Amazon RDS Performance Insights

API Reference

API Version 2018-02-27

aws

Amazon RDS Performance Insights: API Reference

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Welcome

Amazon RDS Performance Insights enables you to monitor and explore different dimensions of database load based on data captured from a running DB instance. The guide provides detailed information about Performance Insights data types, parameters and errors.

When Performance Insights is enabled, the Amazon RDS Performance Insights API provides visibility into the performance of your DB instance. Amazon CloudWatch provides the authoritative source for AWS service-vended monitoring metrics. Performance Insights offers a domain-specific view of DB load.

DB load is measured as Average Active Sessions. Performance Insights provides the data to API consumers as a two-dimensional time-series dataset. The time dimension provides DB load data for each time point in the queried time range. Each time point decomposes overall load in relation to the requested dimensions, measured at that time point. Examples include SQL, Wait event, User, and Host.

- To learn more about Performance Insights and Amazon Aurora DB instances, go to the Amazon Aurora User Guide.
- To learn more about Performance Insights and Amazon RDS DB instances, go to the Amazon RDS User Guide.

This document was last published on October 6, 2021.

Actions

The following actions are supported:

DescribeDimensionKeys

For a specific time period, retrieve the top `N` dimension keys for a metric.

> **Note**
> Each response element returns a maximum of 500 bytes. For larger elements, such as SQL
> statements, only the first 500 bytes are returned.

Request Syntax

```
{
    "EndTime": number,
    "Filter": {
        "string" : "string"
    },
    "GroupBy": {
        "Dimensions": [ "string" ],
        "Group": "string",
        "Limit": number
    },
    "Identifier": "string",
    "MaxResults": number,
    "Metric": "string",
    "NextToken": "string",
    "PartitionBy": {
        "Dimensions": [ "string" ],
        "Group": "string",
        "Limit": number
    },
    "PeriodInSeconds": number,
    "ServiceType": "string",
    "StartTime": number
}
```

Request Parameters

For information about the parameters that are common to all actions, see Common
Parameters (p. 32).

The request accepts the following data in JSON format.

> **Note**
> In the following list, the required parameters are described first.

EndTime (p. 3)

The date and time specifying the end of the requested time series data. The value specified is
exclusive, which means that data points less than (but not equal to) `EndTime` are returned.

The value for `EndTime` must be later than the value for `StartTime`.

Type: Timestamp

Required: Yes

GroupBy (p. 3)

A specification for how to aggregate the data points from a query result. You must specify a valid
dimension group. Performance Insights returns all dimensions within this group, unless you provide
the names of specific dimensions within this group. You can also request that Performance Insights
return a limited number of values for a dimension.

Type: DimensionGroup (p. 22) object

Required: Yes

Identifier (p. 3)

An immutable, AWS Region-unique identifier for a data source. Performance Insights gathers metrics from this data source.

To use an Amazon RDS instance as a data source, you specify its `DbiResourceId` value. For example, specify db-FAIHNTYBKTGAUSUZQYPDS2GW4A

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `.*\S.*`

Required: Yes

Metric (p. 3)

The name of a Performance Insights metric to be measured.

Valid values for `Metric` are:

- `db.load.avg` - a scaled representation of the number of active sessions for the database engine.
- `db.sampledload.avg` - the raw number of active sessions for the database engine.

If the number of active sessions is less than an internal Performance Insights threshold, `db.load.avg` and `db.sampledload.avg` are the same value. If the number of active sessions is greater than the internal threshold, Performance Insights samples the active sessions, with `db.load.avg` showing the scaled values, `db.sampledload.avg` showing the raw values, and `db.sampledload.avg` less than `db.load.avg`. For most use cases, you can query `db.load.avg` only.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `.*\S.*`

Required: Yes

ServiceType (p. 3)

The AWS service for which Performance Insights will return metrics. The only valid value for *ServiceType* is `RDS`.

Type: String

Valid Values: RDS

Required: Yes

StartTime (p. 3)

The date and time specifying the beginning of the requested time series data. You must specify a `StartTime` within the past 7 days. The value specified is *inclusive*, which means that data points equal to or greater than `StartTime` are returned.

The value for `StartTime` must be earlier than the value for `EndTime`.

Type: Timestamp

Required: Yes

Filter (p. 3)

One or more filters to apply in the request. Restrictions:

- Any number of filters by the same dimension, as specified in the `GroupBy` or `Partition` parameters.
- A single filter for any other dimension in this dimension group.

Type: String to string map

Key Length Constraints: Minimum length of 0. Maximum length of 256.

Key Pattern: `.*\S.*`

Value Length Constraints: Minimum length of 0. Maximum length of 256.

Value Pattern: `.*\S.*`

Required: No

MaxResults (p. 3)

The maximum number of items to return in the response. If more items exist than the specified `MaxRecords` value, a pagination token is included in the response so that the remaining results can be retrieved.

Type: Integer

Valid Range: Minimum value of 0. Maximum value of 20.

Required: No

NextToken (p. 3)

An optional pagination token provided by a previous request. If this parameter is specified, the response includes only records beyond the token, up to the value specified by `MaxRecords`.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 8192.

Pattern: `[\s\S]*`

Required: No

PartitionBy (p. 3)

For each dimension specified in `GroupBy`, specify a secondary dimension to further subdivide the partition keys in the response.

Type: DimensionGroup (p. 22) object

Required: No

PeriodInSeconds (p. 3)

The granularity, in seconds, of the data points returned from Performance Insights. A period can be as short as one second, or as long as one day (86400 seconds). Valid values are:

- `1` (one second)
- `60` (one minute)
- `300` (five minutes)
- `3600` (one hour)
- `86400` (twenty-four hours)

If you don't specify `PeriodInSeconds`, then Performance Insights chooses a value for you, with a goal of returning roughly 100-200 data points in the response.

Type: Integer

Required: No

Response Syntax

```
{
    "AlignedEndTime": number,
    "AlignedStartTime": number,
    "Keys": [
        {
            "Dimensions": {
                "string" : "string"
            },
            "Partitions": [ number ],
            "Total": number
        }
    ],
    "NextToken": "string",
    "PartitionKeys": [
        {
            "Dimensions": {
                "string" : "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.

AlignedEndTime (p. 6)

The end time for the returned dimension keys, after alignment to a granular boundary (as specified by `PeriodInSeconds`). `AlignedEndTime` will be greater than or equal to the value of the user-specified `Endtime`.

Type: Timestamp

AlignedStartTime (p. 6)

The start time for the returned dimension keys, after alignment to a granular boundary (as specified by `PeriodInSeconds`). `AlignedStartTime` will be less than or equal to the value of the user-specified `StartTime`.

Type: Timestamp

Keys (p. 6)

The dimension keys that were requested.

Type: Array of DimensionKeyDescription (p. 24) objects

NextToken (p. 6)

An optional pagination token provided by a previous request. If this parameter is specified, the response includes only records beyond the token, up to the value specified by `MaxRecords`.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 8192.

Pattern: `[\s\S]*`

PartitionKeys (p. 6)

If `PartitionBy` was present in the request, `PartitionKeys` contains the breakdown of dimension keys by the specified partitions.

Type: Array of ResponsePartitionKey (p. 30) objects

Errors

For information about the errors that are common to all actions, see Common Errors (p. 34).

InternalServiceError

The request failed due to an unknown error.

HTTP Status Code: 500

InvalidArgumentException

One of the arguments provided is invalid for this request.

HTTP Status Code: 400

NotAuthorizedException

The user is not authorized to perform this request.

HTTP Status Code: 400

Examples

Retrieve Dimensions For a Dimension Group

The following example requests the names of all wait events. The data is summarized by event name, and the aggregate values of those events over the specified time period.

Sample Request

```
POST / HTTP/1.1
Host: <Hostname>
Accept-Encoding: identity
X-Amz-Target: PerformanceInsightsv20180227.DescribeDimensionKeys
Content-Type: application/x-amz-json-1.1
User-Agent: <UserAgentString>
X-Amz-Date: <Date>
Authorization: AWS4-HMAC-SHA256 Credential=<Credential>, SignedHeaders=<Headers>,
 Signature=<Signature>
Content-Length: <PayloadSizeBytes>

{
    "ServiceType": "RDS",
    "Identifier": "db-LKCGOBK26374TPTDFXOIWVCPPM",
    "StartTime": 1527026400,
    "EndTime": 1527080400,
    "Metric": "db.load.avg",
    "GroupBy": {
```

```
        "Group": "db.wait_event",
        "Dimensions": ["db.wait_event.name"]
    }
}
```

Sample Response

```
HTTP/1.1 200 OK
Content-Type: application/x-amz-json-1.1
Date: <Date>
x-amzn-RequestId: <RequestId>
Content-Length: <PayloadSizeBytes>
Connection: keep-alive

{
    "AlignedEndTime": 1.5270804E9,
    "AlignedStartTime": 1.5270264E9,
    "Keys": [
        {
            "Dimensions": {"db.wait_event.name": "wait/synch/mutex/innodb/
aurora_lock_thread_slot_futex"},
            "Total": 0.05906906851195666
        },
        {
            "Dimensions": {"db.wait_event.name": "wait/io/aurora_redo_log_flush"},
            "Total": 0.015824722186149193
        },
        {
            "Dimensions": {"db.wait_event.name": "CPU"},
            "Total": 0.008014396230265477
        },
        {
            "Dimensions": {"db.wait_event.name": "wait/io/aurora_respond_to_client"},
            "Total": 0.0036361612526204477
        },
        {
            "Dimensions": {"db.wait_event.name": "wait/io/table/sql/handler"},
            "Total": 0.0019108398419382965
        },
        {
            "Dimensions": {"db.wait_event.name": "wait/synch/cond/mysys/
my_thread_var::suspend"},
            "Total": 8.533847837782684E-4
        },
        {
            "Dimensions": {"db.wait_event.name": "wait/io/file/csv/data"},
            "Total": 6.864181956477376E-4
        },
        {
            "Dimensions": {"db.wait_event.name": "Unknown"},
            "Total": 3.895887056379051E-4
        },
        {
            "Dimensions": {"db.wait_event.name": "wait/synch/mutex/sql/
FILE_AS_TABLE::LOCK_shim_lists"},
            "Total": 3.710368625122906E-5
        },
        {
            "Dimensions": {"db.wait_event.name": "wait/lock/table/sql/handler"},
            "Total": 0
        }
    ]
}
```

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

GetDimensionKeyDetails

Get the attributes of the specified dimension group for a DB instance or data source. For example, if you specify a SQL ID, `GetDimensionKeyDetails` retrieves the full text of the dimension `db.sql.statement` associated with this ID. This operation is useful because `GetResourceMetrics` and `DescribeDimensionKeys` don't support retrieval of large SQL statement text.

Request Syntax

```
{
   "Group": "string",
   "GroupIdentifier": "string",
   "Identifier": "string",
   "RequestedDimensions": [ "string" ],
   "ServiceType": "string"
}
```

Request Parameters

For information about the parameters that are common to all actions, see Common Parameters (p. 32).

The request accepts the following data in JSON format.

Note
In the following list, the required parameters are described first.

Group (p. 10)

The name of the dimension group. The only valid value is `db.sql`. Performance Insights searches the specified group for the dimension group ID.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `.*\S.*`

Required: Yes

GroupIdentifier (p. 10)

The ID of the dimension group from which to retrieve dimension details. For dimension group `db.sql`, the group ID is `db.sql.id`.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `.*\S.*`

Required: Yes

Identifier (p. 10)

The ID for a data source from which to gather dimension data. This ID must be immutable and unique within an AWS Region. When a DB instance is the data source, specify its `DbiResourceId` value. For example, specify `db-ABCDEFGHIJKLMNOPQRSTU1VW2X`.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `^db-[a-zA-Z0-9-]*$`

Required: Yes

ServiceType (p. 10)

The AWS service for which Performance Insights returns data. The only valid value is `RDS`.

Type: String

Valid Values: `RDS`

Required: Yes

RequestedDimensions (p. 10)

A list of dimensions to retrieve the detail data for within the given dimension group. For the dimension group `db.sql`, specify either the full dimension name `db.sql.statement` or the short dimension name `statement`. If you don't specify this parameter, Performance Insights returns all dimension data within the specified dimension group.

Type: Array of strings

Array Members: Minimum number of 1 item. Maximum number of 10 items.

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `.*\S.*`

Required: No

Response Syntax

```
{
   "Dimensions": [
      {
         "Dimension": "string",
         "Status": "string",
         "Value": "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.

Dimensions (p. 11)

The details for the requested dimensions.

Type: Array of DimensionKeyDetail (p. 25) objects

Errors

For information about the errors that are common to all actions, see Common Errors (p. 34).

InternalServiceError

The request failed due to an unknown error.

HTTP Status Code: 500

InvalidArgumentException

One of the arguments provided is invalid for this request.

HTTP Status Code: 400

NotAuthorizedException

The user is not authorized to perform this request.

HTTP Status Code: 400

Examples

Retrieve the full SQL text for a query

The following example requests the full text for the SQL query with the ID `example-group-identifier`, which is a placeholder for a SQL ID that you retrieved by calling `GetResourceMetrics` or `DescribeDimensionKeys`. Because the dimension details are available, the response shows the full SQL text.

Sample Request

```
{
    "ServiceType":"RDS",
    "Identifier":"db-1ABCD2EFGHIJ3KL4M5NO6PQRS7",
    "Group": "db.sql",
    "GroupIdentifier": "example-group-identifier",
    "RequestedDimensions": ["statement"]
}
```

Sample Response

```
{
    "Dimensions":[
    {
        "Value": "SELECT e.last_name, d.department_name FROM employees e, departments d
 WHERE e.department_id=d.department_id",
        "Dimension": "db.sql.statement",
        "Status": "AVAILABLE"
    },
    ...
    ]
}
```

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 V2](#)
- [AWS SDK for JavaScript](#)
- [AWS SDK for PHP V3](#)
- [AWS SDK for Python](#)
- [AWS SDK for Ruby V3](#)

GetResourceMetrics

Retrieve Performance Insights metrics for a set of data sources, over a time period. You can provide specific dimension groups and dimensions, and provide aggregation and filtering criteria for each group.

Note
Each response element returns a maximum of 500 bytes. For larger elements, such as SQL statements, only the first 500 bytes are returned.

Request Syntax

```
{
    "EndTime": number,
    "Identifier": "string",
    "MaxResults": number,
    "MetricQueries": [
        {
            "Filter": {
                "string" : "string"
            },
            "GroupBy": {
                "Dimensions": [ "string" ],
                "Group": "string",
                "Limit": number
            },
            "Metric": "string"
        }
    ],
    "NextToken": "string",
    "PeriodInSeconds": number,
    "ServiceType": "string",
    "StartTime": number
}
```

Request Parameters

For information about the parameters that are common to all actions, see Common Parameters (p. 32).

The request accepts the following data in JSON format.

Note
In the following list, the required parameters are described first.

EndTime (p. 14)

The date and time specifying the end of the requested time series data. The value specified is *exclusive* - data points less than (but not equal to) `EndTime` will be returned.

The value for `EndTime` must be later than the value for `StartTime`.

Type: Timestamp

Required: Yes

Identifier (p. 14)

An immutable, AWS Region-unique identifier for a data source. Performance Insights gathers metrics from this data source.

To use a DB instance as a data source, specify its `DbiResourceId` value. For example, specify `db-FAIHNTYBKTGAUSUZQYPDS2GW4A`.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `.*\S.*`

Required: Yes

MetricQueries (p. 14)

An array of one or more queries to perform. Each query must specify a Performance Insights metric, and can optionally specify aggregation and filtering criteria.

Type: Array of MetricQuery (p. 28) objects

Array Members: Minimum number of 1 item. Maximum number of 15 items.

Required: Yes

ServiceType (p. 14)

The AWS service for which Performance Insights returns metrics. The only valid value for *ServiceType* is `RDS`.

Type: String

Valid Values: `RDS`

Required: Yes

StartTime (p. 14)

The date and time specifying the beginning of the requested time series data. You can't specify a `StartTime` that's earlier than 7 days ago. The value specified is *inclusive* - data points equal to or greater than `StartTime` will be returned.

The value for `StartTime` must be earlier than the value for `EndTime`.

Type: Timestamp

Required: Yes

MaxResults (p. 14)

The maximum number of items to return in the response. If more items exist than the specified `MaxRecords` value, a pagination token is included in the response so that the remaining results can be retrieved.

Type: Integer

Valid Range: Minimum value of 0. Maximum value of 20.

Required: No

NextToken (p. 14)

An optional pagination token provided by a previous request. If this parameter is specified, the response includes only records beyond the token, up to the value specified by `MaxRecords`.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 8192.

Pattern: `[\s\S]*`

Required: No

PeriodInSeconds (p. 14)

The granularity, in seconds, of the data points returned from Performance Insights. A period can be as short as one second, or as long as one day (86400 seconds). Valid values are:

- `1` (one second)
- `60` (one minute)
- `300` (five minutes)
- `3600` (one hour)
- `86400` (twenty-four hours)

If you don't specify `PeriodInSeconds`, then Performance Insights will choose a value for you, with a goal of returning roughly 100-200 data points in the response.

Type: Integer

Required: No

Response Syntax

```
{
    "AlignedEndTime": number,
    "AlignedStartTime": number,
    "Identifier": "string",
    "MetricList": [
        {
            "DataPoints": [
                {
                    "Timestamp": number,
                    "Value": number
                }
            ],
            "Key": {
                "Dimensions": {
                    "string" : "string"
                },
                "Metric": "string"
            }
        }
    ],
    "NextToken": "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.

AlignedEndTime (p. 16)

The end time for the returned metrics, after alignment to a granular boundary (as specified by `PeriodInSeconds`). `AlignedEndTime` will be greater than or equal to the value of the user-specified `Endtime`.

Type: Timestamp

AlignedStartTime (p. 16)

The start time for the returned metrics, after alignment to a granular boundary (as specified by `PeriodInSeconds`). `AlignedStartTime` will be less than or equal to the value of the user-specified `StartTime`.

Type: Timestamp

Identifier (p. 16)

An immutable, AWS Region-unique identifier for a data source. Performance Insights gathers metrics from this data source.

To use a DB instance as a data source, you specify its `DbiResourceId` value - for example: `db-FAIHNTYBKTGAUSUZQYPDS2GW4A`

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `.*\S.*`

MetricList (p. 16)

An array of metric results,, where each array element contains all of the data points for a particular dimension.

Type: Array of MetricKeyDataPoints (p. 27) objects

NextToken (p. 16)

An optional pagination token provided by a previous request. If this parameter is specified, the response includes only records beyond the token, up to the value specified by `MaxRecords`.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 8192.

Pattern: `[\s\S]*`

Errors

For information about the errors that are common to all actions, see Common Errors (p. 34).

InternalServiceError

The request failed due to an unknown error.

HTTP Status Code: 500

InvalidArgumentException

One of the arguments provided is invalid for this request.

HTTP Status Code: 400

NotAuthorizedException

The user is not authorized to perform this request.

HTTP Status Code: 400

Examples

Retrieve Data Points for All Dimensions Within a Group

The following example requests data points for the `db.wait_event` dimension group, and for the `db.wait_event.name` dimension within that group. In the response, the relevant data points are grouped by the requested dimension (`db.wait_event.name`).

Sample Request

```
POST / HTTP/1.1
Host: <Hostname>
Accept-Encoding: identity
X-Amz-Target: PerformanceInsightsv20180227.GetResourceMetrics
Content-Type: application/x-amz-json-1.1
User-Agent: <UserAgentString>
X-Amz-Date: <Date>
Authorization: AWS4-HMAC-SHA256 Credential=<Credential>, SignedHeaders=<Headers>,
 Signature=<Signature>
Content-Length: <PayloadSizeBytes>

{
    "ServiceType": "RDS",
    "Identifier": "db-LKCGOBK26374TPTDFXOIWVCPPM",
    "MetricQueries": [
        {
            "Metric": "db.load.avg",
            "GroupBy": {
                "Group": "db.wait_event",
                "Dimensions": ["db.wait_event.type"]
            }
        }
    ],
    "StartTime": 1527026400,
    "EndTime": 1527080400,
    "PeriodInSeconds": 300
}
```

Sample Response

```
HTTP/1.1 200 OK
Content-Type: application/x-amz-json-1.1
Date: <Date>
x-amzn-RequestId: <RequestId>
Content-Length: <PayloadSizeBytes>
Connection: keep-alive

{
    "AlignedEndTime": 1.5270804E9,
    "AlignedStartTime": 1.5270264E9,
    "Identifier": "db-LKCGOBK26374TPTDFXOIWVCPPM",
    "MetricList": [
        {
            "Key": {
                "Metric": "db.load.avg"
            },
            "DataPoints": [
                {
                    "Timestamp": 1527026700.0,
```

```
                        "Value": 1.3533333333333333
                    },
                    {

                        "Timestamp": 1527027000.0,
                        "Value": 0.88
                    },
                    <...remaining output omitted...>
                ]
            },
            {
                "Key": {
                    "Metric": "db.load.avg",
                    "Dimensions": {
                        "db.wait_event.name": "wait/synch/mutex/innodb/
aurora_lock_thread_slot_futex"
                    }
                },
                "DataPoints": [
                    {
                        "Timestamp": 1527026700.0,
                        "Value": 0.8566666666666667
                    },
                    {

                        "Timestamp": 1527027000.0,
                        "Value": 0.8633333333333333
                    },
                    <...remaining output omitted...>
                ],
            },
            <...remaining output omitted...>
        ]
}
```

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

Data Types

The Amazon RDS Performance Insights 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:

DataPoint

A timestamp, and a single numerical value, which together represent a measurement at a particular point in time.

Contents

Note
In the following list, the required parameters are described first.

Timestamp

The time, in epoch format, associated with a particular `Value`.

Type: Timestamp

Required: Yes

Value

The actual value associated with a particular `Timestamp`.

Type: Double

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 V2
- AWS SDK for Ruby V3

DimensionGroup

A logical grouping of Performance Insights metrics for a related subject area. For example, the
`db.sql` dimension group consists of the following dimensions: `db.sql.id`, `db.sql.db_id`,
`db.sql.statement`, and `db.sql.tokenized_id`.

Note
Each response element returns a maximum of 500 bytes. For larger elements, such as SQL
statements, only the first 500 bytes are returned.

Contents

Note
In the following list, the required parameters are described first.

Group

The name of the dimension group. Valid values are:
- `db` - The name of the database to which the client is connected (only Aurora PostgreSQL, RDS
  PostgreSQL, Aurora MySQL, RDS MySQL, and MariaDB)
- `db.application` - The name of the application that is connected to the database (only Aurora
  PostgreSQL and RDS PostgreSQL)
- `db.host` - The host name of the connected client (all engines)
- `db.session_type` - The type of the current session (only Aurora PostgreSQL and RDS
  PostgreSQL)
- `db.sql` - The SQL that is currently executing (all engines)
- `db.sql_tokenized` - The SQL digest (all engines)
- `db.wait_event` - The event for which the database backend is waiting (all engines)
- `db.wait_event_type` - The type of event for which the database backend is waiting (all
  engines)
- `db.user` - The user logged in to the database (all engines)

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `.*\S.*`

Required: Yes

Dimensions

A list of specific dimensions from a dimension group. If this parameter is not present, then it signifies
that all of the dimensions in the group were requested, or are present in the response.

Valid values for elements in the `Dimensions` array are:
- `db.application.name` - The name of the application that is connected to the database (only
  Aurora PostgreSQL and RDS PostgreSQL)
- `db.host.id` - The host ID of the connected client (all engines)
- `db.host.name` - The host name of the connected client (all engines)
- `db.name` - The name of the database to which the client is connected (only Aurora PostgreSQL,
  RDS PostgreSQL, Aurora MySQL, RDS MySQL, and MariaDB)
- `db.session_type.name` - The type of the current session (only Aurora PostgreSQL and RDS
  PostgreSQL)
- `db.sql.id` - The SQL ID generated by Performance Insights (all engines)

- `db.sql.db_id` - The SQL ID generated by the database (all engines)
- `db.sql.statement` - The SQL text that is being executed (all engines)
- `db.sql.tokenized_id`
- `db.sql_tokenized.id` - The SQL digest ID generated by Performance Insights (all engines)
- `db.sql_tokenized.db_id` - SQL digest ID generated by the database (all engines)
- `db.sql_tokenized.statement` - The SQL digest text (all engines)
- `db.user.id` - The ID of the user logged in to the database (all engines)
- `db.user.name` - The name of the user logged in to the database (all engines)
- `db.wait_event.name` - The event for which the backend is waiting (all engines)
- `db.wait_event.type` - The type of event for which the backend is waiting (all engines)
- `db.wait_event_type.name` - The name of the event type for which the backend is waiting (all engines)

Type: Array of strings

Array Members: Minimum number of 1 item. Maximum number of 10 items.

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `.*\S.*`

Required: No

Limit

The maximum number of items to fetch for this dimension group.

Type: Integer

Valid Range: Minimum value of 1. Maximum value of 10.

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 V2
- AWS SDK for Ruby V3

DimensionKeyDescription

An array of descriptions and aggregated values for each dimension within a dimension group.

Contents

Note
In the following list, the required parameters are described first.

Dimensions

A map of name-value pairs for the dimensions in the group.

Type: String to string map

Key Length Constraints: Minimum length of 0. Maximum length of 256.

Key Pattern: `.*\S.*`

Value Length Constraints: Minimum length of 0. Maximum length of 256.

Value Pattern: `.*\S.*`

Required: No

Partitions

If `PartitionBy` was specified, `PartitionKeys` contains the dimensions that were.

Type: Array of doubles

Required: No

Total

The aggregated metric value for the dimension(s), over the requested time range.

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 V2
- AWS SDK for Ruby V3

DimensionKeyDetail

An object that describes the details for a specified dimension.

Contents

Note
In the following list, the required parameters are described first.

Dimension

The full name of the dimension. The full name includes the group name and key name. The only valid value is `db.sql.statement`.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `.*\S.*`

Required: No

Status

The status of the dimension detail data. Possible values include the following:

- `AVAILABLE` - The dimension detail data is ready to be retrieved.
- `PROCESSING` - The dimension detail data isn't ready to be retrieved because more processing time is required. If the requested detail data for `db.sql.statement` has the status `PROCESSING`, Performance Insights returns the truncated query.
- `UNAVAILABLE` - The dimension detail data could not be collected successfully.

Type: String

Valid Values: `AVAILABLE | PROCESSING | UNAVAILABLE`

Required: No

Value

The value of the dimension detail data. For the `db.sql.statement` dimension, this value is either the full or truncated SQL query, depending on the return status.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `.*\S.*`

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 V2

- [AWS SDK for Ruby V3](#)

MetricKeyDataPoints

A time-ordered series of data points, corresponding to a dimension of a Performance Insights metric.

Contents

Note
In the following list, the required parameters are described first.

DataPoints

An array of timestamp-value pairs, representing measurements over a period of time.

Type: Array of DataPoint (p. 21) objects

Required: No

Key

The dimension(s) to which the data points apply.

Type: ResponseResourceMetricKey (p. 31) 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 V2
- AWS SDK for Ruby V3

MetricQuery

A single query to be processed. You must provide the metric to query. If no other parameters are specified, Performance Insights returns all of the data points for that metric. You can optionally request that the data points be aggregated by dimension group (`GroupBy`), and return only those data points that match your criteria (`Filter`).

Contents

Note
In the following list, the required parameters are described first.

Metric

The name of a Performance Insights metric to be measured.

Valid values for `Metric` are:

- `db.load.avg` - a scaled representation of the number of active sessions for the database engine.
- `db.sampledload.avg` - the raw number of active sessions for the database engine.

If the number of active sessions is less than an internal Performance Insights threshold, `db.load.avg` and `db.sampledload.avg` are the same value. If the number of active sessions is greater than the internal threshold, Performance Insights samples the active sessions, with `db.load.avg` showing the scaled values, `db.sampledload.avg` showing the raw values, and `db.sampledload.avg` less than `db.load.avg`. For most use cases, you can query `db.load.avg` only.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `.*\S.*`

Required: Yes

Filter

One or more filters to apply in the request. Restrictions:

- Any number of filters by the same dimension, as specified in the `GroupBy` parameter.
- A single filter for any other dimension in this dimension group.

Type: String to string map

Key Length Constraints: Minimum length of 0. Maximum length of 256.

Key Pattern: `.*\S.*`

Value Length Constraints: Minimum length of 0. Maximum length of 256.

Value Pattern: `.*\S.*`

Required: No

GroupBy

A specification for how to aggregate the data points from a query result. You must specify a valid dimension group. Performance Insights will return all of the dimensions within that group, unless you provide the names of specific dimensions within that group. You can also request that Performance Insights return a limited number of values for a dimension.

Type: DimensionGroup (p. 22) 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 V2
- AWS SDK for Ruby V3

ResponsePartitionKey

If `PartitionBy` was specified in a `DescribeDimensionKeys` request, the dimensions are returned in an array. Each element in the array specifies one dimension.

Contents

Note
In the following list, the required parameters are described first.

Dimensions

A dimension map that contains the dimension(s) for this partition.

Type: String to string map

Key Length Constraints: Minimum length of 0. Maximum length of 256.

Key Pattern: `.*\S.*`

Value Length Constraints: Minimum length of 0. Maximum length of 256.

Value Pattern: `.*\S.*`

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 V2
- AWS SDK for Ruby V3

ResponseResourceMetricKey

An object describing a Performance Insights metric and one or more dimensions for that metric.

Contents

Note
In the following list, the required parameters are described first.

Metric

The name of a Performance Insights metric to be measured.

Valid values for `Metric` are:
- `db.load.avg` - a scaled representation of the number of active sessions for the database engine.
- `db.sampledload.avg` - the raw number of active sessions for the database engine.

If the number of active sessions is less than an internal Performance Insights threshold, `db.load.avg` and `db.sampledload.avg` are the same value. If the number of active sessions is greater than the internal threshold, Performance Insights samples the active sessions, with `db.load.avg` showing the scaled values, `db.sampledload.avg` showing the raw values, and `db.sampledload.avg` less than `db.load.avg`. For most use cases, you can query `db.load.avg` only.

Type: String

Length Constraints: Minimum length of 0. Maximum length of 256.

Pattern: `.*\S.*`

Required: Yes

Dimensions

The valid dimensions for the metric.

Type: String to string map

Key Length Constraints: Minimum length of 0. Maximum length of 256.

Key Pattern: `.*\S.*`

Value Length Constraints: Minimum length of 0. Maximum length of 256.

Value Pattern: `.*\S.*`

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 V2
- AWS SDK for Ruby V3

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.

For more information, see Task 2: Create a String to Sign 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

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: 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

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

NotAuthorized

You do not have permission to perform this action.

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