

---

# AWS Performance Insights

## API Reference

**API Version 2018-02-27**



## **AWS Performance Insights: API Reference**

Copyright © 2018 Amazon Web Services, Inc. and/or its affiliates. All rights reserved.

Amazon's trademarks and trade dress may not be used in connection with any product or service that is not Amazon's, in any manner that is likely to cause confusion among customers, or in any manner that disparages or discredits Amazon. All other trademarks not owned by Amazon are the property of their respective owners, who may or may not be affiliated with, connected to, or sponsored by Amazon.

## Table of Contents

Welcome .....	1
Actions .....	2
DescribeDimensionKeys .....	3
Request Syntax .....	3
Request Parameters .....	3
Response Syntax .....	5
Response Elements .....	6
Errors .....	6
Example .....	7
See Also .....	8
GetResourceMetrics .....	9
Request Syntax .....	9
Request Parameters .....	9
Response Syntax .....	11
Response Elements .....	11
Errors .....	12
Example .....	12
See Also .....	14
Data Types .....	15
DataPoint .....	16
Contents .....	16
See Also .....	16
DimensionGroup .....	17
Contents .....	17
See Also .....	18
DimensionKeyDescription .....	19
Contents .....	19
See Also .....	19
MetricKeyDataPoints .....	20
Contents .....	20
See Also .....	20
MetricQuery .....	21
Contents .....	21
See Also .....	21
ResponsePartitionKey .....	22
Contents .....	22
See Also .....	22
ResponseResourceMetricKey .....	23
Contents .....	23
See Also .....	23
Common Parameters .....	24
Common Errors .....	26

# Welcome

AWS 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.

The AWS Performance Insights API provides visibility into the performance of your DB instance, when Performance Insights is enabled for supported engine types. While Amazon CloudWatch provides the authoritative source for AWS service vended monitoring metrics, AWS Performance Insights offers a domain-specific view of database load measured as Average Active Sessions and provided to API consumers as a 2-dimensional time-series dataset. The time dimension of the data provides DB load data for each time point in the queried time range, and each time point decomposes overall load in relation to the requested dimensions, such as SQL, Wait-event, User or Host, measured at that time point.

- 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 November 19, 2018.

# Actions

The following actions are supported:

- [DescribeDimensionKeys](#) (p. 3)
- [GetResourceMetrics](#) (p. 9)

# DescribeDimensionKeys

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

## 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 \(p. 24\)](#).

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* - 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

#### 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 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. 17)` 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: `db-FAIHNTYBKTGAUSUZQYPDS2GW4A`

Type: String

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.

Type: String

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 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

#### 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

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

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 \(p. 17\)](#) 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 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,
  "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. 5)

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. 5)

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. 5)

The dimension keys that were requested.

Type: Array of [DimensionKeyDescription](#) (p. 19) objects

### **NextToken** (p. 5)

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

### **PartitionKeys** (p. 5)

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

Type: Array of [ResponsePartitionKey](#) (p. 22) objects

## Errors

For information about the errors that are common to all actions, see [Common Errors](#) (p. 26).

### **InternalServerError**

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

## Example

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

# 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.

## 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. 24).

The request accepts the following data in JSON format.

### Note

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

#### EndTime (p. 9)

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. 9)

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

Required: Yes

#### **MetricQueries (p. 9)**

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 \(p. 21\)](#) objects

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

Required: Yes

#### **ServiceType (p. 9)**

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. 9)**

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. 9)**

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. 9)**

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

Required: No

#### **PeriodInSeconds (p. 9)**

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. 11)

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. 11)

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. 11)

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

#### **MetricList (p. 11)**

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

Type: Array of [MetricKeyDataPoints \(p. 20\)](#) objects

#### **NextToken (p. 11)**

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

## Errors

For information about the errors that are common to all actions, see [Common Errors \(p. 26\)](#).

#### **InternalServerError**

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

## Example

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

# Data Types

The AWS 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](#) (p. 16)
- [DimensionGroup](#) (p. 17)
- [DimensionKeyDescription](#) (p. 19)
- [MetricKeyDataPoints](#) (p. 20)
- [MetricQuery](#) (p. 21)
- [ResponsePartitionKey](#) (p. 22)
- [ResponseResourceMetricKey](#) (p. 23)

# 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](#)
- [AWS SDK for Ruby V2](#)

# 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`.

## Contents

### Note

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

### Group

The name of the dimension group. Valid values are:

- `db.user`
- `db.host`
- `db.sql`
- `db.sql_tokenized`
- `db.wait_event`
- `db.wait_event_type`

Type: String

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.user.id`
- `db.user.name`
- `db.host.id`
- `db.host.name`
- `db.sql.id`
- `db.sql.db_id`
- `db.sql.statement`
- `db.sql.tokenized_id`
- `db.sql_tokenized.id`
- `db.sql_tokenized.db_id`
- `db.sql_tokenized.statement`
- `db.wait_event.name`
- `db.wait_event.type`
- `db.wait_event_type.name`

Type: Array of strings

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

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](#)
- [AWS SDK for Ruby V2](#)

# 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

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](#)
- [AWS SDK for Ruby V2](#)

# 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 \(p. 16\)](#) objects

Required: No

### Key

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

Type: [ResponseResourceMetricKey \(p. 23\)](#) 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](#)

# 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.

Type: String

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

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. 17) 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](#)



# 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

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](#)

# 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.

Type: String

Required: Yes

### Dimensions

The valid dimensions for the metric.

Type: String to string map

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`.

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'THHMMSS'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

**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