

AWS Lambda Cheatsheet

Key Performance Data

Note:

- Standard Cloudwatch metrics are available via Datadog's [AWS integration](#)
- Enhanced metrics are available for Lambda functions [instrumented with](#) the Datadog Lambda Library and Datadog Lambda Extension
- For more information on Lambda monitoring, visit <https://dtdg.co/lambda-metrics>

Standard Cloudwatch Metrics

The following are [key Cloudwatch metrics](#) for monitoring the health and performance of AWS Lambda functions.

Function Utilization and Performance Metrics—more info

| METRIC DESCRIPTION | AVAILABILITY | METRIC NAME |
|-------------------------------------|--------------|-----------------|
| Execution time (ms) | cloudwatch | Duration |
| Memory allocated to a function (MB) | logs | Memory Size |
| Maximum memory used (MB) | logs | Max Memory Used |

Lambda Invocation Metrics—more info

| METRIC DESCRIPTION | AVAILABILITY | METRIC NAME |
|---|--------------|------------------|
| Age of the last processed record in a stream's batch | cloudwatch | IteratorAge |
| Number of invocations | cloudwatch | Invocations |
| Number of failed invocations | cloudwatch | Errors |
| Number of failed attempts to send an event to the dead-letter queue | cloudwatch | DeadLetterErrors |

Lambda Concurrency Metrics—more info

| METRIC DESCRIPTION | AVAILABILITY | METRIC NAME |
|--|--------------|--------------------------------|
| Number of functions processing events | cloudwatch | ConcurrentExecutions |
| Number of functions processing events without reserved concurrency | cloudwatch | UnreservedConcurrentExecutions |
| Number of invocations throttled due to concurrent execution limits | cloudwatch | Throttles |

Lambda Provisioned Concurrency Metrics—more info

| METRIC DESCRIPTION | AVAILABILITY | METRIC NAME |
|---|--------------|--|
| Number of functions processing events on provisioned concurrency | cloudwatch | ProvisionedConcurrentExecutions |
| Percent of provisioned concurrency used | cloudwatch | ProvisionedConcurrencyUtilization |
| Number of invocations on provisioned concurrency | cloudwatch | ProvisionedConcurrencyInvocations |
| Number of concurrent invocations over the provisioned concurrency limit | cloudwatch | ProvisionedConcurrencySpilloverInvocations |
| Percent of provisioned concurrency being used | cloudwatch | ProvisionedConcurrencyInvocations |

Collect these OOTB metrics with Datadog

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Enhanced Metrics from Datadog

The following are Datadog's [enhanced metrics](#) for Lambda functions, which are available at **second-level granularity** and provide deeper insight into performance and costs.

| METRIC DESCRIPTION | DATADOG METRIC NAME |
|---|--------------------------------------|
| Number of invocations in response to an event or an API call | aws.lambda.enhanced.invocations |
| Elapsed time across init, runtime, and post-runtime durations | aws.lambda.enhanced.duration |
| Initialization time during a cold start (seconds) | aws.lambda.enhanced.init_duration |
| Execution time (seconds) | aws.lambda.enhanced.runtime_duration |
| Maximum amount of memory used (MB) | aws.lambda.enhanced.max_memory_used |
| Estimated cost of an invocation (\$) | aws.lambda.enhanced.estimated_cost |
| Number of failed invocations caused by function errors | aws.lambda.enhanced.errors |
| Number of function timeouts | aws.lambda.enhanced.timeouts |
| Number of times a function runs out of memory | aws.lambda.enhanced.out_of_memory |

AWS Lambda Metadata

Datadog automatically enriches Lambda metric, log, and trace data with tags that provide additional context for troubleshooting performance issues.

| TAG NAME* | DESCRIPTION | DATA SOURCE |
|------------------|--|---------------------------|
| aws_account | AWS account name | Enhanced metrics and logs |
| region | Region where a function is deployed | Enhanced metrics and logs |
| functionname | Function Name | Enhanced metrics and logs |
| cold_start | If the function experienced a cold start | Enhanced metrics and logs |
| memorysize | Memory allocated to a function (MB) | Enhanced metrics and logs |
| executedversion | Function version | Enhanced metrics and logs |
| runtime | Function runtime (Python, Node.js, Ruby, Java, Go, .NET) | Enhanced metrics and logs |
| architecture | Function processor (arm64, x86_64) | Enhanced metrics and logs |
| function_arn | Function Amazon Resource Name (ARN) | Traces |
| status_code | HTTP request status | Traces |
| function_trigger | Resource that triggered a function | Traces |
| http.method** | HTTP request method | Traces |
| http.url** | API Gateway URL that invoked the function | Traces |

* Tags are in addition to custom tags and Datadog's [unified](#) and [integration tags](#)

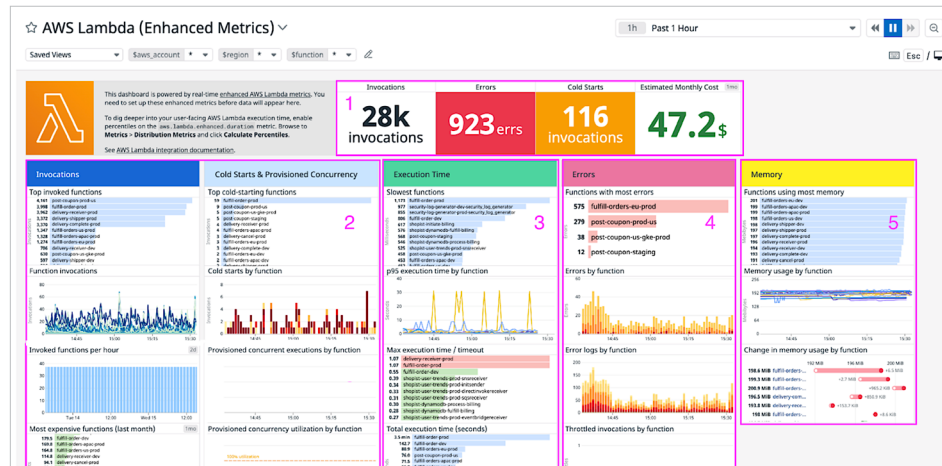
** Functions invoked by API Gateway

AWS Lambda Cheatsheet



Note:

- For metric descriptions and more information: <https://dtdg.co/lambda-metrics>



1. Status overview

| METRIC DESCRIPTION | DATADOG METRIC NAME |
|--|------------------------------------|
| Total number of invocations in response to an event or an API call | aws.lambda.enhanced.invocations |
| Total number of failed invocations caused by function errors | aws.lambda.enhanced.errors |
| Total number of invocations that were cold starts | aws.lambda.enhanced.cold_starts |
| Estimated cost of an invocation (\$) | aws.lambda.enhanced.estimated_cost |

2. Invocations, Cold Starts, and Provisioned Concurrency

| METRIC DESCRIPTION | DATADOG METRIC NAME |
|--|--|
| Total number of invocations in response to an event or an API call, grouped by function name | aws.lambda.enhanced.invocations |
| Total number of invocations, grouped by function name | aws.lambda.invocations |
| Estimated cost of an invocation (\$), grouped by function name | aws.lambda.enhanced.estimated_cost |
| Total number of invocations that were cold starts | aws.lambda.enhanced.cold_starts |
| Total number of functions processing events on provisioned concurrency, grouped by function name | aws.lambda.provisioned_concurrent_executions |
| Percent of provisioned concurrency used, grouped by function name | aws.lambda.provisioned_concurrency_utilization |

3. Execution Time

| METRIC DESCRIPTION | DATADOG METRIC NAME |
|---|------------------------------|
| Elapsed time across init, runtime, and post-runtime durations | aws.lambda.enhanced.duration |
| Execution time (p95), grouped by function name | aws.lambda.duration.p95 |
| Total number of time outs, grouped by function name | aws.lambda.timeouts |

4. Errors

| METRIC DESCRIPTION | DATADOG METRIC NAME |
|--|----------------------------|
| Number of failed invocations caused by function errors, grouped by function name | aws.lambda.enhanced.errors |
| Number of invocations throttled due to concurrent execution limits, grouped by function name | aws.lambda.throttles |

5. Memory

| METRIC DESCRIPTION | DATADOG METRIC NAME |
|--|-------------------------------------|
| Maximum amount of memory used (MB), grouped by function name | aws.lambda.enhanced.max_memory_used |

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