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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.
- To learn more about Performance Insights and Amazon DocumentDB clusters, go to the Amazon DocumentDB Developer Guide.

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Actions

The following actions are supported:

- `DescribeDimensionKeys (p. 3)`
- `GetDimensionKeyDetails (p. 10)`
- `GetResourceMetadata (p. 14)`
- `GetResourceMetrics (p. 17)`
- `ListAvailableResourceDimensions (p. 24)`
- `ListAvailableResourceMetrics (p. 29)`
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

```json
{
  "AdditionalMetrics": [ "string" ],
  "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. 53).

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. 36)` 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-FAIHNTYBKTAUSQYPDS2Gw4A`.

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. Valid values are as follows:

- RDS
- DOCDB

Type: String

Valid Values: RDS | DOCDB

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

**AdditionalMetrics (p. 3)**

Additional metrics for the top N dimension keys. If the specified dimension group in the `GroupBy` parameter is `db.sql_tokenized`, you can specify per-SQL metrics to get the values for the top N SQL digests. The response syntax is as follows:

```
"AdditionalMetrics" : { "string" : "string" }
```

Type: Array of strings

Array Members: Minimum number of 1 item. Maximum number of 30 items.

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

Pattern: .*\S.*

Required: No

**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 25.

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


Pattern: [\s\S]*
Response Syntax

```
{
  "AlignedEndTime": number,
  "AlignedStartTime": number,
  "Keys": [
    {
      "AdditionalMetrics": {
        "string": number
      },
      "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. 40)` objects

**NextToken (p. 6)**

A pagination token that indicates the response didn't return all available records because `MaxRecords` was specified in the previous request. To get the remaining records, specify `NextToken` in a separate request with this value.

Type: String


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. 49)` objects

---

**Errors**

For information about the errors that are common to all actions, see `Common Errors (p. 55)`.

**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 top dimension keys

The following example retrieves the top 10 dimension keys for metrics `db.load.avg`, `db.sql_tokenized.stats.calls_per_sec.avg`, and `db.sql_tokenized.statement` over a specific 5-minute time range. The request returns the metrics in dimension groups `db.sql_tokenized.id` and `db.sql_tokenized.statement`. For both of these dimension groups, the request subdivides the partition keys by `db.user.id` and `db.user.name`.

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-ABC1DEFGHIJKL2MNOPQRSTUV3W",
    "StartTime": 1603915200,
    "EndTime": 1603918800,
    "PeriodInSeconds": 300,
    "Metric": "db.load.avg",
    "GroupBy": {
        "Dimensions": [ "db.sql_tokenized.id", "db.sql_tokenized.statement" ],
        "Group": "db.sql_tokenized",
        "Limit": 5
    },
    "Filter": {
        "db.user.name": "example-user"
    },
    "PartitionBy": {
        "Dimensions": [ "db.user.id", "db.user.name" ],
        "Group": "db.user",
        "Limit": 5
    },
    "MaxResults": 10,
    "AdditionalMetrics": [
        "db.sql_tokenized.stats.calls_per_sec.avg",
        "db.sql_tokenized.stats.rows_per_sec.avg"
    ]
}
```

Sample Response

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

{

}
```
"AlignedEndTime": 1.6244895E9,
"AlignedStartTime": 1.6244889E9,
"Keys": [
  {
    "Dimensions": {
      "db.sql_tokenized.id": "12A345BCDE67F8G9H012I3IJKI4J5675K8L912M",
      "db.sql_tokenized.statement": "INSERT INTO pgbench_history (tid, bid, aid, delta, mtime) VALUES (?, ?, ?, ?, CURRENT_TIMESTAMP);"
    },
    "Partitions": [ 2.1333333333333333 ],
    "Total": 2.1333333333333333,
    "AdditionalMetrics": {
      "db.sql_tokenized.stats.calls_per_sec.avg": 1.0,
      "db.sql_tokenized.stats.rows_per_sec.avg": 3.0
    }
  },
  ......,
  {
    "Dimensions": {
      "db.user.name": "example-user",
      "db.user.id": "A12B3456C7D8E890F123F45G67HI8K9LM0N1O2"
    }
  }
]}

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. 53).

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. Performance Insights searches the specified group for the dimension group ID. The following group name values are valid:

- db.query (Amazon DocumentDB only)
- db.sql (Amazon RDS and Aurora only)

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. The following group ID values are valid:

- db.sql.id for dimension group db.sql (Aurora and RDS only)
- db.query.id for dimension group db.query (DocumentDB only)

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 | DOCDB

Required: Yes

**RequestedDimensions (p. 10)**

A list of dimensions to retrieve the detail data for within the given dimension group. If you don't specify this parameter, Performance Insights returns all dimension data within the specified dimension group. Specify dimension names for the following dimension groups:

- `db.sql`: Specify either the full dimension name `db.sql.statement` or the short dimension name `statement` (Aurora and RDS only).
- `db.query`: Specify either the full dimension name `db.query.statement` or the short dimension name `statement` (DocumentDB only).

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. 42)] objects

**Errors**

For information about the errors that are common to all actions, see [Common Errors (p. 55)].

**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**

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

**Sample Response**

```json
{
    "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"
        }
    ]
}
```
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
GetResourceMetadata

Retrieve the metadata for different features. For example, the metadata might indicate that a feature is turned on or off on a specific DB instance.

Request Syntax

```
{
  "Identifier": "string",
  "ServiceType": "string"
}
```

Request Parameters

For information about the parameters that are common to all actions, see Common Parameters (p. 53).

The request accepts the following data in JSON format.

**Note**

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

**Identifier (p. 14)**

An immutable identifier for a data source that is unique for an AWS Region. 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-ABCDEFGHIJKLMNOPQRSTU1VW2X`.

Type: String

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

Pattern: `.*\S.*`

Required: Yes

**ServiceType (p. 14)**

The AWS service for which Performance Insights returns metrics.

Type: String

Valid Values: RDS | DOCDB

Required: Yes

Response Syntax

```
{
  "Features": {
    "string": {
      "Status": "string"
    }
  },
  "Identifier": "string"
}
```

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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.

Features (p. 14)

The metadata for different features. For example, the metadata might indicate that a feature is turned on or off on a specific DB instance.

Type: String to FeatureMetadata (p. 44) object map
Key Length Constraints: Minimum length of 0. Maximum length of 256.
Key Pattern: .*\S.*

Identifier (p. 14)

An immutable identifier for a data source that is unique for an AWS Region. 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-ABCDEFGHIJKLMNOPQRSTU1VW2X.

Type: String
Length Constraints: Minimum length of 0. Maximum length of 256.
Pattern: .*\S.*

Errors

For information about the errors that are common to all actions, see Common Errors (p. 55).

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 metadata for different features

The following example requests all metadata for the database with the ID db-ABC1DEFGHIJKL2MNOPQRSTUVWXYZ. The response shows that SQL digest statistics are enabled.
Sample Request

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

{
  "ServiceType": "RDS",
  "Identifier": "db-ABC1DEFGHIJKL2MNOPQRSTUVWXYZ"
}

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

{
  "Identifier": "db-ABC1DEFGHIJKL2MNOPQRSTUVWXYZ",
  "Features":{
    "SQL_DIGEST_STATISTICS":{
      "Status": "ENABLED"
    }
  }
}

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

API Version 2018-02-27
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

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

Request Parameters

For information about the parameters that are common to all actions, see Common Parameters (p. 53).

The request accepts the following data in JSON format.

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

**EndTime (p. 17)***

The date and time specifying the end of the requested time series query range. The value specified is exclusive. Thus, the command returns data points less than (but not equal to) EndTime.

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

Type: Timestamp

Required: Yes

**Identifier (p. 17)***

An immutable identifier for a data source that is unique for an AWS Region. Performance Insights gathers metrics from this data source. In the console, the identifier is shown as ResourceID. When you call DescribeDBInstances, the identifier is returned as DbiResourceId.
To use a DB instance as a data source, specify its DbiResourceId value. For example, specify db-ABCDEFGHIJKLMNOPQRSTUVWXYZ.

Type: String
Length Constraints: Minimum length of 0. Maximum length of 256.
Pattern: .*\S.*
Required: Yes

**MetricQueries (p. 17)**

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. 47) objects
Array Members: Minimum number of 1 item. Maximum number of 15 items.
Required: Yes

**ServiceType (p. 17)**

The AWS service for which Performance Insights returns metrics. Valid values are as follows:
- RDS
- DOCDB

Type: String
Valid Values: RDS | DOCDB
Required: Yes

**StartTime (p. 17)**

The date and time specifying the beginning of the requested time series query range. You can't specify a StartTime that is earlier than 7 days ago. By default, Performance Insights has 7 days of retention, but you can extend this range up to 2 years. The value specified is inclusive. Thus, the command returns data points equal to or greater than StartTime.

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

Type: Timestamp
Required: Yes

**MaxResults (p. 17)**

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 25.
Required: No

**NextToken (p. 17)**

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
Pattern: [\s\S]*
Required: No

**PeriodAlignment (p. 17)**

The returned timestamp which is the start or end time of the time periods. The default value is END_TIME.
Type: String
Valid Values: END_TIME | START_TIME
Required: No

**PeriodInSeconds (p. 17)**

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**

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

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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. 19)**

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. 19)**

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. 19)**

An immutable identifier for a data source that is unique for an AWS Region. Performance Insights gathers metrics from this data source. In the console, the identifier is shown as ResourceId. When you call DescribeDBInstances, the identifier is returned as DbiResourceId.

Type: String

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

Pattern: .*\S.*

**MetricList (p. 19)**

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

Type: Array of [MetricKeyDataPoints (p. 46) objects]

**NextToken (p. 19)**

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


Pattern: [\s\S]*

Errors

For information about the errors that are common to all actions, see [Common Errors (p. 55)](#).

**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.

### 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**

```plaintext
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-ABC1DEFGHIJKLMNOPQRSTUVWXYZ",
    "MetricQueries": [
        {
            "Metric": "db.load.avg",
            "GroupBy": {
                "Group": "db.wait_event",
                "Dimensions": ["db.wait_event.type"]
            }
        }
    ],
    "StartTime": 1527026400,
    "EndTime": 1527080400,
    "PeriodInSeconds": 300
}
```

**Sample Response**

```plaintext
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-ABC1DEFGHIJKL2MNOPQRSTUV3W",
    "MetricList": [
        {
            "Key": {
                "Metric": "db.load.avg"
            },
            "DataPoints": [
                {
                    "Timestamp": 1527026700.0,
                    "Value": 1.3533333333333333
                },
                {
                    "Timestamp": 1527027000.0,
                    "Value": 0.88
                },
                ...
            ],
        },
        {
            "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
                },
                ...
            ],
        }
    ]
}

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
ListAvailableResourceDimensions

Retrieve the dimensions that can be queried for each specified metric type on a specified DB instance.

Request Syntax

```json
{
    "Identifier": "string",
    "MaxResults": number,
    "Metrics": [ "string" ],
    "NextToken": "string",
    "ServiceType": "string"
}
```

Request Parameters

For information about the parameters that are common to all actions, see Common Parameters (p. 53).

The request accepts the following data in JSON format.

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

**Identifier (p. 24)**
An immutable identifier for a data source that is unique within an AWS Region. Performance Insights gathers metrics from this data source. To use an Amazon RDS DB instance as a data source, specify its DbiResourceId value. For example, specify `db-ABCDEFGHIJKLMNOPQRSTU1VWZ`.

Type: String

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

Pattern: .*\S.*

Required: Yes

**Metrics (p. 24)**

The types of metrics for which to retrieve dimensions. Valid values include `db.load`.

Type: Array of strings

Array Members: Minimum number of 1 item. Maximum number of 5 items.

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

Pattern: .*\S.*

Required: Yes

**ServiceType (p. 24)**

The AWS service for which Performance Insights returns metrics.

Type: String

Valid Values: RDS  |  DOCDB

Required: Yes

**MaxResults (p. 24)**

The maximum number of items to return in the response. If more items exist than the specified MaxResults 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 25.

Required: No

**NextToken (p. 24)**

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


Pattern: `\[s\S]*`

Required: No

### Response Syntax

```json
{
    "MetricDimensions": [
        {
            "Groups": [
                {
                    "Dimensions": [
                        {
                            "Identifier": "string"
                        }
                    ],
                    "Group": "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.

**MetricDimensions (p. 25)**

The dimension information returned for requested metric types.

Type: Array of MetricDimensionGroups (p. 45) objects
NextToken (p. 25)

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


Pattern: [\s\S]*

Errors

For information about the errors that are common to all actions, see Common Errors (p. 55).

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

Examples

Retrieving dimensions for the metric type db.load

The following example retrieves the dimensions for the metric type db.load.

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-ABC1DEFGHIJKL2MNOPQRSTU3W",
    "Metrics": ["db.load"]
}
```
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

{
  "MetricDimensions": [
    {
      "Metric": "db.load",
      "Groups": [
        {
          "Group": "db.user",
          "Dimensions": [
            {
              "Identifier": "db.user.id"
            },
            {
              "Identifier": "db.user.name"
            }
          ]
        },
        {
          "Group": "db.sql_tokenized",
          "Dimensions": [
            {
              "Identifier": "db.sql_tokenized.id"
            },
            {
              "Identifier": "db.sql_tokenized.db_id"
            },
            {
              "Identifier": "db.sql_tokenized.statement"
            }
          ]
        }
      ]
    }
  ]
}

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

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ListAvailableResourceMetrics

Retrieve metrics of the specified types that can be queried for a specified DB instance.

Request Syntax

```
{
   "Identifier": "string",
   "MaxResults": number,
   "MetricTypes": [ "string" ],
   "NextToken": "string",
   "ServiceType": "string"
}
```

Request Parameters

For information about the parameters that are common to all actions, see Common Parameters (p. 53).

The request accepts the following data in JSON format.

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

**Identifier (p. 29)**

An immutable identifier for a data source that is unique within an AWS Region. Performance Insights gathers metrics from this data source. To use an Amazon RDS DB instance as a data source, specify its DbiResourceId value. For example, specify `db-ABCDEFGHJKLMNPQRSTU1VWZ`.

Type: String

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

Pattern: .\S.*

Required: Yes

**MetricTypes (p. 29)**

The types of metrics to return in the response. Valid values in the array include the following:
- `os` (OS counter metrics) - All engines
- `db` (DB load metrics) - All engines except for Amazon DocumentDB
- `db.sql.stats` (per-SQL metrics) - All engines except for Amazon DocumentDB
- `db.sql_tokenized.stats` (per-SQL digest metrics) - All engines except for Amazon DocumentDB

Type: Array of strings

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

Pattern: .\S.*

Required: Yes

**ServiceType (p. 29)**

The AWS service for which Performance Insights returns metrics.
Type: String
Valid Values: RDS  |  DOCDB
Required: Yes

MaxResults (p. 29)
The maximum number of items to return. If the MaxRecords value is less than the number of existing items, the response includes a pagination token.
Type: Integer
Valid Range: Minimum value of 0. Maximum value of 25.
Required: No

NextToken (p. 29)
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
Pattern: [\s\S]*
Required: No

Response Syntax

```
{
    "Metrics": [
        {
            "Description": "string",
            "Metric": "string",
            "Unit": "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.

Metrics (p. 30)
An array of metrics available to query. Each array element contains the full name, description, and unit of the metric.
Type: Array of ResponseResourceMetric (p. 50) objects

NextToken (p. 30)
A pagination token that indicates the response didn't return all available records because MaxRecords was specified in the previous request. To get the remaining records, specify NextToken in a separate request with this value.
Errors

For information about the errors that are common to all actions, see Common Errors (p. 55).

**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

List specified metrics

The following example requests the metrics for metric types `os` and `db`.

**Sample Request**

```plaintext
POST / HTTP/1.1
Host: <Hostname>
Accept-Encoding: identity
X-Amz-Target: PerformanceInsightsv20180227.ListAvailableResourceMetrics
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-ABC1DEFGHIJKL2MNOPQRSTUV3W",
    "MetricTypes": [ "os", "db" ]
}
```

**Sample Response**

```plaintext
HTTP/1.1 200 OK
Content-Type: application/x-amz-json-1.1
Date: <Date>
```
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 (p. 34)
- DimensionDetail (p. 35)
- DimensionGroup (p. 36)
- DimensionGroupDetail (p. 39)
- DimensionKeyDescription (p. 40)
- DimensionKeyDetail (p. 42)
- FeatureMetadata (p. 44)
- MetricDimensionGroups (p. 45)
- MetricKeyDataPoints (p. 46)
- MetricQuery (p. 47)
- ResponsePartitionKey (p. 49)
- ResponseResourceMetric (p. 50)
- ResponseResourceMetricKey (p. 51)
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
DimensionDetail

The information about a dimension.

Contents

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

Identifier

The identifier of a dimension.

Type: String

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

Pattern: .*

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
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` - The hash of a running SQL statement, generated by Performance Insights.
- `db.sql.db_id` - Either the SQL ID generated by the database engine, or a value generated by Performance Insights that begins with `pi-`.
- `db.sql.statement` - The full text of the SQL statement that is running, for example, `SELECT * FROM employees`.
- `db.sql_tokenized.id` - The hash of the SQL digest generated by Performance Insights.

**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 as follows:

- `db` - The name of the database to which the client is connected. The following values are permitted:
  - Aurora PostgreSQL
  - Amazon RDS PostgreSQL
  - Aurora MySQL
  - Amazon RDS MySQL
  - Amazon RDS MariaDB
  - Amazon DocumentDB
- `db.application` - The name of the application that is connected to the database. The following values are permitted:
  - Aurora PostgreSQL
  - Amazon RDS PostgreSQL
  - Amazon DocumentDB
- `db.host` - The host name of the connected client (all engines).
- `db.query` - The query that is currently running (only Amazon DocumentDB).
- `db.query_tokenized` - The digest query (only Amazon DocumentDB).
- `db.session_type` - The type of the current session (only Aurora PostgreSQL and RDS PostgreSQL).
- `db.sql` - The text of the SQL statement that is currently running (all engines except Amazon DocumentDB).
- `db.sql_tokenized` - The SQL digest (all engines except Amazon DocumentDB).
- `db.user` - The user logged in to the database (all engines except Amazon DocumentDB).
- `db.wait_event` - The event for which the database backend is waiting (all engines except Amazon DocumentDB).
- `db.wait_event_type` - The type of event for which the database backend is waiting (all engines except Amazon DocumentDB).
db.wait_state - The event for which the database backend is waiting (only Amazon DocumentDB).

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. Valid values are as follows:
  • Aurora PostgreSQL
  • Amazon RDS PostgreSQL
  • Amazon DocumentDB
• 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. Valid values are as follows:
  • Aurora PostgreSQL
  • Amazon RDS PostgreSQL
  • Aurora MySQL
  • Amazon RDS MySQL
  • Amazon RDS MariaDB
  • Amazon DocumentDB
• db.query.id - The query ID generated by Performance Insights (only Amazon DocumentDB).
• db.query.db_id - The query ID generated by the database (only Amazon DocumentDB).
• db.query.statement - The text of the query that is being run (only Amazon DocumentDB).
• db.query.tokenized_id
• db.query.tokenized.id - The query digest ID generated by Performance Insights (only Amazon DocumentDB).
• db.query.tokenized.db_id - The query digest ID generated by Performance Insights (only Amazon DocumentDB).
• db.query.tokenized.statement - The text of the query digest (only Amazon DocumentDB).
• db.session_type.name - The type of the current session (only Amazon DocumentDB).
• db.sql.id - The hash of the full, non-tokenized SQL statement generated by Performance Insights (all engines except Amazon DocumentDB).
• db.sql.db_id - Either the SQL ID generated by the database engine, or a value generated by Performance Insights that begins with pi- (all engines except Amazon DocumentDB).
• db.sql.statement - The full text of the SQL statement that is running, as in SELECT * FROM employees (all engines except Amazon DocumentDB)
• db.sql.tokenized_id
• db.sql_tokenized.id - The hash of the SQL digest generated by Performance Insights (all engines except Amazon DocumentDB). In the console, db.sql_tokenized.id is called the Support ID because AWS Support can look at this data to help you troubleshoot database issues.
• db.sql_tokenized.db_id - Either the native database ID used to refer to the SQL statement, or a synthetic ID such as pi-2372568224 that Performance Insights generates if the native database ID isn't available (all engines except Amazon DocumentDB).

• db.sql_tokenized.statement - The text of the SQL digest, as in SELECT * FROM employees WHERE employee_id = ? (all engines except Amazon DocumentDB).

• db.user.id - The ID of the user logged in to the database (all engines except Amazon DocumentDB).

• db.user.name - The name of the user logged in to the database (all engines except Amazon DocumentDB).

• db.wait_event.name - The event for which the backend is waiting (all engines except Amazon DocumentDB).

• db.wait_event.type - The type of event for which the backend is waiting (all engines except Amazon DocumentDB).

• db.wait_event_type.name - The name of the event type for which the backend is waiting (all engines except Amazon DocumentDB).

• db.wait_state.name - The event for which the backend is waiting (only Amazon DocumentDB).

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


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
DimensionGroupDetail

Information about dimensions within a dimension group.

Contents

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

Dimensions

The dimensions within a dimension group.

Type: Array of DimensionDetail (p. 35) objects

Required: No

Group

The name of the dimension group.

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
DimensionKeyDescription

An object that includes the requested dimension key values and aggregated metric values within a dimension group.

Contents

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

**AdditionalMetrics**
A map that contains the value for each additional metric.
Type: String to double map
Key Length Constraints: Minimum length of 0. Maximum length of 256.
Key Pattern: .*
Value Length Constraints: Minimum length of 0. Maximum length of 256.
Value Pattern: .*
Required: No

**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: .*
Value Length Constraints: Minimum length of 0. Maximum length of 256.
Value Pattern: .*
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 dimensions, 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 following values are valid:

- db.query.statement (Amazon DocumentDB)
- db.sql.statement (Amazon RDS and Aurora)

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 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. Depending on the return status, this value is either the full or truncated SQL query for the following dimensions:

- db.query.statement (Amazon DocumentDB)
- db.sql.statement (Amazon RDS and Aurora)

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:
See Also

- AWS SDK for C++
- AWS SDK for Go
- AWS SDK for Java V2
- AWS SDK for Ruby V3
FeatureMetadata

The metadata for a feature. For example, the metadata might indicate that a feature is turned on or off on a specific DB instance.

Contents

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

Status

The status of the feature on the DB instance. Possible values include the following:

- ENABLED - The feature is enabled on the instance.
- DISABLED - The feature is disabled on the instance.
- UNSUPPORTED - The feature isn't supported on the instance.
- ENABLED_PENDING_REBOOT - The feature is enabled on the instance but requires a reboot to take effect.
- DISABLED_PENDING_REBOOT - The feature is disabled on the instance but requires a reboot to take effect.
- UNKNOWN - The feature status couldn't be determined.

Type: String

Valid Values: ENABLED | DISABLED | UNSUPPORTED | ENABLED_PENDING_REBOOT | DISABLED_PENDING_REBOOT | UNKNOWN

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
MetricDimensionGroups

The available dimension information for a metric type.

Contents

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

Groups
The available dimension groups for a metric type.
Type: Array of DimensionGroupDetail (p. 39) objects
Required: No

Metric
The metric type to which the dimension information belongs.
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. 34) objects
Required: No

Key
The dimensions to which the data points apply.
Type: ResponseResourceMetricKey (p. 51) 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 data points for the specified metric. Optionally, you can 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.
- The counter metrics listed in Performance Insights operating system counters in the Amazon Aurora User Guide.

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. 36) 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 dimensions 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
ResponseResourceMetric

An object that contains the full name, description, and unit of a metric.

Contents

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

Description
The description of the metric.
Type: String
Length Constraints: Minimum length of 1. Maximum length of 2048.
Required: No

Metric
The full name of the metric.
Type: String
Length Constraints: Minimum length of 0. Maximum length of 256.
Pattern: .*\S.*
Required: No

Unit
The unit of the metric.
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
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.
- The counter metrics listed in [Performance Insights operating system counters](https://docs.aws.amazon.com/AmazonAurora/latest/ug/monitoring-performance-insights-operating-system-counters.html) in the *Amazon Aurora User Guide*.

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++](https://aws.amazon.com/sdk-for-cpp/)
- [AWS SDK for Go](https://github.com/aws/aws-sdk-go)
- [AWS SDK for Java V2](https://aws-sdk-java.github.io/)

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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 Signing AWS API requests in the IAM User Guide.

**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 Create a signed AWS API request in the IAM User Guide.
  - 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 Elements of an AWS API request signature in the IAM User Guide.
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 STS, see [AWS services that work with IAM](https://docs.aws.amazon.com/IAM/latest/UserGuide/iam-service-principal-support.html) in the *IAM User Guide*.

Condition: If you're using temporary security credentials from AWS STS, 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 [Create a signed AWS API request](https://docs.aws.amazon.com/IAM/latest/UserGuide/IAM-create-signed-api-request.html) in the *IAM User Guide*.

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