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Welcome

AWS X-Ray provides APIs for managing debug traces and retrieving service maps and other data created by processing those traces.

This document was last published on December 21, 2017.
Actions

The following actions are supported:

- BatchGetTraces (p. 3)
- GetServiceGraph (p. 6)
- GetTraceGraph (p. 10)
- GetTraceSummaries (p. 13)
- PutTelemetryRecords (p. 17)
- PutTraceSegments (p. 19)
BatchGetTraces

Retrieves a list of traces specified by ID. Each trace is a collection of segment documents that originates from a single request. Use GetTraceSummaries to get a list of trace IDs.

Request Syntax

```
POST /Traces HTTP/1.1
Content-type: application/json
{
    "NextToken": "string",
    "TraceIds": [ "string" ]
}
```

URI Request Parameters

The request does not use any URI parameters.

Request Body

The request accepts the following data in JSON format.

**NextToken (p. 3)**

Pagination token. Not used.
- Type: String
- Required: No

**TraceIds (p. 3)**

Specify the trace IDs of requests for which to retrieve segments.
- Type: Array of strings
- Required: Yes

Response Syntax

```
HTTP/1.1 200
Content-type: application/json
{
    "NextToken": "string",
    "Traces": [
        {
            "Duration": number,
            "Id": "string",
            "Segments": [
                {
                    "Document": "string",
                    "Id": "string"
                }
            ]
        }
    ]
}
```
Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in JSON format by the service.

NextToken (p. 3)

Pagination token. Not used.

Type: String

Traces (p. 3)

Full traces for the specified requests.

Type: Array of Trace (p. 40) objects

UnprocessedTraceIds (p. 3)

Trace IDs of requests that haven't been processed.

Type: Array of strings

Length Constraints: Minimum length of 1. Maximum length of 35.

Errors

For information about the errors that are common to all actions, see Common Errors (p. 48).

InvalidRequestException

The request is missing required parameters or has invalid parameters.

HTTP Status Code: 400

ThrottledException

The request exceeds the maximum number of requests per second.

HTTP Status Code: 429

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go
- AWS SDK for Java
See Also

- AWS SDK for JavaScript
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V2
GetServiceGraph

Retrieves a document that describes services that process incoming requests, and downstream services that they call as a result. Root services process incoming requests and make calls to downstream services. Root services are applications that use the AWS X-Ray SDK. Downstream services can be other applications, AWS resources, HTTP web APIs, or SQL databases.

Request Syntax

```
POST /ServiceGraph HTTP/1.1
Content-type: application/json

{
   "EndTime": number,
   "NextToken": "string",
   "StartTime": number
}
```

URI Request Parameters

The request does not use any URI parameters.

Request Body

The request accepts the following data in JSON format.

EndTime (p. 6)

The end of the time frame for which to generate a graph.

Type: Timestamp

Required: Yes

NextToken (p. 6)

Pagination token. Not used.

Type: String

Required: No

StartTime (p. 6)

The start of the time frame for which to generate a graph.

Type: Timestamp

Required: Yes

Response Syntax

```
HTTP/1.1 200
Content-type: application/json

{
   "EndTime": number,
}
```
"NextToken": "string",
"Services": [
  {
    "AccountId": "string",
    "DurationHistogram": [
      {
        "Count": number,
        "Value": number
      }
    ],
    "Edges": [
      {
        "Aliases": [
          {
            "Name": "string",
            "Names": [ "string" ],
            "Type": "string"
          }
        ],
        "EndTime": number,
        "ReferenceId": number,
        "ResponseTimeHistogram": [
          {
            "Count": number,
            "Value": number
          }
        ],
        "StartTime": number,
        "SummaryStatistics": {
          "ErrorStatistics": {
            "OtherCount": number,
            "ThrottleCount": number,
            "TotalCount": number
          },
          "FaultStatistics": {
            "OtherCount": number,
            "TotalCount": number
          },
          "OkCount": number,
          "TotalCount": number,
          "TotalResponseTime": number
        }
      }
    ],
    "EndTime": number,
    "Name": "string",
    "Names": [ "string" ],
    "ReferenceId": number,
    "ResponseTimeHistogram": [
      {
        "Count": number,
        "Value": number
      }
    ],
    "Root": boolean,
    "StartTime": number,
    "State": "string",
    "SummaryStatistics": {
      "ErrorStatistics": {
        "OtherCount": number,
        "ThrottleCount": number,
        "TotalCount": number
      },
      "FaultStatistics": {
        "OtherCount": number,
        "TotalCount": number
      }
    }
  }
],
"Root": boolean,
Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in JSON format by the service.

EndTime (p. 6)

The end of the time frame for which the graph was generated.

Type: Timestamp

NextToken (p. 6)

Pagination token. Not used.

Type: String

Services (p. 6)

The services that have processed a traced request during the specified time frame.

Type: Array of Service (p. 34) objects

StartTime (p. 6)

The start of the time frame for which the graph was generated.

Type: Timestamp

Errors

For information about the errors that are common to all actions, see Common Errors (p. 48).

InvalidRequestException

The request is missing required parameters or has invalid parameters.

HTTP Status Code: 400

ThrottledException

The request exceeds the maximum number of requests per second.

HTTP Status Code: 429

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:
• AWS Command Line Interface
• AWS SDK for .NET
• AWS SDK for C++
• AWS SDK for Go
• AWS SDK for Java
• AWS SDK for JavaScript
• AWS SDK for PHP V3
• AWS SDK for Python
• AWS SDK for Ruby V2
GetTraceGraph

Retrieves a service graph for one or more specific trace IDs.

Request Syntax

```
POST /TraceGraph HTTP/1.1
Content-type: application/json

{
   "NextToken": "string",
   "TraceIds": [ "string" ]
}
```

URI Request Parameters

The request does not use any URI parameters.

Request Body

The request accepts the following data in JSON format.

NextToken (p. 10)

Pagination token. Not used.

Type: String

Required: No

TraceIds (p. 10)

Trace IDs of requests for which to generate a service graph.

Type: Array of strings

Length Constraints: Minimum length of 1. Maximum length of 35.

Required: Yes

Response Syntax

```
HTTP/1.1 200
Content-type: application/json

{
   "NextToken": "string",
   "Services": [ 
       { 
           "AccountId": "string",
           "DurationHistogram": [ 
               { 
                   "Count": number,
                   "Value": number
               ]
           ]
       } 
   ]
}
```

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10
},
"Edges": [
{
   "Aliases": [
   {
      "Name": "string",
      "Names": [ "string" ],
      "Type": "string"
   }
   ],
   "EndTime": number,
   "ReferenceId": number,
   "ResponseTimeHistogram": [
   {
      "Count": number,
      "Value": number
   }
   ],
   "StartTime": number,
   "SummaryStatistics": {
      "ErrorStatistics": {
         "OtherCount": number,
         "ThrottleCount": number,
         "TotalCount": number
      },
      "FaultStatistics": {
         "OtherCount": number,
         "TotalCount": number
      },
      "OkCount": number,
      "TotalCount": number,
      "TotalResponseTime": number
   }
   }
],
"EndTime": number,
"Name": "string",
"Names": [ "string" ],
"ReferenceId": number,
"ResponseTimeHistogram": [
   {
      "Count": number,
      "Value": number
   }
],
"Root": boolean,
"StartTime": number,
"State": "string",
"SummaryStatistics": {
   "ErrorStatistics": {
      "OtherCount": number,
      "ThrottleCount": number,
      "TotalCount": number
   },
   "FaultStatistics": {
      "OtherCount": number,
      "TotalCount": number
   },
   "OkCount": number,
   "TotalCount": number,
   "TotalResponseTime": number
},
"Type": "string"
]
Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in JSON format by the service.

**NextToken (p. 10)**

Pagination token. Not used.

Type: String

**Services (p. 10)**

The services that have processed one of the specified requests.

Type: Array of Service (p. 34) objects

Errors

For information about the errors that are common to all actions, see Common Errors (p. 48).

**InvalidRequestException**

The request is missing required parameters or has invalid parameters.

HTTP Status Code: 400

**ThrottledException**

The request exceeds the maximum number of requests per second.

HTTP Status Code: 429

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go
- AWS SDK for Java
- AWS SDK for JavaScript
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V2
GetTraceSummaries

Retrieves IDs and metadata for traces available for a specified time frame using an optional filter. To get the full traces, pass the trace IDs to BatchGetTraces.

A filter expression can target traced requests that hit specific service nodes or edges, have errors, or come from a known user. For example, the following filter expression targets traces that pass through api.example.com:

service("api.example.com")

This filter expression finds traces that have an annotation named account with the value 12345:

annotation.account = "12345"

For a full list of indexed fields and keywords that you can use in filter expressions, see Using Filter Expressions in the AWS X-Ray Developer Guide.

Request Syntax

POST /TraceSummaries HTTP/1.1
Content-type: application/json

{
   "EndTime": number,
   "FilterExpression": "string",
   "NextToken": "string",
   "Sampling": boolean,
   "StartTime": number
}

URI Request Parameters

The request does not use any URI parameters.

Request Body

The request accepts the following data in JSON format.

EndTime (p. 13)

The end of the time frame for which to retrieve traces.

Type: Timestamp

Required: Yes

FilterExpression (p. 13)

Specify a filter expression to retrieve trace summaries for services or requests that meet certain requirements.

Type: String


Required: No
NextToken (p. 13)

Specify the pagination token returned by a previous request to retrieve the next page of results.

Type: String
Required: No

Sampling (p. 13)

Set to true to get summaries for only a subset of available traces.

Type: Boolean
Required: No

StartTime (p. 13)

The start of the time frame for which to retrieve traces.

Type: Timestamp
Required: Yes

Response Syntax

HTTP/1.1 200
Content-type: application/json

```json
{
  "ApproximateTime": number,
  "NextToken": "string",
  "TracesProcessedCount": number,
  "TraceSummaries": [
    {
      "Annotations": {
        "string": [
          {
            "AnnotationValue": {
              "BooleanValue": boolean,
              "NumberValue": number,
              "StringValue": "string"
            }
          },
          "ServiceIds": [
            {
              "AccountId": "string",
              "Name": "string",
              "Names": [ "string" ],
              "Type": "string"
            }
          ]
        }
      }
    },
    "Duration": number,
    "HasError": boolean,
    "HasFault": boolean,
    "HasThrottle": boolean,
    "Http": {
      "ClientIp": "string",
      "HttpMethod": "string",
      "HttpStatus": number,
```
Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in JSON format by the service.

**ApproximateTime (p. 14)**

The start time of this page of results.

Type: Timestamp

**NextToken (p. 14)**

If the requested time frame contained more than one page of results, you can use this token to retrieve the next page. The first page contains the most most recent results, closest to the end of the time frame.

Type: String

**TracesProcessedCount (p. 14)**

The total number of traces processed, including traces that did not match the specified filter expression.

Type: Long

**TraceSummaries (p. 14)**

Trace IDs and metadata for traces that were found in the specified time frame.

Type: Array of TraceSummary (p. 41) objects
Errors

For information about the errors that are common to all actions, see Common Errors (p. 48).

InvalidRequestException

The request is missing required parameters or has invalid parameters.

HTTP Status Code: 400

ThrottledException

The request exceeds the maximum number of requests per second.

HTTP Status Code: 429

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go
- AWS SDK for Java
- AWS SDK for JavaScript
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V2
PutTelemetryRecords

Used by the AWS X-Ray daemon to upload telemetry.

Request Syntax

```plaintext
POST /TelemetryRecords HTTP/1.1
Content-type: application/json

{
  "EC2InstanceId": "string",
  "Hostname": "string",
  "ResourceARN": "string",
  "TelemetryRecords": [
    {
      "BackendConnectionErrors": {
        "ConnectionRefusedCount": number, 
        "HTTPCode4XXCount": number,
        "HTTPCode5XXCount": number,
        "OtherCount": number,
        "TimeoutCount": number,
        "UnknownHostCount": number
      },
      "SegmentsReceivedCount": number,
      "SegmentsRejectedCount": number,
      "SegmentsSentCount": number,
      "SegmentsSpilloverCount": number,
      "Timestamp": number
    }
  ]
}
```

URI Request Parameters

The request does not use any URI parameters.

Request Body

The request accepts the following data in JSON format.

**EC2InstanceId (p. 17)**

Type: String

Length Constraints: Maximum length of 20.

Required: No

**Hostname (p. 17)**

Type: String

Length Constraints: Maximum length of 255.

Required: No

**ResourceARN (p. 17)**
Type: String
Length Constraints: Maximum length of 500.
Required: No

TelemetryRecords (p. 17)

Type: Array of TelemetryRecord (p. 39) objects
Required: Yes

Response Syntax

```
HTTP/1.1 200
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

Errors

For information about the errors that are common to all actions, see Common Errors (p. 48).

InvalidRequestException

The request is missing required parameters or has invalid parameters.

HTTP Status Code: 400

ThrottledException

The request exceeds the maximum number of requests per second.

HTTP Status Code: 429

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go
- AWS SDK for Java
- AWS SDK for JavaScript
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V2
PutTraceSegments

Uploads segment documents to AWS X-Ray. The X-Ray SDK generates segment documents and sends them to the X-Ray daemon, which uploads them in batches. A segment document can be a completed segment, an in-progress segment, or an array of subsegments.

Segments must include the following fields. For the full segment document schema, see AWS X-Ray Segment Documents in the AWS X-Ray Developer Guide.

Required Segment Document Fields

- **name** - The name of the service that handled the request.
- **id** - A 64-bit identifier for the segment, unique among segments in the same trace, in 16 hexadecimal digits.
- **trace_id** - A unique identifier that connects all segments and subsegments originating from a single client request.
- **start_time** - Time the segment or subsegment was created, in floating point seconds in epoch time, accurate to milliseconds. For example, 1480615200.010 or 1.480615200010E9.
- **end_time** - Time the segment or subsegment was closed. For example, 1480615200.090 or 1.480615200090E9. Specify either an end_time or in_progress.
- **in_progress** - Set to true instead of specifying an end_time to record that a segment has been started, but is not complete. Send an in progress segment when your application receives a request that will take a long time to serve, to trace the fact that the request was received. When the response is sent, send the complete segment to overwrite the in-progress segment.

A trace_id consists of three numbers separated by hyphens. For example, 1-58406520-a006649127e371903a2de979. This includes:

Trace ID Format

- The version number, i.e. 1.
- The time of the original request, in Unix epoch time, in 8 hexadecimal digits. For example, 10:00AM December 2nd, 2016 PST in epoch time is 1480615200 seconds, or 58406520 in hexadecimal.
- A 96-bit identifier for the trace, globally unique, in 24 hexadecimal digits.

Request Syntax

```
POST /TraceSegments HTTP/1.1
Content-type: application/json

{
  "TraceSegmentDocuments": [ "string" ]
}
```

URI Request Parameters

The request does not use any URI parameters.

Request Body

The request accepts the following data in JSON format.
TraceSegmentDocuments (p. 19)
A string containing a JSON document defining one or more segments or subsegments.
Type: Array of strings
Required: Yes

Response Syntax

HTTP/1.1 200
Content-type: application/json
{
   "UnprocessedTraceSegments": [
      {
         "ErrorCode": "string",
         "Id": "string",
         "Message": "string"
      }
   ]
}

Response Elements
If the action is successful, the service sends back an HTTP 200 response.
The following data is returned in JSON format by the service.
UnprocessedTraceSegments (p. 20)
Segments that failed processing.
Type: Array of UnprocessedTraceSegment (p. 44) objects

Errors
For information about the errors that are common to all actions, see Common Errors (p. 48).
InvalidRequestException
The request is missing required parameters or has invalid parameters.
HTTP Status Code: 400

ThrottledException
The request exceeds the maximum number of requests per second.
HTTP Status Code: 429

See Also
For more information about using this API in one of the language-specific AWS SDKs, see the following:
- AWS Command Line Interface
See Also

- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go
- AWS SDK for Java
- AWS SDK for JavaScript
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V2
Data Types

The AWS X-Ray API contains several data types that various actions use. This section describes each data type in detail.

**Note**
The order of each element in a data type structure is not guaranteed. Applications should not assume a particular order.

The following data types are supported:

- Alias (p. 23)
- AnnotationValue (p. 24)
- BackendConnectionErrors (p. 25)
- Edge (p. 26)
- EdgeStatistics (p. 28)
- ErrorStatistics (p. 29)
- FaultStatistics (p. 30)
- HistogramEntry (p. 31)
- Http (p. 32)
- Segment (p. 33)
- Service (p. 34)
- ServiceId (p. 37)
- ServiceStatistics (p. 38)
- TelemetryRecord (p. 39)
- Trace (p. 40)
- TraceSummary (p. 41)
- TraceUser (p. 43)
- UnprocessedTraceSegment (p. 44)
- ValueWithServiceIds (p. 45)
Alias

An alias for an edge.

Contents

Name

The canonical name of the alias.

Type: String

Required: No

Names

A list of names for the alias, including the canonical name.

Type: Array of strings

Required: No

Type

The type of the alias.

Type: String

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Go
- AWS SDK for Java
- AWS SDK for Ruby V2
AnnotationValue

Value of a segment annotation. Has one of three value types: Number, Boolean or String.

Contents

BooleanValue

Value for a Boolean annotation.

Type: Boolean

Required: No

NumberValue

Value for a Number annotation.

Type: Double

Required: No

StringValue

Value for a String annotation.

Type: String

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Go
- AWS SDK for Java
- AWS SDK for Ruby V2
BackendConnectionErrors

Contents

ConnectionRefusedCount

Type: Integer
Required: No

HTTPCode4XXCount

Type: Integer
Required: No

HTTPCode5XXCount

Type: Integer
Required: No

OtherCount

Type: Integer
Required: No

TimeoutCount

Type: Integer
Required: No

UnknownHostCount

Type: Integer
Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Go
- AWS SDK for Java
- AWS SDK for Ruby V2
Edge

Information about a connection between two services.

Contents

Aliases

Aliases for the edge.

Type: Array of Alias (p. 23) objects

Required: No

EndTime

The end time of the last segment on the edge.

Type: Timestamp

Required: No

ReferenceId

Identifier of the edge. Unique within a service map.

Type: Integer

Required: No

ResponseTimeHistogram

A histogram that maps the spread of client response times on an edge.

Type: Array of HistogramEntry (p. 31) objects

Required: No

StartTime

The start time of the first segment on the edge.

Type: Timestamp

Required: No

SummaryStatistics

Response statistics for segments on the edge.

Type: EdgeStatistics (p. 28) object

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Go
- AWS SDK for Java
- AWS SDK for Ruby V2
**EdgeStatistics**

Response statistics for an edge.

**Contents**

**ErrorStatistics**

Information about requests that failed with a 4xx Client Error status code.

Type: ErrorStatistics (p. 29) object

Required: No

**FaultStatistics**

Information about requests that failed with a 5xx Server Error status code.

Type: FaultStatistics (p. 30) object

Required: No

**OkCount**

The number of requests that completed with a 2xx Success status code.

Type: Long

Required: No

**TotalCount**

The total number of completed requests.

Type: Long

Required: No

**TotalResponseTime**

The aggregate response time of completed requests.

Type: Double

Required: No

**See Also**

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Go
- AWS SDK for Java
- AWS SDK for Ruby V2
ErrorStatistics

Information about requests that failed with a 4xx Client Error status code.

Contents

OtherCount

The number of requests that failed with untracked 4xx Client Error status codes.

Type: Long

Required: No

ThrottleCount

The number of requests that failed with a 419 throttling status code.

Type: Long

Required: No

TotalCount

The total number of requests that failed with a 4xx Client Error status code.

Type: Long

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Go
- AWS SDK for Java
- AWS SDK for Ruby V2
FaultStatistics

Information about requests that failed with a 5xx Server Error status code.

Contents

OtherCount

The number of requests that failed with untracked 5xx Server Error status codes.

Type: Long
Required: No

TotalCount

The total number of requests that failed with a 5xx Server Error status code.

Type: Long
Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Go
- AWS SDK for Java
- AWS SDK for Ruby V2
HistogramEntry

An entry in a histogram for a statistic. A histogram maps the range of observed values on the X axis, and the prevalence of each value on the Y axis.

Contents

Count

The prevalence of the entry.

Type: Integer

Required: No

Value

The value of the entry.

Type: Double

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Go
- AWS SDK for Java
- AWS SDK for Ruby V2
Http

Information about an HTTP request.

Contents

ClientIp

The IP address of the requestor.

Type: String

Required: No

HttpMethod

The request method.

Type: String

Required: No

HttpStatus

The response status.

Type: Integer

Required: No

HttpURL

The request URL.

Type: String

Required: No

UserAgent

The request's user agent string.

Type: String

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Go
- AWS SDK for Java
- AWS SDK for Ruby V2
Segment

A segment from a trace that has been ingested by the X-Ray service. The segment can be compiled from documents uploaded with `PutTraceSegments (p. 19)`, or an inferred segment for a downstream service, generated from a subsegment sent by the service that called it.

For the full segment document schema, see AWS X-Ray Segment Documents in the AWS X-Ray Developer Guide.

Contents

Document

The segment document.

Type: String

Length Constraints: Minimum length of 1.

Required: No

Id

The segment's ID.

Type: String

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Go
- AWS SDK for Java
- AWS SDK for Ruby V2
Service

Information about an application that processed requests, users that made requests, or downstream services, resources and applications that an application used.

Contents

AccountId

Identifier of the AWS account in which the service runs.

Type: String

Required: No

DurationHistogram

A histogram that maps the spread of service durations.

Type: Array of HistogramEntry (p. 31) objects

Required: No

Edges

Connections to downstream services.

Type: Array of Edge (p. 26) objects

Required: No

EndTime

The end time of the last segment that the service generated.

Type: Timestamp

Required: No

Name

The canonical name of the service.

Type: String

Required: No

Names

A list of names for the service, including the canonical name.

Type: Array of strings

Required: No

ReferenceId

Identifier for the service. Unique within the service map.

Type: Integer

Required: No
**ResponseTimeHistogram**

A histogram that maps the spread of service response times.

Type: Array of [HistogramEntry](#) objects

Required: No

**Root**

Indicates that the service was the first service to process a request.

Type: Boolean

Required: No

**StartTime**

The start time of the first segment that the service generated.

Type: Timestamp

Required: No

**State**

The service's state.

Type: String

Required: No

**SummaryStatistics**

Aggregated statistics for the service.

Type: [ServiceStatistics](#) object

Required: No

**Type**

The type of service.

- AWS Resource - The type of an AWS resource. For example, `AWS::EC2::Instance` for an application running on Amazon EC2 or `AWS::DynamoDB::Table` for an Amazon DynamoDB table that the application used.
- AWS Service - The type of an AWS service. For example, `AWS::DynamoDB` for downstream calls to Amazon DynamoDB that didn't target a specific table.
- client - Represents the clients that sent requests to a root service.
- remote - A downstream service of indeterminate type.

Type: String

Required: No

**See Also**

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Go

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• AWS SDK for Java
• AWS SDK for Ruby V2
ServicId

Contents

AccountId

Type: String
Required: No

Name

Type: String
Required: No

Names

Type: Array of strings
Required: No

Type

Type: String
Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Go
- AWS SDK for Java
- AWS SDK for Ruby V2
ServiceStatistics

Response statistics for a service.

Contents

ErrorStatistics

Information about requests that failed with a 4xx Client Error status code.

Type: ErrorStatistics (p. 29) object

Required: No

FaultStatistics

Information about requests that failed with a 5xx Server Error status code.

Type: FaultStatistics (p. 30) object

Required: No

OkCount

The number of requests that completed with a 2xx Success status code.

Type: Long

Required: No

TotalCount

The total number of completed requests.

Type: Long

Required: No

TotalResponseTime

The aggregate response time of completed requests.

Type: Double

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Go
- AWS SDK for Java
- AWS SDK for Ruby V2
TelemetryRecord

Contents

BackendConnectionErrors

Type: BackendConnectionErrors (p. 25) object
Required: No

SegmentsReceivedCount

Type: Integer
Required: No

SegmentsRejectedCount

Type: Integer
Required: No

SegmentsSentCount

Type: Integer
Required: No

SegmentsSpilloverCount

Type: Integer
Required: No

Timestamp

Type: Timestamp
Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Go
- AWS SDK for Java
- AWS SDK for Ruby V2
Trace

A collection of segment documents with matching trace IDs.

Contents

Duration

The length of time in seconds between the start time of the root segment and the end time of the last segment that completed.

Type: Double

Required: No

Id

The unique identifier for the request that generated the trace's segments and subsegments.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 35.

Required: No

Segments

Segment documents for the segments and subsegments that comprise the trace.

Type: Array of Segment (p. 33) objects

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Go
- AWS SDK for Java
- AWS SDK for Ruby V2
TraceSummary

Metadata generated from the segment documents in a trace.

Contents

Annotations

Annotations from the trace's segment documents.
Type: String to array of ValueWithServiceIds (p. 45) objects map
Required: No

Duration

The length of time in seconds between the start time of the root segment and the end time of the last segment that completed.
Type: Double
Required: No

HasError

One or more of the segment documents has a 400 series error.
Type: Boolean
Required: No

HasFault

One or more of the segment documents has a 500 series error.
Type: Boolean
Required: No

HasThrottle

One or more of the segment documents has a 429 throttling error.
Type: Boolean
Required: No

Http

Information about the HTTP request served by the trace.
Type: Http (p. 32) object
Required: No

Id

The unique identifier for the request that generated the trace's segments and subsegments.
Type: String
Length Constraints: Minimum length of 1. Maximum length of 35.
Required: No
IsPartial

One or more of the segment documents is in progress.

Type: Boolean

Required: No

ResponseTime

The length of time in seconds between the start and end times of the root segment. If the service performs work asynchronously, the response time measures the time before the response is sent to the user, while the duration measures the amount of time before the last traced activity completes.

Type: Double

Required: No

ServiceIds

Service IDs from the trace's segment documents.

Type: Array of ServiceId (p. 37) objects

Required: No

Users

Users from the trace's segment documents.

Type: Array of TraceUser (p. 43) objects

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Go
- AWS SDK for Java
- AWS SDK for Ruby V2
TraceUser

Information about a user recorded in segment documents.

Contents

ServiceIds

Services that the user's request hit.

Type: Array of ServiceId (p. 37) objects

Required: No

UserName

The user's name.

Type: String

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Go
- AWS SDK for Java
- AWS SDK for Ruby V2
UnprocessedTraceSegment

Information about a segment that failed processing.

Contents

ErrorCode

The error that caused processing to fail.

Type: String

Required: No

Id

The segment's ID.

Type: String

Required: No

Message

The error message.

Type: String

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Go
- AWS SDK for Java
- AWS SDK for Ruby V2
ValueWithServiceIds

Information about a segment annotation.

Contents

AnnotationValue

Values of the annotation.

Type: AnnotationValue (p. 24) object

Required: No

ServiceIds

Services to which the annotation applies.

Type: Array of Serviceld (p. 37) objects

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Go
- AWS SDK for Java
- AWS SDK for Ruby V2
Common Parameters

The following list contains the parameters that all actions use for signing Signature Version 4 requests with a query string. Any action-specific parameters are listed in the topic for that action. For more information about Signature Version 4, see Signature Version 4 Signing Process in the Amazon Web Services General Reference.

**Action**
- The action to be performed.
  - Type: string
  - Required: Yes

**Version**
- The API version that the request is written for, expressed in the format YYYY-MM-DD.
  - Type: string
  - Required: Yes

**X-Amz-Algorithm**
- The hash algorithm that you used to create the request signature.
  - Condition: Specify this parameter when you include authentication information in a query string instead of in the HTTP authorization header.
  - Type: string
  - Valid Values: AWS4-HMAC-SHA256
  - Required: Conditional

**X-Amz-Credential**
- The credential scope value, which is a string that includes your access key, the date, the region you are targeting, the service you are requesting, and a termination string ("aws4_request"). The value is expressed in the following format: access_key/YYYYMMDD/region/service/aws4_request.
  - Condition: X-Amz-Date is optional for all requests; it can be used to override the date used for signing requests. If the Date header is specified in the ISO 8601 basic format, X-Amz-Date is
  - Type: string
  - Required: Conditional

**X-Amz-Date**
- The date that is used to create the signature. The format must be ISO 8601 basic format ('YYYYMMDD'T'HHMMSS'Z'). For example, the following date time is a valid X-Amz-Date value: 20120325T120000Z.
  - Condition: Specify this parameter when you include authentication information in a query string instead of in the HTTP authorization header.
  - Type: string
  - Required: Conditional
not required. When X-Amz-Date is used, it always overrides the value of the Date header. For more information, see Handling Dates in Signature Version 4 in the Amazon Web Services General Reference.

Type: string
Required: Conditional

**X-Amz-Security-Token**

The temporary security token that was obtained through a call to AWS Security Token Service (AWS STS). For a list of services that support temporary security credentials from AWS Security Token Service, go to AWS Services That Work with IAM in the IAM User Guide.

Condition: If you're using temporary security credentials from the AWS Security Token Service, you must include the security token.

Type: string
Required: Conditional

**X-Amz-Signature**

Specifies the hex-encoded signature that was calculated from the string to sign and the derived signing key.

Condition: Specify this parameter when you include authentication information in a query string instead of in the HTTP authorization header.

Type: string
Required: Conditional

**X-Amz-SignedHeaders**

Specifies all the HTTP headers that were included as part of the canonical request. For more information about specifying signed headers, see Task 1: Create a Canonical Request For Signature Version 4 in the Amazon Web Services General Reference.

Condition: Specify this parameter when you include authentication information in a query string instead of in the HTTP authorization header.

Type: string
Required: Conditional
Common Errors

This section lists the errors common to the API actions of all AWS services. For errors specific to an API action for this service, see the topic for that API action.

AccessDeniedException

You do not have sufficient access to perform this action.

HTTP Status Code: 400

IncompleteSignature

The request signature does not conform to AWS standards.

HTTP Status Code: 400

InternalFailure

The request processing has failed because of an unknown error, exception or failure.

HTTP Status Code: 500

InvalidAction

The action or operation requested is invalid. Verify that the action is typed correctly.

HTTP Status Code: 400

InvalidClientTokenId

The X.509 certificate or AWS access key ID provided does not exist in our records.

HTTP Status Code: 403

InvalidParameterCombination

Parameters that must not be used together were used together.

HTTP Status Code: 400

InvalidParameterValue

An invalid or out-of-range value was supplied for the input parameter.

HTTP Status Code: 400

InvalidQueryParameter

The AWS query string is malformed or does not adhere to AWS standards.

HTTP Status Code: 400

MalformedQueryString

The query string contains a syntax error.

HTTP Status Code: 404

MissingAction

The request is missing an action or a required parameter.

HTTP Status Code: 400
**MissingAuthenticationToken**

The request must contain either a valid (registered) AWS access key ID or X.509 certificate.

HTTP Status Code: 403

**MissingParameter**

A required parameter for the specified action is not supplied.

HTTP Status Code: 400

**OptInRequired**

The AWS access key ID needs a subscription for the service.

HTTP Status Code: 403

**RequestExpired**

The request reached the service more than 15 minutes after the date stamp on the request or more than 15 minutes after the request expiration date (such as for pre-signed URLs), or the date stamp on the request is more than 15 minutes in the future.

HTTP Status Code: 400

**ServiceUnavailable**

The request has failed due to a temporary failure of the server.

HTTP Status Code: 503

**ThrottlingException**

The request was denied due to request throttling.

HTTP Status Code: 400

**ValidationError**

The input fails to satisfy the constraints specified by an AWS service.

HTTP Status Code: 400