

# 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

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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

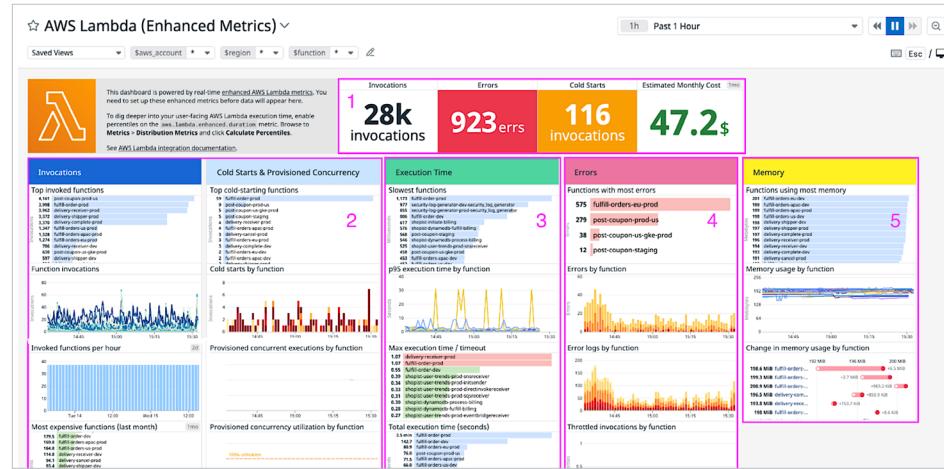
\* Tags are in addition to custom tags and Datadog's [unified](#) and [integration tags](#)

\*\* Functions invoked by API Gateway

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## 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.invocations
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.invocations
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.timeout

## 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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