equiv="Content-Type" content="text/html; charset=windows-1252"></head>
<body>
<h1>
```

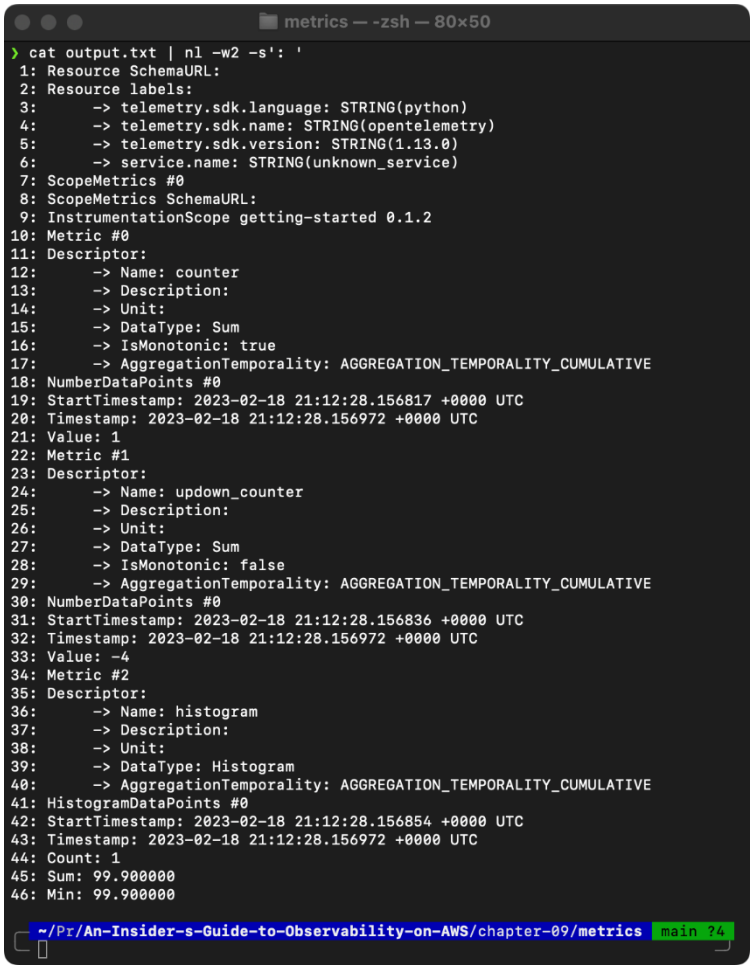


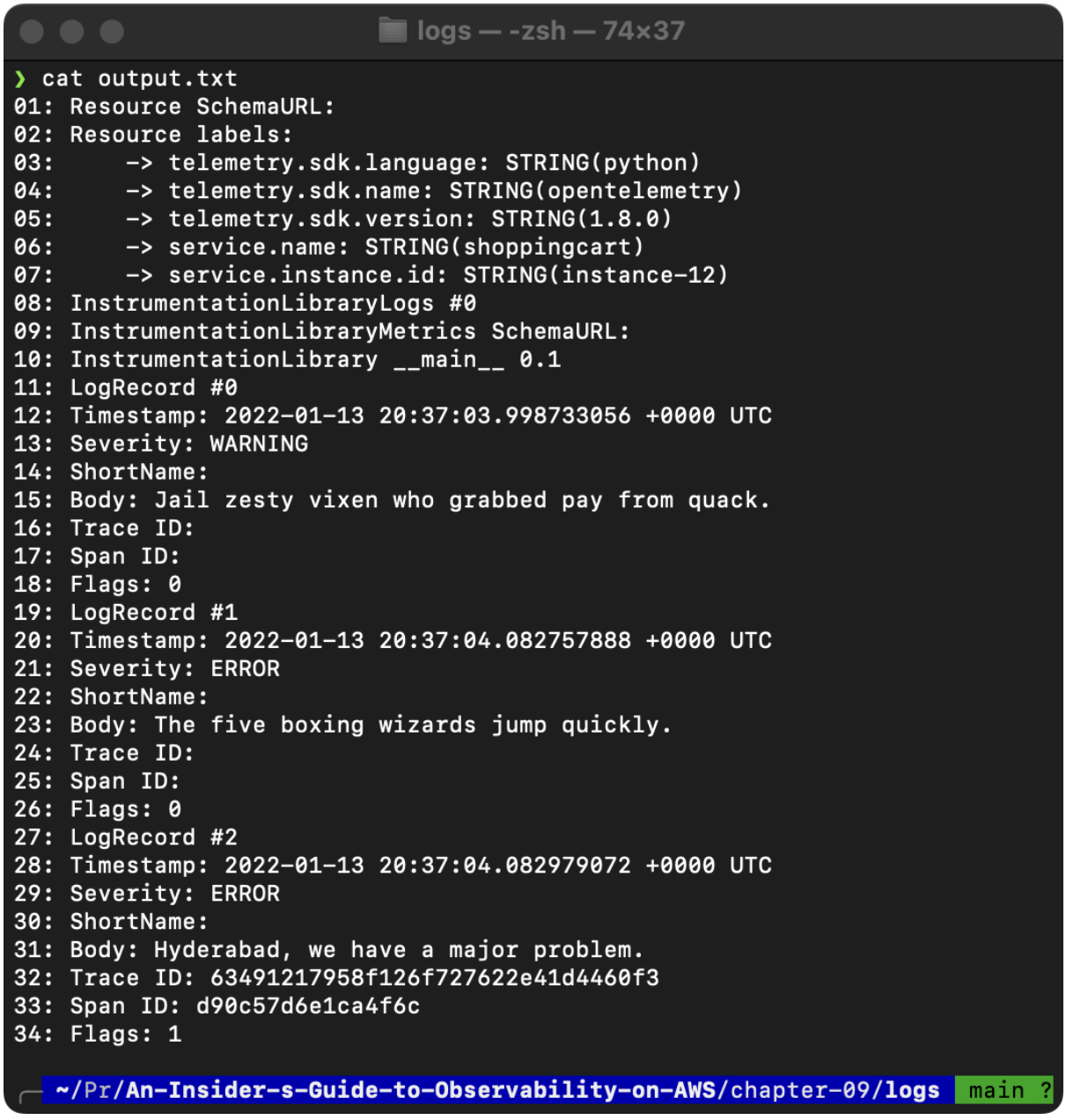

Web vitals Info
Web vitals represent how the content of your web pages loads. View more about Web Vitals
Largest contentful paint
Measures loading performance
0.6s average
Positive: 100% (<2.5s)
Tolerable: 0% (2.5-4s)
Frustrating: 0% (>4s)
Page loads
Positive
Tolerable
Frustrating
3
2
1
0
19:15
19:30
19:45
20:00
20:15
20:30
20:45
21:00
21:15
21:30
21:45
22:00
22:15
First input delay
Measures interactivity
6ms average
Positive: 100% (<100ms)
Tolerable: 0% (100-300ms)
Frustrating: 0% (>300ms)
Page loads
1.5
1
0.5
0
19:15
19:30
19:45
20:00
20:15
20:30
20:45
21:00
21:15
21:30
21:45
22:00
22:15
Step and duration
Step and duration
Duration
0 ms
260.1 ms
520.2 ms
780.3 ms
Prompt for unload
0 ms
Redirect
0 ms
Worker time
0 ms
DNS lookup
13.8 ms
Initial connection
72.5 ms
SSL
0 ms
Time to first byte
135.4 ms
Content downloaded
7 ms
DOM processing time
510.1 ms
DOM content loaded
5.5 ms
Load
3.6 ms
CloudWatch
RUM
S3RUM-App
Pages
S3RUM-App
1h
3h
12h
1d
1w
1M
Performance
Errors & Sessions
Browsers & Devices
User journey
Configuration
All browsers
All devices
All countries
Browsers
Top browser by use
Chrome
4 sessions (40%)
Slowest browser by page load
Firefox
687 ms
Browser with most errors
No data available. Try adjusting the time range.
Browser breakdown
Browser breakdown by usage
Chrome – 4 (40%)
Firefox – 4 (40%)
Edge – 1 (10%)
Safari – 1 (10%)
Browser
Distribution
Throughput
Page Load Time
Chrome
4 sessions
40%
0.1 ppm
652 ms
Edge
1 session
10%
0.1 ppm
591.3 ms
Firefox
4 sessions
40%
0.1 ppm
687 ms
Safari
1 session
10%
0 ppm
-

Chapter 9: Collecting Metrics and Traces Using OpenTelemetry




```
basic_tracer — -zsh — 90×33
Expecting value: line 1 column 1 (char 0)
❯ python3 basic_tracer.py | nl -w2 -s': '
 1: Hello world!
 2: {
 3:     "name": "foo",
 4:     "context": {
 5:         "trace_id": "0x5df6a754e3f18f3586a45fa179ee28e7",
 6:         "span_id": "0x08acba3502bba445",
 7:         "trace_state": "[]"
 8:     },
 9:     "kind": "SpanKind.INTERNAL",
10:     "parent_id": null,
11:     "start_time": "2023-02-18T20:47:12.971420Z",
12:     "end_time": "2023-02-18T20:47:12.971431Z",
13:     "status": {
14:         "status_code": "UNSET"
15:     },
16:     "attributes": {},
17:     "events": [],
18:     "links": [],
19:     "resource": {
20:         "attributes": {
21:             "telemetry.sdk.language": "python",
22:             "telemetry.sdk.name": "opentelemetry",
23:             "telemetry.sdk.version": "1.13.0",
24:             "service.name": "unknown_service"
25:         },
26:         "schema_url": ""
27:     }
28: }

~/Pr/An-Insider-s-Guide-to-Observability-on-AWS/chapter-09/basic_tracer main ?3
```


metrics — -zsh — 80×50
❯ cat output.txt | nl -w2 -s': '
 1: Resource SchemaURL:
 2: Resource labels:
 3:      -> telemetry.sdk.language: STRING(python)
 4:      -> telemetry.sdk.name: STRING(opentelemetry)
 5:      -> telemetry.sdk.version: STRING(1.13.0)
 6:      -> service.name: STRING(unknown_service)
 7: ScopeMetrics #0
 8: ScopeMetrics SchemaURL:
 9: InstrumentationScope getting-started 0.1.2
10: Metric #0
11: Descriptor:
12:      -> Name: counter
13:      -> Description:
14:      -> Unit:
15:      -> DataType: Sum
16:      -> IsMonotonic: true
17:      -> AggregationTemporality: AGGREGATION_TEMPORALITY_CUMULATIVE
18: NumberDataPoints #0
19: StartTimestamp: 2023-02-18 21:12:28.156817 +0000 UTC
20: Timestamp: 2023-02-18 21:12:28.156972 +0000 UTC
21: Value: 1
22: Metric #1
23: Descriptor:
24:      -> Name: updown_counter
25:      -> Description:
26:      -> Unit:
27:      -> DataType: Sum
28:      -> IsMonotonic: false
29:      -> AggregationTemporality: AGGREGATION_TEMPORALITY_CUMULATIVE
30: NumberDataPoints #0
31: StartTimestamp: 2023-02-18 21:12:28.156836 +0000 UTC
32: Timestamp: 2023-02-18 21:12:28.156972 +0000 UTC
33: Value: -4
34: Metric #2
35: Descriptor:
36:      -> Name: histogram
37:      -> Description:
38:      -> Unit:
39:      -> DataType: Histogram
40:      -> AggregationTemporality: AGGREGATION_TEMPORALITY_CUMULATIVE
41: HistogramDataPoints #0
42: StartTimestamp: 2023-02-18 21:12:28.156854 +0000 UTC
43: Timestamp: 2023-02-18 21:12:28.156972 +0000 UTC
44: Count: 1
45: Sum: 99.900000
46: Min: 99.900000
~/Pr/An-Insider-s-Guide-to-Observability-on-AWS/chapter-09/metrics main ?4


logs — -zsh — 74×37
❯ cat output.txt
01: Resource SchemaURL:
02: Resource labels:
03:     -> telemetry.sdk.language: STRING(python)
04:     -> telemetry.sdk.name: STRING(opentelemetry)
05:     -> telemetry.sdk.version: STRING(1.8.0)
06:     -> service.name: STRING(shoppingcart)
07:     -> service.instance.id: STRING(instance-12)
08: InstrumentationLibraryLogs #0
09: InstrumentationLibraryMetrics SchemaURL:
10: InstrumentationLibrary __main__ 0.1
11: LogRecord #0
12: Timestamp: 2022-01-13 20:37:03.998733056 +0000 UTC
13: Severity: WARNING
14: ShortName:
15: Body: Jail zesty vixen who grabbed pay from quack.
16: Trace ID:
17: Span ID:
18: Flags: 0
19: LogRecord #1
20: Timestamp: 2022-01-13 20:37:04.082757888 +0000 UTC
21: Severity: ERROR
22: ShortName:
23: Body: The five boxing wizards jump quickly.
24: Trace ID:
25: Span ID:
26: Flags: 0
27: LogRecord #2
28: Timestamp: 2022-01-13 20:37:04.082979072 +0000 UTC
29: Severity: ERROR
30: ShortName:
31: Body: Hyderabad, we have a major problem.
32: Trace ID: 63491217958f126f727622e41d4460f3
33: Span ID: d90c57d6e1ca4f6c
34: Flags: 1
~/Pr/An-Insider-s-Guide-to-Observability-on-AWS/chapter-09/logs main ?

Stack creation options

Timeout
-

Termination protection
Disabled

▶ Quick-create link

Capabilities

The following resource(s) require capabilities: [AWS::CloudFormation::Stack]

This template contains Identity and Access Management (IAM) resources. Check that you want to create each of these resources and that they have the minimum required permissions. In addition, they have custom names. Check that the custom names are unique within your AWS account. Learn more

For this template, AWS CloudFormation might require an unrecognized capability: CAPABILITY_AUTO_EXPAND. Check the capabilities of these resources. Learn more

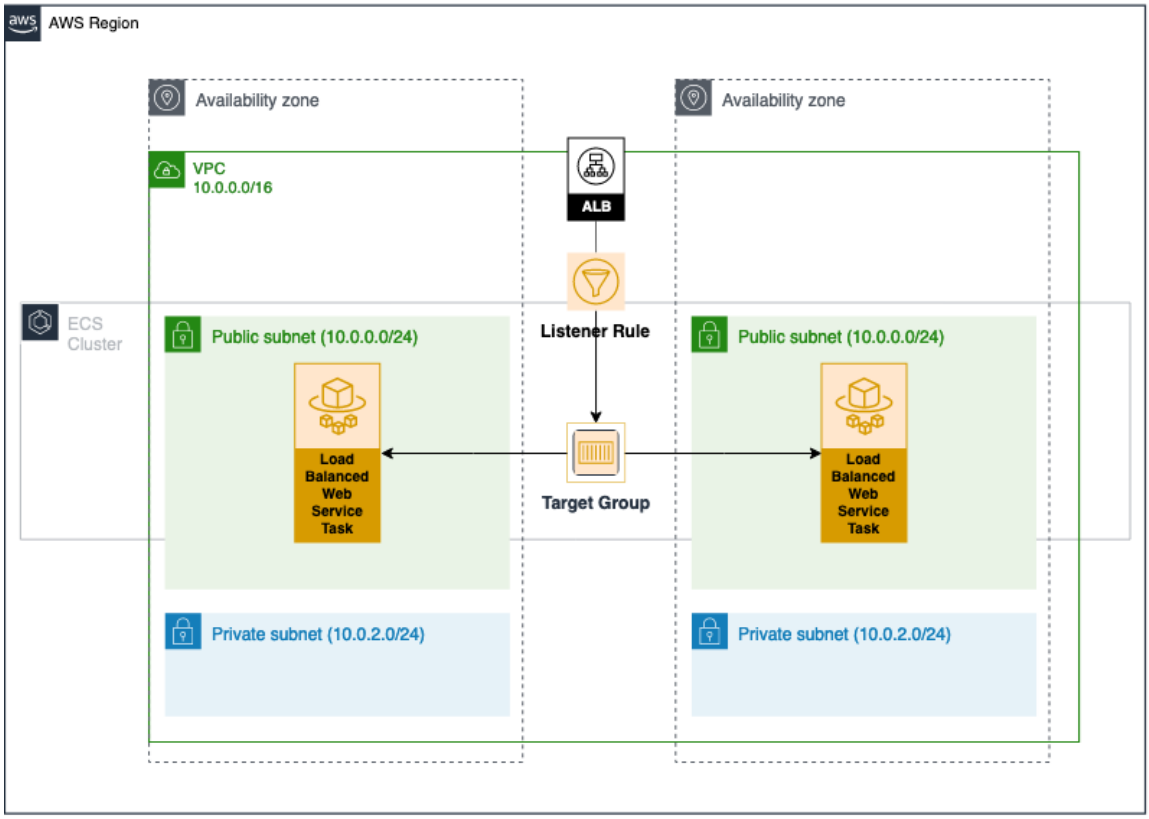
☑ **I acknowledge that AWS CloudFormation might create IAM resources with custom names.**

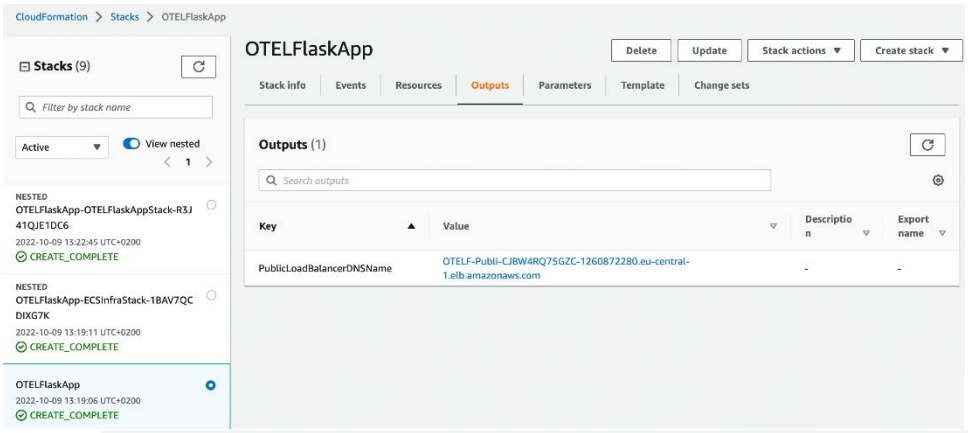
☑ **I acknowledge that AWS CloudFormation might require the following capability: CAPABILITY_AUTO_EXPAND**

Cancel | Previous | Create change set | Create stack

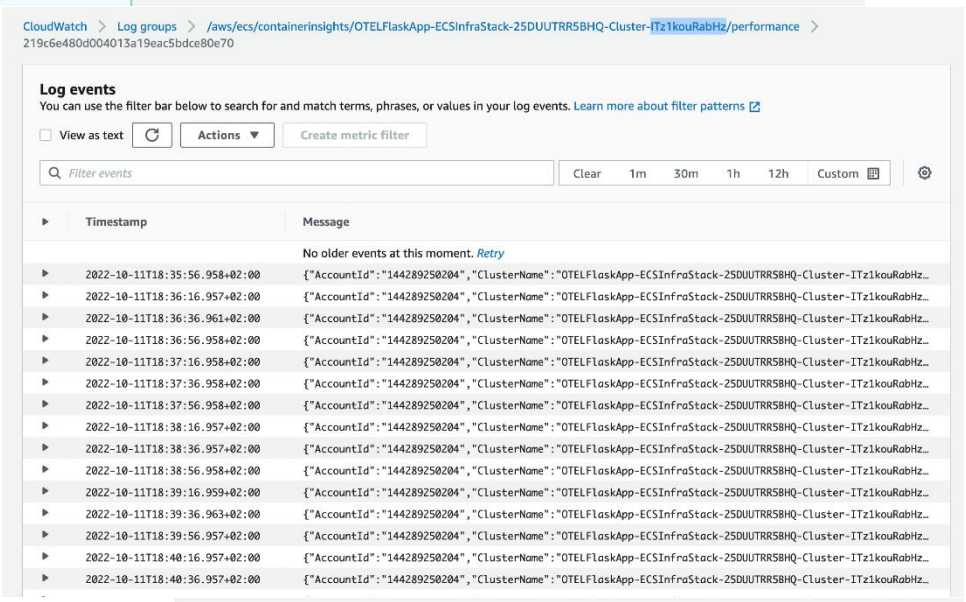
Stack name	Status	Created time	Description
OTELFlaskApp-OTELFlaskAppStack-R3J41QJE1DC6 NESTED	CREATE_COMPLETE	2022-10-09 13:22:45 UTC+0200	CloudFormation template that represents a load balanced web service on Amazon ECS.
OTELFlaskApp-ECSInfraStack-1BAV7QCDIXG7K NESTED	CREATE_COMPLETE	2022-10-09 13:19:11 UTC+0200	CloudFormation environment template for infrastructure shared among ECS workloads.
OTELFlaskApp	CREATE_COMPLETE	2022-10-09 13:19:06 UTC+0200	-

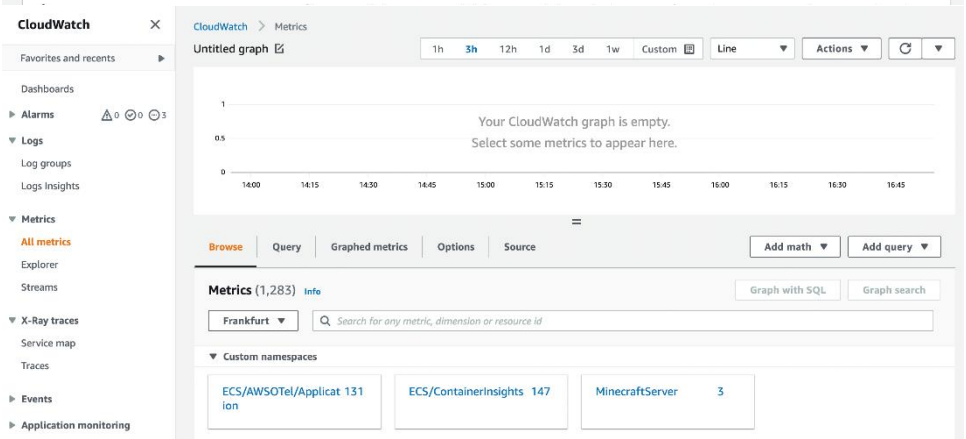
Load Balanced Web Service Infrastructure

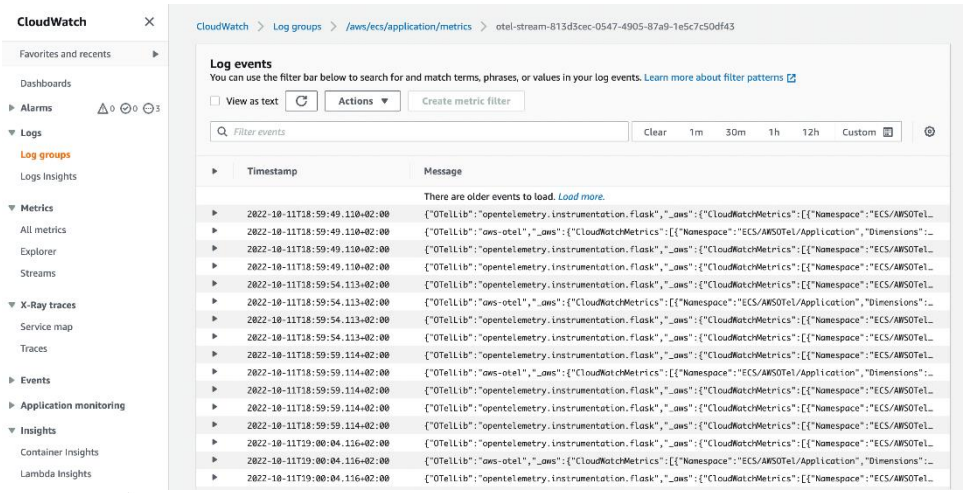


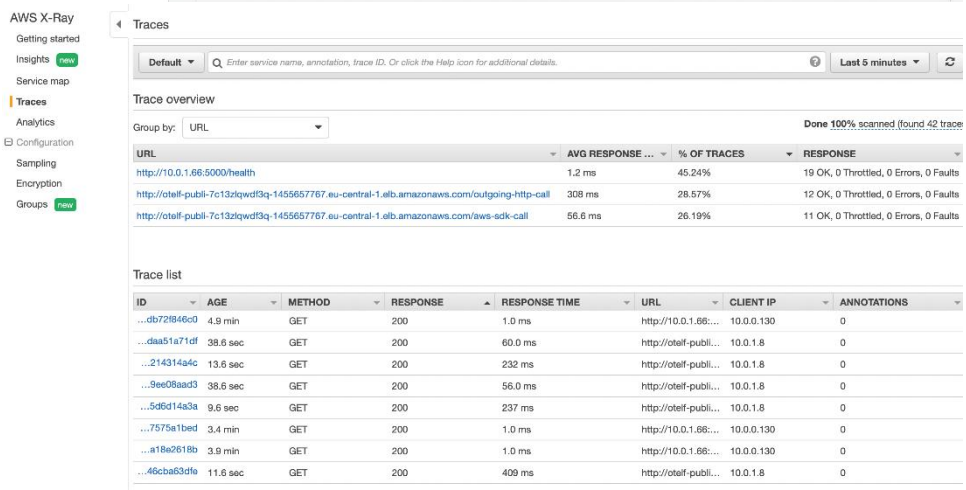

CloudFormation > Stacks > OTELFlaskApp
Stacks (9)
Filter by stack name
Active
View nested
NESTED
OTELFlaskApp-OTELFlaskAppStack-R3J41QJE1DC6
2022-10-09 13:22:45 UTC+0200
CREATE_COMPLETE
NESTED
OTELFlaskApp-ECSInfraStack-1BAV7QCDIXG7K
2022-10-09 13:19:11 UTC+0200
CREATE_COMPLETE
OTELFlaskApp
2022-10-09 13:19:06 UTC+0200
CREATE_COMPLETE
OTELFlaskApp
Delete
Update
Stack actions
Create stack
Stack info
Events
Resources
Outputs
Parameters
Template
Change sets
Outputs (1)
Search outputs
Key
Value
Description
Export name
PublicLoadBalancerDNSName
OTELF-Publi-CJBW4RQ75GZC-1260872280.eu-central-1.elb.amazonaws.com

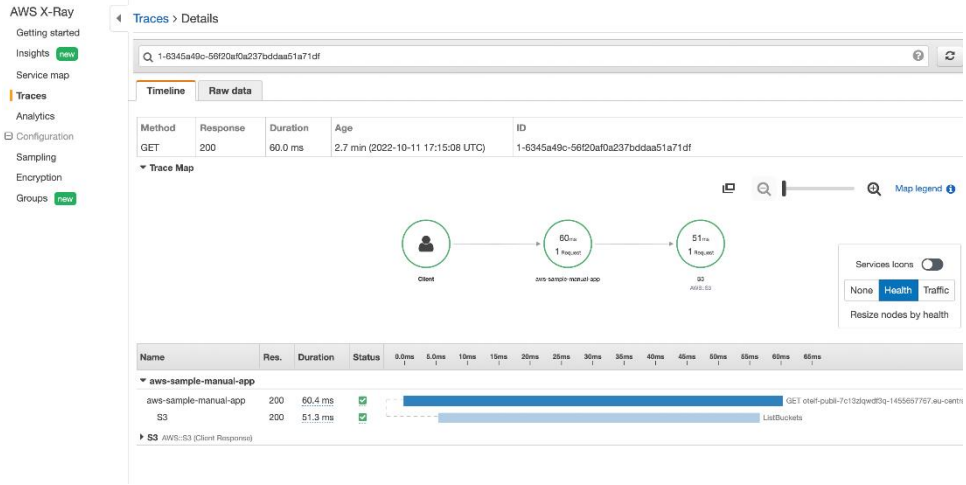
App running!

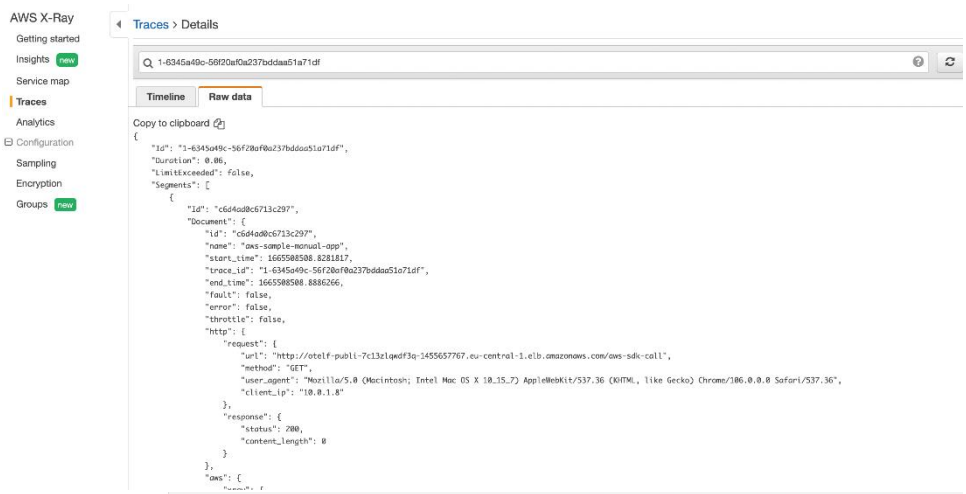

CloudWatch > Log groups > /aws/ecs/containerinsights/OTELFlaskApp-ECSInfraStack-25DUUTRR5BHQ-Cluster-ITz1kouRabHz/performance > 219c6e480d004013a19eac5bdce80e70
Log events
You can use the filter bar below to search for and match terms, phrases, or values in your log events. Learn more about filter patterns
View as text
Actions
Create metric filter
Filter events
Clear
1m
30m
1h
12h
Custom
Timestamp
Message
No older events at this moment. Retry
2022-10-11T18:35:56.958+02:00 {"AccountId":"144289250204","ClusterName":"OTELFlaskApp-ECSInfraStack-25DUUTRR5BHQ-Cluster-ITz1kouRabHz…
2022-10-11T18:36:16.957+02:00 {"AccountId":"144289250204","ClusterName":"OTELFlaskApp-ECSInfraStack-25DUUTRR5BHQ-Cluster-ITz1kouRabHz…
2022-10-11T18:36:36.961+02:00 {"AccountId":"144289250204","ClusterName":"OTELFlaskApp-ECSInfraStack-25DUUTRR5BHQ-Cluster-ITz1kouRabHz…
2022-10-11T18:36:56.958+02:00 {"AccountId":"144289250204","ClusterName":"OTELFlaskApp-ECSInfraStack-25DUUTRR5BHQ-Cluster-ITz1kouRabHz…
2022-10-11T18:37:16.958+02:00 {"AccountId":"144289250204","ClusterName":"OTELFlaskApp-ECSInfraStack-25DUUTRR5BHQ-Cluster-ITz1kouRabHz…
2022-10-11T18:37:36.958+02:00 {"AccountId":"144289250204","ClusterName":"OTELFlaskApp-ECSInfraStack-25DUUTRR5BHQ-Cluster-ITz1kouRabHz…
2022-10-11T18:37:56.958+02:00 {"AccountId":"144289250204","ClusterName":"OTELFlaskApp-ECSInfraStack-25DUUTRR5BHQ-Cluster-ITz1kouRabHz…
2022-10-11T18:38:16.957+02:00 {"AccountId":"144289250204","ClusterName":"OTELFlaskApp-ECSInfraStack-25DUUTRR5BHQ-Cluster-ITz1kouRabHz…
2022-10-11T18:38:36.957+02:00 {"AccountId":"144289250204","ClusterName":"OTELFlaskApp-ECSInfraStack-25DUUTRR5BHQ-Cluster-ITz1kouRabHz…
2022-10-11T18:38:56.958+02:00 {"AccountId":"144289250204","ClusterName":"OTELFlaskApp-ECSInfraStack-25DUUTRR5BHQ-Cluster-ITz1kouRabHz…
2022-10-11T18:39:16.959+02:00 {"AccountId":"144289250204","ClusterName":"OTELFlaskApp-ECSInfraStack-25DUUTRR5BHQ-Cluster-ITz1kouRabHz…
2022-10-11T18:39:36.963+02:00 {"AccountId":"144289250204","ClusterName":"OTELFlaskApp-ECSInfraStack-25DUUTRR5BHQ-Cluster-ITz1kouRabHz…
2022-10-11T18:39:56.957+02:00 {"AccountId":"144289250204","ClusterName":"OTELFlaskApp-ECSInfraStack-25DUUTRR5BHQ-Cluster-ITz1kouRabHz…
2022-10-11T18:40:16.957+02:00 {"AccountId":"144289250204","ClusterName":"OTELFlaskApp-ECSInfraStack-25DUUTRR5BHQ-Cluster-ITz1kouRabHz…
2022-10-11T18:40:36.957+02:00 {"AccountId":"144289250204","ClusterName":"OTELFlaskApp-ECSInfraStack-25DUUTRR5BHQ-Cluster-ITz1kouRabHz…

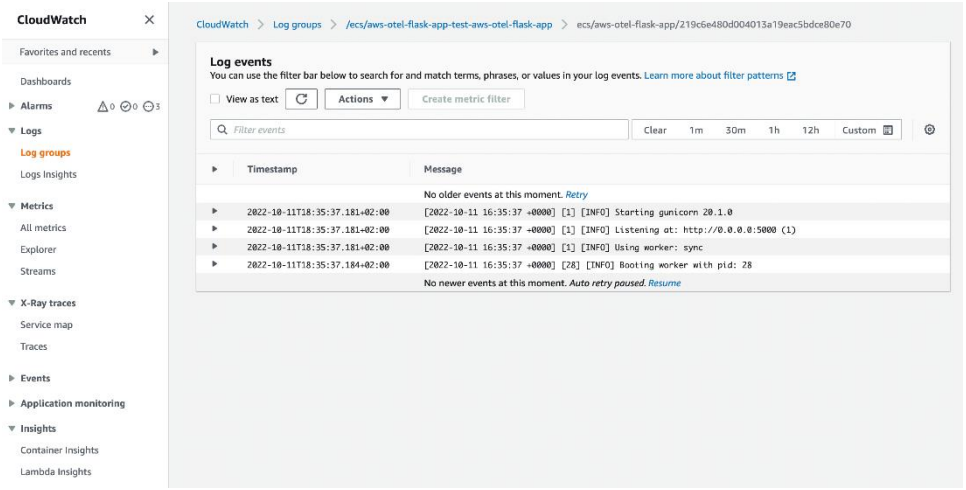

CloudWatch
Favorites and recents
Dashboards
Alarms
Logs
Log groups
Logs Insights
Metrics
All metrics
Explorer
Streams
X-Ray traces
Service map
Traces
Events
Application monitoring
CloudWatch > Metrics
Untitled graph
1h
3h
12h
1d
3d
1w
Custom
Line
Actions
Your CloudWatch graph is empty.
Select some metrics to appear here.
Browse
Query
Graphed metrics
Options
Source
Add math
Add query
Metrics (1,283) Info
Graph with SQL
Graph search
Frankfurt
Search for any metric, dimension or resource id
Custom namespaces
ECS/AWSOTel/Application 131
ECS/ContainerInsights 147
MinecraftServer 3


CloudWatch
Favorites and recents
Dashboards
Alarms
Logs
Log groups
Logs Insights
Metrics
All metrics
Explorer
Streams
X-Ray traces
Service map
Traces
Events
Application monitoring
Insights
Container Insights
Lambda Insights
CloudWatch > Log groups > /aws/ecs/application/metrics > otel-stream-813d3cec-0547-4905-87a9-1e5c7c50df43
Log events
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
View as text
Actions
Create metric filter
Filter events
Clear
1m
30m
1h
12h
Custom
Timestamp
Message
There are older events to load. Load more.
2022-10-11T18:59:49.110+02:00 {"OTelLib":"opentelemetry.instrumentation.flask","_aws":{"CloudWatchMetrics":[{"Namespace":"ECS/AWSOTel
2022-10-11T18:59:49.110+02:00 {"OTelLib":"aws-otel","_aws":{"CloudWatchMetrics":[{"Namespace":"ECS/AWSOTel/Application","Dimensions":
2022-10-11T18:59:49.110+02:00 {"OTelLib":"opentelemetry.instrumentation.flask","_aws":{"CloudWatchMetrics":[{"Namespace":"ECS/AWSOTel
2022-10-11T18:59:49.110+02:00 {"OTelLib":"opentelemetry.instrumentation.flask","_aws":{"CloudWatchMetrics":[{"Namespace":"ECS/AWSOTel
2022-10-11T18:59:54.113+02:00 {"OTelLib":"opentelemetry.instrumentation.flask","_aws":{"CloudWatchMetrics":[{"Namespace":"ECS/AWSOTel
2022-10-11T18:59:54.113+02:00 {"OTelLib":"aws-otel","_aws":{"CloudWatchMetrics":[{"Namespace":"ECS/AWSOTel/Application","Dimensions":
2022-10-11T18:59:54.113+02:00 {"OTelLib":"opentelemetry.instrumentation.flask","_aws":{"CloudWatchMetrics":[{"Namespace":"ECS/AWSOTel
2022-10-11T18:59:54.113+02:00 {"OTelLib":"opentelemetry.instrumentation.flask","_aws":{"CloudWatchMetrics":[{"Namespace":"ECS/AWSOTel
2022-10-11T18:59:59.114+02:00 {"OTelLib":"opentelemetry.instrumentation.flask","_aws":{"CloudWatchMetrics":[{"Namespace":"ECS/AWSOTel
2022-10-11T18:59:59.114+02:00 {"OTelLib":"aws-otel","_aws":{"CloudWatchMetrics":[{"Namespace":"ECS/AWSOTel/Application","Dimensions":
2022-10-11T18:59:59.114+02:00 {"OTelLib":"opentelemetry.instrumentation.flask","_aws":{"CloudWatchMetrics":[{"Namespace":"ECS/AWSOTel
2022-10-11T18:59:59.114+02:00 {"OTelLib":"opentelemetry.instrumentation.flask","_aws":{"CloudWatchMetrics":[{"Namespace":"ECS/AWSOTel
2022-10-11T19:00:04.116+02:00 {"OTelLib":"opentelemetry.instrumentation.flask","_aws":{"CloudWatchMetrics":[{"Namespace":"ECS/AWSOTel
2022-10-11T19:00:04.116+02:00 {"OTelLib":"aws-otel","_aws":{"CloudWatchMetrics":[{"Namespace":"ECS/AWSOTel/Application","Dimensions":
2022-10-11T19:00:04.116+02:00 {"OTelLib":"opentelemetry.instrumentation.flask","_aws":{"CloudWatchMetrics":[{"Namespace":"ECS/AWSOTel

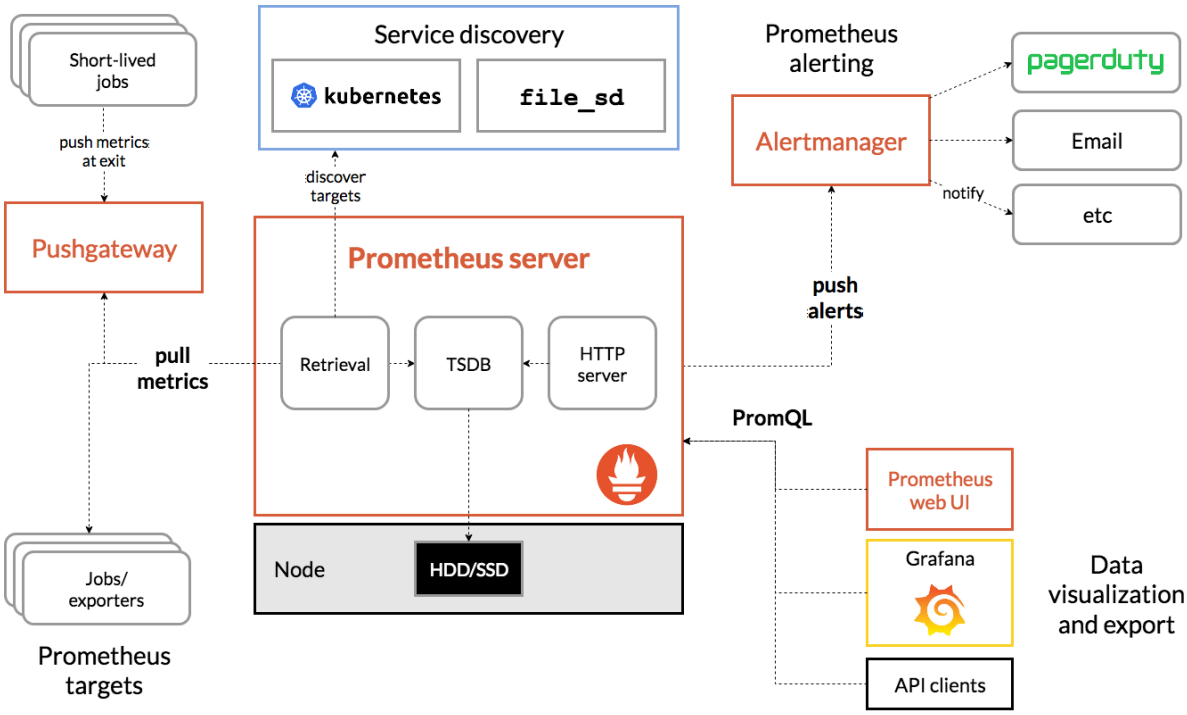

AWS X-Ray
Getting started
Insights new
Service map
Traces
Analytics
Configuration
Sampling
Encryption
Groups new
Traces
Default
Enter service name, annotation, trace ID. Or click the Help icon for additional details.
Last 5 minutes
Trace overview
Group by: URL
Done 100% scanned (found 42 trace
URL
AVG RESPONSE ...
% OF TRACES
RESPONSE
http://10.0.1.66:5000/health 1.2 ms 45.24% 19 OK, 0 Throttled, 0 Errors, 0 Faults
http://otelf-publi-7c13zlqwdf3q-1455657767.eu-central-1.elb.amazonaws.com/outgoing-http-call 308 ms 28.57% 12 OK, 0 Throttled, 0 Errors, 0 Faults
http://otelf-publi-7c13zlqwdf3q-1455657767.eu-central-1.elb.amazonaws.com/aws-sdk-call 56.6 ms 26.19% 11 OK, 0 Throttled, 0 Errors, 0 Faults
Trace list
ID AGE METHOD RESPONSE RESPONSE TIME URL CLIENT IP ANNOTATIONS
...db72f846c0 4.9 min GET 200 1.0 ms http://10.0.1.66:... 10.0.0.130 0
...daa51a71df 38.6 sec GET 200 60.0 ms http://otelf-publi... 10.0.1.8 0
...214314a4c 13.6 sec GET 200 232 ms http://otelf-publi... 10.0.1.8 0
...9ee08aad3 38.6 sec GET 200 56.0 ms http://otelf-publi... 10.0.1.8 0
...5d6d14a3a 9.6 sec GET 200 237 ms http://otelf-publi... 10.0.1.8 0
...7575a1bed 3.4 min GET 200 1.0 ms http://10.0.1.66:... 10.0.0.130 0
...a18e2618b 3.9 min GET 200 1.0 ms http://10.0.1.66:... 10.0.0.130 0
...46cba63dfe 11.6 sec GET 200 409 ms http://otelf-publi... 10.0.1.8 0

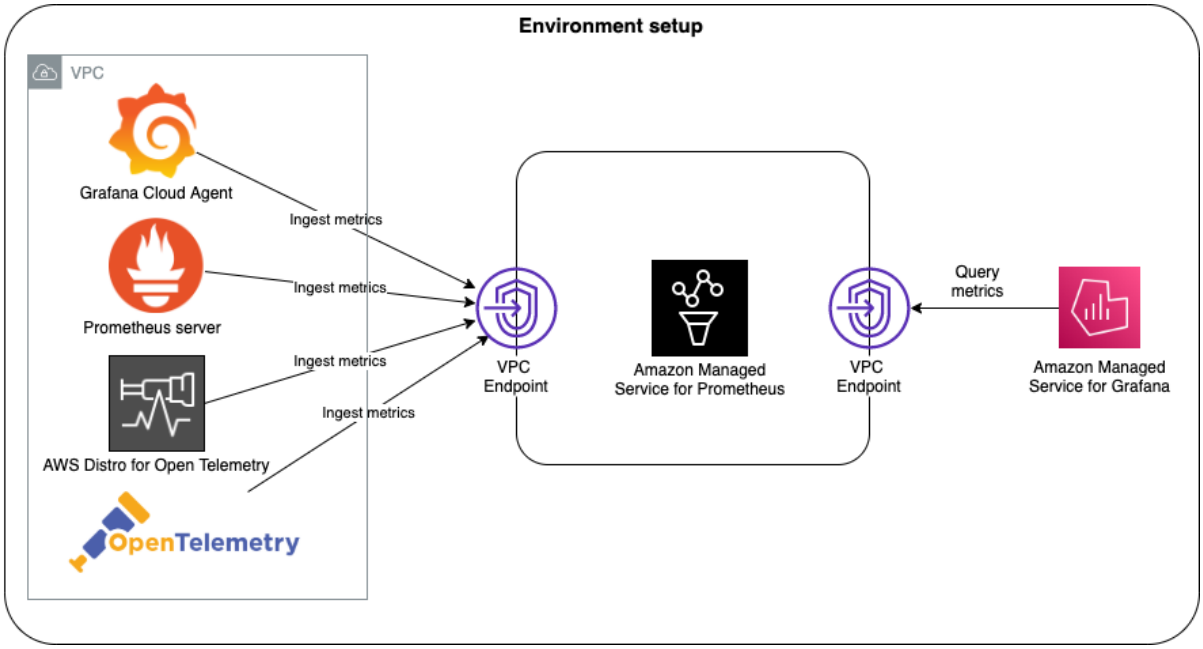

AWS X-Ray
Getting started
Insights new
Service map
Traces
Analytics
Configuration
Sampling
Encryption
Groups new
Traces > Details
1-6345a49c-56f20af0a237bddaa51a71df
Timeline
Raw data
Method Response Duration Age ID
GET 200 60.0 ms 2.7 min (2022-10-11 17:15:08 UTC) 1-6345a49c-56f20af0a237bddaa51a71df
Trace Map
Map legend
Client
aws-sample-manual-app
S3
Services Icons
None Health Traffic
Resize nodes by health
Name Res. Duration Status
aws-sample-manual-app
aws-sample-manual-app 200 60.4 ms
S3 200 51.3 ms
S3 AWS::S3 (Client Response)
ListBuckets

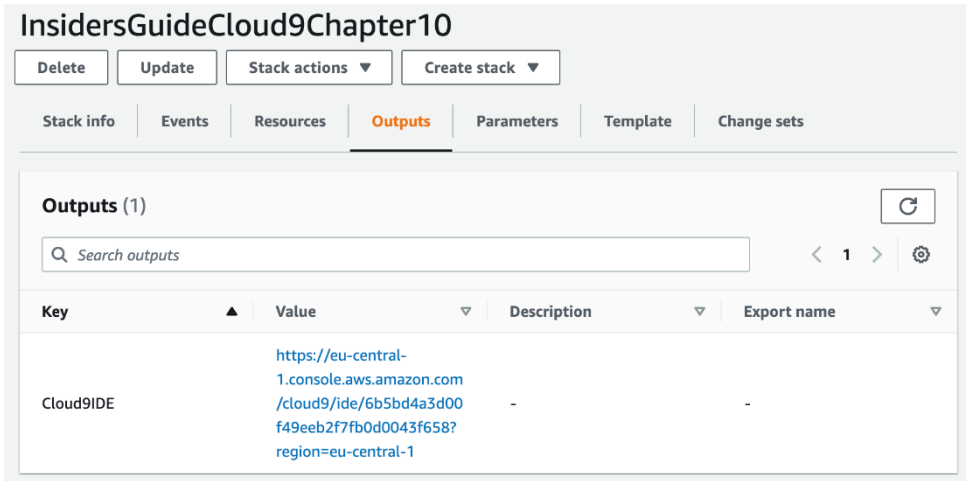

AWS X-Ray
Getting started
Insights new
Service map
Traces
Analytics
Configuration
Sampling
Encryption
Groups new
Traces > Details
1-6345a49c-56f20af0a237bddaa51a71df
Timeline
Raw data
Copy to clipboard
{
"id": "1-6345a49c-56f20af0a237bddaa51a71df",
"Duration": 0.06,
"LimitExceeded": false,
"Segments": [
{
"id": "c6d4ad0c6713c297",
"Document": {
"id": "c6d4ad0c6713c297",
"name": "aws-sample-manual-app",
"start_time": 1665508508.8281817,
"trace_id": "1-6345a49c-56f20af0a237bddaa51a71df",
"end_time": 1665508508.8886266,
"fault": false,
"error": false,
"throttle": false,
"http": {
"request": {
"url": "http://otelf-publi-7c13elqwdf3q-1455657767.eu-central-1.elb.amazonaws.com/aws-sdk-call",
"method": "GET",
"user_agent": "Mozilla/5.0 (Macintosh; Intel Mac OS X 10_15_7) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/106.0.0.0 Safari/537.36",
"client_ip": "10.0.1.8"
},
"response": {
"status": 200,
"content_length": 0
}
},
"aws": {

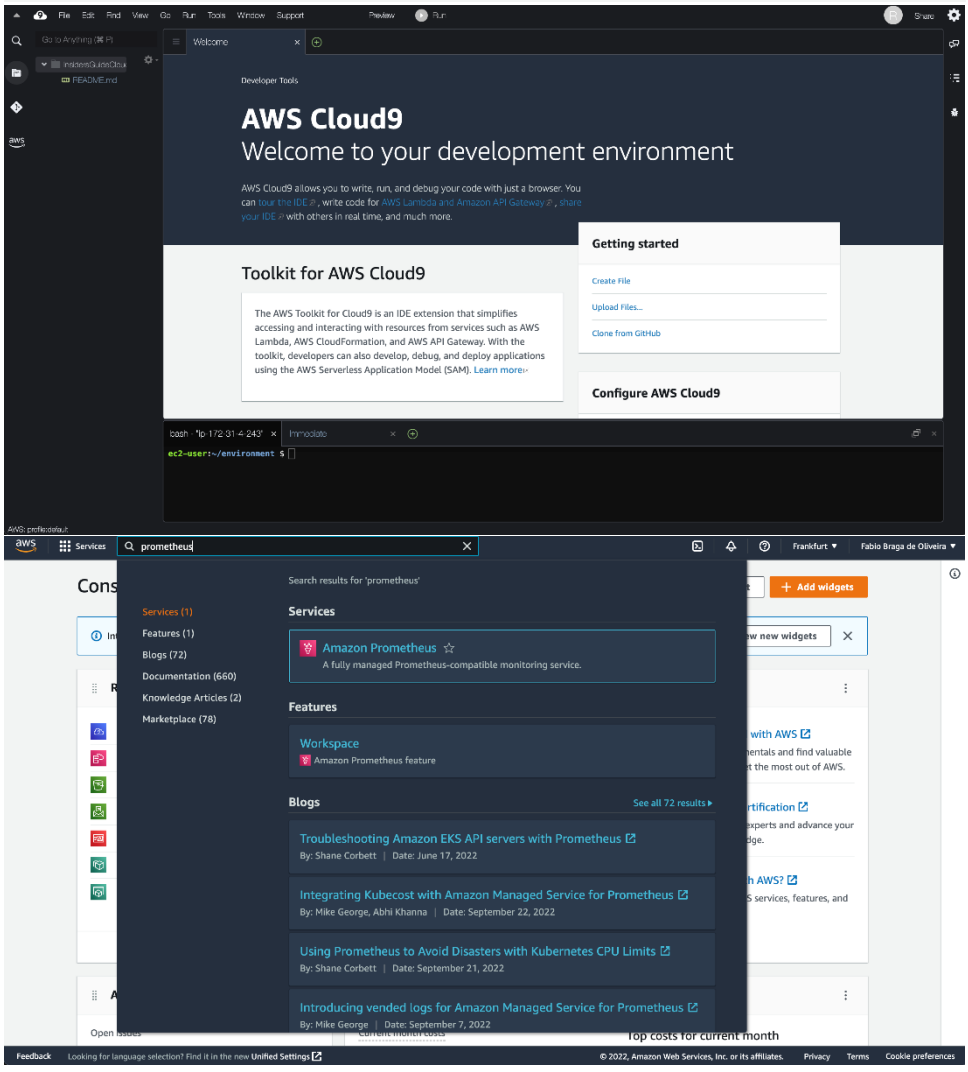

CloudWatch
Favorites and recents
Dashboards
Alarms
Logs
Log groups
Logs Insights
Metrics
All metrics
Explorer
Streams
X-Ray traces
Service map
Traces
Events
Application monitoring
Insights
Container Insights
Lambda Insights
CloudWatch > Log groups > /ecs/aws-otel-flask-app-test-aws-otel-flask-app > ecs/aws-otel-flask-app/219c6e480d004013a19eac5bdce80e70
Log events
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
View as text
Actions
Create metric filter
Filter events
Clear
1m
30m
1h
12h
Custom
Timestamp
Message
No older events at this moment. Retry
2022-10-11T18:35:37.181+02:00
[2022-10-11 16:35:37 +0000] [1] [INFO] Starting gunicorn 20.1.0
2022-10-11T18:35:37.181+02:00
[2022-10-11 16:35:37 +0000] [1] [INFO] Listening at: http://0.0.0.0:5000 (1)
2022-10-11T18:35:37.181+02:00
[2022-10-11 16:35:37 +0000] [1] [INFO] Using worker: sync
2022-10-11T18:35:37.184+02:00
[2022-10-11 16:35:37 +0000] [28] [INFO] Booting worker with pid: 28
No newer events at this moment. Auto retry paused. Resume

Chapter 10: Deploying and Configuring an Amazon Managed Service for Prometheus

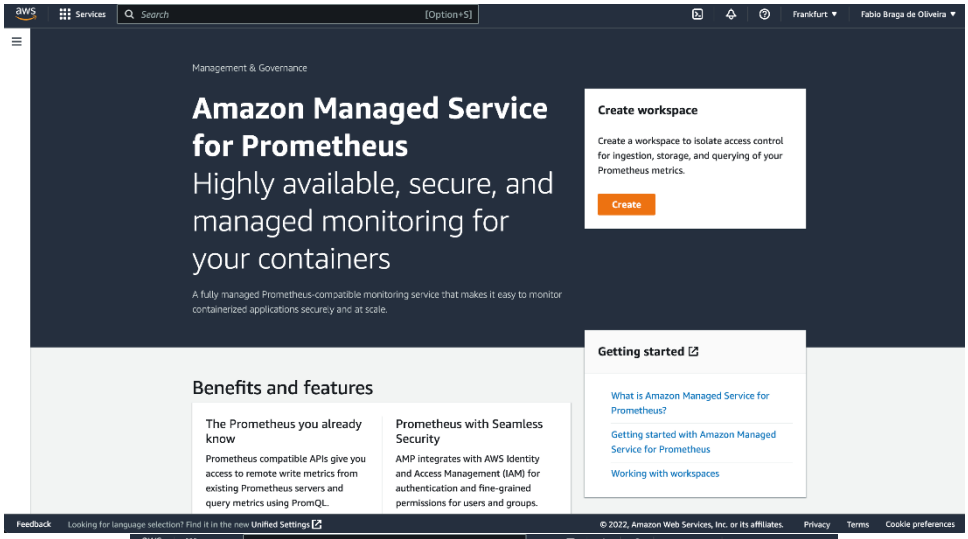


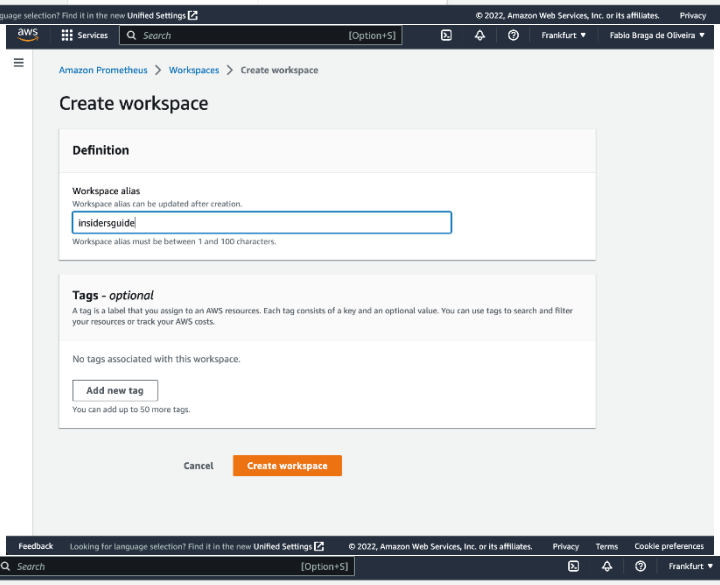


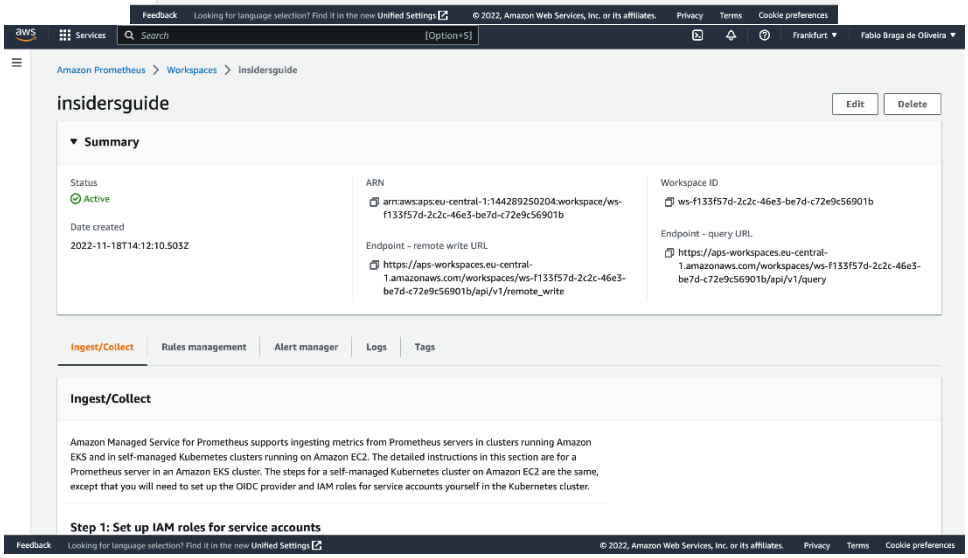

InsidersGuideCloud9Chapter10
Delete
Update
Stack actions
Create stack
Stack info
Events
Resources
Outputs
Parameters
Template
Change sets
Outputs (1)
Search outputs
1
Key
Value
Description
Export name
Cloud9IDE
https://eu-central-1.console.aws.amazon.com/cloud9/ide/6b5bd4a3d00f49eeb2f7fb0d0043f658?region=eu-central-1
-
-

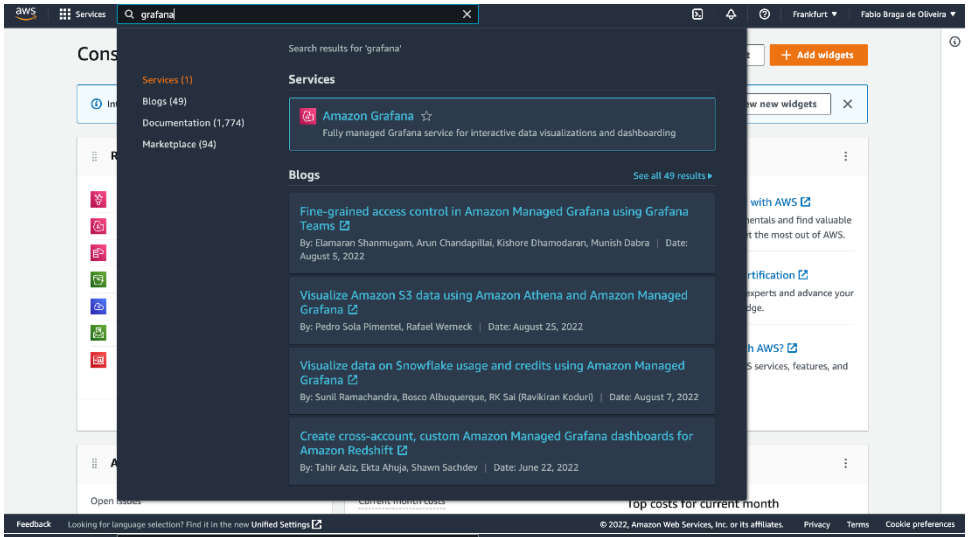

Welcome
Developer Tools
AWS Cloud9
Welcome to your development environment
AWS Cloud9 allows you to write, run, and debug your code with just a browser. You can tour the IDE, write code for AWS Lambda and Amazon API Gateway, share your IDE with others in real time, and much more.
Toolkit for AWS Cloud9
The AWS Toolkit for Cloud9 is an IDE extension that simplifies accessing and interacting with resources from services such as AWS Lambda, AWS CloudFormation, and AWS API Gateway. With the toolkit, developers can also develop, debug, and deploy applications using the AWS Serverless Application Model (SAM). Learn more
Getting started
Create File
Upload Files...
Clone from GitHub
Configure AWS Cloud9
ec2-user:~/environment $

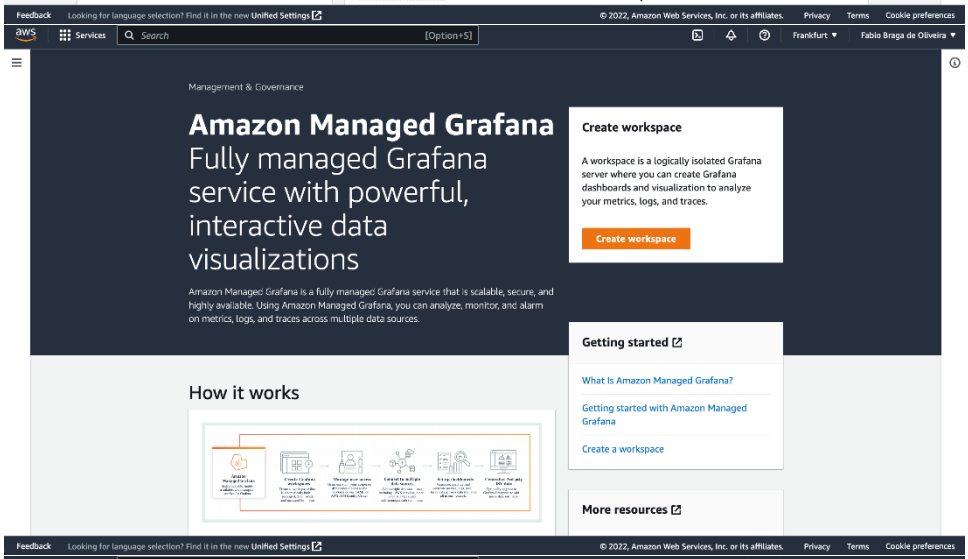
prometheus
Search results for 'prometheus'
Services (1)
Features (1)
Blogs (72)
Documentation (660)
Knowledge Articles (2)
Marketplace (78)
Services
Amazon Prometheus
A fully managed Prometheus-compatible monitoring service.
Features
Workspace
Amazon Prometheus feature
Blogs
See all 72 results
Troubleshooting Amazon EKS API servers with Prometheus
By: Shane Corbett | Date: June 17, 2022
Integrating Kubecost with Amazon Managed Service for Prometheus
By: Mike George, Abhi Khanna | Date: September 22, 2022
Using Prometheus to Avoid Disasters with Kubernetes CPU Limits
By: Shane Corbett | Date: September 21, 2022
Introducing vended logs for Amazon Managed Service for Prometheus
By: Mike George | Date: September 7, 2022
Add widgets
Top costs for current month
Feedback
© 2022, Amazon Web Services, Inc. or its affiliates.
Privacy
Terms
Cookie preferences

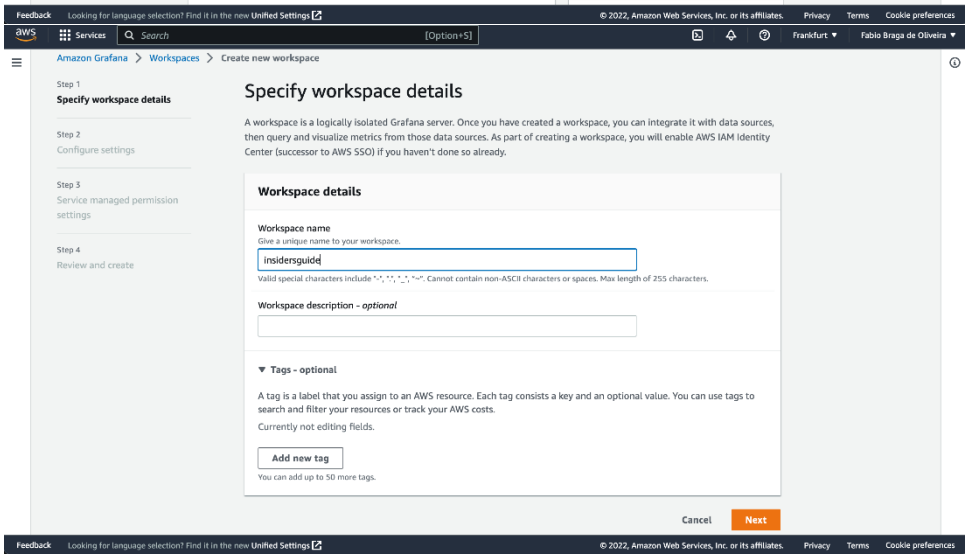

Services
Search
[Option+S]
Frankfurt
Fabio Braga de Oliveira
Management & Governance
Amazon Managed Service for Prometheus
Highly available, secure, and managed monitoring for your containers
A fully managed Prometheus-compatible monitoring service that makes it easy to monitor containerized applications securely and at scale.
Create workspace
Create a workspace to isolate access control for ingestion, storage, and querying of your Prometheus metrics.
Create
Getting started
What is Amazon Managed Service for Prometheus?
Getting started with Amazon Managed Service for Prometheus
Working with workspaces
Benefits and features
The Prometheus you already know
Prometheus compatible APIs give you access to remote write metrics from existing Prometheus servers and query metrics using PromQL.
Prometheus with Seamless Security
AMP integrates with AWS Identity and Access Management (IAM) for authentication and fine-grained permissions for users and groups.
Feedback
Looking for language selection? Find it in the new Unified Settings
© 2022, Amazon Web Services, Inc. or its affiliates.
Privacy
Terms
Cookie preferences

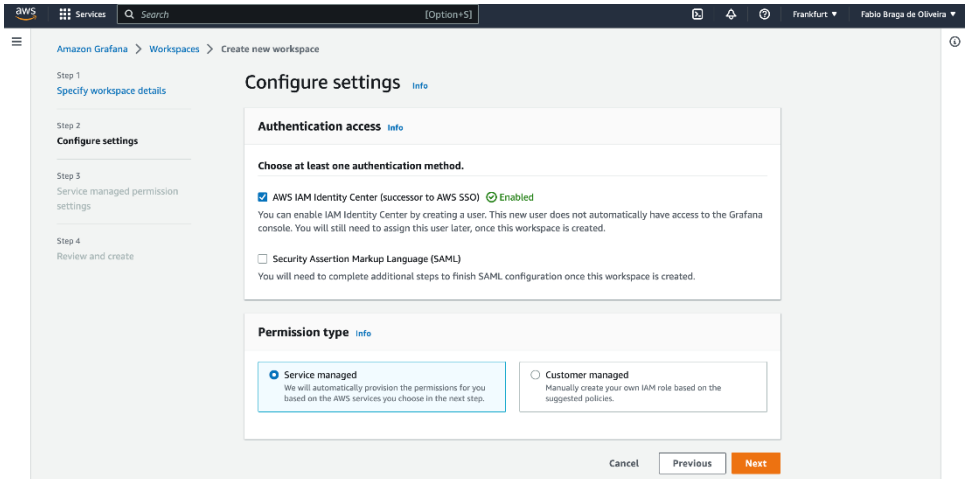

Services
Search
[Option+S]
Frankfurt
Fabio Braga de Oliveira
Amazon Prometheus > Workspaces > Create workspace
Create workspace
Definition
Workspace alias
Workspace alias can be updated after creation.
insidersguide
Workspace alias must be between 1 and 100 characters.
Tags - optional
A tag is a label that you assign to an AWS resources. Each tag consists of a key and an optional value. You can use tags to search and filter your resources or track your AWS costs.
No tags associated with this workspace.
Add new tag
You can add up to 50 more tags.
Cancel
Create workspace
Feedback
Looking for language selection? Find it in the new Unified Settings
© 2022, Amazon Web Services, Inc. or its affiliates.
Privacy
Terms
Cookie preferences

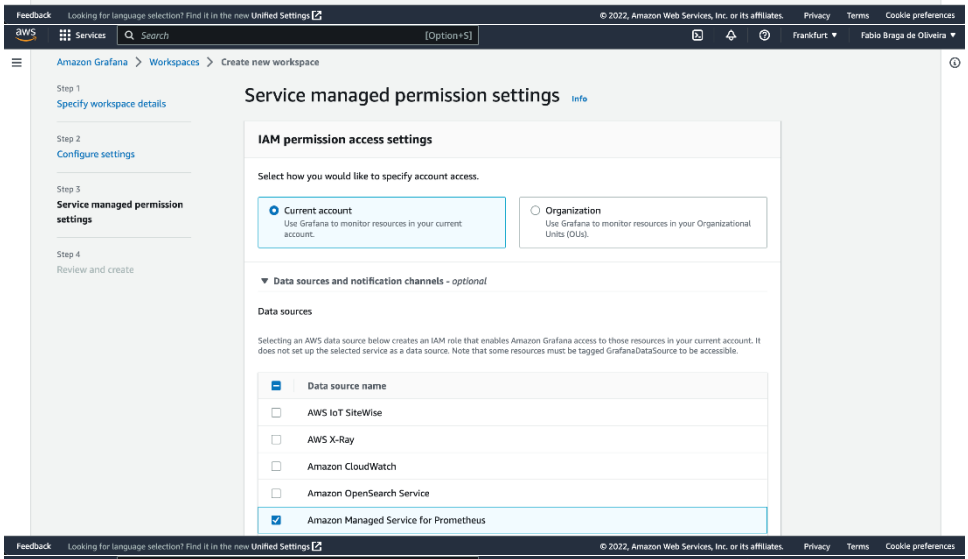

Services
Search
[Option+S]
Frankfurt
Fabio Braga de Oliveira
Amazon Prometheus > Workspaces > insidersguide
insidersguide
Edit
Delete
Summary
Status
Active
Date created
2022-11-18T14:12:10.503Z
ARN
arn:aws:aps:eu-central-1:144289250204:workspace/ws-f133f57d-2c2c-46e3-be7d-c72e9c56901b
Endpoint - remote write URL
https://aps-workspaces.eu-central-1.amazonaws.com/workspaces/ws-f133f57d-2c2c-46e3-be7d-c72e9c56901b/api/v1/remote_write
Workspace ID
ws-f133f57d-2c2c-46e3-be7d-c72e9c56901b
Endpoint - query URL
https://aps-workspaces.eu-central-1.amazonaws.com/workspaces/ws-f133f57d-2c2c-46e3-be7d-c72e9c56901b/api/v1/query
Ingest/Collect
Rules management
Alert manager
Logs
Tags
Ingest/Collect
Amazon Managed Service for Prometheus supports ingesting metrics from Prometheus servers in clusters running Amazon EKS and in self-managed Kubernetes clusters running on Amazon EC2. The detailed instructions in this section are for a Prometheus server in an Amazon EKS cluster. The steps for a self-managed Kubernetes cluster on Amazon EC2 are the same, except that you will need to set up the OIDC provider and IAM roles for service accounts yourself in the Kubernetes cluster.
Step 1: Set up IAM roles for service accounts
Feedback
Looking for language selection? Find it in the new Unified Settings
© 2022, Amazon Web Services, Inc. or its affiliates.
Privacy
Terms
Cookie preferences

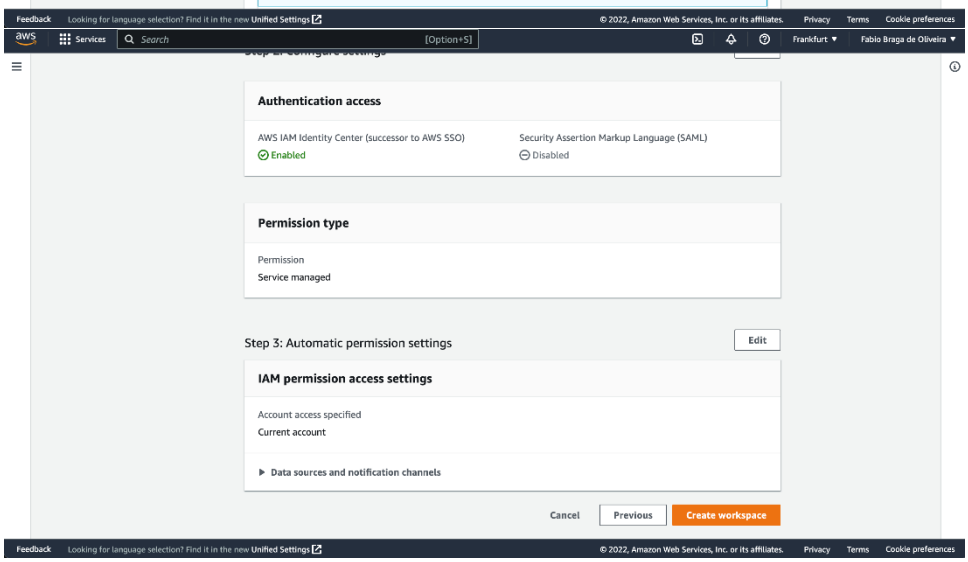

grafana
Search results for 'grafana'
Services (1)
Blogs (49)
Documentation (1,774)
Marketplace (94)
Services
Amazon Grafana
Fully managed Grafana service for interactive data visualizations and dashboarding
Blogs
See all 49 results
Fine-grained access control in Amazon Managed Grafana using Grafana Teams
By: Elamaran Shanmugam, Arun Chandapillai, Kishore Dhamodaran, Munish Dabra | Date: August 5, 2022
Visualize Amazon S3 data using Amazon Athena and Amazon Managed Grafana
By: Pedro Sola Pimentel, Rafael Werneck | Date: August 25, 2022
Visualize data on Snowflake usage and credits using Amazon Managed Grafana
By: Sunil Ramachandra, Bosco Albuquerque, RK Sai (Ravikiran Koduri) | Date: August 7, 2022
Create cross-account, custom Amazon Managed Grafana dashboards for Amazon Redshift
By: Tahir Aziz, Ekta Ahuja, Shawn Sachdev | Date: June 22, 2022
Add widgets
Top costs for current month

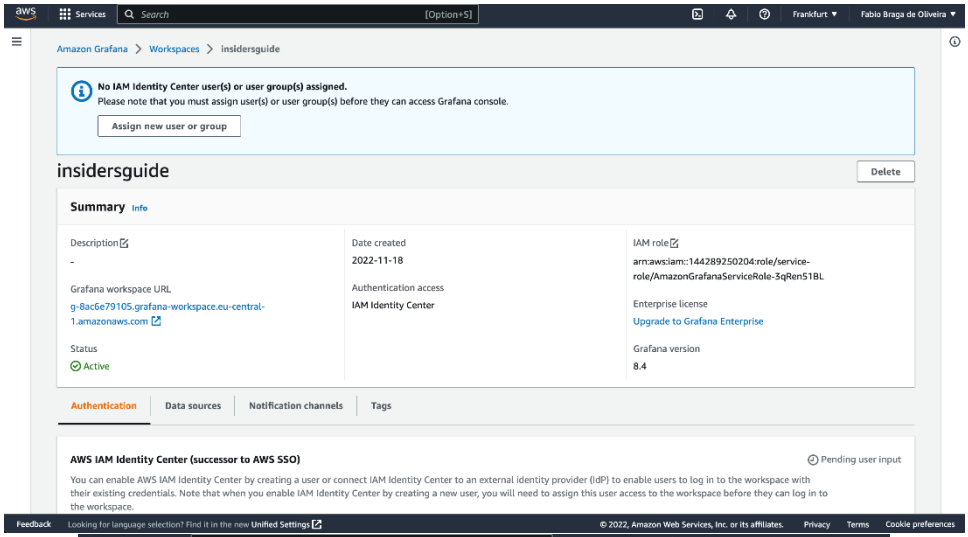

Management & Governance
Amazon Managed Grafana
Fully managed Grafana service with powerful, interactive data visualizations
Amazon Managed Grafana is a fully managed Grafana service that is scalable, secure, and highly available. Using Amazon Managed Grafana, you can analyze, monitor, and alarm on metrics, logs, and traces across multiple data sources.
Create workspace
A workspace is a logically isolated Grafana server where you can create Grafana dashboards and visualization to analyze your metrics, logs, and traces.
Create workspace
Getting started
What Is Amazon Managed Grafana?
Getting started with Amazon Managed Grafana
Create a workspace
More resources
How it works

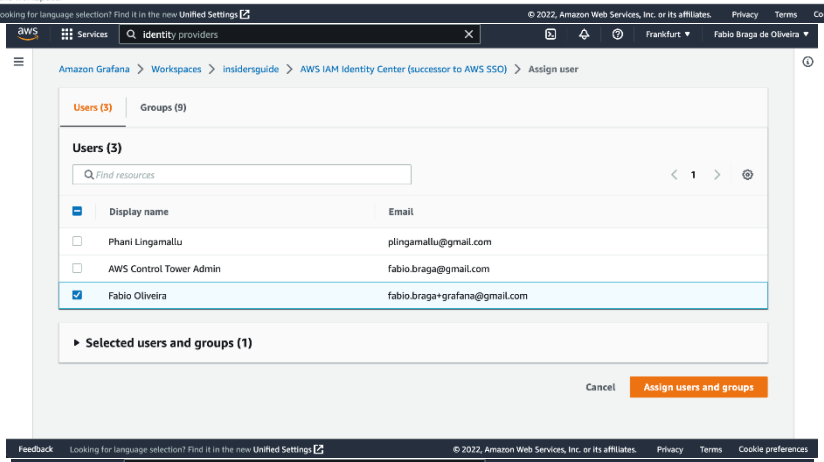

Amazon Grafana > Workspaces > Create new workspace
Step 1
Specify workspace details
Step 2
Configure settings
Step 3
Service managed permission settings
Step 4
Review and create
Specify workspace details
A workspace is a logically isolated Grafana server. Once you have created a workspace, you can integrate it with data sources, then query and visualize metrics from those data sources. As part of creating a workspace, you will enable AWS IAM Identity Center (successor to AWS SSO) if you haven't done so already.
Workspace details
Workspace name
Give a unique name to your workspace.
insidersguide
Valid special characters include "-", ".", "_", "~". Cannot contain non-ASCII characters or spaces. Max length of 255 characters.
Workspace description - optional
Tags - optional
A tag is a label that you assign to an AWS resource. Each tag consists a key and an optional value. You can use tags to search and filter your resources or track your AWS costs.
Currently not editing fields.
Add new tag
You can add up to 50 more tags.
Cancel
Next

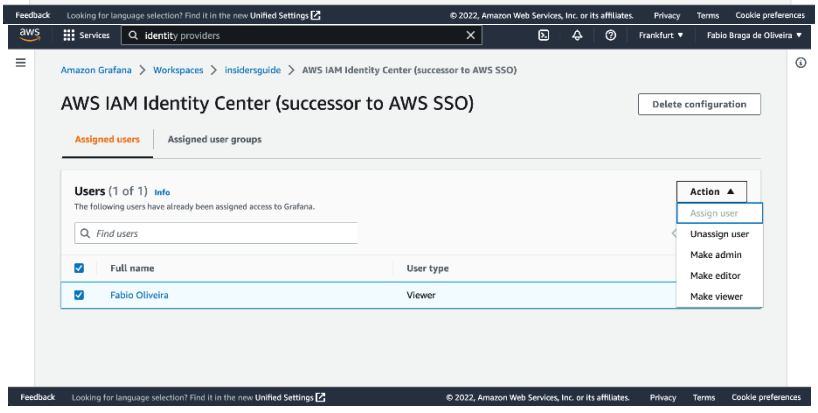

Services
Search
[Option+S]
Frankfurt
Fabio Braga de Oliveira
Amazon Grafana > Workspaces > Create new workspace
Step 1
Specify workspace details
Step 2
Configure settings
Step 3
Service managed permission settings
Step 4
Review and create
Configure settings
Info
Authentication access
Info
Choose at least one authentication method.
AWS IAM Identity Center (successor to AWS SSO)
Enabled
You can enable IAM Identity Center by creating a user. This new user does not automatically have access to the Grafana console. You will still need to assign this user later, once this workspace is created.
Security Assertion Markup Language (SAML)
You will need to complete additional steps to finish SAML configuration once this workspace is created.
Permission type
Info
Service managed
We will automatically provision the permissions for you based on the AWS services you choose in the next step.
Customer managed
Manually create your own IAM role based on the suggested policies.
Cancel
Previous
Next

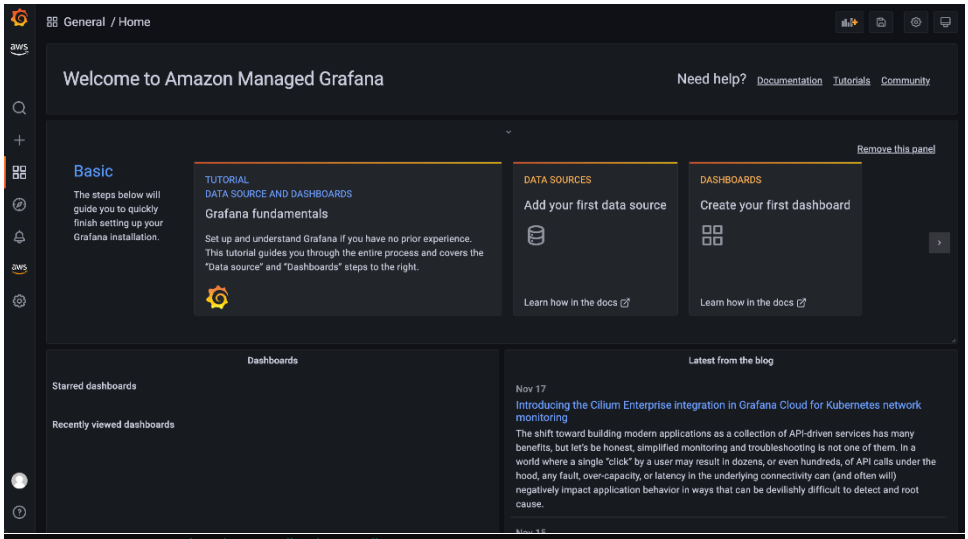

Feedback
Looking for language selection? Find it in the new Unified Settings
© 2022, Amazon Web Services, Inc. or its affiliates.
Privacy
Terms
Cookie preferences
Services
Search
[Option+S]
Frankfurt
Fabio Braga de Oliveira
Amazon Grafana > Workspaces > Create new workspace
Step 1
Specify workspace details
Step 2
Configure settings
Step 3
Service managed permission settings
Step 4
Review and create
Service managed permission settings
Info
IAM permission access settings
Select how you would like to specify account access.
Current account
Use Grafana to monitor resources in your current account.
Organization
Use Grafana to monitor resources in your Organizational Units (OUs).
Data sources and notification channels - optional
Data sources
Selecting an AWS data source below creates an IAM role that enables Amazon Grafana access to those resources in your current account. It does not set up the selected service as a data source. Note that some resources must be tagged GrafanaDataSource to be accessible.
Data source name
AWS IoT SiteWise
AWS X-Ray
Amazon CloudWatch
Amazon OpenSearch Service
Amazon Managed Service for Prometheus


Feedback
Looking for language selection? Find it in the new Unified Settings
© 2022, Amazon Web Services, Inc. or its affiliates.
Privacy
Terms
Cookie preferences
Services
Search
[Option+S]
Frankfurt
Fabio Braga de Oliveira
Authentication access
AWS IAM Identity Center (successor to AWS SSO)
Enabled
Security Assertion Markup Language (SAML)
Disabled
Permission type
Permission
Service managed
Step 3: Automatic permission settings
Edit
IAM permission access settings
Account access specified
Current account
Data sources and notification channels
Cancel
Previous
Create workspace
Feedback
Looking for language selection? Find it in the new Unified Settings
© 2022, Amazon Web Services, Inc. or its affiliates.
Privacy
Terms
Cookie preferences

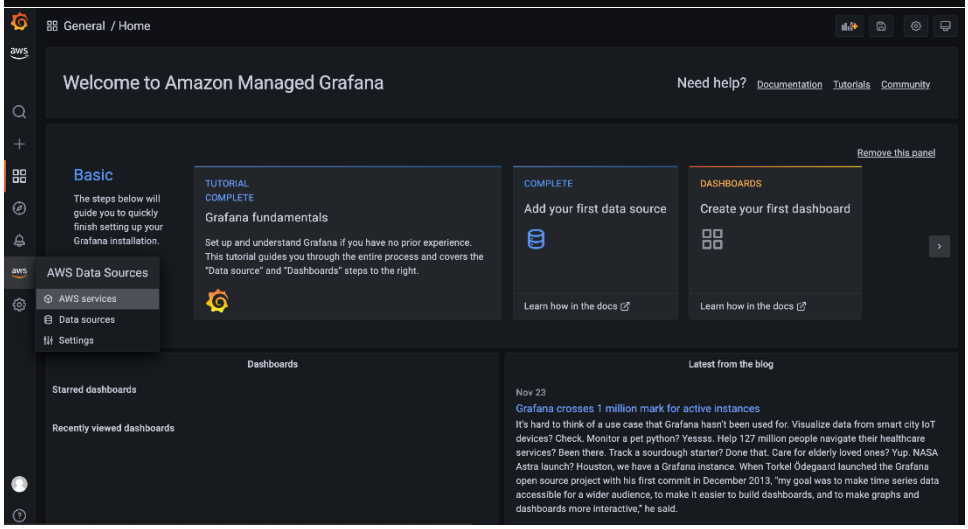

Services
Search
[Option+S]
Frankfurt
Fabio Braga de Oliveira
Amazon Grafana > Workspaces > insidersguide
No IAM Identity Center user(s) or user group(s) assigned.
Please note that you must assign user(s) or user group(s) before they can access Grafana console.
Assign new user or group
insidersguide
Delete
Summary Info
Description
-
Grafana workspace URL
g-8ac6e79105.grafana-workspace.eu-central-1.amazonaws.com
Status
Active
Date created
2022-11-18
Authentication access
IAM Identity Center
IAM role
arn:aws:iam::144289250204:role/service-role/AmazonGrafanaServiceRole-3qRen51BL
Enterprise license
Upgrade to Grafana Enterprise
Grafana version
8.4
Authentication
Data sources
Notification channels
Tags
AWS IAM Identity Center (successor to AWS SSO)
Pending user input
You can enable AWS IAM Identity Center by creating a user or connect IAM Identity Center to an external identity provider (IdP) to enable users to log in to the workspace with their existing credentials. Note that when you enable IAM Identity Center by creating a new user, you will need to assign this user access to the workspace before they can log in to the workspace.
Feedback
Looking for language selection? Find it in the new Unified Settings
© 2022, Amazon Web Services, Inc. or its affiliates.
Privacy
Terms
Cookie preferences

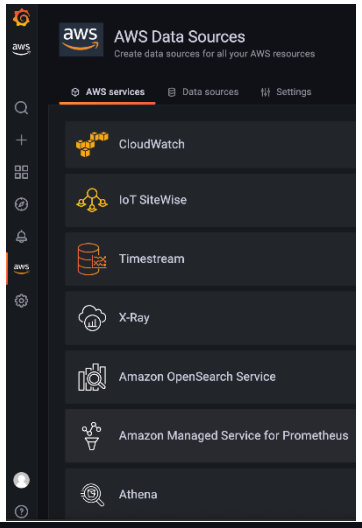

Services
identity providers
Frankfurt
Fabio Braga de Oliveira
Amazon Grafana > Workspaces > insidersguide > AWS IAM Identity Center (successor to AWS SSO) > Assign user
Users (3)
Groups (9)
Users (3)
Find resources
1
Display name
Email
Phani Lingamallu
plingamallu@gmail.com
AWS Control Tower Admin
fabio.braga@gmail.com
Fabio Oliveira
fabio.braga+grafana@gmail.com
Selected users and groups (1)
Cancel
Assign users and groups
Feedback
Looking for language selection? Find it in the new Unified Settings
© 2022, Amazon Web Services, Inc. or its affiliates.
Privacy
Terms
Cookie preferences

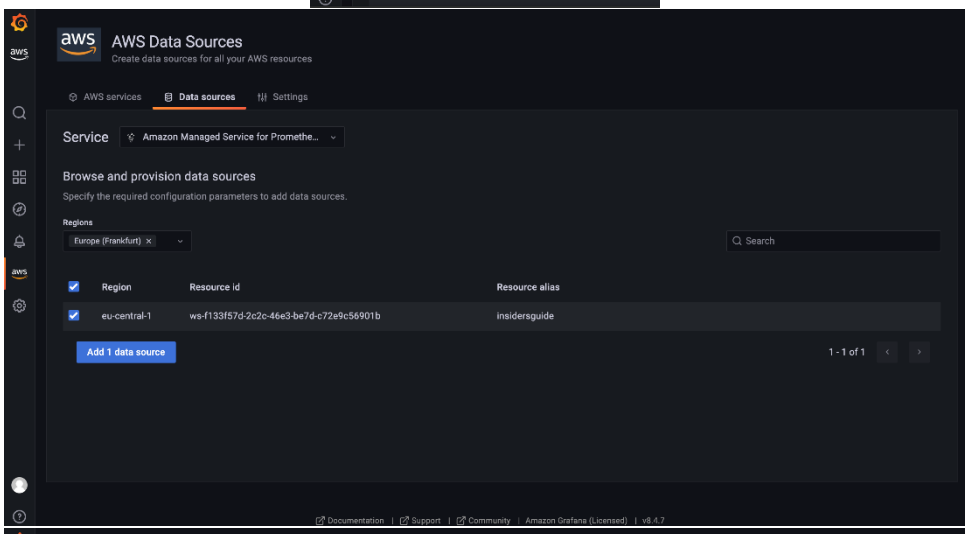

Services
identity providers
Frankfurt
Fabio Braga de Oliveira
Amazon Grafana > Workspaces > insidersguide > AWS IAM Identity Center (successor to AWS SSO)
AWS IAM Identity Center (successor to AWS SSO)
Delete configuration
Assigned users
Assigned user groups
Users (1 of 1) Info
The following users have already been assigned access to Grafana.
Find users
Action
Assign user
Unassign user
Make admin
Make editor
Make viewer
Full name
User type
Fabio Oliveira
Viewer
Feedback
Looking for language selection? Find it in the new Unified Settings
© 2022, Amazon Web Services, Inc. or its affiliates.
Privacy
Terms
Cookie preferences

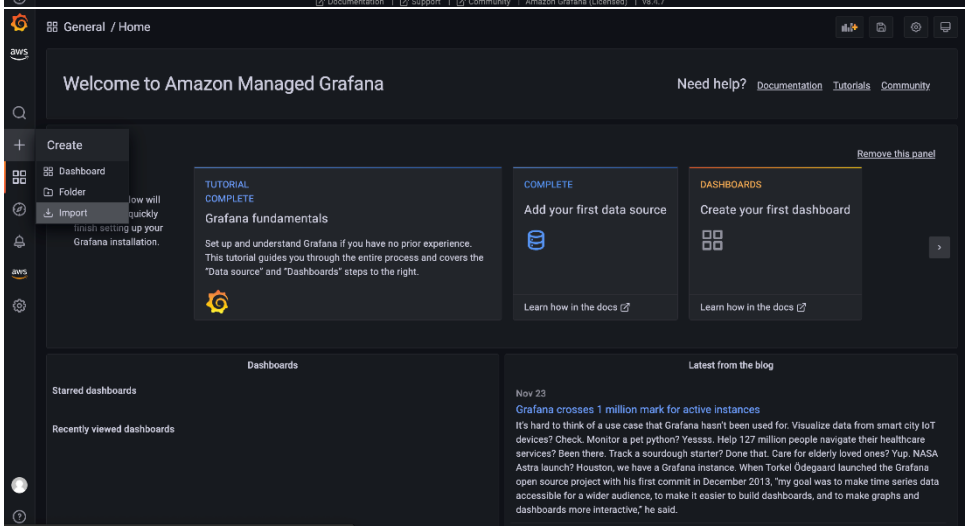


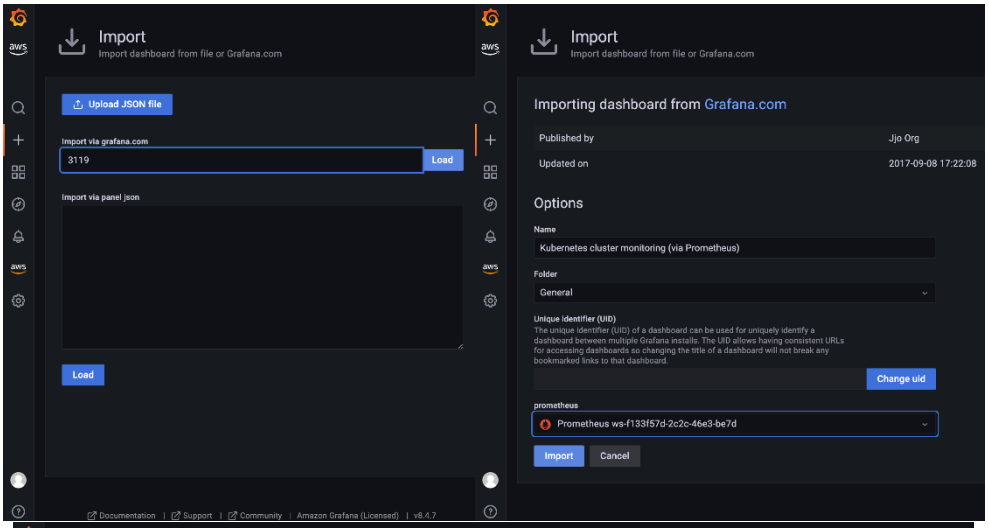

```
        create managed nodegroup "nodegroup",
    }
}
2023-02-21 20:51:36 [ℹ]  building cluster stack "eksctl-eksworkshop-eksctl-cluster"
2023-02-21 20:51:37 [ℹ]  deploying stack "eksctl-eksworkshop-eksctl-cluster"
2023-02-21 20:52:07 [ℹ]  waiting for CloudFormation stack "eksctl-eksworkshop-eksctl-cluster"
2023-02-21 20:52:37 [ℹ]  waiting for CloudFormation stack "eksctl-eksworkshop-eksctl-cluster"
2023-02-21 20:53:37 [ℹ]  waiting for CloudFormation stack "eksctl-eksworkshop-eksctl-cluster"
2023-02-21 20:54:37 [ℹ]  waiting for CloudFormation stack "eksctl-eksworkshop-eksctl-cluster"
2023-02-21 20:55:37 [ℹ]  waiting for CloudFormation stack "eksctl-eksworkshop-eksctl-cluster"
2023-02-21 20:56:37 [ℹ]  waiting for CloudFormation stack "eksctl-eksworkshop-eksctl-cluster"
2023-02-21 20:57:37 [ℹ]  waiting for CloudFormation stack "eksctl-eksworkshop-eksctl-cluster"
2023-02-21 20:58:37 [ℹ]  waiting for CloudFormation stack "eksctl-eksworkshop-eksctl-cluster"
2023-02-21 20:59:37 [ℹ]  waiting for CloudFormation stack "eksctl-eksworkshop-eksctl-cluster"
2023-02-21 21:00:37 [ℹ]  waiting for CloudFormation stack "eksctl-eksworkshop-eksctl-cluster"
2023-02-21 21:01:37 [ℹ]  waiting for CloudFormation stack "eksctl-eksworkshop-eksctl-cluster"
2023-02-21 21:02:37 [ℹ]  waiting for CloudFormation stack "eksctl-eksworkshop-eksctl-cluster"
2023-02-21 21:03:37 [ℹ]  waiting for CloudFormation stack "eksctl-eksworkshop-eksctl-cluster"
2023-02-21 21:05:38 [ℹ]  building managed nodegroup stack "eksctl-eksworkshop-eksctl-nodegroup-nodegroup"
2023-02-21 21:05:38 [ℹ]  deploying stack "eksctl-eksworkshop-eksctl-nodegroup-nodegroup"
2023-02-21 21:05:38 [ℹ]  waiting for CloudFormation stack "eksctl-eksworkshop-eksctl-nodegroup-nodegroup"
2023-02-21 21:06:08 [ℹ]  waiting for CloudFormation stack "eksctl-eksworkshop-eksctl-nodegroup-nodegroup"
2023-02-21 21:06:47 [ℹ]  waiting for CloudFormation stack "eksctl-eksworkshop-eksctl-nodegroup-nodegroup"
2023-02-21 21:07:47 [ℹ]  waiting for CloudFormation stack "eksctl-eksworkshop-eksctl-nodegroup-nodegroup"
2023-02-21 21:09:36 [ℹ]  waiting for CloudFormation stack "eksctl-eksworkshop-eksctl-nodegroup-nodegroup"
2023-02-21 21:09:36 [ℹ]  waiting for the control plane availability...
2023-02-21 21:09:38 [✔]  saved kubeconfig as "/home/ec2-user/.kube/config"
2023-02-21 21:09:38 [ℹ]  no tasks
2023-02-21 21:09:38 [✔]  all EKS cluster resources for "eksworkshop-eksctl" have been created
2023-02-21 21:09:38 [ℹ]  nodegroup "nodegroup" has 3 node(s)
2023-02-21 21:09:38 [ℹ]  node "ip-192-168-60-245.eu-central-1.compute.internal" is ready
2023-02-21 21:09:38 [ℹ]  node "ip-192-168-7-213.eu-central-1.compute.internal" is ready
2023-02-21 21:09:38 [ℹ]  node "ip-192-168-80-121.eu-central-1.compute.internal" is ready
2023-02-21 21:09:38 [ℹ]  waiting for at least 3 node(s) to become ready in "nodegroup"
2023-02-21 21:09:38 [ℹ]  nodegroup "nodegroup" has 3 node(s)
2023-02-21 21:09:38 [ℹ]  node "ip-192-168-60-245.eu-central-1.compute.internal" is ready
2023-02-21 21:09:38 [ℹ]  node "ip-192-168-7-213.eu-central-1.compute.internal" is ready
2023-02-21 21:09:38 [ℹ]  node "ip-192-168-80-121.eu-central-1.compute.internal" is ready
2023-02-21 21:09:40 [ℹ]  kubectl command should work with "/home/ec2-user/.kube/config", try 'kubectl get nodes'
2023-02-21 21:09:40 [✔]  EKS cluster "eksworkshop-eksctl" in "eu-central-1" region is ready
ec2-user:~/environment $
```

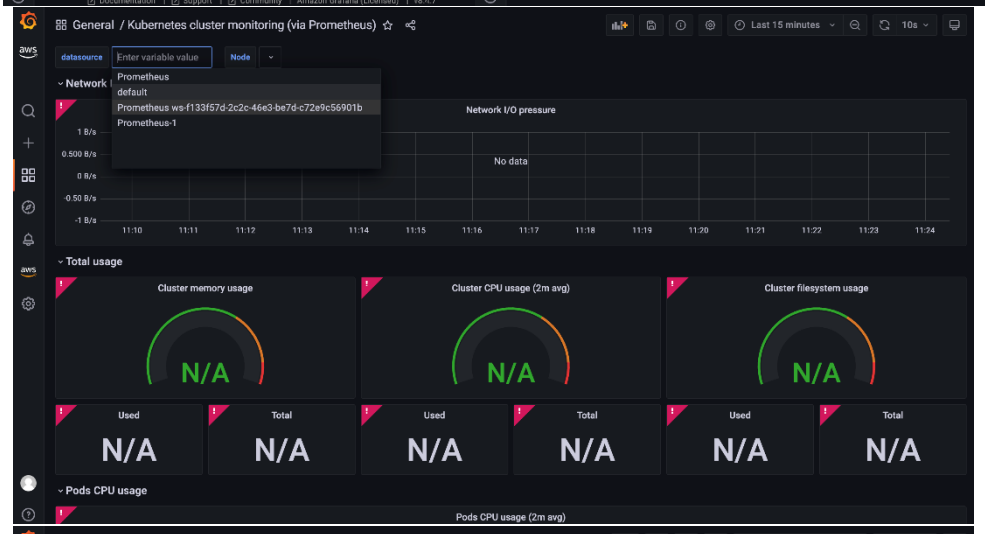



AWS Data Sources
Create data sources for all your AWS resources
AWS services
Data sources
Settings
CloudWatch
IoT SiteWise
Timestream
X-Ray
Amazon OpenSearch Service
Amazon Managed Service for Prometheus
Athena

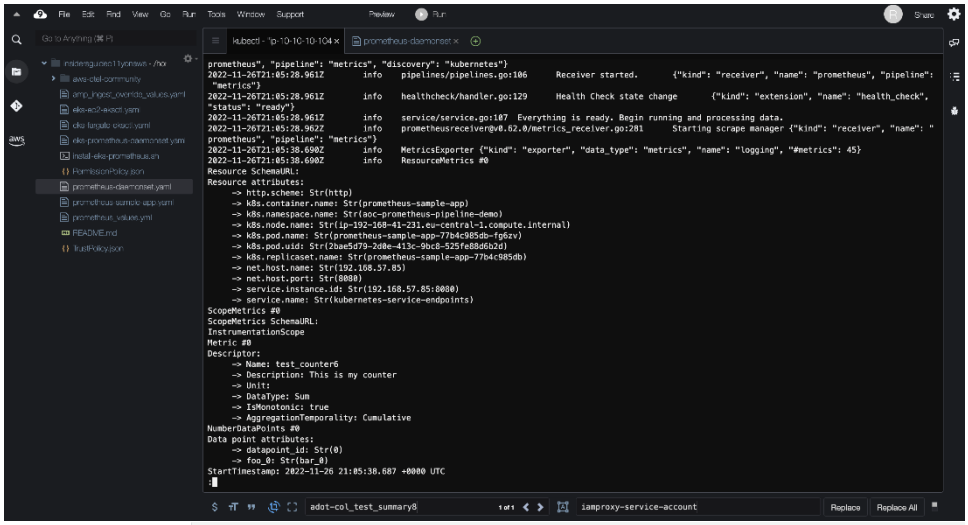

AWS Data Sources
Create data sources for all your AWS resources
AWS services
Data sources
Settings
Service
Amazon Managed Service for Prometheus
Browse and provision data sources
Specify the required configuration parameters to add data sources.
Regions
Europe (Frankfurt)
Search
Region
Resource id
Resource alias
eu-central-1
ws-f133f57d-2c2c-46e3-be7d-c72e9c56901b
insidersguide
Add 1 data source
1 - 1 of 1
Documentation
Support
Community
Amazon Grafana (Licensed)
v8.4.7

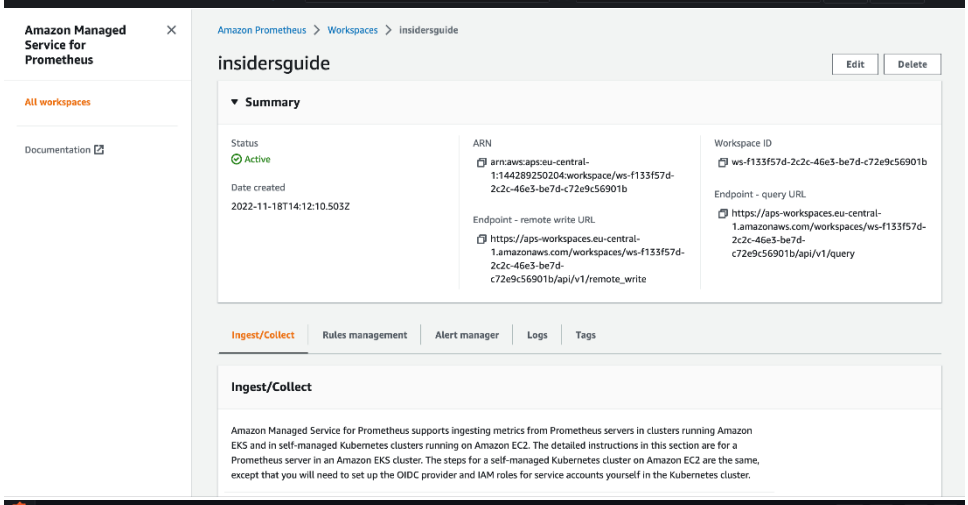

General / Home
Welcome to Amazon Managed Grafana
Need help?
Documentation
Tutorials
Community
Create
Dashboard
Folder
Import
Remove this panel
TUTORIAL
COMPLETE
Grafana fundamentals
Set up and understand Grafana if you have no prior experience. This tutorial guides you through the entire process and covers the "Data source" and "Dashboards" steps to the right.
COMPLETE
Add your first data source
Learn how in the docs
DASHBOARDS
Create your first dashboard
Learn how in the docs
Dashboards
Starred dashboards
Recently viewed dashboards
Latest from the blog
Nov 23
Grafana crosses 1 million mark for active instances
It's hard to think of a use case that Grafana hasn't been used for. Visualize data from smart city IoT devices? Check. Monitor a pet python? Yessss. Help 127 million people navigate their healthcare services? Been there. Track a sourdough starter? Done that. Care for elderly loved ones? Yup. NASA Astra launch? Houston, we have a Grafana instance. When Torkel Ödegaard launched the Grafana open source project with his first commit in December 2013, "my goal was to make time series data accessible for a wider audience, to make it easier to build dashboards, and to make graphs and dashboards more interactive," he said.

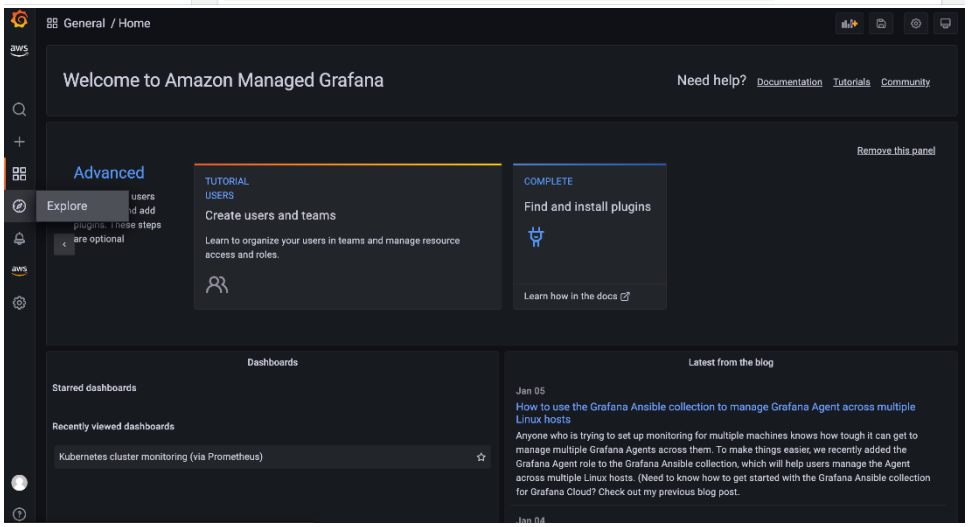

Import
Import dashboard from file or Grafana.com
Upload JSON file
Import via grafana.com
3119
Load
Import via panel json
Load
Import
Import dashboard from file or Grafana.com
Importing dashboard from Grafana.com
Published by
Jjo Org
Updated on
2017-09-08 17:22:08
Options
Name
Kubernetes cluster monitoring (via Prometheus)
Folder
General
Unique identifier (UID)
The unique identifier (UID) of a dashboard can be used for uniquely identify a dashboard between multiple Grafana installs. The UID allows having consistent URLs for accessing dashboards so changing the title of a dashboard will not break any bookmarked links to that dashboard.
Change uid
prometheus
Prometheus ws-f133f57d-2c2c-46e3-be7d
Import
Cancel

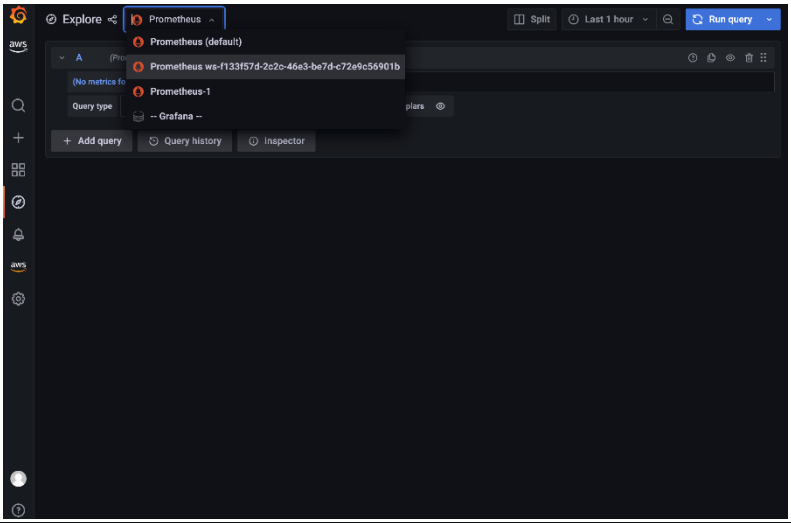

General / Kubernetes cluster monitoring (via Prometheus)
Last 15 minutes
10s
datasource
Enter variable value
Node
Prometheus
default
Prometheus ws-f133f57d-2c2c-46e3-be7d-c72e9c56901b
Prometheus-1
Network I/O pressure
No data
Total usage
Cluster memory usage
Cluster CPU usage (2m avg)
Cluster filesystem usage
N/A
Used
Total
Pods CPU usage
Pods CPU usage (2m avg)

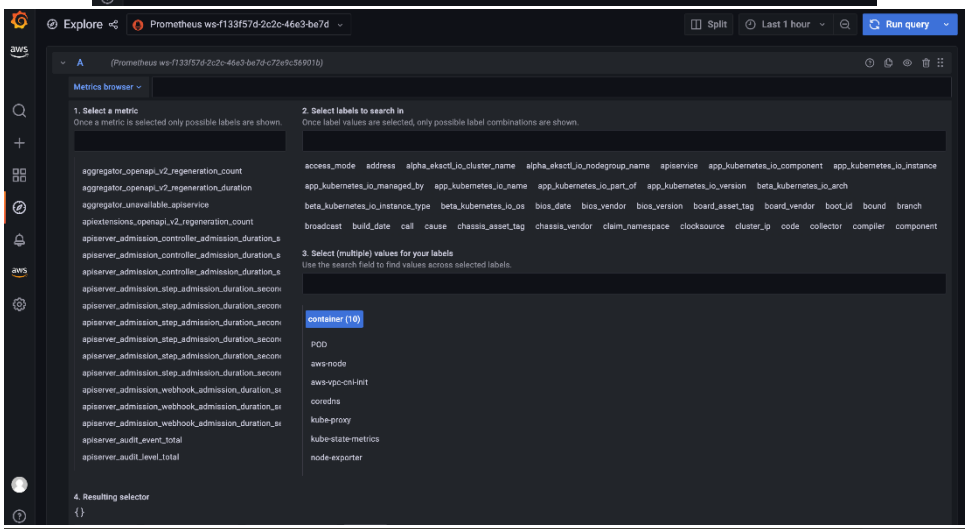

General / Kubernetes cluster monitoring (via Prometheus)
Last 5 minutes
10s
datasource
Prometheus ws-f133f57d-2c2c-46e3-be7d-c72e9c56901b
Node
All
Network I/O pressure
Total usage
Cluster memory usage
34.6%
Cluster CPU usage (2m avg)
2.76%
Cluster filesystem usage
N/A
Used
1.97 GiB
Total
5.70 GiB
0.17
6.00
Pods CPU usage
Pods CPU usage (2m avg)

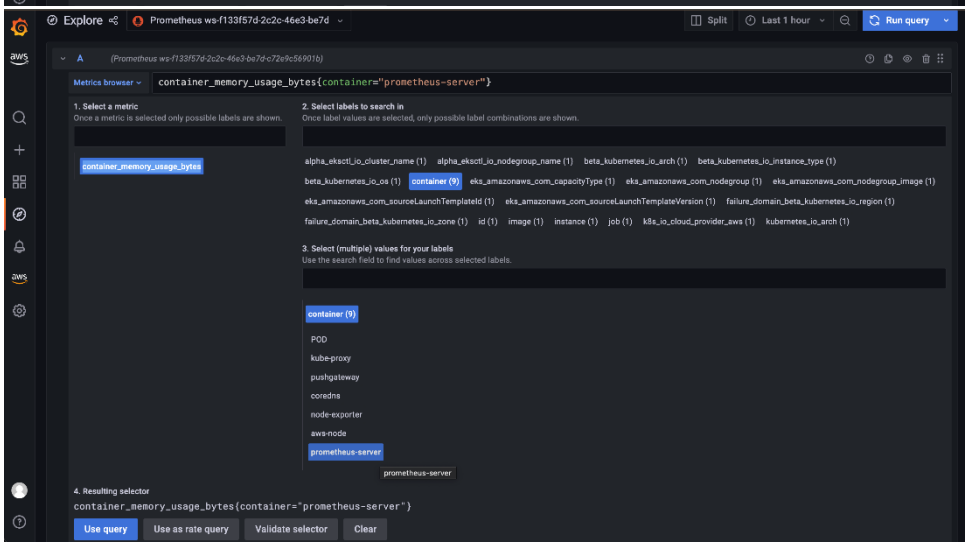

prometheus", "pipeline": "metrics", "discovery": "kubernetes"}
2022-11-26T21:05:28.961Z info pipelines/pipelines.go:106 Receiver started. {"kind": "receiver", "name": "prometheus", "pipeline": "metrics"}
2022-11-26T21:05:28.961Z info healthcheck/handler.go:129 Health Check state change {"kind": "extension", "name": "health_check", "status": "ready"}
2022-11-26T21:05:28.961Z info service/service.go:107 Everything is ready. Begin running and processing data.
2022-11-26T21:05:28.962Z info prometheusreceiver@v0.62.0/metrics_receiver.go:281 Starting scrape manager {"kind": "receiver", "name": "prometheus", "pipeline": "metrics"}
2022-11-26T21:05:38.690Z info MetricsExporter {"kind": "exporter", "data_type": "metrics", "name": "logging", "#metrics": 45}
2022-11-26T21:05:38.690Z info ResourceMetrics #0
Resource SchemaURL:
Resource attributes:
-> http.scheme: Str(http)
-> k8s.container.name: Str(prometheus-sample-app)
-> k8s.namespace.name: Str(aoc-prometheus-pipeline-demo)
-> k8s.node.name: Str(ip-192-168-41-231.eu-central-1.compute.internal)
-> k8s.pod.name: Str(prometheus-sample-app-77b4c985db-fp6zv)
-> k8s.pod.uid: Str(2bae5d79-2d8e-413c-9bc8-525fe88d6b2d)
-> k8s.replicaset.name: Str(prometheus-sample-app-77b4c985db)
-> net.host.name: Str(192.168.57.85)
-> net.host.port: Str(8080)
-> service.instance.id: Str(192.168.57.85:8080)
-> service.name: Str(kubernetes-service-endpoints)
ScopeMetrics #0
ScopeMetrics SchemaURL:
InstrumentationScope
Metric #0
Descriptor:
-> Name: test_counter6
-> Description: This is my counter
-> Unit:
-> DataType: Sum
-> IsMonotonic: true
-> AggregationTemporality: Cumulative
NumberDataPoints #0
Data point attributes:
-> datapoint_id: Str(0)
-> foo_0: Str(bar_0)
StartTimestamp: 2022-11-26 21:05:38.687 +0000 UTC

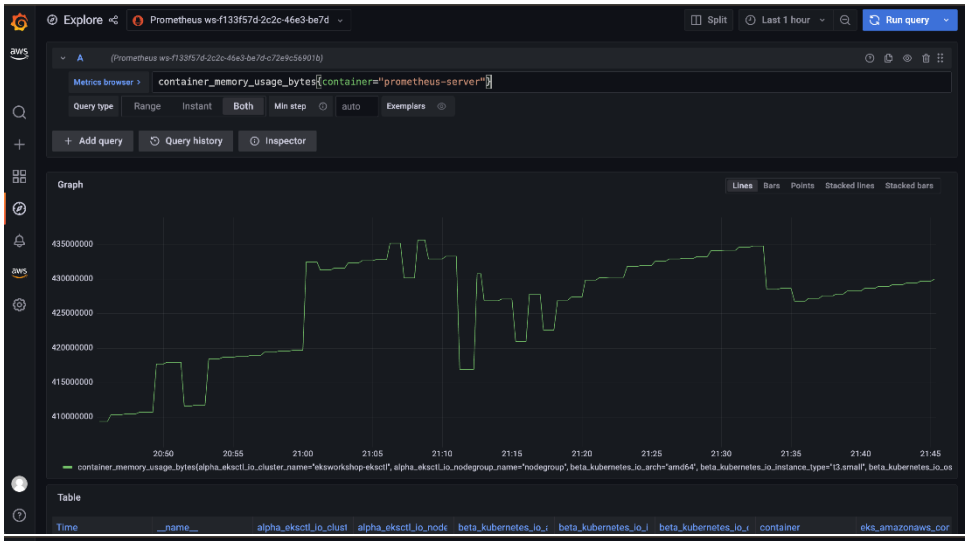

Amazon Managed Service for Prometheus
All workspaces
Documentation
Amazon Prometheus > Workspaces > insidersguide
insidersguide
Edit
Delete
Summary
Status
Active
Date created
2022-11-18T14:12:10.503Z
ARN
arn:aws:aps:eu-central-1:144289250204:workspace/ws-f133f57d-2c2c-46e3-be7d-c72e9c56901b
Endpoint - remote write URL
https://aps-workspaces.eu-central-1.amazonaws.com/workspaces/ws-f133f57d-2c2c-46e3-be7d-c72e9c56901b/api/v1/remote_write
Workspace ID
ws-f133f57d-2c2c-46e3-be7d-c72e9c56901b
Endpoint - query URL
https://aps-workspaces.eu-central-1.amazonaws.com/workspaces/ws-f133f57d-2c2c-46e3-be7d-c72e9c56901b/api/v1/query
Ingest/Collect
Rules management
Alert manager
Logs
Tags
Ingest/Collect
Amazon Managed Service for Prometheus supports ingesting metrics from Prometheus servers in clusters running Amazon EKS and in self-managed Kubernetes clusters running on Amazon EC2. The detailed instructions in this section are for a Prometheus server in an Amazon EKS cluster. The steps for a self-managed Kubernetes cluster on Amazon EC2 are the same, except that you will need to set up the OIDC provider and IAM roles for service accounts yourself in the Kubernetes cluster.

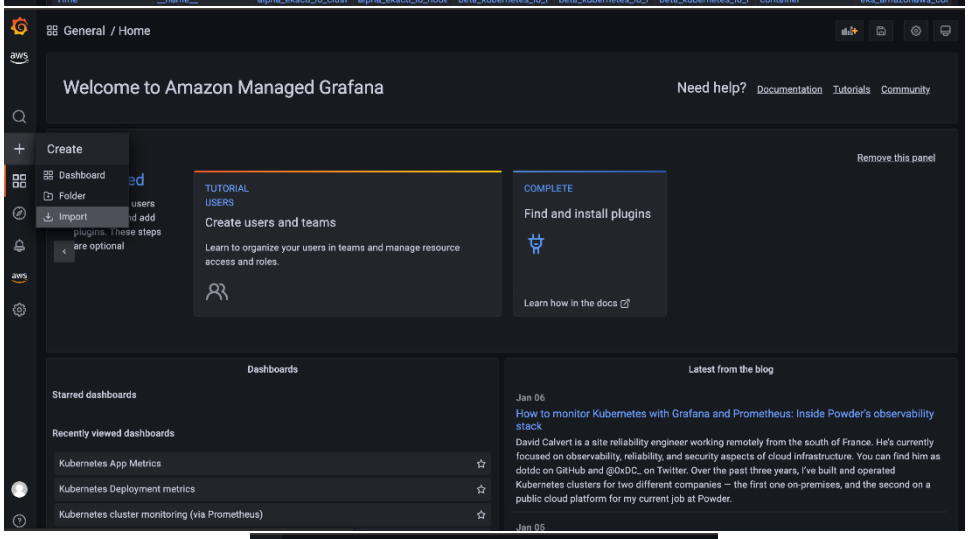

General / Home
Welcome to Amazon Managed Grafana
Need help?
Documentation
Tutorials
Community
Remove this panel
Advanced
Explore
TUTORIAL
USERS
Create users and teams
Learn to organize your users in teams and manage resource access and roles.
COMPLETE
Find and install plugins
Learn how in the docs
Dashboards
Starred dashboards
Recently viewed dashboards
Kubernetes cluster monitoring (via Prometheus)
Latest from the blog
Jan 05
How to use the Grafana Ansible collection to manage Grafana Agent across multiple Linux hosts
Anyone who is trying to set up monitoring for multiple machines knows how tough it can get to manage multiple Grafana Agents across them. To make things easier, we recently added the Grafana Agent role to the Grafana Ansible collection, which will help users manage the Agent across multiple Linux hosts. (Need to know how to get started with the Grafana Ansible collection for Grafana Cloud? Check out my previous blog post.

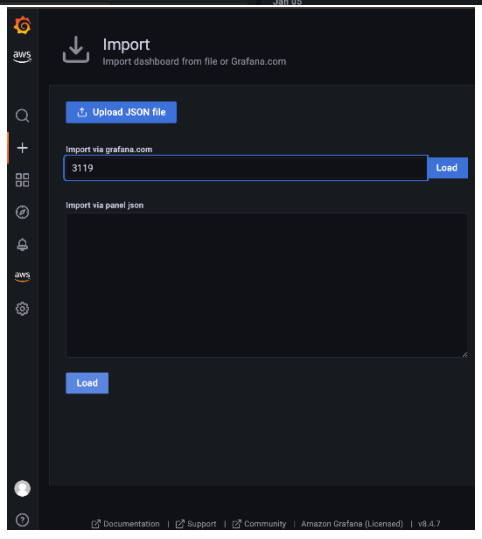

Explore
Prometheus
Split
Last 1 hour
Run query
Prometheus (default)
Prometheus ws-f133f57d-2c2c-46e3-be7d-c72e9c56901b
Prometheus-1
-- Grafana --
Query type
Add query
Query history
Inspector


Explore
Prometheus ws-f133f57d-2c2c-46e3-be7d
Split
Last 1 hour
Run query
Metrics browser
1. Select a metric
Once a metric is selected only possible labels are shown.
2. Select labels to search in
Once label values are selected, only possible label combinations are shown.
3. Select (multiple) values for your labels
Use the search field to find values across selected labels.
container (10)
POD
aws-node
aws-vpc-cni-init
coredns
kube-proxy
kube-state-metrics
node-exporter
4. Resulting selector
{}

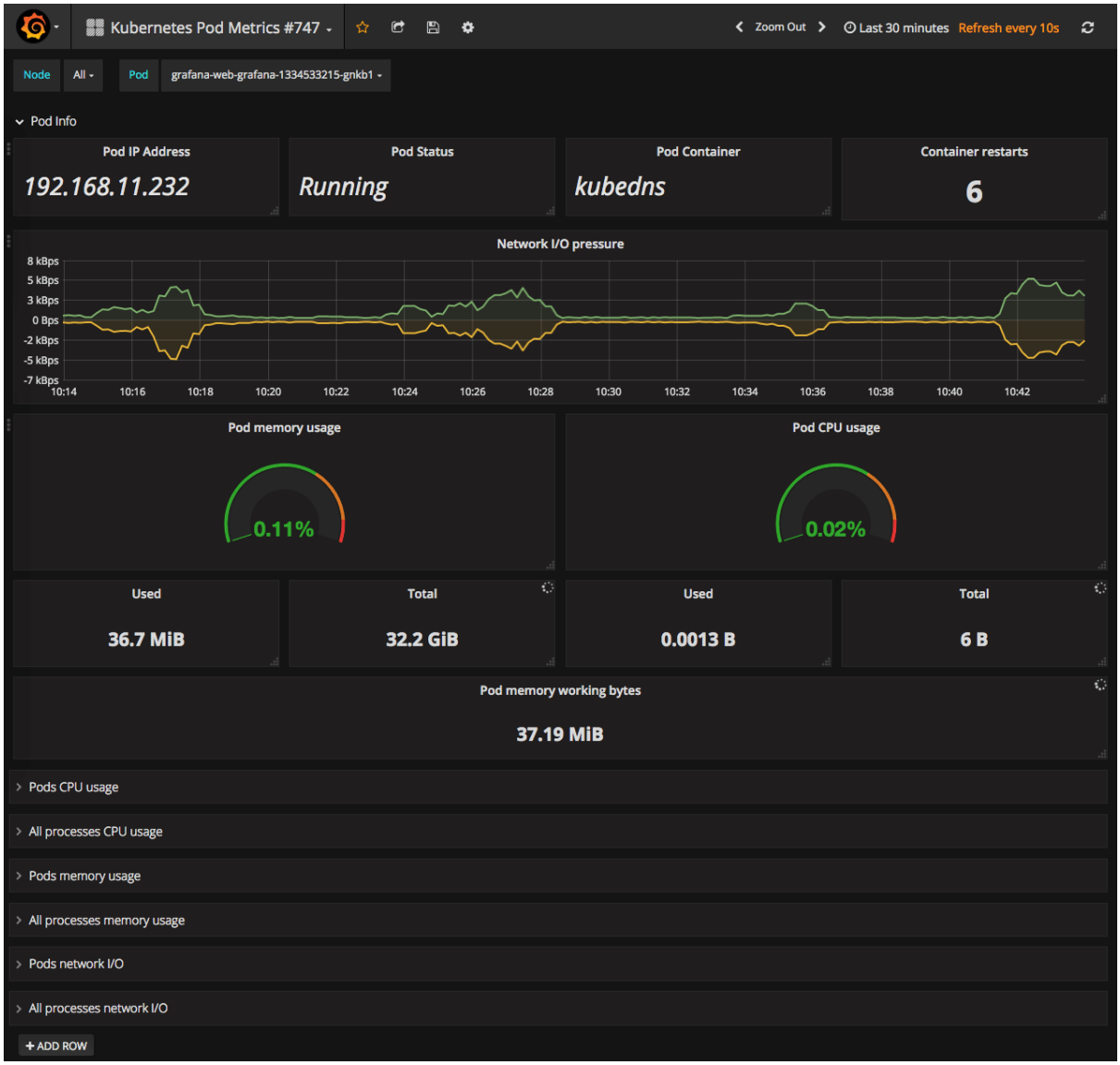

Explore
Prometheus ws-f133f57d-2c2c-46e3-be7d
Split
Last 1 hour
Run query
Metrics browser
container_memory_usage_bytes{container="prometheus-server"}
1. Select a metric
Once a metric is selected only possible labels are shown.
2. Select labels to search in
Once label values are selected, only possible label combinations are shown.
container_memory_usage_bytes
container (9)
3. Select (multiple) values for your labels
Use the search field to find values across selected labels.
container (9)
POD
kube-proxy
pushgateway
coredns
node-exporter
aws-node
prometheus-server
4. Resulting selector
container_memory_usage_bytes{container="prometheus-server"}
Use query
Use as rate query
Validate selector
Clear

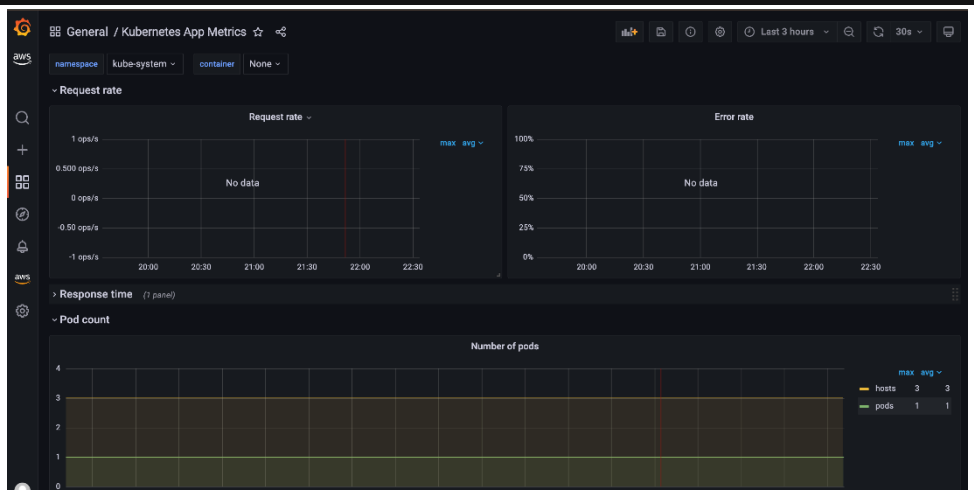

Explore
Prometheus ws-f133f57d-2c2c-46e3-be7d
Split
Last 1 hour
Run query
container_memory_usage_bytes{container="prometheus-server"}
Add query
Query history
Inspector
Graph
Lines
Bars
Points
Stacked lines
Stacked bars
Table


General / Home
Welcome to Amazon Managed Grafana
Need help?
Documentation
Tutorials
Community
Create
Dashboard
Folder
Import
Remove this panel
TUTORIAL
USERS
Create users and teams
Learn to organize your users in teams and manage resource access and roles.
COMPLETE
Find and install plugins
Learn how in the docs
Dashboards
Starred dashboards
Recently viewed dashboards
Kubernetes App Metrics
Kubernetes Deployment metrics
Kubernetes cluster monitoring (via Prometheus)
Latest from the blog
Jan 06
How to monitor Kubernetes with Grafana and Prometheus: Inside Powder's observability stack
David Calvert is a site reliability engineer working remotely from the south of France. He's currently focused on observability, reliability, and security aspects of cloud infrastructure. You can find him as dotdc on GitHub and @0xDC_ on Twitter. Over the past three years, I've built and operated Kubernetes clusters for two different companies — the first one on-premises, and the second on a public cloud platform for my current job at Powder.
Jan 05

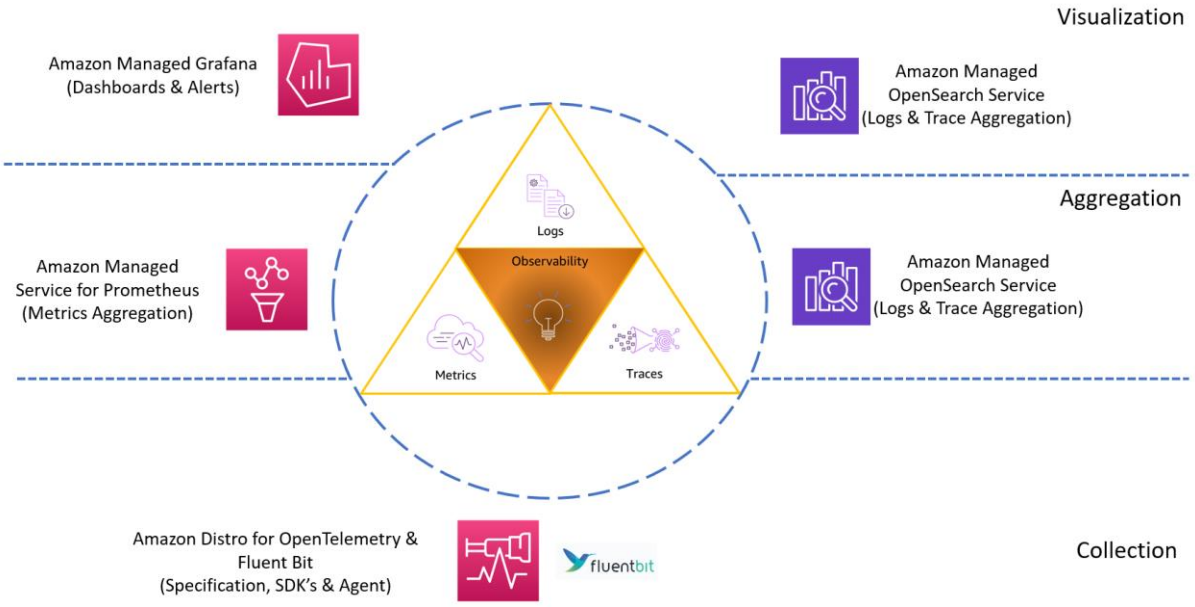

Import
Import dashboard from file or Grafana.com
Upload JSON file
Import via grafana.com
3119
Load
Import via panel json
Load
Documentation
Support
Community
Amazon Grafana (Licensed)
v8.4.7

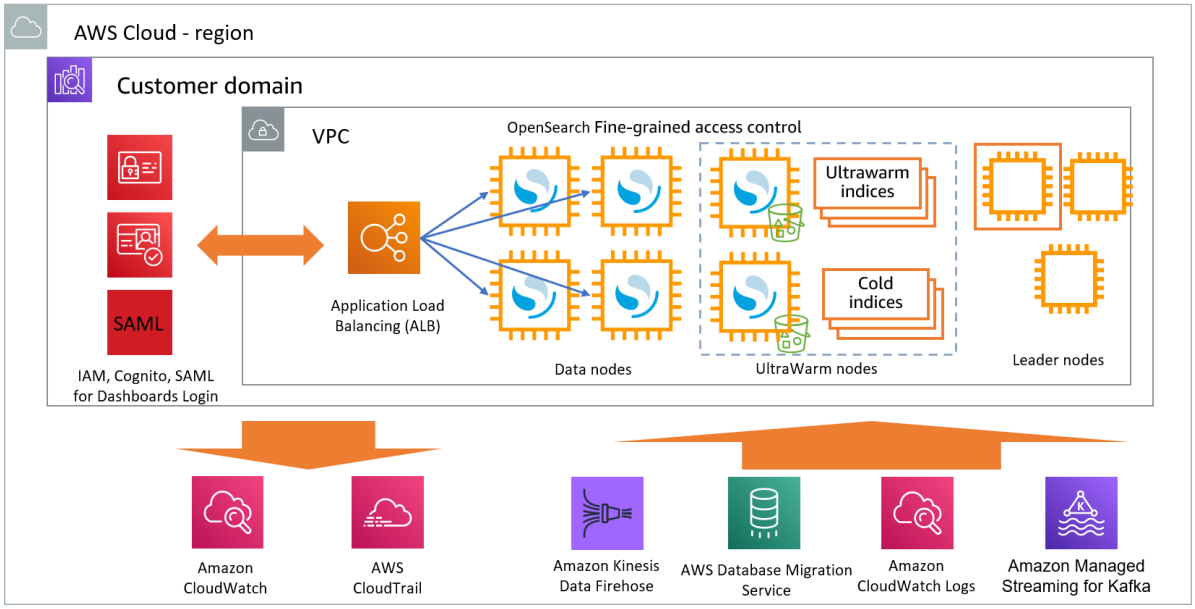

General / Kubernetes cluster monitoring (via Prometheus)
Last 15 minutes
10s
datasource
Prometheus ws-f133f57d-2c2c-46e3-be7d-c72e9c56901b
Node
All
Network I/O pressure
Network I/O pressure
400 kB/s
200 kB/s
0 B/s
-200 kB/s
-400 kB/s
22:15
22:16
22:17
22:18
22:19
22:20
22:21
22:22
22:23
22:24
22:25
22:26
22:27
22:28
22:29
Total usage
Cluster memory usage
37.0%
Cluster CPU usage (2m avg)
2.51%
Cluster filesystem usage
N/A
Used
2.11 GiB
Total
5.70 GiB
Used
0.15
Total
6.00
Used
N/A
Total
N/A
General / Kubernetes Deployment metrics
Last 30 minutes
10s
Deployment
All
Node
All
Deployment memory usage
88.7%
Deployment CPU usage
0.06%
Replicas
100%
Used
5.10 GiB
Total
5.10 GiB
Used
0.00781
Total
6
Available
4
Total
4
Deployment CPU usage
0.0200
0.0150
0.0100
0.00500
0
cores
22:04
22:06
22:08
22:10
22:12
22:14
22:16
22:18
22:20
22:22
22:24
22:26
22:28
22:30
22:32
avg current
Value 0.003 0
Containers CPU usage
2023-01-05 22:25:30

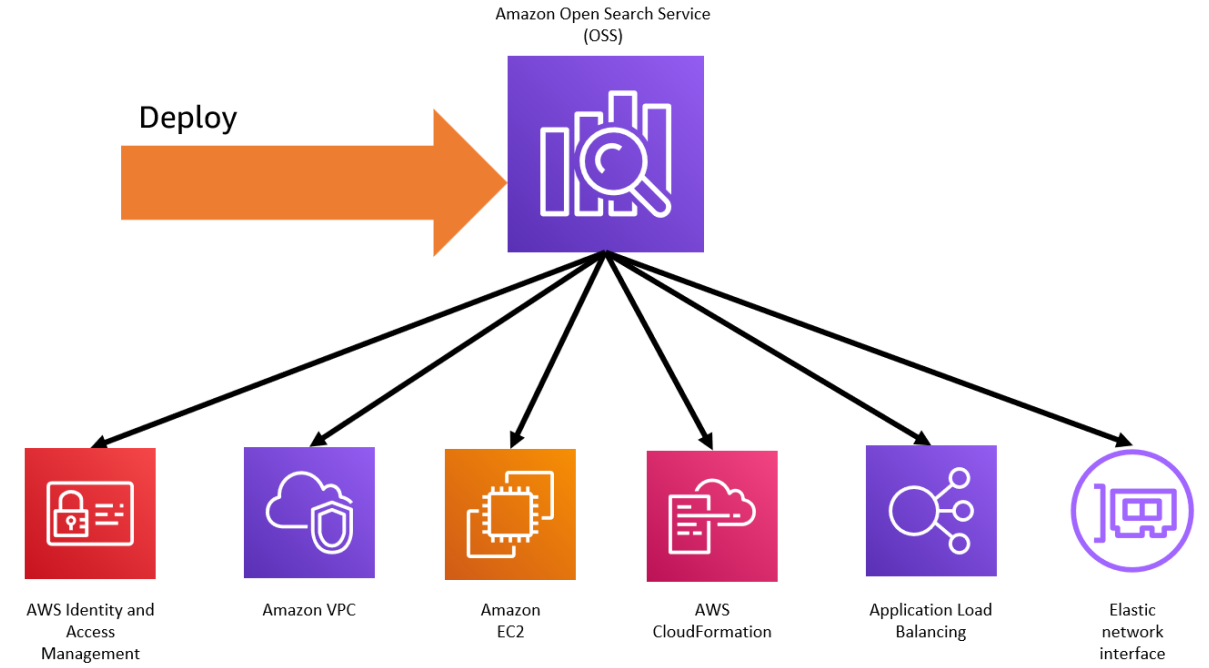

Kubernetes Pod Metrics #747
Zoom Out
Last 30 minutes
Refresh every 10s
Node
All
Pod
grafana-web-grafana-1334533215-gnkb1
Pod Info
Pod IP Address
192.168.11.232
Pod Status
Running
Pod Container
kubedns
Container restarts
6
Network I/O pressure
8 kBps
5 kBps
3 kBps
0 Bps
-2 kBps
-5 kBps
-7 kBps
10:14
10:16
10:18
10:20
10:22
10:24
10:26
10:28
10:30
10:32
10:34
10:36
10:38
10:40
10:42
Pod memory usage
0.11%
Pod CPU usage
0.02%
Used
36.7 MiB
Total
32.2 GiB
Used
0.0013 B
Total
6 B
Pod memory working bytes
37.19 MiB
Pods CPU usage
All processes CPU usage
Pods memory usage
All processes memory usage
Pods network I/O
All processes network I/O
+ ADD ROW

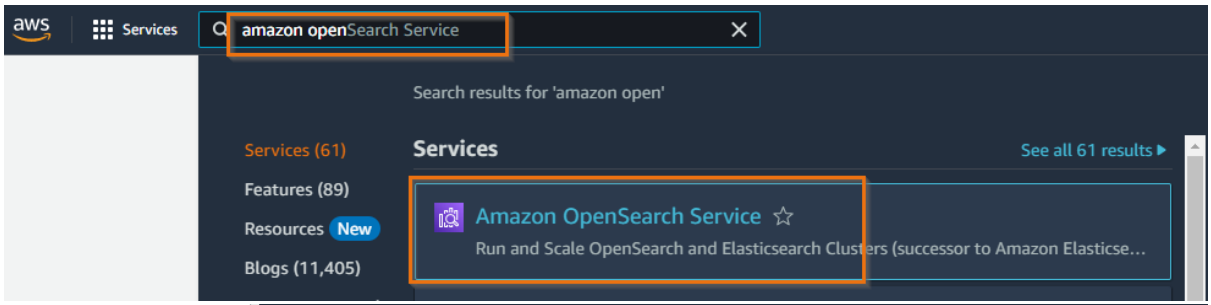

General / Kubernetes App Metrics
Last 3 hours
30s
namespace
kube-system
container
None
Request rate
Request rate
1 ops/s
0.500 ops/s
0 ops/s
-0.50 ops/s
-1 ops/s
max avg
No data
20:00
20:30
21:00
21:30
22:00
22:30
Error rate
100%
75%
50%
25%
0%
max avg
No data
20:00
20:30
21:00
21:30
22:00
22:30
Response time (1 panel)
Pod count
Number of pods
4
3
2
1
0
max avg
hosts 3 3
pods 1 1

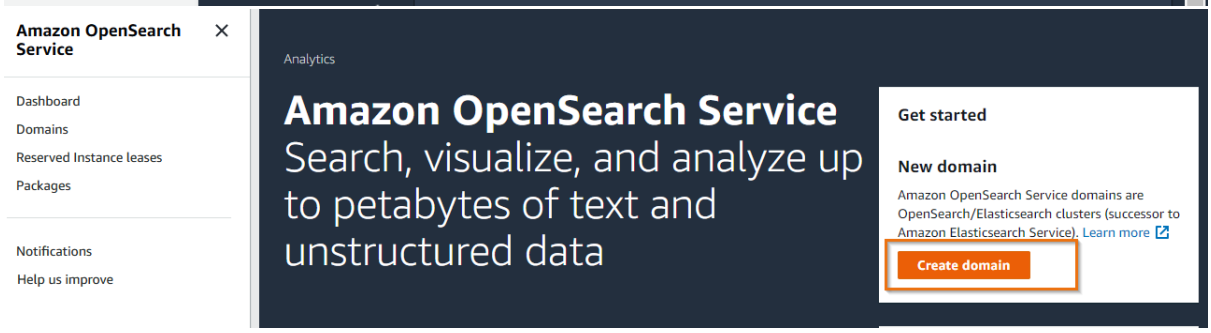
Chapter 11: Deploying the Elasticsearch, Logstash, and Kibana Stack Using Amazon OpenSearch Service

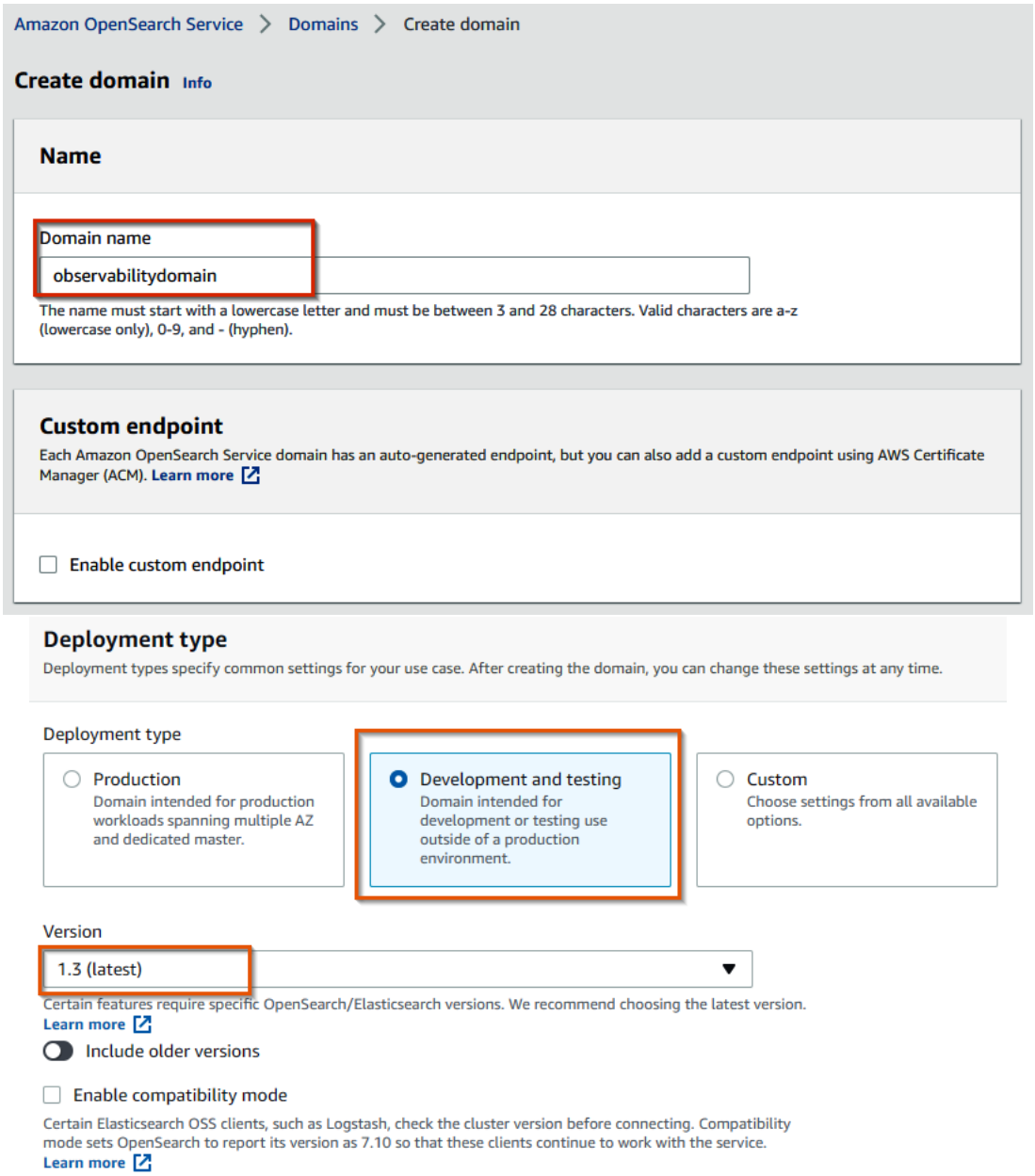





Amazon Open Search Service
(OSS)
Deploy
AWS Identity and Access Management
Amazon VPC
Amazon EC2
AWS CloudFormation
Application Load Balancing
Elastic network interface


aws
Services
amazon openSearch Service
Search results for 'amazon open'
Services (61)
Features (89)
Resources New
Blogs (11,405)
Services
See all 61 results
Amazon OpenSearch Service
Run and Scale OpenSearch and Elasticsearch Clusters (successor to Amazon Elasticse...


Amazon OpenSearch Service
Dashboard
Domains
Reserved Instance leases
Packages
Notifications
Help us improve
Analytics
Amazon OpenSearch Service
Search, visualize, and analyze up to petabytes of text and unstructured data
Get started
New domain
Amazon OpenSearch Service domains are OpenSearch/Elasticsearch clusters (successor to Amazon Elasticsearch Service). Learn more
Create domain


Amazon OpenSearch Service > Domains > Create domain
Create domain Info
Name
Domain name
observabilitydomain
The name must start with a lowercase letter and must be between 3 and 28 characters. Valid characters are a-z (lowercase only), 0-9, and - (hyphen).
Custom endpoint
Each Amazon OpenSearch Service domain has an auto-generated endpoint, but you can also add a custom endpoint using AWS Certificate Manager (ACM). Learn more
Enable custom endpoint
Deployment type
Deployment types specify common settings for your use case. After creating the domain, you can change these settings at any time.
Deployment type
Production
Domain intended for production workloads spanning multiple AZ and dedicated master.
Development and testing
Domain intended for development or testing use outside of a production environment.
Custom
Choose settings from all available options.
Version
1.3 (latest)
Certain features require specific OpenSearch/Elasticsearch versions. We recommend choosing the latest version.
Learn more
Include older versions
Enable compatibility mode
Certain Elasticsearch OSS clients, such as Logstash, check the cluster version before connecting. Compatibility mode sets OpenSearch to report its version as 7.10 so that these clients continue to work with the service.
Learn more

Data nodes

Select an instance type that corresponds to the compute, memory, and storage needs of your application. Consider the size of your indices, number of shards and replicas, type of queries, and volume of requests. **Learn more**

Availability Zones

- ○ 3-AZ
  Recommended for production workloads with higher availability requirements.
- ○ 2-AZ
  Suitable for production workloads.
- ◉ 1-AZ

Instance type

t3.small.search

t3.small.search instance type needs EBS storage.

The AWS Free Tier includes usage of up to 750 hours per month of t3.small instance usage and up to 20 GiB of General Purpose EBS storage. **Learn more**

Include previous generation instance types

⚠ T3 instance types are suitable only for testing and development purposes. For production workloads, we recommend using latest generation instance types - general purpose, memory optimized, compute optimized, or storage optimized.

Number of nodes

1

The number must be between 1 and 10.

Storage type

Choose a storage type for your data nodes.

EBS

EBS volume type

EBS volumes enable you to independently scale the storage resources of your domain from its compute resources. EBS volumes are most useful for domains with very large data sets, but without the need for large compute resources.

Storage type
Choose a storage type for your data nodes.

EBS

EBS volume type
EBS volumes enable you to independently scale the storage resources of your domain from its compute resources. EBS volumes are most useful for domains with very large data sets, but without the need for large compute resources.

General Purpose (SSD) - gp3

Include previous generation EBS volume types

EBS storage size per node

10

EBS storage size per node in GiB. Minimum 10 GiB and maximum 100 GiB.

▶ Advanced settings

Warm and cold data storage

Enable UltraWarm to store even more data on Amazon OpenSearch Service. You can economically retain large amounts of data while keeping the same interactive analysis experience. Learn more

Enable cold storage to further reduce storage costs for data you rarely access. To view data in cold storage, you must first move it to warm storage. Learn more

UltraWarm data nodes feature is not supported by the data instance type you selected.

Dedicated master nodes

Dedicated master nodes improve the stability of your domain. For production domains, three is recommended. Learn more

Enable dedicated master nodes

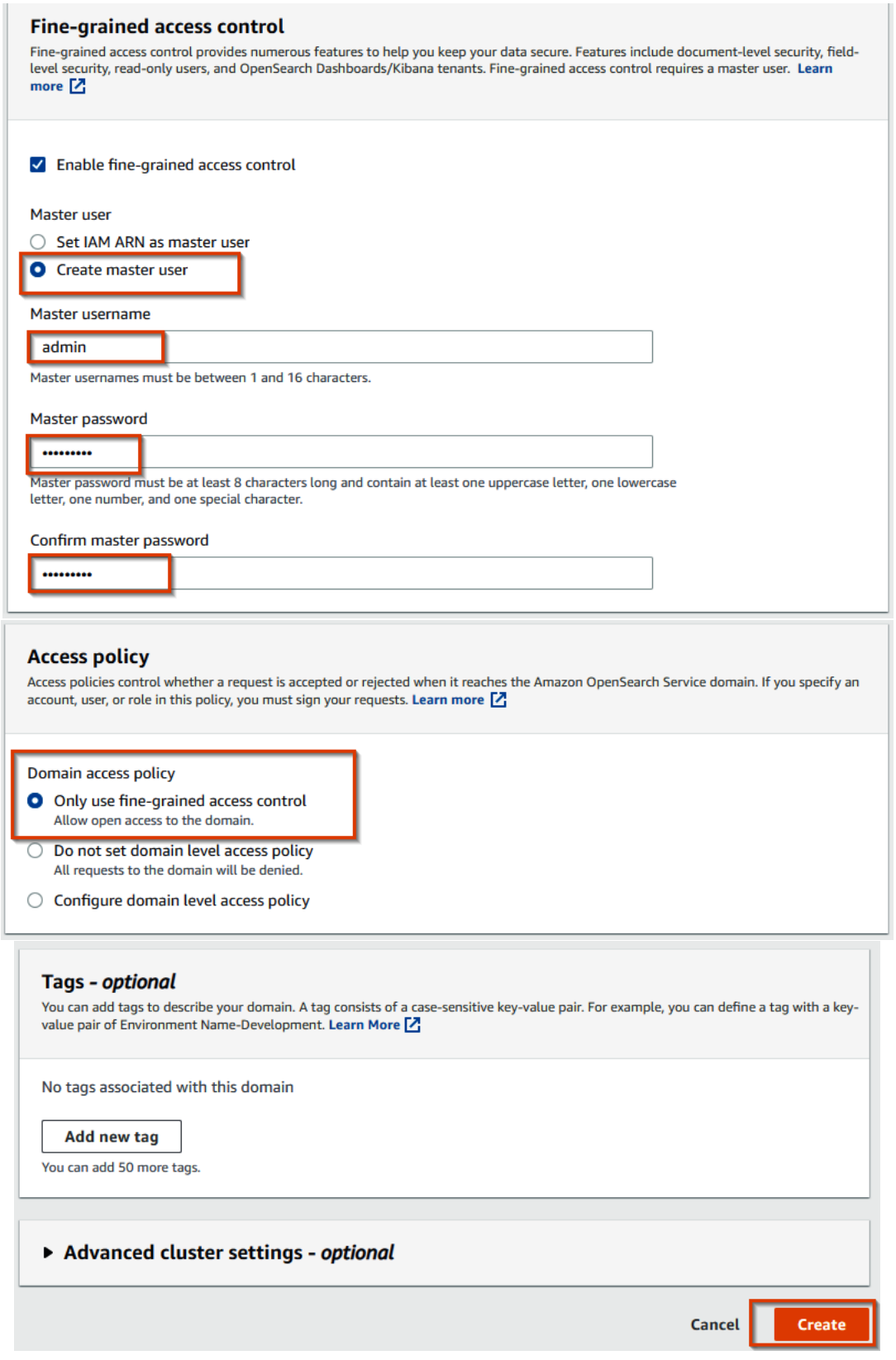
Network

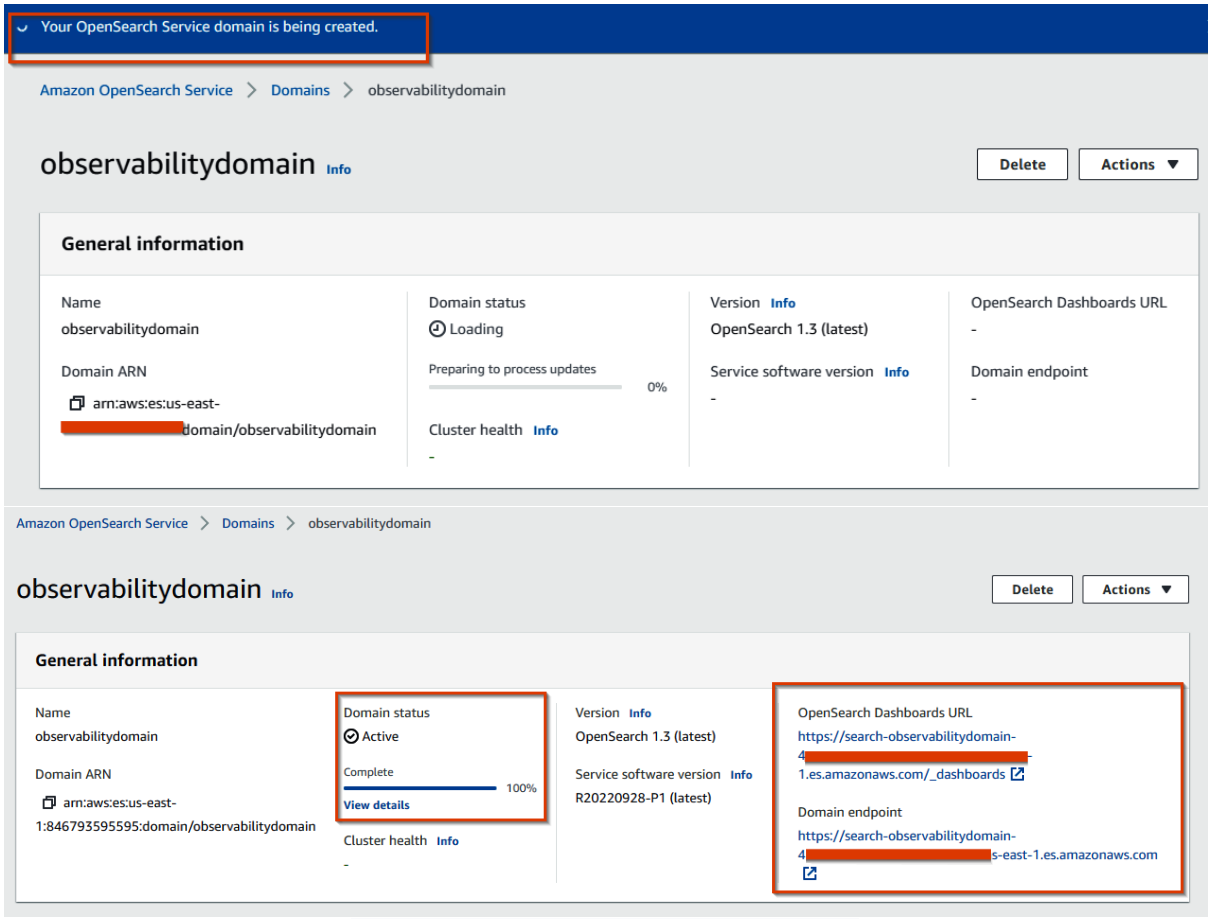
Choose internet or VPC access. To enable VPC access, we use private IP addresses from your VPC, which provides an inherent layer of security. You control network access within your VPC using security groups. Optionally, you can add an additional layer of security by applying a restrictive access policy. Internet endpoints are publicly accessible. If you select public access, you should secure your domain with an access policy that only allows specific users or IP addresses to access the domain.

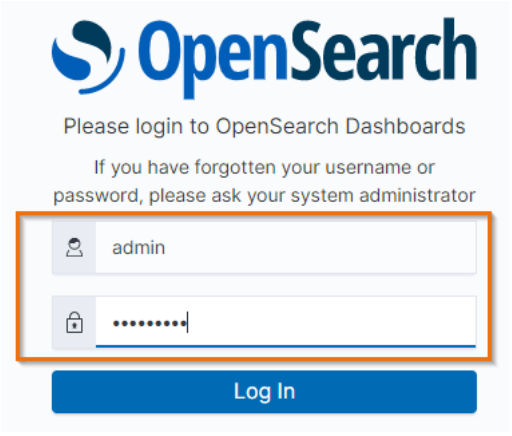
Network

VPC access (recommended)

Public access


Fine-grained access control
Fine-grained access control provides numerous features to help you keep your data secure. Features include document-level security, field-level security, read-only users, and OpenSearch Dashboards/Kibana tenants. Fine-grained access control requires a master user. Learn more
Enable fine-grained access control
Master user
Set IAM ARN as master user
Create master user
Master username
admin
Master usernames must be between 1 and 16 characters.
Master password
Master password must be at least 8 characters long and contain at least one uppercase letter, one lowercase letter, one number, and one special character.
Confirm master password
Access policy
Access policies control whether a request is accepted or rejected when it reaches the Amazon OpenSearch Service domain. If you specify an account, user, or role in this policy, you must sign your requests. Learn more
Domain access policy
Only use fine-grained access control
Allow open access to the domain.
Do not set domain level access policy
All requests to the domain will be denied.
Configure domain level access policy
Tags - optional
You can add tags to describe your domain. A tag consists of a case-sensitive key-value pair. For example, you can define a tag with a key-value pair of Environment Name-Development. Learn More
No tags associated with this domain
Add new tag
You can add 50 more tags.
Advanced cluster settings - optional
Cancel
Create


Your OpenSearch Service domain is being created.
Amazon OpenSearch Service > Domains > observabilitydomain
observabilitydomain Info
Delete
Actions
General information
Name
observabilitydomain
Domain ARN
arn:aws:es:us-east-
domain/observabilitydomain
Domain status
Loading
Preparing to process updates
0%
Cluster health Info
-
Version Info
OpenSearch 1.3 (latest)
Service software version Info
-
OpenSearch Dashboards URL
-
Domain endpoint
-
Amazon OpenSearch Service > Domains > observabilitydomain
observabilitydomain Info
Delete
Actions
General information
Name
observabilitydomain
Domain ARN
arn:aws:es:us-east-
1:846793595595:domain/observabilitydomain
Domain status
Active
Complete
100%
View details
Cluster health Info
-
Version Info
OpenSearch 1.3 (latest)
Service software version Info
R20220928-P1 (latest)
OpenSearch Dashboards URL
https://search-observabilitydomain-
1.es.amazonaws.com/_dashboards
Domain endpoint
https://search-observabilitydomain-
s-east-1.es.amazonaws.com


OpenSearch
Please login to OpenSearch Dashboards
If you have forgotten your username or password, please ask your system administrator
admin
Log In

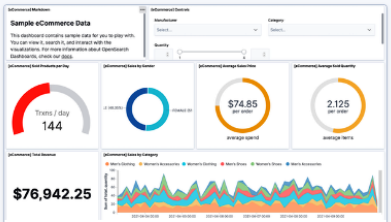
Select your tenant

Tenants are useful for safely sharing your work with other OpenSearch Dashboards users. You can switch your tenant anytime by clicking the user avatar on top right.

- (•) **Global**
  The global tenant is shared between every OpenSearch Dashboards user.
- ( ) **Private**
  The private tenant is exclusive to each user and can't be shared. You might use the private tenant for exploratory work.
- ( ) **Choose from custom**

Cancel | Confirm

Add sample data



Sample eCommerce orders

Sample data, visualizations, and dashboards for tracking eCommerce orders.

Add data

Sample flight data

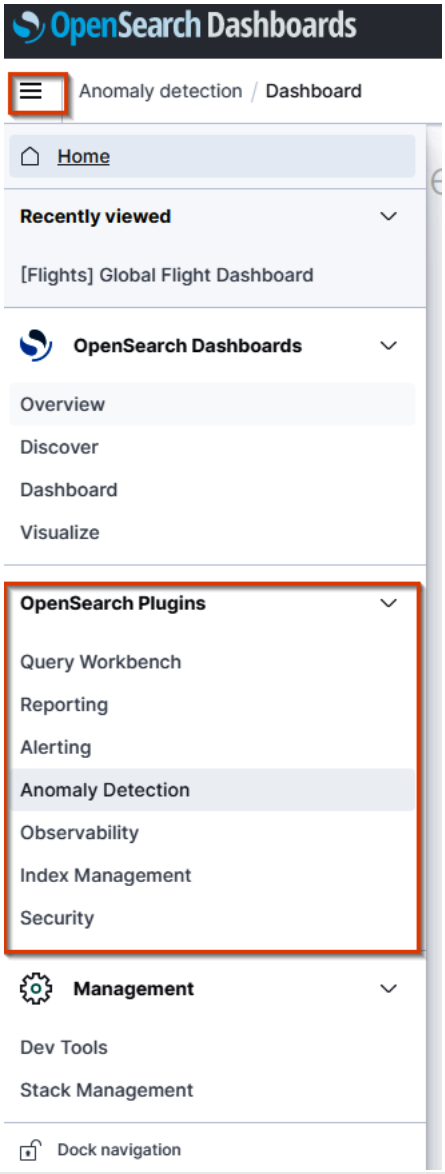
Sample data, visualizations, and dashboards for monitoring flight routes.

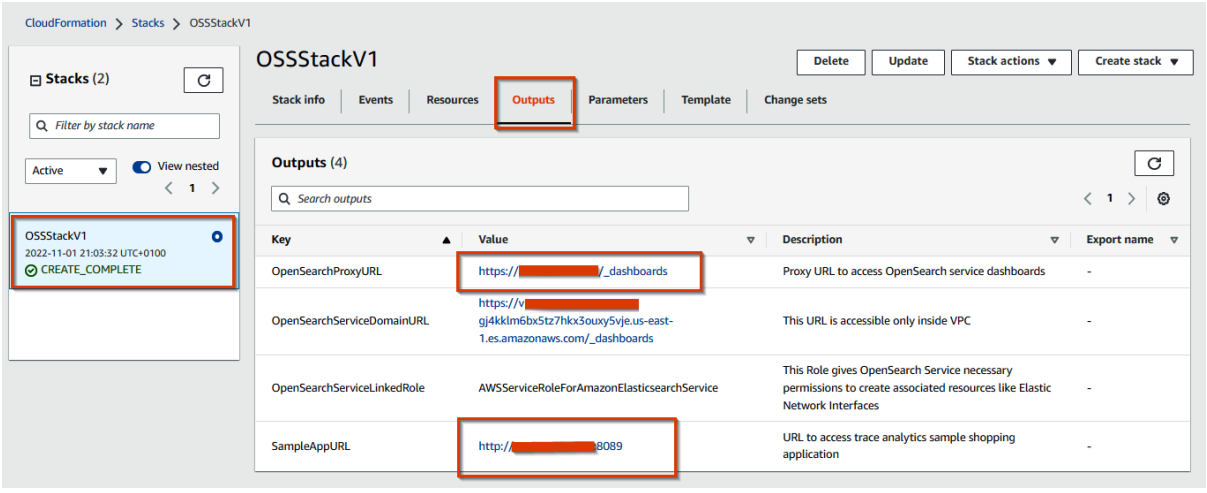
Adding

Sample web logs

Sample data, visualizations, and dashboards for monitoring web logs.

Add data


OpenSearch Dashboards
Anomaly detection / Dashboard
Home
Recently viewed
[Flights] Global Flight Dashboard
OpenSearch Dashboards
Overview
Discover
Dashboard
Visualize
OpenSearch Plugins
Query Workbench
Reporting
Alerting
Anomaly Detection
Observability
Index Management
Security
Management
Dev Tools
Stack Management
Dock navigation


CloudFormation > Stacks > OSSStackV1
Stacks (2)
Filter by stack name
Active
View nested
OSSStackV1
2022-11-01 21:03:32 UTC+0100
CREATE_COMPLETE
OSSStackV1
Delete
Update
Stack actions
Create stack
Stack info
Events
Resources
Outputs
Parameters
Template
Change sets
Outputs (4)
Search outputs
Key
Value
Description
Export name
OpenSearchProxyURL
https://[redacted]/_dashboards
Proxy URL to access OpenSearch service dashboards
OpenSearchServiceDomainURL
https://v[redacted]gj4kklm6bx5tz7hkx3ouxy5vje.us-east-1.es.amazonaws.com/_dashboards
This URL is accessible only inside VPC
OpenSearchServiceLinkedRole
AWSServiceRoleForAmazonElasticsearchService
This Role gives OpenSearch Service necessary permissions to create associated resources like Elastic Network Interfaces
SampleAppURL
http://[redacted]8089
URL to access trace analytics sample shopping application

Trace Analytics Sample App

Trace Analytics Dashboard

Trace Analytics Services View

CHECKOUT

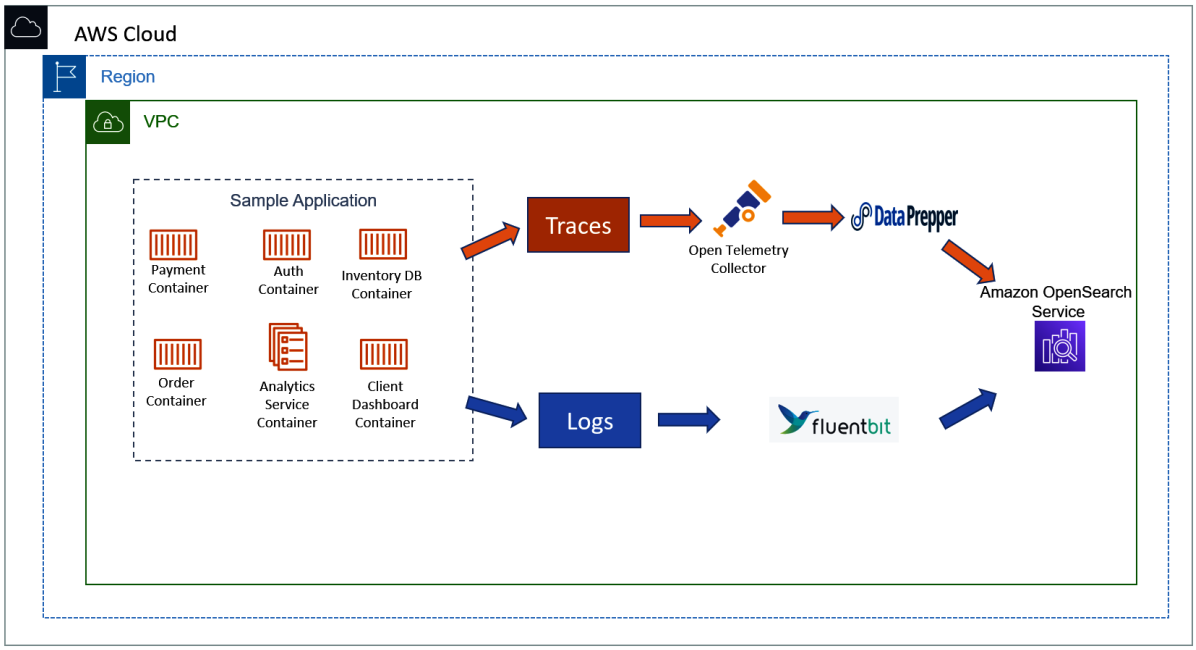
CANCEL

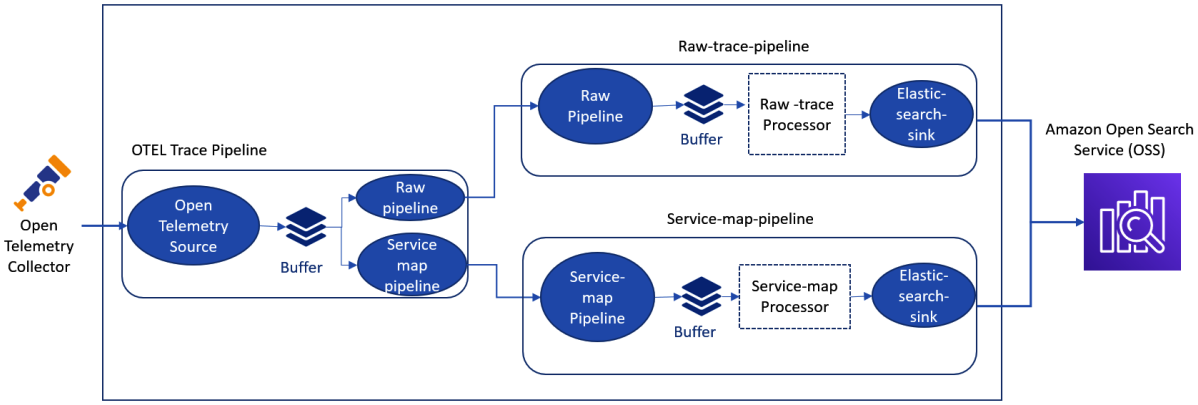
CREATE

STATUS

PAY

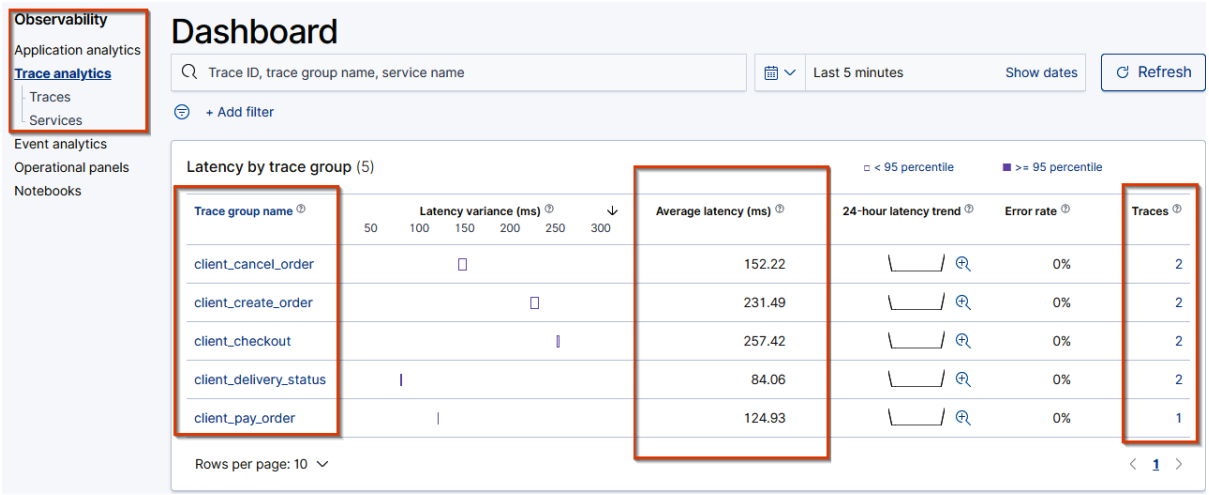
Checkout success. 40b9ede78a06cb18541496aa3f793fca
Cancel success. 61cdccc45099dcb78236f2b1ef4ecf31
Create success. 961f3ad2d3834224ce4d33011134eb92
Status success. daa231f7a98900d29e6e8ee0bcba0450
Pay success. 26d59ad8023c3b65161c8cb77fd16b4e
Status success. a7e126f4ce1e3be8472fb20b20145192
Cancel success. 0537e90f65854e2ce8b574a599c96e2c
Checkout success. c1f7341c4e4d102aea5fd2cde5351724

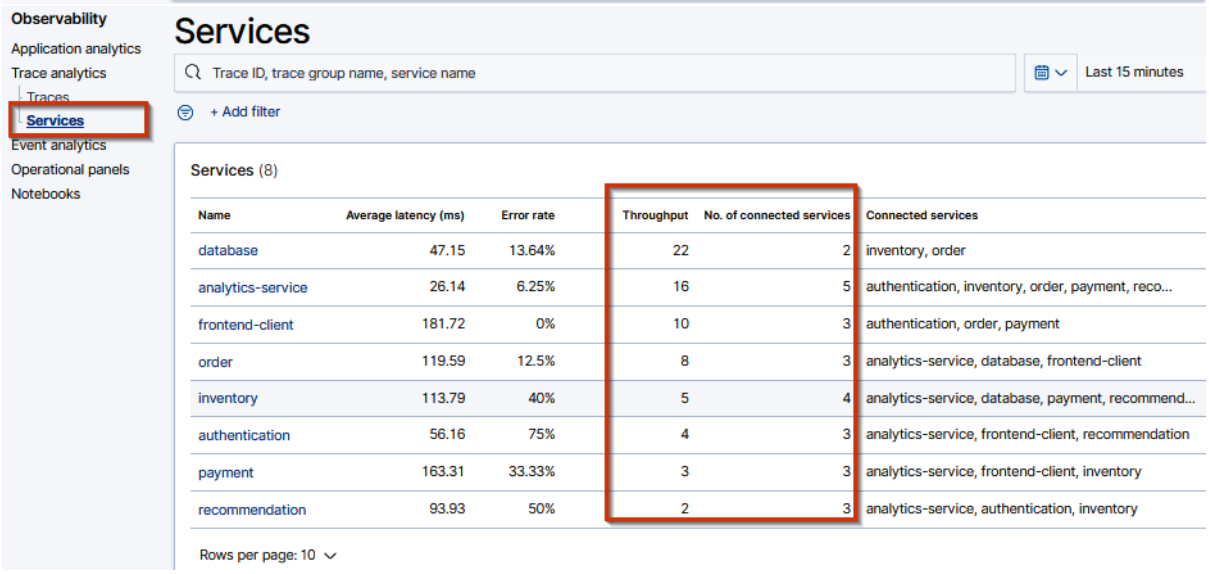


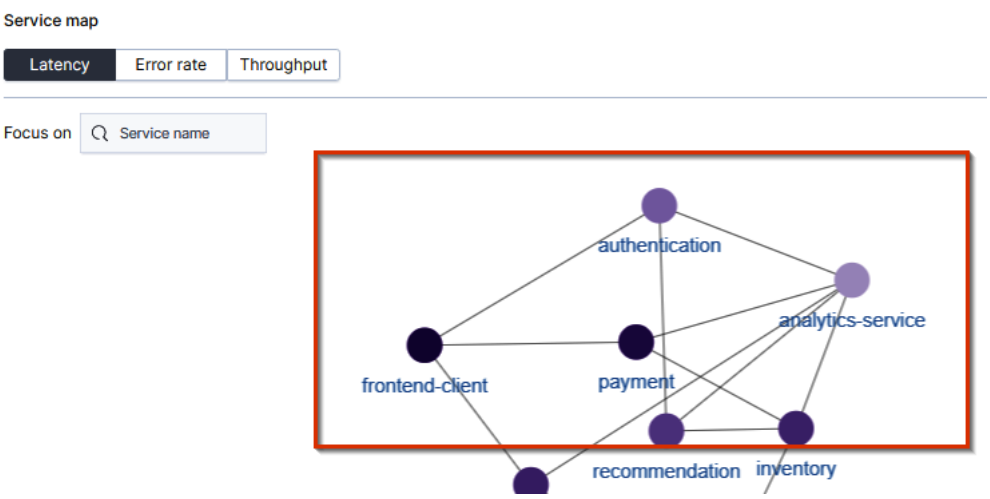


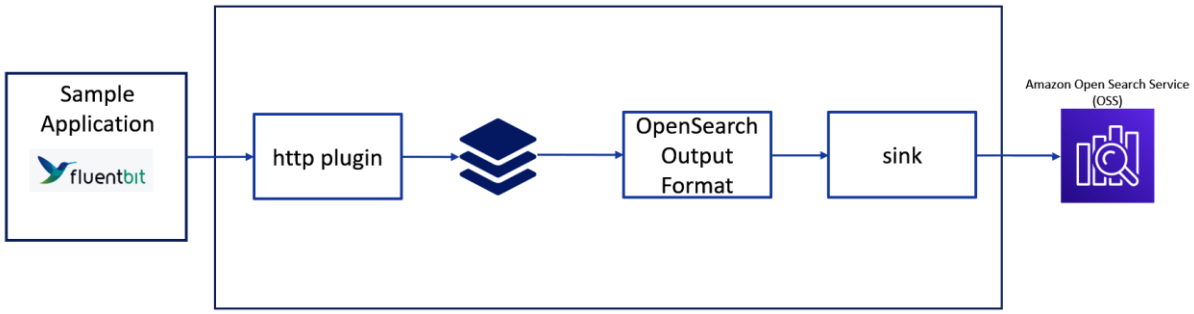

```yaml
entry-pipeline:
  delay: "100"
  source:
    otel_trace_source:
      ssl: false
  processor:
  sink:
    - pipeline:
        name: "raw-pipeline"
    - pipeline:
        name: "service-map-pipeline"
raw-pipeline:
  source:
    pipeline:
      name: "entry-pipeline"
  processor:
    - otel_trace_raw:
  sink:
    - opensearch:
        hosts: [ "https://OSS_DOMAIN:443" ]
        username: "OSSDOMAIN_USERNAME"
        password: "OSSDOMAIN_PASSWORD"
        index_type: trace-analytics-raw
service-map-pipeline:
  delay: "100"
  source:
    pipeline:
      name: "entry-pipeline"
  processor:
    - service_map_stateful:
  sink:
    - opensearch:
        hosts: [ "https://OSS_DOMAIN:443" ]
        username: "OSSDOMAIN_USERNAME"
        password: "OSSDOMAIN_PASSWORD"
        index_type: trace-analytics-service-map
```

```yaml
data-prepper:
  restart: unless-stopped
  container_name: data-prepper
  image: opensearchproject/data-prepper:2
  command: sh data-prepper-wait-for-odfe-and-start.sh
  volumes:
    - ./data-prepper-wait-for-odfe-and-start.sh:/usr/share/data-prepper/data-prepper-wait-for-odfe-and-start.sh
    - ./trace_analytics_no_ssl.yml:/usr/share/data-prepper/pipelines/pipelines.yaml
    - ./data-prepper-config.yaml:/usr/share/data-prepper/config/data-prepper-config.yaml
    - ./root-ca.pem:/usr/share/data-prepper/root-ca.pem
  ports:
    - "21890:21890"
  networks:
    - my_network
  logging:
    driver: fluentd
```


Observability
Application analytics
Trace analytics
Traces
Services
Event analytics
Operational panels
Notebooks
Dashboard
Trace ID, trace group name, service name
Last 5 minutes
Show dates
Refresh
+ Add filter
Latency by trace group (5)
< 95 percentile
>= 95 percentile
Trace group name
Latency variance (ms)
50 100 150 200 250 300
Average latency (ms)
24-hour latency trend
Error rate
Traces
client_cancel_order 152.22 0% 2
client_create_order 231.49 0% 2
client_checkout 257.42 0% 2
client_delivery_status 84.06 0% 2
client_pay_order 124.93 0% 1
Rows per page: 10
1


Observability
Application analytics
Trace analytics
Traces
Services
Event analytics
Operational panels
Notebooks
Services
Trace ID, trace group name, service name
Last 15 minutes
+ Add filter
Services (8)
Name
Average latency (ms)
Error rate
Throughput
No. of connected services
Connected services
database 47.15 13.64% 22 2 inventory, order
analytics-service 26.14 6.25% 16 5 authentication, inventory, order, payment, reco...
frontend-client 181.72 0% 10 3 authentication, order, payment
order 119.59 12.5% 8 3 analytics-service, database, frontend-client
inventory 113.79 40% 5 4 analytics-service, database, payment, recommend...
authentication 56.16 75% 4 3 analytics-service, frontend-client, recommendation
payment 163.31 33.33% 3 3 analytics-service, frontend-client, inventory
recommendation 93.93 50% 2 3 analytics-service, authentication, inventory
Rows per page: 10


Service map
Latency
Error rate
Throughput
Focus on
Service name
authentication
analytics-service
frontend-client
payment
recommendation
inventory




```
[SERVICE]
    Flush        5
    Daemon       Off
    Log_Level    debug

[INPUT]
    Name   forward
    Listen 0.0.0.0
    Port   24224

[OUTPUT]
    Name  es
    Match *
    Host  OSS_DOMAIN
    Port  443
    Index sample_app_logs
    Type  docker
    HTTP_User OSSDOMAIN_USERNAME
    HTTP_Passwd OSSDOMAIN_PASSWORD
    tls On
    tls.verify Off
```

```
version: "3.8"
services:
  fluent-bit:
    image: fluent/fluent-bit:latest
    ports:
      - '24224:24224' # logging port
    volumes:
      - ./fluent-bit.conf:/fluent-bit/etc/fluent-bit.conf
```

OpenSearch Dashboards

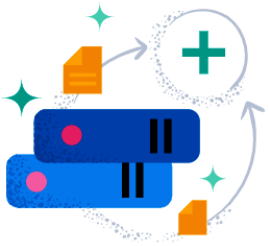
Stack Management / Index patterns

OpenSearch Dashboards

Index Patterns
Saved Objects
Advanced Settings

You have data in OpenSearch.
Now, create an index pattern.

OpenSearch Dashboards requires an index pattern to identify which indices you want to explore. An index pattern can point to a specific index, for example, your log data from yesterday, or all indices that contain your log data.



Create index pattern

Want to learn more? Read documentation

Create index pattern

An index pattern can match a single source, for example, `filebeat-4-3-22`, or **multiple** data sources, `filebeat-*`.
Read documentation

Step 1 of 2: Define an index pattern

Index pattern name

sample_app_logs*

Next step

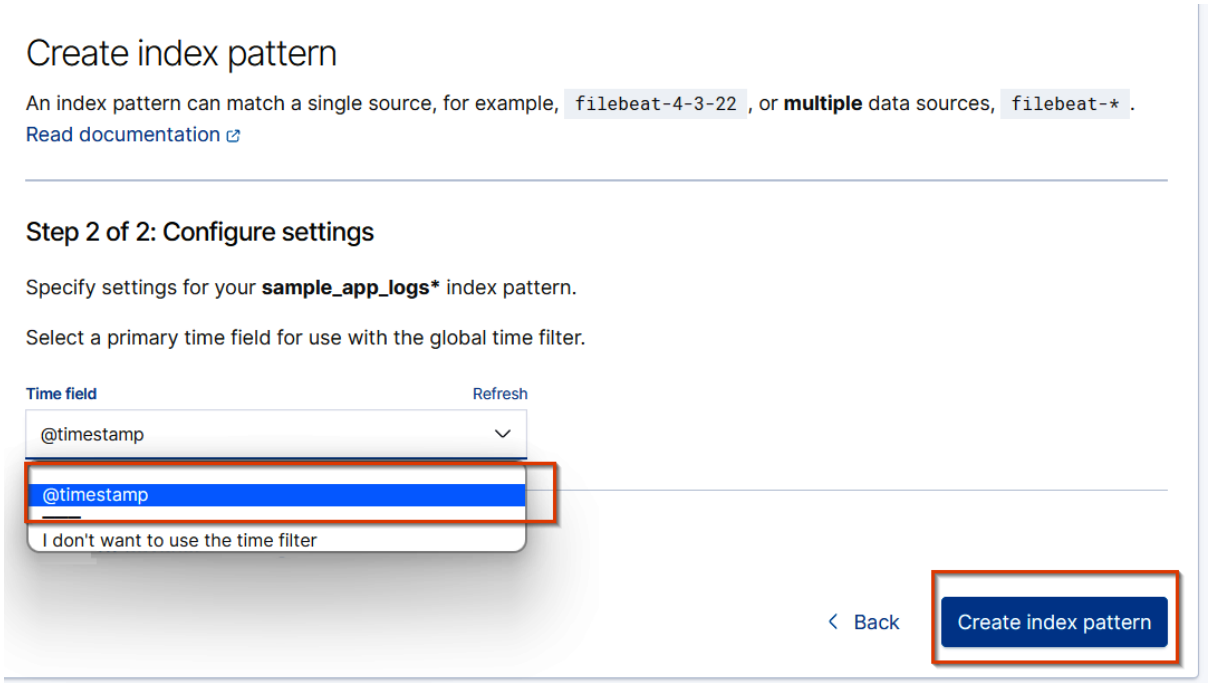
Use an asterisk (*) to match multiple indices. Spaces and the characters \, /, ?, ", <, >, | are not allowed.

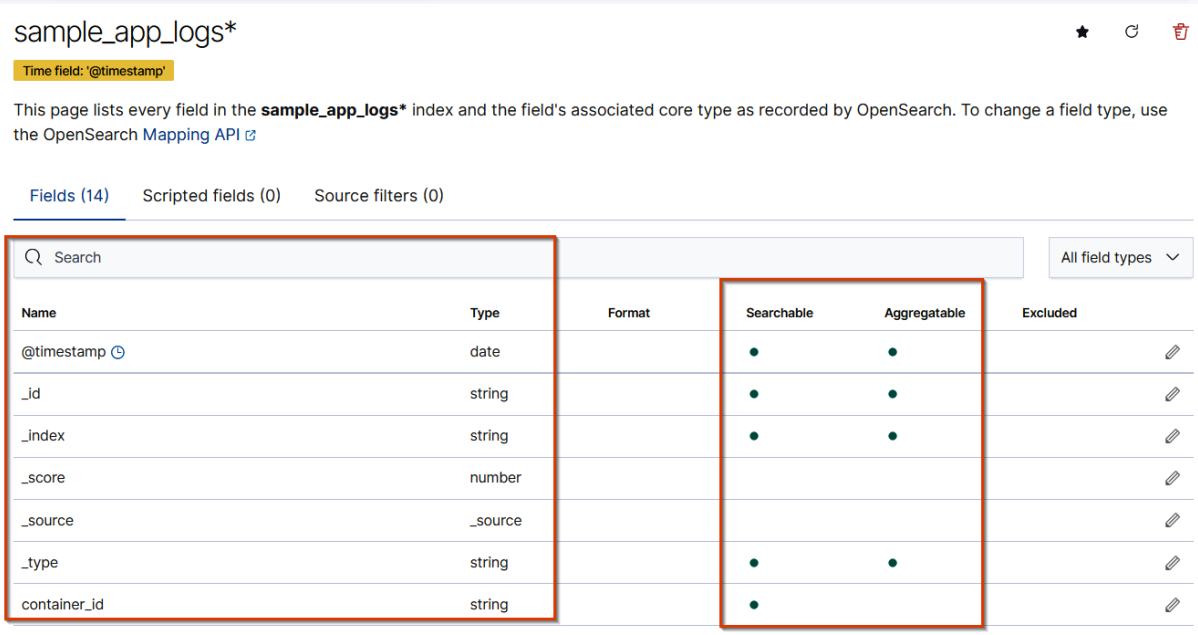
Include system and hidden indices

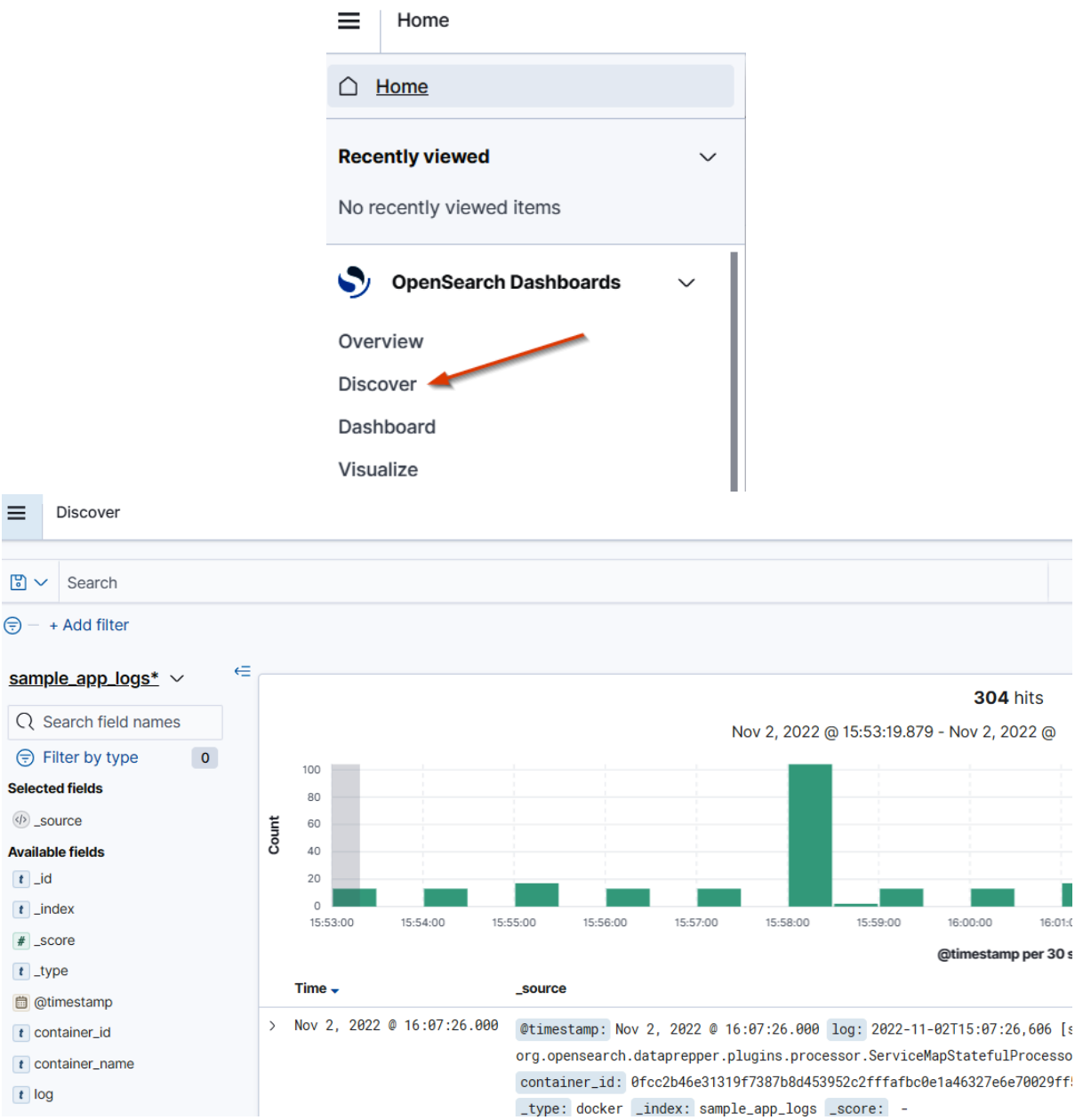
Your index pattern matches 1 source.

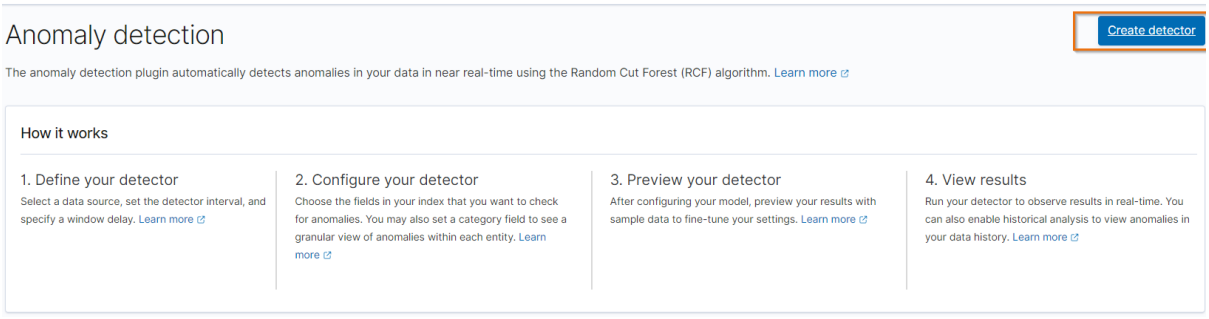
sample_app_logs	Index

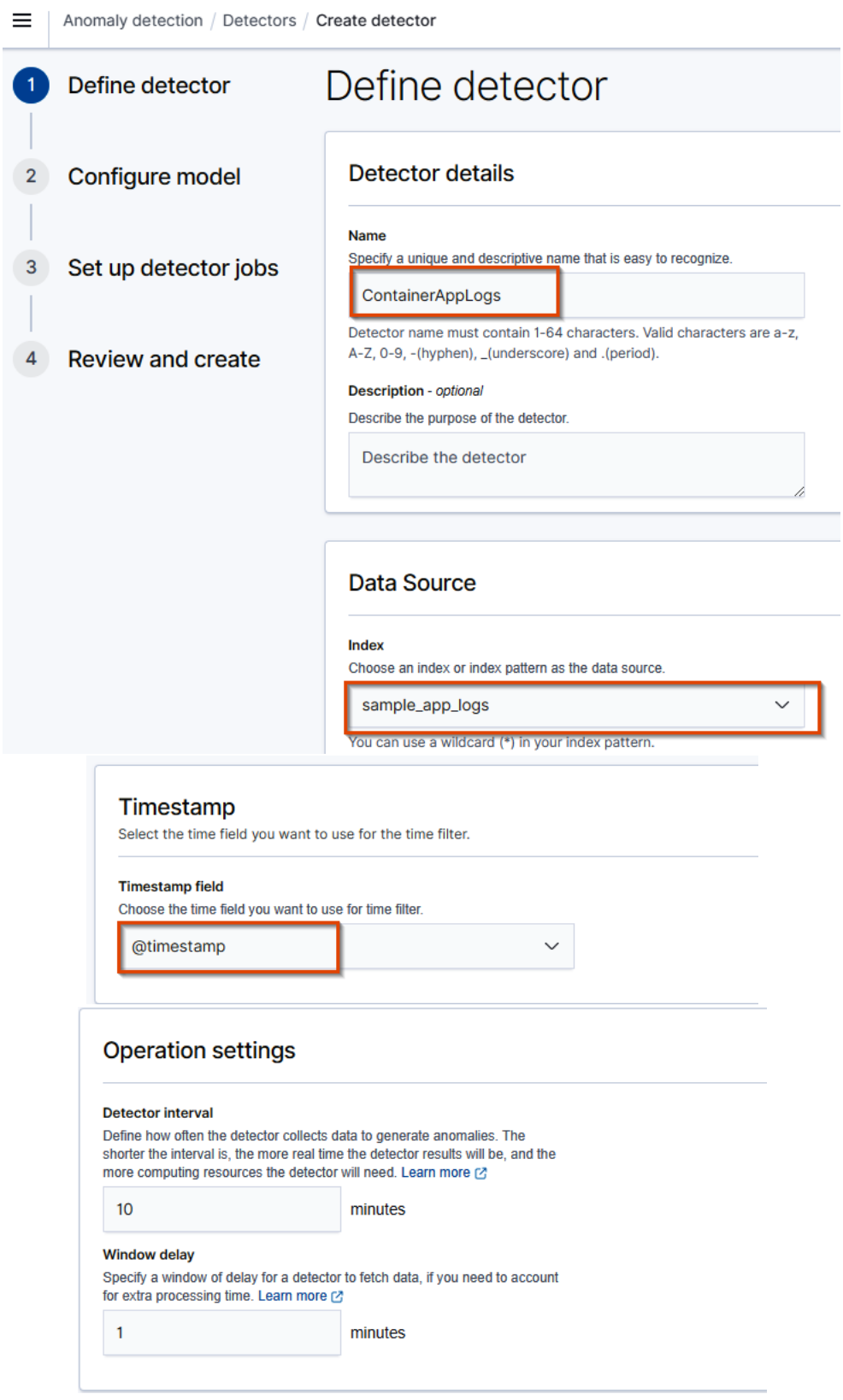
Rows per page: 10


Create index pattern
An index pattern can match a single source, for example, filebeat-4-3-22 , or multiple data sources, filebeat-* .
Read documentation
Step 2 of 2: Configure settings
Specify settings for your sample_app_logs* index pattern.
Select a primary time field for use with the global time filter.
Time field
Refresh
@timestamp
@timestamp
I don't want to use the time filter
Back
Create index pattern


sample_app_logs*
Time field: '@timestamp'
This page lists every field in the sample_app_logs* index and the field's associated core type as recorded by OpenSearch. To change a field type, use the OpenSearch Mapping API
Fields (14)
Scripted fields (0)
Source filters (0)
Search
All field types
Name
Type
Format
Searchable
Aggregatable
Excluded
@timestamp
date
_id
string
_index
string
_score
number
_source
_source
_type
string
container_id
string


Home
Home
Recently viewed
No recently viewed items
OpenSearch Dashboards
Overview
Discover
Dashboard
Visualize
Discover
Search
+ Add filter
sample_app_logs*
Search field names
Filter by type
0
Selected fields
_source
Available fields
_id
_index
_score
_type
@timestamp
container_id
container_name
log
304 hits
Nov 2, 2022 @ 15:53:19.879 - Nov 2, 2022 @
Count
100
80
60
40
20
0
15:53:00
15:54:00
15:55:00
15:56:00
15:57:00
15:58:00
15:59:00
16:00:00
@timestamp per 30 s
Time
_source
Nov 2, 2022 @ 16:07:26.000
@timestamp: Nov 2, 2022 @ 16:07:26.000 log: 2022-11-02T15:07:26,606 [s
org.opensearch.dataprepper.plugins.processor.ServiceMapStatefulProcesso
container_id: 0fcc2b46e31319f7387b8d453952c2fffafbc0e1a46327e6e70029ff
_type: docker _index: sample_app_logs _score: -


Anomaly detection
Create detector
The anomaly detection plugin automatically detects anomalies in your data in near real-time using the Random Cut Forest (RCF) algorithm. Learn more
How it works
1. Define your detector
Select a data source, set the detector interval, and specify a window delay. Learn more
2. Configure your detector
Choose the fields in your index that you want to check for anomalies. You may also set a category field to see a granular view of anomalies within each entity. Learn more
3. Preview your detector
After configuring your model, preview your results with sample data to fine-tune your settings. Learn more
4. View results
Run your detector to observe results in real-time. You can also enable historical analysis to view anomalies in your data history. Learn more


Anomaly detection / Detectors / Create detector
1 Define detector
2 Configure model
3 Set up detector jobs
4 Review and create
Define detector
Detector details
Name
Specify a unique and descriptive name that is easy to recognize.
ContainerAppLogs
Detector name must contain 1-64 characters. Valid characters are a-z, A-Z, 0-9, -(hyphen), _(underscore) and .(period).
Description - optional
Describe the purpose of the detector.
Describe the detector
Data Source
Index
Choose an index or index pattern as the data source.
sample_app_logs
You can use a wildcard (*) in your index pattern.
Timestamp
Select the time field you want to use for the time filter.
Timestamp field
Choose the time field you want to use for time filter.
@timestamp
Operation settings
Detector interval
Define how often the detector collects data to generate anomalies. The shorter the interval is, the more real time the detector results will be, and the more computing resources the detector will need. Learn more
10
minutes
Window delay
Specify a window of delay for a detector to fetch data, if you need to account for extra processing time. Learn more
1
minutes

Custom result index

Store detector results to your own index. Learn more

Enable custom result index

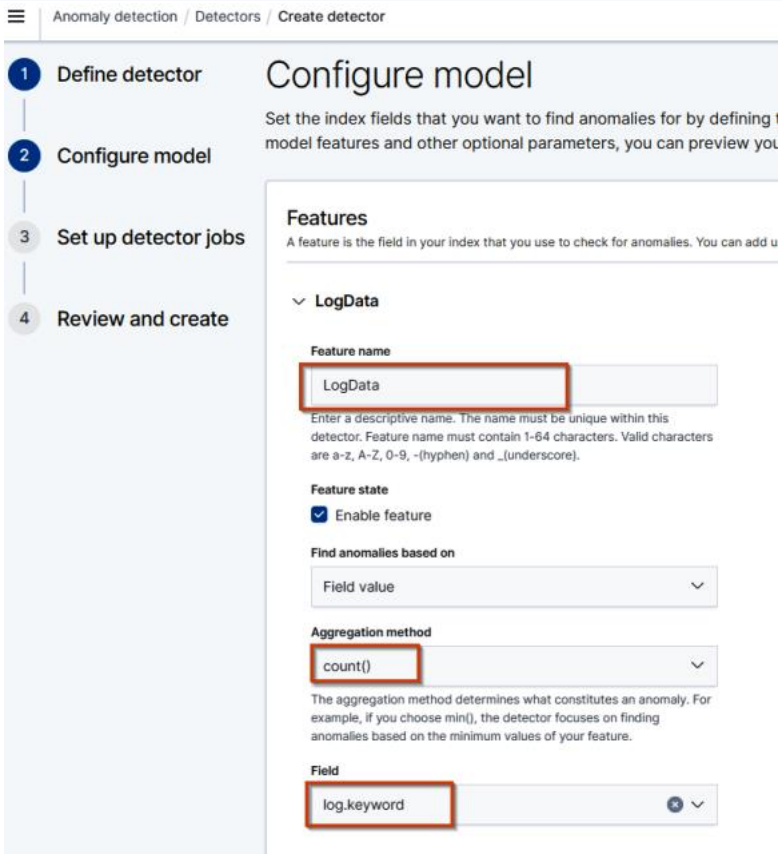
⚠ You can't change the custom result index after you create the detector. You can manage the result index with the Index Management plugin.

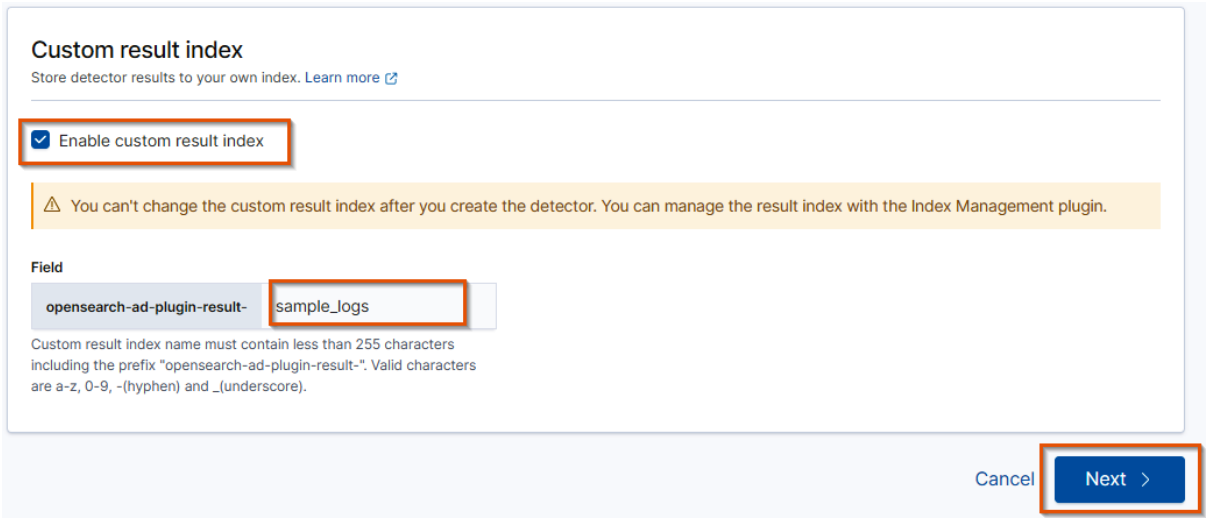
Field

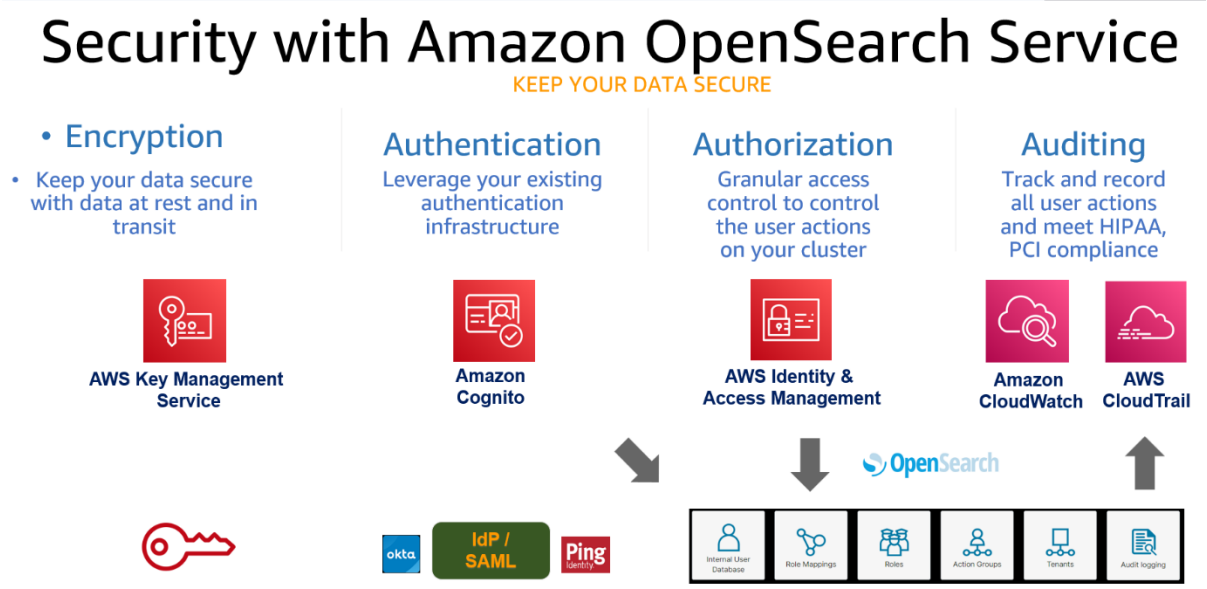
opensearch-ad-plugin-result- sample_logs

Custom result index name must contain less than 255 characters including the prefix "opensearch-ad-plugin-result-". Valid characters are a-z, 0-9, -(hyphen) and _(underscore).

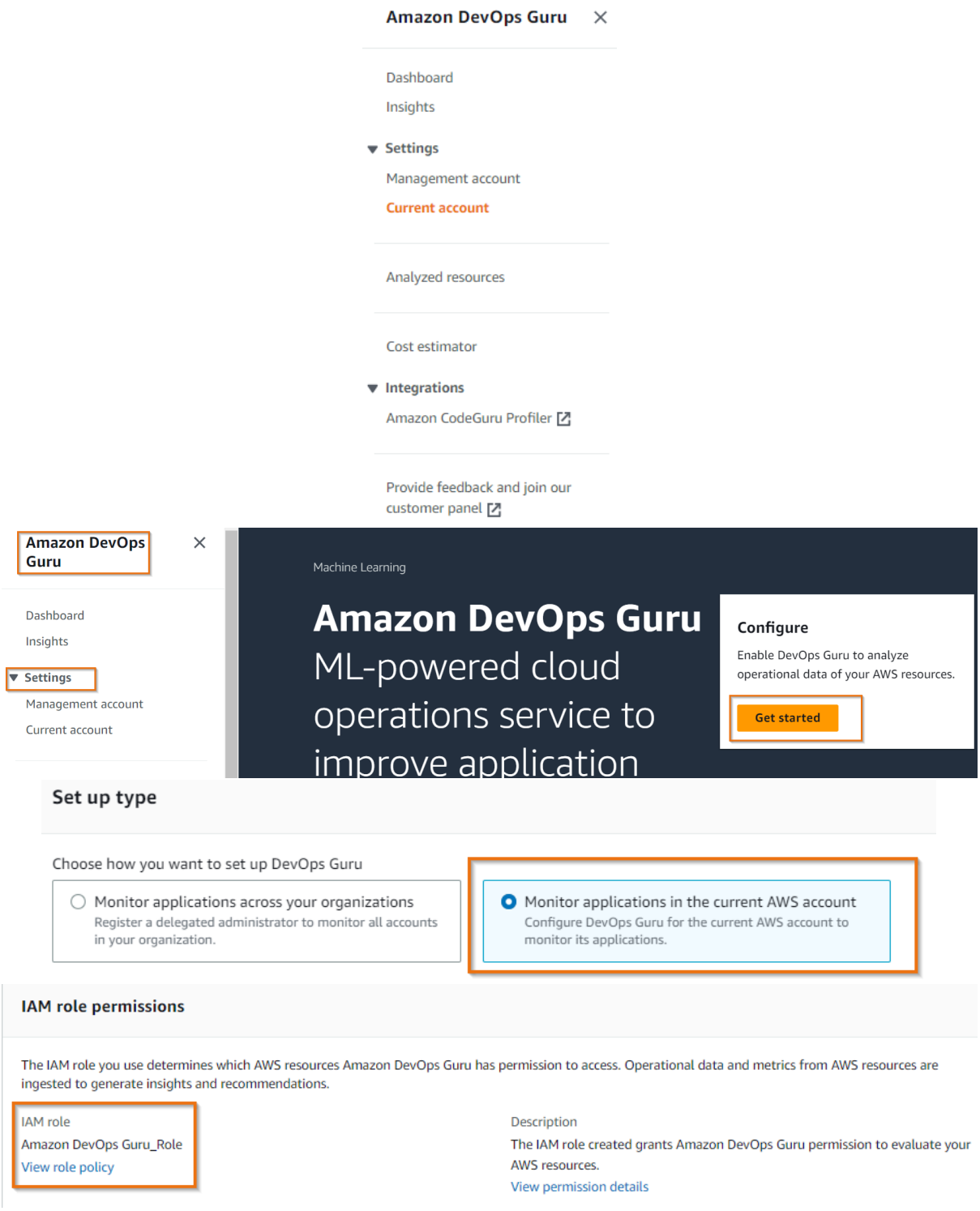
Cancel Next




Custom result index
Store detector results to your own index. Learn more
Enable custom result index
You can't change the custom result index after you create the detector. You can manage the result index with the Index Management plugin.
Field
opensearch-ad-plugin-result-
sample_logs
Custom result index name must contain less than 255 characters including the prefix "opensearch-ad-plugin-result-". Valid characters are a-z, 0-9, -(hyphen) and _(underscore).
Cancel
Next


Security with Amazon OpenSearch Service
KEEP YOUR DATA SECURE
Encryption
Keep your data secure with data at rest and in transit
Authentication
Leverage your existing authentication infrastructure
Authorization
Granular access control to control the user actions on your cluster
Auditing
Track and record all user actions and meet HIPAA, PCI compliance
AWS Key Management Service
Amazon Cognito
AWS Identity & Access Management
Amazon CloudWatch
AWS CloudTrail
OpenSearch
okta
IdP / SAML
Ping Identity
Internal User Database
Role Mappings
Roles
Action Groups
Tenants
Audit logging

Chapter 12: Augmenting the Human Operator with Amazon DevOps Guru



Amazon DevOps Guru analysis coverage

DevOps Guru analyzes the operational data for your AWS resources based on your selection. You pay for the number of AWS resource hours analyzed, for each active resource. A resource is only active if it produces metrics, events, or log entries within an hour. See the pricing page for complete details.

Choose which AWS resources to analyze by specifying the coverage boundary

- ○ Analyze all AWS resources in the current AWS account in this Region
- ◉ Choose later
  You can specify specific AWS resources to analyze AWS CloudFormation stacks or AWS Tags as your coverage boundary.

Notifications - *optional*

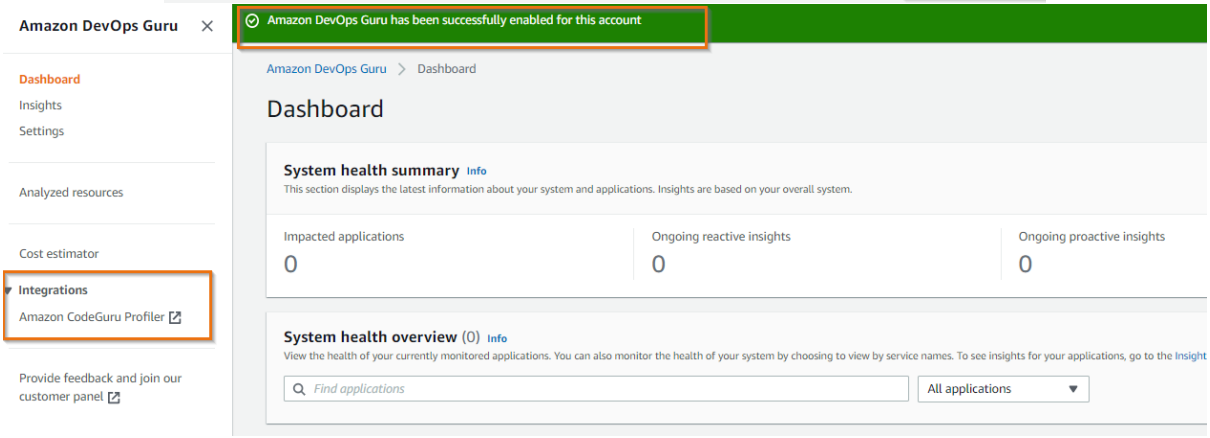
Amazon DevOps Guru uses a SNS topic to notify you about important DevOps Guru events.

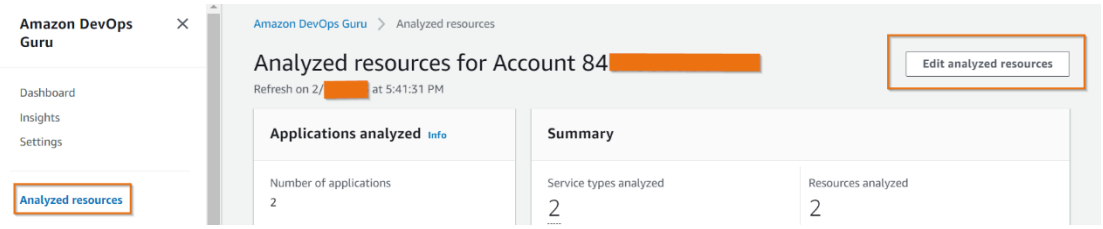
No SNS topics set up for Amazon DevOps Guru.

Add SNS topic

You can add 2 more topics.

Enable





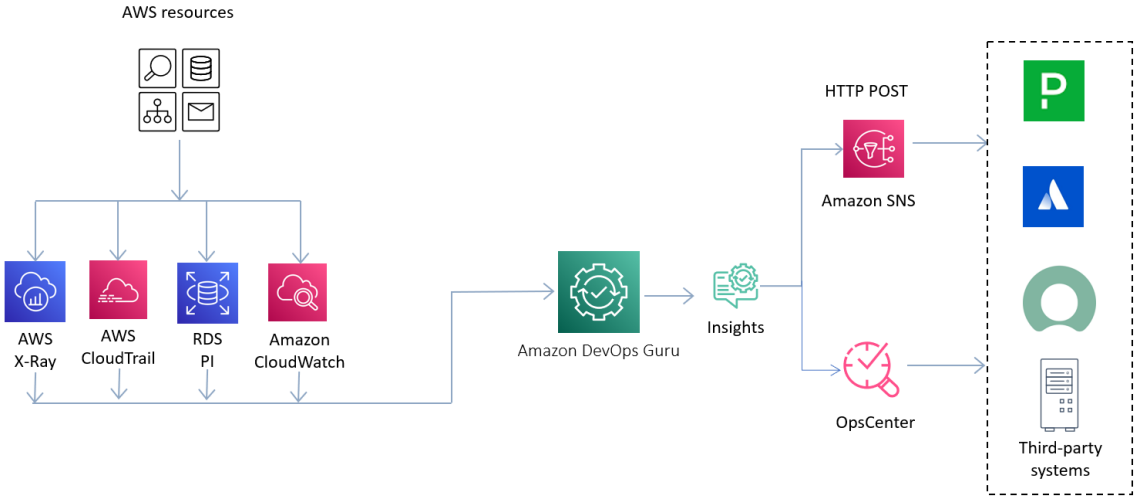
Edit analyzed resources

Choose resources to analyze

Your application resources are grouped together based on related tags, CloudFormation stacks, or account boundaries. Choose which resources you want DevOps Guru to analyze.

Application resource grouping method

- ○ **All account resources**
  Analyze all AWS resources in the current Region and account, grouped by CloudFormation stacks, if any exist. Resources that are not in a stack are grouped together into one application.
- ◉ **CloudFormation stacks**
  Use CloudFormation stacks to specify which resources DevOps Guru analyzes.
- ○ **Tags**
  Use AWS tags to specify which resources DevOps Guru analyzes.
- ○ **None**
  Don't analyze any resources.



Amazon DevOps Guru > Analyzed resources > Edit analyzed resources

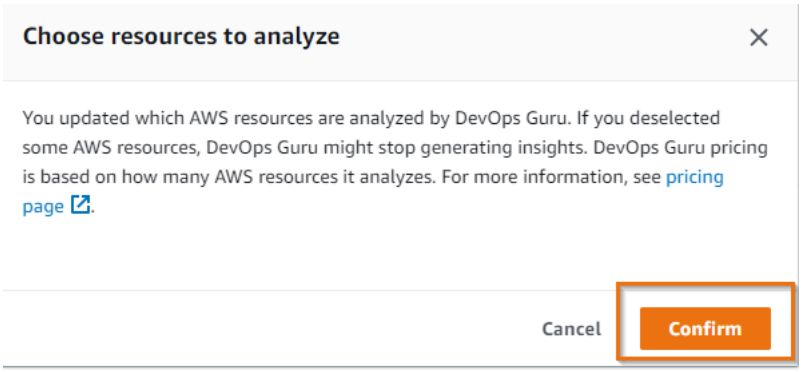
Edit analyzed resources

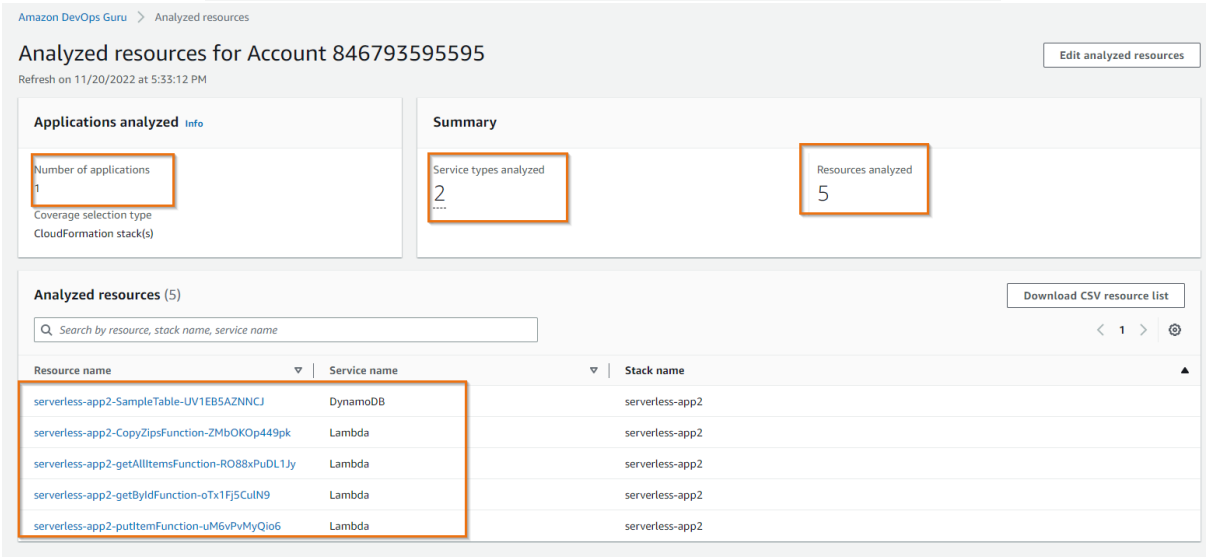
Choose resources to analyze

Your application resources are grouped together based on related tags, CloudFormation stacks, or account boundaries. Choose which resources you want DevOps Guru to analyze.

Application resource grouping method

- ○ All account resources
  Analyze all AWS resources in the current Region and account, grouped by CloudFormation stacks, if any exist. Resources that are not in a stack are grouped together into one application.
- ◉ CloudFormation stacks
  Use CloudFormation stacks to specify which resources DevOps Guru analyzes.
- ○ Tags
  Use AWS tags to specify which resources DevOps Guru analyzes.
- ○ None
  Don't analyze any resources.


Choose resources to analyze
You updated which AWS resources are analyzed by DevOps Guru. If you deselected some AWS resources, DevOps Guru might stop generating insights. DevOps Guru pricing is based on how many AWS resources it analyzes. For more information, see pricing page.
Cancel
Confirm


Amazon DevOps Guru > Analyzed resources
Analyzed resources for Account 846793595595
Refresh on 11/20/2022 at 5:33:12 PM
Edit analyzed resources
Applications analyzed Info
Number of applications
1
Coverage selection type
CloudFormation stack(s)
Summary
Service types analyzed
2
Resources analyzed
5
Analyzed resources (5)
Download CSV resource list
Search by resource, stack name, service name
Resource name
Service name
Stack name
serverless-app2-SampleTable-UV1EB5AZNNCJ
DynamoDB
serverless-app2
serverless-app2-CopyZipsFunction-ZMbOKOp449pk
Lambda
serverless-app2
serverless-app2-getAllItemsFunction-RO88xPuDL1Jy
Lambda
serverless-app2
serverless-app2-getByIdFunction-oTx1Fj5CulN9
Lambda
serverless-app2
serverless-app2-putItemFunction-uM6vPvMyQio6
Lambda
serverless-app2

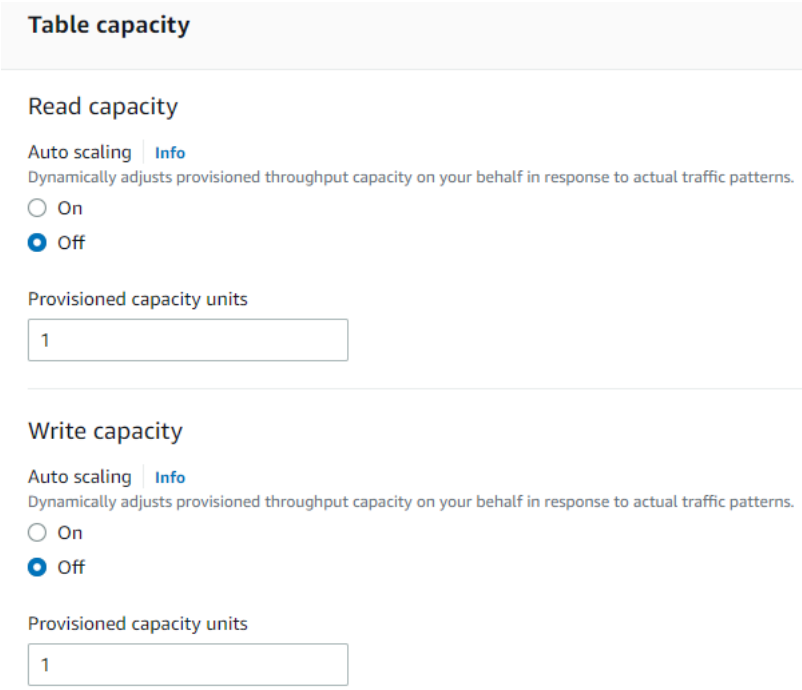
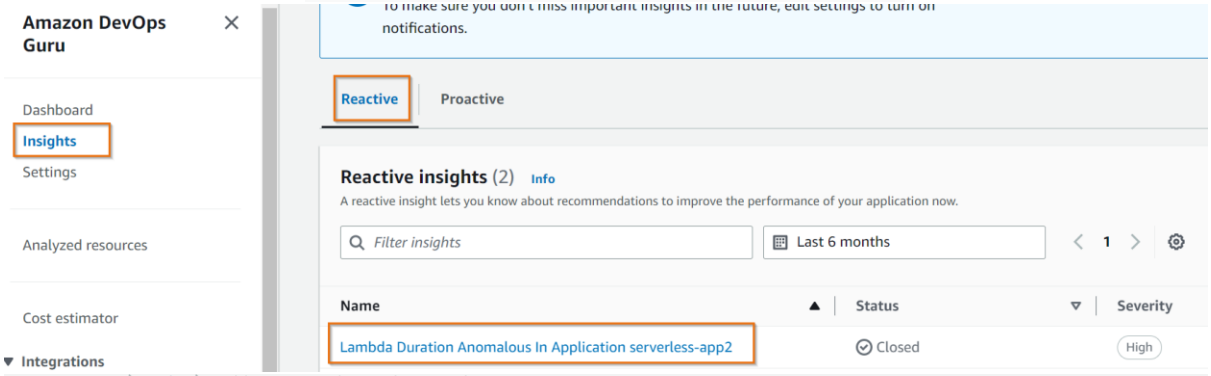
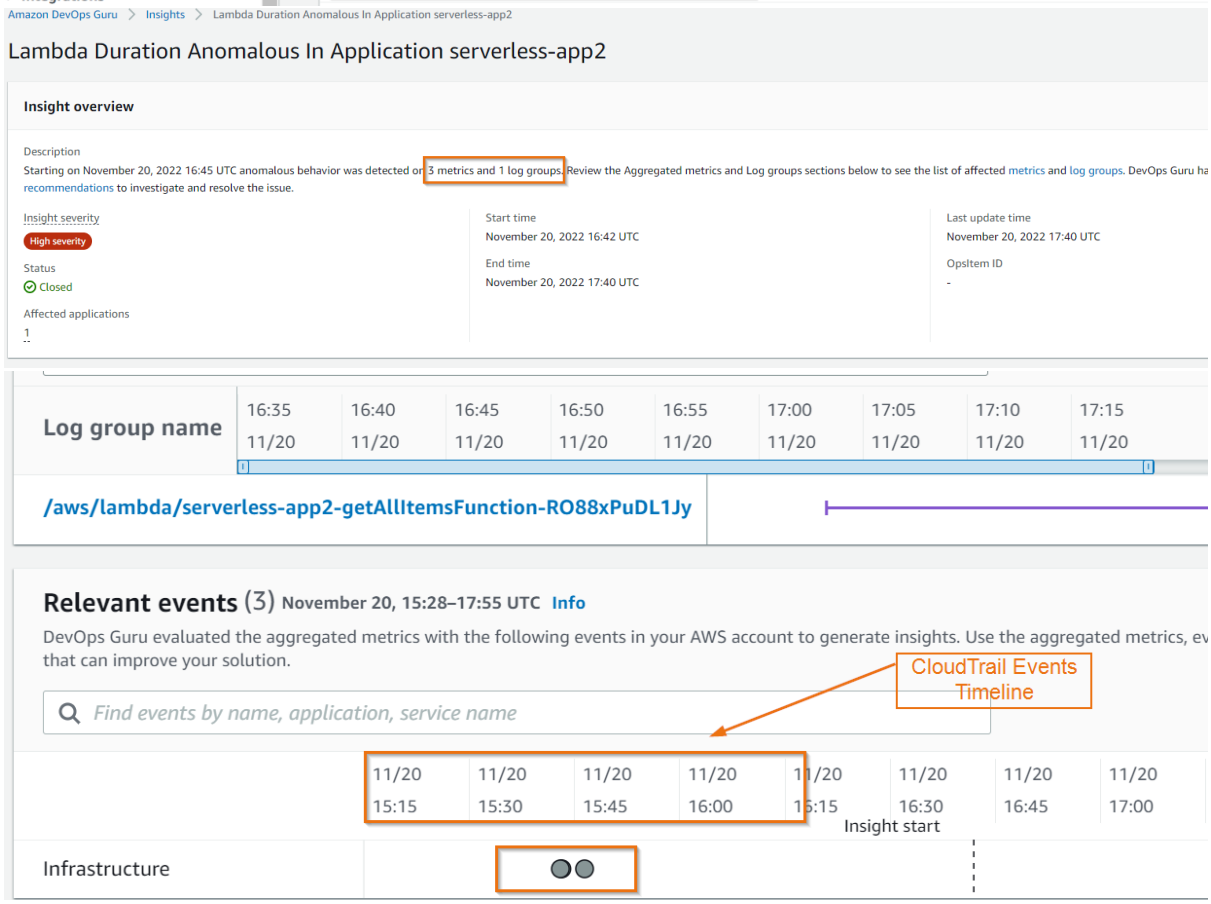


Table capacity
Read capacity
Auto scaling Info
Dynamically adjusts provisioned throughput capacity on your behalf in response to actual traffic patterns.
On
Off
Provisioned capacity units
1
Write capacity
Auto scaling Info
Dynamically adjusts provisioned throughput capacity on your behalf in response to actual traffic patterns.
On
Off
Provisioned capacity units
1

```
#!/usr/local/python/3.3.2/bin/python3.3
#script-version: 1

import requests

url = 'https://replaceme/Prod/items/'

def main():

  #SEND API Requests
  while (True):
      print("\n\n  Iterating sending requests...+++++")
      response = requests.get(url)
      result = response.text
      code = response.status_code
      print (response, result, code)

if __name__ == "__main__":
    main()
```





Recommendations (3) Info

View updates we recommend you implement to address the anomalies in this insight.

Rollback the Amazon Dynamo DB table update

An update to your DynamoDB table was detected and it is now experiencing read throttling events. Review the recent update to help you determine if you need to rollback the changes.

Why is DevOps Guru recommending this?

The UpdateTable event was detected for AWS::DynamoDB::Table. The ReadThrottleEvents metric in AWS::DynamoDB::TableName breached a high threshold.

Related metrics (2)

ThrottledRequests
AWS::DynamoDB::TableName serverless-app2-SampleTable-UV1EB5AZNNCJ

ReadThrottleEvents
AWS::DynamoDB::TableName serverless-app2-SampleTable-UV1EB5AZNNCJ

Related event (1)

UpdateTable
AWS::DynamoDB::Table serverless-app2-SampleTable-UV1EB5AZNNCJ

Troubleshoot throttling in Amazon DynamoDB

Read operations, write operations, or both on your DynamoDB table are being throttled. To learn how to fix throttle events, see Troubleshoot throttling in Amazon DynamoDB .

Why is DevOps Guru recommending this?

The ReadThrottleEvents metric in DynamoDB breached a high threshold.

Related metrics (3)

ThrottledRequests

Show more resources

DynamoDB serverless-app2-SampleTable-UV1EB5AZNNCJ

Duration
AWS::Lambda::FunctionName serverless-app2-getAllItemsFunction-RO88xPuDL1Jy

ReadThrottleEvents
DynamoDB serverless-app2-SampleTable-UV1EB5AZNNCJ

Configure provisioned concurrency for AWS Lambda

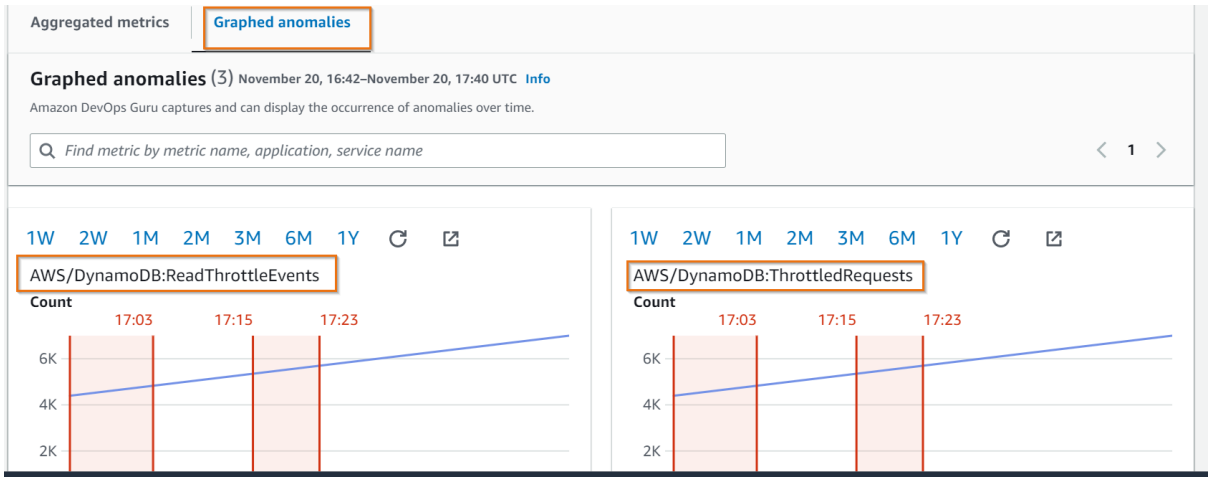
Your Lambda function is having trouble scaling. To learn how to enable provisioned concurrency, which allows your function to scale without fluctuations in latency, see Configure provisioned concurrency for AWS Lambda .

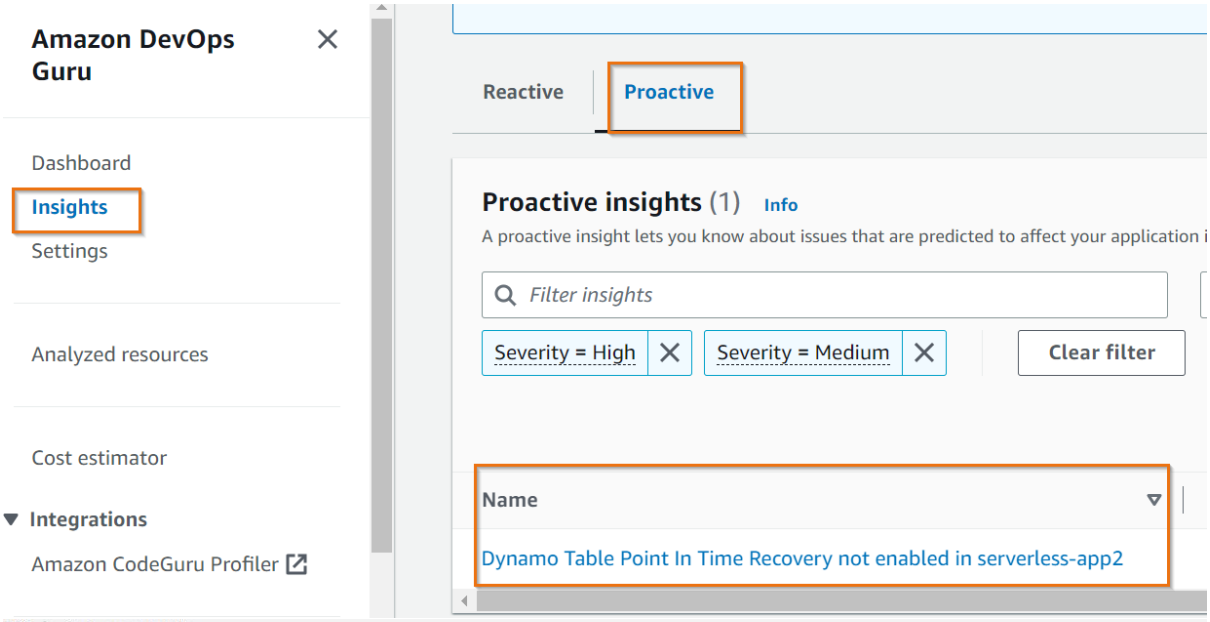
Why is DevOps Guru recommending this?

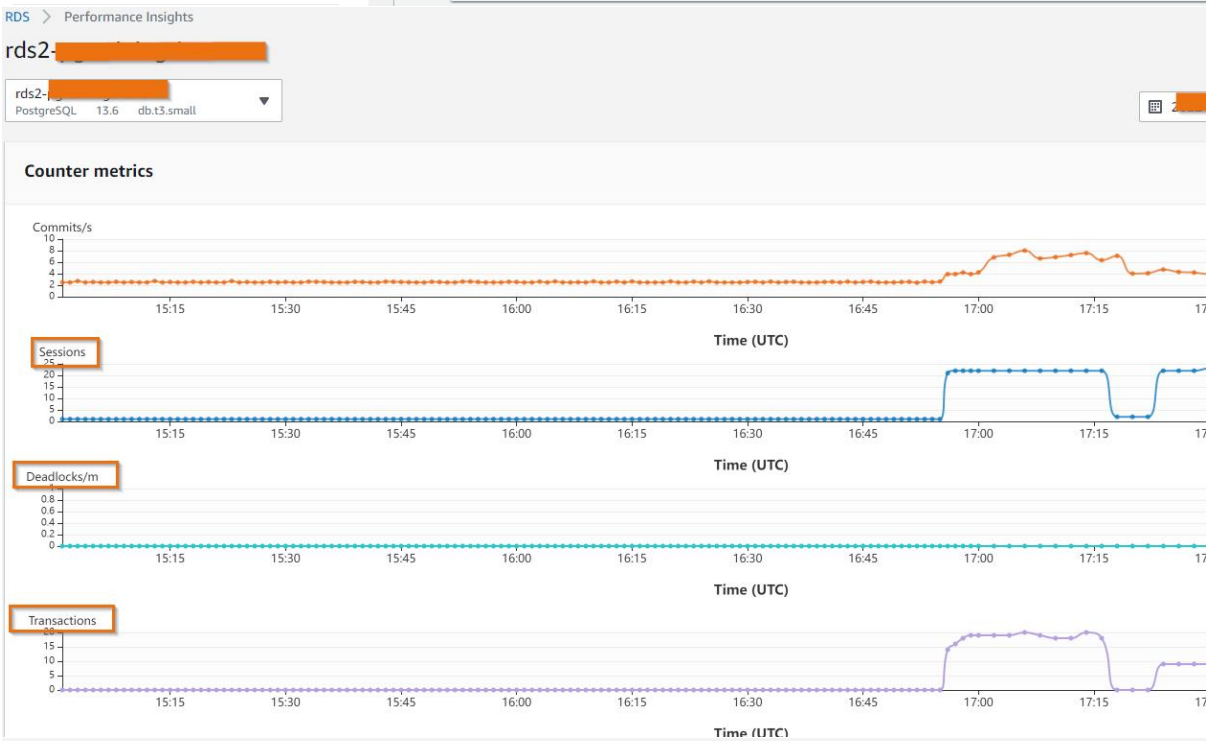
The Duration metric in Lambda breached a high threshold.

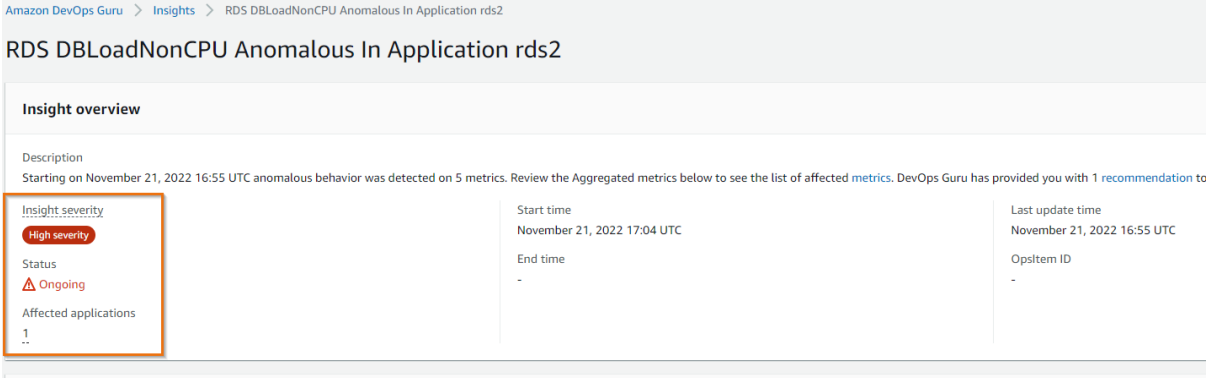
Related metric (1)

Duration
Lambda serverless-app2-getAllItemsFunction-RO88xPuDL1Jy




Amazon DevOps Guru
Dashboard
Insights
Settings
Analyzed resources
Cost estimator
Integrations
Amazon CodeGuru Profiler
Reactive
Proactive
Proactive insights (1) Info
A proactive insight lets you know about issues that are predicted to affect your application i
Filter insights
Severity = High
Severity = Medium
Clear filter
Name
Dynamo Table Point In Time Recovery not enabled in serverless-app2


RDS > Performance Insights
rds2-
PostgreSQL 13.6 db.t3.small
Counter metrics
Commits/s
Sessions
Deadlocks/m
Transactions
Time (UTC)


Amazon DevOps Guru > Insights > RDS DBLoadNonCPU Anomalous In Application rds2
RDS DBLoadNonCPU Anomalous In Application rds2
Insight overview
Description
Starting on November 21, 2022 16:55 UTC anomalous behavior was detected on 5 metrics. Review the Aggregated metrics below to see the list of affected metrics. DevOps Guru has provided you with 1 recommendation to
Insight severity
High severity
Status
Ongoing
Affected applications
1
Start time
November 21, 2022 17:04 UTC
End time
-
Last update time
November 21, 2022 16:55 UTC
OpsItem ID
-

Recommendations (1) Info

View updates we recommend you implement to address the anomalies in this insight.

Scale up your Amazon RDS DB instance

Your Amazon RDS DB instance is reaching a CPU or memory limit and should be scaled either horizontally or vertically. To scale your RDS instance, see Scale up your Amazon RDS DB instar .

Why is DevOps Guru recommending this?

The DBLoadCPU metric in RDS breached a high threshold.

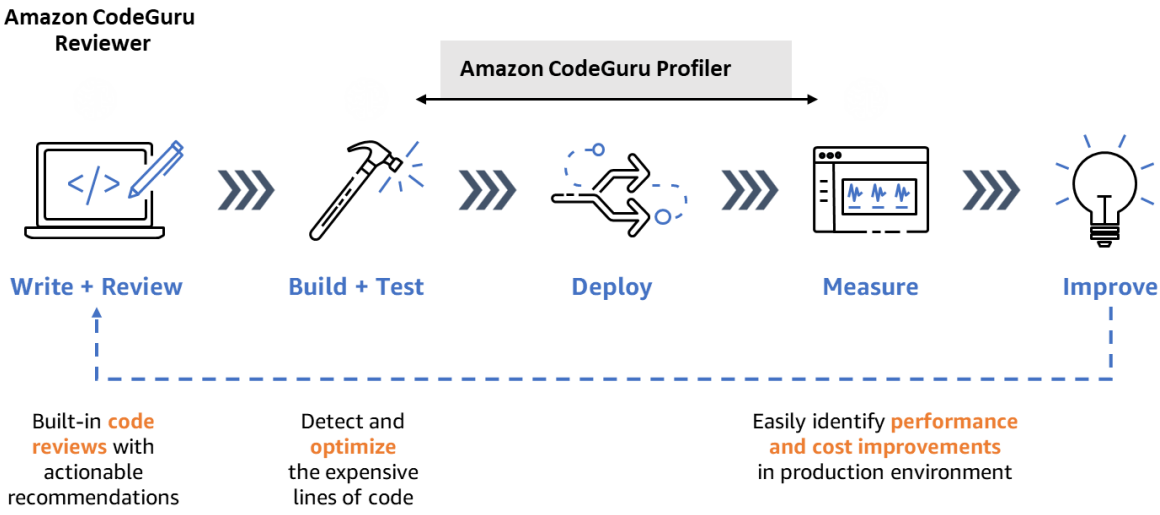
Related metrics (2)

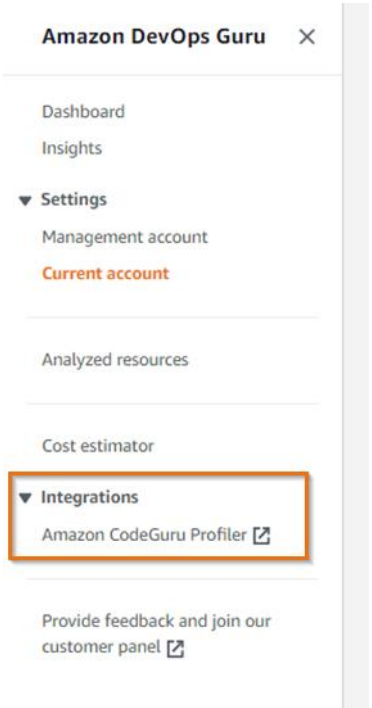
DBLoad

RDS rds2-[redacted]

DBLoadCPU

RDS rds2-[redacted]





Create a detector

A detector monitors your dataset, finds anomalies and analyzes their impact.

Add a dataset

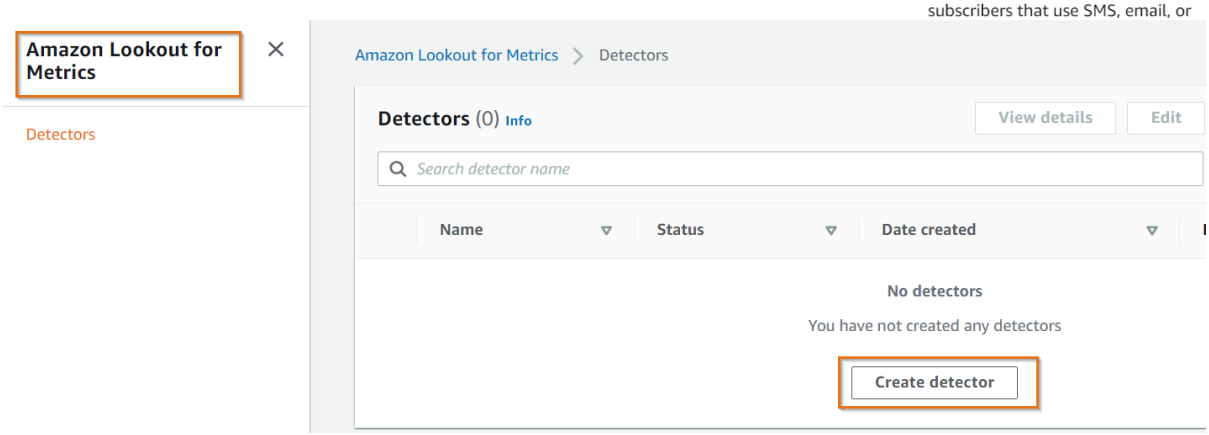
Select the data that you want to monitor.

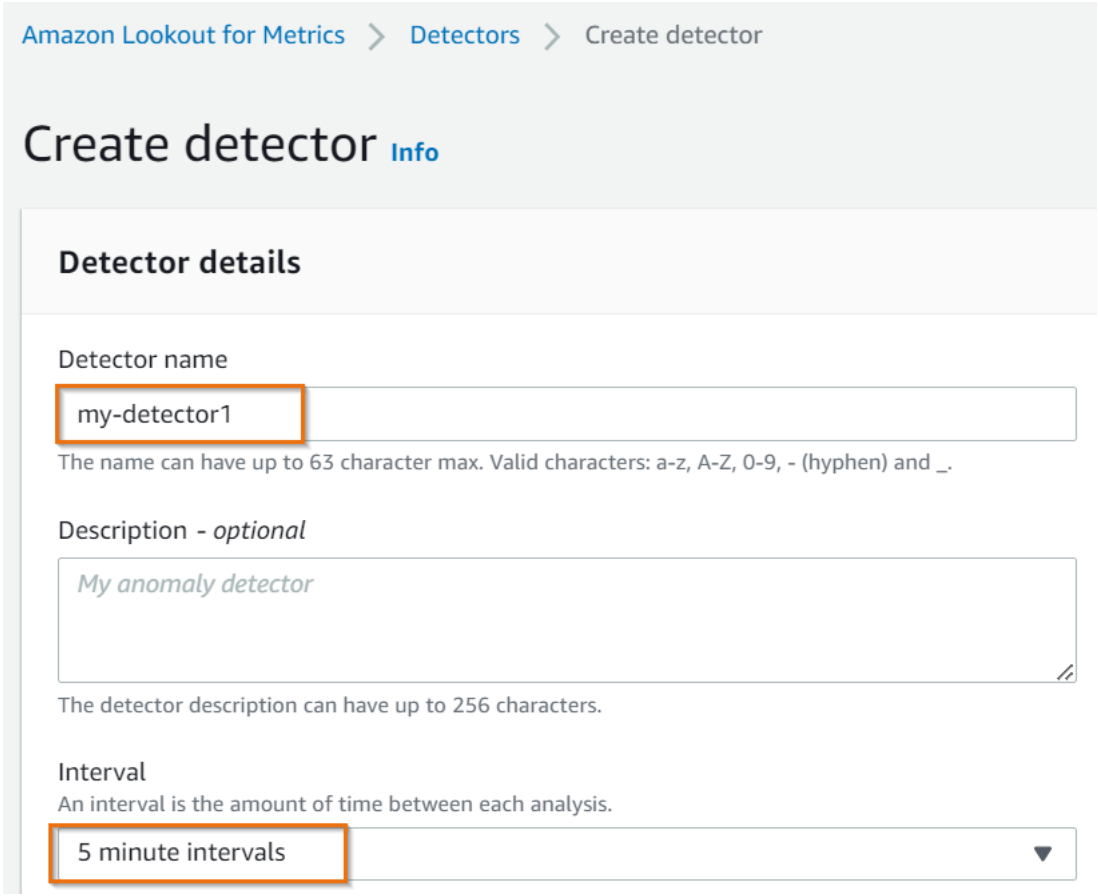
Activate detector

Activate the detector to start monitoring the data for anomalies.

Add alerts - *optional*

Send automated anomaly alerts to Lambda functions, Webhooks, cloud applications like Slack, PagerDuty, and DataDog, or to SNS topics with subscribers that use SMS, email, or





Encryption - *optional* Info

Amazon Lookout for Metrics encrypts your access tokens, secret keys and data.

Your data is encrypted by default with a key that AWS owns and manages for you. To choose a different key, customize your encryption settings.

☐ Customize encryption settings (advanced)

Tags - *optional* Info

Choose key-value pairs to tag your detector. Use tags to organize, track, or control access to this detector.

There are no tags associated with this resource.

Add tag

You can add 50 more tags.

Cancel **Create**

Amazon Lookout for Metrics

Detectors

▼ my-detector1

- Details
- Dataset
- Alerts
- Anomalies

▼ **How it works: Detector setup**

Complete these steps to set up and activate your anomaly detector.

Create a detector

A detector monitors your dataset, finds anomalies and analyzes their impact.

Add a dataset

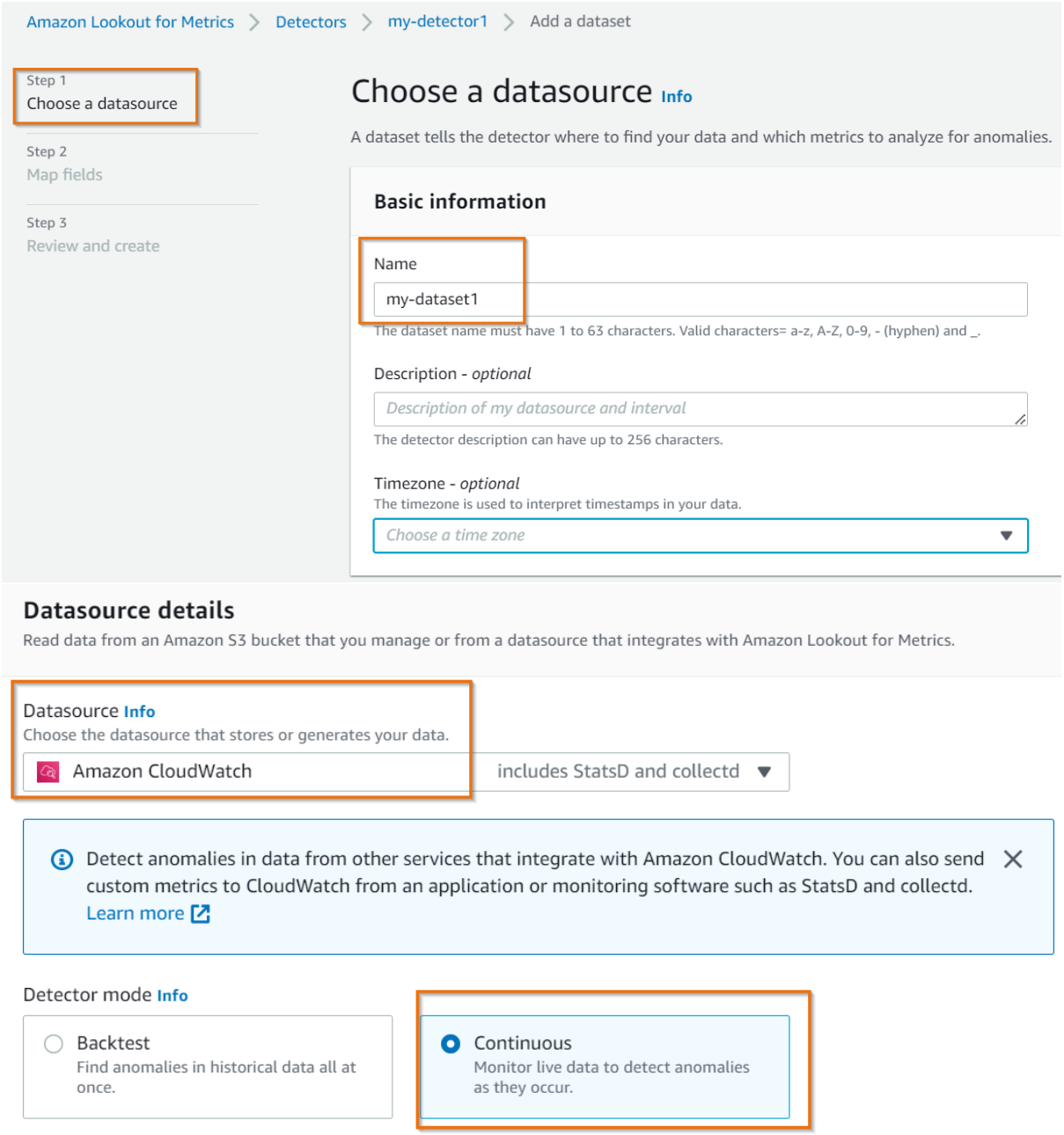
Select the data that you want to monitor.

Activate detector

Activate the detector to start monitoring the data for anomalies.

Created Edit **Add a dataset**

Inactive **Activate detector**


Amazon Lookout for Metrics > Detectors > my-detector1 > Add a dataset
Step 1
Choose a datasource
Step 2
Map fields
Step 3
Review and create
Choose a datasource Info
A dataset tells the detector where to find your data and which metrics to analyze for anomalies.
Basic information
Name
my-dataset1
The dataset name must have 1 to 63 characters. Valid characters= a-z, A-Z, 0-9, - (hyphen) and _.
Description - optional
Description of my datasource and interval
The detector description can have up to 256 characters.
Timezone - optional
The timezone is used to interpret timestamps in your data.
Choose a time zone
Datasource details
Read data from an Amazon S3 bucket that you manage or from a datasource that integrates with Amazon Lookout for Metrics.
Datasource Info
Choose the datasource that stores or generates your data.
Amazon CloudWatch
includes StatsD and collectd
Detect anomalies in data from other services that integrate with Amazon CloudWatch. You can also send custom metrics to CloudWatch from an application or monitoring software such as StatsD and collectd.
Learn more
Detector mode Info
Backtest
Find anomalies in historical data all at once.
Continuous
Monitor live data to detect anomalies as they occur.

Service access

Lookout for Metrics requires permissions to access Cloudwatch on your behalf.

- (•) Create and use a new service role.
- ( ) Use an existing service role.

Service role name

AmazonLookoutMetrics-ExecutionRole-16[redacted]

Service role ARN

arn:aws:iam::123456789012:role/AmazonLookoutforMetricsServiceRole

Tags - *optional* Info

Choose key-value pairs to tag your dataset. Use tags to organize, track, or control access to this dataset.

There are no tags associated with this resource.

Add tag

You can add 50 more tags.

Cancel **Next**

Loading

Amazon Lookout for Metrics is validating your data and creating a service role. This may take a few minutes.

Step 1
Choose a datasource

Step 2
Map fields

Step 3
Review and create

Map fields Info

CloudWatch metrics

Choose the CloudWatch dimensions and metrics that the detector analyzes for anomalies

Choose a namespace and schema with up to 10 dimensions. Within the namespace, select up to 10 metrics. The detector analyzes the dataset's metrics to identify anomalies.

Namespace: AWS/EC2

Dimensions: InstanceId

No dimension filters added

Add filter

You can add up to 5 more dimension filters.

Metrics
Amazon Lookout for Metrics derives metrics from on your dataset's measures, dimensions names, and dimension values. The total number of metrics is the number of measure names times the number of unique combinations of dimension name and dimension value. The number of metrics analyzed can vary from interval to interval.

Metric: CPUUtilization

Aggregation Function: AVG

Add metric

You can add up to 9 more metrics.

Cost Estimate - *optional* Info

Service costs are based on the number of metrics analyzed during a month. Estimate the number of metrics and service costs below.

Your costs are based on the number of metrics the detector monitors for anomalies. A metric is a combination of a measure, dimension and dimension values. To estimate your metrics cost, estimate the number of values for each dimension. Learn more

Note: You incur additional costs if you use additional services such as AppFlow or SNS.

Measures	Number of measures
CPUUtilization	1

Dimension		Estimated number of values
InstanceId	x	

Estimated number of metrics: 1

Estimated metric cost: $0.75

Cancel | Previous | Save dataset

How it works: Detector setup

Complete these steps to set up and activate your anomaly detector.

Create a detector

A detector monitors your dataset, finds anomalies and analyzes their impact.

Created Edit

Add a dataset

Select the data that you want to monitor.

1 added Edit

Activate detector

Activate the detector to start monitoring the data for anomalies.

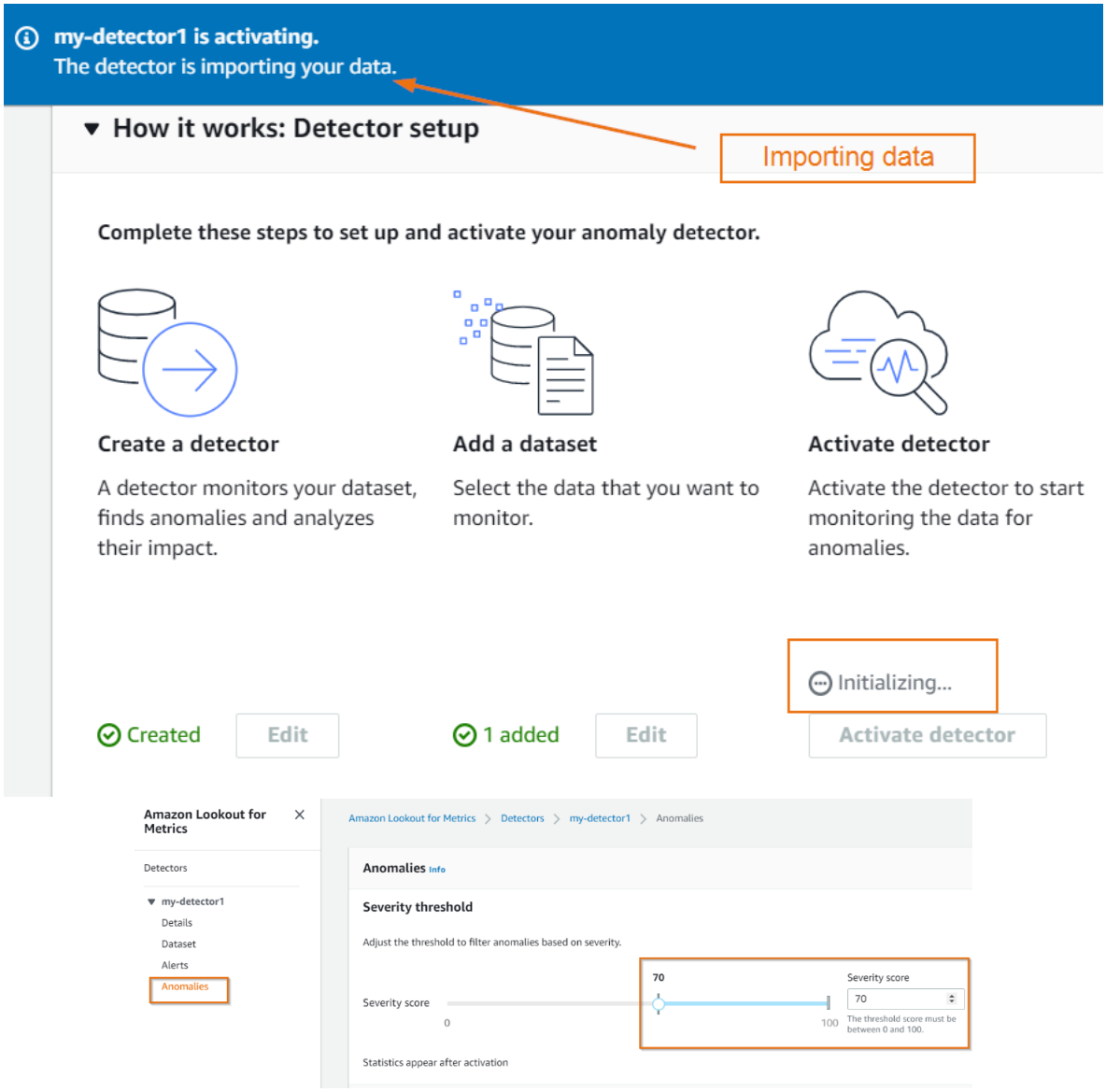
Inactive

Activate detector

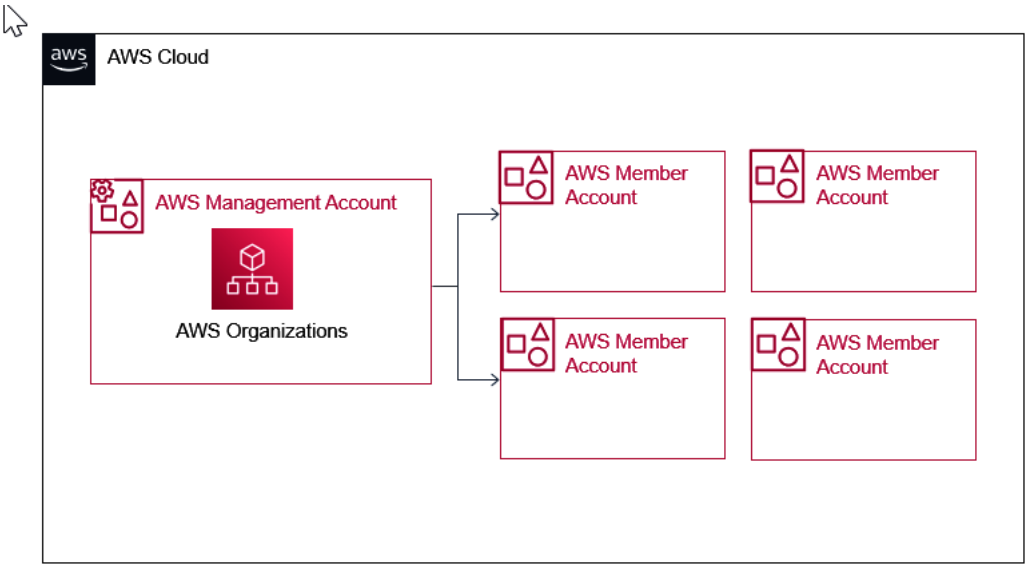
Activate my-detector1?

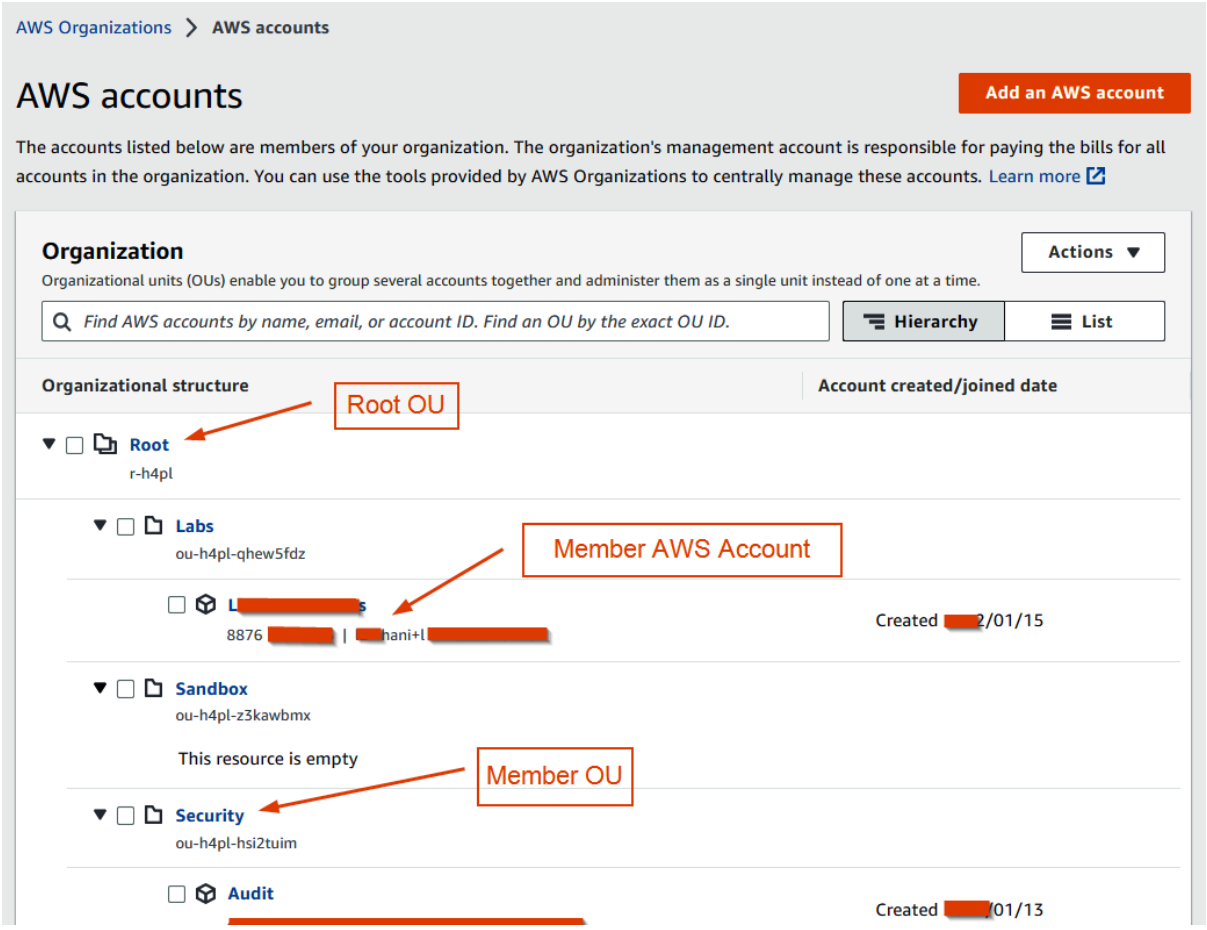
Your detector uses **continuous data**. Once the detector is active, it uses data from several intervals to learn before finding anomalies. While it learns, you can configure alerts.

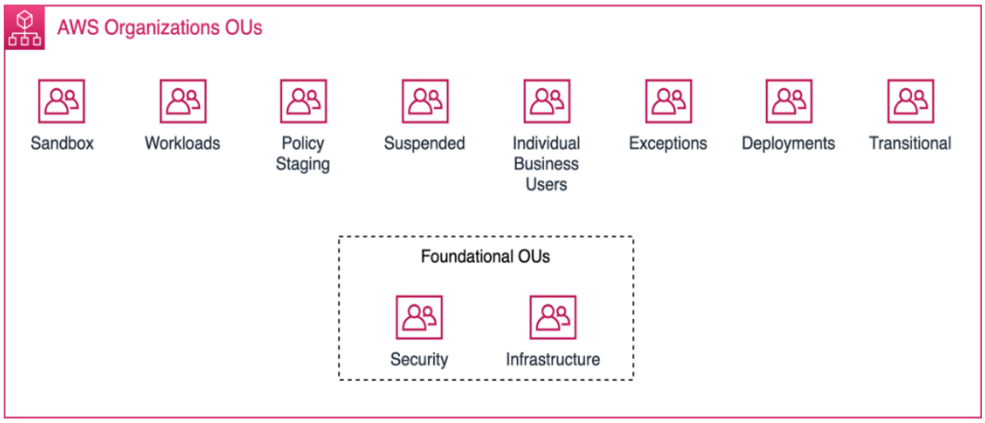
Cancel Activate

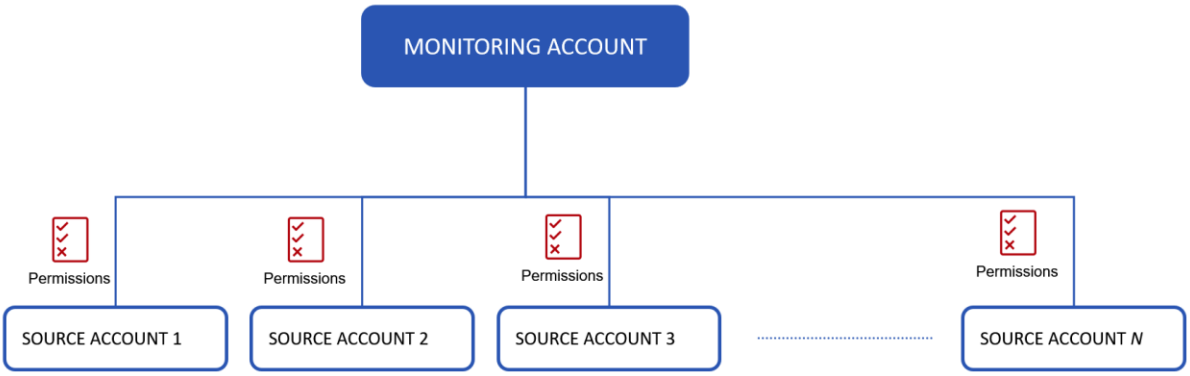

my-detector1 is activating.
The detector is importing your data.
Importing data
How it works: Detector setup
Complete these steps to set up and activate your anomaly detector.
Create a detector
A detector monitors your dataset, finds anomalies and analyzes their impact.
Add a dataset
Select the data that you want to monitor.
Activate detector
Activate the detector to start monitoring the data for anomalies.
Initializing...
Created
Edit
1 added
Edit
Activate detector
Amazon Lookout for Metrics
Detectors
my-detector1
Details
Dataset
Alerts
Anomalies
Amazon Lookout for Metrics > Detectors > my-detector1 > Anomalies
Anomalies Info
Severity threshold
Adjust the threshold to filter anomalies based on severity.
Severity score
0
70
100
Severity score
70
The threshold score must be between 0 and 100.
Statistics appear after activation

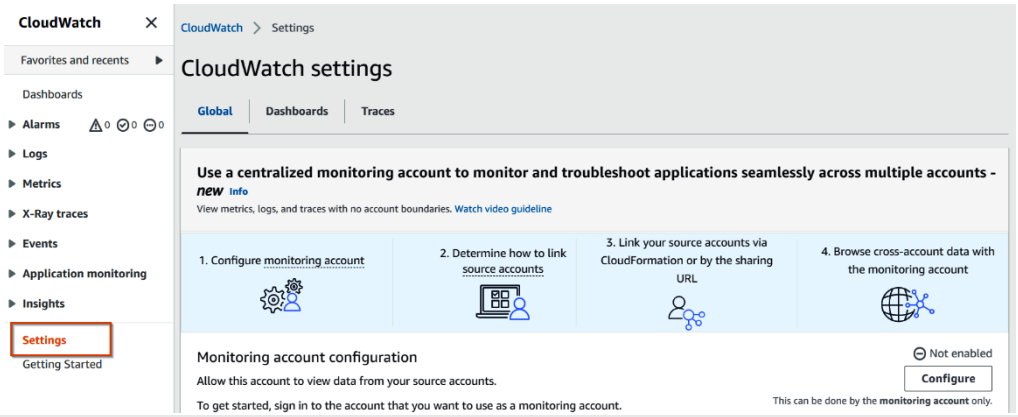
Chapter 13: Observability Best Practices at Scale

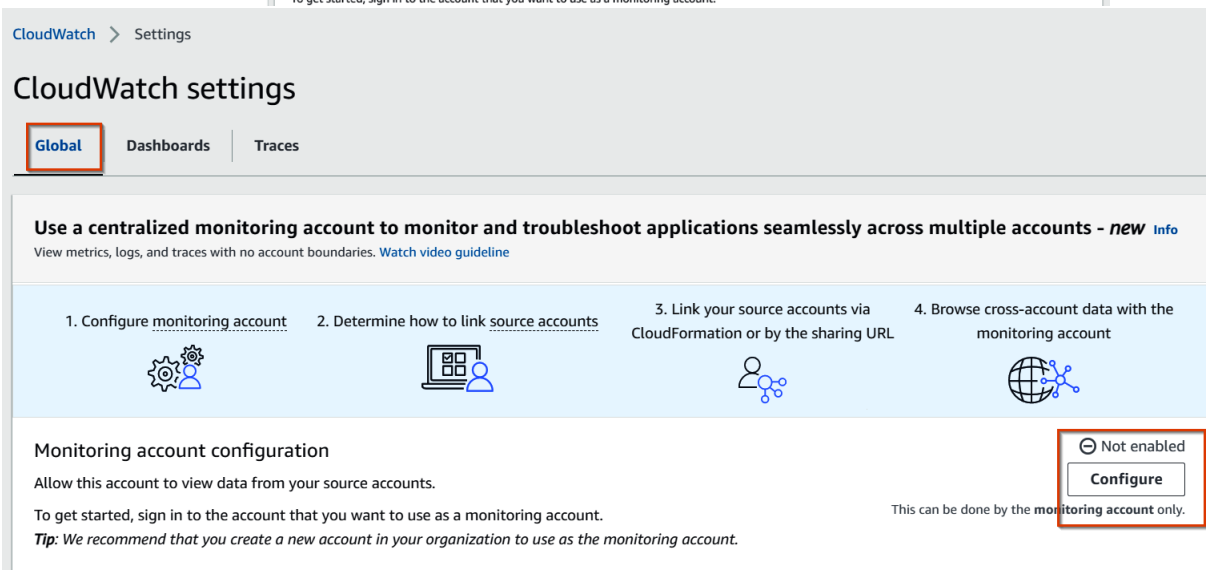


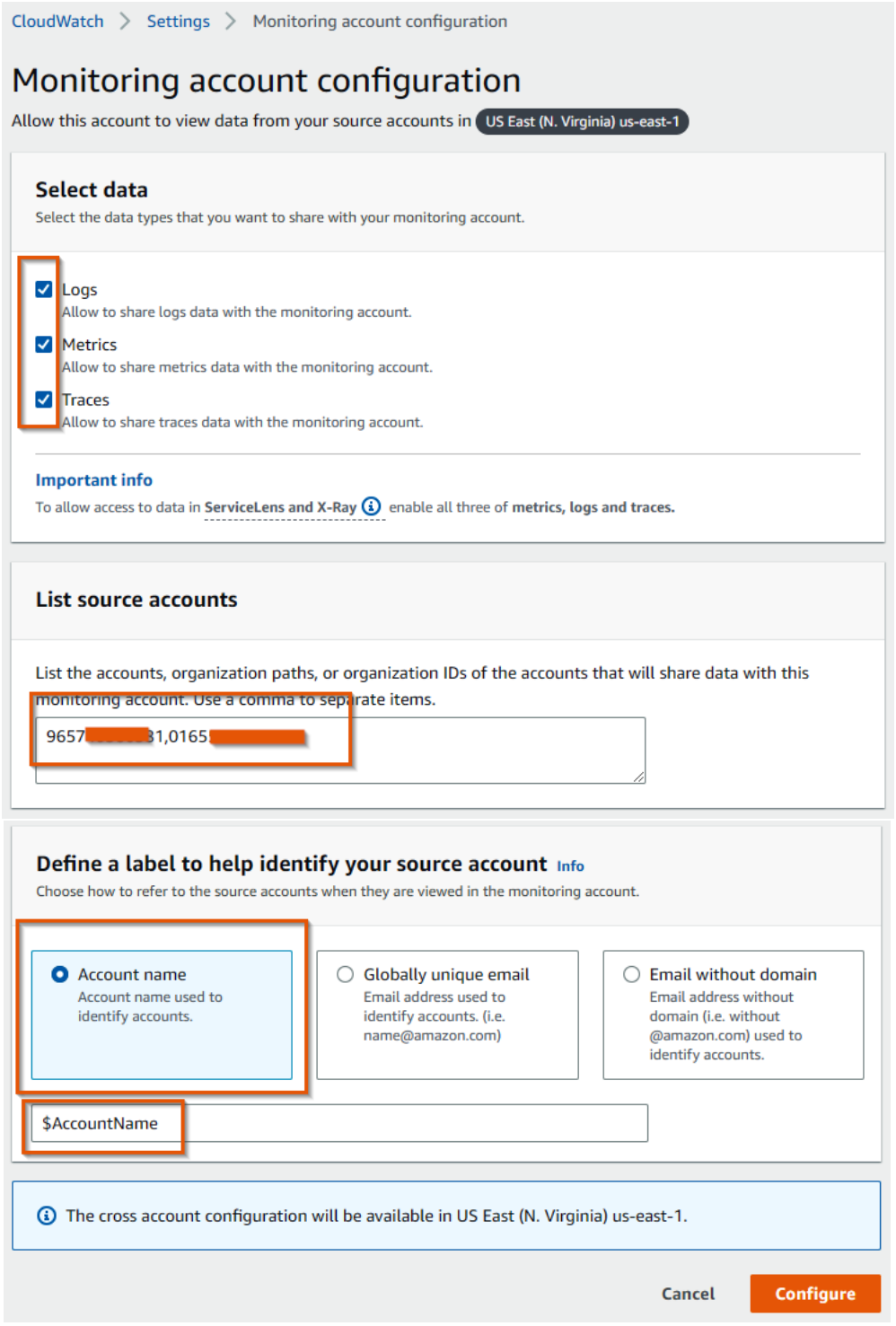


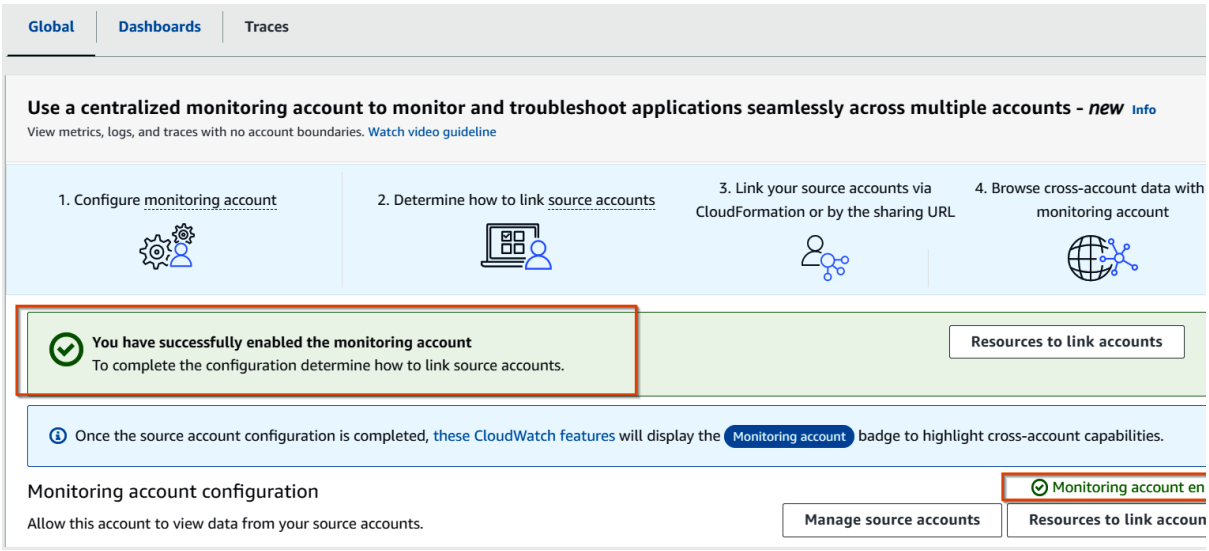

AWS Organizations OUs
Sandbox
Workloads
Policy Staging
Suspended
Individual Business Users
Exceptions
Deployments
Transitional
Foundational OUs
Security
Infrastructure

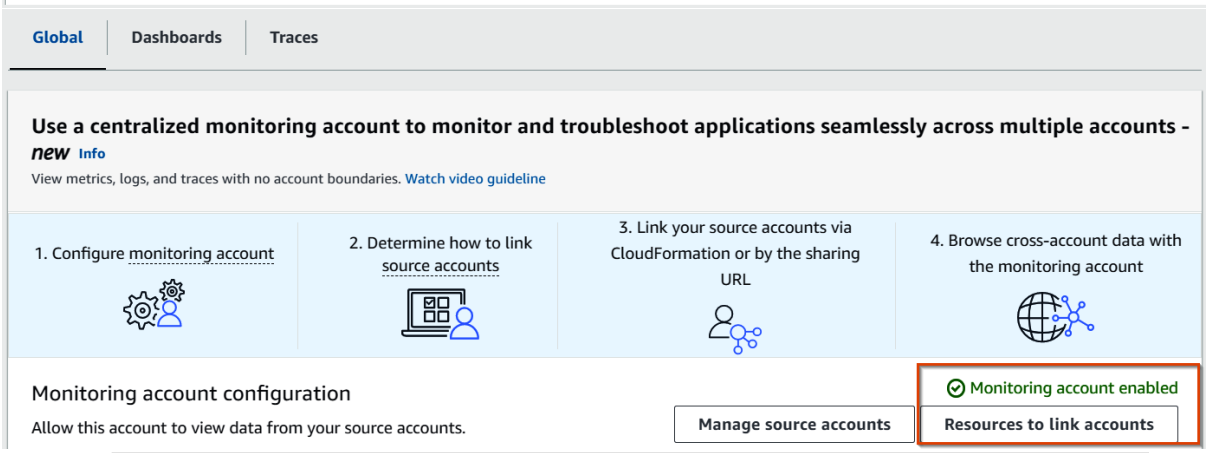

MONITORING ACCOUNT
Permissions
Permissions
Permissions
Permissions
SOURCE ACCOUNT 1
SOURCE ACCOUNT 2
SOURCE ACCOUNT 3
SOURCE ACCOUNT N


CloudWatch
Favorites and recents
Dashboards
Alarms
Logs
Metrics
X-Ray traces
Events
Application monitoring
Insights
Settings
Getting Started
CloudWatch > Settings
CloudWatch settings
Global
Dashboards
Traces
Use a centralized monitoring account to monitor and troubleshoot applications seamlessly across multiple accounts - new Info
View metrics, logs, and traces with no account boundaries. Watch video guideline
1. Configure monitoring account
2. Determine how to link source accounts
3. Link your source accounts via CloudFormation or by the sharing URL
4. Browse cross-account data with the monitoring account
Monitoring account configuration
Allow this account to view data from your source accounts.
To get started, sign in to the account that you want to use as a monitoring account.
Not enabled
Configure
This can be done by the monitoring account only.

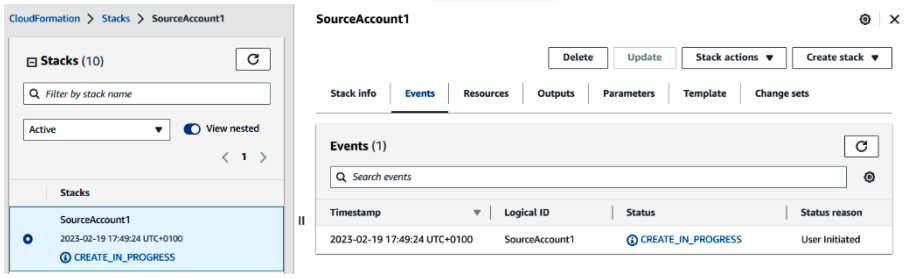

CloudWatch > Settings
CloudWatch settings
Global
Dashboards
Traces
Use a centralized monitoring account to monitor and troubleshoot applications seamlessly across multiple accounts - new Info
View metrics, logs, and traces with no account boundaries. Watch video guideline
1. Configure monitoring account
2. Determine how to link source accounts
3. Link your source accounts via CloudFormation or by the sharing URL
4. Browse cross-account data with the monitoring account
Monitoring account configuration
Allow this account to view data from your source accounts.
To get started, sign in to the account that you want to use as a monitoring account.
Tip: We recommend that you create a new account in your organization to use as the monitoring account.
Not enabled
Configure
This can be done by the monitoring account only.

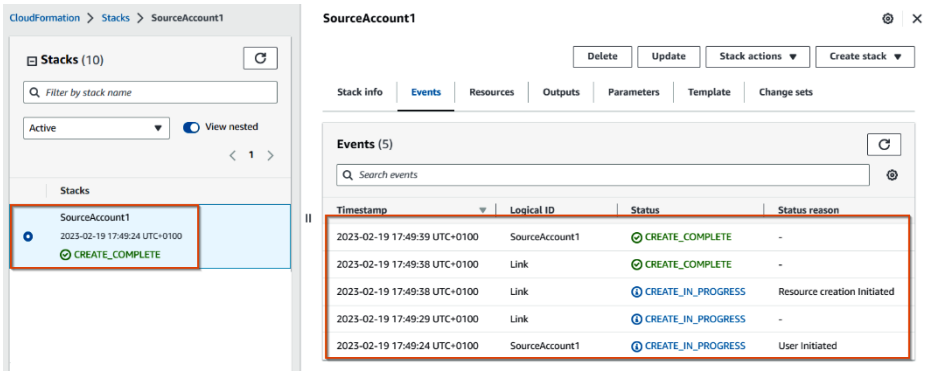

CloudWatch > Settings > Monitoring account configuration
Monitoring account configuration
Allow this account to view data from your source accounts in US East (N. Virginia) us-east-1
Select data
Select the data types that you want to share with your monitoring account.
Logs
Allow to share logs data with the monitoring account.
Metrics
Allow to share metrics data with the monitoring account.
Traces
Allow to share traces data with the monitoring account.
Important info
To allow access to data in ServiceLens and X-Ray enable all three of metrics, logs and traces.
List source accounts
List the accounts, organization paths, or organization IDs of the accounts that will share data with this monitoring account. Use a comma to separate items.
Define a label to help identify your source account Info
Choose how to refer to the source accounts when they are viewed in the monitoring account.
Account name
Account name used to identify accounts.
Globally unique email
Email address used to identify accounts. (i.e. name@amazon.com)
Email without domain
Email address without domain (i.e. without @amazon.com) used to identify accounts.
$AccountName
The cross account configuration will be available in US East (N. Virginia) us-east-1.
Cancel
Configure

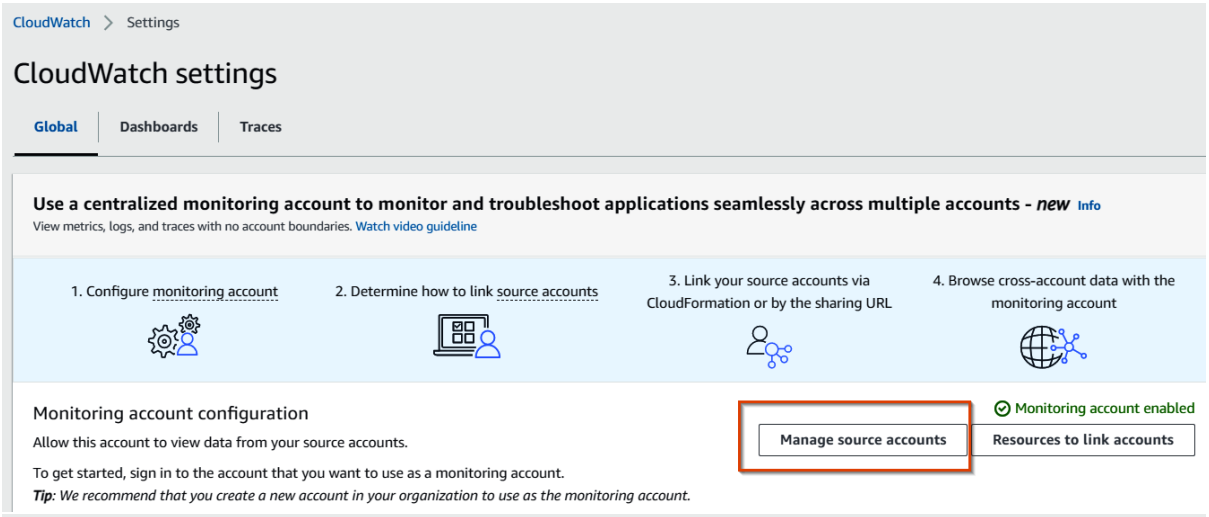


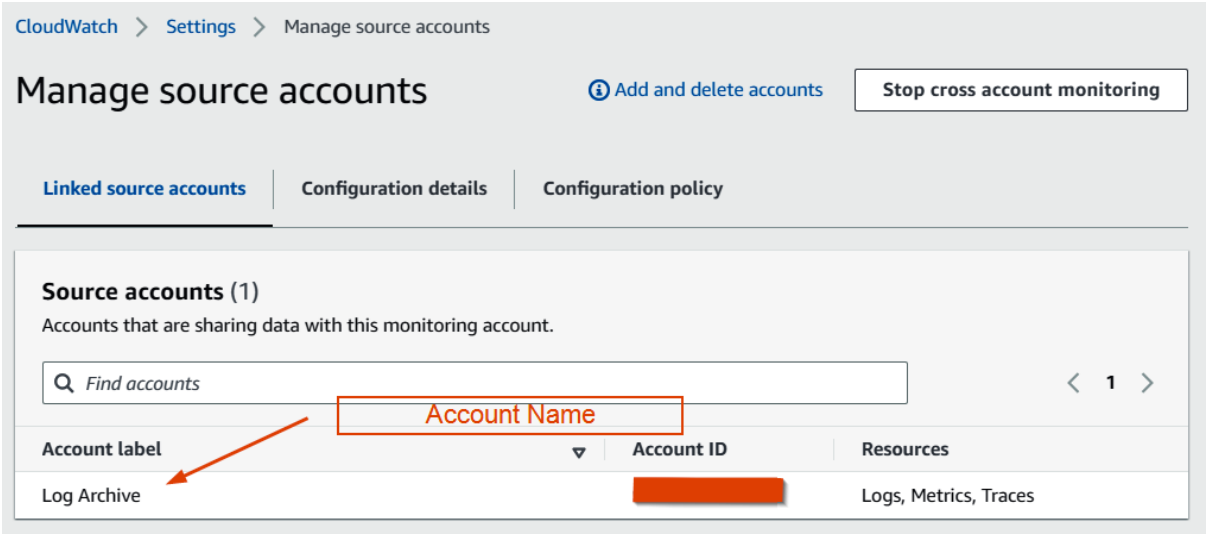


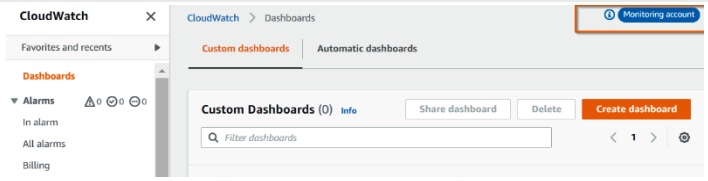

```yaml
AWSTemplateFormatVersion: 2010-09-09

Conditions:
  SkipMonitoringAccount: !Not
    - !Equals
      - !Ref AWS::AccountId
      - "[redacted]"

Resources:
  Link:
    Type: AWS::Oam::Link
    Condition: SkipMonitoringAccount
    Properties:
      LabelTemplate: "$AccountName"
      ResourceTypes:
        - "AWS::CloudWatch::Metric"
        - "AWS::Logs::LogGroup"
        - "AWS::XRay::Trace"
      SinkIdentifier: "arn:aws:oam:us-east-1:[redacted]:sink/dc6156b4-6d94-49e7-a571-6b4656882cbc"
```

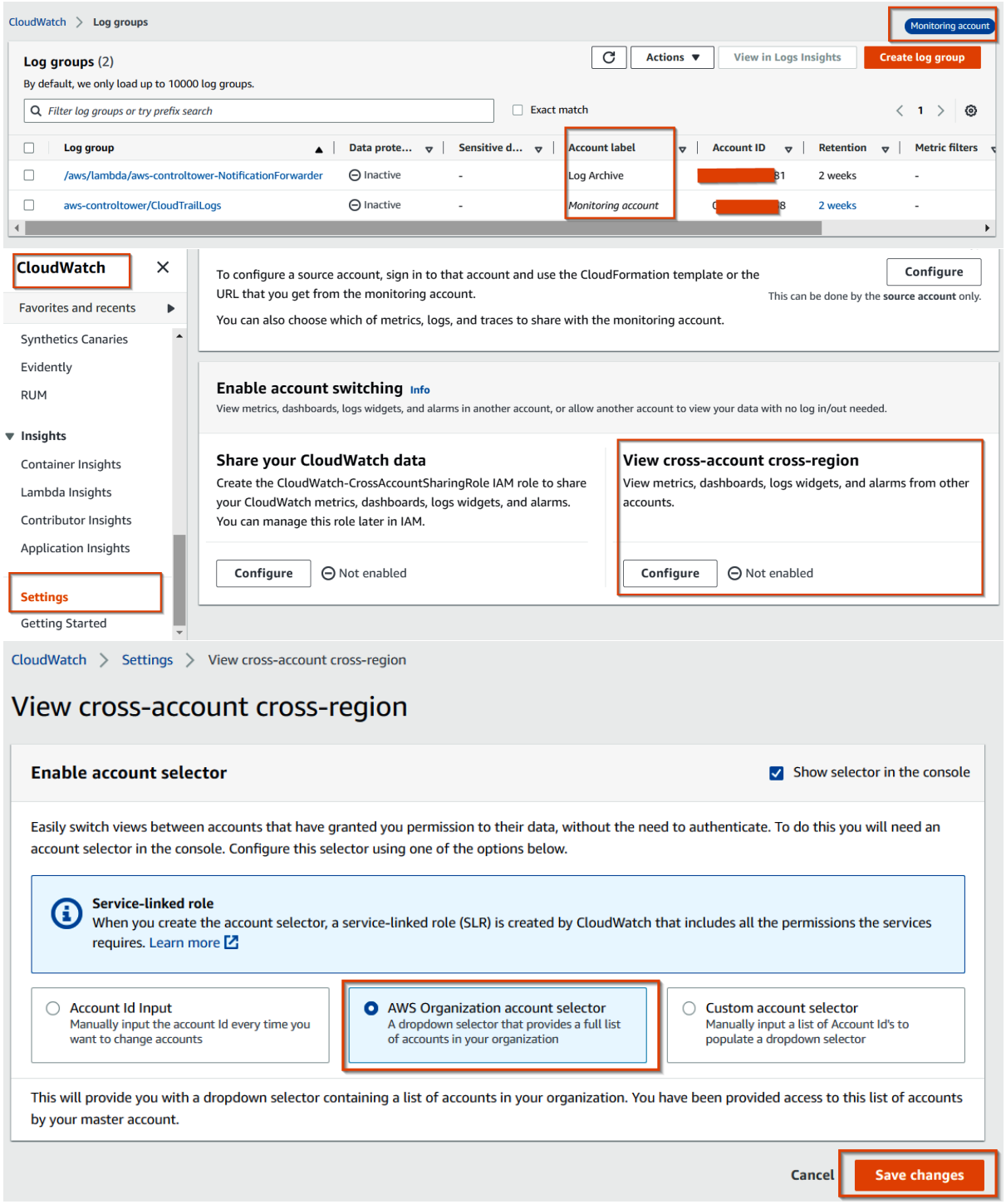



CloudFormation > Stacks > SourceAccount1
Stacks (10)
Filter by stack name
Active
View nested
Stacks
SourceAccount1
2023-02-19 17:49:24 UTC+0100
CREATE_COMPLETE
SourceAccount1
Delete
Update
Stack actions
Create stack
Stack info
Events
Resources
Outputs
Parameters
Template
Change sets
Events (5)
Search events
Timestamp
Logical ID
Status
Status reason
2023-02-19 17:49:39 UTC+0100 SourceAccount1 CREATE_COMPLETE -
2023-02-19 17:49:38 UTC+0100 Link CREATE_COMPLETE -
2023-02-19 17:49:38 UTC+0100 Link CREATE_IN_PROGRESS Resource creation Initiated
2023-02-19 17:49:29 UTC+0100 Link CREATE_IN_PROGRESS -
2023-02-19 17:49:24 UTC+0100 SourceAccount1 CREATE_IN_PROGRESS User Initiated

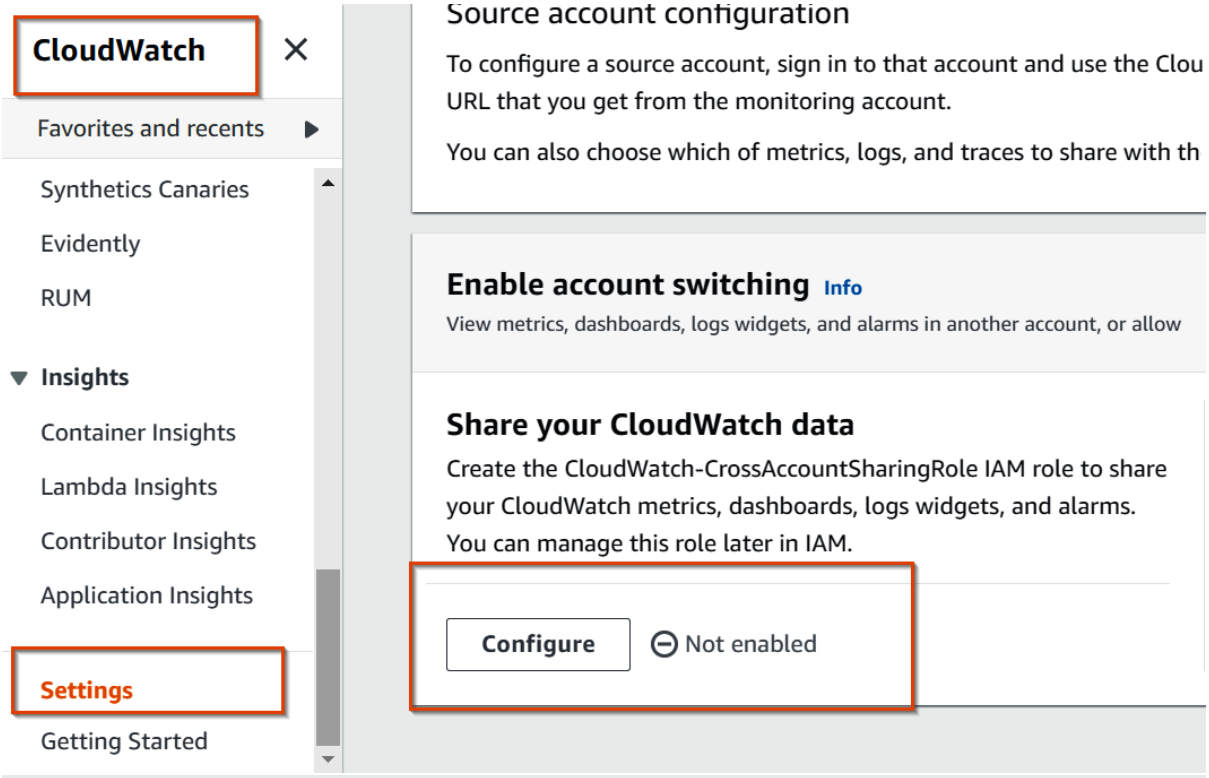

CloudWatch > Settings
CloudWatch settings
Global
Dashboards
Traces
Use a centralized monitoring account to monitor and troubleshoot applications seamlessly across multiple accounts - new Info
View metrics, logs, and traces with no account boundaries. Watch video guideline
1. Configure monitoring account
2. Determine how to link source accounts
3. Link your source accounts via CloudFormation or by the sharing URL
4. Browse cross-account data with the monitoring account
Monitoring account configuration
Allow this account to view data from your source accounts.
To get started, sign in to the account that you want to use as a monitoring account.
Tip: We recommend that you create a new account in your organization to use as the monitoring account.
Monitoring account enabled
Manage source accounts
Resources to link accounts

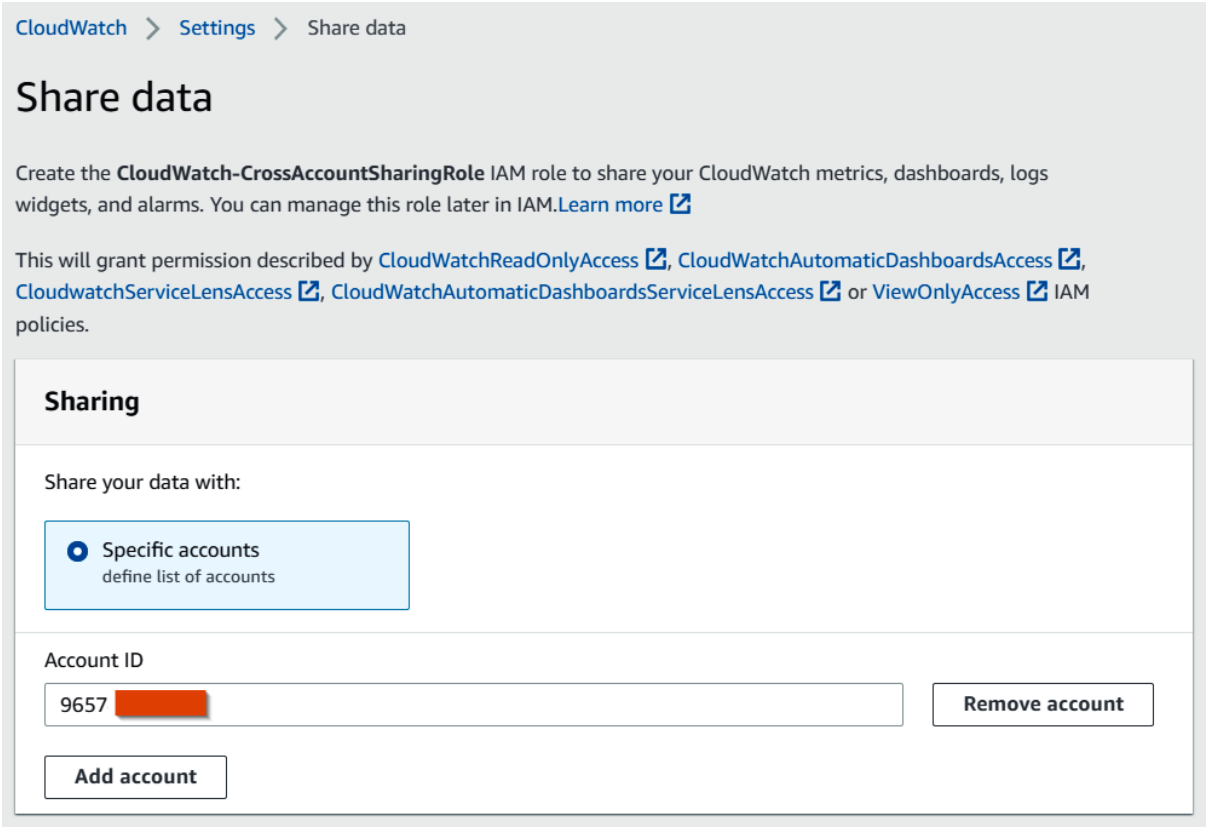

CloudWatch > Settings > Manage source accounts
Manage source accounts
Add and delete accounts
Stop cross account monitoring
Linked source accounts
Configuration details
Configuration policy
Source accounts (1)
Accounts that are sharing data with this monitoring account.
Find accounts
1
Account Name
Account label
Account ID
Resources
Log Archive
Logs, Metrics, Traces


CloudWatch
Favorites and recents
Dashboards
Alarms
In alarm
All alarms
Billing
CloudWatch > Dashboards
Monitoring account
Custom dashboards
Automatic dashboards
Custom Dashboards (0) Info
Share dashboard
Delete
Create dashboard
Filter dashboards


CloudWatch > Log groups
Monitoring account
Log groups (2)
By default, we only load up to 10000 log groups.
Actions
View in Logs Insights
Create log group
Filter log groups or try prefix search
Exact match
Log group
Data prote...
Sensitive d...
Account label
Account ID
Retention
Metric filters
/aws/lambda/aws-controltower-NotificationForwarder
Inactive
Log Archive
2 weeks
aws-controltower/CloudTrailLogs
Inactive
Monitoring account
2 weeks
CloudWatch
Favorites and recents
Synthetics Canaries
Evidently
RUM
Insights
Container Insights
Lambda Insights
Contributor Insights
Application Insights
Settings
Getting Started
To configure a source account, sign in to that account and use the CloudFormation template or the URL that you get from the monitoring account.
You can also choose which of metrics, logs, and traces to share with the monitoring account.
Configure
This can be done by the source account only.
Enable account switching Info
View metrics, dashboards, logs widgets, and alarms in another account, or allow another account to view your data with no log in/out needed.
Share your CloudWatch data
Create the CloudWatch-CrossAccountSharingRole IAM role to share your CloudWatch metrics, dashboards, logs widgets, and alarms. You can manage this role later in IAM.
Configure
Not enabled
View cross-account cross-region
View metrics, dashboards, logs widgets, and alarms from other accounts.
Configure
Not enabled

CloudWatch > Settings > View cross-account cross-region
View cross-account cross-region
Enable account selector
Show selector in the console
Easily switch views between accounts that have granted you permission to their data, without the need to authenticate. To do this you will need an account selector in the console. Configure this selector using one of the options below.
Service-linked role
When you create the account selector, a service-linked role (SLR) is created by CloudWatch that includes all the permissions the services requires. Learn more
Account Id Input
Manually input the account Id every time you want to change accounts
AWS Organization account selector
A dropdown selector that provides a full list of accounts in your organization
Custom account selector
Manually input a list of Account Id's to populate a dropdown selector
This will provide you with a dropdown selector containing a list of accounts in your organization. You have been provided access to this list of accounts by your master account.
Cancel
Save changes


CloudWatch
Favorites and recents
Synthetics Canaries
Evidently
RUM
Insights
Container Insights
Lambda Insights
Contributor Insights
Application Insights
Settings
Getting Started
Source account configuration
To configure a source account, sign in to that account and use the Clou
URL that you get from the monitoring account.
You can also choose which of metrics, logs, and traces to share with th
Enable account switching Info
View metrics, dashboards, logs widgets, and alarms in another account, or allow
Share your CloudWatch data
Create the CloudWatch-CrossAccountSharingRole IAM role to share your CloudWatch metrics, dashboards, logs widgets, and alarms. You can manage this role later in IAM.
Configure
Not enabled


CloudWatch > Settings > Share data
Share data
Create the CloudWatch-CrossAccountSharingRole IAM role to share your CloudWatch metrics, dashboards, logs widgets, and alarms. You can manage this role later in IAM.Learn more
This will grant permission described by CloudWatchReadOnlyAccess, CloudWatchAutomaticDashboardsAccess, CloudwatchServiceLensAccess, CloudWatchAutomaticDashboardsServiceLensAccess or ViewOnlyAccess IAM policies.
Sharing
Share your data with:
Specific accounts
define list of accounts
Account ID
9657
Remove account
Add account

Permissions

CrossAccountSharingRole:

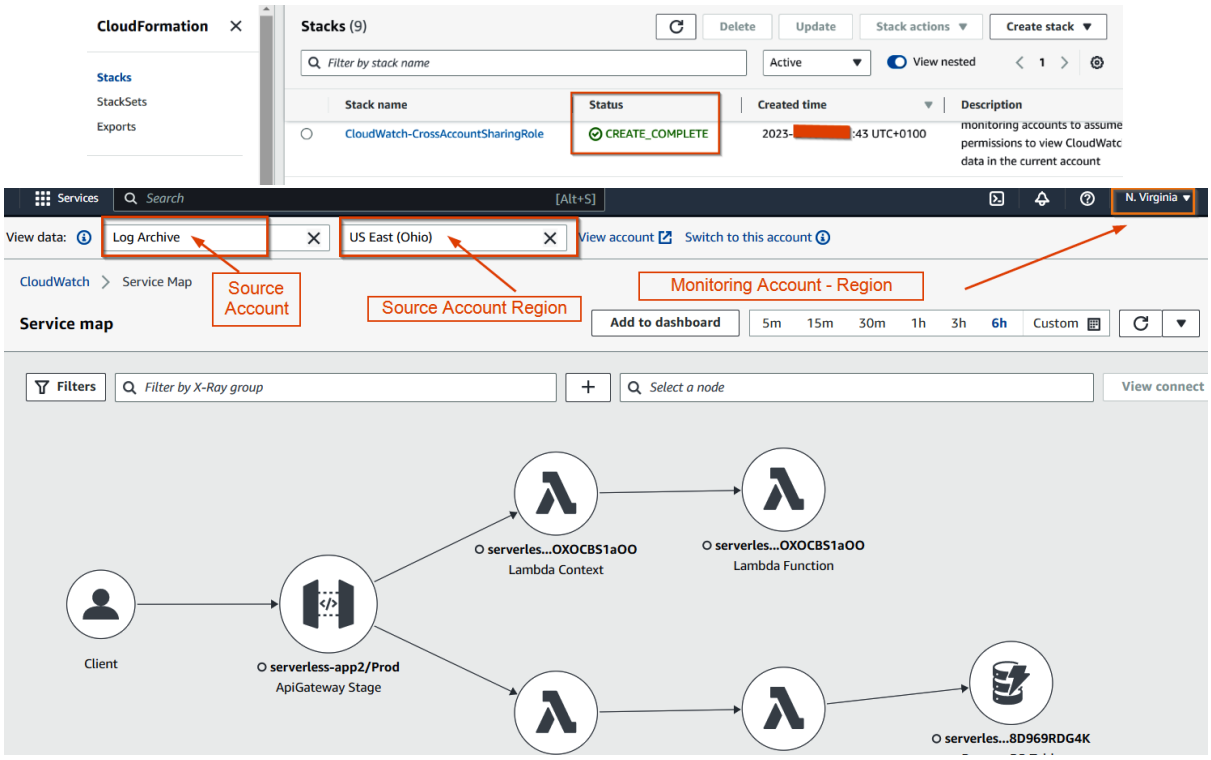
- (●) Provide read only access to your CloudWatch metrics, dashboards, logs widgets and alarms
  - [x] Include CloudWatch automatic dashboards. Learn more
    This allows accounts to view your CloudWatch homepage dashboards
  - [x] Include X-Ray read-only access for ServiceLens. Learn more
    This allows accounts to view your ServiceLens service map and trace information
- ( ) Full read-only access to everything in your account Learn more
  This allows accounts to switch into your account and view all services, without authentication

Create CloudFormation stack

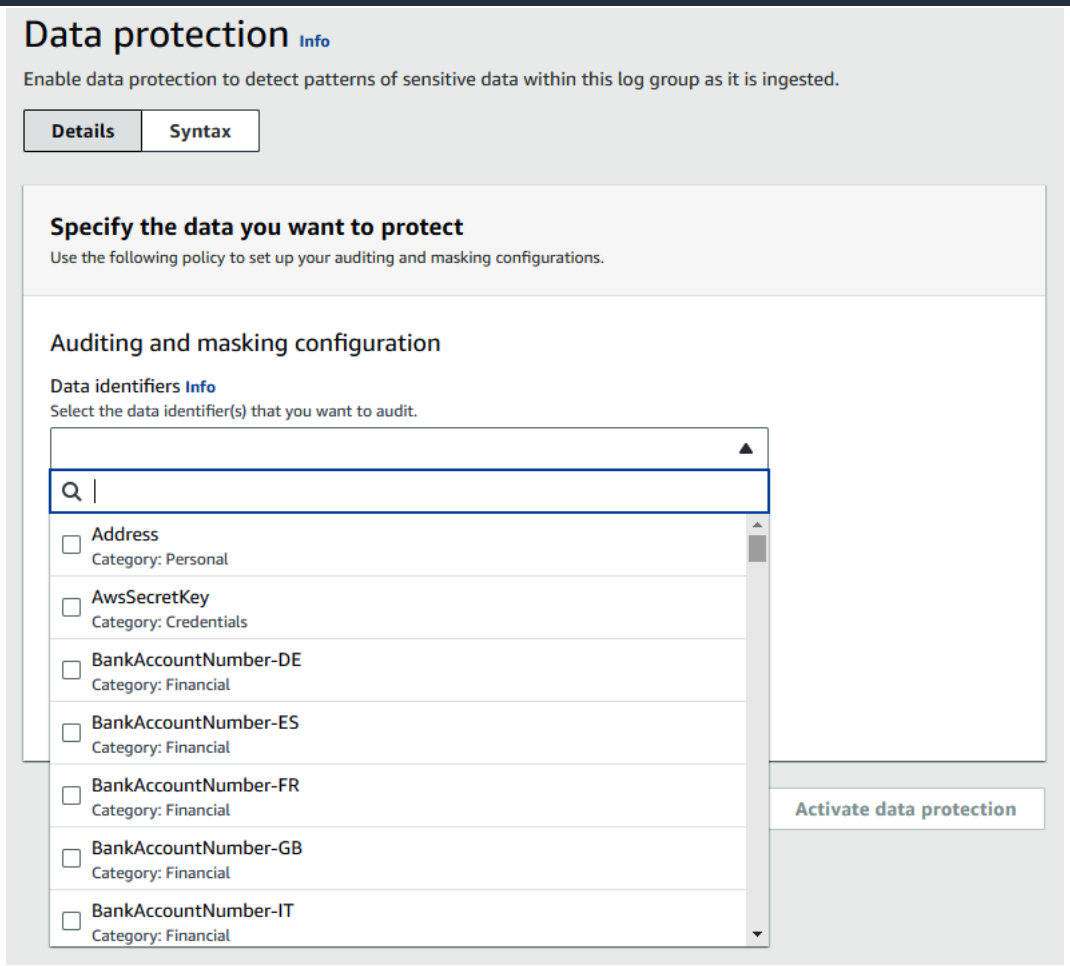
Use this CloudFormation template to finish creating the **CloudWatch-CrossAccountSharingRole** IAM role. Once you successfully created the **CloudWatch-CrossAccountSharingRole** IAM role using the template you have completed the process to share your data.

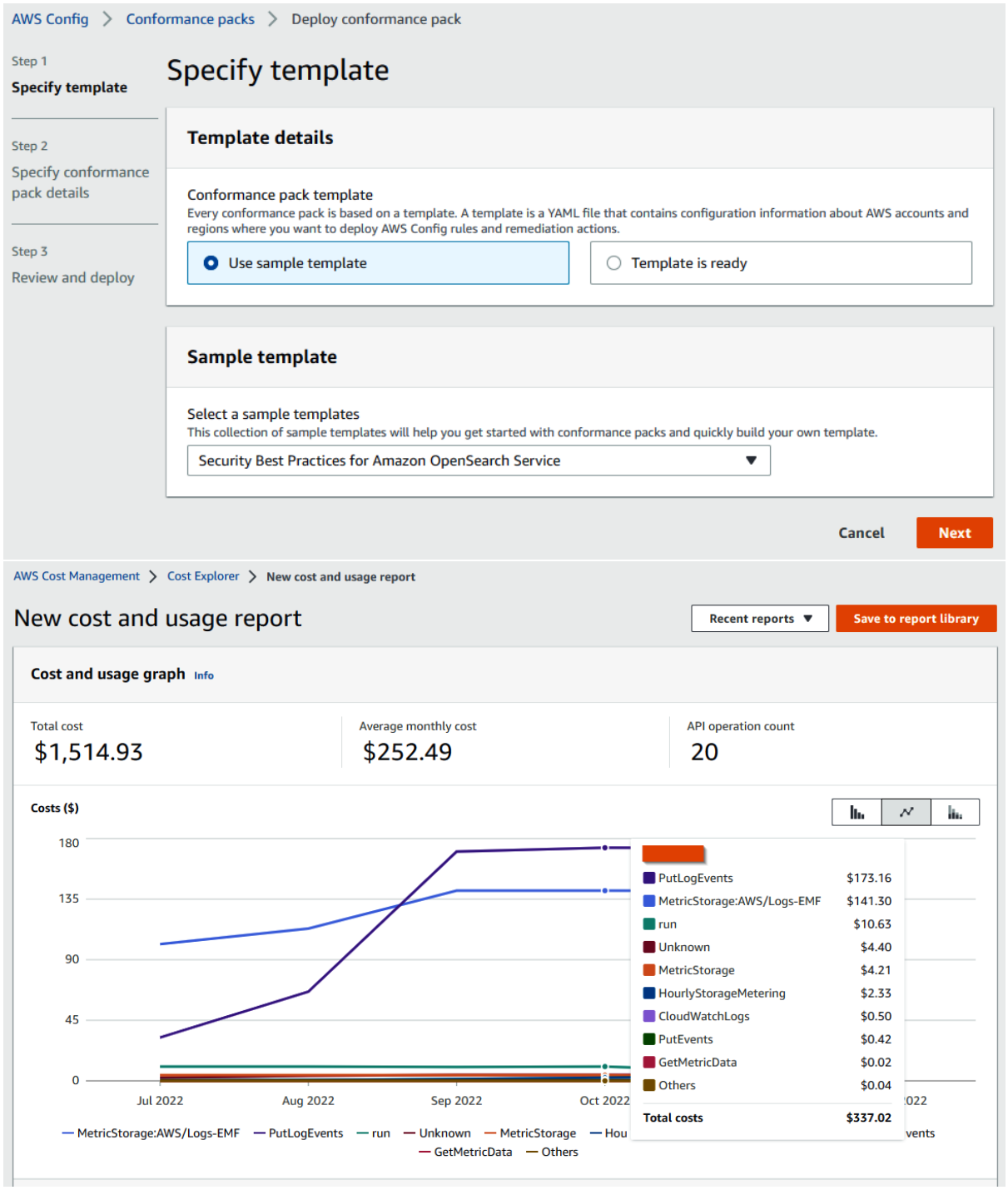
Launch CloudFormation template

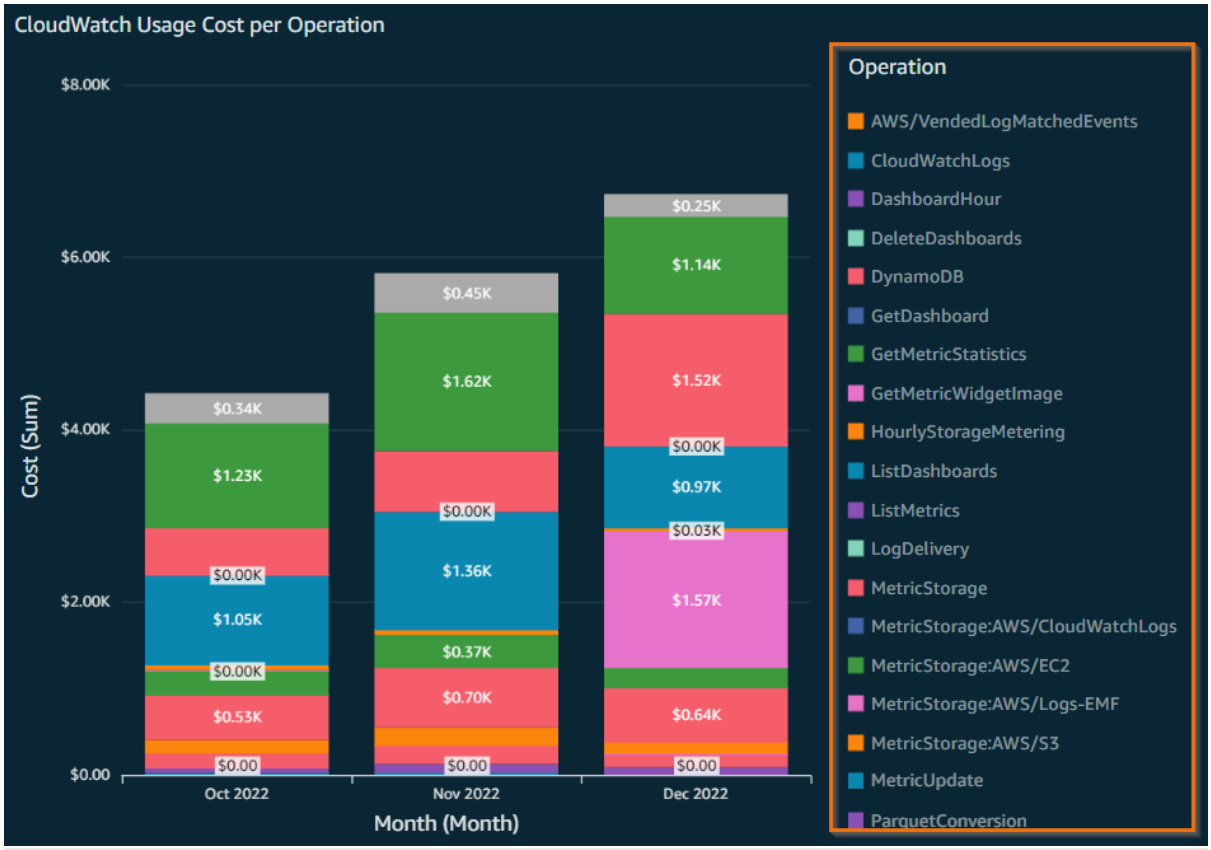
CloudWatch-CrossAccountSharingRole is not created yet

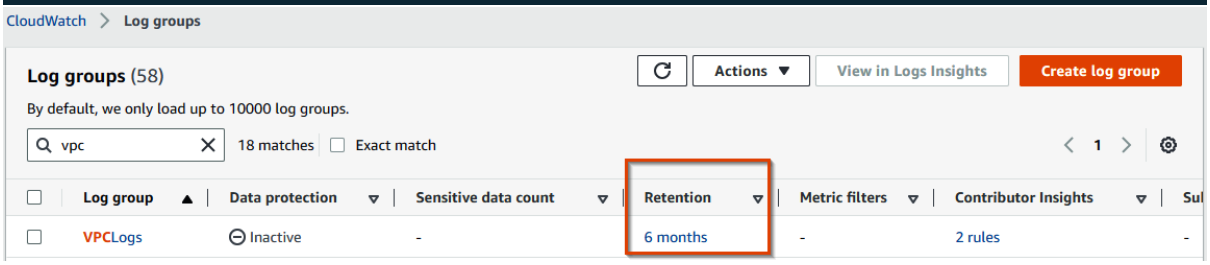


Chapter 14: Be Well-Architected for Operational Excellence




AWS Config > Conformance packs > Deploy conformance pack
Step 1
Specify template
Step 2
Specify conformance pack details
Step 3
Review and deploy
Specify template
Template details
Conformance pack template
Every conformance pack is based on a template. A template is a YAML file that contains configuration information about AWS accounts and regions where you want to deploy AWS Config rules and remediation actions.
Use sample template
Template is ready
Sample template
Select a sample templates
This collection of sample templates will help you get started with conformance packs and quickly build your own template.
Security Best Practices for Amazon OpenSearch Service
Cancel
Next
AWS Cost Management > Cost Explorer > New cost and usage report
New cost and usage report
Recent reports
Save to report library
Cost and usage graph Info
Total cost
$1,514.93
Average monthly cost
$252.49
API operation count
20
Costs ($)
180
135
90
45
0
Jul 2022
Aug 2022
Sep 2022
Oct 2022
PutLogEvents $173.16
MetricStorage:AWS/Logs-EMF $141.30
run $10.63
Unknown $4.40
MetricStorage $4.21
HourlyStorageMetering $2.33
CloudWatchLogs $0.50
PutEvents $0.42
GetMetricData $0.02
Others $0.04
Total costs $337.02
MetricStorage:AWS/Logs-EMF
PutLogEvents
run
Unknown
MetricStorage
GetMetricData
Others





AWS Management & Governance services

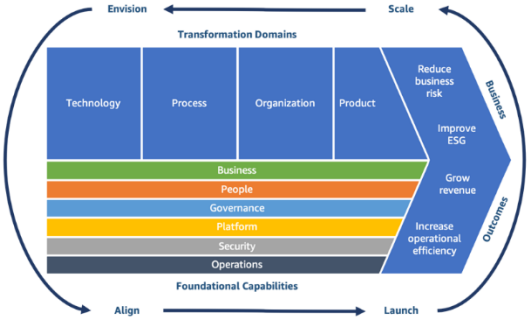
Interoperable management and governance functions

Controls & guardrails	Network connectivity	Identity management	Security management	Service management (ITSM)	Observability	Cloud financial management	Sourcing and distribution
• AWS Control Tower • AWS Organizations • AWS Config • AWS Config conformance packs • AWS Audit Manager • AWS Security Hub	• Amazon VPC • AWS Transit Gateway • Gateway Load Balancer • AWS Network Firewall • VPC Reachability Analyzer	• AWS Identity and Access Management (IAM) • AWS IAM Access Analyzer • AWS SSO • AWS Managed Microsoft AD • AD Connector	• AWS Security Hub • Amazon GuardDuty • AWS Security Hub Automated Response and Remediation • AWS Secrets Manager • AWS KMS	• AWS Service Management Connector • AWS Service Catalog • AWS Systems Manager • AWS Security Hub • AWS Config	• Amazon CloudWatch/ AWS CloudTrail • AWS Systems Manager OpsCenter • AWS X-Ray • Amazon Managed Service for Grafana (AMG) • Amazon Managed Service for Prometheus (AMP) • Amazon OpenSearch	• AWS Billing and Cost Management • AWS Budgets • AWS Cost and Usage Reports • Cost Explorer • AWS License Manager	• AWS Marketplace / Private marketplace • AWS License Manager • Managed entitlements • Procurement system integration • AWS Service Catalog • AWS Systems Manager

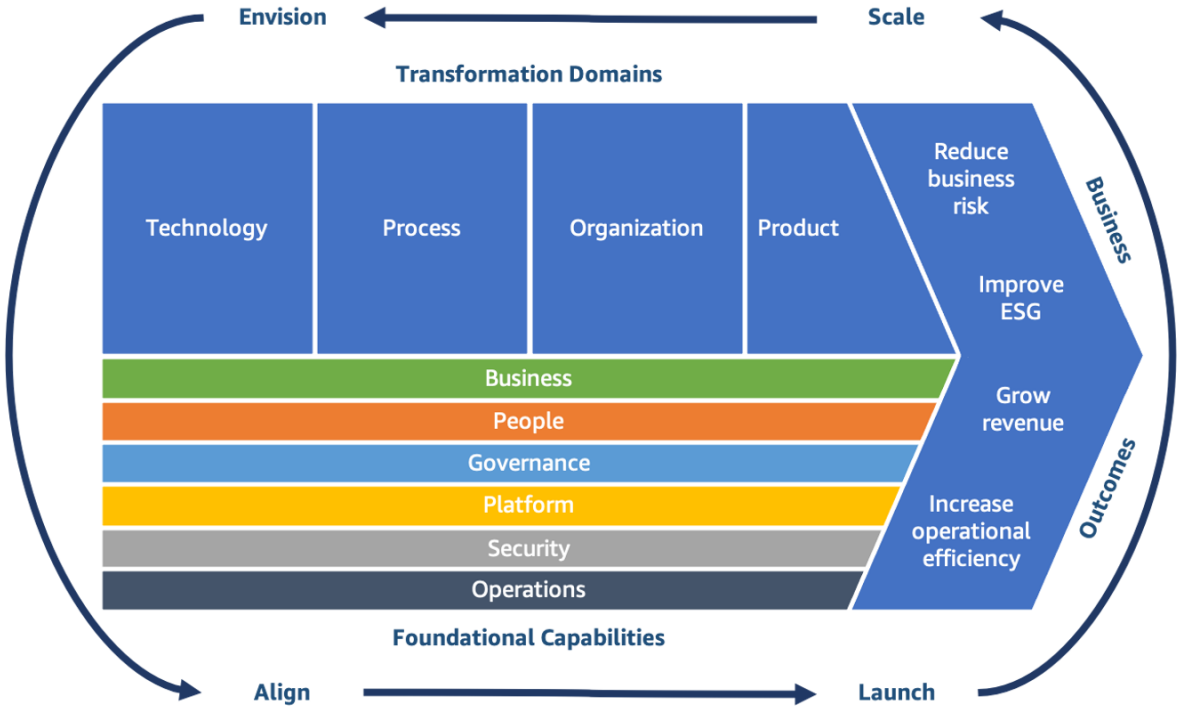
Chapter 15: The Role of Observability in the Cloud Adoption Framework

AWS CAF 1.0 (2014)
Components and activities for Cloud adoption

AWS CAF 2.0 (2017)
Capabilities impacted by cloud adoption



AWS CAF 3.0 (2021)
Cloud transformation framework and methodology



Envision Align Launch Scale

Technology Process Organization Product

Business

- Strategy Management
- Portfolio Management
- Innovation Management
- Product Management
- Strategic Partnership
- Data Monetization
- Business Insight
- Data Science

People

- Culture Innovation
- Transformational Leadership
- Cloud Fluency
- Workforce Transformation
- Change Acceleration
- Organization Design
- Organizational Alignment

Governance

- Program and Project Management
- Benefits Management
- Risk Management
- Cloud Financial Management
- Application Portfolio Management
- Data Governance
- Data Curation

Platform

- Platform Architecture
- Data Architecture
- Platform Engineering
- Data Engineering
- Provision and Orchestration
- Modern Application Development
- Continuous Integration and Continuous Delivery

Security

- Security Governance
- Security Assurance
- Identity and Access Management
- Threat Detection
- Vulnerability Management
- Infrastructure Protection
- Data Protection
- Application Security
- Incident Response

Operations

- Observability
- Event Management (AIOps)
- Incident and Problem Management
- Change and Release Management
- Performance and Capacity Management
- Configuration Management
- Patch Management
- Availability and Continuity Management
- Application Management

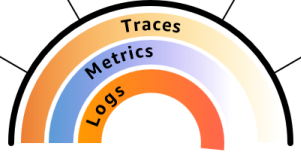
Identification of strategic improvement opportunities
Identifying weak link in the distributed systems

Reduce MTTR
Expedites troubleshooting by pinpointing the root cause
Minimize time to diagnose and resolve

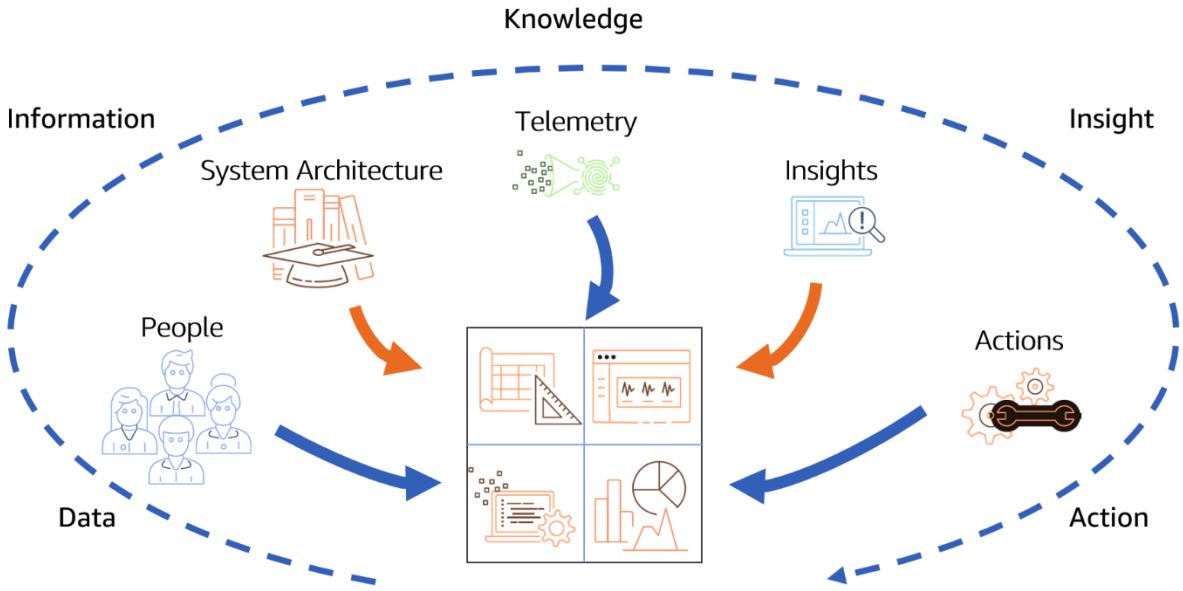
Enabling data-driven decisions
Augmenting runtime resources

Understanding operational health
Reveal health of primary and supporting resources
Monitor critical signals improving MTTD

Improve business and technical agility
Accelerate developer velocity



Observability value curve



Product Offering

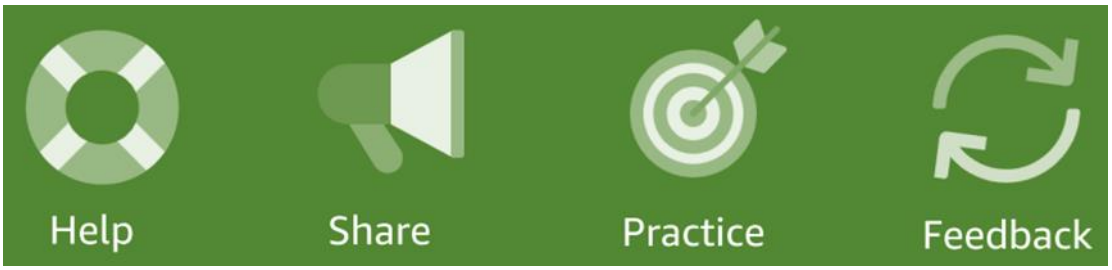
- Workflows
- Services templates
- Feedback

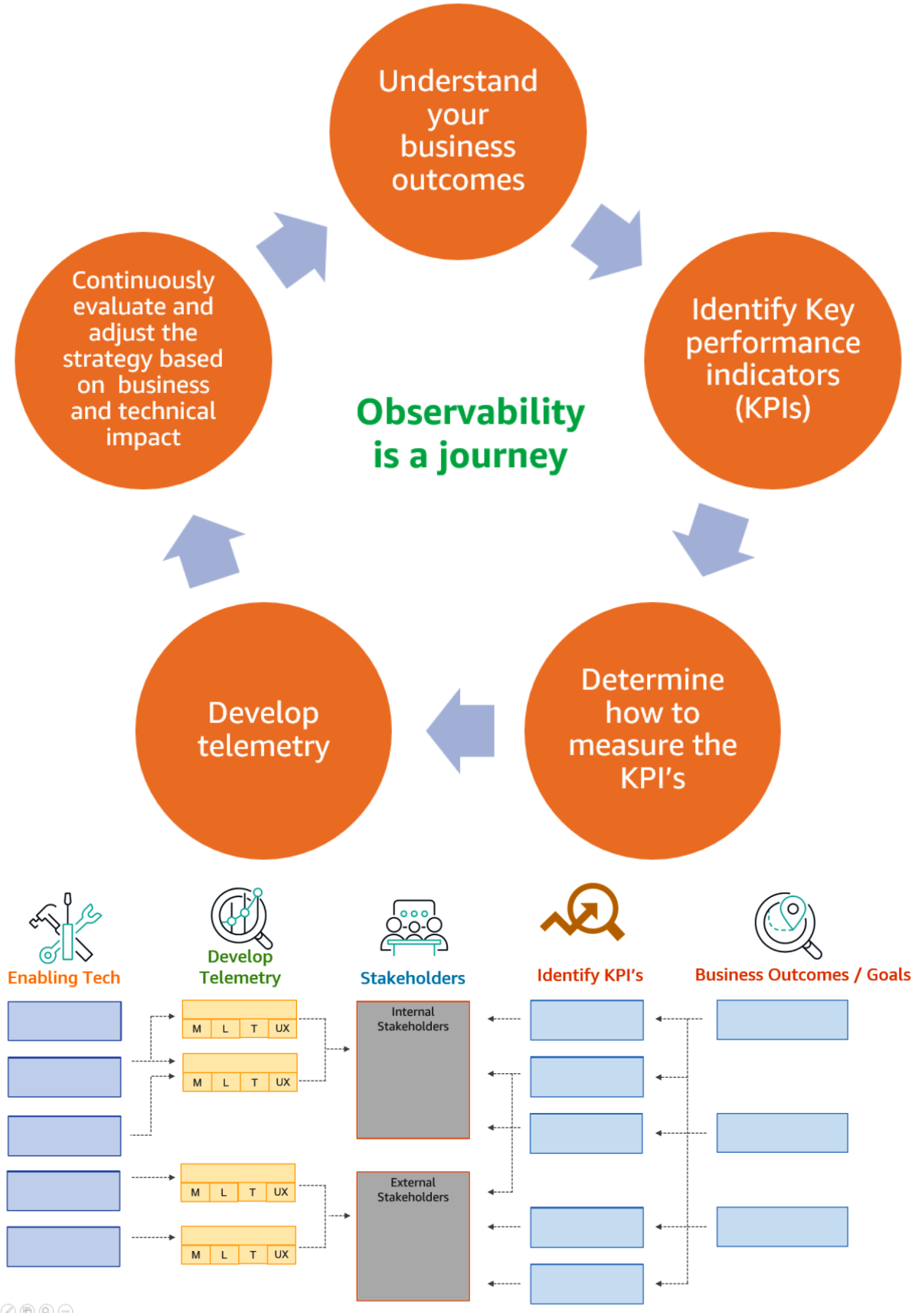
Commonality

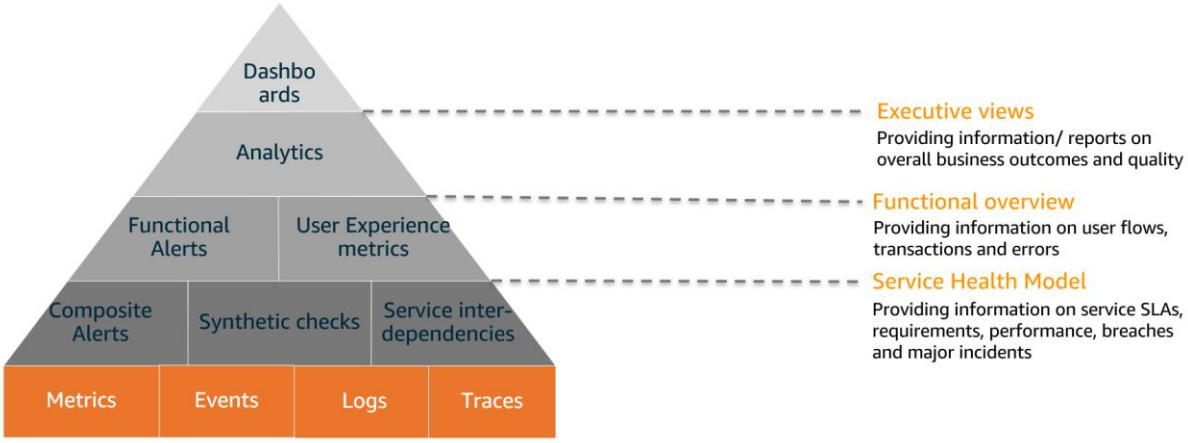
- Standardization
- Libraries
- Frameworks

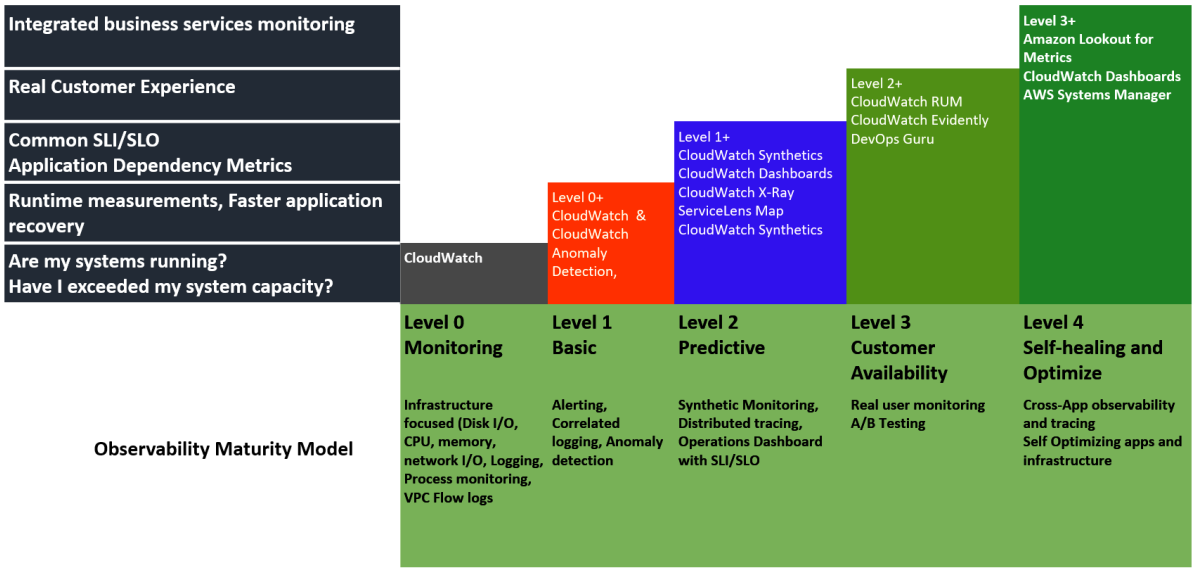
Educate & Promote

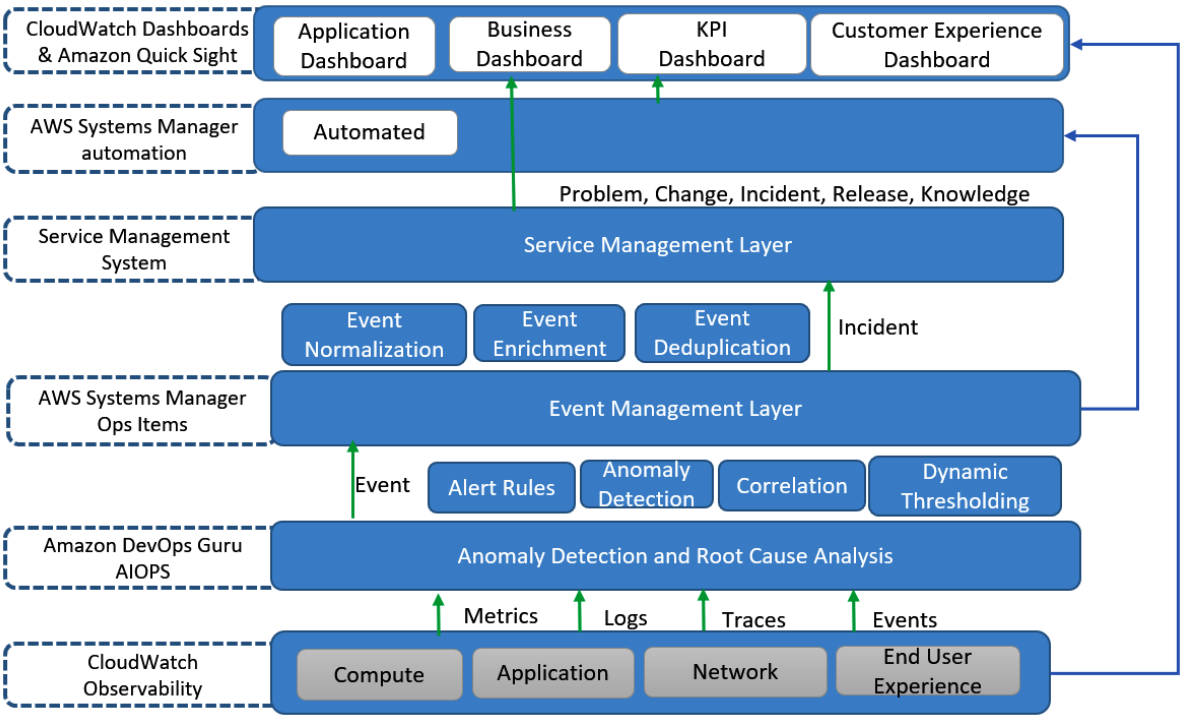
- Bootcamps
- Know-how
- Certification




Understand your business outcomes
Identify Key performance indicators (KPIs)
Determine how to measure the KPI's
Develop telemetry
Continuously evaluate and adjust the strategy based on business and technical impact
Observability is a journey
Enabling Tech
Develop Telemetry
Stakeholders
Identify KPI's
Business Outcomes / Goals
M L T UX
M L T UX
M L T UX
M L T UX
Internal Stakeholders
External Stakeholders


Dashbo
ards
Analytics
Functional
Alerts
User Experience
metrics
Composite
Alerts
Synthetic checks
Service inter-
dependencies
Metrics
Events
Logs
Traces
Executive views
Providing information/ reports on overall business outcomes and quality
Functional overview
Providing information on user flows, transactions and errors
Service Health Model
Providing information on service SLAs, requirements, performance, breaches and major incidents


Integrated business services monitoring
Real Customer Experience
Common SLI/SLO
Application Dependency Metrics
Runtime measurements, Faster application recovery
Are my systems running?
Have I exceeded my system capacity?
CloudWatch
Level 0+
CloudWatch &
CloudWatch
Anomaly
Detection,
Level 1+
CloudWatch Synthetics
CloudWatch Dashboards
CloudWatch X-Ray
ServiceLens Map
CloudWatch Synthetics
Level 2+
CloudWatch RUM
CloudWatch Evidently
DevOps Guru
Level 3+
Amazon Lookout for
Metrics
CloudWatch Dashboards
AWS Systems Manager
Observability Maturity Model
Level 0
Monitoring
Infrastructure focused (Disk I/O, CPU, memory, network I/O, Logging, Process monitoring, VPC Flow logs
Level 1
Basic
Alerting, Correlated logging, Anomaly detection
Level 2
Predictive
Synthetic Monitoring, Distributed tracing, Operations Dashboard with SLI/SLO
Level 3
Customer
Availability
Real user monitoring
A/B Testing
Level 4
Self-healing and
Optimize
Cross-App observability and tracing
Self Optimizing apps and infrastructure


CloudWatch Dashboards & Amazon Quick Sight
Application Dashboard
Business Dashboard
KPI Dashboard
Customer Experience Dashboard
AWS Systems Manager automation
Automated
Problem, Change, Incident, Release, Knowledge
Service Management System
Service Management Layer
Event Normalization
Event Enrichment
Event Deduplication
Incident
AWS Systems Manager Ops Items
Event Management Layer
Event
Alert Rules
Anomaly Detection
Correlation
Dynamic Thresholding
Amazon DevOps Guru AIOPS
Anomaly Detection and Root Cause Analysis
Metrics
Logs
Traces
Events
CloudWatch Observability
Compute
Application
Network
End User Experience