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# Force.com Tooling API

## Reference and Developer Guide

Version 37.0, Summer '16





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# CHAPTER 1 Introducing Tooling API

Use Tooling API to build custom development tools or apps for Force.com applications. Tooling API's SOQL capabilities for many metadata types allow you to retrieve smaller pieces of metadata. Smaller retrieves improve performance, which makes Tooling API a better fit for developing interactive applications. Tooling API provides SOAP and REST interfaces.

For example, you can:

- Add features and functionality to your existing Force.com tools.
- Build dynamic modules for Force.com development into your enterprise integration tools.
- Build specialized development tools for a specific application or service.

Tooling API exposes metadata used in developer tooling that you can access through REST or SOAP.

For detailed descriptions of Tooling API objects and the REST resources and SOAP calls that each object supports, see [Tooling API Objects](#).

## IN THIS SECTION:

### [When to Use Tooling API](#)

Use Tooling API when you need fine-grained access to an org's metadata. Tooling API's SOQL capabilities for many metadata types allow you to retrieve smaller pieces of metadata. Smaller retrieves improve performance, which makes Tooling API a better fit for developing interactive applications.

### [REST Overview](#)

Use REST if you're using a language that isn't strongly typed, like JavaScript.

### [SOAP Calls](#)

### [Tooling API Objects and Namespaces](#)

Tooling API objects provide programmatic access to data and metadata. The Tooling API WSDL includes four namespaces.

## When to Use Tooling API

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Use Tooling API when you need fine-grained access to an org's metadata. Tooling API's SOQL capabilities for many metadata types allow you to retrieve smaller pieces of metadata. Smaller retrieves improve performance, which makes Tooling API a better fit for developing interactive applications.

Because Tooling API allows you to change just one element within a complex type, it can be easier to use than Metadata API. Other use cases include:

- Source control integration
- Continuous integration
- Apex classes or trigger deployment

Some of the specific tasks you can accomplish using the Tooling API:

### **Retrieve metadata about an object's field**

Use [FieldDefinition](#).

### **Retrieve custom or standard object properties**

Use [FieldDefinition](#).

**Manage working copies of Apex classes and triggers and Visualforce pages and components.**

Use [ApexClassMember](#), [ApexTriggerMember](#), [ApexPageMember](#), [ApexComponentMember](#), and [MetadataContainer](#).

**Manage working copies of static resource files.**

Use [StaticResource](#).

**Check for updates and errors in working copies of Apex classes and triggers and Visualforce pages and components.**

[ContainerAsyncRequest](#)

**Commit changes to your organization.**

Use [ContainerAsyncRequest](#).

**Set heap dump markers.**

Use [ApexExecutionOverlayAction](#)

**Overlay Apex code or SOQL statements on an Apex execution.**

Use [ApexExecutionOverlayAction](#).

**Execute anonymous Apex.**

For sample code, see [SOAP Calls](#) and [REST Overview](#).

**Generate log files for yourself or for other users.**

Set checkpoints with [TraceFlag](#)

**Access debug log and heap dump files.**

Use [ApexLog](#) and [ApexExecutionOverlayResult](#).

**Manage custom fields on custom objects.**

Use [CustomField](#).

**Access code coverage results.**

Use [ApexCodeCoverage](#), [ApexOrgWideCoverage](#), and [ApexCodeCoverageAggregate](#).

**Execute tests, and manage test results.**

Use [ApexTestQueueItem](#) and [ApexTestResult](#).

**Manage validation rules and workflow rules.**

Use [ValidationRule](#) and [WorkflowRule](#).

## REST Overview

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Use REST if you're using a language that isn't strongly typed, like JavaScript.

For details on usage, syntax, and authentication, see the *Force.com REST API Developer Guide*.

### IN THIS SECTION:

#### [REST Resources](#)

REST Resources give you access to Tooling API objects. To query Tooling API objects using REST resources, you need the "View All Data" user permission.

#### [REST Resource Examples](#)

Robust examples using REST resources in the Tooling API.

#### [REST Headers](#)

Use REST if you're using a language that isn't strongly typed, like JavaScript.



[REST Header Examples](#)

Use these examples to understand REST headers.

## REST Resources

REST Resources give you access to Tooling API objects. To query Tooling API objects using REST resources, you need the “View All Data” user permission.

For details on usage, syntax, and authentication, see the *Force.com REST API Developer Guide*.

For examples, see [REST Resource Examples](#).

## REST Resources Supported by Tooling API

The base URI for each Tooling API REST resource is `http://domain/services/data/vXX.X/tooling/` where *domain* is a Salesforce instance or a custom domain and *vXX.X* is the API version number. For example:

`https://yourInstance.salesforce.com/services/data/v35.0/tooling/`

Like the Force.com REST API, Tooling API uses the following resources.

**`/completions?type=`**

Supported methods: GET

Retrieves available code completions of the referenced type for Apex system method symbols (`type=apex`). Available from API version 28.0 or later.

**`/executeAnonymous/?anonymousBody= <url encoded body>`**

Supported methods: GET

Executes Apex code anonymously. Available from API version 29.0 or later.

**`/query/?q=SOQL_Query_Statement`**

Supported methods: GET

Executes a query against an object and returns data that matches the specified criteria. Tooling API exposes objects like EntityDefinition and FieldDefinition that use the external object framework—that is, they don’t exist in the database but are constructed dynamically. Special query rules apply to virtual entities.

If the query result is too large, it’s broken up into batches. The response contains the first batch of results and a query identifier. The identifier can be used in a request to retrieve the next batch.

**`/runTestsAsynchronous/ and /runTestsSynchronous/`**

Resource	API Version 36.0 and Earlier	API Version 37.0 and Later
<code>/runTestsAsynchronous/:</code> GET	<pre><code>/runTestsAsynchronous/?classids= &lt;comma separated list of class IDs&gt;</code></pre> <p>Executes the tests in the specified classes. Running tests asynchronously allows methods to process in parallel, cutting down your test run times.</p>	Not supported.

Resource	API Version 36.0 and Earlier	API Version 37.0 and Later
<p><code>/runTestsAsynchronous/</code>: POST with comma-separated lists</p>	<pre data-bbox="527 262 966 577">/runTestsAsynchronous/ Body: {"classids": "&lt;comma-separated list of class IDs&gt;", "suiteids": "&lt;comma-separated list of test suite IDs&gt;", "maxFailedTests": "&lt;integer value&gt;"}</pre> <ul data-bbox="527 588 974 1533" style="list-style-type: none"> <li>• Runs one or more methods within one or more Apex classes, using the asynchronous test execution mechanism.</li> <li>• You can POST both a <code>suiteids</code> list and a <code>classids</code> list to <code>runTestsAsynchronous</code>. However, if you send a <code>tests</code> array, you can't send <code>suiteids</code> or <code>classids</code>.</li> <li>• You can also POST an optional <code>maxFailedTests</code> parameter. To allow all tests in your run to execute, regardless of how many tests fail, omit <code>maxFailedTests</code> or set it to <code>-1</code>. To stop the test run from executing new tests after a given number of tests fail, set <code>maxFailedTests</code> to an integer value from 0 to 1,000,000. This integer value sets the maximum allowable test failures. A value of 0 causes the test run to stop if any failure occurs. A value of 1 causes the test run to stop on the second failure, and so on. Keep in mind that high values can cause slow performance. Each 1,000 tests that you add to your <code>maxFailedTests</code> value adds about 3 seconds to your test run, not including the time that the tests take to execute.</li> </ul>	<pre data-bbox="998 262 1437 640">/runTestsAsynchronous/ Body: {"classids": "&lt;comma-separated list of class IDs&gt;", "suiteids": "&lt;comma-separated list of test suite IDs&gt;", "maxFailedTests": "&lt;integer value&gt;", "testLevel": "&lt;TestLevel enum value&gt;"}</pre> <ul data-bbox="998 651 1445 1848" style="list-style-type: none"> <li>• Runs one or more methods within one or more Apex classes, using the asynchronous test execution mechanism.</li> <li>• You can POST both a <code>suiteids</code> list and a <code>classids</code> list to <code>runTestsAsynchronous</code>. However, if you send a <code>tests</code> array, you can't send <code>suiteids</code> or <code>classids</code>.</li> <li>• You can also POST an optional <code>maxFailedTests</code> parameter. To allow all tests in your run to execute, regardless of how many tests fail, omit <code>maxFailedTests</code> or set it to <code>-1</code>. To stop the test run from executing new tests after a given number of tests fail, set <code>maxFailedTests</code> to an integer value from 0 to 1,000,000. This integer value sets the maximum allowable test failures. A value of 0 causes the test run to stop if any failure occurs. A value of 1 causes the test run to stop on the second failure, and so on. Keep in mind that high values can cause slow performance. Each 1,000 tests that you add to your <code>maxFailedTests</code> value adds about 3 seconds to your test run, not including the time that the tests take to execute.</li> <li>• The <code>testLevel</code> parameter is optional. If you don't provide a <code>testLevel</code> value, we use <code>RunSpecifiedTests</code>. Permissible values include: <b>RunSpecifiedTests</b> Only the tests that you specify are run.</li> </ul>

Resource	API Version 36.0 and Earlier	API Version 37.0 and Later
		<p><b>RunLocalTests</b> All tests in your org are run, except the ones that originate from installed managed packages.</p> <p>Omit identifiers for specific tests when you use this value.</p> <p><b>RunAllTestsInOrg</b> All tests are run. The tests include all tests in your org, including tests of managed packages.</p> <p>Omit identifiers for specific tests when you use this value.</p>
<p>/runTestsAsynchronous/: POST with JSON</p>	<p>/runTestsAsynchronous/ Body: { "tests": &lt;tests array&gt; }</p> <p>Example &lt;tests array&gt;:</p> <pre data-bbox="532 919 971 1522"> [[   {     "classId":     "01pD0000000Fhy9IAC",     "testMethods":     ["testMethod1",      "testMethod2",      "testMethod3"     ]   }, {     "classId":     "01pD0000000FhyEIAS",     "testMethods":     ["testMethod1",      "testMethod2",      "testMethod3"     ]   }, {     "maxFailedTests": "2"   } ]] </pre> <ul data-bbox="532 1533 979 1896" style="list-style-type: none"> <li>• Runs one or more methods within one or more Apex classes, using the asynchronous test execution mechanism.</li> <li>• &lt;tests array&gt; is an array of objects that represent Apex test classes, each of which has a classId and a testMethods parameter, and an optional maxFailedTests parameter.</li> <li>• Multiple occurrences of a test method name in a testMethods array are ignored. Test</li> </ul>	<p>/runTestsAsynchronous/ Body: { "tests": &lt;tests array&gt; }</p> <p>Example &lt;tests array&gt;:</p> <pre data-bbox="1003 919 1442 1606"> [[   {     "classId":     "01pD0000000Fhy9IAC",     "testMethods":     ["testMethod1",      "testMethod2",      "testMethod3"     ]   }, {     "classId":     "01pD0000000FhyEIAS",     "testMethods":     ["testMethod1",      "testMethod2",      "testMethod3"     ]   }, {     "maxFailedTests": "2"   }, {     "testLevel":     "RunSpecifiedTests"   } ]] </pre> <ul data-bbox="1003 1627 1450 1896" style="list-style-type: none"> <li>• Runs one or more methods within one or more Apex classes, using the asynchronous test execution mechanism.</li> <li>• &lt;tests array&gt; is an array of objects that represent Apex test classes—each of which has a classId and a testMethods parameter. The tests</li> </ul>

Resource	API Version 36.0 and Earlier	API Version 37.0 and Later
	<p>methods that don't exist are skipped. A null or missing <code>testMethods</code> array specifies that all test methods in the test class are run.</p> <ul style="list-style-type: none"> <li>To allow all tests in your run to execute, regardless of how many tests fail, omit <code>maxFailedTests</code> or set it to <code>-1</code>. To stop the test run from executing new tests after a given number of tests fail, set <code>maxFailedTests</code> to an integer value from 0 to 1,000,000. This integer value sets the maximum allowable test failures. A value of 0 causes the test run to stop if any failure occurs. A value of 1 causes the test run to stop on the second failure, and so on. Keep in mind that high values can cause slow performance. Each 1,000 tests that you add to your <code>maxFailedTests</code> value adds about 3 seconds to your test run, not including the time that the tests take to execute.</li> </ul>	<p>array also includes an optional <code>maxFailedTests</code> parameter and a required <code>testLevel</code> parameter.</p> <ul style="list-style-type: none"> <li>Multiple occurrences of a test method name in a <code>testMethods</code> array are ignored. Test methods that don't exist are skipped. A null or missing <code>testMethods</code> array specifies that all test methods in the test class are run</li> <li>To allow all tests in your run to execute, regardless of how many tests fail, omit <code>maxFailedTests</code> or set it to <code>-1</code>. To stop the test run from executing new tests after a given number of tests fail, set <code>maxFailedTests</code> to an integer value from 0 to 1,000,000. This integer value sets the maximum allowable test failures. A value of 0 causes the test run to stop if any failure occurs. A value of 1 causes the test run to stop on the second failure, and so on. Keep in mind that high values can cause slow performance. Each 1,000 tests that you add to your <code>maxFailedTests</code> value adds about 3 seconds to your test run, not including the time that the tests take to execute.</li> <li>The <code>testLevel</code> parameter is optional. If you don't provide a <code>testLevel</code> value, we use <code>RunSpecifiedTests</code>. Permissible values include: <ul style="list-style-type: none"> <li><b>RunSpecifiedTests</b> Only the tests that you specify are run.</li> <li><b>RunLocalTests</b> All tests in your org are run, except the ones that originate from installed managed packages. Omit identifiers for specific tests when you use this value.</li> <li><b>RunAllTestsInOrg</b> All tests are run. The tests include all tests in your org, including tests of managed packages. Omit identifiers for specific tests when you use this value.</li> </ul> </li> </ul>

Resource	API Version 36.0 and Earlier	API Version 37.0 and Later
<p><code>/runTestsSynchronous/</code>: GET</p>	<pre data-bbox="532 268 971 373">/runTestsSynchronous/?classnames= &lt;comma-separated list of class names&gt;</pre> <p data-bbox="532 394 971 457">Executes the tests in the specified classes using the synchronous test execution mechanism.</p>	<p data-bbox="1003 258 1141 289">Not supported.</p>
<p><code>/runTestsSynchronous/</code>: POST</p>	<pre data-bbox="532 510 971 573">/runTestsSynchronous/ Body: {"tests":&lt;tests array&gt;}</pre> <p data-bbox="532 594 816 625">Example &lt;tests array&gt;:</p> <pre data-bbox="532 646 971 993">[ {   "classId":   "01pD000000Fhy9IAC",   "testMethods":   ["testMethod1",     "testMethod2",     "testMethod3"   ] }, {   "maxFailedTests": "2" }]</pre> <ul data-bbox="532 1014 979 1864" style="list-style-type: none"> <li>• Runs one or more methods within an Apex class, using the synchronous test execution mechanism. All test methods in a synchronous test run must be in the same class.</li> <li>• &lt;tests array&gt; is an array of an object that represents an Apex test class—which has a <code>classId</code> and a <code>testMethods</code> parameter—and an optional <code>maxFailedTests</code> parameter.</li> <li>• Multiple occurrences of a test method name in a <code>testMethods</code> array are ignored. Test methods that don't exist are skipped. A null or missing <code>testMethods</code> array specifies that all test methods in the test class are run</li> <li>• To allow all tests in your run to execute, regardless of how many tests fail, omit <code>maxFailedTests</code> or set it to <code>-1</code>. To stop the test run from executing new tests after a given number of tests fail, set <code>maxFailedTests</code> to an integer value from 0 to 1,000,000. This integer value sets the maximum allowable test failures. A value of 0 causes the test run to stop if any</li> </ul>	<pre data-bbox="1003 510 1442 573">/runTestsSynchronous/ Body: {"tests":&lt;tests array&gt;}</pre> <p data-bbox="1003 594 1287 625">Example &lt;tests array&gt;:</p> <pre data-bbox="1003 646 1442 993">[ {   "classId":   "01pD000000Fhy9IAC",   "testMethods":   ["testMethod1",     "testMethod2",     "testMethod3"   ] }, {   "maxFailedTests": "2" }]</pre> <ul data-bbox="1003 1014 1450 1864" style="list-style-type: none"> <li>• Runs one or more methods within an Apex class, using the synchronous test execution mechanism. All test methods in a synchronous test run must be in the same class.</li> <li>• &lt;tests array&gt; is an array of an object that represents an Apex test class—which has a <code>classId</code> and a <code>testMethods</code> parameter—and an optional <code>maxFailedTests</code> parameter.</li> <li>• Multiple occurrences of a test method name in a <code>testMethods</code> array are ignored. Test methods that don't exist are skipped. A null or missing <code>testMethods</code> array specifies that all test methods in the test class are run</li> <li>• To allow all tests in your run to execute, regardless of how many tests fail, omit <code>maxFailedTests</code> or set it to <code>-1</code>. To stop the test run from executing new tests after a given number of tests fail, set <code>maxFailedTests</code> to an integer value from 0 to 1,000,000. This integer value sets the maximum allowable test failures. A value of 0 causes the test run to stop if any</li> </ul>

Resource	API Version 36.0 and Earlier	API Version 37.0 and Later
	failure occurs. A value of 1 causes the test run to stop on the second failure, and so on. Keep in mind that high values can cause slow performance. Each 1,000 tests that you add to your <code>maxFailedTests</code> value adds about 3 seconds to your test run, not including the time that the tests take to execute.	failure occurs. A value of 1 causes the test run to stop on the second failure, and so on. Keep in mind that high values can cause slow performance. Each 1,000 tests that you add to your <code>maxFailedTests</code> value adds about 3 seconds to your test run, not including the time that the tests take to execute.

### ***/search/?q=SOSL\_Search\_Statement***

Supported methods: GET

Search for records containing specified values.

### ***/subjects/***

Supported methods: GET

Lists the available Tooling API objects and their metadata.

### ***/subjects/SObjectName/***

Supported methods: GET, POST

Describes the individual metadata for the specified object or creates a record for a given object.

- To retrieve the metadata for the `ApexExecutionOverlayAction` object, use the GET method.
- To create a `ApexExecutionOverlayAction` object, use the POST method.

### ***/subjects/SObjectName/describe/***

Supported methods: GET

Completely describes the individual metadata at all levels for the specified object.

For example, use this resource to retrieve the fields, URLs, and child relationships for a Tooling API object.

### ***/subjects/SObjectName/id/***

Supported methods: GET, PATCH, DELETE

Accesses records based on the specified object ID.

Use the GET method to retrieve records or fields, the DELETE method to delete records, and the PATCH method to update records.

### ***/subjects/ApexLog/id/Body/***

Supported methods: GET


Retrieves a raw debug log by ID. Available from API version 28.0 or later.

## REST Resource Examples

Robust examples using REST resources in the Tooling API.

### Example Setup

The following examples use Apex to execute REST requests, but you can use any standard REST tool to access the Tooling API.

 **Note:** Salesforce runs on multiple server instances. The examples in this guide use `instance.salesforce.com`. Be sure to use your org's instance name.

First, set up the connection to your org and the HTTP request type:

```
HttpRequest req = new HttpRequest();
req.setHeader('Authorization', 'Bearer ' + UserInfo.getSessionID());
req.setHeader('Content-Type', 'application/json');
```

At the end of each request, add the following code to send the request and retrieve the body of the response:

```
Http h = new Http();
HttpResponse res = h.send(req);
system.debug(res.getBody());
```

## Retrieve a Description

To get a description of all available objects in Tooling API:

```
req.setEndpoint('http://instance.salesforce.com/services/data/v37.0/tooling/subjects/');
req.setMethod('GET');
```

To get a description of a specific Tooling API object, for example, [TraceFlag](#):

```
req.setEndpoint('http://instance.salesforce.com/services/data/v37.0/tooling/subjects/TraceFlag/');
req.setMethod('GET');
```


To get a description of all metadata for a specific Tooling API object, for example, [TraceFlag](#):

```
req.setEndpoint('http://instance.salesforce.com/services/data/v37.0/tooling/subjects/TraceFlag/describe/');
req.setMethod('GET');
```

## Manipulate Objects by ID

To create a new Tooling API object, for example, [MetadataContainer](#):

```
req.setEndpoint('http://instance.salesforce.com/services/data/v37.0/tooling/subjects/MetadataContainer/');
req.setBody('{"Name":"TestContainer"}');
req.setMethod('POST');
```

 **Tip:** Use the ID from this call in the rest of the examples.

To retrieve a Tooling API object by ID, for example, [MetadataContainer](#):

```
req.setEndpoint('http://instance.salesforce.com/services/data/v37.0/tooling/subjects/MetadataContainer/' + containerID + '/');
req.setMethod('GET');
```

To update a Tooling API object by ID, for example, [MetadataContainer](#):

```
req.setEndpoint('http://instance.salesforce.com/services/data/v37.0/tooling/subjects/MetadataContainer/' + containerID + '/');
```

```
req.setBody ('{"Name":"NewlyNamedContainer"}');
req.setMethod ('PATCH');
```

To query a Tooling API object by ID, for example, [MetadataContainer](#):

```
req.setEndpoint ('http://instance.salesforce.com/services/data/v37.0/tooling/query/?q=Select+id,Name+from+MetadataContainer+Where+ID=\' ' + containerID + ' \');
req.setMethod ('GET');
```

## Query Within MetadataContainer

To query an object within a [MetadataContainer](#):

```
req.setEndpoint ('http://instance.salesforce.com/services/data/v37.0/tooling/query/?q=Select+id,Body,LastSyncDate,Metadata+from+ApexClassMember+Where+MetadataContainerID=\' ' + containerID + ' \');
req.setMethod ('GET');
```

## Check Deployment Status

To check on the status of a deployment, using [ContainerAsyncRequest](#):

```
req.setEndpoint ('http://instance.salesforce.com/services/data/v37.0/tooling/subjects/ContainerAsyncRequest/' + requestID + '/');
req.setMethod ('GET');
```

## Execute Anonymous Apex

To execute anonymous Apex:

```
req.setEndpoint ('http://instance.salesforce.com/services/data/v37.0/tooling/executeAnonymous/?anonymousBody=System.debug('Test')%3B');
req.setMethod ('GET');
```

## Retrieve Apex

To retrieve your Apex classes and triggers, and the global Apex classes and triggers from your installed managed packages:

```
req.setEndpoint ('http://instance.salesforce.com/services/data/v37.0/tooling/apexManifest');
req.setMethod ('GET');
```

## Execute Apex Unit Tests

To execute Apex unit tests, use the `runTestsSynchronous` or `runTestsAsynchronous` resource. This example illustrates how to POST to the `runTestsSynchronous` resource using JavaScript. The comment blocks show which objects these calls return.

```
var xhttp = new XMLHttpRequest();
xhttp.open("POST",
"http://instance.salesforce.com/services/data/v37.0/tooling/runTestsSynchronous/", true)
```



```

// SESSION_ID is the session ID
xhttp.setRequestHeader("Authorization", "OAuth <SESSION_ID>")
xhttp.setRequestHeader('Accept', "application/json");

// testObject should include a list of object(s) with the classId and list of
//   desired test methods for the desired classes to be tested
testObject = {tests: [{classId: "NOtAREalClassId", testMethods: ["testMethod1",
"testMethod2"]}]}
requestObject = json.stringify(testObject);
response = xhttp.send(requestObject)
response = JSON.parse(response)

/*
{
  "successes": [
    {
      "namespace": null,
      "name": "MyTestClass",
      "methodName": "testMethod1",
      "id": "NOtAREalTestId1",
      "time": 1167,
      "seeAllData": false
    },
    {
      "namespace": null,
      "name": "MyTestClass",
      "methodName": "testMethod2",
      "id": "NOtAREalTestId2",
      "time": 47,
      "seeAllData": false
    }
  ],
  "failures": [
    {
      "type": "Class",
      "namespace": null,
      "name": "MyTestClass",
      "methodName": "testMethod3",
      "message": "System.AssertException: Assertion Failed",
      "stackTrace": "Class.MyTestClass.testMethod3: line 13, column 1",
      "id": "01pxx0000000JTpAAM",
      "seeAllData": false,
      "time": 27,
      "packageName": "MyTestClass"
    },
    {
      "type": "Class",
      "namespace": null,
      "name": "MyTestClass",
      "methodName": "testMethod4",
      "message": "System.AssertException: Assertion Failed",
      "stackTrace": "Class.MyTestClass.testMethod4: line 17, column 1",
      "id": "01pxx0000000JTpAAM",
      "seeAllData": false,

```

```

        "time": 32,
        "packageName": "MyTestClass"
    }
],
"totalTime": 143,
"apexLogId": "07Lxx0000000A9NEAU",
"numFailures": 2,
"codeCoverage": [

],
"codeCoverageWarnings": [

],
"numTestsRun": 4
}
*/

// Check how many tests ran
response["numTestRun"] === 4
// Check how many tests passed
response["successes"].length === 2

// Return a list of objects that correspond to the tests that passed
response["successes"]
/*
[
  {
    "id": "NOtARealTestId1",
    "methodName": "testMethod1",
    "name": "MyTestClass",
    "namespace": null,
    "seeAllData": false,
    "time": 1167
  }
]
*/

// Access the first object in the list
response["successes"][0]["name"] === "MyTestClass"
response["successes"][0]["methodName"] === "testMethod1"
// This ID refers to the classId
response["successes"][0]["id"] === "MyTestClass"
response["successes"][0]["time"] === 1167 // milliseconds

response["failures"]
/*
{
  "type": "Class",
  "namespace": null,
  "name": "MyTestClass",
  "methodName": "testMethod3",
  "message": "System.AssertException: Assertion Failed",
  "stackTrace": "Class.MyTestClass.testMethod3: line 13, column 1",
  "id": "01pxx0000000JTpAAM",

```

```

        "seeAllData": false,
        "time": 27,
        "packageName": "MyTestClass"
    },
    {
        "type": "Class",
        "namespace": null,
        "name": "MyTestClass",
        "methodName": "testMethod4",
        "message": "System.AssertException: Assertion Failed",
        "stackTrace": "Class.MyTestClass.testMethod4: line 17, column 1",
        "id": "01pxx0000000JTpAAM",
        "seeAllData": false,
        "time": 32,
        "packageName": "MyTestClass"
    }
}
*/

response["failures"][0]["name"] === "MyTestClass"
response["failures"][0]["methodName"] === "testMethod3"
response["failures"][0]["message"] === "System.AssertException: Assertion Failed"
response["failures"][0]["stackTrace"] === "Class.MyTestClass.testMethod3: line 13, column
1"
response["failures"][0]["time"] === 27

```

## REST Headers

Use REST if you're using a language that isn't strongly typed, like JavaScript.

For details on usage, syntax, and authentication, see the *Force.com REST API Developer Guide*.

REST headers available in the Tooling API WSDL are described in [REST Headers for Tooling API](#) on page 321.

For examples of REST headers being used, see [REST Header Examples](#).


## REST Header Examples

Use these examples to understand REST headers.

REST headers in the Tooling API WSDL are described in [REST Headers for Tooling API](#) on page 321. For more details about REST Resources, see the *Force.com REST API Developer Guide*.

## Examples

The following examples use Apex to execute REST requests with headers. You can use any standard REST tool to access Tooling REST API.

 **Note:** Salesforce runs on multiple server instances. The examples in this guide use *yourInstance* in place of a specific instance. Replace that text with the instance for your org.

First, set up the connection to your org and the HTTP request type:

```

HttpRequest req = new HttpRequest();
req.setHeader('Authorization', 'Bearer ' + UserInfo.getSessionID());
req.setHeader('Content-Type', 'application/json');

```

At the end of each request, add the following code to send the request and retrieve the body of the response:

```
Http h = new Http();
HttpResponse res = h.send(req);
system.debug(res.getBody());
```

## SOAP Calls

---

Use SOAP if you're using a strongly typed language like Java that generates Web service client code. For details about usage, syntax, and authentication, see the *SOAP API Developer's Guide*.

To access the Tooling API WSDL, from Setup, enter *API* in the *Quick Find* box, then select **API** and click **Generate Tooling WSDL**.

Like the Salesforce SOAP API, Tooling API uses the following calls.

### **create()**

Adds one or more records to your organization's data.

### **delete()**

Deletes one or more records from your organization's data.

### **describeLayout()**

Retrieve metadata about page layouts for a specified SOJbect.

### **describeGlobal()**

Lists the available Tooling API objects and their metadata.

### **describeSObjects()**

Describes the metadata (field list and object properties) for the specified object or array of objects.

Call `describeGlobal()` to retrieve a list of all Tooling API objects for your organization, then iterate through the list and use `describeSObjects()` to obtain metadata about individual objects.

### **describeValueType()**

Describes the metadata for a specified namespace and value type. For information about `describeValueType`, see the *Metadata API Developer Guide*.

### **describeWorkitemActions()**

Describes which actions are available for a specified work item.

### **executeAnonymous(string apexcode)**

Executes the specified block of Apex anonymously and returns the result.

### **query()**

Executes a query against a Tooling API object and returns data that matches the specified criteria.

### **queryMore()**

Retrieves the next batch of objects from a `query()`.

### **retrieve()**

Retrieves one or more records based on the specified IDs.

### **runTests()**

Runs one or more methods within an Apex class, using the synchronous test execution mechanism. All test methods in a synchronous test run must be in the same class.

The synchronous `runTests()` call accepts a [RunTestsRequest](#) object.

For sample code and more information, see [Apex Developer Guide: runTests\(\)](#).

**runTestsAsynchronous ()**

Runs one or more methods within one or more Apex classes, using the asynchronous test execution mechanism.

This example shows the structure of a call to a class that calls the `runTestsAsynchronous` endpoint.

```
conn.runTestsAsynchronous(classids, suiteids, maxFailedTests, testLevel.value)
```

For more `runTestsAsynchronous ()` example code, see [ApexTestQueueItem](#).

The `classids` and `suiteids` parameters must both be specified for `runTestsAsynchronous`. To provide a value for only one of the two, specify the other as `null`. To use `TestLevel.RunLocalTests` or `TestLevel.RunAllTestsInOrg`, specify both `classids` and `suiteids` as `null`.

A value for `maxFailedTests` is mandatory. To allow all tests in your org to run, regardless of how many tests fail, set `maxFailedTests` to `-1`. To stop the test run from executing new tests after a given number of tests fail, set `maxFailedTests` to an integer value from `0` to `1,000,000`. This integer value sets the maximum allowable test failures. A value of `0` causes the test run to stop if any failure occurs. A value of `1` causes the test run to stop on the second failure, and so on. Keep in mind that high values can cause slow performance. Each 1,000 tests that you add to your `maxFailedTests` value adds about 3 seconds to your test run, not including the time that the tests take to execute.

The `testLevel` parameter is available and required in API version 37.0 and later, but its value can be `null`. Other permissible values include:

**RunSpecifiedTests**

Only the tests that you specify are run.

**RunLocalTests**

All tests in your org are run, except the ones that originate from installed managed packages.

Omit identifiers for specific tests when you use this value.

**RunAllTestsInOrg**

All tests are run. The tests include all tests in your org, including tests of managed packages.

Omit identifiers for specific tests when you use this value.

The `testLevel` parameter isn't available in API version 36.0 and earlier.

**search ()**

Search for records that match a specified text string.

**update ()**

Updates one or more existing records in your org's data.

**upsert ()**

Creates records and updates existing records; uses a custom field to determine the presence of existing records.

## SOAP Headers

The SOAP headers available in the Tooling API WSDL are described in [SOAP Headers for Tooling API](#).

## Examples

These examples use C#, but you can use any language that supports Web services.

To compile Apex classes or triggers in Developer Edition or sandbox organizations, use `create()`. The next sample uses [ApexClass](#) to compile a simple class with a single method called `SayHello`.

```
String classBody = "public class Messages {\n"
+ "public string SayHello() {\n"
+ "return 'Hello';\n" + "}\n"
+ "}";

// create an ApexClass object and set the body
ApexClass apexClass = new ApexClass();
apexClass.Body = classBody;
ApexClass[] classes = { apexClass };

// call create() to add the class
SaveResult[] saveResults = sforce.create(classes);
for (int i = 0; i < saveResults.Length; i++)
{
    if (saveResults[i].success)
    {
        Console.WriteLine("Successfully created Class: " +
            saveResults[i].id);
    }
    else
    {
        Console.WriteLine("Error: could not create Class ");
        Console.WriteLine("    The error reported was: " +
            saveResults[i].errors[0].message + "\n");
    }
}
}
```

The `IsCheckOnly` parameter on [ContainerAsyncRequest](#) indicates whether an asynchronous request compiles code but doesn't execute or save it (`true`), or compiles and save the code (`false`).

The next example expands upon the first by modifying the `SayHello()` method to accept a person's first and last name. This example uses [MetadataContainer](#) with [ApexClassMember](#) to retrieve and update the class, and [ContainerAsyncRequest](#) to compile and deploy the changes to the server. You can use the same method with [ApexTriggerMember](#), [ApexComponentMember](#), and [ApexPageMember](#).



**Note:** To test your code, modify the `IsCheckOnly` parameter in the next sample, and log in to your organization after a successful execution to verify the results.

- When `IsCheckOnly = true`, the `SayHello()` method remains the same. `ApexClassMember` contains the compiled results, but the class on the server remains the same.
- When `IsCheckOnly = false`, the `SayHello()` method shows the change to accept a person's first and last name.

```
String updatedClassBody = "public class Messages {\n"
+ "public string SayHello(string fName, string lName) {\n"
+ "return 'Hello ' + fName + ' ' + lName;\n" + "}\n"
+ "}";

//create the metadata container object
MetadataContainer Container = new MetadataContainer();
Container.Name = "SampleContainer";

MetadataContainer[] Containers = { Container };
SaveResult[] containerResults = sforce.create(Containers);
```

```

if (containerResults[0].success)
{
    String containerId = containerResults[0].id;

    //create the ApexClassMember object
    ApexClassMember classMember = new ApexClassMember();
    //pass in the class ID from the first example
    classMember.ContentEntityId = classId;
    classMember.Body = updatedClassBody;
    //pass the ID of the container created in the first step
    classMember.MetadataContainerId = containerId;
    ApexClassMember[] classMembers = { classMember };

    SaveResult[] MembersResults = sforce.create(classMembers);
    if (MembersResults[0].success)
    {
        //create the ContainerAsyncRequest object
        ContainerAsyncRequest request = new ContainerAsyncRequest();
        //if the code compiled successfully, save the updated class to the server
        //change to IsCheckOnly = true to compile without saving
        request.IsCheckOnly = false;
        request.MetadataContainerId = containerId;
        ContainerAsyncRequest[] requests = { request };
        SaveResult[] RequestResults = sforce.create(requests);
        if (RequestResults[0].success)
        {
            string requestId = RequestResults[0].id;

            //poll the server until the process completes
            QueryResult queryResult = null;
            String soql = "SELECT Id, State, ErrorMsg
                          FROM ContainerAsyncRequest
                          Where id = '" + requestId + "'";
            queryResult = sforce.query(soql);
            if (queryResult.size > 0)
            {
                ContainerAsyncRequest _request = (ContainerAsyncRequest)queryResult.records[0];

                while (_request.State.ToLower() == "queued")
                {
                    //pause the process for 2 seconds
                    Thread.Sleep(2000);

                    //poll the server again for completion
                    queryResult = sforce.query(soql);
                    _request = (ContainerAsyncRequest)queryResult.records[0];
                }

                //now process the result
                switch (_request.State)
                {
                    case "Invalidated":
                        break;
                }
            }
        }
    }
}

```

```

        case "Completed":
            //class compiled successfully
            //see the next example on how to process the SymbolTable
            break;

        case "Failed":
            .. break;

        case "Error":
            break;

        case "Aborted":
            break;

    }
}
else
{
    //no rows returned
}
}
else
{
    Console.WriteLine("Error: could not create ContainerAsyncRequest object");
    Console.WriteLine("    The error reported was: " +
        RequestResults[0].errors[0].message + "\n");
}
}
else
{
    Console.WriteLine("Error: could not create Class Member ");
    Console.WriteLine("    The error reported was: " +
        MembersResults[0].errors[0].message + "\n");
}
}
else
{
    .. Console.WriteLine("Error: could not create MetadataContainer ");
    Console.WriteLine("    The error reported was: " +
        containerResults[0].errors[0].message + "\n");
}
}
}

```

To access Apex class and trigger data in a structured format, use a [SymbolTable](#).

The next sample queries the [ApexClassMember](#) object created in the previous example to obtain the [SymbolTable](#) of the modified class.



**Note:** The SOQL statement used depends on when the data is retrieved.

- To execute the query from within the previous sample, use the ID of the [ContainerAsyncRequest](#). For example, `SELECT Body, ContentEntityId, SymbolTable FROM ApexClassMember where MetadataContainerId = ''' + requestId + '''`



- Otherwise, use the ID of the modified class as shown in the next sample. For example, `SELECT ContentEntityId, SymbolTable FROM ApexClassMember where ContentEntityId = '" + classId + "'"`

```
//use the ID of the class from the previous step
string classId = "01pA00000036itIIAQ";
QueryResult queryResult = null;
String soql = "SELECT ContentEntityId, SymbolTable FROM ApexClassMember where
ContentEntityId = '" + classId + "'";

queryResult = sforce.query(soql);
if (queryResult.size > 0)
{
    ApexClassMember apexClass = (ApexClassMember)queryResult.records[0];
    SymbolTable symbolTable = apexClass.SymbolTable;

    foreach (Method _method in symbolTable.methods)
    {
        //here's the SayHello method
        String _methodName = _method.name;

        //report the modifiers on the method such as global, public, private, or static
        String _methodVisibility = _method.modifiers;

        //get the method's return type
        string _methodReturnType = _method.returnType;

        //get the fName & lName parameters
        foreach (Parameter _parameter in _method.parameters)
        {
            string _paramName = _parameter.name;
            string _parmType = _parameter.type;
        }
    }
}
else
{
    //unable to locate class
}
```

To add checkpoints to your code for debugging, use [ApexExecutionOverlayAction](#).

This sample adds a checkpoint to the class from the previous samples:

```
//use the ID of the class from the first sample.
string classId = "01pA00000036itIIAQ";

ApexExecutionOverlayAction action = new ApexExecutionOverlayAction();
action.ExecutableEntityId = classId;
action.Line = 3;
action.LineSpecified = true;
action.Iteration = 1;
action.IterationSpecified = true;
ApexExecutionOverlayAction[] actions = { action };

SaveResult[] actionResults = sforce.create(actions);
```

```

if (actionResults[0].success)
{
    // checkpoint created successfully
}
else
{
    Console.WriteLine("Error: could not create Checkpoint ");
    Console.WriteLine("    The error reported was: " +
        actionResults[0].errors[0].message + "\n");
}

```

## Tooling API Objects and Namespaces

Tooling API objects provide programmatic access to data and metadata. The Tooling API WSDL includes four namespaces.

Namespace	Used for	Prefix
subject.tooling.soap.sforce.com	Tooling API sObjects. Some sObjects have a Metadata field defined in the mns namespace.  This namespace is available in API version 37.0 and later.	ens
fault.tooling.soap.sforce.com	Tooling API error codes.  This namespace is available in API version 37.0 and later.	fns
tooling.soap.sforce.com	General complex types, describe results, and all enum types in the Tooling API.	tns
metadata.tooling.soap.sforce.com	Objects and types that occur in both the Metadata API WSDL and the Tooling API WSDL. Elements in the two WSDLs might be defined differently.	mns

Objects and types that are identical in the Tooling API and Metadata API WSDLs are documented in the Metadata API Developer Guide.

Objects and types that are different in the Tooling API WSDL or occur only in the Tooling API WSDL are documented in this guide.

Frequently occurring system fields are described in [System Fields](#) on page 23. You can verify the complete list of fields for an object by generating and reviewing the Tooling API WSDL.

## Object Quick-Reference Tables, System Fields, and SOQL Limitations

Learn about objects, system fields that occur on most objects, and SOQL limitations that apply to some objects in Tooling API. An alphabetical list of objects is also available.

**IN THIS SECTION:**[SOQL Operation Limitations](#)

Some Tooling API objects have SOQL limitations.

[SOSL Operation Limitations](#)

Two Tooling API objects, EntityDefinition and FieldDefinition, have SOSL limitations.

[System Fields](#)

Some fields are system-generated. They are on most Tooling API objects, and are read-only.

[Programming Objects](#)

Use programming objects to interact with programmatic artifacts: Apex, Visualforce, and Lightning.

[Setup Objects](#)

Use setup objects to interact with metadata for declarative development. For example, you may wish to create your own version of Setup, or restrict the amount of data you need to push to an app on a mobile phone.

[Tooling Objects](#)

Use these objects to build tools around test results, debugging, code coverage, and more.

[Operational Objects](#)

Use the following objects for Tooling API operations.

## SOQL Operation Limitations

Some Tooling API objects have SOQL limitations.

The following objects in Tooling API don't support SOQL operations `COUNT ()`, `GROUP BY`, `LIMIT`, `LIMIT OFFSET`, `OR`, and `NOT`.

- CompactLayoutInfo
- CompactLayoutItemInfo
- DataType
- EntityDefinition
- EntityLimit
- EntityParticle
- FieldDefinition
- Publisher
- RelationshipDomain
- RelationshipInfo
- SearchLayout
- ServiceFieldDataType
- StandardAction
- UserEntityAccess
- UserFieldAccess

The unsupported operations for these objects return errors or incorrect results as these examples illustrate.

**GROUP BY**

Example Query: `SELECT COUNT(qualifiedapiname), isfeedenabled FROM EntityDefinition GROUP BY isfeedenabled`

Error Returned: The requested operation is not yet supported by this SObject storage type, contact salesforce.com support for more information.

### LIMIT, LIMIT OFFSET

Example Queries:

```
SELECT qualifiedapiname FROM EntityDefinition LIMIT 5
```

```
SELECT qualifiedapiname FROM EntityDefinition LIMIT 5 OFFSET 10
```

An incorrect result is returned because LIMIT and LIMIT OFFSET are ignored.

### NOT

Example Query: `SELECT qualifiedapiname FROM EntityDefinition WHERE qualifiedapiname != 'Account'`

Error Returned: Only equals comparisons permitted

### OR

Example Query: `SELECT qualifiedapiname, keyprefix FROM EntityDefinition WHERE isdeletable=true OR (isfeedenabled=false AND keyprefix='01j')`

Error Returned: Disjunctions not supported

## SOSL Operation Limitations

Two Tooling API objects, EntityDefinition and FieldDefinition, have SOSL limitations.

EntityDefinition and FieldDefinition support the following SOSL operations:

### FIND

- Literal text search, for example:

```
FIND {account}
```

- Text search with a single wildcard, for example:

```
FIND {account*} RETURNING EntityDefinition
FIND {account?} RETURNING FieldDefinition
FIND {account*fax} RETURNING EntityDefinition
FIND {account?fax} RETURNING FieldDefinition
```

The wildcard can't be the first character in a search term, consistent with search behavior for all objects.

- Quotation marks are supported.
- The escape character \ (slash) is supported. For example, to search for the character \* (asterisk), include the escape character:

```
FIND {account\*}
RETURNING EntityDefinition
```

- RETURNING is required.

```
FIND {MyString}
RETURNING FieldDefinition
```

- Multiple object type names are supported.

```
...RETURNING EntityDefinition, FieldDefinition
```

- A field list is supported.

```
... RETURNING EntityDefinition (MasterLabel, QualifiedApiName)
```

- WHERE is supported, though logical operators are not.
- LIMIT is supported.

#### Example

```
FIND {account*}
RETURNING FieldDefinition (MasterLabel, NamespacePrefix
WHERE EntityDefinitionId='Account')
```

All other [SOSL operations](#) are unsupported. If you include an unsupported expression in a search term, the expression is ignored, except for the following, which cause an error:

- Multiple wildcards in a search term
- Unsupported operators OR or NOT
- Parentheses for grouping operators
- Morphological tokenization
- An asterisk wildcard isn't added at the end of single-character searches.

## System Fields

Some fields are system-generated. They are on most Tooling API objects, and are read-only.

These fields are automatically updated during API operations. For example, the `Id` field is automatically generated when a record is created, and the `LastModifiedDate` is automatically updated during any operation on an object.

Field	Field Type	Description
<code>Id</code>	ID	Globally unique string that identifies a record. <code>Id</code> fields have Defaulted on create and Filter access.
<code>IsDeleted</code>	boolean	Indicates whether the record has been moved to the Recycle Bin ( <code>true</code> ) or not ( <code>false</code> ). Because this field does not appear in all objects, it is listed in the field table for each object.
<code>CreatedBy</code>	User	The user who created the record. <code>CreatedBy</code> fields have Defaulted on create, Filter, Group, and Sort access.
<code>CreatedById</code>	reference	ID of the User who created this record. <code>CreatedById</code> fields have Defaulted on create, Filter, Group, and Sort access.
<code>CreatedDate</code>	dateTime	Date and time when this record was created. <code>CreatedDate</code> fields have Defaulted on create, Filter, and Sort access.
<code>LastModifiedBy</code>	User	The user who last modified this record. <code>LastModifiedBy</code> fields have Defaulted on create, Filter, Group, and Sort access.
<code>LastModifiedById</code>	reference	ID of the User who last updated this record. <code>LastModifiedById</code> fields have Defaulted on create, Filter, Group, and Sort access.

Field	Field Type	Description
LastModifiedDate	dateTime	Date and time when a user last modified this record. LastModifiedDate fields have Defaulted on create, Filter, and Sort access.
SystemModstamp	dateTime	Date and time when this record was last modified by a user or by an automated process (such as a trigger). SystemModstamp fields have Defaulted on create and Filter access.

To verify which fields are available for an object, check the Tooling API WSDL.

## Programming Objects

Use programming objects to interact with programmatic artifacts: Apex, Visualforce, and Lightning.

### ApexClass

Represents the saved copy of an Apex class. ApexClass uses the cached version of the class unless one is unavailable.

### ApexClassMember

Represents the working copy of an Apex class for editing, saving or compiling in a MetadataContainer.

### ApexComponent

Represents the saved copy of a Visualforce component. ApexComponent uses the cached version of the class unless one is unavailable.

### ApexComponentMember

Represents the working copy of a Visualforce component for editing, saving, or compiling in a MetadataContainer.

### ApexPage

Represents the saved copy of an Apex page. ApexPage uses the cached version of the class unless one is unavailable.

### ApexPageMember

Represents the working copy of a Visualforce page for editing, saving, or compiling in a MetadataContainer.

### ApexTrigger

Represents the saved copy of an Apex trigger. ApexTrigger uses the cached version of the class unless one is unavailable.

### ApexTriggerMember

Represents the working copy of an Apex trigger for editing, saving, or compiling in a MetadataContainer.

### AuraDefinition

Represents a Lightning definition, such as component markup, a client-side controller, or an event. This object is available in API version 32.0 and later.

### AuraDefinitionBundle

Represents a Lightning definition bundle, such as a component or application bundle. A bundle contains a Lightning definition and all its related resources. This object is available in API version 32.0 and later.

### StaticResource

Represents the working copy of a static resource file for editing or saving. Static resources allow you to upload content that you can reference in a Visualforce page, including images, stylesheets, JavaScript, and other files.

## Setup Objects

Use setup objects to interact with metadata for declarative development. For example, you may wish to create your own version of Setup, or restrict the amount of data you need to push to an app on a mobile phone.

**BusinessProcess**

Represents a business process.

**CompactLayout**

Represents the values that define a compact page layout.

**CompactLayoutItemInfo**

Represents a field selected for a compact layout, and the order of that field in the compact layout.

**CompactLayoutInfo**

Represents the metadata for a custom or standard compact layout.

**CustomField**

Represents a custom field on a custom object that stores data unique to your organization.

**CustomFieldMember**

Represents the working copy of a field for editing or saving in a MetadataContainer.

**CustomObject**

Represents a custom object that stores data unique to your organization. Includes access to the associated CustomObject object and related fields in Salesforce Metadata API.

**CustomTab**

Represents a custom tab.

**EmailTemplate**

Represents an email template.

**EntityDefinition**

Provides row-based access to metadata about standard and custom objects.

**EntityLimit**

Represents the limits for an object as displayed in the Setup UI.

**FieldDefinition**

Represents a standard or custom field, providing row-based access to field metadata. Contrast FieldDefinition with EntityParticle, which represents each element of a field that can be presented in a user interface. FieldDefinition has parity with metadata type Field.

**FieldSet**

Represents the metadata for a group of fields.

**FlexiPage**

Represents a Lightning Page. A Lightning Page is a customizable screen containing Lightning components.

**Flow**

Use the Flow object to retrieve and update specific flow versions.

**FlowDefinition**

The parent of a set of flow versions.

**HistoryRetentionJob**

Represents the body of retained data from the archive, and the status of the archived data.

**KeywordList**

Represents a list of keywords used in community moderation.

**Layout**

Represents a page layout.

**LookupFilter**

Represents a lookup filter, which restricts the valid values and lookup dialog results for lookup, master-detail, and hierarchical relationship fields.

**MenuItem**

Represents a menu item.

**ModerationRule**

Represents a rule used in your community to moderate member-generated content.

**Profile**

Represents a user profile. A profile defines a user's permission to perform different functions within Salesforce.

**ProfileLayout**

Represents a profile layout.

**QuickActionDefinition**

Represents the definition of a quick action.

**QuickActionList**

Represents a list of quick actions.

**QuickActionListItem**

Represents an item in a quick action list.

**RecentlyViewed**

Represents metadata entities typically found in Setup such as page layout definitions, workflow rule definitions, and email templates that the current user has recently viewed.

**RecordType**

Represents a custom record type.

**SearchLayout**

Represents a search layout defined for an object.

**Scontrol**

Represents a custom s-control, which is custom content that our system hosts, but client applications execute. An s-control can contain any type of content that you can display or run in a Web browser.

**User**

Represents a user. You can retrieve standard fields on User with the Tooling API, but custom fields can't be retrieved.

**WebLink**

Represents a custom button or link.

**ValidationRule**

Represents a validation rule or workflow rule which specifies the formula for when a condition is met.

**WorkflowAlert**

Represents a workflow alert. A workflow alert is an email generated by a workflow rule or approval process and sent to designated recipients.

**WorkflowFieldUpdate**

Represents a workflow field update.

**WorkflowOutboundMessage**

Represents an outbound message. An outbound message sends information to a designated endpoint, like an external service. Outbound messages are configured from Setup. You must configure the external endpoint and create a listener for the messages using the SOAP API.



**WorkflowRule**

Represents a workflow rule that is used to fire off a specific workflow action when the specified criteria is met. Includes access to the associated WorkflowRule object in Salesforce Metadata API.

**WorkflowTask**

Represents a workflow task that is used to fire off a specific workflow action when the specified criteria is met. Includes access to the associated WorkflowRule object in Salesforce Metadata API.

## Tooling Objects

Use these objects to build tools around test results, debugging, code coverage, and more.

**ApexCodeCoverage**

Represents code coverage test results for an Apex class or trigger.

**ApexCodeCoverageAggregate**

Represents aggregate code coverage test results for an Apex class or trigger. Available in Tooling API version 29.0 and later.

**ApexExecutionOverlayAction**

Specifies an Apex code snippet or SOQL query to execute at a specific line of code in an Apex class or trigger and optionally generate a heap dump.

**ApexExecutionOverlayResult**

Represents the result from the Apex code snippet or SOQL query defined in the associated ApexExecutionOverlayAction, and the resulting heap dump if one was returned.

**ApexLog**

Represents a debug log.

**ApexOrgWideCoverage**

Represents code coverage test results for an entire organization.

**ApexResult**

A complex type that represents the result of Apex code executed as part of an ApexExecutionOverlayAction, returned in an ApexExecutionOverlayResult.

**ApexTestQueueItem**

Represents a single Apex class in the Apex job queue.

**HeapDump**

A complex type that represents a heap dump in an ApexExecutionOverlayResult object.

**SOQLResult**

A complex type that represents the result of a SOQL query in an ApexExecutionOverlayResult object.

**SymbolTable**

A complex type that represents all user-defined tokens in the `Body` of an ApexClass, ApexClassMember, or ApexTriggerMember and their associated line and column locations within the `Body`.

**TraceFlag**

Represents a trace flag that triggers an Apex debug log at the specified logging level.

## Operational Objects

Use the following objects for Tooling API operations.

**ContainerAsyncRequest**

Allows you to compile and asynchronously deploy a MetadataContainer object to your organization.

**DeployDetails**

A complex type that contains detailed XML for any compile errors reported in the asynchronous request defined by a ContainerAsyncRequest object.

**MetadataContainer**

Manages working copies of ApexClassMember, ApexTriggerMember, ApexPageMember, and ApexComponentMember objects, including collections of objects to be deployed together.

**OperationLog**

Represents long-running or asynchronous operations triggered and tracked through Tooling API.

The following Tooling API objects are used internally by the Developer Console.

- IDEPerspective
- IDEWorkspace
- User.WorkspaceId

# CHAPTER 2 Tooling API Objects

Tooling API includes the following objects:

## IN THIS SECTION:

### [ApexClass](#)

Represents the saved copy of an Apex class. ApexClass uses the cached version of the class unless one is unavailable. Available from API version 28.0 or later.

### [ApexClassMember](#)

Represents the working copy of an Apex class for editing, saving or compiling in a MetadataContainer.

### [ApexCodeCoverage](#)

Represents code coverage test results for an Apex class or trigger. Available in Tooling API version 29.0 and later.

### [ApexCodeCoverageAggregate](#)

Represents aggregate code coverage test results for an Apex class or trigger. Available in Tooling API version 29.0 and later.

### [ApexComponent](#)

Represents the saved copy of a Visualforce component. ApexComponent uses the cached version of the class unless one is unavailable. Available from API version 28.0 or later.

### [ApexComponentMember](#)

Represents the working copy of a Visualforce component for editing, saving, or compiling in a MetadataContainer.

### [ApexEmailNotification](#)

Stores Salesforce users and external email addresses to be notified when unhandled Apex exceptions occur. Available in API version 35.0 and later.

### [ApexExecutionOverlayAction](#)

Specifies an Apex code snippet or SOQL query to execute at a specific line of code in an Apex class or trigger and optionally generate a heap dump.

### [ApexExecutionOverlayResult](#)

Represents the result from the Apex code snippet or SOQL query defined in the associated ApexExecutionOverlayAction, and the resulting heap dump if one was returned. Available from API version 28.0 or later.

### [ApexLog](#)

Represents a debug log.

### [ApexOrgWideCoverage](#)

Represents code coverage test results for an entire organization. Available in Tooling API version 29.0 and later.

### [ApexPage](#)

Represents the saved copy of an Apex page. ApexPage uses the cached version of the class unless one is unavailable. Available from API version 28.0 or later.

### [ApexPageMember](#)

Represents the working copy of a Visualforce page for editing, saving, or compiling in a MetadataContainer.

## Tooling API Objects

### [ApexResult](#)

A complex type that represents the result of Apex code executed as part of an `ApexExecutionOverlayAction`, returned in an `ApexExecutionOverlayResult`. Available from API version 28.0 or later.

### [ApexTestQueueItem](#)

Represents a single Apex class in the Apex job queue. Available in API version 30.0 and later.

### [ApexTestResult](#)

Represents the result of an Apex test method execution. Available from API version 30.0 or later.

### [ApexTestResultLimits](#)

Captures the Apex test limits used for a particular test method execution. An instance of this object is associated with each `ApexTestResult` object. Available from API version 37.0 or later.

### [ApexTestRunResult](#)

Contains summary information about all the test methods that were run in a particular Apex job. Available from API version 37.0 or later.

### [ApexTrigger](#)

Represents the saved copy of an Apex trigger. `ApexTrigger` uses the cached version of the class unless one is unavailable. Available from API version 28.0 or later.

### [ApexTriggerMember](#)

Represents the working copy of an Apex trigger for editing, saving, or compiling in a `MetadataContainer`.

### [AssignmentRule](#)

Don't use this object.

### [AuraDefinition](#)

Represents a Lightning definition, such as component markup, a client-side controller, or an event. This object is available in API version 32.0 and later. Available in API version 32.0 and later.

### [AuraDefinitionBundle](#)

Represents a Lightning definition bundle, such as a component or application bundle. A bundle contains a Lightning definition and all its related resources. This object is available in API version 32.0 and later. Available in API version 32.0 and later.

### [AutoResponseRule](#)

Specifies whether the autoresponse rule is active (`true`).

### [BusinessProcess](#)

Represents a business process.

### [Certificate](#)

Represents a certificate used for digital signatures that verify requests are coming from your org. Certificates are used for either authenticated single sign-on with an external website or when using your org as an identity provider. This object is available in Tooling API version 37.0 and later.

### [CompactLayout](#)

Represents the values that define a compact page layout.

### [CompactLayoutItemInfo](#)

Represents a field selected for a compact layout, and the order of that field in the compact layout.

### [CompactLayoutInfo](#)

Represents the metadata for a custom or standard compact layout.

### [ContainerAsyncRequest](#)

Allows you to compile and asynchronously deploy a `MetadataContainer` object to your organization.

## Tooling API Objects

### [CustomField](#)

Represents a custom field on a custom object that stores data unique to your organization. Includes access to the associated CustomField object and related fields in Salesforce Metadata API. Available from API version 28.0 or later.

### [CustomFieldMember](#)

Represents the working copy of a field for editing or saving in a MetadataContainer. This object is available in API version 33.0 and later.

### [CustomObject](#)

Represents a custom object that stores data unique to your organization. Includes access to the associated CustomObject object and related fields in Salesforce Metadata API. Available from API version 31.0 or later.

### [CustomTab](#)

Represents a custom tab.

### [DataType](#)

Represents the datatype of a field. Use this object with EntityDefinition, EntityParticle, or FieldDefinition to simplify queries. Available in Tooling API version 34.0 and later.

### [DebugLevel](#)

Represents a set of log category levels to assign to a `TraceFlag` object. Multiple trace flags can use a debug level.

### [DeployDetails](#)

A complex type that contains detailed XML for any compile errors reported in the asynchronous request defined by a ContainerAsyncRequest object. Replaces the JSON field `CompilerErrors` in Tooling API version 31.0 and later.

### [EmailTemplate](#)

Represents an email template.

### [EntityDefinition](#)

Provides row-based access to metadata about standard and custom objects.

### [EntityLimit](#)

Represents the limits for an object as displayed in the Setup UI.

### [EntityParticle](#)

Represents each element of a field that can be presented in a user interface. Contrast EntityParticle with FieldDefinition, which represents each element of a field defined in the Metadata API. EntityParticle has parity with `describe`. Available in Tooling API version 34.0 and later.

### [FieldDefinition](#)

Represents a standard or custom field, providing row-based access to field metadata. Contrast FieldDefinition with EntityParticle, which represents each element of a field that can be presented in a user interface. FieldDefinition has parity with metadata type `Field`.

### [FieldSet](#)

Represents the metadata for a group of fields. Available from API version 33.0 or later.

### [FlexiPage](#)

Represents a Lightning Page. A Lightning Page is a customizable screen containing Lightning components.

### [Flow](#)

Use the Flow object to retrieve and update specific flow versions.

### [FlowDefinition](#)

The parent of a set of flow versions.

## Tooling API Objects

### [HeapDump](#)

A complex type that represents a heap dump in an ApexExecutionOverlayResult object. Available from API version 28.0 or later.

### [HistoryRetentionJob](#)

Represents the body of retained data from the archive, and the status of the archived data. Available in API version 29.0 or later.

### [HomePageComponent](#)

Represents a home page component.

### [HomePageLayout](#)

Represents a home page layout.

### [KeywordList](#)

Represents a list of keywords used in community moderation. Available in Tooling API version 36.0 and later.

### [Layout](#)

Represents a page layout.

### [LookupFilter](#)

Represents a lookup filter, which restricts the valid values and lookup dialog results for lookup, master-detail, and hierarchical relationship fields.

### [MenuItem](#)

Represents a menu item.

### [MetadataContainer](#)

Manages working copies of ApexClassMember, ApexTriggerMember, ApexPageMember, and ApexComponentMember objects, including collections of objects to be deployed together.

### [ModerationRule](#)

Represents a rule used in your community to moderate member-generated content. Available in Tooling API version 36.0 and later.

### [OperationLog](#)

Represents long-running or asynchronous operations triggered and tracked through Tooling API. This object is available in API version 37.0 and later.

### [OpportunitySplitType](#)

Represents labels and behavior for each split type Available in Tooling API version 37.0 and later.

### [OwnerChangeOptionInfo](#)

Represents default and optional actions that can be performed when a record's owner is changed. Available in Tooling API version 35.0 and later.

### [PathAssistant](#)

Represents a Sales Path. Available in Tooling API version 36.0 and later.

### [PathAssistantStepInfo](#)

Represents guidance for a step on a Sales Path. Available in Tooling API version 36.0 and later.

### [PathAssistantStepItem](#)

Represents layout or guidance details for a step on a Sales Path. Available in Tooling API version 36.0 and later.

### [PostTemplate](#)

Represents an approval post template for Approvals in Chatter.

### [PermissionSetTabSetting](#)

Represents a tab's settings for a profile or permission set. Use PermissionSetTabSetting for manipulating tab visibility on profiles and permission sets. Available in Tooling API version 37.0 and later.

## Tooling API Objects

### [Profile](#)

Represents a user profile. A profile defines a user's permission to perform different functions within Salesforce.

### [ProfileLayout](#)

Represents a profile layout.

### [Publisher](#)

Represents the publisher of objects and fields. For example, Salesforce is the publisher for standard objects, the organization is the publisher for custom objects, and the package is the publisher for installed packages. Available in Tooling API version 34.0 and later.

### [QueryResult](#)

Represents the results of a query. For example, if you query on the object `EntityDefinition`, all the layouts for that entity are returned as an array of `QueryResult` objects in the `Layouts` field. Available in Tooling API version 34.0 and later.

### [QuickActionDefinition](#)

Represents the definition of a quick action.

### [QuickActionList](#)

Represents a list of quick actions.

### [QuickActionListItem](#)

Represents an item in a quick action list.

### [RecentlyViewed](#)

Represents metadata entities typically found in Setup such as page layout definitions, workflow rule definitions, and email templates that the current user has recently viewed.

### [RecordType](#)

Represents a custom record type.

### [RelationshipDomain](#)

Represents the relationship an object has with other objects. `RelationshipDomain` allows you to write simpler queries. For example, "which objects are the child objects for the object defined in `ParentObject`" is easier using `RelationshipDomain`. Available in Tooling API version 34.0 and later.

### [RelationshipInfo](#)

Represents the properties of a relationship between objects. Simplify queries with `RelationshipInfo`, such as answering the question "which objects are parent objects for the object defined in `ChildObject`". Available in Tooling API version 34.0 and later.

### [RemoteProxy](#)

Represents a set of remote site settings that allows you to access an external site from Salesforce. Use `RemoteProxy` when accessing external sites called by Visualforce pages, Apex callouts, or JavaScript codes using `XmlHttpRequest` in an s-control or custom button. To be accessible, an external site must have its settings defined with `RemoteProxy` or registered in the Remote Site Settings page. Available in Tooling API version 37.0 and later.

### [SandboxInfo](#)

Represents a sandbox.

### [SandboxProcess](#)

Represents the sandbox copy process for a `SandboxInfo` record.

### [SearchLayout](#)

Represents a search layout defined for an object.

## Tooling API Objects

### [SecurityHealthCheck](#)

Represents your org's Health Check score. The score indicates how well your org's security settings comply with Salesforce-recommended values in the baseline standard. Only users with the "Modify All Data" user permission can retrieve data from this object. Available in Tooling API version 37.0 and later.

### [SecurityHealthCheckRisks](#)

Represents your org's security setting values, risks, and Salesforce-recommended setting values. Only users with the "Modify All Data" user permission can retrieve data from this object. Available in Tooling API version 37.0 and later.

### [ServiceFieldType](#)

Don't use this object.

### [Scontrol](#)

Represents a custom s-control, which is custom content that our system hosts, but client applications execute. An s-control can contain any type of content that you can display or run in a Web browser.

### [SOQLResult](#)

A complex type that represents the result of a SOQL query in an ApexExecutionOverlayResult object. Available from API version 28.0 or later.

### [StandardAction](#)

Represents the buttons, links, and actions (standard actions) for a standard or custom object. This object is available in API version 34.0 and later.

### [StaticResource](#)

Represents the working copy of a static resource file for editing or saving. Static resources allow you to upload content that you can reference in a Visualforce page, including images, stylesheets, JavaScript, and other files. Available in Tooling API version 29.0 and later.

### [SymbolTable](#)

A complex type that represents all user-defined tokens in the `Body` of an ApexClass, ApexClassMember, or ApexTriggerMember and their associated line and column locations within the `Body`.

### [TraceFlag](#)

Represents a trace flag that triggers an Apex debug log at the specified logging level.

### [TransactionSecurityPolicy](#)

Represents a transaction security policy definition (policy).

### [User](#)

Represents a user. You can retrieve standard fields on User with the Tooling API, but custom fields can't be retrieved.

### [UserEntityAccess](#)

Represents the access that the current user has to an object. Available in Tooling API version 34.0 and later.

### [UserFieldAccess](#)

Represents the access that the current user has to a field. Available in Tooling API version 34.0 and later.

### [ValidationRule](#)

Represents a validation rule or workflow rule which specifies the formula for when a condition is met. Available from API version 34.0 or later.

### [WebLink](#)

Represents a custom button or link. Available in the Tooling API from API version 34.0 or later.



[WorkflowAlert](#)

Represents a workflow alert. A workflow alert is an email generated by a workflow rule or approval process and sent to designated recipients.

[WorkflowFieldUpdate](#)

Represents a workflow field update.

[WorkflowOutboundMessage](#)

Represents an outbound message. An outbound message sends information to a designated endpoint, like an external service. Outbound messages are configured from Setup. You must configure the external endpoint and create a listener for the messages using the SOAP API.

[WorkflowRule](#)

Represents a workflow rule that is used to fire off a specific workflow action when the specified criteria is met. Includes access to the associated WorkflowRule object in Salesforce Metadata API.

[WorkflowTask](#)

Represents a workflow task that is used to fire off a specific workflow action when the specified criteria is met. Includes access to the associated WorkflowRule object in Salesforce Metadata API.

## ApexClass

---

Represents the saved copy of an Apex class. ApexClass uses the cached version of the class unless one is unavailable. Available from API version 28.0 or later.

To edit, save, or compile Apex classes, use [ApexClassMember](#).

## Supported SOAP API Calls

`create()`, `delete()`, `describeSObjects()`, `query()`, `retrieve()`, `update()`, `upsert()`

## Supported REST API HTTP Methods

Query, GET, POST, PATCH, DELETE


## Fields

Field Name	Details
<code>SymbolTable</code>	<p><b>Type</b> <a href="#">SymbolTable</a></p> <p><b>Properties</b> Nillable</p> <p><b>Description</b> A complex type that represents all user-defined tokens in the <code>Body</code> of an ApexClass, ApexClassMember, or ApexTriggerMember and their associated line and column locations within the <code>Body</code>.  This field is null if the symbol table cannot be created.</p>

## Usage

To retrieve information about an Apex class, create an ApexClass object that references it. For example code, see [SOAP Calls](#).

To edit, save, or compile Apex classes, use [ApexClassMember](#).

 **Note:** If there is not a cached version of [SymbolTable](#), it will be compiled in the background and the query might take longer than expected. The SymbolTable returned from ApexClass does not contain references; to retrieve a SymbolTable with references, use [ApexClassMember](#).

## ApexClassMember

---

Represents the working copy of an Apex class for editing, saving or compiling in a MetadataContainer.

### Supported SOAP API Calls

`create()`, `delete()`, `describeSObjects()`, `query()`, `retrieve()`, `update()`, `upsert()`

### Supported REST API HTTP Methods

Query, GET, POST, PATCH, DELETE

## Fields

Field Name	Details
Body	<p><b>Type</b> string</p> <p><b>Properties</b> Create, Update</p> <p><b>Description</b> The data for the Apex class.  The Body field is the only field you can <code>update()</code> or <code>PATCH</code>.</p>
Content	<p><b>Type</b> string</p> <p><b>Properties</b> None</p> <p><b>Description</b> A string representation of ApexClassMetadata that lists the version, status, and packaged versions of the corresponding Apex class.</p>
ContentEntityId	<p><b>Type</b> reference</p>

**Field Name****Details****Properties**

Create, Filter, Group, Sort

**Description**

A reference to an Apex class.

There can be only one `ContentEntityId` per `ApexClassMember`, otherwise, an error is reported.

This field is required if `FullName` is not specified.

**FullName****Type**

string

**Properties**

Group, Nillable

**Description**

The full name of the associated object in the Metadata API. Use to avoid race conditions on create, before you have IDs.

Query this field only if the query result contains no more than one record.

Otherwise, an error is returned. If more than one record exists, use multiple queries to retrieve the records. This limit protects performance.

This field is required if `ContentEntityId` is not specified.

**LastSyncDate****Type**

dateTime

**Properties**

Filter, Sort

**Description**

The date and time that this `ApexClassMember` `Body` was replicated from the underlying Apex class.

When you deploy a [MetadataContainer](#), this value is compared with the `LastModifiedDate` of the underlying Apex class. If `LastSyncDate` is older than `LastModifiedDate`, the deployment fails with an error.

**Metadata****Type**

ApexClassMetadata

**Properties**

None

**Description**

An object that describes the version, status, and packaged versions of the corresponding Apex class.


Query this field only if the query result contains no more than one record.

Otherwise, an error is returned. If more than one record exists, use multiple queries to retrieve the records. This limit protects performance.

Field Name	Details
MetadataContainerId	<p><b>Type</b> reference</p> <p><b>Properties</b> Create, Filter, Group, Sort</p> <p><b>Description</b> A reference to a <a href="#">MetadataContainer</a> or <a href="#">ContainerAsyncRequest</a> object. As part of a successful deployment, this field is reset from the ID of the deployed <a href="#">MetadataContainer</a> to the ID of the corresponding <a href="#">ContainerAsyncRequest</a> object. This field is required.</p>
SymbolTable	<p><b>Type</b> <a href="#">SymbolTable</a></p> <p><b>Properties</b> Nillable</p> <p><b>Description</b> A complex type that represents all user-defined tokens in the <code>Body</code> of an <code>ApexClass</code>, <code>ApexClassMember</code>, or <code>ApexTriggerMember</code> and their associated line and column locations within the <code>Body</code>. This field is null if the symbol table can't be created. A symbol table can't be created if the content referenced by the <code>ContentEntityId</code> field doesn't use a symbol table. Compiler errors for the last deployment of the <a href="#">MetadataContainer</a> in the <code>MetadataContainerId</code> field also prevent a symbol table from being created.</p>

## Usage

To edit, save, or compile an Apex class, create an `ApexClassMember` object that references it.

 **Note:** Once an `ApexClassMember` is successfully deployed in a [MetadataContainer](#), the `MetadataContainerId` is changed to the ID of the [ContainerAsyncRequest](#), and the `ApexClassMember` can't be modified or reused.

Apex classes are often dependent on each other for functionality. For example, a method in one class can call a method in another class. If source file A is dependent on modified source file B and you try to save and compile source file A before you've saved the changes to source file B, the compiler will throw an error. To successfully save and compile a group of related source files, put the corresponding `ApexClassMember` and `ApexTriggerMember` objects in a single `MetadataContainer` object.

Each `ApexClassMember` object can only refer to a single `MetadataContainer` object. Multiple `ApexClassMember` objects can refer to the same `MetadataContainer` object.

## ApexCodeCoverage

Represents code coverage test results for an Apex class or trigger. Available in Tooling API version 29.0 and later.

## Supported SOAP API Calls

`describeSObjects()`, `query()`, `retrieve()`

## Supported REST API HTTP Methods

Query, GET

## Fields

Field	Details
ApexTestClassId	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> The ID of the test class.</p>
TestMethodName	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> The name of the test method.</p>
ApexClassorTriggerId	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> The ID of the class or trigger under test.</p>
NumLinesCovered	<p><b>Type</b> int</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> The number of covered lines.</p>
NumLinesUncovered	<p><b>Type</b> int</p> <p><b>Properties</b> Filter, Group, Sort</p>

Field	Details
	<p><b>Description</b></p> <p>The number of uncovered lines.</p>
Coverage	<p><b>Type</b></p> <p>complexvalue</p> <p><b>Properties</b></p> <p>None</p> <p><b>Description</b></p> <p>Two lists of integers. The first is the covered lines, and the second is the list of uncovered lines. If a lines is missing from both lists, the line is not executable and does not require coverage.</p> <p>Coverage includes the following fields:</p> <ul style="list-style-type: none"> <li>coveredLines</li> <li>namespace</li> <li>uncoveredLines</li> </ul>

## Usage


To query for code coverage, specify an Apex class, test class, or both. The returned JSON or XML object will contain two lists of integers: one for covered and one for uncovered lines.

The following example SOQL query retrieves code coverage results for a specific class or trigger covered by a specific test class:

```
SELECT Coverage
FROM ApexCodeCoverage
WHERE ApexClassOrTrigger = '01pD000000066GR'
AND ApexTestClass = '01pD000000064pu'
```

For per-class code coverage, the query would be:

```
SELECT Coverage
FROM ApexCodeCoverage
WHERE ApexClassOrTrigger = '01pD000000066GR'
```

 **Note:** In this case, multiple rows may be returned, since there may be multiple test classes that cover the same test class.

As noted above, `Coverage` is returned as two lists of integers. The first is the covered lines, and the second is the list of uncovered lines. If a line is missing from both lists, the line is not executable and does not require coverage. For example, if the covered lines are 2, 9, and 11, and uncovered lines are 3, 4, 5, and 6; the result would be: `{ 2, 9, 11 }, { 3, 4, 5, 6 }`. The missing lines (1, 7, 8 and 10) are not executable.

Code coverage percentage is a simple calculation of the number of covered lines divided by the sum of the number of covered lines and the number of uncovered lines. For example, to calculate code coverage percentage in SOAP:

```
ApexCodeCoverage acc = null; //Query for an ApexCodeCoverage object
Coverage coverage = acc.coverage;
int[] covered = coverage.coveredLines;
int[] uncovered = coverage.uncoveredLines;
```

```
int percent = covered.length / (covered.length + uncovered.length);
System.out.println("Total class coverage is " + percent + "%.");
```

## ApexCodeCoverageAggregate

Represents aggregate code coverage test results for an Apex class or trigger. Available in Tooling API version 29.0 and later.

### Supported SOAP API Calls

`describeSObjects()`, `query()`, `retrieve()`

### Supported REST API HTTP Methods

Query, GET, DELETE

### Fields

Field	Details
<code>ApexClassorTriggerId</code>	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> The ID of the class or trigger under test.</p>
<code>NumLinesCovered</code>	<p><b>Type</b> int</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> The number of covered lines.</p>
<code>NumLinesUncovered</code>	<p><b>Type</b> int</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> The number of uncovered lines.</p>
<code>Coverage</code>	<p><b>Type</b> complexvalue</p>

Field	Details
	<p><b>Properties</b> None</p> <p><b>Description</b> Two lists of integers. The first is the covered lines, and the second is the list of uncovered lines. If a lines is missing from both lists, the line is not executable and does not require coverage.</p> <p>Coverage includes the following fields:</p> <ul style="list-style-type: none"> <li>coveredLines</li> <li>namespace</li> <li>uncoveredLines</li> </ul>

## Usage

To query for aggregate code coverage, specify an Apex test class. The returned JSON or XML object will contain two lists of integers: one for covered and one for uncovered lines. For examples, see [ApexCodeCoverage](#).

## ApexComponent

Represents the saved copy of a Visualforce component. ApexComponent uses the cached version of the class unless one is unavailable. Available from API version 28.0 or later.

To edit, save, or compile Visualforce components, use [ApexComponentMember](#).

## Supported SOAP API Calls

`create()`, `delete()`, `describeSObjects()`, `query()`, `retrieve()`, `update()`, `upsert()`

## Supported REST API HTTP Methods

Query, GET, POST, PATCH, DELETE

## Usage

To retrieve information about a Visualforce component, create an ApexComponent object that references it. For example code, see [SOAP Calls](#).

To edit, save, or compile Visualforce components, use [ApexComponentMember](#).

## ApexComponentMember

Represents the working copy of a Visualforce component for editing, saving, or compiling in a MetadataContainer.



## Supported SOAP API Calls

`create()`, `delete()`, `describeSObjects()`, `query()`, `retrieve()`, `update()`, `upsert()`

## Supported REST API HTTP Methods

Query, GET, POST, PATCH, DELETE

## Fields

Field Name	Details
Body	<p><b>Type</b> string</p> <p><b>Properties</b> Create, Update</p> <p><b>Description</b> The data for the Visualforce component. The <code>Body</code> field is the only field you can <code>update()</code> or <code>PATCH</code>.</p>
Content	<p><b>Type</b> string</p> <p><b>Properties</b> None</p> <p><b>Description</b> A string representation of <code>ApexComponentMetadata</code> that lists the version, status, and packaged versions of the corresponding Visualforce component.</p>
ContentEntityId	<p><b>Type</b> reference</p> <p><b>Properties</b> Create, Filter, Group, Sort</p> <p><b>Description</b> A reference to a Visualforce component. There can be only one <code>ContentEntityId</code> per <code>ApexComponentMember</code>, otherwise, an error is reported. This field is required if <code>FullName</code> is not specified.</p>
FullName	<p><b>Type</b> string</p> <p><b>Properties</b> Group, Nillable</p>

**Field Name****Details****Description**

The full name of the associated object in the Metadata API. Use to avoid race conditions on create, before you have IDs.

Query this field only if the query result contains no more than one record. Otherwise, an error is returned. If more than one record exists, use multiple queries to retrieve the records. This limit protects performance.

This field is required if `ContentEntityId` is not specified.

LastSyncDate

**Type**

dateTime

**Properties**

Filter, Sort

**Description**

The date that this ApexComponentMember `Body` was replicated from the underlying entity.

When you deploy a MetadataContainer, this value is compared with the `LastModifiedDate` of the underlying Visualforce component. If `LastSyncDate` is older than `LastModifiedDate`, the deployment fails with an error.

Metadata

**Type**

ApexComponentMetadata

**Properties**

None

**Description**

An object that describes the version, status, and packaged versions of the corresponding Visualforce component.

Query this field only if the query result contains no more than one record. Otherwise, an error is returned. If more than one record exists, use multiple queries to retrieve the records. This limit protects performance.

MetadataContainerId

**Type**

reference

**Properties**

Create, Filter, Group, Sort

**Description**

A reference to a [MetadataContainer](#) or [ContainerAsyncRequest](#) object.

As part of a successful deployment, this field is reset from the ID of the deployed [MetadataContainer](#) to the ID of the corresponding [ContainerAsyncRequest](#) object.

This field is required.

## Usage

To edit, save, or compile a Visualforce component, create an ApexComponentMember object that references it. To create a Visualforce component, use the Force.com REST API or the Metadata API.

 **Note:** Once an ApexComponentMember is successfully deployed in a [MetadataContainer](#), the `MetadataContainerId` is changed to the ID of the [ContainerAsyncRequest](#), and the ApexComponentMember can't be modified or reused.

Visualforce pages and components are often dependent on each other for functionality. To successfully save and compile a group of related source files, put the corresponding ApexComponentMember and ApexPageMember objects in a single MetadataContainer object.

Each ApexComponentMember object can only refer to a single MetadataContainer object. Multiple ApexComponentMember objects can refer to the same MetadataContainer object.

## ApexEmailNotification

---

Stores Salesforce users and external email addresses to be notified when unhandled Apex exceptions occur. Available in API version 35.0 and later.

### Supported SOAP API Calls

`create()`, `delete()`, `query()`, `retrieve()`, `update()`

### Supported REST API HTTP Methods

Query, GET, POST, PATCH, DELETE

## Fields

Field Name	Details
Email	<p><b>Type</b> email</p> <p><b>Properties</b> Create, Filter, Group, idLookup, Nillable, Sort, Update</p> <p><b>Description</b> A semicolon-delimited list of email addresses to notify when unhandled Apex exceptions occur.</p>
UserId	<p><b>Type</b> ID</p> <p><b>Properties</b> Create, Filter, Group, Nillable, Sort, Update</p> <p><b>Description</b> Users of your org to notify when unhandled Apex exceptions occur.</p>

## Usage

To notify users of your org at the email addresses they have on record, use `UserId`. To notify external users or alternate email addresses, use `Email`.

## ApexExecutionOverlayAction

---

Specifies an Apex code snippet or SOQL query to execute at a specific line of code in an Apex class or trigger and optionally generate a heap dump.

## Supported SOAP Calls

`create()`, `delete()`, `describeSObjects()`, `query()`, `retrieve()`, `update()`, `upsert()`

## Supported REST HTTP Methods

Query, GET, POST, PATCH, DELETE

## Fields

Field Name	Details
<code>ActionScript</code>	<p><b>Type</b> string</p> <p><b>Properties</b> Create, Nillable, Update</p> <p><b>Description</b> The Apex code or SOQL query to run when execution reaches the line in the Apex class or trigger at the specified iteration. Results will be included in the heap dump file.</p>
<code>ActionScriptType</code>	<p><b>Type</b> picklist</p> <p><b>Properties</b> Create, Filter, Group, Restricted picklist, Sort, Update</p> <p><b>Description</b> Indicates whether the <code>ActionScript</code> is written in Apex or SOQL. Valid values are:</p> <ul style="list-style-type: none"> <li>• None</li> <li>• Apex</li> <li>• SOQL</li> </ul> <p>This field is required.</p>

Field Name	Details
ExecutableEntityId	<p><b>Type</b> reference</p> <p><b>Properties</b> Create, Filter, Group, Sort,</p> <p><b>Description</b> The ID of the Apex class or trigger being executed. This field is required.</p>
ExpirationDate	<p><b>Type</b> dateTime</p> <p><b>Properties</b> Create, Filter, Sort, Update</p> <p><b>Description</b> The expiration date of the overlay action. This field is required.</p>
IsDumpingHeap	<p><b>Type</b> boolean</p> <p><b>Properties</b> Create, Defaulted on create, Filter, Group, Sort, Update</p> <p><b>Description</b> Indicates whether a heap dump is generated (<code>true</code>) or not (<code>false</code>). To execute the <code>ActionScript</code> without generating a heap dump, set this field to <code>false</code>.  This field is required.</p>
Iteration	<p><b>Type</b> int</p> <p><b>Properties</b> Create, Filter, Group, Sort, Update</p> <p><b>Description</b> The number of times the specified line should execute before the heap dump is generated. This field is required.</p>
Line	<p><b>Type</b> int</p> <p><b>Properties</b> Create, Filter, Group, Sort, Update</p> <p><b>Description</b> The line number of the heap dump marker. This field is required.</p>
ScopeId	<p><b>Type</b> reference</p>

Field Name	Details
	<p><b>Properties</b> Create, Filter, Group, Sort, Update</p> <p><b>Description</b> The user who executed the action. This field is required.</p>

## Usage

When you are troubleshooting a runtime issue, you often want to find out more about the state of a variable or the state of the database, or create a specific condition to test your code. Use `ApexExecutionOverlayAction` to overlay a diagnostic output on an Apex class or trigger without compromising production code.

## ApexExecutionOverlayResult

Represents the result from the Apex code snippet or SOQL query defined in the associated `ApexExecutionOverlayAction`, and the resulting heap dump if one was returned. Available from API version 28.0 or later.

## Supported SOAP Calls

`query()`, `retrieve()`, `delete()`

## Supported REST HTTP Methods

Query, GET, DELETE

## Fields

Field Name	Details
<code>ActionScript</code>	<p><b>Type</b> string</p> <p><b>Properties</b> Nillable</p> <p><b>Description</b> The Apex code or SOQL query that was run.</p>
<code>ActionScriptType</code>	<p><b>Type</b> picklist</p> <p><b>Properties</b> Filter, Group, Sort, Nillable</p>

Field Name	Details
	<p><b>Description</b></p> <p>Indicates whether the <code>ActionScript</code> is written in Apex or SOQL. Valid values are:</p> <ul style="list-style-type: none"> <li>• None</li> <li>• Apex</li> <li>• SOQL</li> </ul>
ApexResult	<p><b>Type</b></p> <p><a href="#">ApexResult</a></p> <p><b>Properties</b></p> <p>Nullable</p> <p><b>Description</b></p> <p>A complex type that represents the result of Apex code executed as part of an <code>ApexExecutionOverlayAction</code>, returned in an <code>ApexExecutionOverlayResult</code>.</p>
ExpirationDate	<p><b>Type</b></p> <p>dateTime</p> <p><b>Properties</b></p> <p>Filter, Sort</p> <p><b>Description</b></p> <p>The expiration date of the overlay action.</p>
HeapDump	<p><b>Type</b></p> <p><a href="#">HeapDump</a></p> <p><b>Properties</b></p> <p>Nullable</p> <p><b>Description</b></p> <p>A complex type that represents a heap dump in an <code>ApexExecutionOverlayResult</code> object. You can only have a single row when using <code>HeapDump</code> in SOQL. To select only one row, you can use a <code>LIMIT=1</code> clause in your SOQL query, or you can list multiple rows for the user and have them select the row to inspect.</p>
IsDumpingHeap	<p><b>Type</b></p> <p>boolean</p> <p><b>Properties</b></p> <p>Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b></p> <p>Indicates whether a heap dump was generated (<code>true</code>) or not (<code>false</code>).</p>
Iteration	<p><b>Type</b></p> <p>int</p>

Field Name	Details
	<p><b>Properties</b> Create, Filter, Group, Sort, Update</p> <p><b>Description</b> The number of times the specified line should execute before the heap dump is generated. This field is required.</p>
Line	<p><b>Type</b> int</p> <p><b>Properties</b> Filter, Group, Sort, Nillable</p> <p><b>Description</b> The line number of the checkpoint.</p>
SOQLResult	<p><b>Type</b> <a href="#">SOQLResult</a></p> <p><b>Properties</b> Nillable</p> <p><b>Description</b> A complex type that represents the result of a SOQL query in an ApexExecutionOverlayResult object.</p>
UserId	<p><b>Type</b> reference</p> <p><b>Properties</b> Filter, Group, Sort,</p> <p><b>Description</b> The user who executed the action.</p>

## Usage

When you are troubleshooting a runtime issue, you often want to find out more about the state of a variable or the state of the database, or create a specific condition to test your code. Use [ApexExecutionOverlayAction](#) to overlay a diagnostic output on an Apex class or trigger without compromising production code, and use ApexExecutionOverlayResult to navigate the results.

## ApexLog

Represents a debug log.

To retrieve a raw log by ID, use the REST resource: `/objects/ApexLog/id/Body/`. (Available from API version 28.0 or later.)



## Supported SOAP Calls

`delete()`, `describeSObjects()`, `query()`, `retrieve()`

## Supported REST HTTP Methods

Query, GET, DELETE

## Fields

Field	Details
Application	<p><b>Type</b> textarea</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> This value depends on the client type that triggered the log or heap dump.</p> <ul style="list-style-type: none"> <li>• For API clients, this value is the client ID.</li> <li>• For browser clients, this value is <code>Browser</code>.</li> </ul> <p>This field is required.</p>
DurationMilliseconds	<p><b>Type</b> int</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> The duration of the transaction in milliseconds. This field is required.</p>
Location	<p><b>Type</b> picklist</p> <p><b>Properties</b> Filter, Group, Sort, Nillable, Restricted picklist</p> <p><b>Description</b> Specifies the location of the origin of the log or heap dump. Values are:</p> <ul style="list-style-type: none"> <li>• <code>Monitoring</code> — Generated as part of debug log monitoring and visible to all administrators. These types of logs are maintained until the user or the system overwrites them.</li> <li>• <code>SystemLog</code> — Generated as part of system log monitoring and visible only to you. These types of logs are only maintained for 60 minutes or until the user clears them.</li> <li>• <code>Preserved</code> — A system log that is maintained longer than 60 minutes. Used for internal support.</li> </ul>

Field	Details
LogLength	<p><b>Type</b> int</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> Length of the log or heap dump in bytes. This field is required.</p>
LogUserId	<p><b>Type</b> reference</p> <p><b>Properties</b> Filter, Group, Sort, Nillable</p> <p><b>Description</b> ID of the user whose actions triggered the debug log or heap dump.</p>
Operation	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> Name of the operation that triggered the debug log or heap dump, such as <code>APEXSOAP</code>, <code>Apex Sharing Recalculation</code>, and so on. This field is required.</p>
Request	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> Request type. Values are:</p> <ul style="list-style-type: none"> <li>• <code>API</code> — Request came from an API.</li> <li>• <code>Application</code> — Request came from the Salesforce user interface.</li> </ul> <p>This field is required.</p>
StartTime	<p><b>Type</b> dateTime</p> <p><b>Properties</b> Filter, Sort</p> <p><b>Description</b> Start time of the transaction. This field is required.</p>
Status	<p><b>Type</b> string</p>

Field	Details
	<p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> Status of the transaction. This value is either <code>Success</code>, or the text of an unhandled Apex exception. This field is required.</p>

## ApexOrgWideCoverage

---

Represents code coverage test results for an entire organization. Available in Tooling API version 29.0 and later.

### Supported SOAP API Calls

`describeSObjects()`, `delete()`, `query()`, `retrieve()`

### Supported REST API HTTP Methods

Query, GET, DELETE

## Fields

Field	Details
<code>PercentCovered</code>	<p><b>Type</b> int</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> The percentage of the code in the organization that is covered by tests.</p>

## ApexPage

---

Represents the saved copy of an Apex page. `ApexPage` uses the cached version of the class unless one is unavailable. Available from API version 28.0 or later.

To edit, save, or compile Apex pages, use [ApexPageMember](#).

### Supported SOAP API Calls

`create()`, `delete()`, `describeSObjects()`, `query()`, `retrieve()`, `update()`, `upsert()`

## Supported REST API HTTP Methods

Query, GET, POST, PATCH, DELETE

## Usage

To retrieve information about a Visualforce page, create an ApexPage object that references it. For example code, see [SOAP Calls](#).

To edit, save, or compile Visualforce pages, use [ApexPageMember](#).

## ApexPageMember

---

Represents the working copy of a Visualforce page for editing, saving, or compiling in a MetadataContainer.

## Supported SOAP API Calls

create(), delete(), describeSObjects(), query(), retrieve(), update(), upsert()

## Supported REST API HTTP Methods

Query, GET, POST, PATCH, DELETE

## Fields

Field Name	Details
Body	<p><b>Type</b> string</p> <p><b>Properties</b> Create, Update</p> <p><b>Description</b> The data for the Visualforce page. The Body field is the only field you can update() or PATCH.</p>
Content	<p><b>Type</b> string</p> <p><b>Properties</b> None</p> <p><b>Description</b> A string representation of ApexPageMetadata that lists the version, status, and packaged versions of the corresponding Visualforce page.</p>
ContentEntityId	<p><b>Type</b> reference</p>

**Field Name****Details****Properties**

Create, Filter, Group, Sort

**Description**

A reference to a Visualforce page.

There can be only one `ContentEntityId` per `ApexPageMember`, otherwise, an error is reported.

This field is required if `FullName` is not specified.

**FullName****Type**

string

**Properties**

Group, Nillable

**Description**

The full name of the associated object in the Metadata API. Use to avoid race conditions on create, before you have IDs.

Query this field only if the query result contains no more than one record.

Otherwise, an error is returned. If more than one record exists, use multiple queries to retrieve the records. This limit protects performance.

This field is required if `ContentEntityId` is not specified.

**LastSyncDate****Type**

dateTime

**Properties**

Filter, Sort

**Description**

The date that this `ApexPageMember Body` was replicated from the underlying entity.

When you deploy a `MetadataContainer`, this value is compared with the `LastModifiedDate` of the underlying Visualforce page. If `LastSyncDate` is older than `LastModifiedDate`, the deployment fails with an error.

**Metadata****Type**

ApexPageMetadata

**Properties**

None

**Description**

An object that describes the version, status, and packaged versions of the corresponding Visualforce page.


Query this field only if the query result contains no more than one record.

Otherwise, an error is returned. If more than one record exists, use multiple queries to retrieve the records. This limit protects performance.

Field Name	Details
MetadataContainerId	<p><b>Type</b> reference</p> <p><b>Properties</b> Create, Filter, Group, Sort</p> <p><b>Description</b> A reference to a <a href="#">MetadataContainer</a> or <a href="#">ContainerAsyncRequest</a> object. As part of a successful deployment, this field is reset from the ID of the deployed <a href="#">MetadataContainer</a> to the ID of the corresponding <a href="#">ContainerAsyncRequest</a> object. This field is required.</p>

## Usage

To edit, save, or compile a Visualforce page, create an ApexPageMember object that references it. To create a Visualforce page, use the Force.com REST API or the Metadata API.

 **Note:** Once an ApexPageMember is successfully deployed in a [MetadataContainer](#), the `MetadataContainerId` is changed to the ID of the [ContainerAsyncRequest](#), and the ApexPageMember can't be modified or reused.

Visualforce pages and components are often dependent on each other for functionality. To successfully save and compile a group of related source files, put the corresponding ApexPageMember and ApexComponentMember objects in a single MetadataContainer object. Use ContainerAsyncRequest to send the MetadataContainer to the application server.


Each ApexPageMember object can only refer to a single MetadataContainer object. Multiple ApexPageMember objects can refer to the same MetadataContainer object.

## ApexResult

A complex type that represents the result of Apex code executed as part of an ApexExecutionOverlayAction, returned in an ApexExecutionOverlayResult. Available from API version 28.0 or later.

## Fields

Field	Details
apexError	<p><b>Type</b> string</p> <p><b>Description</b> The error text returned if the execution was unsuccessful.</p>
apexExecutionResult	<p><b>Type</b> ExecuteAnonymousResult</p> <p><b>Description</b> The structured result returned from a successful execution.</p>

Field	Details
	<p>ExecuteAnonymousResult includes the following fields:</p> <ul style="list-style-type: none"> <li>• column</li> <li>• compileProblem</li> <li>• compiled</li> <li>• exceptionMessage</li> <li>• exceptionStackTrace</li> <li>• line</li> <li>• success</li> </ul> <p> <b>Note:</b> ExecuteAnonymousResult is outside the current execution context and does not provide access to variables in the heap.</p>

## Usage

Overlay Apex on checkpoints to capture structured debugging information. If your SOQL query may return more than one record when dealing with complex types, select only one row. For example, you can use a LIMIT=1 clause in your SOQL query, or you can list rows for the user and have them select the row to inspect.

## ApexTestQueueItem

Represents a single Apex class in the Apex job queue. Available in API version 30.0 and later.

## Supported SOAP API Calls

create(), describeSObjects(), query(), retrieve(), update(), upsert()

## Supported REST API HTTP Methods

Query, GET, POST, PATCH

## Fields

Field Name	Details
ApexClassId	<p><b>Type</b> reference</p> <p><b>Properties</b> Create, Filter, Group, Sort</p> <p><b>Description</b> The Apex class whose tests are to be executed. This field can't be updated.</p>

Field Name	Details
Status	<p><b>Type</b> picklist</p> <p><b>Properties</b> Filter, Group, Restricted picklist, Sort, Update</p> <p><b>Description</b> The status of the test. Valid values are:</p> <ul style="list-style-type: none"> <li>• Queued</li> <li>• Processing</li> <li>• Aborted</li> <li>• Completed</li> <li>• Failed</li> <li>• Preparing</li> <li>• Holding</li> </ul> <p>To abort a class that is in the Apex job queue, perform an update operation on the <code>ApexTestQueueItem</code> object and set its <code>Status</code> field to <code>Aborted</code>.</p>
ExtendedStatus	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Sort, Nillable</p> <p><b>Description</b> The pass rate of the test run. For example: "(4/6)". This means that four out of a total of six tests passed. If the class fails to execute, this field contains the cause of the failure.</p>
ParentJobId	<p><b>Type</b> reference</p> <p><b>Properties</b> Filter, Group, Sort, Nillable,</p> <p><b>Description</b> Read-only. Points to the <code>AsyncApexJob</code> that represents the entire test run. If you insert multiple Apex test queue items in a single bulk operation, the queue items will share the same parent job. This means that a test run can consist of the execution of the tests of several classes if all the test queue items are inserted in the same bulk operation.</p>
TestRunResultID	<p><b>Type</b> reference</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p>




Field Name	Details
	<p><b>Description</b></p> <p>The ID of the associated <a href="#">ApexTestRunResult</a> object. Available in API version 37.0 and later.</p>

## Usage

Insert an `ApexTestQueueItem` object to place its corresponding Apex class in the Apex job queue for execution. The Apex job executes the test methods in the class.

The example `RunTestListener.java` class below subscribes to the `TestResult` system topic and prints out the test results using `ApexTestQueueItem` and `ApexTestResult`. The example assumes the following:

- You have already set up a Java client application for Streaming API. This example uses the `org.cometd.client.BayeuxClient` created in the Java Client code example in the [Streaming API Developer Guide](#).
- You have a logged in `com.sforce.soap.tooling.SoapConnection`. For examples, see the [SOAP API Developer Guide](#).

 **Note:** The `RunTestListener.java` class must be instantiated after the Streaming API handshake. For example:

```
SoapConnection toolingConn; //Already set and logged in
BayeuxClient client; //Already set and logged in

//Listen on the handshake event
boolean handshaken = client.waitFor(10 * 1000, BayeuxClient.State.CONNECTED);
if (!handshaken) {
    System.out.println("Failed to handshake: " + client);
    System.exit(1);
}
final RunTestListener = null;
client.getChannel(Channel.META_SUBSCRIBE).addListener(
    new ClientSessionChannel.MessageListener() {
        public void onMessage(ClientSessionChannel channel, Message message) {
            boolean success = message.isSuccessful();
            if (success) {
                //Replace with your own ApexClass ids
                String apexTestClassId1 = "01pD00000007MOCIAU";
                String apexTestClassId2 = "01pD00000007NqtIAE";
                String apexTestSuiteId1 = "05FD00000004CDBMA2";
                listener.runTests(new String[]{apexTestClassId1, apexTestClassId2}, new
String[]{apexTestSuiteId1}, 1);
            }
        }
    });
};
);
```

```
//This will subscribe to the TestRun system topic
listener = new RunTestListener(client, toolingConn);
```

```
import java.util.HashMap;
import org.cometd.bayeux.Message;
import org.cometd.bayeux.client.ClientSessionChannel;
import org.cometd.bayeux.client.ClientSessionChannel.MessageListener;
import org.cometd.client.BayeuxClient;

import com.sforce.soap.tooling.ApexTestQueueItem;
import com.sforce.soap.tooling.ApexTestResult;
import com.sforce.soap.tooling.QueryResult;
import com.sforce.soap.tooling.SObject;
import com.sforce.soap.tooling.SoapConnection;
import com.sforce.soap.tooling.TestLevel;
import com.sforce.ws.ConnectionException;

public class RunTestListener {
    private static final String CHANNEL = "/systemTopic/TestResult";
    private SoapConnection conn;

    public RunTestListener(BayeuxClient client, SoapConnection conn) {
        this.conn = conn;
        System.out.println("Subscribing for channel: " + CHANNEL);
        client.getChannel(CHANNEL).subscribe(new MessageListener() {
            @Override
            public void onMessage(ClientSessionChannel channel, Message message) {
                HashMap data = (HashMap) message.getData();
                HashMap subject = (HashMap) data.get("subject");
                String id = (String) subject.get("Id");
                System.out.println("\nAysncApexJob " + id);
                getTestQueueItems(id);
            }
        });
    }

    public void runTests(String[] apexTestClassIds, String[] apexTestSuiteIds, Integer
maxFailedTests) {
        // apexTestClassIds or apexTestSuiteIds is required; maxFailedTests is optional
        if (apexTestClassIds.length == 0 && apexTestSuiteIds.length == 0) {
            System.out.println("No test to run");
            return;
        }
        String classIds = null;
        if (apexTestClassIds.length > 0) {
            classIds = apexTestClassIds[0];
            for (int i = 1; i < apexTestClassIds.length; i++) {
                classIds += "," + apexTestClassIds[i];
            }
        }
        String suiteIds = null;
        if (apexTestSuiteIds.length > 0) {
            suiteIds = apexTestSuiteIds[0];
        }
    }
}
```

```

        for (int i = 1; i < apexTestSuiteIds.length; i++) {
            suiteIds += "," + apexTestSuiteIds[i];
        }
    }
    try {
        System.out.println("Running async test run");
        conn.runTestsAsynchronous(classIds, suiteIds, maxFailedTests,
TestLevel.RunSpecifiedTests);
    } catch (ConnectionException e) {
        e.printStackTrace();
    }
}

private void getTestQueueItems(String asyncApexJobId) {
    try {
        QueryResult res = conn
= ""
            .query("SELECT Id, Status, ApexClassId FROM ApexTestQueueItem WHERE ParentJobId
                + asyncApexJobId + """);
        if (res.getSize() > 0) {
            for (SObject o : res.getRecords()) {
                ApexTestQueueItem atqi = (ApexTestQueueItem) o;
                System.out.println("\tApexTestQueueItem - " + atqi.getStatus());
                if (atqi.getStatus().equals("Completed")) {
                    getApexTestResults(atqi.getId());
                }
            }
        } else {
            System.out.println("No queued items for " + asyncApexJobId);
        }
    } catch (ConnectionException e) {
        e.printStackTrace();
    }
}

private void getApexTestResults(String apexTestQueueItemId) {
    try {
        QueryResult res = conn
FROM ApexTestResult WHERE QueueItemId = ""
            .query("SELECT StackTrace,Message, AsyncApexJobId,MethodName, Outcome, ApexClassId
                + apexTestQueueItemId + """);
        if (res.getSize() > 0) {
            for (SObject o : res.getRecords()) {
                ApexTestResult atr = (ApexTestResult) o;
                System.out.println("\tTest result for "
                    + atr.getApexClassId() + "." + atr.getMethodName());
                String msg = atr.getOutcome().equals("Fail") ? " - "
                    + atr.getMessage() + " " + atr.getStackTrace() : "";
                System.out.println("\t\tTest " + atr.getOutcome() + msg);
            }
        } else {
            System.out.println("No Test Results for " + apexTestQueueItemId);
        }
    } catch (ConnectionException e) {

```

```

        e.printStackTrace();
    }
}

```

## ApexTestResult

---

Represents the result of an Apex test method execution. Available from API version 30.0 or later.

### Supported SOAP API Calls

`create()`, `delete()`, `describeSObjects()`, `query()`, `retrieve()`, `update()`

### Supported REST API HTTP Methods

Query, GET

### Fields

Field Name	Details
ApexClassId	<p><b>Type</b> reference</p> <p><b>Properties</b> Create, Filter, Group, Sort, Update</p> <p><b>Description</b> The Apex class whose test methods were executed.</p>
ApexLogId	<p><b>Type</b> reference</p> <p><b>Properties</b> Create, Filter, Group, Nillable, Sort, Update</p> <p><b>Description</b> Points to the <code>ApexLog</code> for this test method execution if debug logging is enabled; otherwise, <code>null</code>.</p>
ApexTestRunResultId	<p><b>Type</b> reference</p> <p><b>Properties</b> Create, Filter, Group, Nillable, Sort, Update</p> <p><b>Description</b> The ID of the <a href="#">ApexTestRunResult</a> that represents the entire test run.</p>

Field Name	Details
<code>AsyncApexJobId</code>	<p><b>Type</b> reference</p> <p><b>Properties</b> Create, Filter, Group, Nillable, Sort, Update</p> <p><b>Description</b> Points to the <code>AsyncApexJob</code> that represents the entire test run. This field points to the same object as <code>ApexTestQueueItem.ParentJobId</code>.</p>
<code>Message</code>	<p><b>Type</b> string</p> <p><b>Properties</b> Create, Filter, Nillable, Sort, Update</p> <p><b>Description</b> The exception error message if a test failure occurs; otherwise, <code>null</code>.</p>
<code>MethodName</code>	<p><b>Type</b> string</p> <p><b>Properties</b> Create, Filter, Group, Nillable, Sort, Update</p> <p><b>Description</b> The name of the test method.</p>
<code>Outcome</code>	<p><b>Type</b> picklist</p> <p><b>Properties</b> Create, Filter, Group, Restricted picklist, Sort, Update</p> <p><b>Description</b> The result of the test. Valid values are:</p> <ul style="list-style-type: none"><li>• <code>Pass</code></li><li>• <code>Fail</code></li><li>• <code>CompileFail</code></li><li>• <code>Skip</code></li></ul>
<code>QueueItemId</code>	<p><b>Type</b> reference</p> <p><b>Properties</b> Create, Filter, Group, Nillable, Sort, Update</p>

Field Name	Details
	<p><b>Description</b></p> <p>Points to the <a href="#">ApexTestQueueItem</a> which is the class that this test method is part of.</p>
RunTime	<p><b>Type</b></p> <p>int</p> <p><b>Properties</b></p> <p>Create, Filter, Group, Nillable, Sort, Update</p> <p><b>Description</b></p> <p>The time it took the test method to run, in seconds.</p>
StackTrace	<p><b>Type</b></p> <p>string</p> <p><b>Properties</b></p> <p>Create, Filter, Nillable, Sort, Update</p> <p><b>Description</b></p> <p>The Apex stack trace if the test failed; otherwise, <code>null</code>.</p>
TestTimestamp	<p><b>Type</b></p> <p>dateTime</p> <p><b>Properties</b></p> <p>Create, Filter, Sort, Update</p> <p><b>Description</b></p> <p>The start time of the test method.</p>

## Usage

You can query the fields of the `ApexTestResult` record that corresponds to a test method executed as part of an Apex class execution. Each test method execution is represented by a single `ApexTestResult` record. For example, if an Apex test class contains six test methods, six `ApexTestResult` records are created. These records are in addition to the `ApexTestQueueItem` record that represents the Apex class. Each `ApexTestResult` record has an associated `ApexTestResultLimits` record, which captures the Apex limits used during execution of the test method.

For example code, see [ApexTestQueueItem](#).

## ApexTestResultLimits

Captures the Apex test limits used for a particular test method execution. An instance of this object is associated with each `ApexTestResult` object. Available from API version 37.0 or later.

## Supported SOAP API Calls

`create()`, `delete()`, `describeSObjects()`, `query()`, `retrieve()`, `update()`

## Supported REST API HTTP Methods

Query, GET

## Fields

Field Name	Details
ApexTestResultId	<p><b>Type</b> reference</p> <p><b>Properties</b> Create, Filter, Group, Sort</p> <p><b>Description</b> The ID of the associated <a href="#">ApexTestResult</a> object.</p>
AsyncCalls	<p><b>Type</b> int</p> <p><b>Properties</b> Create, Filter, Group, Sort, Update</p> <p><b>Description</b> The number of asynchronous calls made during the test run.</p>
Callouts	<p><b>Type</b> int</p> <p><b>Properties</b> Create, Filter, Group, Sort, Update</p> <p><b>Description</b> The number of callouts made during the test run.</p>
Cpu	<p><b>Type</b> int</p> <p><b>Properties</b> Create, Filter, Group, Sort, Update</p> <p><b>Description</b> The amount of CPU used during the test run, in milliseconds.</p>
Dml	<p><b>Type</b> int</p>

Field Name	Details
	<p><b>Properties</b> Create, Filter, Group, Sort, Update</p> <p><b>Description</b> The number of DML statements made during the test run.</p>
DmlRows	<p><b>Type</b> int</p> <p><b>Properties</b> Create, Filter, Group, Sort, Update</p> <p><b>Description</b> The number of rows accessed by DML statements during the test run.</p>
Email	<p><b>Type</b> int</p> <p><b>Properties</b> Create, Filter, Group, Sort, Update</p> <p><b>Description</b> The number of email invocations made during the test run.</p>
LimitContext	<p><b>Type</b> string</p> <p><b>Properties</b> Create, Filter, Group, Nillable, Sort, Update</p> <p><b>Description</b> Indicates whether the test run was synchronous or asynchronous.</p>
LimitExceptions	<p><b>Type</b> string</p> <p><b>Properties</b> Create, Filter, Group, Nillable, Sort, Update</p> <p><b>Description</b> Indicates whether your org has any limits that differ from the default limits.</p>
MobilePush	<p><b>Type</b> int</p> <p><b>Properties</b> Create, Filter, Group, Sort, Update</p> <p><b>Description</b> The number of mobile push calls made during the test run.</p>



Field Name	Details
QueryRows	<p><b>Type</b> int</p> <p><b>Properties</b> Create, Filter, Group, Sort, Update</p> <p><b>Description</b> The number of rows queried during the test run.</p>
Soql	<p><b>Type</b> int</p> <p><b>Properties</b> Create, Filter, Group, Sort, Update</p> <p><b>Description</b> The number of SOQL queries made during the test run.</p>
Sosl	<p><b>Type</b> int</p> <p><b>Properties</b> Create, Filter, Group, Sort, Update</p> <p><b>Description</b> The number of SOSL queries made during the test run.</p>

## Usage

The `ApexTestResultLimits` object is populated for each test method execution, and it captures the limits used between the `Test.startTest()` and `Test.stopTest()` methods. If `startTest()` and `stopTest()` aren't called, limits usage is not captured. Note the following:

- The associated test method must be run asynchronously.
- Limits for asynchronous Apex operations (batch, scheduled, future, and queueable) that are called within test methods are not captured.
- Limits are captured only for the default namespace.

## ApexTestRunResult

Contains summary information about all the test methods that were run in a particular Apex job. Available from API version 37.0 or later.

## Supported SOAP API Calls

`create()`, `delete()`, `describeSObjects()`, `query()`, `retrieve()`, `update()`

## Supported REST API HTTP Methods

Query, GET

## Fields

Field Name	Details
AsyncApexJobId	<p><b>Type</b> reference</p> <p><b>Properties</b> Create, Filter, Group, Nillable, Sort, Update</p> <p><b>Description</b> The parent Apex job ID for the result.</p>
ClassesCompleted	<p><b>Type</b> int</p> <p><b>Properties</b> Create, Filter, Group, Nillable, Sort, Update</p> <p><b>Description</b> The total number of classes executed during the test run.</p>
ClassesEnqueued	<p><b>Type</b> int</p> <p><b>Properties</b> Create, Filter, Group, Sort, Update</p> <p><b>Description</b> The total number of classes enqueued during the test run.</p>
EndTime	<p><b>Type</b> dateTime</p> <p><b>Properties</b> Create, Filter, Nillable, Sort, Update</p> <p><b>Description</b> The time at which the test run ended.</p>
IsAllTests	<p><b>Type</b> boolean</p> <p><b>Properties</b> Create, Filter, Group, Sort, Update</p> <p><b>Description</b> Indicates whether all Apex test classes were run.</p>

Field Name	Details
JobName	<p><b>Type</b> string</p> <p><b>Properties</b> Create, Filter, Group, Nillable, Sort, Update</p> <p><b>Description</b> <b>Reserved for future use.</b></p>
Source	<p><b>Type</b> string</p> <p><b>Properties</b> Create, Filter, Group, Nillable, Sort, Update</p> <p><b>Description</b> The source of the test run, such as the Developer Console.</p>
StartTime	<p><b>Type</b> dateTime</p> <p><b>Properties</b> Create, Filter, Sort, Update</p> <p><b>Description</b> The time at which the test run started.</p>
Status	<p><b>Type</b> picklist</p> <p><b>Properties</b> Create, Filter, Group, Sort, Update</p> <p><b>Description</b> The status of the test run. Can be one of these values:</p> <ul style="list-style-type: none"><li>• Queued</li><li>• Processing</li><li>• Aborted</li><li>• Completed</li><li>• Failed</li></ul>
TestTime	<p><b>Type</b> int</p> <p><b>Properties</b> Create, Filter, Group, Nillable, Sort, Update</p> <p><b>Description</b> The time it took the test to run, in seconds.</p>

Field Name	Details
UserId	<p><b>Type</b> reference</p> <p><b>Properties</b> Create, Filter, Group, Nillable, Sort, Update</p> <p><b>Description</b> The user who ran the test run.</p>

## ApexTrigger

Represents the saved copy of an Apex trigger. ApexTrigger uses the cached version of the class unless one is unavailable. Available from API version 28.0 or later.

To edit, save, or compile Apex triggers, use [ApexTriggerMember](#).

## Supported SOAP API Calls

`create()`, `delete()`, `describeSObjects()`, `query()`, `retrieve()`, `update()`, `upsert()`


## Supported REST API HTTP Methods

Query, GET, POST, PATCH, DELETE

## Fields

Field Name	Details
ApiVersion	<p><b>Type</b> double</p> <p><b>Properties</b> Create, Filter, Sort, Update</p> <p><b>Description</b> The API version for this trigger. Every trigger has an API version specified at creation.</p>
Body	<p><b>Type</b> string</p> <p><b>Properties</b> Create, Nillable, Update</p> <p><b>Description</b> The Apex trigger definition. Limit: 1 million characters.</p>

Field Name	Details
BodyCrc	<p><b>Type</b> double</p> <p><b>Properties</b> Create, Defaulted on create, Filter, Nillable, Sort, Update</p> <p><b>Description</b> The CRC (cyclic redundancy check) of the class or trigger file.</p>
EntityDefinitionId	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> The Id of the EntityDefinition object associated with this object.</p>
IsValid	<p><b>Type</b> boolean</p> <p><b>Properties</b> Create, Defaulted on create, Filter, Group, Sort, Update</p> <p><b>Description</b> Indicates whether any dependent metadata has changed since the trigger was last compiled (<code>true</code>) or not (<code>false</code>).</p>
LengthWithoutComments	<p><b>Type</b> int</p> <p><b>Properties</b> Create, Filter, Group, Sort, Update</p> <p><b>Description</b> Length of the trigger without comments.</p>
ManageableState	<p><b>Type</b> ManageableState enumerated list</p> <p><b>Properties</b> Create, Filter, Update</p> <p><b>Description</b> Indicates the manageable state of the specified component that is contained in a package:</p> <ul style="list-style-type: none"> <li>• beta</li> <li>• deleted</li> <li>• deprecated</li> <li>• installed</li> <li>• released</li> <li>• unmanaged</li> </ul>

Field Name	Details
Metadata	<p><b>Type</b> ApexTriggerMetadata</p> <p><b>Properties</b> None</p> <p><b>Description</b> An object that describes the version, status, and packaged versions of the corresponding Apex trigger.</p> <p>Query this field only if the query result contains no more than one record. Otherwise, an error is returned. If more than one record exists, use multiple queries to retrieve the records. This limit protects performance.</p>
Status	<p><b>Type</b> picklist</p> <p><b>Properties</b> Create, Filter, Group, Restricted picklist, Sort, Update</p> <p><b>Description</b> The current status of the Apex trigger. The following string values are valid:</p> <ul style="list-style-type: none"> <li>• <code>Active</code>—The trigger is active.</li> <li>• <code>Inactive</code>—The trigger is inactive, but not deleted.</li> <li>• <code>Deleted</code>—The trigger is marked for deletion. This is useful for managed packages, because it allows a class to be deleted when a managed package is updated.</li> </ul> <p> <b>Note:</b> <code>Inactive</code> is not valid for ApexClass. For more information, see the <a href="#">Metadata API Developer Guide</a>.</p>
UsageAfterDelete	<p><b>Type</b> boolean</p> <p><b>Properties</b> Create, Filter, Update</p> <p><b>Description</b> Specifies whether the trigger is an after delete trigger (<code>true</code>) or not (<code>false</code>).</p>
UsageAfterInsert	<p><b>Type</b> boolean</p> <p><b>Properties</b> Create, Filter, Update</p> <p><b>Description</b> Specifies whether the trigger is an after insert trigger (<code>true</code>) or not (<code>false</code>).</p>
UsageAfterUndelete	<p><b>Type</b> boolean</p>

Field Name	Details
	<p><b>Properties</b> Create, Filter, Update</p> <p><b>Description</b> Specifies whether the trigger is an after undelete trigger (<code>true</code>) or not (<code>false</code>).</p>
UsageAfterUpdate	<p><b>Type</b> boolean</p> <p><b>Properties</b> Create, Filter, Update</p> <p><b>Description</b> Specifies whether the trigger is an after update trigger (<code>true</code>) or not (<code>false</code>).</p>
UsageBeforeDelete	<p><b>Type</b> boolean</p> <p><b>Properties</b> Create, Filter, Update</p> <p><b>Description</b> Specifies whether the trigger is an before delete trigger (<code>true</code>) or not (<code>false</code>).</p>
UsageBeforeInsert	<p><b>Type</b> boolean</p> <p><b>Properties</b> Create, Filter, Update</p> <p><b>Description</b> Specifies whether the trigger is an before insert trigger (<code>true</code>) or not (<code>false</code>).</p>
UsageBeforeUpdate	<p><b>Type</b> boolean</p> <p><b>Properties</b> Create, Filter, Update</p> <p><b>Description</b> Specifies whether the trigger is an before update trigger (<code>true</code>) or not (<code>false</code>).</p>
UsageIsBulk	<p><b>Type</b> boolean</p> <p><b>Properties</b> Create, Filter, Update</p> <p><b>Description</b> Specifies whether the trigger is defined as a bulk trigger (<code>true</code>) or not (<code>false</code>).</p>

## Usage

To retrieve information about an Apex trigger, create an ApexTrigger object that references it. For example code, see [SOAP Calls](#).

To edit, save, or compile Apex triggers, use [ApexTriggerMember](#).

## ApexTriggerMember

---

Represents the working copy of an Apex trigger for editing, saving, or compiling in a MetadataContainer.

## Supported SOAP API Calls

`create()`, `delete()`, `describeSObjects()`, `query()`, `retrieve()`, `update()`, `upsert()`

## Supported REST API HTTP Methods

Query, GET, POST, PATCH, DELETE

## Fields

Field Name	Details
Body	<p><b>Type</b> string</p> <p><b>Properties</b> Create, Update</p> <p><b>Description</b> The data for the Apex trigger. The Body field is the only field you can <code>update()</code> or <code>PATCH</code>.</p>
Content	<p><b>Type</b> string</p> <p><b>Properties</b> None</p> <p><b>Description</b> A string representation of ApexTriggerMetadata that lists the version, status, and packaged versions of the corresponding Apex trigger.</p>
ContentEntityId	<p><b>Type</b> reference</p> <p><b>Properties</b> Create, Filter, Group, Sort</p> <p><b>Description</b> A reference to an Apex trigger.</p>



Field Name	Details
	<p>There can be only one <code>ContentEntityId</code> per <code>ApexTriggerMember</code>, otherwise, an error is reported.</p> <p>This field is required if <code>FullName</code> is not specified.</p>
<code>FullName</code>	<p><b>Type</b> string</p> <p><b>Properties</b> Group, Nillable</p> <p><b>Description</b> The full name of the associated object in the Metadata API. Use to avoid race conditions on create, before you have IDs.</p> <p>Query this field only if the query result contains no more than one record. Otherwise, an error is returned. If more than one record exists, use multiple queries to retrieve the records. This limit protects performance.</p> <p>This field is required if <code>ContentEntityId</code> is not specified.</p>
<code>LastSyncDate</code>	<p><b>Type</b> dateTime</p> <p><b>Properties</b> Filter, Sort</p> <p><b>Description</b> The date that this <code>ApexTriggerMember Body</code> was replicated from the underlying entity.</p> <p>When you deploy a <code>MetadataContainer</code>, this value is compared with the <code>LastModifiedDate</code> of the underlying Apex trigger. If <code>LastSyncDate</code> is older than <code>LastModifiedDate</code>, the deployment fails with an error.</p>
<code>Metadata</code>	<p><b>Type</b> <code>ApexTriggerMetadata</code></p> <p><b>Properties</b> None</p> <p><b>Description</b> An object that describes the version, status, and packaged versions of the corresponding Apex trigger.</p> <p>Query this field only if the query result contains no more than one record. Otherwise, an error is returned. If more than one record exists, use multiple queries to retrieve the records. This limit protects performance.</p>
<code>MetadataContainerId</code>	<p><b>Type</b> reference</p> <p><b>Properties</b> Create, Filter, Group, Sort</p>

**Field Name****Details****Description**

A reference to a [MetadataContainer](#) or [ContainerAsyncRequest](#) object.

As part of a successful deployment, this field is reset from the ID of the deployed [MetadataContainer](#) to the ID of the corresponding [ContainerAsyncRequest](#) object.

This field is required.

SymbolTable

**Type**

[SymbolTable](#)

**Properties**

Nullable

**Description**

A complex type that represents all user-defined tokens in the `Body` of an ApexClass, ApexClassMember, or ApexTriggerMember and their associated line and column locations within the `Body`.

This field is null if the symbol table cannot be created. A symbol table can't be created if the content referenced by the `ContentEntityId` field doesn't use a symbol table. Compiler errors for the last deployment of the [MetadataContainer](#) in the `MetadataContainerId` field also prevent a symbol table from being created.

## Usage

To edit, save, or compile an Apex trigger, create an ApexTriggerMember object that references it. To create a trigger, use the Force.com REST API or the Metadata API.



**Note:** Once an ApexTriggerMember is successfully deployed in a [MetadataContainer](#), the `MetadataContainerId` is changed to the ID of the [ContainerAsyncRequest](#), and the ApexTriggerMember can't be modified or reused.

Apex triggers and classes are often dependent on each other for functionality. For example, a method in one class can call a method in another class. If source file A is dependent on modified source file B and you try to save and compile source file A before you've saved the changes to source file B, the compiler will throw an error. To successfully save and compile a group of related source files, put the corresponding ApexTriggerMember and ApexClassMember objects in a single MetadataContainer object. Use ContainerAsyncRequest to send the MetadataContainer to the application server.

Each ApexTriggerMember object can only refer to a single MetadataContainer object. Multiple ApexTriggerMember objects can refer to the same MetadataContainer object.

## AssignmentRule

Don't use this object.

This object is exposed in API version 35.0, however AssignmentRule is reserved for future use.

## AuraDefinition

---

Represents a Lightning definition, such as component markup, a client-side controller, or an event. This object is available in API version 32.0 and later. Available in API version 32.0 and later.

### Supported SOAP API Calls

`create()`, `delete()`, `describeSObjects()`, `query()`, `retrieve()`, `update()`, `upsert()`

### Supported REST API HTTP Methods

Query, GET, POST, PATCH, DELETE

### Fields

Field Name	Details
<code>AuraDefinitionBundleId</code>	<p><b>Type</b> reference</p> <p><b>Properties</b> Create, Filter, Group, Sort</p> <p><b>Description</b> The ID of the bundle containing the definition. A bundle contains a Lightning definition and all its related resources.</p>
<code>DefType</code>	<p><b>Type</b> picklist</p> <p><b>Properties</b> Create, Filter, Group, Restricted picklist, Sort, Update</p> <p><b>Description</b> The definition type. Valid values are:</p> <ul style="list-style-type: none"> <li>• APPLICATION — Lightning Components app</li> <li>• CONTROLLER — client-side controller</li> <li>• COMPONENT — component markup</li> <li>• EVENT — event definition</li> <li>• HELPER — client-side helper</li> <li>• INTERFACE — interface definition</li> <li>• RENDERER — client-side renderer</li> <li>• STYLE — style (CSS) resource</li> <li>• PROVIDER — reserved for future use</li> <li>• MODEL — deprecated, do not use</li> <li>• TESTSUITE — reserved for future use</li> </ul>

Field Name	Details
	<ul style="list-style-type: none"> <li>• DOCUMENTATION — documentation markup</li> <li>• TOKENS — tokens collection</li> <li>• DESIGN — design definition</li> <li>• SVG — SVG graphic resource</li> </ul>
Format	<p><b>Type</b> picklist</p> <p><b>Properties</b> Create, Filter, Group, Restricted picklist, Sort, Update</p> <p><b>Description</b> The format of the definition. Valid values are:</p> <ul style="list-style-type: none"> <li>• XML for component markup</li> <li>• JS for JavaScript code</li> <li>• CSS for styles</li> </ul>
Source	<p><b>Type</b> textarea</p> <p><b>Properties</b> Create, Update</p> <p><b>Description</b> The contents of the Lightning definition. This is all the markup or code for the definition.</p>

## Usage

For more information, see the [Lightning Components Developer Guide](#).

## AuraDefinitionBundle

Represents a Lightning definition bundle, such as a component or application bundle. A bundle contains a Lightning definition and all its related resources. This object is available in API version 32.0 and later. Available in API version 32.0 and later.


## Supported SOAP API Calls

`create()`, `delete()`, `describeSObjects()`, `query()`, `retrieve()`, `update()`, `upsert()`

## Supported REST API HTTP Methods

Query, GET, POST, PATCH, DELETE

## Fields

Field Name	Details
ApiVersion	<p><b>Type</b> double</p> <p><b>Properties</b> Create, Filter, Sort, Update</p> <p><b>Description</b> The API version for this bundle. Every bundle has an API version specified at creation.</p>
Description	<p><b>Type</b> textarea</p> <p><b>Properties</b> Create, Filter, Group, Sort, Update</p> <p><b>Description</b> The text description of the bundle. Maximum size of 255 characters.</p>
DeveloperName	<p><b>Type</b> string</p> <p><b>Properties</b> Create, Filter, Group, Sort, Update</p> <p><b>Description</b> The unique name of the record in the API. This name can contain only underscores and alphanumeric characters, and must be unique in your org. It must begin with a letter, not include spaces, not end with an underscore, and not contain two consecutive underscores. This field is automatically generated but you can supply your own value if you create the record using the API.</p> <p> <b>Note:</b> When creating large sets of data, always specify a unique DeveloperName for each record. If no DeveloperName is specified, performance may slow while Salesforce generates one for each record.</p>
Language	<p><b>Type</b> picklist</p> <p><b>Properties</b> Create, Defaulted on create, Filter, Group, Nillable, Restricted picklist, Sort, Update</p> <p><b>Description</b> The language of the MasterLabel.</p>
MasterLabel	<p><b>Type</b> string</p> <p><b>Properties</b> Create, Filter, Group, Sort, Update</p>

Field Name	Details
	<p><b>Description</b></p> <p>Master label for the Lightning bundle. This internal label doesn't get translated.</p>
NamespacePrefix	<p><b>Type</b></p> <p>string</p> <p><b>Properties</b></p> <p>Filter, Group, Nillable, Sort</p> <p><b>Description</b></p> <p>The namespace prefix associated with this object. Each Developer Edition organization that creates a managed package has a unique namespace prefix. Limit: 15 characters. You can refer to a component in a managed package by using the <b>namespacePrefix__componentName</b> notation.</p> <p>The namespace prefix can have one of the following values:</p> <ul style="list-style-type: none"> <li>In Developer Edition organizations, the namespace prefix is set to the namespace prefix of the organization for all objects that support it. There is an exception if an object is in an installed managed package. In that case, the object has the namespace prefix of the installed managed package. This field's value is the namespace prefix of the Developer Edition organization of the package developer.</li> <li>In organizations that are not Developer Edition organizations, <code>NamespacePrefix</code> is only set for objects that are part of an installed managed package. There is no namespace prefix for all other objects.</li> </ul>

## Usage

For more information, see the [Lightning Components Developer Guide](#).

## AutoResponseRule

Specifies whether the autoresponse rule is active (`true`).

Available in API version 35.0 and later.

## Supported SOAP API Calls

`query()`

## Supported REST API HTTP Methods

`Query`, GET

## Fields

Field Name	Details
Active	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create Filter, Group, Sort</p> <p><b>Description</b> If <code>true</code>, the autoreponse rule is active.</p>
EntityDefinitionId	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> Represents the object associated with this autoreponse rule.</p>
Name	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> Represents the name of the autoreponse rule.</p>

## Usage

Use this object to query whether an autoreponse rule is active.

```
SELECT Name, Active
FROM AutoResponseRule
```

More information about the autoreponse rule is available by querying the metadata type `AutoResponseRules` or `AutoResponse` in the metadata namespace (`mns`).

## BusinessProcess

Represents a business process.

This object is available in API version 33.0 and later.

## Supported SOAP Calls

- `getDeleted()`, `getUpdated()`, `query()`, `retrieve()`, and `upsert()` are available in API version 33.0 and later.
- `create()` and `update()` are available in API version 36.0 and later.

## Supported REST HTTP Methods

GET, PATCH, POST

## Fields

Field	Details
Description	<p><b>Type</b> string</p> <p><b>Properties</b> Create, Filter, Group, Nillable, Sort, Update</p> <p><b>Description</b> The business process description, limited to 255 characters.</p>
IsActive	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort, Update</p> <p><b>Description</b> Indicates whether this business process is active (<code>true</code>) or not (<code>false</code>).</p>
ManageableState	<p><b>Type</b> ManageableState enumerated list</p> <p><b>Properties</b> Create, Filter, Update</p> <p><b>Description</b> Indicates the manageable state of the specified component that is contained in a package:</p> <ul style="list-style-type: none"> <li>• beta</li> <li>• deleted</li> <li>• deprecated</li> <li>• installed</li> <li>• released</li> <li>• unmanaged</li> </ul>
Name	<p><b>Type</b> string</p> <p><b>Properties</b> Create, Filter, Group, idLookup, Sort, Update</p> <p><b>Description</b> The process name.</p>



Field	Details
NamespacePrefix	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> A unique string to distinguish this type from any others.</p>

## Certificate

Represents a certificate used for digital signatures that verify requests are coming from your org. Certificates are used for either authenticated single sign-on with an external website or when using your org as an identity provider. This object is available in Tooling API version 37.0 and later.


## Supported SOAP Calls

`query()`, `retrieve()`

## Supported REST HTTP Methods

GET

## Fields

Field	Details
DeveloperName	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> The unique name of the object in the API. This name can contain only underscores and alphanumeric characters, and must be unique in your org. It must begin with a letter, not include spaces, not end with an underscore, and not contain two consecutive underscores. In managed packages, this field prevents naming conflicts on package installations. With this field, a developer can change the object's name in a managed package and the changes are reflected in a subscriber's organization.</p> <p> <b>Note:</b> When creating large sets of data, always specify a unique <code>DeveloperName</code> for each record. If no <code>DeveloperName</code> is specified, Salesforce generates one for each record, which slows performance.</p>

Field	Details
ExpirationDate	<p><b>Type</b> date</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> Read only. The date that this certificate expires and is no longer usable. For self-signed certificates, if <code>KeySize</code> is 2048 bits, the expiration date is automatically 1 year after you create the certificate. If <code>KeySize</code> is 4096 bits, the expiration date is automatically 2 years after you create the certificate. For CA-signed certificates, <code>ExpirationDate</code> is automatically updated to the signed certificate's expiration date when a signed certificate chain is uploaded. The date format is YYYY-MM-DD.</p>
KeySize	<p><b>Type</b> int</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> Certificate keys can be either 2048 bits or 4096 bits. A certificate with 4096-bit keys lasts 2 years, and a certificate with 2048-bit keys lasts 1 year. Certificates with 2048-bit keys are faster than certificates with 4096-bit keys. If <code>KeySize</code> isn't specified when you create a certificate, the key size defaults to 2048 bits.</p>
MasterLabel	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> Required. A user-friendly name for the certificate that appears in the Salesforce user interface, such as in Certificate and Key Management. Limit: 64 characters.</p>
OptionsIsCaSigned	<p><b>Type</b> boolean</p> <p><b>Properties</b> Filter</p> <p><b>Description</b> Required. Indicates whether this certificate is signed by the issuer (true) or not (false).</p>
OptionsIsEncryptedWithPE	<p><b>Type</b> boolean</p> <p><b>Properties</b> Filter</p>

Field	Details
	<p><b>Description</b></p> <p>Indicates whether this certificate is encrypted with Platform Encryption.</p>
OptionsIsNewEncr	<p><b>Type</b></p> <p>boolean</p> <p><b>Properties</b></p> <p>Filter</p> <p><b>Description</b></p> <p>Indicates whether this certificate is encrypted with the new algorithm for certificate encryption.</p>
OptionsIsPrivateKeyExportable	<p><b>Type</b></p> <p>boolean</p> <p><b>Properties</b></p> <p>Filter</p> <p><b>Description</b></p> <p>Indicates whether this certificate's private key is exportable.</p>
OptionsIsUnusable	<p><b>Type</b></p> <p>boolean</p> <p><b>Properties</b></p> <p>Filter</p> <p><b>Description</b></p> <p>Indicates whether this certificate is waiting for import of the signed certificate chain.</p>

## CompactLayout

---

Represents the values that define a compact page layout.

This object is available in API version 32.0 and later.

### Supported SOAP Calls

`create()`, `delete()`, `getDeleted()`, `getUpdated()`, `query()`, `retrieve()`, `search()`, `update()`, `upsert()`

### Supported REST HTTP Methods

DELETE, GET, PATCH, POST

## Fields

Field	Details
DeveloperName	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> The developer's internal name for the compact layout (for example, "CL_c") used in the API.</p>
FullName	<p><b>Type</b> string</p> <p><b>Properties</b> Create, Group, Nillable</p> <p><b>Description</b> The unique name used as the compact layout identifier for API access. The <code>fullName</code> can contain only underscores and alphanumeric characters. It must be unique, begin with a letter, not include spaces, not end with an underscore, and not contain two consecutive underscores.</p> <p>Query this field only if the query result contains no more than one record. Otherwise, an error is returned. If more than one record exists, use multiple queries to retrieve the records. This limit protects performance.</p>
MasterLabel	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> The name of the compact layout in Setup.</p>
Metadata	<p><b>Type</b> <code>mns : CompactLayout</code></p> <p><b>Properties</b> Create, Nillable, Update</p> <p><b>Description</b> The compact layout metadata.</p> <p>Query this field only if the query result contains no more than one record. Otherwise, an error is returned. If more than one record exists, use multiple queries to retrieve the records. This limit protects performance.</p>
NamespacePrefix	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p>

Field	Details
	<p><b>Description</b></p> <p>The namespace of the package of which the compact layout is a part.</p>
SubjectType	<p><b>Type</b></p> <p>Restricted picklist</p> <p><b>Properties</b></p> <p>Filter, Group, Restricted picklist, Sort</p> <p><b>Description</b></p> <p>The type of object used in the layout, such as an Account or Lead.</p>

## CompactLayoutItemInfo

Represents a field selected for a compact layout, and the order of that field in the compact layout.

This object is available in API version 32.0 and later.

## Supported SOAP Calls

`query()`

## Supported REST HTTP Methods

GET

## Limitations

[SOQL Limitations](#) on page 21

[SOSL Limitations](#) on page 22

## Fields

Field	Details
CompactLayoutInfo	<p><b>Type</b></p> <p>CompactLayoutInfo</p> <p><b>Properties</b></p> <p>Filter, Group, Nillable, Sort</p> <p><b>Description</b></p> <p>The compact layout associated with this CompactLayoutItemInfo.</p>

Field	Details
CompactLayoutInfoId	<p><b>Type</b> Id</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> ID of the compact layout associated with this field.</p>
DurableId	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> This field reserved for future use. Do not use.</p>
FieldDefinition	<p><b>Type</b> <a href="#">FieldDefinition</a> on page 146</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> Required. The definition of this field.</p>
FieldDefinitionId	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> Required. ID of this field.</p>
SortOrder	<p><b>Type</b> int</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> The order of the field in the compact layout. 1 is first.</p>

## CompactLayoutInfo

---

Represents the metadata for a custom or standard compact layout.

This object is available in API version 32.0 and later.

## Supported SOAP Calls

`query()`

## Supported REST HTTP Methods

GET

## Limitations

[SOQL Limitations](#) on page 21

[SOSL Limitations](#) on page 22

## Fields

Field	Details
DeveloperName	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> The developer's internal name for the compact layout (for example, <code>CL__c</code>) used in the API.</p>
DurableId	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> Unique identifier for the field. Always retrieve this value before using it, as the value isn't guaranteed to stay the same from one release to the next. To simplify queries, use this field.</p>
EntityDefinition	<p><b>Type</b> EntityDefinition</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> Required. Available starting with version 32.0. The entity definition for the object associated with this CompactLayoutInfo.</p>
EntityDefinitionId	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p>

Field	Details
	<p><b>Description</b></p> <p>Required. ID of the record associated with this CompactLayoutInfo. The record's object type is in <code>EntityDefinition</code>.</p>
FullName	<p><b>Type</b></p> <p>string</p> <p><b>Properties</b></p> <p>Filter, Group, Sort</p> <p><b>Description</b></p> <p>The unique name used as the compact layout identifier for API access. The <code>fullName</code> can contain only underscores and alphanumeric characters. It must be unique, begin with a letter, not include spaces, not end with an underscore, and not contain two consecutive underscores.</p> <p>Query this field only if the query result contains no more than one record. Otherwise, an error is returned. If more than one record exists, use multiple queries to retrieve the records. This limit protects performance.</p>
IsDefault	<p><b>Type</b></p> <p>boolean</p> <p><b>Properties</b></p> <p>Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b></p> <p>If <code>true</code>, this compact layout is the default for the associated object.</p>
Items	<p><b>Type</b></p> <p><a href="#">QueryResult</a></p> <p><b>Properties</b></p> <p>Filter, Group, Sort</p> <p><b>Description</b></p> <p>A foreign key field pointing to CompactLayoutItemsInfo. Because this field represents a relationship, use only in subqueries.</p>
Label	<p><b>Type</b></p> <p>string</p> <p><b>Properties</b></p> <p>Filter, Group, Nillable, Sort</p> <p><b>Description</b></p> <p>The compact layout's label.</p>
Metadata	<p><b>Type</b></p> <p>mns: <a href="#">CompactLayout</a> on page 85</p> <p><b>Properties</b></p> <p>Create, Nillable, Update</p>



Field	Details
	<p><b>Description</b></p> <p>Metadata that defines compact layouts.</p> <p>Query this field only if the query result contains no more than one record. Otherwise, an error is returned. If more than one record exists, use multiple queries to retrieve the records. This limit protects performance.</p>
NamespacePrefix	<p><b>Type</b></p> <p>string</p> <p><b>Properties</b></p> <p>Filter, Group, Sort</p> <p><b>Description</b></p> <p>The namespace prefix associated with this object. Each Developer Edition organization that creates a managed package has a unique namespace prefix. Limit: 15 characters. You can refer to a component in a managed package by using the <b><i>namespacePrefix__componentName</i></b> notation.</p> <p>The namespace prefix can have one of the following values:</p> <ul style="list-style-type: none"> <li>• In Developer Edition organizations, the namespace prefix is set to the namespace prefix of the organization for all objects that support it. There is an exception if an object is in an installed managed package. In that case, the object has the namespace prefix of the installed managed package. This field's value is the namespace prefix of the Developer Edition organization of the package developer.</li> <li>• In organizations that are not Developer Edition organizations, <code>NamespacePrefix</code> is only set for objects that are part of an installed managed package. There is no namespace prefix for all other objects.</li> </ul>

## ContainerAsyncRequest

---

Allows you to compile and asynchronously deploy a MetadataContainer object to your organization.


### Supported SOAP API Calls

`create()`, `describeSObjects()`, `query()`, `retrieve()`

### Supported REST API HTTP Methods

Query, GET, POST

## Fields

Field Name	Details
DeployDetails	<p><b>Type</b>  <a href="#">DeployDetails</a></p> <p><b>Properties</b>            Nillable</p> <p><b>Description</b>            Provides detailed XML for any compile errors reported during an asynchronous request. Includes <code>componentFailures</code>. Replaces the JSON field <code>CompilerErrors</code> in Tooling API version 31.0 and later.</p>
ErrorMsg	<p><b>Type</b>            textarea</p> <p><b>Properties</b>            Nillable</p> <p><b>Description</b>            Errors reported during an asynchronous request.</p>
IsCheckOnly	<p><b>Type</b>            boolean</p> <p><b>Properties</b>            Create, Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b>            Indicates whether the asynchronous request compiles the code without making any changes to the organization (<code>true</code>) or compiles and saves the code (<code>false</code>).            This field is required.</p> <p> <b>Note:</b> You can compile without saving but you can't save without compiling.</p>
IsRunTests	<p><b>Type</b>            boolean</p> <p><b>Properties</b>            None</p> <p><b>Description</b>            Reserved for future use.</p>
MetadataContainerId	<p><b>Type</b>            reference</p> <p><b>Properties</b>            Create, Filter, Group, Sort</p>

Field Name	Details
	<p><b>Description</b></p> <p>The ID of a <a href="#">MetadataContainer</a> object.</p> <p>Specify a <code>MetadataContainerId</code> or a <code>MetadataContainerMemberId</code>, but not both.</p>
<code>MetadataContainerMemberId</code>	<p><b>Type</b></p> <p>reference</p> <p><b>Properties</b></p> <p>Create, Filter, Group, Nillable, Sort</p> <p><b>Description</b></p> <p>The ID of an <a href="#">ApexClassMember</a>, <a href="#">ApexTriggerMember</a>, <a href="#">ApexPageMember</a> or <a href="#">ApexComponentMember</a> object.</p> <p>Specify a <code>MetadataContainerId</code> or a <code>MetadataContainerMemberId</code>, but not both.</p>
<code>State</code>	<p><b>Type</b></p> <p>picklist</p> <p><b>Properties</b></p> <p>Filter, Group, Restricted picklist, Sort</p> <p><b>Description</b></p> <p>The state of the request. Valid values are:</p> <ul style="list-style-type: none"> <li>• <code>Queued</code>—the job is in the queue.</li> <li>• <code>Invalidated</code>—Salesforce cancelled the job because the results might not be valid. This state occurs if someone changes the container members while <code>IsCheckOnly=true</code>, or if a newer compile request is added to the queue.</li> <li>• <code>Completed</code>—the compilation or deployment finished. The <code>SymbolTable</code> fields for the specified object(s) were successfully updated. If <code>IsCheckOnly</code> is <code>false</code>, the <code>Body</code> for each object was saved and the <code>MetadataContainerId</code> field for each object was reset from the ID of the deployed <a href="#">MetadataContainer</a> to the ID of the corresponding <a href="#">ContainerAsyncRequest</a> object.</li> <li>• <code>Failed</code>—the compilation or deployment failed for the reasons stated in the <code>CompilerError</code> field.</li> <li>• <code>Error</code>—an unexpected error occurred. The messages in the <code>ErrorMsg</code> field can be provided to Salesforce support if the issue persists.</li> <li>• <code>Aborted</code>—use this value to delete a queued deployment.</li> </ul> <p>This field is required.</p>

## Usage

When you deploy a `ContainerAsyncRequest`, you must specify whether to save the compiled entities:

- To compile entities without saving, set the request to `IsCheckOnly=true`. This option is only supported if a `MetadataContainerMember` is specified. A single `MetadataContainerMemberId` can't be compiled without saving.
- To compile and save entities to your organization, set the request to `IsCheckOnly=false`.

If the compile succeeds, the `SymbolTable` field is updated on each object in the specified `MetadataContainer`. If the save or compile fails and a `SymbolTable` field cannot be updated, the field is cleared. If there is an outstanding save request, all updates, inserts, and deployments fail.

To terminate a queued deployment, set the `State` field to `Aborted`.

## CustomField

---

Represents a custom field on a custom object that stores data unique to your organization. Includes access to the associated `CustomField` object and related fields in Salesforce Metadata API. Available from API version 28.0 or later.

## Supported SOAP Calls

`create()`, `query()`, `retrieve()`, `search()`, `update()`, `upsert()`

## Supported REST HTTP Methods

Query, GET, POST, PATCH

## Fields

Field Name	Details
<code>DeveloperName</code>	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> The developer's internal name for the custom field (for example "CF_c").</p>
<code>ManageableState</code>	<p><b>Type</b> ManageableState enumerated list</p> <p><b>Properties</b> Create, Filter, Update</p> <p><b>Description</b> Indicates the manageable state of the specified component that is contained in a package:</p> <ul style="list-style-type: none"> <li>• beta</li> </ul>

Field Name	Details
	<ul style="list-style-type: none"> <li>• deleted</li> <li>• deprecated</li> <li>• installed</li> <li>• released</li> <li>• unmanaged</li> </ul>
Metadata	<p><b>Type</b> CustomFieldMetadata</p> <p><b>Properties</b> Create, Nillable, Update</p> <p><b>Description</b> CustomFieldMetadata includes the following fields:</p> <ul style="list-style-type: none"> <li>• caseSensitive</li> <li>• customDataType*</li> <li>• defaultValue</li> <li>• deleteConstraint</li> <li>• deprecated*</li> <li>• description</li> <li>• displayFormat</li> <li>• displayLocationInDecimal</li> <li>• escapeMarkup</li> <li>• externalDeveloperName</li> <li>• externalId</li> <li>• formula</li> <li>• formulaTreatBlanksAs</li> <li>• inlineHelpText</li> <li>• isFilteringDisabled</li> <li>• isNameField</li> <li>• isSortingDisabled</li> <li>• label</li> <li>• length</li> <li>• maskChar</li> <li>• maskType</li> <li>• picklist</li> <li>• populateExistingRows</li> <li>• precision</li> <li>• readOnlyProxy</li> <li>• referenceTo</li> <li>• relationshipLabel</li> </ul>

Field Name	Details
	<ul style="list-style-type: none"> <li>• relationshipName</li> <li>• relationshipOrder</li> <li>• reparentableMasterDetail</li> <li>• required</li> <li>• restrictedAdminField</li> <li>• scale</li> <li>• startingNumber</li> <li>• stripMarkup</li> <li>• summarizedField</li> <li>• summaryFilterItems</li> <li>• summaryForeignKey</li> <li>• summaryOperation</li> <li>• trackFeedHistory</li> <li>• trackHistory</li> <li>• type</li> <li>• unique</li> <li>• visibleLines</li> <li>• writeRequiresMasterRead</li> </ul> <p>* Reserved for future use.</p> <p>Query this field only if the query result contains no more than one record. Otherwise, an error is returned. If more than one record exists, use multiple queries to retrieve the records. This limit protects performance.</p>
NamespacePrefix	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> The namespace of the custom field. A custom field can be in an extension namespace different than the object.</p>
TableEnumOrId	<p><b>Type</b> Restricted picklist</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> The enum (for example, Account) or ID of the object this field is on.</p>

## CustomFieldMember

---

Represents the working copy of a field for editing or saving in a MetadataContainer. This object is available in API version 33.0 and later.

### Supported SOAP API Calls

`create()`, `delete()`, `describeSObjects()`, `query()`, `retrieve()`, `update()`, `upsert()`

### Supported REST API HTTP Methods

Query, GET, POST, PATCH, DELETE

### Fields

Field Name	Details
Content	<p><b>Type</b> string</p> <p><b>Properties</b> None</p> <p><b>Description</b> A string representation of CustomField that contains the field's metadata.</p>
ContentEntityId	<p><b>Type</b> ID</p> <p><b>Properties</b> Create, Filter, Group, Sort</p> <p><b>Description</b> A reference to a custom field.  There can be only one <code>ContentEntityId</code> per CustomField, otherwise, an error is reported.</p>
FullName	<p><b>Type</b> string</p> <p><b>Properties</b> Group, Nillable</p> <p><b>Description</b> The full name of the associated object in the Metadata API. Use to avoid race conditions on create, before you have IDs.  Query this field only if the query result contains no more than one record. Otherwise, an error is returned. If more than one record exists, use multiple queries to retrieve the records. This limit protects performance.</p>

Field Name	Details
IsDeleted	<p><b>Type</b> boolean</p> <p><b>Properties</b> Group, Nillable</p> <p><b>Description</b> Indicates whether the object is marked as deleted (<code>true</code>) or not (<code>false</code>).</p>
LastSyncDate	<p><b>Type</b> dateTime</p> <p><b>Properties</b> Filter, Sort</p> <p><b>Description</b> The date that this CustomField was replicated from the underlying entity.</p>
Metadata	<p><b>Type</b> CustomField</p> <p><b>Properties</b> None</p> <p><b>Description</b> An object that describes the version, status, and packaged versions of the corresponding CustomField.  Query this field only if the query result contains no more than one record. Otherwise, an error is returned. If more than one record exists, use multiple queries to retrieve the records. This limit protects performance.</p>

## CustomObject

---

Represents a custom object that stores data unique to your organization. Includes access to the associated CustomObject object and related fields in Salesforce Metadata API. Available from API version 31.0 or later.

### Supported SOAP Calls

`query()`, `retrieve()`, `search()`

### Supported REST HTTP Methods

Query, GET



## Fields

Field Name	Details
CustomHelpId	<p><b>Type</b> ID</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> The control that contains the help content if this custom object has customized help content.</p>
Description	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Nillable, Sort</p> <p><b>Description</b> The object's description. This can be useful to describe the reason for creating the object or its intended use.</p>
DeveloperName	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> The developer's internal name for the custom object (for example "CF_c").</p>
ExternalName	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> Maps to a table in the external data source. If you created the external object using Validate and Sync for the data source, this name is automatically created.</p>
ExternalRepository	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> Maps to a table in the external data source. If you created the external object using Validate and Sync for the data source, this name is automatically created; do not modify it.</p>

Field Name	Details
Language	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Restricted picklist, Sort</p> <p><b>Description</b> The language of the action. Valid values are:</p> <ul style="list-style-type: none"><li>• Chinese (Simplified): zh_CN</li><li>• Chinese (Traditional): zh_TW</li><li>• Danish: da</li><li>• Dutch: nl_NL</li><li>• English: en_US</li><li>• Finnish: fi</li><li>• French: fr</li><li>• German: de</li><li>• Italian: it</li><li>• Japanese: ja</li><li>• Korean: ko</li><li>• Norwegian: no</li><li>• Portuguese (Brazil): pt_BR</li><li>• Russian: ru</li><li>• Spanish: es</li><li>• Spanish (Mexico): es_MX</li><li>• Swedish: sv</li><li>• Thai: th</li></ul>
ManageableState	<p><b>Type</b> ManageableState enumerated list</p> <p><b>Properties</b> Create, Filter, Update</p> <p><b>Description</b> Indicates the manageable state of the specified component that is contained in a package:</p> <ul style="list-style-type: none"><li>• beta</li><li>• deleted</li><li>• deprecated</li><li>• installed</li><li>• released</li><li>• unmanaged</li></ul>

Field Name	Details
NamespacePrefix	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> The namespace of the package of which the custom object is a part.</p>
SharingModel	<p><b>Type</b> picklist</p> <p><b>Properties</b> Filter, Group, Nillable, Restricted picklist, Sort</p> <p><b>Description</b> The sharing model. Values are:</p> <ul style="list-style-type: none"> <li>• Edit</li> <li>• ControlledByparent</li> <li>• None</li> <li>• Read</li> </ul>

## CustomTab

---

Represents a custom tab.

This object is available in the Tooling API version 33.0 and later.

## Supported Calls

`create()`, `delete()`, `query()`, `retrieve()`, `update()`

## Fields

Field	Details
ContentId	<p><b>Type</b> reference</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> Read-only. The ID of the item that the custom tab points to. For Lightning components, this is the ID of the component bundle. For custom object tabs, this field is <code>null</code>.</p>

Field	Details
Description	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Nillable, Sort</p> <p><b>Description</b> The tab's description.</p>
DeveloperName	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> The developer's internal name for the custom tab.</p>
EncodingKey	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> Read-only. Type of encoding assigned to the URL called by the tab. The default encoding setting is Unicode: UTF-8. Change it if you are passing information to a URL that requires data in a different format. This option is available when the value URL is selected in the tab type. Valid values are:</p> <ul style="list-style-type: none"> <li>• UTF-8—Unicode (UTF-8)</li> <li>• ISO-8859-1—General US &amp; Western Europe (ISO-8859-1, ISO-LATIN-1)</li> <li>• Shift_JIS—Japanese (Shift-JIS)</li> <li>• ISO-2022-JP—Japanese (JIS)</li> <li>• EUC-JP—Japanese (EUC-JP)</li> <li>• x-SJIS_0213—Japanese (Shift-JIS_2004)</li> <li>• ks_c_5601-1987—Korean (ks_c_5601-1987)</li> <li>• Big5—Traditional Chinese (Big5)</li> <li>• GB2312—Simplified Chinese (GB2312)</li> <li>• Big5-HKSCS—Traditional Chinese Hong Kong (Big5-HKSCS)</li> </ul>
FullName	<p><b>Type</b> string</p> <p><b>Properties</b> Create, Group, Nillable</p> <p><b>Description</b> The name of the tab. The value of this field depends on the type of tab, and the API version.</p>

Field	Details
	<ul style="list-style-type: none"> <li>For custom object tabs, the <code>fullName</code> is the developer-assigned name of the custom object (MyCustomObject__c, for example).</li> <li>For Web tabs, the <code>fullName</code> is the developer-assigned name of the tab (MyWebTab, for example).</li> </ul> <p>Query this field only if the query result contains no more than one record. Otherwise, an error is returned. If more than one record exists, use multiple queries to retrieve the records. This limit protects performance.</p>
HasSidebar	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b> Indicates if the tab displays the sidebar panel.</p>
ManageableState	<p><b>Type</b> ManageableState enumerated list</p> <p><b>Properties</b> Create, Filter, Update</p> <p><b>Description</b> Indicates the manageable state of the specified component that is contained in a package:</p> <ul style="list-style-type: none"> <li>beta</li> <li>deleted</li> <li>deprecated</li> <li>installed</li> <li>released</li> <li>unmanaged</li> </ul>
MasterLabel	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, idLookup, Nillable, Sort</p> <p><b>Description</b> Required. The label for the custom tab, which displays in Setup.</p>
Metadata	<p><b>Type</b> CustomTabMetadata</p> <p><b>Properties</b> Create, Nillable, Update</p> <p><b>Description</b> Custom tab metadata.</p>

Field	Details
	<p>Query this field only if the query result contains no more than one record. Otherwise, an error is returned. If more than one record exists, use multiple queries to retrieve the records. This limit protects performance.</p>
MotifName	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> Read-only. The name of the tab style assigned to the custom tab.</p>
NamespacePrefix	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> The namespace of the package of which the custom tab is a part.</p>
Type	<p><b>Type</b> picklist</p> <p><b>Properties</b> Filter, Group, Restricted picklist, Sort</p> <p><b>Description</b> The type of custom tab. Valid values are:</p> <ul style="list-style-type: none"> <li>• apexPage</li> <li>• aura</li> <li>• customObject</li> <li>• flexiPage</li> <li>• sControl</li> <li>• url</li> </ul>
Url	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Nillable, Sort</p> <p><b>Description</b> The URL for the external web-page to embed in this tab.</p>

# DataType

---

Represents the datatype of a field. Use this object with EntityDefinition, EntityParticle, or FieldDefinition to simplify queries. Available in Tooling API version 34.0 and later.

## Supported SOAP Calls

`query()`

## Supported REST HTTP Methods

GET

## Limitations

[SOQL Limitations](#) on page 21

[SOSL Limitations](#) on page 22

## Fields

Field	Details
DeveloperName	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> The unique name of the object in the API. This name can contain only underscores and alphanumeric characters, and must be unique in your org. It must begin with a letter, not include spaces, not end with an underscore, and not contain two consecutive underscores. In managed packages, this field prevents naming conflicts on package installations. With this field, a developer can change the object's name in a managed package and the changes are reflected in a subscriber's organization. Label is <b>Record Type Name</b>.</p>
ContextServiceDataTypeId	Don't use this field. It's reserved for future use. Properties and behavior are likely to change.
ContextWsdldataTypeId	Don't use this field. It's reserved for future use. Properties and behavior are likely to change.
DurableId	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> Unique identifier for the field. Always retrieve this value before using it, as the value isn't guaranteed to stay the same from one release to the next. To simplify queries, use this field.</p>

Field	Details
IsComplex	<p><b>Type</b> <b>boolean</b></p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b> If <code>true</code>, the datatype contains other datatypes, in contrast to a simple datatype like string.</p>

## Example

From an object, retrieve all the fields of one datatype.

```
SELECT DataType, QualifiedApiName
FROM EntityParticle
WHERE DataType = 'phone' AND
      EntityDefinition.QualifiedApiName = 'Account'
```

## SOQL Limitations

This object doesn't support some SOQL operations.

### GROUP BY

Example Query: `SELECT COUNT(qualifiedapiname), isfeedenabled FROM EntityDefinition GROUP BY isfeedenabled`

Error Returned: The requested operation is not yet supported by this SObject storage type, contact salesforce.com support for more information.

### LIMIT, LIMIT OFFSET

Example Queries:

```
SELECT qualifiedapiname FROM EntityDefinition LIMIT 5
```

```
SELECT qualifiedapiname FROM EntityDefinition LIMIT 5 OFFSET 10
```

An incorrect result is returned because LIMIT and LIMIT OFFSET are ignored.

### NOT

Example Query: `SELECT qualifiedapiname FROM EntityDefinition WHERE qualifiedapiname != 'Account'`

Error Returned: Only equals comparisons permitted

### OR

Example Query: `SELECT qualifiedapiname, keyprefix FROM EntityDefinition WHERE isdeletable=true OR (isfeedenabled=false AND keyprefix='01j')`

Error Returned: Disjunctions not supported



## DebugLevel

---

Represents a set of log category levels to assign to a `TraceFlag` object. Multiple trace flags can use a debug level.

### Supported SOAP API Calls

`create()`, `delete()`, `describeSObjects()`, `query()`, `retrieve()`, `update()`, `upsert()`

### Supported REST API HTTP Methods

Query, GET, POST, PATCH, DELETE

### Fields

Field Name	Details
ApexCode	<p><b>Type</b> picklist</p> <p><b>Properties</b> Create, Filter, Group, Restricted picklist, Sort, Update</p> <p><b>Description</b> The log category level for Apex code. Includes information about Apex code and can include information such as log messages generated by data manipulation language (DML) statements, inline SOQL or SOSL queries, the start and completion of any triggers, the start and completion of any test method, and so on. The following are valid values.</p> <ul style="list-style-type: none"> <li>• NONE</li> <li>• ERROR</li> <li>• WARN</li> <li>• INFO</li> <li>• DEBUG</li> <li>• FINE</li> <li>• FINER</li> <li>• FINEST</li> </ul> <p>This field is required.</p>
ApexProfiling	<p><b>Type</b> picklist</p> <p><b>Properties</b> Create, Filter, Group, Restricted picklist, Sort, Update</p>

**Field Name****Details****Description**

The log category level for profiling information. Includes cumulative profiling information, such as the limits for your namespace, the number of emails sent, and so on. The following are valid values.

- NONE
- ERROR
- WARN
- INFO
- DEBUG
- FINE
- FINER
- FINEST

This field is required.

**Callout****Type**

picklist

**Properties**

Create, Filter, Group, Restricted picklist, Sort, Update

**Description**

The log category level for callouts. Includes the request-response XML that the server is sending and receiving from an external Web service. The request-response XML is useful when debugging issues related to SOAP API calls. The following are valid values.

- NONE
- ERROR
- WARN
- INFO
- DEBUG
- FINE
- FINER
- FINEST

This field is required.

**Database****Type**

picklist

**Properties**

Create, Filter, Group, Restricted picklist, Sort, Update

Field Name	Details
	<p><b>Description</b></p> <p>The log category for database activity. Includes information about database activity, including every DML statement or inline SOQL or SOSL query. The following are valid values.</p> <ul style="list-style-type: none"> <li>• NONE</li> <li>• ERROR</li> <li>• WARN</li> <li>• INFO</li> <li>• DEBUG</li> <li>• FINE</li> <li>• FINER</li> <li>• FINEST</li> </ul> <p>This field is required.</p>
DeveloperName	<p><b>Type</b></p> <p>string</p> <p><b>Properties</b></p> <p>Filter, Group, Sort</p> <p><b>Description</b></p> <p>The developer's internal name for the debug level. Also displays in the Developer Console and in Setup.</p>
Language	<p><b>Type</b></p> <p>picklist</p> <p><b>Properties</b></p> <p>Create, Defaulted on create, Filter, Group, Nillable, Restricted picklist, Sort, Update</p> <p><b>Description</b></p> <p>The language of the <code>MasterLabel</code>. Valid values are:</p> <ul style="list-style-type: none"> <li>• Chinese (Simplified): zh_CN</li> <li>• Chinese (Traditional): zh_TW</li> <li>• Danish: da</li> <li>• Dutch: nl_NL</li> <li>• English: en_US</li> <li>• Finnish: fi</li> <li>• French: fr</li> <li>• German: de</li> <li>• Italian: it</li> <li>• Japanese: ja</li> <li>• Korean: ko</li> </ul>

Field Name	Details
	<ul style="list-style-type: none"> <li>Norwegian: <code>no</code></li> <li>Portuguese (Brazil): <code>pt_BR</code></li> <li>Russian: <code>ru</code></li> <li>Spanish: <code>es</code></li> <li>Spanish (Mexico): <code>es_MX</code></li> <li>Swedish: <code>sv</code></li> <li>Thai: <code>th</code></li> </ul>
MasterLabel	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> Reserved for future use. However, this field is required and must contain a value. We suggest that you use the same value used for <code>DeveloperName</code>.</p>
System	<p><b>Type</b> picklist</p> <p><b>Properties</b> Create, Filter, Group, Restricted picklist, Sort, Update</p> <p><b>Description</b> The log category level for calls to all system methods, such as the <code>System.debug</code> method. The following are valid values.</p> <ul style="list-style-type: none"> <li>NONE</li> <li>ERROR</li> <li>WARN</li> <li>INFO</li> <li>DEBUG</li> <li>FINE</li> <li>FINER</li> <li>FINEST</li> </ul> <p>This field is required.</p>
Validation	<p><b>Type</b> picklist</p> <p><b>Properties</b> Create, Filter, Group, Restricted picklist, Sort, Update</p>

**Field Name****Details****Description**

The log category level for validation rules. Includes information about validation rules, such as the name of the rule, or whether the rule evaluated true or false. The following are valid values.

- NONE
- ERROR
- WARN
- INFO
- DEBUG
- FINE
- FINER
- FINEST

This field is required.

Visualforce

**Type**

picklist

**Properties**

Create, Filter, Group, Restricted picklist, Sort, Update

**Description**

The log category level for Visualforce. Includes information about Visualforce events, including serialization and deserialization of the view state or the evaluation of a formula field in a Visualforce page. The following are valid values.

- NONE
- ERROR
- WARN
- INFO
- DEBUG
- FINE
- FINER
- FINEST

This field is required.

Workflow

**Type**

picklist

**Properties**

Create, Filter, Group, Restricted picklist, Sort, Update

**Description**

The log category level for workflow rules. Includes information for workflow rules, such as the rule name and the actions taken. This field is required. The following are valid values.

Field Name	Details
	<ul style="list-style-type: none"> <li>• NONE</li> <li>• ERROR</li> <li>• WARN</li> <li>• INFO</li> <li>• DEBUG</li> <li>• FINE</li> <li>• FINER</li> <li>• FINEST</li> </ul>

## Usage

If you delete a debug level, all the trace flags that use it are deleted.

## DeployDetails

A complex type that contains detailed XML for any compile errors reported in the asynchronous request defined by a ContainerAsyncRequest object. Replaces the JSON field `CompilerErrors` in Tooling API version 31.0 and later.

## Fields

Field	Details
<code>componentFailures</code>	<p><b>Type</b> string</p> <p><b>Description</b> The line number, component name and a short description for any compile errors. For example:</p> <pre>&lt;DeployDetails&gt;   &lt;componentFailures&gt;     &lt;lineNumber&gt;5&lt;/lineNumber&gt;     &lt;fullName&gt;myApex&lt;/fileName&gt;     &lt;problem&gt;invalid name 'abc'&lt;/problem&gt;   &lt;/componentFailures&gt;   &lt;componentFailures&gt;     &lt;lineNumber&gt;10&lt;/lineNumber&gt;     &lt;fullName&gt;myApex2&lt;/fileName&gt;     &lt;problem&gt;invalid type 'hello'&lt;/problem&gt;   &lt;/componentFailures&gt; &lt;/DeployDetails&gt;</pre>

## EmailTemplate

---

Represents an email template.

This object is available in API version 32.0 and later.

### Supported SOAP Calls

`create()`, `getDeleted()`, `getUpdated()`, `query()`, `retrieve()`, `search()`

### Supported REST HTTP Methods

DELETE, GET, PATCH, POST

### Fields

Field	Details
ApiVersion	<p><b>Type</b> double</p> <p><b>Properties</b> Filter, Nillable, Sort</p> <p><b>Description</b> The API version if this is a Visualforce email template. Every Visualforce email template has an API version specified at creation.</p>
Description	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Nillable, Sort</p> <p><b>Description</b> The email template description. This can be useful to describe the reason for creating the template or its intended use.</p>
FullName	<p><b>Type</b> string</p> <p><b>Properties</b> Create, Group, Nillable</p> <p><b>Description</b> The unique name used as the template identifier for API access. The <code>fullName</code> can contain only underscores and alphanumeric characters. It must be unique, begin with a letter, not include spaces, not end with an underscore, and not contain two consecutive underscores.</p> <p>Query this field only if the query result contains no more than one record. Otherwise, an error is returned. If more than one record exists, use multiple queries to retrieve the records. This limit protects performance.</p>

Field	Details
ManageableState	<p><b>Type</b> ManageableState enumerated list</p> <p><b>Properties</b> Create, Filter, Update</p> <p><b>Description</b> Indicates the manageable state of the specified component that is contained in a package:</p> <ul style="list-style-type: none"> <li>• beta</li> <li>• deleted</li> <li>• deprecated</li> <li>• installed</li> <li>• released</li> <li>• unmanaged</li> </ul>
Metadata	<p><b>Type</b> EmailTemplateMetadata</p> <p><b>Properties</b> Create, Nillable, Update</p> <p><b>Description</b> Email template metadata.</p> <p>Query this field only if the query result contains no more than one record. Otherwise, an error is returned. If more than one record exists, use multiple queries to retrieve the records. This limit protects performance.</p>
Name	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, idLookup, Sort</p> <p><b>Description</b> The email template name.</p>
NamespacePrefix	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> A unique string to distinguish this template from any others. For example, if this template is being used by a flow, use the <code>NamespacePrefix</code> to uniquely identify the templates in multiple flow instances.</p>
Subject	<p><b>Type</b> string</p>



Field	Details
	<p><b>Properties</b> Group, Nillable, Sort</p> <p><b>Description</b> The email subject.</p>

## EntityDefinition

---

Provides row-based access to metadata about standard and custom objects.

This object is available in API version 32.0 and later.

### Supported SOAP Calls

`query()`, `search()`

### Supported REST HTTP Methods

GET

### Limitations

[SOQL Limitations](#) on page 21

[SOSL Limitations](#) on page 22

### Fields

Field	Details
<code>ApexTriggers</code>	<p><b>Type</b> QueryResult</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> Represents the Apex triggers associated with this object. This field is available in Tooling API version 34.0 and later. Because this field represents a relationship, use only in subqueries.</p>
<code>AssignmentRules</code>	<p><b>Type</b> QueryResult</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p>

Field	Details
	<p><b>Description</b> Represents assignment rules that allow you to automatically route cases to the appropriate users or queues. This field is available in Tooling API version 34.0 and later. Because this field represents a relationship, use only in subqueries.</p>
AutoResponseRules	<p><b>Type</b> QueryResult</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> Represents the auto-response rules defined for the object. This field is available in Tooling API version 34.0 and later. Because this field represents a relationship, use only in subqueries.</p>
BusinessProcesses	<p><b>Type</b> QueryResult</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> Represents the business processes defined for the object. Business processes display different picklist values for users based on their profile and associated record type. This field is available in Tooling API version 34.0 and later. Because this field represents a relationship, use only in subqueries.</p>
ChildRelationships	<p><b>Type</b> QueryResult</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> Represents the child relationships defined for the object. This field is available in Tooling API version 34.0 and later. Because this field represents a relationship, use only in subqueries.</p>
CompactLayouts	<p><b>Type</b> QueryResult</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> Represents the compact layouts defined for the object. This field is available in Tooling API version 34.0 and later. Because this field represents a relationship, use only in subqueries.</p>
CustomFields	<p><b>Type</b> QueryResult</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p>

Field	Details
	<p><b>Description</b> Represents the custom fields defined for the object. This field is available in Tooling API version 34.0 and later. Because this field represents a relationship, use only in subqueries.</p>
DefaultCompactLayout	<p><b>Type</b> <a href="#">CompactLayoutInfo</a></p> <p><b>Properties</b> Create, Nillable, Update</p> <p><b>Description</b> Metadata about the compact layout defined as the default for this object, if any.</p>
DefaultCompactLayoutId	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> ID of the default compact layout, if any.</p>
DeploymentStatus	<p><b>Type</b> picklist</p> <p><b>Properties</b> Filter, Group, Nillable, Restricted picklist, Sort</p> <p><b>Description</b> Specifies the deployment status of the entity. Controls whether a custom object and its associated custom tab, related lists, and reports are visible to non-admin users. This field is available in Tooling API version 37.0 and later. Valid values are:</p> <ul style="list-style-type: none"> <li>• InDevelopment</li> <li>• Deployed</li> </ul>
Description	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Nillable, Sort</p> <p><b>Description</b> The description of the entity. A meaningful description makes it easier to distinguish between custom objects when they are viewed in a list. This field is available in Tooling API version 37.0 and later.</p>
DetailUrl	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p>

Field	Details
	<p><b>Description</b></p> <p>URL to the read-only detail page for this object. Corresponds to the <code>urlDetail</code> field in <code>DescribeSubjectResult</code>. This field is available in Tooling API version 34.0 and later.</p>
<code>DeveloperName</code>	<p><b>Type</b></p> <p>string</p> <p><b>Properties</b></p> <p>Filter, Group, Nillable, Sort</p> <p><b>Description</b></p> <p>The developer's internal name for the custom object (for example <code>CF_c</code>).</p>
<code>DurableId</code>	<p><b>Type</b></p> <p>string</p> <p><b>Properties</b></p> <p>Filter, Group, Nillable, Sort</p> <p><b>Description</b></p> <p>Unique identifier for the field. Always retrieve this value before using it, as the value isn't guaranteed to stay the same from one release to the next. Simplify queries by using this field instead of making multiple queries.</p>
<code>EditDefinitionUrl</code>	<p><b>Type</b></p> <p>string</p> <p><b>Properties</b></p> <p>Filter, Group, Nillable, Sort</p> <p><b>Description</b></p> <p>This field is available in Tooling API version 34.0 and later.</p>
<code>EditUrl</code>	<p><b>Type</b></p> <p>string</p> <p><b>Properties</b></p> <p>Filter, Group, Nillable, Sort</p> <p><b>Description</b></p> <p>The URL used when editing the custom entity definition. Corresponds to the <code>urlEdit</code> field on <code>DescribeSubjectResult</code>. This field is available in Tooling API version 34.0 and later.</p>
<code>FieldSets</code>	<p><b>Type</b></p> <p>QueryResult</p> <p><b>Properties</b></p> <p>Filter, Group, Nillable, Sort</p> <p><b>Description</b></p> <p>Represents the field sets defined for the object. Because this field represents a relationship, use only in subqueries.</p>

Field	Details
Fields	<p><b>Type</b> QueryResult</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> Represents the standard and custom fields defined for this object. Because this field represents a relationship, use only in subqueries.</p>
FullName	<p><b>Type</b> string</p> <p><b>Properties</b> Create, Group, Nillable</p> <p><b>Description</b> The name of the entity. If a field, the name must specify the parent object, for example <code>Account.FirstName</code>.  Query this field only if the query result contains no more than one record. Otherwise, an error is returned. If more than one record exists, use multiple queries to retrieve the records. This limit protects performance.</p>
HelpSettingPageName	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> The name of the custom help setting page. This field is available in Tooling API version 34.0 and later.</p>
HelpSettingPageUrl	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> The URL pointing to the custom help setting page for custom objects. This field is available in Tooling API version 34.0 and later.</p>
IsActivityTrackable	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p>

Field	Details
	<p><b>Description</b></p> <p>If <code>true</code>, activities, such as tasks and scheduled calendar events associated with the custom object, can be tracked. Can be enabled only for custom objects. This field is available in Tooling API version 37.0 and later.</p>
<code>IsApexTriggerable</code>	<p><b>Type</b></p> <p>boolean</p> <p><b>Properties</b></p> <p>Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b></p> <p>If <code>true</code>, Apex triggers can be defined for the entity.</p>
<code>IsCompactLayoutable</code>	<p><b>Type</b></p> <p>boolean</p> <p><b>Properties</b></p> <p>Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b></p> <p>If <code>true</code>, the object supports compact layouts. That is, compact layouts can be defined, a system compact layout can be synthesized, or both.</p>
<code>IsCreatable</code>	<p><b>Type</b></p> <p>boolean</p> <p><b>Properties</b></p> <p>Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b></p> <p>If <code>true</code>, records based on the object (<code>true</code>) can be created.</p> <p>This field is unavailable starting with version 35.0. Use <code>IsCreatable</code> on <code>UserEntityAccess</code> instead.</p>
<code>IsCustomSetting</code>	<p><b>Type</b></p> <p>boolean</p> <p><b>Properties</b></p> <p>Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b></p> <p>If <code>true</code>, the object is a custom setting. This field is available in Tooling API version 35.0 and later.</p>
<code>IsCustomizable</code>	<p><b>Type</b></p> <p>boolean</p> <p><b>Properties</b></p> <p>Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b></p> <p>If <code>true</code>, custom fields can be defined for the entity.</p>

Field	Details
IsDeletable	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b> If <code>true</code>, the object can be deleted.  This field is unavailable starting with version 35.0. Use <code>IsDeletable</code> on <code>UserEntityAccess</code> instead.</p>
IsDeprecatedAndHidden	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b> If <code>true</code>, this object is unavailable for the current version. This field is available in Tooling API version 35.0 and later.</p>
IsEverCreatable	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b> If <code>true</code>, the object can be created using an API, assuming the current user has the appropriate permissions. If false, the application server manages the object and no user can create it. This field is available in Tooling API version 35.0 and later.</p>
IsEverDeletable	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b> If <code>true</code>, the object can be created using an API, assuming the current user has the appropriate permissions. If false, the application server manages the object and no user can delete it. This field is available in Tooling API version 35.0 and later.</p>
IsEverUpdatable	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p>

Field	Details
	<p><b>Description</b></p> <p>If <code>true</code>, the object can be created using an API, assuming the current user has the appropriate permissions. If <code>false</code>, the application server manages the object and no user can modify it. This field is available in Tooling API version 35.0 and later.</p>
<code>IsFeedEnabled</code>	<p><b>Type</b></p> <p>boolean</p> <p><b>Properties</b></p> <p>Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b></p> <p>If <code>true</code>, the Chatter feed is enabled for this object. This field is available in Tooling API version 34.0 and later.</p>
<code>IsFieldHistoryTracked</code>	<p><b>Type</b></p> <p>boolean</p> <p><b>Properties</b></p> <p>Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b></p> <p>If <code>true</code>, your org can track changes to fields on the custom object records. History data is available for reporting, so users can easily create audit trail reports. Can be enabled only for custom objects. This field is available in Tooling API version 37.0 and later.</p>
<code>IsFlsEnabled</code>	<p><b>Type</b></p> <p>boolean</p> <p><b>Properties</b></p> <p>Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b></p> <p>If <code>true</code>, you can set field-level security on applicable fields. This field is available in Tooling API version 35.0 and later.</p>
<code>IsIdEnabled</code>	<p><b>Type</b></p> <p>boolean</p> <p><b>Properties</b></p> <p>Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b></p> <p>If <code>true</code>, you can include <code>Id</code> in the <code>SELECT</code> clause of a query on this object. This field is available in Tooling API version 35.0 and later.</p> <p>For example, assume that there is an object backed by an OData data source with the High Data Volume option selected. That object's <code>IsIdEnabled</code> field is <code>false</code>.</p>
<code>IsLayoutable</code>	<p><b>Type</b></p> <p>boolean</p>



Field	Details
	<p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b> If <code>true</code>, layouts can be defined for the object. This field is available in Tooling API version 35.0 and later.</p>
IsMruEnabled	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b> If <code>true</code>, Most Recently Used (MRU) list functionality is enabled for this object. This field is available in Tooling API version 37.0 and later.</p>
IsQueryable	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b> If <code>true</code>, the object can be queried.</p>
IsReplicateable	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b> If <code>true</code>, the object can be replicated. This field is available in Tooling API version 35.0 and later.</p>
IsReportingEnabled	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b> If <code>true</code>, the data in the custom object's records is available for reporting. Can be enabled only on custom objects. This field is available in Tooling API version 37.0 and later.</p>
IsRetrieveable	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b> If <code>true</code>, the object can be retrieved. This field is available in Tooling API version 35.0 and later.</p>

Field	Details
IsSearchable	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b> If <code>true</code>, records of this object are indexed for search. This field is available in Tooling API version 35.0 and later.</p>
IsSearchLayoutable	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b> If <code>true</code>, you can customize search layouts for this object. This field is available in Tooling API version 35.0 and later.</p>
IsTriggerable	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b> If <code>true</code>, you can use triggers with this object. This field is available in Tooling API version 35.0 and later.</p>
IsWorkflowEnabled	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b> If <code>true</code>, workflow rules can be defined for the entity.</p>
KeyPrefix	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> The first three digits of the entity's ID, which identify the object type, such as Account or Opportunity.</p>
Label	<p><b>Type</b> string</p>

Field	Details
	<p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> The label for this object, used in the compact layout and in the user's language locale.</p>
Layouts	<p><b>Type</b> QueryResult</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> Represents the layouts defined for this object. Use only in subqueries. This field is available in Tooling API version 34.0 and later. Because this field represents a relationship, use only in subqueries.</p>
Limits	<p><b>Type</b> QueryResult</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> The limits defined for this object. Corresponds to the Limits page for each standard object in Setup, or the Limits related list for each custom object. Use only in subqueries. This field is available in Tooling API version 34.0 and later. Because this field represents a relationship, use only in subqueries.</p>
LookupFilters	<p><b>Type</b> QueryResult</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> Represents the lookup filters defined for this object. Use only in subqueries. This field is available in Tooling API version 34.0 and later. Because this field represents a relationship, use only in subqueries.</p>
MasterLabel	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> The label for this object, which displays in Setup. The master label is in the default language locale for the organization. If there is no default language locale, the label is in <code>en_US</code>.</p>

Field	Details
Metadata	<p><b>Type</b> mns : CustomObject</p> <p><b>Properties</b> Create, Nillable, Update</p> <p><b>Description</b> Metadata about the standard or custom object. Details are available in the CustomObject entry in the metadata namespace in the Tooling API WSDL.</p> <p>Query this field only if the query result contains no more than one record. Otherwise, an error is returned. If more than one record exists, use multiple queries to retrieve the records. This limit protects performance.</p>
NamespacePrefix	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> The namespace prefix associated with this object. Each Developer Edition organization that creates a managed package has a unique namespace prefix. Limit: 15 characters. You can refer to a component in a managed package by using the <b><i>namespacePrefix__componentName</i></b> notation.</p> <p>The namespace prefix can have one of the following values:</p> <ul style="list-style-type: none"> <li>• In Developer Edition organizations, the namespace prefix is set to the namespace prefix of the organization for all objects that support it. There is an exception if an object is in an installed managed package. In that case, the object has the namespace prefix of the installed managed package. This field's value is the namespace prefix of the Developer Edition organization of the package developer.</li> <li>• In organizations that are not Developer Edition organizations, <b>NamespacePrefix</b> is only set for objects that are part of an installed managed package. There is no namespace prefix for all other objects.</li> </ul>
NewUrl	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> The URL used when editing a new standard or custom record. Corresponds to the <code>urlNew</code> field on DescribeSubjectResult. This field is available in Tooling API version 34.0 and later.</p>
OwnerChangeOptions	<p><b>Type</b> QueryResult</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p>

Field	Details
	<p><b>Description</b></p> <p>Use only in subqueries. This field is available in Tooling API version 35.0 and later. Because this field represents a relationship, use only in subqueries.</p>
Particles	<p><b>Type</b></p> <p>QueryResult</p> <p><b>Properties</b></p> <p>Filter, Group, Nillable, Sort</p> <p><b>Description</b></p> <p>The particles defined for this object. This field is available in Tooling API version 34.0 and later. Because this field represents a relationship, use only in subqueries.</p>
PluralLabel	<p><b>Type</b></p> <p>string</p> <p><b>Properties</b></p> <p>Filter, Group, Nillable, Sort</p> <p><b>Description</b></p> <p>The plural version of the object's Label.</p>
Publisher	<p><b>Type</b></p> <p><a href="#">Publisher</a></p> <p><b>Properties</b></p> <p>Create, Nillable, Update</p> <p><b>Description</b></p> <p>The publisher of this object, for example Salesforce, a user, or a package name. This field is available in Tooling API version 34.0 and later.</p>
PublisherId	<p><b>Type</b></p> <p>string</p> <p><b>Properties</b></p> <p>Filter, Group, Nillable, Sort</p> <p><b>Description</b></p> <p>ID of the publisher associated with this object. This field is available in Tooling API version 34.0 and later.</p>
QualifiedApiName	<p><b>Type</b></p> <p>string</p> <p><b>Properties</b></p> <p>Filter, Group, Sort</p> <p><b>Description</b></p> <p>A unique external ID for the entity of the form <code>NamespacePrefix__DeveloperName</code> for standard objects and <code>NamespacePrefix__DeveloperName__c</code> for custom objects.</p>

Field	Details
QuickActionDefinitions	<p><b>Type</b> QueryResult</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> Represents the quick actions defined for this object. Use only in subqueries. This field is available in Tooling API version 34.0 and later. Because this field represents a relationship, use only in subqueries.</p>
RecordTypes	<p><b>Type</b> QueryResult</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> Represents the record types defined for this object. Use only in subqueries. This field is available in Tooling API version 34.0 and later. Because this field represents a relationship, use only in subqueries.</p>
RecordTypesSupported	<p><b>Type</b> <a href="#">RecordTypesSupported</a> on page 131</p> <p><b>Properties</b> Nillable</p> <p><b>Description</b> Represents the record types defined for this object. Use only in subqueries. This field is available in Tooling API version 34.0 and later.</p>
RelationshipDomains	<p><b>Type</b> QueryResult</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> Metadata about the relationships with other objects that this object has. Use only in subqueries. This field is available in Tooling API version 34.0 and later. Because this field represents a relationship, use only in subqueries.</p>
RunningUserEntityAccess	<p><b>Type</b> <a href="#">UserEntityAccess</a></p> <p><b>Properties</b> Create, Nillable, Update</p> <p><b>Description</b> Represents the running user's access to this object. This field is available in Tooling API version 34.0 and later.</p>

Field	Details
RunningUserEntityAccessId	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> ID of the UserEntityAccess record associated with this object. This field is available in Tooling API version 34.0 and later. Because this field represents a relationship, use only in subqueries.</p>
SearchLayouts	<p><b>Type</b> QueryResult</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> Represents the search layouts associated with this object. Use only in subqueries. This field is available in Tooling API version 34.0 and later. Because this field represents a relationship, use only in subqueries.</p>
StandardActions	<p><b>Type</b> QueryResult</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> Represents the standard actions defined for this object. Use only in subqueries. This field is available in Tooling API version 34.0 and later. Because this field represents a relationship, use only in subqueries.</p>
ValidationRules	<p><b>Type</b> QueryResult</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> Represents the validation rules defined for this object. Use only in subqueries. This field is available in Tooling API version 34.0 and later. Because this field represents a relationship, use only in subqueries.</p>
WebLinks	<p><b>Type</b> QueryResult</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p>

Field	Details
	<p><b>Description</b> Represents the Weblinks associated with this object. Use only in subqueries. This field is available in Tooling API version 34.0 and later. Because this field represents a relationship, use only in subqueries.</p>
WorkflowAlerts	<p><b>Type</b> QueryResult</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> Represents the workflow alerts associated with this object. Use only in subqueries. This field is available in Tooling API version 34.0 and later. Because this field represents a relationship, use only in subqueries.</p>
WorkflowFieldUpdates	<p><b>Type</b> QueryResult</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> Represents the workflow field updates for this object. Use only in subqueries. This field is available in Tooling API version 34.0 and later. Because this field represents a relationship, use only in subqueries.</p>
WorkflowOutboundMessages	<p><b>Type</b> QueryResult</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> Represents the workflow outbound messages associated with this object. Use only in subqueries. This field is available in Tooling API version 34.0 and later. Because this field represents a relationship, use only in subqueries.</p>
WorkflowTasks	<p><b>Type</b> QueryResult</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> Represents the workflow tasks associated with this object. Use only in subqueries. This field is available in Tooling API version 34.0 and later. Because this field represents a relationship, use only in subqueries.</p>



## RecordTypesSupported Metadata

`RecordTypesSupported` is in the `tns` namespace. Represents the record types associated with this object.

Field	Details
<code>recordTypeInfoos</code>	<p><b>Type</b> <a href="#">RecordTypeInfo</a></p> <p><b>Description</b> Represents the <code>RecordTypeInfo</code> records for the object. Use only in subqueries. This field is available in Tooling API version 35.0 and later.</p>

## RecordTypeInfo Metadata

`RecordTypeInfo` is in the `tns` namespace. Represents a record type associated with the object.

Field	Details
<code>available</code>	<p><b>Type</b> boolean</p> <p><b>Description</b> If <code>true</code>, this record type is available for use. This field is available in Tooling API version 35.0 and later.</p>
<code>defaultRecordTypeMapping</code>	<p><b>Type</b> boolean</p> <p><b>Description</b> This field is available in Tooling API version 35.0 and later.</p>
<code>master</code>	<p><b>Type</b> boolean</p> <p><b>Description</b> This field is available in Tooling API version 35.0 and later.</p>
<code>name</code>	<p><b>Type</b> string</p> <p><b>Description</b> Name of the record type. This field is available in Tooling API version 35.0 and later.</p>
<code>recordTypeId</code>	<p><b>Type</b> Id</p> <p><b>Description</b> ID of the record type. This field is available in Tooling API version 35.0 and later.</p>

# EntityLimit

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Represents the limits for an object as displayed in the Setup UI.

This object is available in API version 34.0 and later.

## Supported SOAP Calls

`query()`

## Supported REST HTTP Methods

GET

## Limitations

[SOQL Limitations](#) on page 21

[SOSL Limitations](#) on page 22

## Fields

Field	Details
DurableId	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> Unique identifier for the field. Always retrieve this value before using it, as the value isn't guaranteed to stay the same from one release to the next. Use this field to simplify queries.</p>
EntityDefinition	<p><b>Type</b> EntityDefinition</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> The object to which these limits apply.</p>
EntityDefinitionId	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> ID of the object to which these limits apply.</p>

Field	Details
Label	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> The label of the object to which these limits apply.</p>
Max	<p><b>Type</b> int</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> The maximum number of objects that the organization is allowed to have.</p>
Remaining	<p><b>Type</b> int</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> The number of objects still available. For example, if the limit on custom objects is 100, and you create 75, this value is 25.</p>
Type	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Restricted picklist, Sort</p> <p><b>Description</b> What type of component the limit applies to:</p> <ul style="list-style-type: none"> <li>• ActiveLookupFilters</li> <li>• ActiveRules</li> <li>• ActiveValidationRules</li> <li>• ApprovalProcesses</li> <li>• CbsSharingRules</li> <li>• CustomFields</li> <li>• CustomRelationship</li> <li>• RollupSummary</li> <li>• SharingRules</li> <li>• TotalRules</li> <li>• VLookup</li> </ul>

## EntityParticle

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Represents each element of a field that can be presented in a user interface. Contrast EntityParticle with FieldDefinition, which represents each element of a field defined in the Metadata API. EntityParticle has parity with `describe`. Available in Tooling API version 34.0 and later.

## Supported SOAP Calls

`query()`

## Supported REST HTTP Methods

GET

## Limitations

[SOQL Limitations](#) on page 21

[SOSL Limitations](#) on page 22

## Fields

Field	Details
ByteLength	<p><b>Type</b> int</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> The maximum length of the field represented by this EntityParticle, in bytes.</p>
DataType	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> Data type of the field, for example <code>Text (40)</code> or <code>Date/Time</code>. The values are defined as they are in the user interface, not the corresponding API data type names.</p> <p>For example, from an object, retrieve all the fields of one datatype.</p> <pre>SELECT DataType, QualifiedApiName FROM EntityParticle WHERE DataType = 'phone' AND       EntityDefinition.QualifiedApiName = 'Account'</pre>

Field	Details
DefaultValueFormula	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> The default value specified for the field when a formula isn't specified. If no default value has been specified, this field is not returned.</p>
DeveloperName	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> The unique name of the object in the API. This name can contain only underscores and alphanumeric characters, and must be unique in your org. It must begin with a letter, not include spaces, not end with an underscore, and not contain two consecutive underscores. In managed packages, this field prevents naming conflicts on package installations. With this field, a developer can change the object's name in a managed package and the changes are reflected in a subscriber's organization. Label is <b>Record Type Name</b>.</p>
Digits	<p><b>Type</b> int</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> Maximum number of digits for a field of type int. If an integer value exceeds the number of digits, the API returns an error.</p>
DurableId	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> Unique identifier for the field. Always retrieve this value before using it, as the value isn't guaranteed to stay the same from one release to the next. To simplify queries, use this field.</p>
EntityDefinitionId	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> The ID for the object defined in the <code>DurableId</code> field.</p>

Field	Details
ExtraTypeInfo	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> Represents further definition of a type.</p> <ul style="list-style-type: none"> <li>• For type textarea: <ul style="list-style-type: none"> <li>- plaintextarea</li> <li>- richtextarea</li> </ul> </li> <li>• For type URL: <ul style="list-style-type: none"> <li>- image</li> </ul> </li> <li>• For type reference: <ul style="list-style-type: none"> <li>- externallookup</li> <li>- indirectlookup</li> </ul> </li> <li>• For Account: <ul style="list-style-type: none"> <li>- switchablepersonname</li> <li>- personname</li> </ul> </li> </ul>
FieldDefinitionId	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> ID of the field definition associated with this EntityParticle.</p>
InlineHelpText	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> Represents the content of field-level help.</p> <p><b>Restrictions</b> Available in Tooling API starting version 35.0.</p>
IsApiFilterable	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p>

Field	Details
	<p><b>Description</b> If <code>true</code>, the field represented by this EntityParticle can be specified in the <code>WHERE</code> clause of a query string.</p> <p><b>Restrictions</b> You can't sort or filter compound fields. This field's value is always <code>false</code> for compound fields.</p>
<code>IsApiGroupable</code>	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b> If <code>true</code>, the field represented by this EntityParticle can be included in the <code>GROUP BY</code> clause of a SOQL query.</p>
<code>IsApiSortable</code>	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b> If <code>true</code>, a query can sort on the field represented by this EntityParticle.</p> <p><b>Restrictions</b> You can't sort or filter compound fields. This field's value is always <code>false</code> for compound fields.</p>
<code>IsAutoNumber</code>	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b> If <code>true</code>, the field's value is automatically assigned when the record is created.</p> <p><b>Restrictions</b> Available in Tooling API starting version 35.0.</p>
<code>IsCalculated</code>	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b> If <code>true</code>, the field represented by this EntityParticle is calculated.</p>
<code>IsCaseSensitive</code>	<p><b>Type</b> boolean</p>

Field	Details
	<p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b> If <code>true</code>, the field represented by this EntityParticle is case sensitive.</p> <p><b>Restrictions</b> Available in Tooling API starting version 35.0.</p>
<code>IsCompactLayoutable</code>	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b> If <code>true</code>, the field can be included in a compact layout.</p>
<code>IsCreatable</code>	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b> If <code>true</code>, a value for the field represented by this EntityParticle can be created.</p> <p><b>Restrictions</b> Available in Tooling API starting version 35.0.</p>
<code>IsDefaultedOnCreate</code>	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b> If <code>true</code>, and if no other value is supplied, a default value is applied when the record is created.</p> <p><b>Restrictions</b> Available in Tooling API starting version 35.0.</p>
<code>IsDependentPicklist</code>	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b> If <code>true</code>, the field is a dependent picklist.</p> <p><b>Restrictions</b> Available in Tooling API starting version 35.0.</p>



Field	Details
IsDeprecatedAndHidden	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b> Reserved for future use.</p>
IsDisplayLocationInDecimal	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b> If <code>true</code>, and if the field represented by this EntityParticle is a Geolocation custom field, the value appears in decimal notation. If <code>false</code>, the value appears as degrees, minutes, and seconds.</p> <p><b>Restrictions</b> This field has no affect on custom fields that aren't Geolocation fields. Available in Tooling API starting version 35.0.</p>
IsEncrypted	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b> If <code>true</code>, the field is marked for Classic Encryption.</p> <p><b>Restrictions</b> Available in Tooling API starting version 35.0.</p>
IsFieldHistoryTracked	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b> If <code>true</code>, the field's history can be tracked.</p>
IsHighScaleNumber	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p>

Field	Details
	<p><b>Description</b></p> <p>Indicates whether the field stores numbers to 8 decimal places regardless of what's specified in the field details (<code>true</code>) or not (<code>false</code>). Used to handle currencies for products that cost fractions of a cent, in large quantities. If high-scale unit pricing isn't enabled in your organization, this field isn't returned.</p>
<code>IsHTMLFormatted</code>	<p><b>Type</b></p> <p>boolean</p> <p><b>Properties</b></p> <p>Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b></p> <p>If <code>true</code>, the field contains HTML.</p>
<code>IsIdLookup</code>	<p><b>Type</b></p> <p>boolean</p> <p><b>Properties</b></p> <p>Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b></p> <p>If <code>true</code>, you can use the field to specify a record for upsert.</p> <p><b>Restrictions</b></p> <p>Available in Tooling API starting version 35.0.</p>
<code>IsLayoutable</code>	<p><b>Type</b></p> <p>boolean</p> <p><b>Properties</b></p> <p>Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b></p> <p>If <code>true</code>, the field can be assigned to a layout.</p> <p><b>Restrictions</b></p> <p>Available in Tooling API starting version 35.0.</p>
<code>IsListVisible</code>	<p><b>Type</b></p> <p>boolean</p> <p><b>Properties</b></p> <p>Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b></p> <p>If <code>true</code>, the field can be included in a related list.</p>
<code>IsNameField</code>	<p><b>Type</b></p> <p>boolean</p> <p><b>Properties</b></p> <p>Defaulted on create, Filter, Group, Sort</p>

Field	Details
	<p><b>Description</b> If <code>true</code>, the field is a name field.</p>
<code>IsNamePointing</code>	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b> If <code>true</code>, the field represents a polymorphic relationship. Determine the object type at runtime for dynamic queries when this value is <code>true</code>.</p> <p><b>Restrictions</b> Available in Tooling API starting version 35.0.</p>
<code>IsNillable</code>	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b> If <code>true</code>, the field can be left out of queries on the object.</p>
<code>IsPermissionable</code>	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b> If <code>true</code>, you can specify field permissions for the field.</p> <p><b>Restrictions</b> Available in Tooling API starting version 35.0.</p>
<code>IsUnique</code>	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b> If <code>true</code>, the field is unique.</p> <p><b>Restrictions</b> Available in Tooling API starting version 35.0.</p>
<code>IsUpdatable</code>	<p><b>Type</b> boolean</p>

Field	Details
	<p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b> If <code>true</code>, you can update the field.</p> <p><b>Restrictions</b> Available in Tooling API starting version 35.0.</p>
IsWorkflowFilterable	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b> If <code>true</code>, the field can be filtered for a workflow.</p>
IsWriteRequiresMasterRead	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b> If <code>true</code>, writing to the detail object requires read sharing instead of read-write sharing of the parent.</p> <p><b>Restrictions</b> Available in Tooling API starting version 35.0.</p>
Label	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> The label that corresponds to the field in the user interface. If the label has translations, the label returned is in the user's language.</p>
Length	<p><b>Type</b> int</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> The maximum number of bytes available to store the value in the field represented by this EntityParticle.</p>
Mask	<p><b>Type</b> string</p>

Field	Details
	<p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> Reserved for future use.</p>
MaskType	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> Reserved for future use.</p>
MasterLabel	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> Master label for this object. This display value is the internal label that is not translated. Limit: 40 characters.</p>
Name	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> Name of the object for the field represented by this EntityParticle.</p> <p><b>Restrictions</b> This field is available in API version 35.0 and later.</p>
NamespacePrefix	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> The namespace prefix associated with this object. Each Developer Edition organization that creates a managed package has a unique namespace prefix. Limit: 15 characters. You can refer to a component in a managed package by using the <b><i>namespacePrefix__componentName</i></b> notation. The namespace prefix can have one of the following values:</p> <ul style="list-style-type: none"> <li>In Developer Edition organizations, the namespace prefix is set to the namespace prefix of the organization for all objects that support it. There is an exception if an object is in an installed managed package. In that case, the object has the namespace prefix of the installed</li> </ul>

Field	Details
	<p>managed package. This field's value is the namespace prefix of the Developer Edition organization of the package developer.</p> <ul style="list-style-type: none"> <li>In organizations that are not Developer Edition organizations, <code>NamespacePrefix</code> is only set for objects that are part of an installed managed package. There is no namespace prefix for all other objects.</li> </ul>
Precision	<p><b>Type</b> int</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> The maximum number of digits allowed for the field represented by this EntityParticle.</p>
QualifiedApiName	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> A unique external name for the field.</p>
ReferenceTargetField	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> Specifies the custom field on the parent object to match against this indirect lookup relationship field, whose values come from an external data source. The specified custom field on the parent object must have both <code>IsIdLookup</code> and <code>IsUnique</code> set to <code>true</code>.</p> <p><b>Restrictions</b> Available only if the field represented by this EntityParticle is an indirect lookup relationship field on an external object.  This field is available in API version 35.0 and later.</p>
ReferenceTo	<p><b>Type</b> <a href="#">RelationshipReferenceTo</a> on page 145</p> <p><b>Properties</b> Nillable</p> <p><b>Description</b> The array of values in this field represents the possible object types of the referenced objects. For example, if EntityParticle represents a field on Events, the values are <code>Contact</code>, <code>Lead</code>, and custom objects with a relationship to Events.</p>

Field	Details
RelationshipName	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> If the field represented by this EntityParticle is a master-detail relationship field, this field's value is the relationship name.</p>
RelationshipOrder	<p><b>Type</b> int</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> A value of 0 represents a primary relationship, and a value of 1 represents a secondary relationship. This field is relevant only for relationship fields.</p>
Scale	<p><b>Type</b> int</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> The number of digits to the right of the decimal in an integer. For example, 3.00 has a scale of 2.</p>
ValueTypeId	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> ID of the value type, if any, for the field represented by this EntityParticle.</p>

## RelationshipReferenceTo Type

Represents the set of objects that this EntityParticle can have a relationship with.

Field	Type	Details
referenceTo	string[]	The name of an object that can be referenced. For example, if EntityParticle represents Event.WhoId (the whoId field on Event), the value of this field would be at least [Contact, Lead].

## Example Query: Retrieve All Account Fields

```
SELECT DataType, FieldDefinition.QualifiedApiName
FROM EntityParticle
WHERE EntityDefinition.QualifiedApiName = 'Account'
```

## Example Query: Find Parent Object Types

Some fields can have more than one type of object in a relationship (polymorphic). For example, Task and Event can have relationships with Contact or Lead.

Use this query to retrieve a list of objects that can have a relationship with Event.Whole (represented by EntityParticle).

```
SELECT QualifiedApiName, RelationshipName, ReferenceTo, ReferenceTargetField
FROM EntityParticle
WHERE EntityDefinition.QualifiedApiName = 'Event' AND QualifiedApiName = 'WhoId'
```

## FieldDefinition

---

Represents a standard or custom field, providing row-based access to field metadata. Contrast FieldDefinition with EntityParticle, which represents each element of a field that can be presented in a user interface. FieldDefinition has parity with metadata type Field.

This object is available in API version 32.0 and later.

## Supported SOAP Calls

query()

## Supported REST HTTP Methods

GET

## Limitations

[SOQL Limitations](#) on page 21

[SOSL Limitations](#) on page 22

## Fields

Field	Details
CompactLayoutItems	<p><b>Type</b> QueryResult</p> <p><b>Properties</b> Filter, Group, Sort</p>



**Field****Details****Description**

The CompactLayoutItemInfo records associated with this field definition. Available in Tooling API starting version 34.0. Because this field represents a relationship, use only in subqueries.

Example subquery:

```
SELECT Id, QualifiedApiName, (SELECT DurableId, SortOrder FROM
CompactLayoutItems) FROM
FieldDefinition WHERE EntityDefinition.QualifiedApiName
= 'Account' AND QualifiedApiName = 'Name'
```

**ControlledFields****Type**

[QueryResult](#)

**Properties**

Filter, Group, Sort

**Description**

The controlled fields in a dependent picklist. Use in subqueries to reduce the number of queries. Available in Tooling API starting version 34.0. Because this field represents a relationship, use only in subqueries.

**ControllingFieldDefinition****Type**

[FieldDefinition](#)

**Properties**

Filter, Group, Sort

**Description**

The field definition of the controlling field if this field is a dependent picklist. A dependent picklist works with a controlling picklist or checkbox to filter the available options. The value chosen in the controlling field affects the values available in the dependent field. This field is available in API version 14.0 and later. Available in Tooling API starting version 34.0.

**ControllingFieldDefinitionId****Type**

string

**Properties**

Filter, Group, Sort

**Description**

The ID of the `ControllingFieldDefinition` for this field. Available in Tooling API starting version 34.0.

**DataType****Type**

string

**Properties**

Filter, Group, Sort

Field	Details
	<p><b>Description</b></p> <p>Data type of the field, for example <code>Text (40)</code> or <code>Date/Time</code>. The values are defined as they are in the user interface, not the corresponding API data type names. Available in Tooling API starting version 34.0.</p>
DeveloperName	<p><b>Type</b></p> <p>string</p> <p><b>Properties</b></p> <p>Filter, Group, Sort</p> <p><b>Description</b></p> <p>The unique name of the object in the API. This name can contain only underscores and alphanumeric characters, and must be unique in your org. It must begin with a letter, not include spaces, not end with an underscore, and not contain two consecutive underscores. In managed packages, this field prevents naming conflicts on package installations. With this field, a developer can change the object's name in a managed package and the changes are reflected in a subscriber's organization. Label is <b>Record Type Name</b>.</p>
DurableId	<p><b>Type</b></p> <p>string</p> <p><b>Properties</b></p> <p>Filter, Group, Sort</p> <p><b>Description</b></p> <p>Unique identifier for the field. Always retrieve this value before using it, as the value isn't guaranteed to stay the same from one release to the next. To simplify queries, use this field.</p>
EntityDefinition	<p><b>Type</b></p> <p><a href="#">EntityDefinition</a></p> <p><b>Properties</b></p> <p>Filter, Group, Sort</p> <p><b>Description</b></p> <p>A relationship lookup to the object type that contains this field. For example, if the field is defined on an account, the lookup is to <code>Account</code>. You can't interact directly with this field. Instead, use it in queries.</p> <pre>SELECT EntityDefinition.Label FROM       FieldDefinition WHERE EntityDefinition.QualifiedApi       Name= ' Lead '</pre>
EntityDefinitionId	<p><b>Type</b></p> <p>string</p> <p><b>Properties</b></p> <p>Filter, Group, Sort</p> <p><b>Description</b></p> <p>The durable ID for the object defined in the <code>EntityDefinition</code> field.</p>

Field	Details
ExtraTypeInfo	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> Represents further definition of a type. Available in Tooling API starting version 34.0.</p> <ul style="list-style-type: none"> <li>• For type textarea: <ul style="list-style-type: none"> <li>- plaintextarea</li> <li>- richtextarea</li> </ul> </li> <li>• For type URL, image</li> <li>• For type reference, <ul style="list-style-type: none"> <li>- externallookup</li> <li>- indirectlookup</li> <li>- externallookup</li> </ul> </li> <li>• For Account, <ul style="list-style-type: none"> <li>- switchablepersonname</li> <li>- personname</li> </ul> </li> </ul>
FullName	<p><b>Type</b> string</p> <p><b>Properties</b> Create, Group, Nillable</p> <p><b>Description</b> The full name of the associated metadata object in Metadata API.</p> <p>Query this field only if the query result contains no more than one record. Otherwise, an error is returned. If more than one record exists, use multiple queries to retrieve the records. This limit protects performance.</p>
IsApiFilterable	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b> If <code>true</code>, the field can be specified in the <code>WHERE</code> clause of a query string.</p> <p>Available in Tooling API starting version 34.0.</p> <p>You can't sort or filter compound fields. This field's value is always <code>false</code> for compound fields.</p>
IsApiGroupable	<p><b>Type</b> boolean</p>

Field	Details
	<p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b> If <code>true</code>, the field can be included in the GROUP BY clause of a SOQL query. Available in Tooling API starting version 34.0.</p>
<code>IsApiSortable</code>	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b> If <code>true</code>, a query can sort on this field. Available in Tooling API starting version 34.0. You can't sort or filter compound fields. This field's value is always <code>false</code> for compound fields.</p>
<code>IsCalculated</code>	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b> If <code>true</code>, the field's value is calculated. Available in Tooling API starting version 34.0.</p>
<code>IsCompactLayoutable</code>	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b> If <code>true</code>, the field can be included in a compact layout. Available in Tooling API starting version 34.0.</p>
<code>IsFieldHistoryTracked</code>	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b> If <code>true</code>, the field's history can be tracked. Available in Tooling API starting version 34.0.</p>
<code>IsFlsEnabled</code>	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p>

Field	Details
	<p><b>Description</b></p> <p>If <code>true</code>, you can set field-level security on this field. Available in Tooling API starting version 35.0.</p>
<code>IsHighScaleNumber</code>	<p><b>Type</b></p> <p>boolean</p> <p><b>Properties</b></p> <p>Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b></p> <p>Indicates whether the field stores numbers to 8 decimal places regardless of what's specified in the field details (<code>true</code>) or not (<code>false</code>). Used to handle currencies for products that cost fractions of a cent, in large quantities. If high-scale unit pricing isn't enabled in your organization, this field isn't returned. Available in Tooling API starting version 34.0.</p>
<code>IsHtmlFormatted</code>	<p><b>Type</b></p> <p>boolean</p> <p><b>Properties</b></p> <p>Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b></p> <p>If <code>true</code>, the field contains HTML. Available in Tooling API starting version 34.0.</p>
<code>IsIndexed</code>	<p><b>Type</b></p> <p>boolean</p> <p><b>Properties</b></p> <p>Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b></p> <p>If <code>true</code>, the field is indexed in the database. Available in Tooling API version 35.0 and later.</p> <p>Internal (database) indexing is different from indexing for search.</p> <p>We recommend targeting indexed fields for better response times in SOQL queries, reports, and list views.</p>
<code>IsListFilterable</code>	<p><b>Type</b></p> <p>boolean</p> <p><b>Properties</b></p> <p>Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b></p> <p>If <code>true</code>, the field can be filtered for a related list. Available in Tooling API starting version 34.0.</p>
<code>IsListSortable</code>	<p><b>Type</b></p> <p>boolean</p> <p><b>Properties</b></p> <p>Defaulted on create, Filter, Group, Sort</p>

Field	Details
	<p><b>Description</b> If <code>true</code>, the field can be sorted for a related list. Available in Tooling API starting version 34.0.</p>
<code>IsListVisible</code>	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b> If <code>true</code>, the field can be included in a related list. Available in Tooling API starting version 34.0.</p>
<code>IsNameField</code>	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b> If <code>true</code>, the field is a name field. Available in Tooling API starting version 34.0.</p>
<code>IsNillable</code>	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b> If <code>true</code>, the field can be left out of queries on the object. Available in Tooling API starting version 34.0.</p>
<code>IsWorkflowFilterable</code>	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b> If <code>true</code>, the field can be filtered for a workflow. Available in Tooling API starting version 34.0.</p>
<code>Label</code>	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> The label that corresponds to the field in the user interface. If the label has been translated, the value returned is in the user's language.</p>
<code>Length</code>	<p><b>Type</b> int</p>

**Field****Details****Properties**

Filter, Group, Sort

**Description**

The maximum number of bytes available to store the value in this field. Available in Tooling API starting version 34.0.

## LookupFilters

**Type**[QueryResult](#)**Properties**

Filter, Group, Nillable, Sort

**Description**

The lookup filters associated with the field. Because this field represents a relationship, use only in subqueries.

Example subquery:

```
SELECT DurableId, QualifiedApiName, (SELECT Id, SourceObject,
    SourceFieldDefinition.Label, IsOptional, Active, Developer
    Name, LastModifiedBy.Name,
    LastModifiedDate FROM LookupFilters) FROM EntityDefinition
WHERE QualifiedApiName =
    'User' "
```



**Note:** LookupFilter is not supported on the article type object.

## MasterLabel

**Type**

string

**Properties**

Filter, Group, Sort

**Description**

Master label for this object. This display value is the internal label that is not translated. Limit: 40 characters.

## Metadata

**Type**

CustomField

**Properties**

Create, Nillable, Update

**Description**

Compact layout metadata, from the `mns` namespace.

Query this field only if the query result contains no more than one record. Otherwise, an error is returned. If more than one record exists, use multiple queries to retrieve the records. This limit protects performance.

## NamespacePrefix

**Type**

string

Field	Details
	<p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> The namespace prefix associated with this object. Each Developer Edition organization that creates a managed package has a unique namespace prefix. Limit: 15 characters. You can refer to a component in a managed package by using the <b><i>namespacePrefix__componentName</i></b> notation.</p> <p>The namespace prefix can have one of the following values:</p> <ul style="list-style-type: none"> <li>• In Developer Edition organizations, the namespace prefix is set to the namespace prefix of the organization for all objects that support it. There is an exception if an object is in an installed managed package. In that case, the object has the namespace prefix of the installed managed package. This field's value is the namespace prefix of the Developer Edition organization of the package developer.</li> <li>• In organizations that are not Developer Edition organizations, <code>NamespacePrefix</code> is only set for objects that are part of an installed managed package. There is no namespace prefix for all other objects.</li> </ul>
Particles	<p><b>Type</b> <a href="#">QueryResult</a></p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> The EntityParticles associated with this field. Available in Tooling API starting version 34.0. Because this field represents a relationship, use only in subqueries.</p>
Precision	<p><b>Type</b> int</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> The maximum number of digits allowed for this field. Available in Tooling API starting version 34.0.</p>
Publisher	<p><b>Type</b> <a href="#">Publisher</a></p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> The publisher of this field, for example Salesforce, a user, or a package name. Available in Tooling API starting version 34.0.</p>
PublisherId	<p><b>Type</b> string</p>



Field	Details
	<p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> ID of the publisher associated with this field. Available in Tooling API starting version 34.0.</p>
QualifiedApiName	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> A unique external name for the field.</p>
ReferenceTargetField	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> Available only for indirect lookup relationship fields on external objects. Specifies the field on the parent object to match against this indirect lookup relationship field, whose values come from an external data source. The specified custom field on the parent object must have both <code>externalId</code> and <code>unique</code> set to <code>true</code>. Available in Tooling API starting version 34.0.</p>
ReferenceTo	<p><b>Type</b> <a href="#">RelationshipReferenceTo</a> on page 165</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> The array of values in this field represents the possible object types of the referenced objects. For example, if a FieldDefinition represents a field on <code>Event.Whole</code>, the values in this field are <code>Contact</code>, <code>Lead</code>, and custom objects with a relationship to Events. Available in Tooling API starting version 34.0.</p>
RelationshipDomains	<p><b>Type</b> <a href="#">QueryResult</a></p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> Metadata about the relationships with other objects that this field has. Available in Tooling API starting version 34.0. Because this field represents a relationship, use only in subqueries.</p>
RelationshipName	<p><b>Type</b> string</p>

Field	Details
	<p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> The value for one-to-many relationships. For example, in the object MyObject with a relationship to YourObject, the relationship name is typically YourObjects. Available in Tooling API starting version 34.0.</p>
RunningUserFieldAccessId	<p><b>Type</b> string</p> <p><b>Properties</b></p> <p><b>Description</b> Don't use this field. Available in Tooling API starting version 34.0.</p>
Scale	<p><b>Type</b> int</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> The number of digits to the right of the decimal in an integer. For example, 3.00 has a scale of 2. Available in Tooling API starting version 34.0.</p>
ServiceDataType	<p><b>Type</b> <a href="#">DataType</a></p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> The service datatype for this field. Available in Tooling API starting version 34.0.</p>
ServiceDataTypeId	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> ID of the ServiceDataType. Available in Tooling API version 34.0. Do not use, provided for backward compatibility only.</p>
ServiceDataTypes	<p><b>Type</b> <a href="#">QueryResult</a></p> <p><b>Properties</b> Filter, Group, Sort</p>

Field	Details
	<p><b>Description</b></p> <p>The ServiceDataTypes associated with this field. Available in Tooling API starting version 34.0. Because this field represents a relationship, use only in subqueries.</p>
ValueType	<p><b>Type</b></p> <p><a href="#">DataType</a> on page 105</p> <p><b>Properties</b></p> <p>Filter, Group, Sort</p> <p><b>Description</b></p> <p>The datatype of the field. Available in Tooling API version 35.0.</p>
ValueTypeId	<p><b>Type</b></p> <p>string</p> <p><b>Properties</b></p> <p>Filter, Group, Sort</p> <p><b>Description</b></p> <p>ID of the ValueType. Available in Tooling API version 35.0.</p>
WorkflowFieldUpdates	<p><b>Type</b></p> <p><a href="#">QueryResult</a></p> <p><b>Properties</b></p> <p>Filter, Group, Sort</p> <p><b>Description</b></p> <p>The workflow field updates for this field. Field updates allow you to automatically update a field value to one that you specify when a workflow rule is triggered. Available in Tooling API starting version 34.0. Because this field represents a relationship, use only in subqueries.</p>

## Example Query: Find Parent Object Types

Some fields can have more than one type of object in a relationship (polymorphic). For example, Task and Event can have relationships with Contact or Lead.

Use this query to retrieve a list of objects that can have a relationship with the FieldDefinition.

```
SELECT QualifiedApiName, RelationshipName, ReferenceTo, ReferenceTargetField
FROM FieldDefinition
WHERE EntityDefinition.QualifiedApiName = 'Event' AND QualifiedApiName = 'WhoId'
```

## Example Query: Find the Datatypes for Account Fields

```
SELECT QualifiedApiName, (Select DataType From Particles)
FROM FieldDefinition
WHERE EntityDefinition.QualifiedApiName = 'Account'
```

## CustomField Metadata

Field Name	Field Type	Description
<code>caseSensitive</code>	boolean	Indicates whether the field is case sensitive ( <code>true</code> ) or not ( <code>false</code> ).  For indirect lookup relationship fields on external objects, this attribute affects how this custom field's values are matched against the values of <code>referenceTargetField</code> .
<code>defaultValue</code>	string	If specified, represents the default value of the field.
<code>deleteConstraint</code>	DeleteConstraint is an enumeration of strings	Provides deletion options for lookup relationships. Valid values are:  <b>SetNull</b> Default value.  If the lookup record is deleted, the lookup field is cleared.  <b>Restrict</b> If the record is in a lookup relationship, prevents it from being deleted.  <b>Cascade</b> Deletes the lookup record and associated lookup fields.  For more information on lookup relationships, see "Object Relationships" in the Salesforce Help.
<code>description</code>	string	Description of the field.
<code>displayFormat</code>	string	The display format.
<code>displayLocationInDecimal</code>	boolean	Indicates how the value of a Geolocation custom field appears in the user interface. If <code>true</code> , the geolocation appears in decimal notation. If <code>false</code> , the geolocation appears as degrees, minutes, and seconds.
<code>externalDeveloperName</code>	string	Available only for external objects. Name of the table column on the external data source that maps to this custom field in Salesforce. Corresponds to <code>External Column Name</code> in the user interface. This field is available in API version 32.0 and later.
<code>externalId</code>	boolean	Indicates whether the field is an external ID field ( <code>true</code> ) or not ( <code>false</code> ).
<code>formula</code>	string	If specified, represents a formula on the field.
<code>formulaTreatBlankAs</code>	TreatBlanksAs	Indicates how to treat blanks in a formula. Valid values are <code>BlankAsBlank</code> or <code>BlankAsZero</code> .
<code>fullName</code>	string	Required. The internal name of the object. White spaces and special characters are escaped for validity. The name must: <ul style="list-style-type: none"> <li>• Contain characters, letters, or the underscore (<code>_</code>) character</li> <li>• Must start with a letter</li> <li>• Can't end with an underscore</li> <li>• Can't contain two consecutive underscore characters.</li> </ul>

Field Name	Field Type	Description
<code>indexed</code>	boolean	Indicates if the field is indexed. If this field is unique or the <code>externalId</code> is set true, the <code>isIndexed</code> value is set to true. This field has been deprecated as of version 14.0 and is only provided for backward compatibility.
<code>inlineHelpText</code>	string	Represents the content of field-level help. For more information, see “Define Field-Level Help” in the Salesforce Help.
<code>isFilteringDisabled</code>	boolean	Available only for external objects. Indicates whether the custom field is available in filters. This field is available in API version 32.0 and later.
<code>isNameField</code>	boolean	Available only for external object fields of type text. For each external object, you can specify one field as the name field. If you set this field's value to <code>true</code> , make sure that the external table column identified by <code>externalDeveloperName</code> contains name values. This field is available in API version 32.0 and later.
<code>isSortingDisabled</code>	boolean	Available only for external objects. Indicates whether the custom field is sortable. This field is available in API version 32.0 and later.
<code>reparentableMasterDetail</code>	boolean	Indicates whether the child records in a master-detail relationship on a custom object can be reparented to different parent records. The default value is <code>false</code> . This field is available in API version 25.0 and later.
<code>label</code>	string	Label for the field. You cannot update the label for standard picklist fields, such as the <code>Industry</code> field for accounts.
<code>length</code>	int	Length of the field.
<code>lookupFilter</code>	LookupFilter	The Lookup filter definition for the custom field. Available in API version 30.0 and later.
<code>maskChar</code>	EncryptedFieldMaskChar	For encrypted fields, specifies the character to be used as a mask. Valid values are: <ul style="list-style-type: none"> <li>• <code>asterisk</code></li> <li>• <code>x</code></li> </ul>
<code>maskType</code>	EncryptedFieldMaskType	For encrypted text fields, specifies the format of the masked and unmasked characters in the field. Valid values: <p><b>all</b> All characters in the field are hidden. This option is equivalent to the <code>Mask All Characters</code>.</p> <p><b>creditCard</b> The first 12 characters are hidden, the last four are displayed. This option is equivalent to the <code>Credit Card Number</code> option.</p> <p><b>ssn</b> The first five characters are hidden, the last four are displayed. This option is equivalent to the <code>Social Security Number</code> option.</p>

Field Name	Field Type	Description
		<p><b>lastFour</b> All characters are hidden, except the last four are displayed. This option is equivalent to the <code>Last Four Characters Clear</code> option.</p> <p><b>sin</b> All characters are hidden, except the last four are displayed. This option is equivalent to the <code>Social Insurance Number</code> option.</p> <p><b>nino</b> All characters are hidden. If the field contains nine characters, Salesforce automatically inserts spaces after each pair of characters. This option is equivalent to the <code>National Insurance Number</code> option.</p>
<code>picklist</code>	<a href="#">Picklist</a>	If specified, the field is a picklist, and this field enumerates the picklist values and labels.
<code>populateExistingRows</code>	boolean	Indicates whether existing rows are populated ( <code>true</code> ) or not ( <code>false</code> ).
<code>precision</code>	int	The precision for number values. Precision is the number of digits in a number. For example, the precision value for the number 256.99 is 5.
<code>referenceTargetField</code>	string	Available only for indirect lookup relationship fields on external objects. Specifies the custom field on the parent object to match against this indirect lookup relationship field, whose values come from an external data source. The specified custom field on the parent object must have both <code>externalId</code> and <code>unique</code> set to <code>true</code> . This field is available in API version 32.0 and later.
<code>referenceTo</code>	string	If specified, indicates a reference this field has to another object.
<code>relationshipLabel</code>	string	Label for the relationship.
<code>relationshipName</code>	string	If specified, indicates the value for one-to-many relationships. For example, in the object <code>MyObject</code> that had a relationship to <code>YourObject</code> , the relationship name <code>YourObjects</code> makes the relationship type obvious.
<code>relationshipOrder</code>	int	<p>This field is valid for all master-detail relationships, but the value is only non-zero for junction objects. A junction object has two master-detail relationships, and is analogous to an association table in a many-to-many relationship. Junction objects must define one parent object as primary (0), the other as secondary (1). The definition of primary or secondary affects delete behavior and inheritance of look and feel, and record ownership for junction objects. For more information, see the Salesforce Help.</p> <p>0 or 1 are the only valid values, and 0 is always the value for objects that are not junction objects.</p>
<code>required</code>	boolean	Indicates whether the field requires a value on creation ( <code>true</code> ) or not ( <code>false</code> ).
<code>scale</code>	int	The scale for the field. Scale is the number of digits to the right of the decimal point in a number. For example, the number 256.99 has a scale of 2.
<code>startingNumber</code>	int	If specified, indicates the starting number for the field.

Field Name	Field Type	Description
<code>stripMarkup</code>	boolean	Set to <code>true</code> to remove markup, or <code>false</code> to preserve markup. Used when converting a rich text area to a long text area.
<code>summarizedField</code>	string	Represents the field on the detail row that is being summarized. This field cannot be null unless the value of <code>SummaryOperation</code> is <code>count</code> .
<code>summaryForeignKey</code>	string	Represents the master-detail field on the child that defines the relationship between the parent and the child.
<code>summaryOperation</code>	SummaryOperations is an enumeration of strings	Represents the sum operation to be performed. Valid values are: <ul style="list-style-type: none"> <li>• <code>Count</code></li> <li>• <code>Min</code></li> <li>• <code>Max</code></li> <li>• <code>Sum</code></li> </ul>
<code>trackFeedHistory</code>	boolean	Indicates whether the field is enabled for feed tracking ( <code>true</code> ) or not ( <code>false</code> ). This field is available in API version 18.0 and later.
<code>trackHistory</code>	boolean	Indicates whether history tracking is enabled for the field ( <code>true</code> ) or not ( <code>false</code> ). Also available for standard object fields (picklist and lookup fields only) in API version 30.0 and later.
<code>trackTrending</code>	boolean	Indicates whether historical trending data is captured for the field ( <code>true</code> ) or not ( <code>false</code> ). If this attribute is <code>true</code> for at least one field, the object is enabled for historical trending. Available in API version 29.0 and later.
<code>trueValueIndexed</code>	boolean	This field is only relevant for a checkbox field. If set, true values are built into the index. This field has been deprecated as of API version 14.0 and is only provided for backward compatibility.
<code>type</code>	FieldType is an enumeration of strings	Indicates the field type for the field. Valid values are: <ul style="list-style-type: none"> <li>• <code>AutoNumber</code></li> <li>• <code>Lookup</code></li> <li>• <code>MasterDetail</code></li> <li>• <code>Checkbox</code></li> <li>• <code>Currency</code></li> <li>• <code>Date</code></li> <li>• <code>DateTime</code></li> <li>• <code>Email</code></li> <li>• <code>EncryptedText</code></li> <li>• <code>Number</code><sup>1</sup></li> <li>• <code>Percent</code></li> <li>• <code>Phone</code></li> <li>• <code>Picklist</code></li> <li>• <code>MultiselectPicklist</code></li> </ul>

Field Name	Field Type	Description
		<ul style="list-style-type: none"> <li>• Summary</li> <li>• Text</li> <li>• TextArea</li> <li>• LongTextArea</li> <li>• Summary</li> <li>• Url</li> <li>• Hierarchy</li> <li>• File</li> <li>• CustomDataType</li> <li>• Html</li> <li>• Geolocation</li> </ul> <p>For standard fields on standard objects, the <code>type</code> field is optional. This field is included for some standard field types, such as Picklist or Lookup, but not for others. The <code>type</code> field is included for custom fields.</p>
<code>unique</code>	<code>boolean</code>	Indicates whether the field is unique ( <code>true</code> ) or not ( <code>false</code> ).
<code>visibleLines</code>	<code>int</code>	Indicates the number of lines displayed for the field.
<code>writeRequiresMasterRead</code>	<code>boolean</code>	<p>Sets the minimum sharing access level required on the master record to create, edit, or delete child records. This field applies only to master-detail or junction object custom field types.</p> <ul style="list-style-type: none"> <li>• <code>true</code>—Allows users with “Read” access to the master record permission to create, edit, or delete child records. This setting makes sharing less restrictive.</li> <li>• <code>false</code>—Allows users with “Read/Write” access to the master record permission to create, edit, or delete child records. This setting is more restrictive than <code>true</code>, and is the default value.</li> </ul> <p>For junction objects, the most restrictive access from the two parents is enforced. For example, you set to <code>true</code> on both master-detail fields, but users have “Read” access to one master record and “Read/Write” access to the other master record. In this example, users are unable to create, edit, or delete child records.</p>

## Picklist Metadata

Field Name	Field Type	Description
<code>controllingField</code>	<code>string</code>	The <code>fullName</code> of the controlling field if this field is a dependent picklist. A dependent picklist works with a controlling picklist or checkbox to filter the available options. The value chosen in the controlling field affects the values available in the dependent field. This field is available in API version 14.0 and later.



Field Name	Field Type	Description
<code>picklistValues</code>	<code>PicklistValue[]</code>	Required. Represents a set of values for a picklist.
<code>sorted</code>	<code>boolean</code>	Required. Indicates whether values are sorted ( <code>true</code> ), or not ( <code>false</code> ).


## PicklistValue Metadata

This metadata type defines a value in the picklist and specifies whether this value is the default value. This type extends `Metadata` and inherits its `fullName` field.

Note the following when working with picklist values:

- When you retrieve a standard object, you all picklist values are retrieved, not just the customized picklist values.
- When you deploy changes to standard picklist fields, picklist values are added as needed.
- You can't set a picklist value as inactive, but if the picklist value is missing and you invoke an `update()` call, the missing value becomes inactive.

Field Name	Field Type	Description
<code>allowEmail</code>	<code>boolean</code>	Indicates whether this value lets users email a quote PDF ( <code>true</code> ), or not ( <code>false</code> ). This field is only relevant for the <code>Status</code> field in quotes. This field is available in API version 18.0 and later.
<code>closed</code>	<code>boolean</code>	Indicates whether this value is associated with a closed status ( <code>true</code> ), or not ( <code>false</code> ). This field is only relevant for the standard <code>Status</code> field in cases and tasks. This field is available in API version 16.0 and later.
<code>color</code>	<code>string</code>	Indicates the color assigned to the picklist value when used in charts on reports and dashboards. The color is in hexadecimal format; for example, <code>#FF6600</code> . If a color is not specified, it's assigned dynamically during chart generation. This field is available in API version 17.0 and later.
<code>controllingFieldValues</code>	<code>string[]</code>	A list of values in the controlling field that are linked to this picklist value. The controlling field can be a checkbox or a picklist. This field is available in API version 14.0 and later. The values in the list depend on the field type: <ul style="list-style-type: none"> <li>• <b>Checkbox:</b> <code>checked</code> or <code>unchecked</code>.</li> <li>• <b>Picklist:</b> The <code>fullName</code> of the picklist value in the controlling field.</li> </ul>
<code>converted</code>	<code>boolean</code>	Indicates whether this value is associated with a converted status ( <code>true</code> ), or not ( <code>false</code> ). This field is relevant for only the standard <code>Lead Status</code> field in leads. Your organization can set its own guidelines for determining when a lead is qualified. The best practice is to convert a lead when it becomes a real opportunity that you want to forecast. For more information, see "Convert Qualified Leads" in the Salesforce online help. This field is available in API version 16.0 and later.

Field Name	Field Type	Description
<code>cssExposed</code>	boolean	<p>Indicates whether this value is available in your Self-Service Portal (<code>true</code>), or not (<code>false</code>). This field is only relevant for the standard <code>Case Reason</code> field in cases.</p> <p>Self-Service provides an online support channel for your customers - allowing them to resolve their inquiries without contacting a customer service representative. For more information about Self-Service, see “Setting Up Self-Service” in the Salesforce online help.</p> <p> <b>Note:</b> Starting with Spring '12, the Self-Service portal isn't available for new orgs. Existing orgs continue to have access to the Self-Service portal.</p> <p>This field is available in API version 16.0 and later.</p>
<code>default</code>	boolean	<p>Required. Indicates whether this value is the default picklist value in the specified picklist (<code>true</code>), or not (<code>false</code>).</p>
<code>description</code>	string	<p>Description of a custom picklist value. This field is only relevant for the standard <code>Stage</code> field in opportunities. It is useful to include a description for a customized picklist value so that the historical reason for creating it can be tracked. This field is available in API version 16.0 and later.</p>
<code>forecastCategory</code>	ForecastCategories, an enumeration of type string	<p>Indicates whether this value is associated with a forecast category (<code>true</code>), or not (<code>false</code>). This field is only relevant for the standard <code>Stage</code> field in opportunities. Valid values:</p> <ul style="list-style-type: none"> <li>• Omitted</li> <li>• Pipeline</li> <li>• BestCase</li> <li>• Forecast</li> <li>• Closed</li> </ul> <p>This field is available in API version 16.0 and later.</p>
<code>fullName</code>	string	<p>The name used as a unique identifier for API access. The <code>fullName</code> can contain only underscores and alphanumeric characters. It must be unique, begin with a letter, not include spaces, not end with an underscore, and not contain two consecutive underscores. This field is inherited from Metadata.</p>
<code>highPriority</code>	boolean	<p>Indicates whether this value is a high priority item (<code>true</code>), or not (<code>false</code>). This field is only relevant for the standard <code>Priority</code> field in tasks. For more information about tasks, see “Considerations for Using Tasks” in the Salesforce online help. This field is available in API version 16.0 and later.</p>
<code>probability</code>	int	<p>Indicates whether this value is a probability percentage (<code>true</code>), or not (<code>false</code>). This field is only relevant for the standard <code>Stage</code> field in opportunities. This field is available in API version 16.0 and later.</p>

Field Name	Field Type	Description
<code>reverseRole</code>	string	A picklist value corresponding to a reverse role name for a partner. For example, for the role "subcontractor", a reverse role is "general contractor". Assigning a partner role to an account in Salesforce creates a reverse partner relationship so that both accounts list the other as a partner. This field is only relevant for partner roles.  For more information, see "Partner Fields" in the Salesforce online help. This field is available in API version 18.0 and later.
<code>reviewed</code>	boolean	Indicates whether this value is associated with a reviewed status ( <code>true</code> ), or not ( <code>false</code> ). This field is only relevant for the standard <code>status</code> field in solutions. For more information about opportunities, see "Creating Solutions" in the Salesforce online help. This field is available in API version 16.0 and later.
<code>won</code>	boolean	Indicates whether this value is associated with a closed or won status ( <code>true</code> ), or not ( <code>false</code> ). This field is only relevant for the standard <code>stage</code> field in opportunities. This field is available in API version 16.0 and later.

## RelationshipReferenceTo Type

Field	Type	Details
<code>referenceTo</code>	string[]	The objects that can have a relationship to the field represented by this FieldDefinition.

## WorkflowFieldUpdate Metadata

For more information about WorkflowFieldUpdate, see the *Metadata API Developer's Guide*.

## FieldSet

Represents the metadata for a group of fields. Available from API version 33.0 or later.

## Supported SOAP Calls

`create()`, `query()`, `retrieve()`, `update()`, `upsert()`

## Supported REST HTTP Methods

GET, HEAD

## Fields

Field	Details
Description	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> The field set description. This can be useful to describe the reason for creating the set or its intended use.</p>
DeveloperName	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> The API name of the field set.</p>
ManageableState	<p><b>Type</b> ManageableState enumerated list</p> <p><b>Properties</b> Create, Filter, Update</p> <p><b>Description</b> Indicates the manageable state of the specified component that is contained in a package:</p> <ul style="list-style-type: none"> <li>• beta</li> <li>• deleted</li> <li>• deprecated</li> <li>• installed</li> <li>• released</li> <li>• unmanaged</li> </ul>
MasterLabel	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> The set's label.</p>
NamespacePrefix	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p>

Field	Details
	<p><b>Description</b></p> <p>The namespace of the package of which the field set is a part.</p>


## FlexiPage

Represents a Lightning Page. A Lightning Page is a customizable screen containing Lightning components.

Includes access to the associated FlexiPage object in the Metadata API. Available from API version 31.0 or later.

Lightning Pages are used in several places.

- In Salesforce1, a Lightning Page is the home page for an app that appears in the navigation menu.
- In Lightning Experience, Lightning Pages can be used as the home page for an app, and to customize the layout of record pages and the Home page.

 **Note:** These pages are known as FlexiPages in the API, but are referred to as Lightning Pages in the rest of the Salesforce documentation and UI.

## Supported SOAP Calls

`create()`, `query()`, `retrieve()`, `update()`, `upsert()`

## Supported REST HTTP Methods

GET, HEAD

## Fields

Field	Details
Description	<p><b>Type</b></p> <p>string</p> <p><b>Properties</b></p> <p>Filter, Group, Nillable, Sort</p> <p><b>Description</b></p> <p>The page description. This field can be useful to describe the reason for creating the page or its intended use.</p>
DeveloperName	<p><b>Type</b></p> <p>string</p> <p><b>Properties</b></p> <p>Filter, Group, Sort</p> <p><b>Description</b></p> <p>The API name of the Lightning Page.</p>

Field	Details
FullName	<p><b>Type</b> string</p> <p><b>Properties</b> Create, Group, Nillable</p> <p><b>Description</b> The full name of the associated FlexiPage object in Metadata API.  Query this field only if the query result contains no more than one record. Otherwise, an error is returned. If more than one record exists, use multiple queries to retrieve the records. This limit protects performance.</p>
MasterLabel	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> The page's label.</p>
Metadata	<p><b>Type</b> FlexiPageMetadata</p> <p><b>Properties</b> Create, Nillable, Update</p> <p><b>Description</b> Lightning Page metadata.  Query this field only if the query result contains no more than one record. Otherwise, an error is returned. If more than one record exists, use multiple queries to retrieve the records. This limit protects performance.</p>
NamespacePrefix	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> The namespace of the package of which the flexipage is a part.</p>
ParentFlexiPage	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> The name of the FlexiPage that this page inherits behavior from. Available in API version 37.0 or later.</p>

Field	Details
SubjectType	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> The object the FlexiPage is associated with. For Lightning Pages of type <code>AppPage</code> or <code>HomePage</code>, this field is <code>null</code>.  Once the value of this field is set, it can't be changed.  Available in API version 37.0 or later.</p>
Type	<p><b>Type</b> picklist</p> <p><b>Properties</b> Filter, Group, Restricted picklistSort</p> <p><b>Description</b> Required. The type of the Lightning Page. Valid values are:</p> <ul style="list-style-type: none"> <li>• <code>AppPage</code>—A Lightning Page that is used as the home page for a custom app.</li> <li>• <code>CommAppPage</code>—A Lightning Page that is used to represent a custom page, as created in the Community Builder, in Communities. This value is available in API version 37.0 and later.</li> <li>• <code>HomePage</code>—A Lightning Page that is used to override the Home page in Lightning Experience. This value is available in API version 37.0 and later.</li> <li>• <code>RecordPage</code>—A Lightning Page used to override an object record page in Lightning Experience. This value is available in API version 37.0 and later.</li> </ul> <p>Available in API version 32.0 or later. In API versions 32.0 through 36.0, this field can only have a value of <code>AppPage</code>.</p>

## Sample Code

This code sample creates a Lightning Page with a single Recent Items component, that shows recently used Accounts and `MyCustomObject__c`

```

ComponentInstance recentItems = new ComponentInstance();
recentItems.setComponentName("flexipage:recentItems");
ComponentInstanceProperty cip = new ComponentInstanceProperty();
cip.setName("entityNames");
cip.setValue("Account,MyCustomObject__c");
recentItems.setComponentInstanceProperties(new ComponentInstanceProperty[]{cip});

FlexiPageRegion mainRegion = new FlexiPageRegion();
mainRegion.setName("main");
mainRegion.setType(FlexiPageRegionType.Region);
mainRegion.setComponentInstances(new ComponentInstance[] { recentItems });

```

```

FlexiPageMetadata fpMetadata = new FlexiPageMetadata();
fpMetadata.setFlexiPageRegions(new FlexiPageRegion[] {mainRegion});
fpMetadata.setMasterLabel("My FlexiPage");
fpMetadata.setDescription("A FlexiPage with a recent items component");
fpMetadata.setType(FlexiPageType.AppPage);

FlexiPage flexiPage = new FlexiPage();
flexiPage.setFullName("MyFlexiPageDevName");
flexiPage.setMetadata(fp);

// Create
SaveResult saveResult = soapConnection.create(new SObject[] { flexiPage });

```

## Flow


---

Use the Flow object to retrieve and update specific flow versions.

With Flow, you can create an application that navigates users through a series of screens to query and update records in the database. You can also execute logic and provide branching capability based on user input to build dynamic applications. For information about the corresponding UI-based flow building tool, see [Cloud Flow Designer](#) in the Salesforce Help.

When using the Tooling API to work with flows, consider that:

- You can describe information for a flow installed from a managed package but not its metadata.
- You can't overwrite an active flow or one that was once active.
- Every time you update a flow, you're actually deleting the existing flow and creating a new flow from it, with a new ID.

 **Note:** Legacy flows created with the Desktop Flow Designer can't be modified with the API. Update your flow by recreating it with the Cloud Flow Designer.

You can delete a flow version, as long as it:

- Isn't active
- Doesn't have any paused or waiting interviews

If the flow version has paused or waiting interviews, wait for those interviews to finish, or delete them.

This object is available in API version 34.0 and later.

## Supported SOAP Calls

`create()`, `delete()`, `query()`, `retrieve()`, `update()`, `upsert()`

## Supported REST API HTTP Methods


DELETE, GET, HEAD, PATCH, POST



## Fields

Field	Details
Definition	<p><b>Type</b> FlowDefinition</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> This flow's definition object.</p>
DefinitionId	<p><b>Type</b> ID</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> The ID of this flow's FlowDefinition.</p>
Description	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> A description of the flow, such as what it's meant to do or how it works.</p>
FullName	<p><b>Type</b> string</p> <p><b>Properties</b> Create, Group, Nillable</p> <p><b>Description</b> The full name of the flow in the Metadata API. The <code>fullName</code> consists of two parts, separated by a hyphen:</p> <ul style="list-style-type: none"> <li>• Unique name for the flow that contains only underscores and alphanumeric characters. It must be unique across the organization, begin with a letter, not include spaces, not end with an underscore, and not contain two consecutive underscores.</li> <li>• Version number for the flow.</li> </ul> <p>For example, "sampleFlow-3" specifies version 3 of the flow whose unique name is sampleFlow. Query this field only if the query result contains no more than one record. Otherwise, an error is returned. If more than one record exists, use multiple queries to retrieve the records. This limit protects performance.</p>
ManageableState	<p><b>Type</b> ManageableState enumerated list</p>

Field	Details
	<p><b>Properties</b> Create, Filter, Update</p> <p><b>Description</b> Indicates the manageable state of the specified component that is contained in a package:</p> <ul style="list-style-type: none"> <li>• beta</li> <li>• deleted</li> <li>• deprecated</li> <li>• installed</li> <li>• released</li> <li>• unmanaged</li> </ul>
MasterLabel	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, idLookup, Sort</p> <p><b>Description</b> Label for the flow.</p>
Metadata	<p><b>Type</b> <a href="#">mns : Flow</a></p> <p><b>Properties</b> Create, Nillable, Update</p> <p><b>Description</b> The flow's metadata.</p> <p>Query this field only if the query result contains no more than one record. Otherwise, an error is returned. If more than one record exists, use multiple queries to retrieve the records. This limit protects performance. If the flow is part of a managed package this field will be Null. Metadata isn't returned for flows in managed packages.</p>
ProcessType	<p><b>Type</b> Restricted picklist</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> The type of the flow:</p> <ul style="list-style-type: none"> <li>• AutoLaunchedFlow</li> <li>• Flow</li> <li>• Workflow</li> <li>• LoginFlow</li> <li>• ActionPlan</li> </ul>

Field	Details
	<ul style="list-style-type: none"> <li>• JourneyBuilderIntegration</li> <li>• UserProvisioningFlow</li> </ul> <p> <b>Note:</b> This value has significant impact on validation when saving the flow and on the flow's runtime behavior. Don't change this value unless you understand the flow properties of the specified type.</p>
Status	<p><b>Type</b> Restricted picklist</p> <p><b>Properties</b> Filter, Group</p> <p><b>Description</b> The flow's status:</p> <ul style="list-style-type: none"> <li>• Active</li> <li>• Draft</li> <li>• Obsolete</li> <li>• InvalidDraft</li> </ul>
VersionNumber	<p><b>Type</b> int</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> The flow's version number.</p>


## FlowDefinition

---

The parent of a set of flow versions.

When using the Tooling API to work with flow definitions, consider that:

- You can activate and deactivate flows with the `Metadata` field.
- You can update `masterLabel` and `description` of a `FlowDefinition`.
- `FlowDefinition` are implicitly created when the `Flow` object is created. This means `FlowDefinition` objects can only be updated.

 **Note:** Legacy flows created with the Desktop Flow Designer can't be modified with the API. Update your flow by recreating it with the Cloud Flow Designer.

This object is available in API version 34.0 and later.

## Supported SOAP API Calls

`query()`, `retrieve()`, `update()`

## Supported REST API HTTP Methods

GET, HEAD, PATCH, POST

## Fields

Field Name	Details
ActiveVersion	<p><b>Type</b> Flow</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> The active flow version object.</p>
ActiveVersionId	<p><b>Type</b> ID</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> The ID of the active flow version.</p>
Description	<p><b>Type</b> string</p> <p><b>Properties</b> Nillable</p> <p><b>Description</b> Flow definition information, specified by the organization's administrator.</p>
DeveloperName	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> Developer name of this flow definition.</p>
FullName	<p><b>Type</b> string</p> <p><b>Properties</b> Create, Group, Nillable</p> <p><b>Description</b> The full name of the flow definition in the Metadata API.</p>

Field Name	Details
	<p>Query this field only if the query result contains no more than one record. Otherwise, an error is returned. If more than one record exists, use multiple queries to retrieve the records. This limit protects performance.</p>
LatestVersion	<p><b>Type</b> Flow</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> The latest flow version object, regardless of the flow's state.</p>
LatestVersionId	<p><b>Type</b> ID</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> ID of the latest flow version, regardless of the flow's state.</p>
MasterLabel	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> Label for the flow definition.</p>
Metadata	<p><b>Type</b> <a href="#">mns : FlowDefinition</a></p> <p><b>Properties</b> Create, Nillable, Update</p> <p><b>Description</b> The flow definition's metadata object, containing information about which flow version is active and the flow definition's description.  Query this field only if the query result contains no more than one record. Otherwise, an error is returned. If more than one record exists, use multiple queries to retrieve the records. This limit protects performance.</p>
NamespacePrefix	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> The namespace associated with this flow definition.</p>

# HeapDump

---

A complex type that represents a heap dump in an ApexExecutionOverlayResult object. Available from API version 28.0 or later.

## Fields

Field	Details
className	<p><b>Type</b> string</p> <p><b>Description</b> The name of the Apex class or trigger.</p>
extents	<p><b>Type</b> array of TypeExtent</p> <p><b>Description</b> TypeExtent includes the following fields:</p> <ul style="list-style-type: none"><li>• collectionType</li><li>• count</li><li>• definition (array of AttributeDefinition)</li><li>• extent (array of HeapAddress)</li><li>• totalSize</li><li>• typeName</li></ul>
heapDumpDate	<p><b>Type</b> dateTime</p> <p><b>Description</b> The date and time that the heap dump was captured.</p>
namespace	<p><b>Type</b> string</p> <p><b>Description</b> The namespace of the Apex class or trigger. Null if there is no namespace.</p>

## Usage

Use heap dumps to capture structured debugging information.

## HistoryRetentionJob

---

Represents the body of retained data from the archive, and the status of the archived data. Available in API version 29.0 or later.

## Supported SOAP API Calls

`describeSObjects()`, `query()`

## Supported REST API HTTP Methods

GET

## Fields

Field Name	Details
<code>DurationSeconds</code>	<p><b>Type</b> int</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> How many seconds the field history retention job took to complete (whether successful or not).</p>
<code>HistoryType</code>	<p><b>Type</b> picklist</p> <p><b>Properties</b> Create, Filter, Group, Nillable, Restricted picklist, Sort</p> <p><b>Description</b> The object type that contains the field history that you retained. Valid values for standard objects are:</p> <ul style="list-style-type: none"> <li>• Account</li> <li>• Case</li> <li>• Contact</li> <li>• Leads</li> <li>• Opportunity</li> </ul> <p>For custom objects, use the object name.</p>
<code>NumberOfRowsRetained</code>	<p><b>Type</b> int</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> The number of field history rows that a field history retention job has retained.</p>
<code>RetainOlderThanDate</code>	<p><b>Type</b> dateTime</p>

Field Name	Details
	<p><b>Properties</b> Filter, Sort</p> <p><b>Description</b> The date and time before which all field history data was retained.</p>
StartDate	<p><b>Type</b> dateTime</p> <p><b>Properties</b> Filter, Nillable, Sort</p> <p><b>Description</b> The start date of the field history retention job.</p>
Status	<p><b>Type</b> picklist</p> <p><b>Properties</b> Filter, Group, Nillable, Restricted picklist, Sort</p> <p><b>Description</b> Provides the status of the field history retention job. By default, the pilot feature copies data to the archive, leaving a duplicate of the archived data in Salesforce. Deletion of data from Salesforce after archiving is available upon request. Status can include:</p> <ul style="list-style-type: none"> <li>• CopyScheduled</li> <li>• CopyRunning</li> <li>• CopySucceeded</li> <li>• CopyFailed</li> <li>• CopyKilled</li> <li>• NothingToArchive</li> <li>• DeleteScheduled</li> <li>• DeleteRunning</li> <li>• DeleteSucceeded</li> <li>• DeleteFailed</li> <li>• DeleteKilled</li> </ul>

## HomePageComponent

---

Represents a home page component.

This object is available in API version 35.0 and later.



## Supported SOAP Calls

`query()`, `retrieve()`, `search()`

## Supported REST HTTP Methods

GET

## Fields

Field	Details
Body	<p><b>Type</b> string</p> <p><b>Properties</b> Nillable</p> <p><b>Description</b> If this component is an HTML page component, this field is the body of the HTML.</p>
Height	<p><b>Type</b> int</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> Required for Visualforce Area components. Indicates the height (in pixels) of the component.</p>
ManageableState	<p><b>Type</b> ManageableState enumerated list</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> Indicates the manageable state of the specified component that is contained in a package:</p> <ul style="list-style-type: none"> <li>• beta</li> <li>• deleted</li> <li>• deprecated</li> <li>• installed</li> <li>• released</li> <li>• unmanaged</li> </ul>
Name	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, idLookup, Namefield, Sort</p>

Field	Details
	<p><b>Description</b> The name of the home page component.</p>
NamespacePrefix	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> A unique string to distinguish this type from any others.</p>
ShowLabel	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b> ID of the home page layout.</p>
ShowScrollbars	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b> ID of the home page layout.</p>

## HomePageLayout

---

Represents a home page layout.

This object is available in API version 35.0 and later.

### Supported SOAP Calls

`query()`, `retrieve()`, `search()`

### Supported REST HTTP Methods

GET

## Fields

Field	Details
Id	<p><b>Type</b> string</p> <p><b>Properties</b> Defaulted on create, Filter, Group, idLookup, Sort</p> <p><b>Description</b> ID of the home page layout.</p>
ManageableState	<p><b>Type</b> ManageableState enumerated list</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> Indicates the manageable state of the specified component that is contained in a package:</p> <ul style="list-style-type: none"> <li>• beta</li> <li>• deleted</li> <li>• deprecated</li> <li>• installed</li> <li>• released</li> <li>• unmanaged</li> </ul>
Name	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, idLookup, Namefield, Sort</p> <p><b>Description</b> The home page layout name.</p>
NamespacePrefix	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> A unique string to distinguish this type from any others.</p>

## KeywordList

Represents a list of keywords used in community moderation. Available in Tooling API version 36.0 and later.

This keyword list is a type of moderation criteria that defines offensive language or inappropriate content that you don't want in your community.

## Supported SOAP Calls

`create()`, `delete()`, `query()`, `retrieve()`, `update()`

## Supported REST HTTP Methods

DELETE, GET, PATCH, POST

## Fields

Field	Details
Description	<p><b>Type</b> textarea</p> <p><b>Properties</b> Filter, Nillable, Sort.</p> <p><b>Description</b> A description of the keyword list.</p>
DeveloperName	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Namefield, Sort</p> <p><b>Description</b> The developer's internal name for the keyword list used in the API.</p>
FullName	<p><b>Type</b> string</p> <p><b>Properties</b> Create, Group, Nillable.</p> <p><b>Description</b> The full name of the associated metadata object in Metadata API.  Query this field only if the query result contains no more than one record. Otherwise, an error is returned. If more than one record exists, use multiple queries to retrieve the records. This limit protects performance.</p>
Language	<p><b>Type</b> picklist</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Nillable, Restricted picklist, Sort.</p>

Field	Details
	<p><b>Description</b></p> <p>The language of the keyword list. Valid values are:</p> <ul style="list-style-type: none"> <li>• Chinese (Simplified): zh_CN</li> <li>• Chinese (Traditional): zh_TW</li> <li>• Danish: da</li> <li>• Dutch: nl_NL</li> <li>• English: en_US</li> <li>• Finnish: fi</li> <li>• French: fr</li> <li>• German: de</li> <li>• Italian: it</li> <li>• Japanese: ja</li> <li>• Korean: ko</li> <li>• Norwegian: no</li> <li>• Portuguese (Brazil): pt_BR</li> <li>• Russian: ru</li> <li>• Spanish: es</li> <li>• Spanish (Mexico): es_MX</li> <li>• Swedish: sv</li> <li>• Thai: th</li> </ul>
MasterLabel	<p><b>Type</b></p> <p>string</p> <p><b>Properties</b></p> <p>Filter, Group, Sort.</p> <p><b>Description</b></p> <p>Label for the keyword list.</p>
Metadata	<p><b>Type</b></p> <p>mns:KeywordList</p> <p><b>Properties</b></p> <p>Create, Nillable, Update.</p> <p><b>Description</b></p> <p>KeywordList metadata. Query this field only if the query result contains no more than one record. Otherwise, an error is returned. If more than one record exists, use multiple queries to retrieve the records. This limit protects performance.</p>

## Layout

---

Represents a page layout.

This object is available in API version 32.0 and later.

## Supported SOAP Calls

`query()`, `retrieve()`

## Supported REST HTTP Methods

GET

## Fields

Field	Details
EntityDefinitionId	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> The Id of the EntityDefinition object associated with this object.</p>
FullName	<p><b>Type</b> string</p> <p><b>Properties</b> Create, Group, Nillable</p> <p><b>Description</b> The unique name of the layout used as the identifier for API access. The <code>fullName</code> can contain only underscores and alphanumeric characters. It must be unique, begin with a letter, not include spaces, not end with an underscore, and not contain two consecutive underscores.</p> <p>Query this field only if the query result contains no more than one record. Otherwise, an error is returned. If more than one record exists, use multiple queries to retrieve the records. This limit protects performance.</p>
LayoutType	<p><b>Type</b> LayoutType enumerated list</p> <p><b>Properties</b> Filter, Group, Restricted picklist, Sort</p> <p><b>Description</b> Indicates the type of the layout. Valid values are:</p> <ul style="list-style-type: none"> <li>• <code>GlobalQuickActionList</code></li> </ul>

Field	Details
	<ul style="list-style-type: none"> <li>• ProcessDefinition</li> <li>• Standard</li> </ul>
ManageableState	<p><b>Type</b> ManageableState enumerated list</p> <p><b>Properties</b> Create, Filter, Update</p> <p><b>Description</b> Indicates the manageable state of the specified component that is contained in a package:</p> <ul style="list-style-type: none"> <li>• beta</li> <li>• deleted</li> <li>• deprecated</li> <li>• installed</li> <li>• released</li> <li>• unmanaged</li> </ul>
Metadata	<p><b>Type</b> mns:Layout</p> <p><b>Properties</b> Create, Nillable, Update</p> <p><b>Description</b> Layout metadata.</p> <p>Query this field only if the query result contains no more than one record. Otherwise, an error is returned. If more than one record exists, use multiple queries to retrieve the records. This limit protects performance.</p>
Name	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, idLookup, Nillable, Sort</p> <p><b>Description</b> The layout name.</p>
NamespacePrefix	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> A unique string to distinguish this layout from any others. For example, if this layout is being using by a flow, use the <code>NamespacePrefix</code> to uniquely identify the layouts in multiple flow instances.</p>

Field	Details
ShowSubmitAndAttachButton	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b> Only allowed on Case layout. If true, <b>Submit &amp; Add Attachment</b> displays on case edit pages to portal users in the Customer Portal.</p>
TableEnumOrId	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Restricted picklist, Sort</p> <p><b>Description</b> The enum (for example, Account) or ID of the object this layout is on.</p>

## LookupFilter

Represents a lookup filter, which restricts the valid values and lookup dialog results for lookup, master-detail, and hierarchical relationship fields.

Available from Tooling API version 34.0 or later.

 **Note:** LookupFilter is not supported on the article type object.

## Supported SOAP Calls

`query()`

## Supported REST HTTP Methods

GET

## Fields

Field Name	Details
Active	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b> If <code>true</code>, the lookup filter is active.</p>



Field Name	Details
DeveloperName	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Namefield, Sort</p> <p><b>Description</b> The unique name of the object in the API. This name can contain only underscores and alphanumeric characters, and must be unique in your org. It must begin with a letter, not include spaces, not end with an underscore, and not contain two consecutive underscores. In managed packages, this field prevents naming conflicts on package installations. With this field, a developer can change the object's name in a managed package and the changes are reflected in a subscriber's organization. Label is <b>Record Type Name</b>.</p>
FullName	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> The full name of the associated metadata object in Metadata API.  Query this field only if the query result contains no more than one record. Otherwise, an error is returned. If more than one record exists, use multiple queries to retrieve the records. This limit protects performance.</p>
IsOptional	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b> Required. If <code>true</code>, the lookup filter is optional.</p>
ManageableState	<p><b>Type</b> ManageableState enumerated list</p> <p><b>Properties</b> Create, Filter, Update</p> <p><b>Description</b> Indicates the manageable state of the specified component that is contained in a package:</p> <ul style="list-style-type: none"> <li>• beta</li> <li>• deleted</li> <li>• deprecated</li> <li>• installed</li> <li>• released</li> </ul>

Field Name	Details
	<ul style="list-style-type: none"> <li>unmanaged</li> </ul>
Metadata	<p><b>Type</b>  <a href="#">LookupFilter</a></p> <p><b>Properties</b>            Create, Nillable, Update</p> <p><b>Description</b>            The metadata for this lookup filter.</p> <p>Query this field only if the query result contains no more than one record. Otherwise, an error is returned. If more than one record exists, use multiple queries to retrieve the records. This limit protects performance.</p>
NamespacePrefix	<p><b>Type</b>            string</p> <p><b>Properties</b>            Filter, Group, Nillable, Sort</p> <p><b>Description</b>            The namespace of the custom field, which is sometimes different from the object's namespace.</p>
SourceFieldDefinition	<p><b>Type</b>            string</p> <p><b>Properties</b>            Filter, Group, Sort</p> <p><b>Description</b>            The field that this filter applies to.</p>
SourceFieldDefinitionId	<p><b>Type</b>            string</p> <p><b>Properties</b>            Filter, Group, Sort</p> <p><b>Description</b>            Durable ID of the object specified in <code>SourceFieldDefinition</code>.</p>
SourceObject	<p><b>Type</b>            string</p> <p><b>Properties</b>            Filter, Group, Sort</p> <p><b>Description</b>            The object that contains the lookup field that uses this lookup filter. Null if the lookup filter doesn't reference fields on the source object.</p>

Field Name	Details
TargetEntityDefinition	<p><b>Type</b> EntityDefinition</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> The entity definition for the source lookup field.</p>
TargetEntityDefinitionId	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> ID of the TargetEntityDefinition.</p>



**Example:** The `Owner` field on `Account` represents a user with certain characteristics.

In this example, `SourceFieldDefinition` is `Account.Owner` and `TargetEntityDefinition` is `User`, because `Owner` is a lookup field to `User`.

## LookupFilter Metadata

Metadata about the lookup filter is returned in the `Metadata` field:

Field	Type	Description
<code>active</code>	boolean	Required. If <code>true</code> , the lookup filter is active.
<code>booleanFilter</code>	string	The filter logic, if any, applied to this filter using Boolean operators AND, OR, or NOT.
<code>description</code>	string	A description of the filter does.
<code>errorMessage</code>	string	If the lookup filter fails, the error m.
<code>filterItems</code>	<a href="#">FilterItem</a>	Required. The set of filter conditions. Each lookup filter can have up to 10 <code>FilterItems</code> .
<code>infoMessage</code>	string	Information displayed on the page to help the user. For example, explaining why some items are excluded in the lookup filter.
<code>isOptional</code>	boolean	Required. If <code>true</code> , the lookup filter is optional.

## FilterItem Metadata

Represents one entry in a set of filter criteria.

Field	Type	Description
field	string	Represents the field specified in the filter.
operation	FilterOperation, an enumeration of strings	Valid values: <ul style="list-style-type: none"> <li>• equals</li> <li>• notEqual</li> <li>• lessThan</li> <li>• greaterThan</li> <li>• lessOrEqual</li> <li>• greaterOrEqual</li> <li>• contains</li> <li>• notContain</li> <li>• startsWith</li> <li>• includes</li> <li>• excludes</li> <li>• within (DISTANCE criteria only)</li> </ul>
value	string	Represents the value of the filter item being operated upon. For example, if the filter is <code>my_number_field__c &gt; 1</code> , the value of this field is 1.
valueField	string	Specifies if the final column in the filter contains a field or a field value. Approval processes don't support this field in filter criteria.

## MenuItem

---

Represents a menu item.

This object is available in API version 32.0 and later.

## Supported SOAP Calls

`query()`, `update()`

## Supported REST HTTP Methods

GET, POST

## Fields

Field	Details
Active	<b>Type</b> boolean

Field	Details
	<p><b>Properties</b> Defaulted on create, Filter, Group, Sort, Update</p> <p><b>Description</b> Indicates whether the item in the menu is active (<code>true</code>) or not (<code>false</code>).</p>
AppId	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> The ID of the app that this menu item is associated with. Can be an enum (such as Feed or People) or an alphanumeric ID.  Use <code>AppId</code> as the unique ID for the menu item, not <code>Id</code>.</p>
Color	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> The color of the menu item that appears in the user interface. This field is described in Web color RGB format, such as <code>00FF00</code>.</p>
IconURL	<p><b>Type</b> url</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> The URL of an icon in the menu item.</p>
Label	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> The menu item label that appears in the user interface.</p>
MenuType	<p><b>Type</b> picklist</p> <p><b>Properties</b> Filter, Group, Nillable, Restricted picklist, Sort</p>

Field	Details
	<p><b>Description</b></p> <p>The type of menu that this menu item belongs to. Valid values are:</p> <ul style="list-style-type: none"> <li>• <code>AppSwitcher</code>: the Force.com app menu, a drop-down menu that's displayed at the top of every app page</li> <li>• <code>Salesforce1</code>: the Salesforce1 navigation menu</li> <li>• <code>NetworkTabs</code>: the Salesforce Communities tab set</li> </ul> <p>This field is required for <code>query()</code>.</p>
<code>SortOrder</code>	<p><b>Type</b></p> <p>int</p> <p><b>Properties</b></p> <p>Filter, Group, Nillable, Sort, Update</p> <p><b>Description</b></p> <p>The <code>SortOrder</code> value determines the order in which a menu item is displayed in the user interface. This field must be an ordinal number greater than 0, and must be unique in the list. Inactive menu items have a value of -1.</p>
<code>Theme</code>	<p><b>Type</b></p> <p>string</p> <p><b>Properties</b></p> <p>Filter, Group, Nillable, Sort</p> <p><b>Description</b></p> <p>The associated theme, which must be one of the following values.</p> <ul style="list-style-type: none"> <li>• <code>theme2</code>: the Salesforce theme that was used prior to Spring '10</li> <li>• <code>theme3</code>: the Salesforce theme that was introduced in Spring '10</li> <li>• <code>theme4</code>: the theme that was introduced in Winter '14 for the mobile touchscreen version of Salesforce</li> <li>• <code>custom</code>: the theme that's associated with a custom icon</li> </ul> <p>This field is required for <code>query()</code> for <code>Color</code> and <code>IconURL</code>.</p>

## Usage

MenuItem can be queried and manipulated to change how menu items appear in Salesforce. The following example modifies the Salesforce1 left navigation menu.

```
String query = "SELECT AppId, Label, Active, SortOrder FROM MenuItem "
+
  "WHERE MenuType = 'Salesforce1'";
SObject[] records = sforce.query(query).getRecords();

//Activate all menu items
for (int i = 0; i < records.length; i++) {
```

```
MenuItem item = (MenuItem)records[i];
item.setOrder(i + 1);
item.setActive(true);
}

sforce.update(records);
```

## MetadataContainer

---

Manages working copies of [ApexClassMember](#), [ApexTriggerMember](#), [ApexPageMember](#), and [ApexComponentMember](#) objects, including collections of objects to be deployed together.

### Supported SOAP API Calls

`create()`, `delete()`, `describeSObjects()`, `query()`, `retrieve()`, `update()`, `upsert()`

### Supported REST API HTTP Methods

Query, GET, POST, PATCH, DELETE

### Fields

Field Name	Details
Name	<p><b>Type</b> string</p> <p><b>Properties</b> Create, Filter, Group, Sort, Update</p> <p><b>Description</b> The name of the MetadataContainer. If a container with the same name already exists, an error is reported on <code>create()</code> or <code>POST</code>.  This field is required.</p>

### Usage

Use a `MetadataContainer` as a package for your tool's workspace. As a user works in the tool, update the [ApexClassMember](#), [ApexTriggerMember](#), [ApexPageMember](#) and [ApexComponentMember](#) objects in the `MetadataContainer` and use a [ContainerAsyncRequest](#) object to save and deploy changes to the current organization.

A `MetadataContainer` can be reused, but container members can't.

- When a `ContainerAsyncRequest` completes successfully, the `MetadataContainerId` field on all container members is changed from the ID of the `MetadataContainer` to the ID of the `ContainerAsyncRequest`. At this point, container members can no longer be modified or deployed, and can't be queried via the `MetadataContainer`; you have to query the `ContainerAsyncRequest` to see what was deployed.

- If the deployment fails, container members remain on the MetadataContainer and can still be modified until they are successfully deployed on another ContainerAsyncRequest. The `MetadataContainerId` field on the completed (failed deployment) ContainerAsyncRequest is set to the ID of the MetadataContainer, so you can have multiple completed ContainerAsyncRequests on a single MetadataContainer.

 **Note:** Deleting a MetadataContainer deletes all objects that reference it.

## ModerationRule

---

Represents a rule used in your community to moderate member-generated content. Available in Tooling API version 36.0 and later.

Each rule specifies the member-generated content the rule applies to, the criteria to enforce the rule on, and the moderation action to take. Moderation rules help protect your community from spammers, bots, and offensive or inappropriate content.


## Supported SOAP Calls

`create()`, `delete()`, `query()`, `retrieve()`, `update()`

## Supported REST HTTP Methods

DELETE, GET, PATCH, POST

## Fields

Field	Details
Action	<p><b>Type</b> picklist</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Nillable, Restricted picklist</p> <p><b>Description</b> Required. Indicates the moderation action that you want to take. The valid values are:</p> <ul style="list-style-type: none"> <li>• Block</li> <li>• Review</li> <li>• Replace</li> <li>• Flag</li> <li>• FreezeAndNotify (Reserved for future use.)</li> </ul> <p> <b>Note:</b> This release contains a beta version of the pre-moderation feature (Review), which means it's a high-quality feature with <a href="#">known limitations</a>. This feature isn't generally available unless or until Salesforce announces its general availability in documentation or in press releases or public statements. We can't guarantee general availability within any particular time frame or at all. Make your purchase decisions only on the basis of generally available products and features. You can provide feedback and suggestions for this feature in the <a href="#">Community Implementation</a> group in the Success Community.</p>



Field	Details
Active	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b> Required. Indicates whether the moderation rule is active (<code>true</code>) or inactive (<code>false</code>).</p>
Description	<p><b>Type</b> textarea</p> <p><b>Properties</b> Filter, Nillable, Sort</p> <p><b>Description</b> A description of the moderation rule.</p>
DeveloperName	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Namefield, Sort</p> <p><b>Description</b> The developer's internal name for the moderation rule used in the API.</p>
FullName	<p><b>Type</b> string</p> <p><b>Properties</b> Create, Group, Nillable</p> <p><b>Description</b> The full name of the associated metadata object in Metadata API.  Query this field only if the query result contains no more than one record. Otherwise, an error is returned. If more than one record exists, use multiple queries to retrieve the records. This limit protects performance.</p>
Language	<p><b>Type</b> picklist</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Nillable, Restricted picklist, Sort</p> <p><b>Description</b> The language of the moderation rule. Valid values are:</p> <ul style="list-style-type: none"><li>• Chinese (Simplified): <code>zh_CN</code></li><li>• Chinese (Traditional): <code>zh_TW</code></li><li>• Danish: <code>da</code></li><li>• Dutch: <code>n1_NL</code></li></ul>

Field	Details
	<ul style="list-style-type: none"> <li>• English: en_US</li> <li>• Finnish: fi</li> <li>• French: fr</li> <li>• German: de</li> <li>• Italian: it</li> <li>• Japanese: ja</li> <li>• Korean: ko</li> <li>• Norwegian: no</li> <li>• Portuguese (Brazil): pt_BR</li> <li>• Russian: ru</li> <li>• Spanish: es</li> <li>• Spanish (Mexico): es_MX</li> <li>• Swedish: sv</li> <li>• Thai: th</li> </ul>
MasterLabel	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> Label for the moderation rule.</p>
Metadata	<p><b>Type</b> mns:ModerationRule</p> <p><b>Properties</b> Create, Nillable, Update</p> <p><b>Description</b> Moderation rule metadata. Query this field only if the query result contains no more than one record. Otherwise, an error is returned. If more than one record exists, use multiple queries to retrieve the records. This limit protects performance.</p>
UserMessage	<p><b>Type</b> textarea</p> <p><b>Properties</b> Filter, Nillable, Sort</p> <p><b>Description</b> The message you want your community members to see when their content is blocked. Use the <code>%BLOCKED_KEYWORD%</code> variable to display up to five blocked words in the user message. If you don't specify a message, the member sees the standard message: "You can't use <code>%BLOCKED_KEYWORD%</code> or other inappropriate words in this community. Review your content and try again."</p>

## OperationLog

---

Represents long-running or asynchronous operations triggered and tracked through Tooling API. This object is available in API version 37.0 and later.

### Supported SOAP Calls

`create()`, `describeSObjects()`

### Supported REST HTTP Methods

Query, GET, POST

### Fields

Field	Details
DetailedStatus	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> Complements the <code>status</code> field with an operation processor-specific status code.</p>
Message	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> Complements the <code>status</code> field with information helpful to the user. For example, if <code>status=FAILED</code>, state the reason in this field.</p>
Parameters	<p><b>Type</b> <a href="#">OperationParameters</a></p> <p><b>Properties</b> Create, Nillable</p> <p><b>Description</b> A complex type that represents a set of parameters passed to the operation processor. Specify the parameters by using the <a href="#">OperationPayload</a> value that corresponds to your operation type.</p>
Status	<p><b>Type</b> picklist</p>

Field	Details
	<p><b>Properties</b> Filter, Group, Restricted picklist, Sort</p> <p><b>Description</b> Indicates the status of an operation triggered through Tooling API. Valid values are:</p> <ul style="list-style-type: none"> <li>• NEW</li> <li>• RUNNING</li> <li>• COMPLETED</li> <li>• FAILED</li> <li>• ABORTED</li> </ul> <p>Only records with <code>Status=NEW</code> can be created through the API.</p>
Type	<p><b>Type</b> picklist</p> <p><b>Properties</b> Create, Filter, Group, Restricted picklist, Sort</p> <p><b>Description</b> The type of operation submitted through Tooling API. For each operation type, use the corresponding payload of input parameters. Valid operation types are:</p> <p><b>RunTerritoryRules</b> Runs account assignment rules for any territory that has rules defined and belongs to a territory model in <code>Planning</code> or <code>Active</code> state. If your territory is in <code>Planning</code> state, running rules lets you <i>preview</i> account assignments. If your territory is in <code>Active</code> state when you run rules, accounts are assigned to territories according to your rules.</p> <p>When you choose this operation type, use the payload <a href="#">Territory2RunTerritoryRulesPayload</a> in the <code>Parameters</code> field.</p> <p><b>RunOppTerrAssignmentApex</b> Uses filter-based opportunity territory assignment to assign territories to opportunities using a simple job. We provide code for an Apex class that you can use as-is or modify as needed based on our guidelines. After you create and deploy the class, run the job to complete the assignment process. Job options include making assignments within date ranges and assigning territories to open opportunities only.</p> <p>When you choose this operation type, use the payload <a href="#">Territory2RunOppTerrAssignmentApexPayload</a> in the <code>Parameters</code> field.</p>

## OperationParameters

Represents parameters to be passed to an operation triggered by Tooling API. This type is available in API version 37.0 and later.

Field	Details
payload	<p><b>Type</b> <a href="#">OperationPayload</a></p> <p><b>Description</b> Use the payload that corresponds to the type of operation you want to trigger through Tooling API. Valid values are:</p> <ul style="list-style-type: none"> <li>• <a href="#">Territory2RunTerritoryRulesPayload</a></li> <li>• <a href="#">Territory2RunOppTerrAssignmentApexPayload</a></li> </ul>

## OperationPayload

Represents a named set of input parameters, or *payload*, that corresponds to the operation type specified in the [Type](#) field of `OperationLog`. For example, if you choose the operation type [RunTerritoryRules](#), use the payload [Territory2RunTerritoryRulesPayload](#).

Payloads that are supported by `OperationLog` are extensions of the `OperationPayload` type. This type is available in API version 37.0 and later.

## Territory2RunTerritoryRulesPayload

Represents a set of parameters to be specified when triggering a [RunTerritoryRules](#) operation through Tooling API. Extends the complex type [OperationPayload](#). This type is available in API version 37.0 and later.

Field	Details
keyPrefix	<p><b>Type</b> string</p> <p><b>Description</b> The key prefix of the entity on which the territory assignment rules should be run. The Account key prefix (001) is currently supported.</p>
territoryId	<p><b>Type</b> string</p> <p><b>Description</b> The TerritoryID of the <code>Planning</code> or <code>Active</code> territory model you want to run rules for.</p>
territoryModelId	<p><b>Type</b> string</p> <p><b>Description</b> The ID for the territory model the territory belongs to. You can run assignment rules on territory models in a <code>Planning</code> or <code>Active</code> state.</p>

## Territory2RunOppTerrAssignmentApexPayload

Represents a set of parameters to be specified when triggering a [RunOppTerrAssignmentApex](#) operation through Tooling API. Extends the complex type [OperationPayload](#). This type is available in API version 37.0 and later.

Field	Details
<code>excludeClosedOpportunities</code>	<p><b>Type</b> string</p> <p><b>Description</b> If <code>true</code>, excludes from the operation all opportunities that are already closed.</p>
<code>opportunityCloseDateFrom</code>	<p><b>Type</b> string</p> <p><b>Description</b> Use to filter opportunities based on a range of close dates. The operation applies to opportunities with close dates within the specified range. Use this field to specify a starting date for the range using the format <code>ddmmyyyy</code>.</p>
<code>opportunityCloseDateTo</code>	<p><b>Type</b> string</p> <p><b>Description</b> Use to filter opportunities based a range of close dates. The operation applies to opportunities with close dates within the specified range. Use this field to specify an ending date for the range using the format <code>ddmmyyyy</code>.</p>
<code>opportunityLastModifiedDateFrom</code>	<p><b>Type</b> string</p> <p><b>Description</b> Use to filter opportunities based a range of last-modified dates. The operation applies to opportunities with last-modified dates within the specified range. Use this field to specify a starting date for the range using the format <code>ddmmyyyy</code>.</p>
<code>opportunityLastModifiedDateTo</code>	<p><b>Type</b> string</p> <p><b>Description</b> Use to filter opportunities based a range of last-modified dates. The operation applies to opportunities with last-modified dates within the specified range. Use this field to specify an ending date for the range using the format <code>ddmmyyyy</code>.</p>
<code>territoryModelId</code>	<p><b>Type</b> string</p> <p><b>Description</b> The ID for the active territory model. Opportunities can be assigned to an active territory model only.</p>

## OpportunitySplitType

---

Represents labels and behavior for each split type Available in Tooling API version 37.0 and later.

This object is read only, and only available if Teamselling and Opportunity Splits are enabled.

There are 2 default split types: revenue splits, which must total 100%, and overlay splits, which can total any percentage.


### Supported SOAP Calls

`describeSObjects()`, `query()`, `retrieve()`

### Supported REST HTTP Methods

GET

### Fields

Field Name	Details
Description	<p><b>Type</b> textarea</p> <p><b>Properties</b> Create, Filter, Group, Sort, Update</p> <p><b>Description</b> Describes the purpose of the split type, providing context to future developers.</p>
DeveloperName	<p><b>Type</b> string</p> <p><b>Properties</b> Create, Filter, Group, Sort, Update</p> <p><b>Description</b> Required. The unique name of the object in the API. In managed packages, this field prevents naming conflicts on package installations. With this field, a developer can change the object's name in a managed package and the changes are reflected in a subscriber's organization.</p> <p> <b>Note:</b> When creating large sets of data, always specify a unique <code>DeveloperName</code> for each record. If no <code>DeveloperName</code> is specified, performance may slow while Salesforce generates one for each record.</p>
IsActive	<p><b>Type</b> boolean</p> <p><b>Properties</b> Create, Defaulted on create, Filter, Group, Sort, Update</p>

Field Name	Details
	<p><b>Description</b> Enables or disables the split type.</p>
IsTotalValidated	<p><b>Type</b> boolean</p> <p><b>Properties</b> Create, Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b> If <code>true</code>, the split must total 100%. If <code>false</code>, the split can total any percentage.</p>
Language	<p><b>Type</b> picklist</p> <p><b>Properties</b> Create, Defaulted on create, Filter, Group, Nillable, Restricted picklist, Sort, Update</p> <p><b>Description</b> Indicates language of split labels in the user interface.</p>
MasterLabel	<p><b>Type</b> string</p> <p><b>Properties</b> Create, Filter, Group, Sort, Update</p> <p><b>Description</b> The user-interface label for the split type.</p>
NamespacePrefix	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> The namespace prefix associated with this object. Each Developer Edition organization that creates a managed package has a unique namespace prefix. Limit: 15 characters. You can refer to a component in a managed package by using the <b><code>namespacePrefix__componentName</code></b> notation.</p> <p>The namespace prefix can have one of the following values:</p> <ul style="list-style-type: none"> <li>In Developer Edition organizations, the namespace prefix is set to the namespace prefix of the organization for all objects that support it. There is an exception if an object is in an installed managed package. In that case, the object has the namespace prefix of the installed managed package. This field's value is the namespace prefix of the Developer Edition organization of the package developer.</li> </ul>



Field Name	Details
	<ul style="list-style-type: none"> <li>In organizations that are not Developer Edition organizations, <code>NamespacePrefix</code> is only set for objects that are part of an installed managed package. There is no namespace prefix for all other objects.</li> </ul> <p>This field can't be accessed unless the logged-in user has the "Customize Application" permission.</p>
<code>SplitEntity</code>	<p><b>Type</b> picklist</p> <p><b>Properties</b> Create, Filter, Group, Restricted picklist, Sort</p> <p><b>Description</b> The containing record type, such as an opportunity. Available in API version 30 and later.</p>
<code>SplitField</code>	<p><b>Type</b> picklist</p> <p><b>Properties</b> Create, Filter, Group, Restricted picklist, Sort</p> <p><b>Description</b> Indicates which currency field of the opportunity object is split. Available in API version 30 and later.</p>
<code>SplitDataStatus</code>	<p><b>Type</b> picklist</p> <p><b>Properties</b> Filter, Group, Nillable, Restricted picklist, Sort, Update</p> <p><b>Description</b> Indicates the status of the split type. Available in API version 30 and later.</p>

## OwnerChangeOptionInfo

Represents default and optional actions that can be performed when a record's owner is changed. Available in Tooling API version 35.0 and later.

### Supported SOAP Calls

`describeSObject()`, `query()`, `retrieve()`

### Supported REST HTTP Methods

GET

## Fields

Field	Details
DefaultValue	<p><b>Type</b> boolean</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> Default value of the checkbox for this option in the user interface.</p>
EntityDefinition	<p><b>Type</b> <a href="#">EntityDefinition</a></p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> The object to which this change applies.</p>
EntityDefinitionId	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> The ID of the entity containing the record.</p>
IsEditable	<p><b>Type</b> boolean</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> Indicates whether this option is editable by the user when updating the owner using the <code>OwnerChangeOptions</code> SOAP header.</p>
Label	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> The label that corresponds to the option in the user interface.</p>
Name	<p><b>Type</b> string</p>

Field	Details
	<p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> The unique name for the option.</p>

## Example

Retrieve all the change options for contacts.

```
SELECT Id, Name, Label, IsEditable, DefaultValue, EntityDefinition.QualifiedApiName
FROM OwnerChangeOptionInfo
WHERE EntityDefinition.QualifiedName='Contact'
```

## PathAssistant

Represents a Sales Path. Available in Tooling API version 36.0 and later.

## Supported SOAP Calls

retrieve(), query()

## Supported REST HTTP Methods

DELETE, GET, PATCH, POST

## Fields

Field	Details
DeveloperName	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> The unique name of the sales path in the API.</p>
FullName	<p><b>Type</b> string</p> <p><b>Properties</b> Group, Nillable</p>

Field	Details
	<p><b>Description</b></p> <p>The name of the sales path in the Metadata API.</p> <p>Query this field only if the query result contains no more than 1 record. Otherwise, an error is returned. If more than 1 record exists, use multiple queries to retrieve the records. This limit protects performance.</p>
IsActive	<p><b>Type</b></p> <p>boolean</p> <p><b>Properties</b></p> <p>Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b></p> <p>Indicates whether the sales path is active (true) or inactive (false).</p>
IsDeleted	<p><b>Type</b></p> <p>boolean</p> <p><b>Properties</b></p> <p>Sort</p> <p><b>Description</b></p> <p>Indicates whether the record has been moved to the Recycle Bin (true) or not (false).</p>
IsMasterRecordType	<p><b>Type</b></p> <p>boolean</p> <p><b>Properties</b></p> <p>Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b></p> <p>Indicates whether this sales path is for the master record type (true) or not (false).</p>
Language	<p><b>Type</b></p> <p>string</p> <p><b>Properties</b></p> <p>Filter, Group, Restricted picklist, Sort</p> <p><b>Description</b></p> <p>The language of the sales path. Valid values are:</p> <ul style="list-style-type: none"> <li>• Chinese (Simplified): zh_CN</li> <li>• Chinese (Traditional): zh_TW</li> <li>• Danish: da</li> <li>• Dutch: nl_NL</li> <li>• English: en_US</li> <li>• Finnish: fi</li> <li>• French: fr</li> <li>• German: de</li> </ul>

Field	Details
	<ul style="list-style-type: none"> <li>• Italian: <code>it</code></li> <li>• Japanese: <code>ja</code></li> <li>• Korean: <code>ko</code></li> <li>• Norwegian: <code>no</code></li> <li>• Portuguese (Brazil): <code>pt_BR</code></li> <li>• Russian: <code>ru</code></li> <li>• Spanish: <code>es</code></li> <li>• Spanish (Mexico): <code>es_MX</code></li> <li>• Swedish: <code>sv</code></li> <li>• Thai: <code>th</code></li> </ul>
MasterLabel	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> Label for this sales path.</p>
Metadata	<p><b>Type</b> msn:PathAssistant</p> <p><b>Properties</b> Create, Nillable, Update</p> <p><b>Description</b> Sales path metadata from the msn namespace.</p> <p>Query this field only if the query result contains no more than 1 record. Otherwise, an error is returned. If more than 1 record exists, use multiple queries to retrieve the records. This limit protects performance.</p>
RecordTypeId	<p><b>Type</b> ID</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> The unique identifier for a record type.</p>
SubjectProcessField	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Restricted picklist, Sort</p> <p><b>Description</b> Name of the picklist field which determines the steps you can use in the sales path.</p>

Field	Details
	For example, OpportunityStage in the case of opportunities or LeadStatus in the case of leads.
SubjectType	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Restricted picklist, Sort</p> <p><b>Description</b> The object this path relates to. Valid values are: <code>Opportunity</code> or <code>Lead</code>.</p>

## PathAssistantStepInfo

Represents guidance for a step on a Sales Path. Available in Tooling API version 36.0 and later.

### Supported SOAP Calls

`update()`, `query()`

### Supported REST HTTP Methods

GET, PATCH

### Fields

Field	Details
DeveloperName	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> The unique name of the sales path guidance information.</p>
Info	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Nillable, Sort</p> <p><b>Description</b> The text of the guidance displayed to the user in the user interface.</p>

Field	Details
IsDeleted	<p><b>Type</b> boolean</p> <p><b>Properties</b> Sort</p> <p><b>Description</b> Indicates whether the record has been moved to the Recycle Bin (<code>true</code>) or not (<code>false</code>).</p>
Language	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Restricted picklist, Sort</p> <p><b>Description</b> The language of the sales path. Valid values are:</p> <ul style="list-style-type: none"><li>• Chinese (Simplified): <code>zh_CN</code></li><li>• Chinese (Traditional): <code>zh_TW</code></li><li>• Danish: <code>da</code></li><li>• Dutch: <code>n1_NL</code></li><li>• English: <code>en_US</code></li><li>• Finnish: <code>fi</code></li><li>• French: <code>fr</code></li><li>• German: <code>de</code></li><li>• Italian: <code>it</code></li><li>• Japanese: <code>ja</code></li><li>• Korean: <code>ko</code></li><li>• Norwegian: <code>no</code></li><li>• Portuguese (Brazil): <code>pt_BR</code></li><li>• Russian: <code>ru</code></li><li>• Spanish: <code>es</code></li><li>• Spanish (Mexico): <code>es_MX</code></li><li>• Swedish: <code>sv</code></li><li>• Thai: <code>th</code></li></ul>
MasterLabel	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> Label for this sales path guidance information record.</p>

## PathAssistantStepItem

---

Represents layout or guidance details for a step on a Sales Path. Available in Tooling API version 36.0 and later.

### Supported SOAP Calls

`query()`

### Supported REST HTTP Methods

GET

### Fields

Field	Details
<code>IsDeleted</code>	<p><b>Type</b> boolean</p> <p><b>Properties</b> Sort</p> <p><b>Description</b> Indicates whether the record has been moved to the Recycle Bin (<code>true</code>) or not (<code>false</code>).</p>
<code>ItemId</code>	<p><b>Type</b> ID</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> A foreign key field pointing to the <code>Type</code> field that represents either the layout (if <code>Type</code> is set to <code>Layout</code>) or the <code>PathAssistantStepInfo</code> (if <code>Type</code> is set to <code>Information</code>) of this guidance detail.</p>
<code>PathAssistantId</code>	<p><b>Type</b> ID</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> ID of the <code>PathAssistant</code> related to this step.</p>
<code>RecordTypeId</code>	<p><b>Type</b> ID</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p>



Field	Details
	<p><b>Description</b></p> <p>ID of the record type associated with this sales path.</p>
Type	<p><b>Type</b></p> <p>string</p> <p><b>Properties</b></p> <p>Filter, Group, Sort</p> <p><b>Description</b></p> <p>The type of data that <code>ItemId</code> refers to.</p> <p>Valid values are:</p> <ul style="list-style-type: none"> <li>• Information</li> <li>• Layout</li> </ul>

## PostTemplate

Represents an approval post template for Approvals in Chatter.

This object is available in API version 35.0 and later.

## Supported SOAP Calls

`query()`, `retrieve()`, `search()`, `update()`

## Supported REST HTTP Methods

GET, PATCH

## Fields

Field	Details
Description	<p><b>Type</b></p> <p>string</p> <p><b>Properties</b></p> <p>Create, Filter, Group, Nillable, Sort, Update</p> <p><b>Description</b></p> <p>A description of the feed post template, limited to 255 characters.</p>
EntityDefinition	<p><b>Type</b></p> <p><a href="#">EntityDefinition</a></p>

Field	Details
	<p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> A relationship lookup to the object type associated with this PostTemplate. You can't interact directly with this field. Instead, use it in queries.</p> <div style="border: 1px solid #ccc; height: 20px; width: 100%;"></div>
EntityDefinitionId	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> The durable ID for the object defined in the <code>EntityDefinition</code> field.</p>
Name	<p><b>Type</b> string</p> <p><b>Properties</b> Create, Filter, Group, idLookup, Sort, Update</p> <p><b>Description</b> The template name.</p>

## PermissionSetTabSetting

Represents a tab's settings for a profile or permission set. Use `PermissionSetTabSetting` for manipulating tab visibility on profiles and permission sets. Available in Tooling API version 37.0 and later.

### Supported SOAP Calls


`create()`, `delete()`, `describeObjects()`, `query()`, `retrieve()`, `update()`, `upsert()`

### Supported REST HTTP Methods

Query, GET, POST, PATCH, DELETE

### Fields

Field Name	Details
Name	<p><b>Type</b> string</p>

Field Name	Details
	<p><b>Properties</b> Create, Filter, Group, Sort</p> <p><b>Description</b> The tab's API name. For standard tabs, the name is in the form "standard-Account". For custom tabs, it's the developer name.</p>
ParentId	<p><b>Type</b> reference</p> <p><b>Properties</b> Create, Filter, Group, Sort</p> <p><b>Description</b> The ID of the permission set to which this tab setting belongs. For profile tab settings, ParentId is the ID of the permission set owned by the profile.</p>
Visibility	<p><b>Type</b> picklist</p> <p><b>Properties</b> Create, Filter, Group, Restricted picklist, Sort, Update</p> <p><b>Description</b> The default visibility setting for this tab. Valid values are:</p> <ul style="list-style-type: none"> <li>• Default Off</li> <li>• Default On</li> </ul> <p> <b>Note:</b> There's no <i>hidden</i> value. Instead, a hidden tab is indicated by having no PermissionSetTabSetting row in the database.</p>

## Usage

To hide a tab, delete the associated PermissionSetTabSetting object. ParentId and Name fields can't be updated.

This example creates a tab setting to make the custom object tab named CustomObject\_\_c visible for the System Administrator profile.

```
try {
    // Query for the ID of the permission set owned by the System Administrator profile
    String queryString = "SELECT Id FROM PermissionSet
        + WHERE Profile.Name = 'System Administrator'";
    QueryResult queryResult = connection.query(queryString);
    if (queryResult.getSize() > 0) {
        // Construct the tab setting sObject
        PermissionSetTabSetting tabSetting = new PermissionSetTabSetting();
        tabSetting.setParentId(queryResult.getRecords()[0].getId());
        tabSetting.setName("CustomObject__c");
        tabSetting.setVisibility(TabVisibility.DefaultOn);
        SObject[] sObjects = new SObject[] { tabSetting };
    }
}
```

```

// Create the tab setting
SaveResult[] saveResults = connection.create(sObjects);
for (SaveResult saveResult : saveResults) {
    if (saveResult.isSuccess()) {
        System.out.println("Successfully created the tab setting.");
        System.out.println("ID: " + saveResult.getId());
    } else {
        Error error = saveResult.getErrors()[0];
        System.out.println("Failed to create the tab setting.");
        System.out.println("Status code: " + error.getStatusCode());
        System.out.println("Message: " + error.getMessage());
    }
}
} else {
    System.out.println("Failed to find the ID of the permission set.");
}
} catch (ConnectionException ce) {
    ce.printStackTrace();
}
}

```

This example updates the existing tab setting to make the Account tab available instead of visible for the Standard User profile.

```

try {
    // Query for the ID of the tab setting for the Account tab on the Standard User profile

    String queryString = "SELECT Id FROM PermissionSetTabSetting "
        + "WHERE Parent.Profile.Name = 'Standard User' AND Name = 'standard-Account'";
    QueryResult queryResult = connection.query(queryString);
    if (queryResult.getSize() > 0) {
        // Change the visibility
        PermissionSetTabSetting tabSetting =
        (PermissionSetTabSetting) queryResult.getRecords()[0];
        tabSetting.setVisibility(TabVisibility.DefaultOff);
        // Update the tab setting
        SObject[] sObjects = new SObject[] { tabSetting };
        SaveResult[] saveResults = connection.update(sObjects);
        for (SaveResult saveResult : saveResults) {
            if (saveResult.isSuccess()) {
                System.out.println("Successfully updated the tab setting.");
                System.out.println("ID: " + saveResult.getId());
            } else {
                Error error = saveResult.getErrors()[0];
                System.out.println("Failed to update the tab setting.");
                System.out.println("Status code: " + error.getStatusCode());
                System.out.println("Message: " + error.getMessage());
            }
        }
    }
} else {
    System.out.println("Failed to find the ID of the tab setting.");
}
} catch (ConnectionException ce) {
    ce.printStackTrace();
}
}

```

The example deletes the existing tab setting to make the Account tab hidden for the Standard User profile.

```
try {
    // Query for the ID of the tab setting for the Account tab on the Standard User profile

    String queryString = "SELECT Id FROM PermissionSetTabSetting "
        + "WHERE Parent.Profile.Name = 'Standard User' AND Name = 'standard-Account'";
    QueryResult queryResult = connection.query(queryString);
    if (queryResult.getSize() > 0) {
        // Delete the tab setting
        String[] ids = new String[] { queryResult.getRecords()[0].getId() };
        DeleteResult[] deleteResults = connection.delete(ids);
        for (DeleteResult deleteResult : deleteResults) {
            if (deleteResult.isSuccess()) {
                System.out.println("Successfully deleted the tab setting.");
                System.out.println("ID: " + deleteResult.getId());
            } else {
                Error error = deleteResult.getErrors()[0];
                System.out.println("Failed to delete the tab setting.");
                System.out.println("Status code: " + error.getStatusCode());
                System.out.println("Message: " + error.getMessage());
            }
        }
    } else {
        System.out.println("Failed to find the ID of the tab setting.");
    }
} catch (ConnectionException ce) {
    ce.printStackTrace();
}
```

## Profile

---

Represents a user profile. A profile defines a user's permission to perform different functions within Salesforce.

This object is available in API version 32.0 and later.

## Supported SOAP Calls

`getDeleted()`, `getUpdated()`, `query()`, `retrieve()`, `search()`

## Supported REST HTTP Methods

GET, PATCH

## Fields

Field	Details
Description	Type string

Field	Details
	<p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> The profile description, limited to 255 characters.</p>
FullName	<p><b>Type</b> string</p> <p><b>Properties</b> Create, Group, Nillable</p> <p><b>Description</b> The unique profile name. Use this name when creating the profile, before you have an ID. This name can contain only underscores and alphanumeric characters, and must be unique in your org. It must begin with a letter, not include spaces, not end with an underscore, and not contain two consecutive underscores.</p> <p>Query this field only if the query result contains no more than one record. Otherwise, an error is returned. If more than one record exists, use multiple queries to retrieve the records. This limit protects performance.</p>
Metadata	<p><b>Type</b> ProfileMetadata</p> <p><b>Properties</b> Create, Nillable, Update</p> <p><b>Description</b> The profile metadata.</p> <p>Query this field only if the query result contains no more than one record. Otherwise, an error is returned. If more than one record exists, use multiple queries to retrieve the records. This limit protects performance.</p>
Name	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, idLookup, Sort</p> <p><b>Description</b> The profile name.</p>

## ProfileLayout

---

Represents a profile layout.

This object is available in API version 32.0 and later.

## Supported SOAP Calls

`query()`, `retrieve()`

## Supported REST HTTP Methods

GET

## Fields

Field	Details
LayoutId	<p><b>Type</b> ID</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> The unique identifier for this layout.</p>
ProfileId	<p><b>Type</b> ID</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> The unique identifier for this profile.</p>
RecordTypeId	<p><b>Type</b> ID</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> The unique identifier for the record.</p>
TableEnumOrId	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Restricted picklist, Sort</p> <p><b>Description</b> The enum (for example, Account) or ID of the object this field is on.</p>

## Publisher

---

Represents the publisher of objects and fields. For example, Salesforce is the publisher for standard objects, the organization is the publisher for custom objects, and the package is the publisher for installed packages. Available in Tooling API version 34.0 and later.

## Supported SOAP Calls

`query()` >

## Supported REST HTTP Methods

GET

## Limitations

[SOQL Limitations](#) on page 21

[SOSL Limitations](#) on page 22

## Fields

Field	Details
DurableId	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> Unique identifier for the field. Always retrieve this value before using it, as the value isn't guaranteed to stay the same from one release to the next. To simplify queries, use this field.</p>
InstalledEntityDefinitions	<p><b>Type</b> QueryResult</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> Metadata for the objects installed by this publisher. Because this field represents a relationship, use only in subqueries.</p>
InstalledFieldDefinitions	<p><b>Type</b> QueryResult</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p>



Field	Details
	<p><b>Description</b></p> <p>Metadata for the fields installed by this publisher. Because this field represents a relationship, use only in subqueries.</p>
IsSalesforce	<p><b>Type</b></p> <p>boolean</p> <p><b>Properties</b></p> <p>Filter, Group, Nillable, Sort</p> <p><b>Description</b></p> <p>Indicates whether Salesforce provided the associated objects or fields (<code>true</code>).</p>
Name	<p><b>Type</b></p> <p>string</p> <p><b>Properties</b></p> <p>Filter, Group, Nillable, Sort</p> <p><b>Description</b></p> <p>The presentation-friendly name of the publisher.</p>
NamespacePrefix	<p><b>Type</b></p> <p>string</p> <p><b>Properties</b></p> <p>Filter, Group, Nillable, Sort</p> <p><b>Description</b></p> <p>The namespace prefix associated with this object. Each Developer Edition organization that creates a managed package has a unique namespace prefix. Limit: 15 characters. You can refer to a component in a managed package by using the <b><code>namespacePrefix__componentName</code></b> notation.</p> <p>The namespace prefix can have one of the following values:</p> <ul style="list-style-type: none"> <li>• In Developer Edition organizations, the namespace prefix is set to the namespace prefix of the organization for all objects that support it. There is an exception if an object is in an installed managed package. In that case, the object has the namespace prefix of the installed managed package. This field's value is the namespace prefix of the Developer Edition organization of the package developer.</li> <li>• In organizations that are not Developer Edition organizations, <code>NamespacePrefix</code> is only set for objects that are part of an installed managed package. There is no namespace prefix for all other objects.</li> </ul> <p><code>NamespacePrefix</code> is null if the publisher is Salesforce.</p>

## QueryResult

---

Represents the results of a query. For example, if you query on the object `EntityDefinition`, all the layouts for that entity are returned as an array of `QueryResult` objects in the `Layouts` field. Available in Tooling API version 34.0 and later.

`QueryResult` is not an extension of `sObject`.

### Fields

Field	Details
<code>done</code>	<p><b>Type</b> boolean</p> <p><b>Description</b> If <code>true</code>, no additional rows can be retrieved from the query result. If <code>false</code>, one or more rows remain to be retrieved. Use this value as a loop condition while iterating through query results.</p>
<code>entityTypeName</code>	<p><b>Type</b> string</p> <p><b>Description</b> The object or entity type, such as <code>ApexClass</code> or <code>CompactLayoutInfo</code>.</p>
<code>nextRecordsUrl</code>	<p><b>Type</b> string</p> <p><b>Description</b> If the results exceed the current batch size, this field contains the URL of the next record in the query result set. This field is populated for the REST resource <code>queryAll</code>, and is analogous to <code>queryLocator</code> for SOAP calls.</p>
<code>queryLocator</code>	<p><b>Type</b> <code>QueryLocator</code></p> <p><b>Description</b> If the results exceed the current batch size, this field contains a unique identifier used to retrieve the next batch of records. This field is populated for SOAP <code>queryMore()</code> and is analogous to the REST resource <code>queryAll</code>.  Each new batch returns a new <code>queryLocator</code> value.</p>
<code>records</code>	<p><b>Type</b> <code>sObject</code></p> <p><b>Description</b> Array of <code>sObjects</code> matching the data specified in the query.</p>
<code>size</code>	<p><b>Type</b> int</p>

Field	Details
	<p><b>Description</b></p> <p>Total number of rows returned. If no rows were returned, the value is (0). This field is the same as the <code>size</code> field in <code>QueryResult</code> in the Enterprise and Partner WSDLs.</p>
<code>totalSize</code>	<p><b>Type</b></p> <p>int</p> <p><b>Description</b></p> <p>Total number of rows returned. Indicates whether the query retrieved any rows (any value greater than 0) or not (0). This field is the same as the <code>totalSize</code> field in <code>QueryResult</code> using the REST resource <code>query</code> or <code>queryAll</code>.</p>

## QueryLocator Metadata

Field	Details
<code>queryLocator</code>	<p><b>Type</b></p> <p>string</p> <p><b>Description</b></p> <p>If the results exceed the current batch size, this field contains an identifier. Use with the SOAP <code>queryMore()</code> call to retrieve the next batch of records. Each new batch returns a new <code>queryLocator</code> value.</p>

## QuickActionDefinition

Represents the definition of a quick action.

This object is available in API version 32.0 and later.

## Supported SOAP Calls

`create()`, `delete()`, `query()`, `retrieve()`, `update()`

## Supported REST HTTP Methods

DELETE, GET, PATCH, POST

## Fields

Field	Details
Description	<p><b>Type</b> textarea</p> <p><b>Properties</b> Create, Filter, Group, Nillable, Sort, Update</p> <p><b>Description</b> The description of the action.</p>
DeveloperName	<p><b>Type</b> string</p> <p><b>Properties</b> Create, Filter, Group, Sort, Update</p> <p><b>Description</b> The unique name of the action in the API. This field corresponds to the <b>Name</b> field in the user interface.</p>
Height	<p><b>Type</b> int</p> <p><b>Properties</b> Create, Filter, Group, Nillable, Sort, Update</p> <p><b>Description</b> The height of the action, in pixels. This field is set only when the quick action has a custom icon.</p>
IconId	<p><b>Type</b> reference</p> <p><b>Properties</b> Create, Filter, Group, Nillable, Sort, Update</p> <p><b>Description</b> The ID of the action icon. This field is set only when the quick action has a custom icon.</p>
Label	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> The action label that corresponds to the <b>Label</b> field in the user interface.</p>
Language	<p><b>Type</b> picklist</p>

Field	Details
	<p><b>Properties</b> Create, Defaulted on create, Filter, Group, Nillable, Restricted picklist, Sort, Update</p> <p><b>Description</b> The language of the action. Valid values are:</p> <ul style="list-style-type: none"> <li>• Chinese (Simplified): zh_CN</li> <li>• Chinese (Traditional): zh_TW</li> <li>• Danish: da</li> <li>• Dutch: nl_NL</li> <li>• English: en_US</li> <li>• Finnish: fi</li> <li>• French: fr</li> <li>• German: de</li> <li>• Italian: it</li> <li>• Japanese: ja</li> <li>• Korean: ko</li> <li>• Norwegian: no</li> <li>• Portuguese (Brazil): pt_BR</li> <li>• Russian: ru</li> <li>• Spanish: es</li> <li>• Spanish (Mexico): es_MX</li> <li>• Swedish: sv</li> <li>• Thai: th</li> </ul>
MasterLabel	<p><b>Type</b> string</p> <p><b>Properties</b> Create, Filter, Group, Sort, Update</p> <p><b>Description</b> The action label.</p>
NamespacePrefix	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> The namespace of the action.</p>
OptionsCreateFeedItem	<p><b>Type</b> boolean</p>

Field	Details
	<p><b>Properties</b> Create, Filter, Update</p> <p><b>Description</b> Indicates whether successful completion of the action creates a feed item (<code>true</code>) or not (<code>false</code>). Applies only to Create Record, Update Record, and Log a Call quick action types. Available in API version 36.0 and later.</p>
SubjectType	<p><b>Type</b> picklist</p> <p><b>Properties</b> Create, Filter, Group, Restricted picklist, Sort</p> <p><b>Description</b> The associated object's API name. For example, <code>FeedItem</code>.</p>
StandardLabel	<p><b>Type</b> picklist</p> <p><b>Properties</b> Create, Filter, Group, Nillable, Restricted picklist, Sort, Update</p> <p><b>Description</b> The standard label for the action. Valid values are:</p> <ul style="list-style-type: none"> <li>• <code>ChangeDueDate</code></li> <li>• <code>ChangePriority</code></li> <li>• <code>ChangeStatus</code></li> <li>• <code>CreateNew</code></li> <li>• <code>CreateNewRecordType</code></li> <li>• <code>Defer</code></li> <li>• <code>EditDescription</code></li> <li>• <code>LogACall</code></li> <li>• <code>LogANote</code></li> <li>• <code>New</code></li> <li>• <code>NewChild</code></li> <li>• <code>NewChildRecordType</code></li> <li>• <code>NewRecordType</code></li> <li>• <code>Quick</code></li> <li>• <code>QuickRecordType</code></li> <li>• <code>SendEmail</code></li> <li>• <code>SocialPost</code></li> <li>• <code>Update</code></li> </ul>

Field	Details
SuccessMessage	<p><b>Type</b> textarea</p> <p><b>Properties</b> Create, Filter, Group, Nillable, Sort, Update</p> <p><b>Description</b> The message that displays to the user upon successful completion of the action. Available in API version 36.0 and later.</p>
TargetField	<p><b>Type</b> picklist</p> <p><b>Properties</b> Create, Filter, Group, Nillable, Restricted picklist, Sort, Update</p> <p><b>Description</b> The API name of the parent object for the record created by this quick action. For example, CollaborationGroup.</p>
TargetRecordTypeId	<p><b>Type</b> reference</p> <p><b>Properties</b> Create, Filter, Group, Nillable, Sort, Update</p> <p><b>Description</b> The ID of the target record type.</p>
TargetSubjectType	<p><b>Type</b> picklist</p> <p><b>Properties</b> Create, Filter, Group, Nillable, Restricted picklist, Sort, Update</p> <p><b>Description</b> The API name of the type of object record this action will create. For example, OpportunityLineItem.</p>
Type	<p><b>Type</b> picklist</p> <p><b>Properties</b> Create, Filter, Group, Restricted picklist, Sort, Update</p> <p><b>Description</b> The type of action. Valid values are:</p> <ul style="list-style-type: none"> <li>• Canvas</li> <li>• Create</li> <li>• LogACall</li> <li>• Post</li> </ul>

Field	Details
	<ul style="list-style-type: none"> <li>• SendEmail</li> <li>• SocialPost</li> <li>• Update</li> <li>• VisualforcePage</li> </ul>
Width	<p><b>Type</b> int</p> <p><b>Properties</b> Create, Filter, Group, Nillable, Sort, Update</p> <p><b>Description</b> The width of the action, in pixels. This field is set only when the quick action has a custom icon.</p>

## Usage

A QuickActionDefinition represents information about a quick action. The following example creates a global quick action that lets users quickly create a task.

```
QuickActionDefinition qad = new QuickActionDefinition();
qad.setDeveloperName("MyQuickCreateTaskAction");
qad.setSubjectType("Global");
qad.setTargetSubjectType("Task");
qad.setMasterLabel("Quick create a task");
qad.setType(QuickActionType.Create);
qad.setDescription("Quickly creates a Task");

sforce.create(new SObject[] {qad});
```

## QuickActionList

Represents a list of quick actions.

This object is available in API version 32.0 and later.

## Supported SOAP Calls

create(), query(), retrieve(), update(), upsert()

## Supported REST HTTP Methods

DELETE, GET, PATCH, POST



## Fields

Field	Details
LayoutId	<p><b>Type</b> reference</p> <p><b>Properties</b> Create, Filter, Group, Sort</p> <p><b>Description</b> The ID of the associated layout.</p>

## Usage

A QuickActionList is a junction between QuickActionListItem objects and a layout. If a layout doesn't have an associated QuickActionList, it inherits the actions from the global page layout.

The following example retrieves all quick action lists in an organization and their associated layout ID.

```
String query = "SELECT Id,LayoutId FROM QuickActionList";
SObject[] records = sforce.query(query).getRecords();

for (int i = 0; i < records.length; i++) {
    QuickActionList list = (QuickActionList)records[i];
    String relatedLayoutId = list.get("LayoutId");
}
```

## QuickActionListItem

Represents an item in a quick action list.

This object is available in API version 32.0 and later.

## Supported SOAP Calls

create(), delete(), query(), retrieve(), update(), upsert()

## Supported REST HTTP Methods

DELETE, GET, PATCH, POST

## Fields

Field	Details
QuickActionDefinition	<p><b>Type</b> picklist</p>

Field	Details
	<p><b>Properties</b> Create, Filter, Group, Restricted picklist, Sort, Update</p> <p><b>Description</b> The enum name or ID of the QuickActionDefinition that's associated with this list item. Valid values are:</p> <ul style="list-style-type: none"> <li>• Case.ChangeStatus</li> <li>• Case.LogACall</li> <li>• FeedItem.ContentPost</li> <li>• FeedItem.LinkPost</li> <li>• FeedItem.MobileSmartActions</li> <li>• FeedItem.PollPost</li> <li>• FeedItem.QuestionPost</li> <li>• FeedItem.TextPost</li> </ul>
QuickActionListId	<p><b>Type</b> reference</p> <p><b>Properties</b> Create, Filter, Group, Sort</p> <p><b>Description</b> The ID of the QuickActionList associated with this list item.</p>
SortOrder	<p><b>Type</b> int</p> <p><b>Properties</b> Create, Filter, Group, Sort, Update</p> <p><b>Description</b> The order in which this list item appears in the picklist. This field must be an ordinal number greater than 0, and must be unique in the list.</p>

## Usage

A QuickActionListItem associates a QuickActionDefinition with a QuickActionList. You can query to find out which quick actions are in a list, insert or delete to add or remove quick actions from a list, and update to change the order of quick actions in the list.

The following example reverses the order in the list of the actions, and then removes the first action from the list.

```
String query = "SELECT Id,SortOrder FROM QuickActionListItem Where QuickActionListId='" +
  listId + "'"
SObject[] records = sforce.query(query).getRecords();

for(int i=0;i<records.length;i++) {
  QuickActionListItem item = (QuickActionListItem)records[i];
  item.setSortOrder(records.length-i);
}
```

```
}  
  
sforce.update(records);  
  
// Last record in array is first record in reordered list  
sforce.delete(records[records.length-1].getId());
```

## RecentlyViewed

---

Represents metadata entities typically found in Setup such as page layout definitions, workflow rule definitions, and email templates that the current user has recently viewed.

This object is available in the Tooling API version 33.0 and later.

## Supported SOAP Calls

query(), update()

## Supported REST HTTP Methods

GET

## Special Usage Rules

The RecentlyViewed object supports the following metadata entities:

- Apex classes
- Apex triggers
- Approval processes
- Apps
- Custom report types
- Email templates
- Fields
- Objects
- Page layouts
- Permission sets
- Profiles
- Static resources
- Tabs
- Users
- Validation rules
- Visualforce pages
- Visualforce components
- Workflow email alerts
- Workflow field updates

- Workflow outbound messages
- Workflow rules
- Workflow tasks

## Fields

Field	Details
Alias	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> The alias on the item.</p>
Email	<p><b>Type</b> email</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> The email address on the item.</p>
FirstName	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> The first name on the item.</p>
Id	<p><b>Type</b> ID</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b> The ID of the recently viewed item.</p>
IsActive	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b> Indicates whether the recently viewed item is an active user (true) or not (false). This field contains a value only if the recently viewed item is a user.</p>

Field	Details
LastName	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> The last name on the item.</p>
LastReferencedDate	<p><b>Type</b> dateTime</p> <p><b>Properties</b> Filter, Nillable, Sort, Update</p> <p><b>Description</b> The timestamp for when the current user last viewed an item related to this item.</p>
LastViewedDate	<p><b>Type</b> dateTime</p> <p><b>Properties</b> Filter, Nillable, Sort, Update</p> <p><b>Description</b> The timestamp for when the current user last viewed this item. If this value is null, this item might only have been referenced (see <code>LastReferencedDate</code>) and not viewed.</p>
Name	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> If the recently viewed item is a user, this is the user's name. Specifically, it's the concatenation of the <code>FirstName</code> and <code>LastName</code> field values.</p>
NetworkId	<p><b>Type</b> reference</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> The ID of the community that this group is part of. This field is available only if Salesforce Communities is enabled in your organization.</p>
Phone	<p><b>Type</b> phone</p>

Field	Details
	<p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> The phone number on the item.</p>
ProfileId	<p><b>Type</b> reference</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> If the recently viewed item is a user, this is the user's profile ID.</p>
RelatedObject	<p><b>Type</b> picklist</p> <p><b>Properties</b> Filter, Group, Nillable, Restricted picklist, Sort</p> <p><b>Description</b> The object that the recently viewed item is related to. For example, if the recently viewed item is an Account Custom Field, then the related object will be Account. Not all recently viewed items will have a related object.</p>
Title	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> If the recently viewed item is a user, this is the user's title. For example, CFO or CEO.</p>
Type	<p><b>Type</b> picklist</p> <p><b>Properties</b> Filter, Group, Nillable, Restricted picklist, Sort</p> <p><b>Description</b> The sObject type for this recently viewed item.</p>
UserRoleId	<p><b>Type</b> reference</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> The ID of the user role associated with this object.</p>

## Usage

This object provides a heterogeneous list of different metadata types and consists of recently viewed records. A record is considered viewed when the user sees the details associated with it, but not when the user sees it in a list with other records. Use this object to programmatically construct a list of recently viewed items specific to the current user, for example, on a custom user interface or for search auto-complete options. You can also retrieve a filtered list of records by object type (`Type`). The `RecentlyViewed` data is periodically truncated down to 200 records per object.

Use this query in your code to retrieve a list of all the records that were recently viewed. The results are ordered from most to least recent.

```
SELECT Id, Name
FROM RecentlyViewed
WHERE LastViewedDate !=null
ORDER BY LastViewedDate DESC
```

Use this query to retrieve data that was either viewed or referenced, but only for a limited set of objects.

```
SELECT Id, Name
FROM RecentlyViewed
WHERE Type IN ('CustomEntityDefinition', 'CustomFieldDefinition')
ORDER BY LastViewedDate DESC
```

## RecordType

---

Represents a custom record type.

This object is available in API version 32.0 and later.

## Supported SOAP Calls

`create()`, `getDeleted()`, `getUpdated()`, `query()`, `retrieve()`, `update()`, `upsert()`

## Supported REST HTTP Methods

GET, PATCH, POST

## Fields

Field	Details
BusinessProcessId	<p><b>Type</b> ID</p> <p><b>Properties</b> Create, Filter, Group, Nillable, Sort, Update</p> <p><b>Description</b> ID of an associated BusinessProcess.</p>
Description	<p><b>Type</b> string</p>

Field	Details
	<p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> The record type description, limited to 255 characters.</p>
EntityDefinitionId	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> The ID of the entity containing the record.</p>
FullName	<p><b>Type</b> string</p> <p><b>Properties</b> Create, Group, Nillable</p> <p><b>Description</b> The full name of the associated metadata object in Metadata API.  Query this field only if the query result contains no more than one record. Otherwise, an error is returned. If more than one record exists, use multiple queries to retrieve the records. This limit protects performance.</p>
IsActive	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort, Update</p> <p><b>Description</b> Indicates whether this record is active (<code>true</code>) or not (<code>false</code>). Only active record types can be applied to records.</p>
ManageableState	<p><b>Type</b> ManageableState enumerated list</p> <p><b>Properties</b> Create, Filter, Update</p> <p><b>Description</b> Indicates the manageable state of the specified component that is contained in a package:</p> <ul style="list-style-type: none"> <li>• beta</li> <li>• deleted</li> <li>• deprecated</li> <li>• installed</li> <li>• released</li> </ul>



Field	Details
	<ul style="list-style-type: none"> <li>unmanaged</li> </ul>
Metadata	<p><b>Type</b> RecordTypeMetadata</p> <p><b>Properties</b> Create, Nillable, Update</p> <p><b>Description</b> Record metadata.</p> <p>Query this field only if the query result contains no more than one record. Otherwise, an error is returned. If more than one record exists, use multiple queries to retrieve the records. This limit protects performance.</p>
Name	<p><b>Type</b> string</p> <p><b>Properties</b> Nillable</p> <p><b>Description</b> The record type name.</p>
NamespacePrefix	<p><b>Type</b> string</p> <p><b>Properties</b> Nillable</p> <p><b>Description</b> A unique string to distinguish this type from any others.</p>
SubjectType	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> The type of standard object that this record type is derived from.</p>

## RelationshipDomain

---

Represents the relationship an object has with other objects. RelationshipDomain allows you to write simpler queries. For example, “which objects are the child objects for the object defined in `ParentSubject`” is easier using RelationshipDomain. Available in Tooling API version 34.0 and later.

## Supported SOAP Calls

`query()`

## Supported REST HTTP Methods

GET

## Limitations

[SOQL Limitations](#) on page 21

[SOSL Limitations](#) on page 22

## Fields

Field	Details
ChildSubject	<p><b>Type</b> <a href="#">EntityDefinition</a></p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> Metadata for the child object, if any.</p>
ChildSubjectId	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> ID of the <code>ChildSubject</code>.</p>
DurableId	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> Unique identifier for the field. Always retrieve this value before using it, as the value isn't guaranteed to stay the same from one release to the next. To simplify queries, use this field.</p>
Field	<p><b>Type</b> <a href="#">FieldDefinition</a></p> <p><b>Properties</b> Filter, Group, Sort</p>

Field	Details
	<p><b>Description</b></p> <p>The relationship field on this object that defines the relationship to <code>ChildSubject</code> or <code>ParentSubject</code>.</p>
<code>FieldId</code>	<p><b>Type</b></p> <p>string</p> <p><b>Properties</b></p> <p>Filter, Group, Nillable, Sort</p> <p><b>Description</b></p> <p>ID of <code>Field</code>.</p>
<code>IsCascadeDelete</code>	<p><b>Type</b></p> <p>boolean</p> <p><b>Properties</b></p> <p>Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b></p> <p>If <code>true</code>, this object's parent can't be deleted until all records for this object are deleted. Corresponds to <code>Cascade</code> value for <code>DeleteConstraint</code> in the Metadata API.</p>
<code>IsDeprecatedAndHidden</code>	<p><b>Type</b></p> <p>boolean</p> <p><b>Properties</b></p> <p>Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b></p> <p>If <code>true</code>, this object is unavailable for the current version.</p>
<code>IsRestrictedDelete</code>	<p><b>Type</b></p> <p>boolean</p> <p><b>Properties</b></p> <p>Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b></p> <p>If <code>true</code>, this object can't be deleted. Corresponds to <code>Restrict</code> value for <code>DeleteConstraint</code> in the Metadata API.</p>
<code>JunctionIdListNames</code>	<p><b>Type</b></p> <p>complexvalue</p> <p><b>Properties</b></p> <p>Nillable</p> <p><b>Description</b></p> <p>The names of the lists of junction IDs associated with an object. Each ID represents an object that has a relationship with the associated object.</p>

Field	Details
ParentSubject	<p><b>Type</b> <a href="#">EntityDefinition</a></p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> Metadata for the parent object, if any.</p>
ParentSubjectId	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> ID of the ParentSubject.</p>
RelationshipInfo	<p><b>Type</b> <a href="#">RelationshipInfo</a></p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> Properties about the relationship.</p>
RelationshipInfoId	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> ID of RelationshipInfo for this relationship domain.</p>
RelationshipName	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> Name of this relationship.</p>

## RelationshipInfo

Represents the properties of a relationship between objects. Simplify queries with RelationshipInfo, such as answering the question “which objects are parent objects for the object defined in `ChildSubject`. Available in Tooling API version 34.0 and later.

## Supported SOAP Calls

`query()`, `search()`

## Supported REST HTTP Methods

GET

## Limitations

[SOQL Limitations](#) on page 21

[SOSL Limitations](#) on page 22

## Fields

Field	Details
ChildSubject	<p><b>Type</b> <a href="#">EntityDefinition</a></p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> Metadata for the child object, if any.</p>
ChildSubjectId	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> ID of the <code>ChildSubject</code>.</p>
DurableId	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> Unique identifier for the field. Always retrieve this value before using it, as the value isn't guaranteed to stay the same from one release to the next. To simplify queries, use this field.</p>
Field	<p><b>Type</b> <a href="#">FieldDefinition</a></p> <p><b>Properties</b> Filter, Group, Sort</p>

Field	Details
	<p><b>Description</b> The relationship field that defines the relationship to <code>ChildSubject</code> or <code>ParentSubject</code>.</p>
<code>FieldId</code>	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> ID of <code>Field</code>.</p>
<code>IsCascadeDelete</code>	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b> If <code>true</code>, this object's parent can't be deleted until all records for this object are deleted. Corresponds to <code>Cascade</code> value for <code>DeleteConstraint</code> in the Metadata API.</p>
<code>IsDeprecatedAndHidden</code>	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b> If <code>true</code>, this object is unavailable for the current version.</p>
<code>IsRestrictedDelete</code>	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b> If <code>true</code>, this object can't be deleted. Corresponds to <code>Restrict</code> value for <code>DeleteConstraint</code> in the Metadata API.</p>
<code>JunctionIdListNames</code>	<p><b>Type</b> complexvalue</p> <p><b>Properties</b> Nillable</p> <p><b>Description</b> The names of the lists of junction IDs associated with an object. Each ID represents an object that has a relationship with the associated object.</p>

Field	Details
RelationshipDomains	<p><b>Type</b>  <a href="#">QueryResult</a></p> <p><b>Properties</b>            Filter, Group, Sort</p> <p><b>Description</b>            The RelationshipDomain records associated with this object. Because this field represents a relationship, use only in subqueries.</p>

## RemoteProxy

Represents a set of remote site settings that allows you to access an external site from Salesforce. Use RemoteProxy when accessing external sites called by Visualforce pages, Apex callouts, or JavaScript codes using XMLHttpRequest in an s-control or custom button. To be accessible, an external site must have its settings defined with RemoteProxy or registered in the Remote Site Settings page. Available in Tooling API version 37.0 and later.

## Supported SOAP Calls

`create()`, `query()`, `retrieve()` `update()`

## Supported REST HTTP Methods



GET

## Fields

Field	Details
Description	<p><b>Type</b>            string</p> <p><b>Properties</b>            Filter, Group, Nillable, Sort</p> <p><b>Description</b>            The description explaining what this remote site setting is used for.</p>
EndpointUrl	<p><b>Type</b>            string</p> <p><b>Properties</b>            Filter, Group, Sort</p> <p><b>Description</b>            Required. The URL of the remote site.</p>

Field	Details
FullName	<p><b>Type</b> string</p> <p><b>Properties</b> Create, Group, Nillable</p> <p><b>Description</b> The unique name used as the remote site identifier for API access. The name can contain only underscores and alphanumeric characters. It must be unique, begin with a letter, not include spaces, not end with an underscore, and not contain two consecutive underscores.</p> <p>Query this field only if the query result contains no more than one record. Otherwise, an error is returned. If more than one record exists, use multiple queries to retrieve the records. This limit protects performance.</p>
IsActive	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b> Required. Indicates whether the remote site setting is active (<code>true</code>) or not (<code>false</code>).</p>
Metadata	<p><b>Type</b> complexvalue</p> <p><b>Properties</b> Create, Nillable, Update</p> <p><b>Description</b> Metadata that defines the remote site setting.</p> <p>Query this field only if the query result contains no more than one record. Otherwise, an error is returned. If more than one record exists, use multiple queries to retrieve the records. This limit protects performance.</p>
NamespacePrefix	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> The namespace prefix associated with this object. Each Developer Edition organization that creates a managed package has a unique namespace prefix of up to 15 characters. You can refer to a component in a managed package by using the <code>namespacePrefix__componentName</code> notation. The namespace prefix can have one of the following values:</p> <ul style="list-style-type: none"> <li>In Developer Edition organizations, the namespace prefix is set to the namespace prefix of the organization for all objects that support it. There is an exception if an object is in an installed managed package. In that case, the object has the namespace prefix of the</li> </ul>



Field	Details
	<p>installed managed package. This field's value is the namespace prefix of the Developer Edition organization of the package developer.</p> <ul style="list-style-type: none"> <li>In organizations that are not Developer Edition organizations, NamespacePrefix is set only for objects that are part of an installed managed package. There is no namespace prefix for all other objects.</li> </ul>
ProtocolMismatch	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b> Required. Indicates whether code within Salesforce can access the remote site regardless of whether the user's connection is over HTTP or HTTPS (<code>true</code>) or not (<code>false</code>). When <code>true</code>, code within Salesforce can pass data between HTTPS and HTTP sessions.</p> <p> <b>Warning:</b> Only set to <code>true</code> if you understand the security implications.</p> <p> <b>Note:</b> This field corresponds to the <code>disableProtocolSecurity</code> field in the Metadata API type.</p>
SiteName	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> Required. The name of the remote site.</p>

## SandboxInfo

Represents a sandbox.

SandboxInfo enqueues a sandbox for creation or refresh. A create operation on SandboxInfo represents creation of a new sandbox, and an update represents refresh of an existing sandbox. For every create or update, a SandboxProcess is automatically created and is used for monitoring the sandbox copy process.

This object is available in API version 35.0 and later.

## Supported SOAP Calls

`create()`, `delete()`, `query()`, `retrieve()`, `update()`

## Supported REST HTTP Methods

GET, PATCH, POST, DELETE

## Fields

Field	Details
ApexClassId	<p><b>Type</b> ID</p> <p><b>Properties</b> Create, Filter, Group</p> <p><b>Description</b> An Apex class that runs after each copy of the sandbox, allowing you to perform business logic on the sandbox to prepare it for use.</p> <p><b>Restrictions</b></p> <ul style="list-style-type: none"> <li>• Must be specified during sandbox creation.</li> <li>• The class must extend the <code>System.SandboxPostCopy</code> interface.</li> <li>• Available in API version 36.0 and later.</li> </ul>
AutoActivate	<p><b>Type</b> boolean</p> <p><b>Properties</b> Create, Defaulted on create, Filter, Group, Sort, Update</p> <p><b>Description</b> If <code>true</code>, you can activate a sandbox refresh immediately.</p> <p><b>Restrictions</b> This field only affects behavior for update operations (Sandbox refresh).</p>
CopyArchivedActivities	<p><b>Type</b> boolean</p> <p><b>Properties</b> Create, Defaulted on create, Filter, Group, Sort, Update</p> <p><b>Description</b> If <code>true</code>, archived activity data is copied to the sandbox.</p> <p><b>Restrictions</b> This field is visible only if your organization has purchased an option to copy archived activities for sandbox. To obtain this option, contact Salesforce Customer Support.  You can only set the value to <code>true</code> for a Full sandbox.</p>
CopyChatter	<p><b>Type</b> boolean</p> <p><b>Properties</b> Create, Defaulted on create, Filter, Group, Sort, Update</p> <p><b>Description</b> If <code>true</code>, archived Chatter data is copied to the sandbox.</p>

Field	Details
	<p><b>Restrictions</b></p> <p>You can only set the value to <code>true</code> for a Full sandbox.</p>
Description	<p><b>Type</b></p> <p>string</p> <p><b>Properties</b></p> <p>Create, Filter, Nillable, Sort, Update</p> <p><b>Description</b></p> <p>A description of the sandbox, which is useful if you have more than one sandbox.</p> <p><b>Restrictions</b></p> <p>Description can't exceed 1,000 characters.</p>
HistoryDays	<p><b>Type</b></p> <p>int</p> <p><b>Properties</b></p> <p>Create, Defaulted on create, Filter, Group, Sort, Update</p> <p><b>Description</b></p> <p>Represents the number of days of object history to be copied in the sandbox.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -1, which means all available days</li> <li>• 0 (default)</li> <li>• 10</li> <li>• 20</li> <li>• 30</li> <li>• 60</li> <li>• 90</li> <li>• 120</li> <li>• 150</li> <li>• 180</li> </ul> <p><b>Restrictions</b></p> <p>This field only affects behavior for Full sandboxes.</p>
LicenseType	<p><b>Type</b></p> <p>picklist</p> <p><b>Properties</b></p> <p>Create, Filter, Group, Restricted picklist, Sort, Update</p> <p><b>Description</b></p> <p>Represents the sandbox license type. Valid values:</p> <ul style="list-style-type: none"> <li>• DEVELOPER</li> <li>• DEVELOPER_PRO</li> </ul>

Field	Details
	<ul style="list-style-type: none"> <li>PARTIAL</li> <li>FULL</li> </ul>
SandboxName	<p><b>Type</b> string</p> <p><b>Properties</b> Create, Filter, Group, idLookup, Unique, Update</p> <p><b>Description</b> Name of the sandbox.</p> <p><b>Restrictions</b></p> <ul style="list-style-type: none"> <li>Must be a unique sandbox name.</li> <li>Must be alpha-numeric characters.</li> <li>Must be ten or fewer characters.</li> <li>Can't be the same as a pending deleted sandbox.</li> </ul>
TemplateId	<p><b>Type</b> ID</p> <p><b>Properties</b> Create, Filter, Nillable, Sort, Update</p> <p><b>Description</b> ID of the sandbox template associated with this sandbox. A sandbox template lets you select which objects to copy in a sandbox.</p> <p><b>Restrictions</b></p> <ul style="list-style-type: none"> <li>Setting a value for a Partial Copy sandbox is required.</li> <li>Setting a value for a Full sandbox is optional.</li> <li>Setting a value for other sandbox types is prohibited, because other sandbox types don't support sandbox templates.</li> </ul>

## Usage

SandboxInfo and [SandboxProcess](#) work together to manage the creation or refresh of a sandbox.

## SandboxProcess

Represents the sandbox copy process for a SandboxInfo record.

When you create a SandboxInfo record, a corresponding SandboxProcess record is created. The latest SandboxProcess record for a SandboxInfo record represents the current state of the sandbox.

This object is available in API version 35.0 and later.

## Supported SOAP Calls

`query()`, `retrieve()`, `update()`

## Supported REST HTTP Methods

GET, PATCH

## Fields

Except for `RefreshAction`, all fields are read only. The read-only fields represent the attributes chosen on `SandboxInfo` when a copy process was enqueued, or represent the state of the process for monitoring purposes.

Field	Details
<code>ActivatedById</code>	<p><b>Type</b> ID</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> Represents the user who requested sandbox activation.</p>
<code>ActivatedDate</code>	<p><b>Type</b> dateTime</p> <p><b>Properties</b> Filter, Nillable, Sort</p> <p><b>Description</b> Represents when the sandbox was activated during a refresh.</p>
<code>ApexClassId</code>	<p><b>Type</b> ID</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> An Apex class that runs after each copy of the sandbox, allowing you to perform DML operations on the sandbox to prepare it for use. This field must be specified during sandbox creation. The class must extend the <code>System.SandboxPostCopy</code> interface. Available in API version 36.0 and later.</p>
<code>AutoActivate</code>	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b> Represents whether the sandbox refresh configured to activate immediately upon completion.</p>

Field	Details
CopyArchivedActivities	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b> Represents whether archived activity data is copied to the sandbox.</p>
CopyChatter	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b> Represents whether archived Chatter data is copied to the sandbox.</p>
CopyProgress	<p><b>Type</b> int</p> <p><b>Properties</b> Filter, Nillable, Sort</p> <p><b>Description</b> Represents how much of a copy has been completed.  Available for Developer, Developer Pro, and Full sandboxes. Not available for Full or Partial sandboxes using sandbox templates.</p>
Description	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Nillable, Sort</p> <p><b>Description</b> A description of the sandbox, which is useful if you have more than one sandbox.</p>
EndDate	<p><b>Type</b> dateTime</p> <p><b>Properties</b> Filter, Nillable, Sort</p> <p><b>Description</b> Represents when the sandbox copy process finished.</p>
HistoryDays	<p><b>Type</b> int</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p>

Field	Details
	<p><b>Description</b></p> <p>Represents the number of days of object history to be copied in the sandbox.</p> <p>Valid values:</p> <ul style="list-style-type: none"><li>• -1, which means all available days</li><li>• 0</li><li>• 10</li><li>• 20</li><li>• 30</li><li>• 60</li><li>• 90</li><li>• 120</li><li>• 150</li><li>• 180</li></ul>
IsDeleted	<p><b>Type</b></p> <p>boolean</p> <p><b>Properties</b></p> <p>Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b></p> <p>Do not use.</p>
LicenseType	<p><b>Type</b></p> <p>picklist</p> <p><b>Properties</b></p> <p>Filter, Group, Restricted picklist, Sort</p> <p><b>Description</b></p> <p>The sandbox license type. Valid values:</p> <ul style="list-style-type: none"><li>• DEVELOPER</li><li>• DEVELOPER_PRO</li><li>• PARTIAL</li><li>• FULL</li></ul>
RefreshAction	<p><b>Type</b></p> <p>picklist</p> <p><b>Properties</b></p> <p>Filter, Group, Nillable, Restricted picklist, Sort, Update</p> <p><b>Description</b></p> <p>Editing this field activates or discards a sandbox refresh. Valid values:</p> <ul style="list-style-type: none"><li>• ACTIVATE</li></ul>

Field	Details
	<ul style="list-style-type: none"> <li>DISCARD</li> </ul> <p><b>Restrictions</b></p> <p>If all the following are true, you can activate or discard a sandbox refresh by editing the value in this field:</p> <ul style="list-style-type: none"> <li>This record is the latest SandboxProcess record.</li> <li>The associated sandbox has been refreshed.</li> <li>This record's Status is Pending Activation.</li> </ul>
SandboxInfoId	<p><b>Type</b></p> <p>ID</p> <p><b>Properties</b></p> <p>Filter, Group, Nillable, Sort</p> <p><b>Description</b></p> <p>ID of the SandboxInfo being processed (create or refresh).</p>
SandboxName	<p><b>Type</b></p> <p>string</p> <p><b>Properties</b></p> <p>Create, Filter, Group, idLookup, Unique, Update</p> <p><b>Description</b></p> <p>Name of the sandbox.</p>
SandboxOrganization	<p><b>Type</b></p> <p>string</p> <p><b>Properties</b></p> <p>Filter, Group, Nillable, Sort</p> <p><b>Description</b></p> <p>The ID of the org created by the copy process. This field is available in API version 37.0 and later.</p>
SourceId	<p><b>Type</b></p> <p>ID</p> <p><b>Properties</b></p> <p>Filter, Group, Nillable, Sort</p> <p><b>Description</b></p> <p>The ID of the SandboxInfo that this sandbox is a clone of. This field is used only when cloning a sandbox. When this field is used, LicenseType must be null. Your source sandbox must be an existing, completed sandbox, that belongs to the same production org as the sandbox you're creating or refreshing. Your SourceId value can't be the same SandboxInfo that you're updating. Available in API version 37.0 and later.</p>
StartDate	<p><b>Type</b></p> <p>dateTime</p>



Field	Details
	<p><b>Properties</b> Filter, Nillable, Sort</p> <p><b>Description</b> Represents when the sandbox copy process started.</p>
Status	<p><b>Type</b> string</p> <p><b>Properties</b> Group, Nillable, Sort</p> <p><b>Description</b> Current state of the sandbox copy process.</p>
TemplateId	<p><b>Type</b> ID</p> <p><b>Properties</b> Create, Filter, Nillable, Sort, Update</p> <p><b>Description</b> ID of the sandbox template associated with the sandbox for this process. A sandbox template selects which objects to copy in a sandbox.</p>

## Usage

SandboxInfo represents a sandbox, and SandboxProcess represents the sandbox copy process, which occurs when you create a sandbox or refresh it. You can also delete a sandbox.

## Creating a Sandbox

To enqueue a new sandbox:

1. Create a SandboxInfo record.
2. To find the status of a sandbox after it is enqueued, query SandboxProcess for a given `SandboxInfoId` field to find the latest SandboxProcess record. The value of `Completed` in `Status` indicates that the creation process is finished.

## Refreshing a Sandbox

To refresh a sandbox:

1. To start a sandbox refresh, Edit the SandboxInfo record.
2. To find the status of a sandbox after it is enqueued, query SandboxProcess for a given `SandboxInfoId` field to find the latest SandboxProcess record. The value of `Status` indicates the current state of the process.
3. When the `Status` field value is `Pending Activation`, either change the value of the `RefreshAction` field to `ACTIVATE` or `DISCARD`.

## Deleting a Sandbox

To delete a sandbox, delete the SandboxInfo record that represents the sandbox, which deletes the sandbox and frees up a license.

## SearchLayout

---

Represents a search layout defined for an object.

This object is available in the Tooling API version 34.0 and later.

## Supported SOAP Calls

`query()`, `search()`

## Supported REST HTTP Methods

GET

## Limitations

[SOQL Limitations](#) on page 21

[SOSL Limitations](#) on page 22

## Supported REST Methods

GET

## Fields

Field	Details
ButtonsDisplayed	<p><b>Type</b> <a href="#">SearchLayoutButtonsDisplayed</a></p> <p><b>Properties</b> Nillable</p> <p><b>Description</b> The list of buttons available in list views for an object.  This field is equivalent to the <code>Buttons Displayed</code> value in Object Name List View in the Search Layouts related list on the object detail page. It's also equivalent to the <code>ListViewButtons</code> field on SearchLayouts in the Metadata API.</p>
DurableId	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p>

Field	Details
	<p><b>Description</b></p> <p>Unique identifier for the field. Always retrieve this value before using it, as the value isn't guaranteed to stay the same from one release to the next. <code>DurableId</code> in queries allows you to find the right record without having to retrieve the entire record.</p>
<code>EntityDefinition</code>	<p><b>Type</b></p> <p>string</p> <p><b>Properties</b></p> <p>Filter, Group, Nillable, Sort</p> <p><b>Description</b></p> <p>The name of the object associated with this search layout. Use in subqueries.</p>
<code>EntityDefinitionId</code>	<p><b>Type</b></p> <p>string</p> <p><b>Properties</b></p> <p>Filter, Group, Nillable, Sort</p> <p><b>Description</b></p> <p>ID of the record in <code>EntityDefinition</code>. Use in subqueries.</p>
<code>FieldsDisplayed</code>	<p><b>Type</b></p> <p><a href="#">SearchLayoutFieldsDisplayed</a></p> <p><b>Properties</b></p> <p>Nillable</p> <p><b>Description</b></p> <p>The list of fields displayed in a search result for the object. The name field is required. It's always displayed as the first column header, so it is not included in this list; all additional fields are included. The field name relative to the object name, for example <code>MyCustomField__c</code>, is specified for each custom field.</p> <p>This field is equivalent to the Search Results in the Search Layouts related list on the object detail page in the application user interface. It's also equivalent to <code>searchResultsAdditionalFields</code> in the Metadata API.</p>
<code>Label</code>	<p><b>Type</b></p> <p>string</p> <p><b>Properties</b></p> <p>Filter, Group, Nillable, Sort</p> <p><b>Description</b></p> <p>The label for this search layout.</p>
<code>LayoutType</code>	<p><b>Type</b></p> <p>string</p>

Field	Details
	<p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> The type of search layout.</p>

## SearchLayoutButton Metadata

Type	Details
apiName	<p><b>Type</b> string</p> <p><b>Description</b> The API name of the button.</p>
label	<p><b>Type</b> string</p> <p><b>Description</b> The button's label text.</p>

## SearchLayoutButtonsDisplayed Metadata

Type	Details
applicable	<p><b>Type</b> boolean</p> <p><b>Description</b> If <code>true</code>, the buttons listed in <code>buttons</code> apply to the object associated with this search layout.</p>
buttons	<p><b>Type</b> string</p> <p><b>Description</b> The list of buttons on the object associated with this search layout.</p>

## SearchLayoutField Metadata

Type	Details
apiName	<p><b>Type</b> string</p> <p><b>Description</b> The API name of the field.</p>
label	<p><b>Type</b> string</p> <p><b>Description</b> The field's label text.</p>
sortable	<p><b>Type</b> boolean</p> <p><b>Description</b> If <code>true</code>, the fields can be sorted.</p>

## SearchLayoutFieldsDisplayed Metadata

Type	Details
applicable	<p><b>Type</b> boolean</p> <p><b>Description</b> If <code>true</code>, the fields listed in <code>fields</code> are available in the object associated with this search layout.</p>
fields	<p><b>Type</b> string</p> <p><b>Description</b> The list of fields on the object associated with this search layout.</p>

## SecurityHealthCheck

Represents your org's Health Check score. The score indicates how well your org's security settings comply with Salesforce-recommended values in the baseline standard. Only users with the "Modify All Data" user permission can retrieve data from this object. Available in Tooling API version 37.0 and later.

## Supported SOAP Calls

`query()`

## Supported REST HTTP Methods

GET

## Fields

Field	Details
DurableId	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> Unique identifier for the field. Always retrieve this value before using it, as the value isn't guaranteed to stay the same from one release to the next. To simplify queries, use this field.</p>
Score	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> The Health Check score for the org. The score can range from 0 to 100.</p>

## Usage

Use this object to query your org's Health Check score.

```
SELECT Score FROM SecurityHealthCheck
```

More Health Check information is available by querying the object [SecurityHealthCheckRisks](#) on page 256.

## SecurityHealthCheckRisks

Represents your org's security setting values, risks, and Salesforce-recommended setting values. Only users with the "Modify All Data" user permission can retrieve data from this object. Available in Tooling API version 37.0 and later.

## Supported SOAP Calls

`query()`

## Supported REST HTTP Methods

GET

## Fields

Field	Details
DurableId	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> Unique identifier for the field. Always retrieve this value before using it, as the value isn't guaranteed to stay the same from one release to the next. To simplify queries, use this field.</p>
OrgValue	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Nillable, Sort</p> <p><b>Description</b> The org's value for the security setting.</p>
RiskType	<p><b>Type</b> picklist</p> <p><b>Properties</b> Filter, Group, Nillable, Restricted picklist, Sort</p> <p><b>Description</b> The level of risk of the org's security setting value. Valid values are:</p> <ul style="list-style-type: none"> <li>• HIGH_RISK</li> <li>• MEDIUM_RISK</li> <li>• MEETS_STANDARD</li> </ul>
SecurityHealthCheckId	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> The ID of the Health Check score record associated with this field.</p>
Setting	<p><b>Type</b> string</p>

Field	Details
	<p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> The name of the security setting. For example, <code>Minimum password length</code>.</p>
SettingGroup	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> The name of the security setting group in which the setting resides in the Setup tree. For example, <code>Password Policies</code>.</p>
StandardValue	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Nillable, Sort</p> <p><b>Description</b> Salesforce-recommended standard value for the security setting.</p>

## Usage

Use this object to query your org's security setting values, risks, and Salesforce-recommended setting values. Reading security settings and their security status is useful if you have multiple Salesforce applications that require consistency and compliance in their security posture.

This query gets a list of your org's high risk settings.

```
SELECT RiskType, Setting, SettingGroup, OrgValue, StandardValue FROM SecurityHealthCheckRisks
where RiskType=HIGH_RISK
```

This query gets your org's Health Check score as well as a list of your org's high risk settings.

```
SELECT Score, (SELECT RiskType, Setting, SettingGroup, OrgValue, StandardValue FROM
SecurityHealthCheckRisks where RiskType=HIGH_RISK) FROM SecurityHealthCheck
```

This query gets your org's Health Check score and the security settings that meet the Salesforce baseline standard.

```
SELECT Score, (SELECT RiskType, Setting, SettingGroup, OrgValue, StandardValue FROM
SecurityHealthCheckRisks where RiskType=MEETS_STANDARD) FROM SecurityHealthCheck
```

This query lists all the values in the Salesforce baseline standard.

```
SELECT Setting, SettingGroup, StandardValue FROM SecurityHealthCheckRisks
```



## ServiceFieldType

---


Don't use this object.

This object is visible in version 34.0 for some organizations, but we plan to remove it in a later release.

## Scontrol

---

Represents a custom s-control, which is custom content that our system hosts, but client applications execute. An s-control can contain any type of content that you can display or run in a Web browser.

 **Important:** Visualforce pages supersede s-controls. Organizations that haven't previously used s-controls can't create them. Existing s-controls are unaffected, and can still be edited. We recommend that you move your s-controls to Visualforce. We continue to support this object.

## Supported SOAP Calls

`query()`

## Supported REST Methods


GET

## Special Access Rules

- Your organization must be using Enterprise, Developer, or Unlimited Edition and be enabled for custom s-controls.
- Customer Portal users can't access this object.

## Fields

Field	Details
<code>ContentSource</code>	<p><b>Type</b> picklist</p> <p><b>Properties</b> Filter, Group, Nillable, Restricted picklist, Sort, Update</p> <p><b>Description</b> Specify the source of the s-control content, either custom HTML, a snippet (s-controls that are included in other s-controls), or a URL.</p>
<code>Description</code>	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort, Update</p>

Field	Details
	<p><b>Description</b></p> <p>Description of the custom s-control.</p>
DeveloperName	<p><b>Type</b></p> <p>string</p> <p><b>Properties</b></p> <p>Filter, Group, Sort, Update</p> <p><b>Description</b></p> <p>The unique name of the object in the API. This name can contain only underscores and alphanumeric characters, and must be unique in your org. It must begin with a letter, not include spaces, not end with an underscore, and not contain two consecutive underscores. In managed packages, this field prevents naming conflicts on package installations. With this field, a developer can change the object's name in a managed package and the changes are reflected in a subscriber's organization. Label is <b>S-Control Name</b>.</p> <p> <b>Note:</b> When creating large sets of data, always specify a unique <code>DeveloperName</code> for each record. If no <code>DeveloperName</code> is specified, Salesforce generates one for each record, which slows performance.</p>
EncodingKey	<p><b>Type</b></p> <p>picklist</p> <p><b>Properties</b></p> <p>Filter, Group, Restricted picklist, Sort, Update</p> <p><b>Description</b></p> <p>Picklist of character set encodings, including ISO-08859-1, UTF-8, EUC, JIS, Shift-JIS, Korean (ks_c_5601-1987), Simplified Chinese (GB2312), and Traditional Chinese (Big5).</p>
ManageableState	<p><b>Type</b></p> <p>ManageableState enumerated list</p> <p><b>Properties</b></p> <p>Create, Filter, Update</p> <p><b>Description</b></p> <p>Indicates the manageable state of the specified component that is contained in a package:</p> <ul style="list-style-type: none"> <li>• beta</li> <li>• deleted</li> <li>• deprecated</li> <li>• installed</li> <li>• released</li> <li>• unmanaged</li> </ul>
Name	<p><b>Type</b></p> <p>string</p>

Field	Details
	<p><b>Properties</b> Filter, Group, Sort, Update</p> <p><b>Description</b> Required. Name of this custom s-control. Label is <b>Label</b>.</p>
NamespacePrefix	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> The namespace prefix associated with this object. Each Developer Edition organization that creates a managed package has a unique namespace prefix. Limit: 15 characters. You can refer to a component in a managed package by using the <b><i>namespacePrefix__componentName</i></b> notation.</p> <p>The namespace prefix can have one of the following values:</p> <ul style="list-style-type: none"> <li>• In Developer Edition organizations, the namespace prefix is set to the namespace prefix of the organization for all objects that support it. There is an exception if an object is in an installed managed package. In that case, the object has the namespace prefix of the installed managed package. This field is the namespace prefix of the Developer Edition organization of the package developer.</li> <li>• In organizations that are not Developer Edition organizations, <code>NamespacePrefix</code> is only set for objects that are part of an installed managed package. There is no namespace prefix for all other objects.</li> </ul>
SupportsCaching	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort, Update</p> <p><b>Description</b> Indicates whether the s-control supports caching (<code>true</code>) or not (<code>false</code>).</p>

## Usage

Use custom s-controls to manage custom content that extends application functionality. All users can view custom s-controls, but the “Customize Application” permission is required to create or update custom s-controls.

## SOQLResult

A complex type that represents the result of a SOQL query in an `ApexExecutionOverlayResult` object. Available from API version 28.0 or later.

## Fields

Field	Details
<code>queryError</code>	<p><b>Type</b> string</p> <p><b>Description</b> The error text returned if the execution was unsuccessful.</p>
<code>queryMetadata</code>	<p><b>Type</b> QueryResultMetadata</p> <p><b>Description</b> The structured result returned from a successful execution. QueryResultMetadata includes the following fields:</p> <ul style="list-style-type: none"> <li>• <code>columnMetadata</code></li> <li>• <code>entityName</code></li> <li>• <code>groupBy</code></li> <li>• <code>idSelected</code></li> <li>• <code>keyPrefix</code></li> </ul>
<code>queryResult</code>	<p><b>Type</b> array of MapValue</p> <p><b>Description</b> MapValue contains an array of MapEntry, which contains the following fields:</p> <ul style="list-style-type: none"> <li>• <code>keyDisplayValue</code></li> <li>• <code>value</code> (reference to StateValue)</li> </ul>

## Usage

Overlay SOQL on checkpoints to capture structured debugging information. If your SOQL query may return more than one record when dealing with complex types, select only one row. For example, you can use a `LIMIT=1` clause in your SOQL query, or you can list rows for the user and have them select the row to inspect.

## StandardAction

Represents the buttons, links, and actions (standard actions) for a standard or custom object. This object is available in API version 34.0 and later.

You can view the standard actions from an object's management settings by going to Buttons, Links, and Actions.

## Supported SOAP Calls

`query()`

## Supported REST HTTP Methods

GET

## Fields

Field	Details
ContentType	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Restricted picklist, Sort</p> <p><b>Description</b> Indicates whether the button or link is standard, URL, s-control, JavaScript action, or Visualforce page. This value maps to the <code>ContentSource</code> field in the user interface.</p>
Description	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> Text displayed to an administrator in the standard action setup page. <code>Description</code> can be different from the <code>Label</code>, which is the label displayed in the user interface to end users. It can also be different from <code>Name</code>, which is a unique string used in merge fields.</p>
DurableId	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> Unique identifier for the field. Always retrieve this value before using it, as the value isn't guaranteed to stay the same from one release to the next. <code>DurableId</code> in queries allows you to find the right record without having to retrieve the entire record.</p>
EntityDefinition	<p><b>Type</b> EntityDefinition</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> The entity definition of the standard or custom object for which these standard actions are defined.</p>

Field	Details
	<p>For example, to find all the standard actions for Account, use a query similar to the following:</p> <pre>SELECT Label, EntityDefinition.Label FROM StandardAction WHERE EntityDefinition.QualifiedApiName = 'Account'</pre>
EntityDefinitionId	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> The ID of the standard or custom object for which this standard action is defined.</p>
IsOverridden	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b> Indicates whether this standard action has been overridden (<code>true</code>, or not).</p>
Label	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> The text that displays in a user interface for the standard action.</p>
ManageableState	<p><b>Type</b> ManageableState enumerated list</p> <p><b>Properties</b> Filter, Group, Restricted picklist, Sort</p> <p><b>Description</b> Indicates the action's manageable state. Valid values:</p> <ul style="list-style-type: none"> <li>• beta</li> <li>• deleted</li> <li>• deprecated</li> <li>• installed</li> <li>• released</li> <li>• unmanaged</li> </ul>

Field	Details
Name	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> The unique name for the button or link when referenced from a merge field. This name can contain only underscores and alphanumeric characters, and must be unique in your organization. It must begin with a letter, not include spaces, not end with an underscore, and not contain two consecutive underscores.</p>
OverrideContent	<p><b>Type</b> tns:Name</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> Reference to the actions that override standard actions for an object.  To retrieve information, use this field with the fields in Name, because you can't query the field directly.  For example, assume that you have overridden a standard action for Account. The following query returns the label of the standard action, and the name and ID of the action that overrides the standard action.</p> <pre>SELECT Label, OverrideContent.Id, OverrideContent.Name FROM StandardAction WHERE EntityDefinition.QualifiedApiName='Account' AND IsOverriden=true</pre> <p>Because OverrideContent is a Name object, you have access to all the fields in Name, in this case Name.Name and Name.Id.</p>
OverrideContentId	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> ID of an <code>OverrideContent</code> record. Returns the same value as <code>OverrideContent.Id</code> in the sample SOQL query for <code>OverrideContent</code>.</p>

## StaticResource

Represents the working copy of a static resource file for editing or saving. Static resources allow you to upload content that you can reference in a Visualforce page, including images, stylesheets, JavaScript, and other files. Available in Tooling API version 29.0 and later.

## Supported SOAP API Calls

`create()`, `delete()`, `describeSObjects()`, `query()`, `retrieve()`, `update()`, `upsert()`

## Supported REST API HTTP Methods

Query, GET, POST, PATCH, DELETE

## Fields

Field Name	Details
Name	<p><b>Type</b> string</p> <p><b>Properties</b> Create, Update</p> <p><b>Description</b> The static resource name. The name can only contain characters, letters, and the underscore ( <code>_</code> ) character, must start with a letter, and cannot end with an underscore or contain two consecutive underscore characters</p>
Body	<p><b>Type</b> string</p> <p><b>Properties</b> Create, Update</p> <p><b>Description</b> The data for the static resource file.</p>
ContentType	<p><b>Type</b> string</p> <p><b>Properties</b> Create, Update</p> <p><b>Description</b> Required. The content type of the file, for example text/plain.</p>
CacheControl	<p><b>Type</b> string</p> <p><b>Properties</b> Create, Update</p> <p><b>Description</b> Required. Indicates whether the static resource is marked with a public caching tag so that a third-party delivery client can cache the content. The valid values are:</p> <ul style="list-style-type: none"> <li>• Private</li> </ul>



**Field Name****Details**

- Public

## Usage

To create, edit, or save a static resource file, create a `StaticResource` object that references it.

## SymbolTable

A complex type that represents all user-defined tokens in the `Body` of an `ApexClass`, `ApexClassMember`, or `ApexTriggerMember` and their associated line and column locations within the `Body`.

## Fields

**Field****Details**`constructors`**Type**array of `Constructor`**Description**

Contains the position, scope, and signature of constructors for the Apex class. Apex triggers don't have constructors.

Constructor includes the following fields:

- [annotations](#)
- `location`
- [modifiers](#)
- `name`
- `references`
- `visibility` (available only in API versions 33.0 and earlier; scope: Global, Public, or Private)
- `parameters`

`externalReferences`**Type**array of `ExternalReference`**Description**

Contains the name, namespace, external class, method, and variable references for the Apex class or trigger. These references can be used for symbol highlighting or code navigation.

ExternalReference includes the following fields:

- `methods`
- `name`
- `namespace`

Field	Details
	<ul style="list-style-type: none"> <li>• <code>references</code></li> <li>• <code>variables</code></li> </ul>
<code>innerClasses</code>	<p><b>Type</b> array of SymbolTable</p> <p><b>Description</b> Contains a symbol table for each inner class of the Apex class or trigger.</p>
<code>interfaces</code>	<p><b>Type</b> array of String</p> <p><b>Description</b> Contains a set of strings for each interface with the namespace and name, for example: [ 'System.Batchable', 'MyNamespace.MyInterface' ].</p>
<code>methods</code>	<p><b>Type</b> array of Method</p> <p><b>Description</b> Contains the position, name, scope, signature, and return type of available Apex methods. Method includes the following fields:</p> <ul style="list-style-type: none"> <li>• <code>annotations</code></li> <li>• <code>location</code></li> <li>• <code>modifiers</code></li> <li>• <code>name</code></li> <li>• <code>references</code></li> <li>• <code>visibility</code> (available only in API versions 33.0 and earlier; scope: Global, Public, or Private)</li> <li>• <code>parameters</code></li> <li>• <code>returnType</code></li> </ul>
<code>name</code>	<p><b>Type</b> string</p> <p><b>Description</b> The name of the Apex class or trigger.</p>
<code>namespace</code>	<p><b>Type</b> string</p> <p><b>Description</b> The namespace of the Apex class or trigger. Null if there is no namespace.</p>
<code>parentClass</code>	<p><b>Type</b> string</p>

Field	Details
	<p><b>Description</b></p> <p>Returns parents of inner classes and extending classes.</p>
properties	<p><b>Type</b></p> <p>array of VisibilitySymbol</p> <p><b>Description</b></p> <p>Contains the position, name, scope, and references of properties for the Apex class or trigger. VisibilitySymbol includes the following fields:</p> <ul style="list-style-type: none"> <li>• <a href="#">annotations</a></li> <li>• location</li> <li>• <a href="#">modifiers</a></li> <li>• name</li> <li>• references</li> <li>• visibility (available only in API versions 33.0 and earlier; scope: Global, Public, or Private)</li> </ul>
tableDeclaration	<p><b>Type</b></p> <p>array of Symbol</p> <p><b>Description</b></p> <p>Contains the position, name, and references of the Apex class or trigger. Symbol includes the following fields:</p> <ul style="list-style-type: none"> <li>• <a href="#">annotations</a></li> <li>• location</li> <li>• <a href="#">modifiers</a></li> <li>• name</li> <li>• references</li> </ul>
variables	<p><b>Type</b></p> <p>array of Symbol</p> <p><b>Description</b></p> <p>Contains the position, name, and references of related variables. Symbol includes the following fields:</p> <ul style="list-style-type: none"> <li>• <a href="#">annotations</a></li> <li>• location</li> <li>• <a href="#">modifiers</a></li> <li>• name</li> <li>• references</li> </ul>

## Annotations

Available values for `annotations` fields include:

- `Deprecated`
- `Future`
- `HttpDelete`
- `HttpGet`
- `HttpPatch`
- `HttpPost`
- `HttpPut`
- `InvocableMethod`
- `InvocableVariable`
- `IsTest`
- `ReadOnly`
- `RemoteAction`
- `TestSetup`
- `TestVisible`
- `RestResource`

## Modifiers

Modifiers can include more values than those values explicitly specified in classes and methods. All relevant modifiers, including implicit ones, are now returned. For example, all `webservice` methods have an implicit `global` modifier. Also, because fields and methods are private unless otherwise specified, the `private` modifier is returned by default.

The `testMethod` modifier is returned when either the `testMethod` modifier or the `IsTest` annotation is used.

Available values for `modifiers` fields include:

- `abstract`
- `final`
- `global`
- `override`
- `private`
- `protected`
- `public`
- `static`
- `testMethod`
- `transient`
- `virtual`
- `webservice`
- `with sharing`
- `without sharing`

## Usage

Use symbol tables instead of building a parser or compiler. Symbol tables allow you to do symbol highlighting, code navigation, code completion, symbol searches, and more.

A symbol table can't be created if the content referenced by the `ContentEntityId` field doesn't use a symbol table. Compiler errors for the last deployment of the [MetadataContainer](#) in the `MetadataContainerId` field also prevent a symbol table from being created.

## TraceFlag

---

Represents a trace flag that triggers an Apex debug log at the specified logging level.

## Supported SOAP API Calls

`create()`, `delete()`, `describeSObjects()`, `query()`, `retrieve()`, `update()`, `upsert()`

## Supported REST API HTTP Methods

Query, GET, POST, PATCH, DELETE

## Fields

Field Name	Details
ApexCode	<p><b>Type</b> picklist</p> <p><b>Properties</b> Create, Filter, Group, Restricted picklist, Sort, Update</p> <p><b>Description</b> The log category level for Apex code. Includes information about Apex code and can include information such as log messages generated by data manipulation language (DML) statements, inline SOQL or SOSL queries, the start and completion of any triggers, the start and completion of any test method, and so on. The following are valid values.</p> <ul style="list-style-type: none"> <li>• NONE</li> <li>• ERROR</li> <li>• WARN</li> <li>• INFO</li> <li>• DEBUG</li> <li>• FINE</li> <li>• FINER</li> <li>• FINEST</li> </ul> <p>This field is required.</p>

Field Name	Details
ApexProfiling	<p><b>Type</b> picklist</p> <p><b>Properties</b> Create, Filter, Group, Restricted picklist, Sort, Update</p> <p><b>Description</b> The log category level for profiling information. Includes cumulative profiling information, such as the limits for your namespace, the number of emails sent, and so on. The following are valid values.</p> <ul style="list-style-type: none"> <li>• NONE</li> <li>• ERROR</li> <li>• WARN</li> <li>• INFO</li> <li>• DEBUG</li> <li>• FINE</li> <li>• FINER</li> <li>• FINEST</li> </ul> <p>This field is required.</p>
Callout	<p><b>Type</b> picklist</p> <p><b>Properties</b> Create, Filter, Group, Restricted picklist, Sort, Update</p> <p><b>Description</b> The log category level for callouts. Includes the request-response XML that the server is sending and receiving from an external Web service. The request-response XML is useful when debugging issues related to SOAP API calls. The following are valid values.</p> <ul style="list-style-type: none"> <li>• NONE</li> <li>• ERROR</li> <li>• WARN</li> <li>• INFO</li> <li>• DEBUG</li> <li>• FINE</li> <li>• FINER</li> <li>• FINEST</li> </ul> <p>This field is required.</p>
Database	<p><b>Type</b> picklist</p>

**Field Name****Details****Properties**

Create, Filter, Group, Restricted picklist, Sort, Update

**Description**

The log category for database activity. Includes information about database activity, including every DML statement or inline SOQL or SOSL query. The following are valid values.

- NONE
- ERROR
- WARN
- INFO
- DEBUG
- FINE
- FINER
- FINEST

This field is required.

DebugLevelId

**Type**

reference

**Properties**

Create, Filter, Group, Nillable, Sort, Update

**Description**

The ID of the debug level assigned to this trace flag. A debug level, which is a set of log category levels, can be assigned to multiple trace flags.

ExpirationDate

**Type**

dateTime

**Properties**

Create, Filter, Sort, Update

**Description**

The date and time that the trace flag expires. `ExpirationDate` must be less than 24 hours after `StartDate`. If `StartDate` is null, `ExpirationDate` must be less than 24 hours from the current time.

This field is required.

LogType

**Type**

picklist

**Properties**

Create, Filter, Group, Restricted picklist, Sort

**Description**

The type of log to generate. The following are valid values.

- CLASS\_TRACING

Field Name	Details
	<ul style="list-style-type: none"> <li>DEVELOPER_LOG</li> <li>PROFILING (reserved for future use)</li> <li>USER_DEBUG</li> </ul> <p>When you open the Developer Console, it sets a <code>DEVELOPER_LOG</code> trace flag to log your activities. <code>USER_DEBUG</code> trace flags cause logging of an individual user's activities. <code>CLASS_TRACING</code> trace flags override logging levels for Apex classes and triggers, but don't generate logs.</p> <p>This field is required.</p>
ScopeId	<p><b>Type</b> reference</p> <p><b>Properties</b> Create, Filter, Group, Nillable, Sort, Update</p> <p><b>Description</b> <b>Deprecated.</b> This field is available in API version 34.0 and earlier.</p> <p>A reference to a user. This field is used with the <code>TracedEntityID</code> field.</p> <ul style="list-style-type: none"> <li>When the value is <code>user</code>, the actions of the user or entity specified by <code>TracedEntityID</code> are traced to the system log at the described level. System logs are visible only to you. Use this scope for class-level filtering. If there are both user and entity-level flags, the user flags take precedence until a method from a class with an entity trace flag is entered. When the method returns, the user trace flags are restored.</li> <li>When the value is <code>emptyid</code>, the user's actions are traced to the organization's debug log at the described level. Debug logs are visible to all administrators. This option is only available if <code>TracedEntityID</code> references a user (not an Apex class or Apex trigger). The variable <code>emptyid</code> can be the value <code>0000000000000000</code> or null.</li> </ul> <p>The scope defined here is reflected in the <a href="#">ApexLog Location</a> field.</p>
StartDate	<p><b>Type</b> dateTime</p> <p><b>Properties</b> Create, Filter, Group, Nillable, Sort, Update</p> <p><b>Description</b> The date and time when the trace flag takes effect.</p>
System	<p><b>Type</b> picklist</p> <p><b>Properties</b> Create, Filter, Group, Restricted picklist, Sort, Update</p>



Field Name	Details
	<p><b>Description</b></p> <p>The log category level for calls to all system methods, such as the <code>System.debug</code> method. The following are valid values.</p> <ul style="list-style-type: none"> <li>• NONE</li> <li>• ERROR</li> <li>• WARN</li> <li>• INFO</li> <li>• DEBUG</li> <li>• FINE</li> <li>• FINER</li> <li>• FINEST</li> </ul> <p>This field is required.</p>
TracedEntityId	<p><b>Type</b></p> <p>reference</p> <p><b>Properties</b></p> <p>Create, Filter, Group, Sort, Update</p> <p><b>Description</b></p> <p>A reference to the following:</p> <ul style="list-style-type: none"> <li>• Apex class</li> <li>• Apex trigger</li> <li>• User</li> </ul> <p>This field is used with the <code>LogType</code> field. This field is required.</p>
Validation	<p><b>Type</b></p> <p>picklist</p> <p><b>Properties</b></p> <p>Create, Filter, Group, Restricted picklist, Sort, Update</p> <p><b>Description</b></p> <p>The log category level for validation rules. Includes information about validation rules, such as the name of the rule, or whether the rule evaluated true or false. The following are valid values.</p> <ul style="list-style-type: none"> <li>• NONE</li> <li>• ERROR</li> <li>• WARN</li> <li>• INFO</li> <li>• DEBUG</li> <li>• FINE</li> <li>• FINER</li> </ul>

Field Name	Details
	<ul style="list-style-type: none"> <li>• FINEST</li> </ul> <p>This field is required.</p>
Visualforce	<p><b>Type</b> picklist</p> <p><b>Properties</b> Create, Filter, Group, Restricted picklist, Sort, Update</p> <p><b>Description</b> The log category level for Visualforce. Includes information about Visualforce events, including serialization and deserialization of the view state or the evaluation of a formula field in a Visualforce page. The following are valid values.</p> <ul style="list-style-type: none"> <li>• NONE</li> <li>• ERROR</li> <li>• WARN</li> <li>• INFO</li> <li>• DEBUG</li> <li>• FINE</li> <li>• FINER</li> <li>• FINEST</li> </ul> <p>This field is required.</p>
Workflow	<p><b>Type</b> picklist</p> <p><b>Properties</b> Create, Filter, Group, Restricted picklist, Sort, Update</p> <p><b>Description</b> The log category level for workflow rules. Includes information for workflow rules, such as the rule name and the actions taken. This field is required. The following are valid values.</p> <ul style="list-style-type: none"> <li>• NONE</li> <li>• ERROR</li> <li>• WARN</li> <li>• INFO</li> <li>• DEBUG</li> <li>• FINE</li> <li>• FINER</li> <li>• FINEST</li> </ul>

## Usage

To diagnose a functional issue or a performance problem, use the TraceFlag object to set up logging for yourself or for another user. The following options are available.

- To set up logging for a specific user, set `LogType` to `USER_DEBUG` and `TracedEntityId` to the ID of the user. This option can be configured only for a user, not for an Apex class or Apex trigger.
- To set up logging level overrides for an Apex class or trigger, set `LogType` to `CLASS_TRACING` and `TracedEntityId` to the ID of the Apex class or trigger. `CLASS_TRACING` trace flags override other logging levels, but don't cause logs to be generated or persisted.

## TransactionSecurityPolicy

---

Represents a transaction security policy definition (policy).

This object is available in Tooling API version 35.0 and later.

## Supported Calls

`create()`, `delete()`, `query()`, `retrieve()`, `update()`, `upsert()`

## Supported REST Methods

Query, DELETE, GET, PATCH, POST

## Fields

Field	Details										
ActionConfig	<p><b>Type</b> string</p> <p><b>Properties</b> Create, Update</p> <p><b>Description</b> Describes the action to take when the matching Transaction Security policy is triggered. Multiple actions can be taken. The actions available depend on the <a href="#">Event Type</a> field.</p> <table border="1"> <thead> <tr> <th>Event Type</th> <th>Available Actions</th> </tr> </thead> <tbody> <tr> <td>AccessResource</td> <td> <ul style="list-style-type: none"> <li>• Block</li> <li>• Two-factor authentication</li> </ul> </td> </tr> <tr> <td>DataExport</td> <td>None; only notifications are available.</td> </tr> <tr> <td>Entity</td> <td>None; only notifications are available.</td> </tr> <tr> <td>Login</td> <td> <ul style="list-style-type: none"> <li>• Block</li> </ul> </td> </tr> </tbody> </table>	Event Type	Available Actions	AccessResource	<ul style="list-style-type: none"> <li>• Block</li> <li>• Two-factor authentication</li> </ul>	DataExport	None; only notifications are available.	Entity	None; only notifications are available.	Login	<ul style="list-style-type: none"> <li>• Block</li> </ul>
Event Type	Available Actions										
AccessResource	<ul style="list-style-type: none"> <li>• Block</li> <li>• Two-factor authentication</li> </ul>										
DataExport	None; only notifications are available.										
Entity	None; only notifications are available.										
Login	<ul style="list-style-type: none"> <li>• Block</li> </ul>										

## Field

## Details

Event Type	Available Actions
	<ul style="list-style-type: none"> <li>• Two-factor authentication</li> <li>• End an existing session</li> </ul>

ApexPolicyId

**Type**

reference

**Properties**

Create, Filter, Group, Nillable, Sort, Update

**Description**Represents the Apex `TxnSecurity.PolicyCondition` interface for this policy.

DeveloperName

**Type**

string

**Properties**

Create, Filter, Group, Sort, Update

**Description**

The API, or program name, for this policy.

EventType

**Type**

picklist

**Properties**

Create, Filter, Group, Nillable, Restricted picklist, Sort, Update

**Description**

Indicates the type of event the policy monitors. Valid values are:

- `AccessResource`—Notifies you when the selected resource has been accessed.
- `AuditTrail`—Reserved for future use.
- `DataExport`—Notifies you when the selected object type has been exported using the Data Loader API client.
- `Entity`—Notifies you on use of an object type such as an authentication provider or client browser.
- `Login`—Notifies you when a user logs in.

ExecutionUserId

**Type**

reference

**Properties**

Create, Filter, Group, Nillable, Sort, Update

**Description**

The ID of the user to notify when the policy is triggered. This user must be active and assigned the System Administrator profile.

Field	Details						
MasterLabel	<p><b>Type</b> string</p> <p><b>Properties</b> Create, Filter, Group, Sort, Update</p> <p><b>Description</b> The policy's name.</p>						
NamespacePrefix	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> The namespace prefix associated with this object. Each Developer Edition organization that creates a managed package has a unique namespace prefix. Limit: 15 characters. You can refer to a component in a managed package by using the <b><i>namespacePrefix__componentName</i></b> notation.</p> <p>The namespace prefix can have one of the following values:</p> <ul style="list-style-type: none"> <li>In Developer Edition organizations, the namespace prefix is set to the namespace prefix of the organization for all objects that support it. There is an exception if an object is in an installed managed package. In that case, the object has the namespace prefix of the installed managed package. This field's value is the namespace prefix of the Developer Edition organization of the package developer.</li> <li>In organizations that are not Developer Edition organizations, <code>NamespacePrefix</code> is only set for objects that are part of an installed managed package. There is no namespace prefix for all other objects.</li> </ul>						
ResourceName	<p><b>Type</b> string</p> <p><b>Properties</b> Create, Filter, Group, Nillable, Sort, Update</p> <p><b>Description</b> A resource used to narrow down the conditions under which the policy triggers. For example, with a <code>Login</code> event, you can add a resource to specify which login URL triggers the policy. The resources available depend on the <a href="#">Event Type</a> field.</p> <table border="1"> <thead> <tr> <th>Event Type</th> <th>Available Actions</th> </tr> </thead> <tbody> <tr> <td>AccessResource</td> <td> <ul style="list-style-type: none"> <li>EventTimestamp</li> <li>SessionLevel</li> <li>SourceIp</li> </ul> </td> </tr> <tr> <td>DataExport</td> <td> <ul style="list-style-type: none"> <li>EventTimestamp</li> </ul> </td> </tr> </tbody> </table>	Event Type	Available Actions	AccessResource	<ul style="list-style-type: none"> <li>EventTimestamp</li> <li>SessionLevel</li> <li>SourceIp</li> </ul>	DataExport	<ul style="list-style-type: none"> <li>EventTimestamp</li> </ul>
Event Type	Available Actions						
AccessResource	<ul style="list-style-type: none"> <li>EventTimestamp</li> <li>SessionLevel</li> <li>SourceIp</li> </ul>						
DataExport	<ul style="list-style-type: none"> <li>EventTimestamp</li> </ul>						

**Field**

**Details**

Event Type	Available Actions
	<ul style="list-style-type: none"> <li>• SessionLevel</li> <li>• SourceIp</li> </ul>
Entity	<ul style="list-style-type: none"> <li>• AuthorizeUrl</li> <li>• ConsumerKey</li> <li>• ConsumerSecret</li> <li>• DefaultScopes</li> <li>• DeveloperName</li> <li>• ErrorUrl</li> <li>• FriendlyName</li> <li>• IconUrl</li> <li>• IdTokenIssuer</li> <li>• LogoutUrl</li> <li>• TokenUrl</li> <li>• UserInfoUrl</li> </ul>
Login	<ul style="list-style-type: none"> <li>• ApiType</li> <li>• ApiVersion</li> <li>• Application</li> <li>• Browser</li> <li>• ClientVersion</li> <li>• LoginUrl</li> <li>• Platform</li> <li>• Status</li> </ul>

State

**Type**

picklist

**Properties**

Create, Filter, Group, Restricted picklist, Sort, Update

**Description**

Indicates whether the policy is active. Valid values are:

- Disabled
- Enabled

Type

**Type**

picklist

Field	Details
	<p><b>Properties</b> Create, Filter, Group, Restricted picklist, Sort, Update</p> <p><b>Description</b> The type of validation that the policy uses. The only valid value is <code>CustomApexPolicy</code>.</p>

## User

---

Represents a user. You can retrieve standard fields on User with the Tooling API, but custom fields can't be retrieved.

This object is available in API version 32.0 and later.

## Supported SOAP Calls

`describeLayout()`, `getDeleted()`, `getUpdated()`, `query()`, `retrieve()`, `search()`, `update()`

## Supported REST HTTP Methods

GET, PATCH

## Fields

Field	Details
FirstName	<p><b>Type</b> string</p> <p><b>Properties</b> Create, Filter, Group, NillableSort, Update</p> <p><b>Description</b> The user's first name.</p>
LastName	<p><b>Type</b> string</p> <p><b>Properties</b> Create, Filter, Group, NillableSort, Update</p> <p><b>Description</b> The user's last name.</p>
Name	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Sort</p>

Field	Details
	<p><b>Description</b> Concatenation of <code>FirstName</code> and <code>LastName</code>. Limited to 121 characters.</p>
Username	<p><b>Type</b> string</p> <p><b>Properties</b> Create, Filter, Group, idLookup, Sort, Update</p> <p><b>Description</b> The name of the user in your organization.</p>
WorkspaceId	<p><b>Type</b> ID</p> <p><b>Properties</b> Filter, Group, Nillable, Sort, Update</p> <p><b>Description</b> The ID of the last open Developer Console workspace.</p>

## UserEntityAccess

---

Represents the access that the current user has to an object. Available in Tooling API version 34.0 and later.

### Supported SOAP Calls

`query()`, `search()`

### Supported REST HTTP Methods

GET

### Limitations

[SOQL Limitations](#) on page 21

[SOSL Limitations](#) on page 22

### Fields

Field	Details
DurableId	<p><b>Type</b> string</p>



Field	Details
	<p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> Unique identifier for the field. Always retrieve this value before using it, as the value isn't guaranteed to stay the same from one release to the next. To simplify queries, use this field.</p>
EntityDefinition	<p><b>Type</b> EntityDefinition</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> The entity definition for the object associated with this user entity access record. Because this field represents a relationship, use only in subqueries.</p>
EntityDefinitionId	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> ID of the EntityDefinition.</p>
IsActiveable	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b> If <code>true</code>, the user specified in the <code>USER</code> field has access to activate records of the associated object type if the User owns them. For example, a user owns an Apex trigger or workflow rule, and can activate them if this field is <code>true</code> for ApexTrigger or WorkflowRule.</p>
IsCreatable	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b> If <code>true</code>, the user specified in the <code>USER</code> field has access to create records of the associated object type.</p>
IsDeletable	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p>

Field	Details
	<p><b>Description</b></p> <p>If <code>true</code>, the user specified in the <code>User</code> field has access to delete records of the associated object type.</p>
<code>IsEditable</code>	<p><b>Type</b></p> <p>boolean</p> <p><b>Properties</b></p> <p>Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b></p> <p>If <code>true</code>, the user specified in the <code>User</code> field has access to edit records of the associated object type.</p>
<code>IsFlsUpdatable</code>	<p><b>Type</b></p> <p>boolean</p> <p><b>Properties</b></p> <p>Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b></p> <p>If <code>true</code>, the user specified in the <code>User</code> field has access to change field-level security settings on appropriate fields of the associated object type. For example, an administrator could deny a group of users access to the <code>Type</code> field on <code>Account</code>.</p>
<code>IsMergeable</code>	<p><b>Type</b></p> <p>boolean</p> <p><b>Properties</b></p> <p>Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b></p> <p>If <code>true</code>, the user specified in the <code>User</code> field has access to merge records of the associated object type.</p>
<code>IsReadable</code>	<p><b>Type</b></p> <p>boolean</p> <p><b>Properties</b></p> <p>Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b></p> <p>If <code>true</code>, the user specified in the <code>User</code> field has access to view records of the associated object type.</p>
<code>IsUndeletable</code>	<p><b>Type</b></p> <p>boolean</p> <p><b>Properties</b></p> <p>Defaulted on create, Filter, Group, Sort</p>

Field	Details
	<p><b>Description</b></p> <p>If <code>true</code>, the user specified in the <code>User</code> field has access to undelete records of the associated object type.</p>
IsUpdatable	<p><b>Type</b></p> <p>boolean</p> <p><b>Properties</b></p> <p>Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b></p> <p>If <code>true</code>, the user specified in the <code>User</code> field has access to edit records of the associated object type.</p>
User	<p><b>Type</b></p> <p>User</p> <p><b>Properties</b></p> <p>Filter, Group, Nillable, Sort</p> <p><b>Description</b></p> <p>The user who has the access defined in this user entity access record, for the entity specified in the <code>EntityDefinition</code> field. Because this field represents a relationship, use only in subqueries.</p>
UserId	<p><b>Type</b></p> <p>ID</p> <p><b>Properties</b></p> <p>Filter, Group, Nillable, Sort</p> <p><b>Description</b></p> <p>ID of the user specified in the <code>User</code> field.</p>

## Usage

Queries on `UserEntityAccess` need filters on both the entity side and the user side.

Example: Entity Side

```
SELECT EntityDefinition.QualifiedApiName, EntityDefinition.MasterLabel
FROM UserEntityAccess WHERE UserId={current_user_id}
AND IsCreateable=true AND EntityDefinition.IsCustomizable=true
```

Example: User Side

```
UserId={current_user_id}
```

# UserFieldAccess

---

Represents the access that the current user has to a field. Available in Tooling API version 34.0 and later.

## Fields

Field	Details
DurableId	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> Unique identifier for the field. Always retrieve this value before using it, as the value isn't guaranteed to stay the same from one release to the next. To simplify queries, use this field.</p>
EntityDefinition	<p><b>Type</b> EntityDefinition</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> The entity definition for the object associated with this user entity access record.</p>
EntityDefinitionId	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> ID of the EntityDefinition.</p>
IsAccessible	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b> If <code>true</code>, the user specified in the <code>User</code> field has access to view the associated field.</p>
IsCreatable	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p>

Field	Details
	<p><b>Description</b></p> <p>If <code>true</code>, the user specified in the <code>User</code> field has access to create records of the associated field.</p>
<code>IsUpdatable</code>	<p><b>Type</b></p> <p>boolean</p> <p><b>Properties</b></p> <p>Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b></p> <p>If <code>true</code>, the user specified in the <code>User</code> field has access to edit the associated field.</p>
<code>User</code>	<p><b>Type</b></p> <p><a href="#">User</a> on page 281</p> <p><b>Properties</b></p> <p>Filter, Group, Nillable, Sort</p> <p><b>Description</b></p> <p>The user who has access defined in this user field access record, for the entity specified in the <code>EntityDefinition</code> field. Because this field represents a relationship, use only in subqueries.</p>
<code>UserId</code>	<p><b>Type</b></p> <p>ID</p> <p><b>Properties</b></p> <p>Filter, Group, Nillable, Sort</p> <p><b>Description</b></p> <p>ID of the user specified in the <code>User</code> field.</p>

## SOQL Limitations

This object doesn't support some SOQL operations.

### GROUP BY

Example Query: `SELECT COUNT(qualifiedapiname), isfeedenabled FROM EntityDefinition GROUP BY isfeedenabled`

Error Returned: The requested operation is not yet supported by this SObject storage type, contact salesforce.com support for more information.

### LIMIT, LIMIT OFFSET

Example Queries:

`SELECT qualifiedapiname FROM EntityDefinition LIMIT 5`

`SELECT qualifiedapiname FROM EntityDefinition LIMIT 5 OFFSET 10`

An incorrect result is returned because LIMIT and LIMIT OFFSET are ignored.

**NOT**

Example Query: `SELECT qualifiedapiname FROM EntityDefinition WHERE qualifiedapiname!='Account'`

Error Returned: Only equals comparisons permitted

**OR**

Example Query: `SELECT qualifiedapiname, keyprefix FROM EntityDefinition WHERE isdeletable=true OR (isfeedenabled=false AND keyprefix='01j')`

Error Returned: Disjunctions not supported

## ValidationRule

---

Represents a validation rule or workflow rule which specifies the formula for when a condition is met. Available from API version 34.0 or later.

### Supported SOAP Calls

`create()`, `delete()`, `query()`, `retrieve()`, `update()`, `upsert()`

### Supported REST HTTP Methods

Query, GET, POST, PATCH

### Fields

Field Name	Details
Active	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort.</p> <p><b>Description</b> Required. Indicates whether this validation rule is active, (<code>true</code>), or not active (<code>false</code>).</p>
Description	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Nillable, Sort.</p> <p><b>Description</b> A description of the validation rule.</p>
EntityDefinition	<p><b>Type</b> <a href="#">EntityDefinition</a></p>

Field Name	Details
	<p><b>Properties</b> Filter, Group, Sort.</p> <p><b>Description</b> Required. The entity definition for the object associated with the validation rule.</p>
EntityDefinitionId	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Sort.</p> <p><b>Description</b> Required. ID of the record in <code>EntityDefinition</code>.</p>
ErrorDisplayField	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort.</p> <p><b>Description</b> The fully specified name of a field in the application. If a value is supplied, the error message appears next to the specified field. If you do not specify a value or the field isn't visible on the page layout, the value changes automatically to <code>Top of Page</code>.</p>
ErrorMessage	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort .</p> <p><b>Description</b> Required. The message that appears if the validation rule fails. The message must be 255 characters or less.</p>
FullName	<p><b>Type</b> string</p> <p><b>Properties</b> Create, Group, Nillable.</p> <p><b>Description</b> The internal name of the object. White spaces and special characters are escaped for validity. The name must:</p> <ul style="list-style-type: none"> <li>• Contain characters, letters, or the underscore (<code>_</code>) character</li> <li>• Must start with a letter</li> <li>• Can't end with an underscore</li> <li>• Can't contain two consecutive underscore characters.</li> </ul>

Field Name	Details
	<p>Query this field only if the query result contains no more than one record. Otherwise, an error is returned. If more than one record exists, use multiple queries to retrieve the records. This limit protects performance.</p>
Id	<p><b>Type</b> Id</p> <p><b>Properties</b> Defaulted on create, Filter, Group, idLookup, Sort.</p> <p><b>Description</b> The unique system ID for this record.</p>
ManageableState	<p><b>Type</b> ManageableState enumerated list</p> <p><b>Properties</b> Create, Filter, Update</p> <p><b>Description</b> Indicates the manageable state of the specified component that is contained in a package:</p> <ul style="list-style-type: none"> <li>• beta</li> <li>• deleted</li> <li>• deprecated</li> <li>• installed</li> <li>• released</li> <li>• unmanaged</li> </ul>
Metadata	<p><b>Type</b> <a href="#">ValidationRule Metadata</a></p> <p><b>Properties</b> Create, Nillable, Update.</p> <p><b>Description</b> Validation rule metadata.</p> <p>Query this field only if the query result contains no more than one record. Otherwise, an error is returned. If more than one record exists, use multiple queries to retrieve the records. This limit protects performance.</p>
NamespacePrefix	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort.</p> <p><b>Description</b> The namespace prefix associated with this object. Each Developer Edition organization that creates a managed package has a unique namespace prefix.</p>



Field Name	Details
	<p>Limit: 15 characters. You can refer to a component in a managed package by using the <b><code>namespacePrefix__componentName</code></b> notation.</p> <p>The namespace prefix can have one of the following values:</p> <ul style="list-style-type: none"> <li>In Developer Edition organizations, the namespace prefix is set to the namespace prefix of the organization for all objects that support it. There is an exception if an object is in an installed managed package. In that case, the object has the namespace prefix of the installed managed package. This field's value is the namespace prefix of the Developer Edition organization of the package developer.</li> <li>In organizations that are not Developer Edition organizations, <code>NamespacePrefix</code> is only set for objects that are part of an installed managed package. There is no namespace prefix for all other objects.</li> </ul>
<code>ValidationName</code>	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Namefield, Sort.</p> <p><b>Description</b> The name or ID of the object that this rule is associated with.</p>

## ValidationRule Metadata

`active`, `description`, `errorDisplayField`, and `errorMessage` are described in the previous table.

Field Name	Details
<code>errorConditionFormula</code>	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> Required. The formula defined in the validation rule. If the formula returns a value of <code>true</code>, an error message is displayed.</p>

## WebLink

Represents a custom button or link. Available in the Tooling API from API version 34.0 or later.

## Supported SOAP Calls

`getUpdated()`, `query()`, `retrieve()`, `search()`

## Supported REST HTTP Methods

GET

### Fields

Field Name	Details
Description	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Nillable, Sort</p> <p><b>Description</b> A description of the button or link.</p>
DisplayType	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Restricted picklist, Sort</p> <p><b>Description</b> Represents how the button or link is rendered. Valid values are:</p> <ul style="list-style-type: none"> <li>• <code>link</code> for a hyperlink</li> <li>• <code>button</code> for a button</li> <li>• <code>massAction</code> for a button attached to a related list</li> </ul>
EncodingKey	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Sort</p> <p><b>Description</b> Valid values include:</p> <ul style="list-style-type: none"> <li>• <code>UTF-8</code>—Unicode (UTF-8)</li> <li>• <code>ISO-8859-1</code>—General US &amp; Western Europe (ISO-8859-1, ISO-LATIN-1)</li> <li>• <code>Shift_JIS</code>—Japanese (Shift-JIS)</li> <li>• <code>ISO-2022-JP</code>—Japanese (JIS)</li> <li>• <code>EUC-JP</code>—Japanese (EUC-JP)</li> <li>• <code>x-SJIS_0213</code>—Japanese (Shift-JIS_2004)</li> <li>• <code>ks_c_5601-1987</code>—Korean (ks_c_5601-1987)</li> <li>• <code>Big5</code>—Traditional Chinese (Big5)</li> <li>• <code>GB2312</code>—Simplified Chinese (GB2312)</li> <li>• <code>Big5-HKSCS</code>—Traditional Chinese Hong Kong (Big5-HKSCS)</li> </ul>

Field Name	Details
EntityDefinition	<p><b>Type</b> <a href="#">EntityDefinition</a></p> <p><b>Properties</b> Filter, Group, Sort.</p> <p><b>Description</b> Required. Available in API version 34.0. The entity definition for the object associated with this button or link.</p>
EntityDefinitionId	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Sort.</p> <p><b>Description</b> Required. ID of the record associated with the button or link. The record's object type is in <code>EntityDefinition</code>.</p>
FullName	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Sort.</p> <p><b>Description</b> The full name of the associated metadata object in Metadata API.  Query this field only if the query result contains no more than one record. Otherwise, an error is returned. If more than one record exists, use multiple queries to retrieve the records. This limit protects performance.</p>
HasMenubar	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort.</p> <p><b>Description</b> If <code>OpenType</code> is <code>newWindow</code>, this field indicates whether to show the browser menu bar for the popup window (<code>true</code>, or not (<code>false</code>)). For other values of <code>OpenType</code>, don't specify a value here.</p>
HasScrollbars	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort.</p>

Field Name	Details
	<p><b>Description</b></p> <p>If the value of <code>OpenType</code> is <code>newWindow</code>, this field indicates whether to show the scroll bars for the window (<code>true</code>) or not (<code>false</code>). For other values of <code>OpenType</code>, don't specify a value here.</p>
HasToolbar	<p><b>Type</b></p> <p>boolean</p> <p><b>Properties</b></p> <p>Defaulted on create, Filter, Group, Sort.</p> <p><b>Description</b></p> <p>If the value of <code>OpenType</code> is <code>newWindow</code>, this field indicates whether to show the browser toolbar for the window (<code>true</code>) or not (<code>false</code>). For other values of <code>OpenType</code>, don't specify a value here.</p>
Height	<p><b>Type</b></p> <p>int</p> <p><b>Properties</b></p> <p>Filter, Group, Nillable, Sort.</p> <p><b>Description</b></p> <p>Required if the value of <code>OpenType</code> is <code>newWindow</code>. Height in pixels of the window opened by the button or link. For other values of <code>OpenType</code>, don't specify a value here.</p>
IsResizable	<p><b>Type</b></p> <p>boolean</p> <p><b>Properties</b></p> <p>Defaulted on create, Filter, Group, Sort.</p> <p><b>Description</b></p> <p>If the value of <code>OpenType</code> is <code>newWindow</code>, this field indicates whether to allow resizing of the window (<code>true</code>) or not (<code>false</code>). For other values of <code>OpenType</code>, don't specify a value here.</p>
LinkType	<p><b>Type</b></p> <p>WebLinkType enumerated list</p> <p><b>Properties</b></p> <p>Filter, Group, Restricted picklist, Sort</p> <p><b>Description</b></p> <p>Required. Represents whether the content of the button or link is specified by a URL, an <code>sControl</code>, a JavaScript code block, or a Visualforce page.</p> <ul style="list-style-type: none"> <li>• <code>url</code></li> <li>• <code>sControl</code></li> <li>• <code>javascript</code></li> </ul>

Field Name	Details
	<ul style="list-style-type: none"> <li>• page</li> <li>• flow—Reserved for future use.</li> </ul>
ManageableState	<p><b>Type</b> ManageableState enumerated list</p> <p><b>Properties</b> Create, Filter, Update</p> <p><b>Description</b> Indicates the manageable state of the specified component that is contained in a package:</p> <ul style="list-style-type: none"> <li>• beta</li> <li>• deleted</li> <li>• deprecated</li> <li>• installed</li> <li>• released</li> <li>• unmanaged</li> </ul>
MasterLabel	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort, Update</p> <p><b>Description</b> Master label for this object. This display value is the internal label that is not translated. Limit: 240 characters.</p>
Metadata	<p><b>Type</b> mns:WebLink</p> <p><b>Properties</b> Filter, Group, idLookup, Sort</p> <p><b>Description</b> The metadata for this object as defined in the Metadata API.  Query this field only if the query result contains no more than one record. Otherwise, an error is returned. If more than one record exists, use multiple queries to retrieve the records. This limit protects performance.</p>
Name	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, idLookup, Sort</p> <p><b>Description</b> Required. Name to display on the page.</p>

Field Name	Details
NamespacePrefix	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Sort.</p> <p><b>Description</b> The namespace prefix associated with this object. Each Developer Edition organization that creates a managed package has a unique namespace prefix. Limit: 15 characters. You can refer to a component in a managed package by using the <b><i>namespacePrefix__componentName</i></b> notation.</p> <p>The namespace prefix can have one of the following values:</p> <ul style="list-style-type: none"> <li>• In Developer Edition organizations, the namespace prefix is set to the namespace prefix of the organization for all objects that support it. There is an exception if an object is in an installed managed package. In that case, the object has the namespace prefix of the installed managed package. This field's value is the namespace prefix of the Developer Edition organization of the package developer.</li> <li>• In organizations that are not Developer Edition organizations, <code>NamespacePrefix</code> is only set for objects that are part of an installed managed package. There is no namespace prefix for all other objects.</li> </ul>
OpenType	<p><b>Type</b> WebLinkWindowType enumerated list</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> The window style used to display the content. Valid values are:</p> <ul style="list-style-type: none"> <li>• <code>newWindow</code></li> <li>• <code>sidebar</code></li> <li>• <code>noSidebar</code></li> <li>• <code>replace</code></li> <li>• <code>onClickJavaScript</code></li> </ul>
Position	<p><b>Type</b> WebLinkPosition enumerated list</p> <p><b>Properties</b> Filter, Group, Nillable, Restricted picklist, Sort</p> <p><b>Description</b> If the value of <code>OpenType</code> is <code>newWindow</code>, this field indicates how the new window should be displayed. Otherwise, don't specify a value. Valid values are:</p> <ul style="list-style-type: none"> <li>• <code>fullScreen</code></li> <li>• <code>none</code></li> </ul>

Field Name	Details
	<ul style="list-style-type: none"> <li>• <code>topLeft</code></li> </ul>
<code>RequireRowSelection</code>	<p><b>Type</b> boolean</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Sort</p> <p><b>Description</b> If the value of <code>OpenType</code> is <code>massAction</code>, this field indicates whether to require individual row selection to execute the action for this button (<code>true</code>) or not (<code>false</code>). Otherwise, leave this field empty.</p>
<code>Scontrol</code>	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> If the value of <code>LinkType</code> is <code>sControl</code>, this field represents the name of the <code>sControl</code>. Otherwise, leave this field empty.</p>
<code>ShowsLocation</code>	<p><b>Type</b> boolean</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> If the value of <code>OpenType</code> is <code>newWindow</code>, this field indicates whether to show the browser location bar for the window (<code>true</code>) or not (<code>false</code>). Otherwise, leave this field empty.</p>
<code>ShowsStatus</code>	<p><b>Type</b> boolean</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> If the value of <code>OpenType</code> is <code>newWindow</code>, show the browser status bar for the window (<code>true</code>). Otherwise, don't specify a value.</p>
<code>Url</code>	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p>

Field Name	Details
	<p><b>Description</b></p> <p>Required. Represents the URL of the page to link to. Can include fields as tokens within the URL. Limit: 1,024 KB.</p> <p>If the value of <code>LinkType</code> is <code>url</code>, this field represents the URL value. If the value of <code>LinkType</code> is <code>javascript</code>, this field represents the JavaScript content. For other values of <code>LinkType</code>, leave this field empty.</p> <p>Content must be escaped in a manner consistent with XML parsing rules.</p>
Width	<p><b>Type</b></p> <p>int</p> <p><b>Properties</b></p> <p>Filter, Group, Nillable, Sort</p> <p><b>Description</b></p> <p>The width in pixels of the window opened by the button or link.</p> <p>Required if the value of <code>OpenType</code> is <code>newWindow</code>. Otherwise, leave this field empty.</p>

## WorkflowAlert

Represents a workflow alert. A workflow alert is an email generated by a workflow rule or approval process and sent to designated recipients.

This object is available in API version 32.0 and later.

## Supported SOAP Calls

`create()`, `delete()`, `query()`, `retrieve()`, `search()`, `update()`, `upsert()`

## Supported REST HTTP Methods

DELETE, GET, PATCH, POST

## Fields

Field	Details
CcEmails	<p><b>Type</b></p> <p>string</p> <p><b>Properties</b></p> <p>Filter, Nillable, Sort</p>



Field	Details
	<p><b>Description</b> Additional CC email addresses.</p>
Description	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, idLookup, Sort</p> <p><b>Description</b> A description of the workflow alert.</p>
DeveloperName	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> The unique name of the workflow alert in the API.</p>
EntityDefinition	<p><b>Type</b> <a href="#">EntityDefinition</a></p> <p><b>Properties</b> Filter, Group, Sort.</p> <p><b>Description</b> Required. Available in version 34.0. The entity definition for the object associated with this WebLink.</p>
EntityDefinitionId	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> The ID of the entity containing the alert.</p>
FullName	<p><b>Type</b> string</p> <p><b>Properties</b> Create, Group, Nillable</p> <p><b>Description</b> The full name of the associated metadata object in Metadata API.  Query this field only if the query result contains no more than one record. Otherwise, an error is returned. If more than one record exists, use multiple queries to retrieve the records. This limit protects performance.</p>

Field	Details
ManageableState	<p><b>Type</b> ManageableState enumerated list</p> <p><b>Properties</b> Create, Filter, Update</p> <p><b>Description</b> Indicates the manageable state of the specified component that is contained in a package:</p> <ul style="list-style-type: none"> <li>• beta</li> <li>• deleted</li> <li>• deprecated</li> <li>• installed</li> <li>• released</li> <li>• unmanaged</li> </ul>
Metadata	<p><b>Type</b> mns : WorkflowAlert</p> <p><b>Properties</b> Create, Nillable, Update</p> <p><b>Description</b> Alert definition metadata.</p> <p>Query this field only if the query result contains no more than one record. Otherwise, an error is returned. If more than one record exists, use multiple queries to retrieve the records. This limit protects performance.</p>
NamespacePrefix	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> The namespace of the package to uniquely identify the workflow alert.</p>
SenderType	<p><b>Type</b> ActionEmailSenderType enumerated list</p> <p><b>Properties</b> Defaulted on create, Filter, Group, Restricted picklist, Sort</p> <p><b>Description</b> The type of sender. Values are:</p> <ul style="list-style-type: none"> <li>• CurrentUser</li> <li>• OrgWideEmailAddress</li> <li>• DefaultWorkflowUser</li> </ul>

Field	Details
TemplateId	<p><b>Type</b> ID</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> A reference to an email template.</p>

## WorkflowFieldUpdate

---

Represents a workflow field update.

This object is available in API version 32.0 and later.

### Supported SOAP Calls

`create()`, `delete()`, `query()`, `retrieve()`, `search()`, `update()`, `upsert()`

### Supported REST HTTP Methods

DELETE, GET, PATCH, POST

### Fields

Field	Details
EntityDefinition	<p><b>Type</b> <a href="#">EntityDefinition</a></p> <p><b>Properties</b> Filter, Group, Sort.</p> <p><b>Description</b> Required. Available in version 34.0. The entity definition for the object associated with this WebLink.</p>
EntityDefinitionId	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> The ID of the entity containing the workflow field update.</p>

Field	Details
FieldDefinition	<p><b>Type</b> <a href="#">FieldDefinition</a> on page 146</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> Required. The definition of this field.</p>
FieldDefinitionId	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> The ID of the field for the workflow field update.</p>
FullName	<p><b>Type</b> string</p> <p><b>Properties</b> Create, Group, Nillable</p> <p><b>Description</b> The full name of the associated metadata object in Metadata API.  Query this field only if the query result contains no more than one record. Otherwise, an error is returned. If more than one record exists, use multiple queries to retrieve the records. This limit protects performance.</p>
LiteralValue	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> If the update uses a literal value, this is that value.</p>
LookupValueId	<p><b>Type</b> ID</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> If the update looks up a value, this is the lookup value referenced.</p>
ManageableState	<p><b>Type</b> ManageableState enumerated list</p>

Field	Details
	<p><b>Properties</b> Create, Filter, Update</p> <p><b>Description</b> Indicates the manageable state of the specified component that is contained in a package:</p> <ul style="list-style-type: none"> <li>• beta</li> <li>• deleted</li> <li>• deprecated</li> <li>• installed</li> <li>• released</li> <li>• unmanaged</li> </ul>
Metadata	<p><b>Type</b> mns : WorkflowFieldUpdate</p> <p><b>Properties</b> Create, Nillable, Update</p> <p><b>Description</b> The workflow field update metadata.</p> <p>Query this field only if the query result contains no more than one record. Otherwise, an error is returned. If more than one record exists, use multiple queries to retrieve the records. This limit protects performance.</p>
Name	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, idLookup, Sort</p> <p><b>Description</b> The name of the workflow field update.</p>
NamespacePrefix	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> The namespace of the package containing the workflow field update object.</p>
SourceTableEnumOrId	<p><b>Type</b> picklist</p> <p><b>Properties</b> Filter, Group, Restricted picklist, Sort</p> <p><b>Description</b> The enum (for example, Account) or ID of the object this workflow field update is on.</p>

## WorkflowOutboundMessage

---

Represents an outbound message. An outbound message sends information to a designated endpoint, like an external service. Outbound messages are configured from Setup. You must configure the external endpoint and create a listener for the messages using the SOAP API.

This object is available in API version 32.0 and later.

### Supported SOAP Calls

`create()`, `delete()`, `query()`, `retrieve()`, `search()`, `update()`, `upsert()`

### Supported REST HTTP Methods

DELETE, GET, PATCH, POST

### Fields

Field	Details
<code>ApiVersion</code>	<p><b>Type</b> double</p> <p><b>Properties</b> Filter, Sort</p> <p><b>Description</b> The API version is automatically generated and set to the current API version when the outbound message was created.</p>
<code>EntityDefinition</code>	<p><b>Type</b> <a href="#">EntityDefinition</a></p> <p><b>Properties</b> Filter, Group, Sort.</p> <p><b>Description</b> Required. Available in version 34.0. The entity definition for the object associated with this WebLink.</p>
<code>EntityDefinitionId</code>	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> The ID of the entity containing the outbound message.</p>
<code>FullName</code>	<p><b>Type</b> string</p>

Field	Details
	<p><b>Properties</b> Create, Group, Nillable</p> <p><b>Description</b> The full name of the associated metadata object in Metadata API.</p> <p>Query this field only if the query result contains no more than one record. Otherwise, an error is returned. If more than one record exists, use multiple queries to retrieve the records. This limit protects performance.</p>
IntegrationUserId	<p><b>Type</b> ID</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> The ID of the user under which this message is sent.</p>
ManageableState	<p><b>Type</b> ManageableState enumerated list</p> <p><b>Properties</b> Create, Filter, Update</p> <p><b>Description</b> Indicates the manageable state of the specified component that is contained in a package:</p> <ul style="list-style-type: none"> <li>• beta</li> <li>• deleted</li> <li>• deprecated</li> <li>• installed</li> <li>• released</li> <li>• unmanaged</li> </ul>
Metadata	<p><b>Type</b> mns : WorkflowOutboundMessage</p> <p><b>Properties</b> Create, Nillable, Update</p> <p><b>Description</b> Outbound message definition metadata.</p> <p>Query this field only if the query result contains no more than one record. Otherwise, an error is returned. If more than one record exists, use multiple queries to retrieve the records. This limit protects performance.</p>
Name	<p><b>Type</b> string</p>

Field	Details
	<p><b>Properties</b> Filter, Group, idLookup, Sort</p> <p><b>Description</b> The name of the outbound message.</p>
NamespacePrefix	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> The namespace of the package containing the outbound message.</p>

## WorkflowRule

Represents a workflow rule that is used to fire off a specific workflow action when the specified criteria is met. Includes access to the associated WorkflowRule object in Salesforce Metadata API.

Available from API version 30.0 or later.

## Supported SOAP Calls

`create()`, `delete()`, `query()`, `retrieve()`, `search()`, `update()`, `upsert()`

## Supported REST HTTP Methods

Query, DELETE, GET, PATCH, POST

## Fields

Field Name	Details
FullName	<p><b>Type</b> string</p> <p><b>Properties</b> Create, Group, Nillable</p> <p><b>Description</b> The full name of the associated metadata object in Metadata API.  Query this field only if the query result contains no more than one record. Otherwise, an error is returned. If more than one record exists, use multiple queries to retrieve the records. This limit protects performance.</p>



Field Name	Details
ManageableState	<p><b>Type</b> ManageableState enumerated list</p> <p><b>Properties</b> Create, Filter, Update</p> <p><b>Description</b> Indicates the manageable state of the specified component that is contained in a package:</p> <ul style="list-style-type: none"> <li>• beta</li> <li>• deleted</li> <li>• deprecated</li> <li>• installed</li> <li>• released</li> <li>• unmanaged</li> </ul>
Metadata	<p><b>Type</b> mns : WorkflowRule</p> <p><b>Properties</b> Create, Nillable, Update</p> <p><b>Description</b> Workflow rule metadata.</p> <p>Query this field only if the query result contains no more than one record. Otherwise, an error is returned. If more than one record exists, use multiple queries to retrieve the records. This limit protects performance.</p>
Name	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> The enum name or ID of entity this rule is associated with.</p>
NamespacePrefix	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, idLookup, Sort</p> <p><b>Description</b> The namespace of the package containing the workflow rule object.</p>
TableEnumOrId	<p><b>Type</b> picklist</p>

Field Name	Details
	<p><b>Properties</b> Filter, Group, Restricted picklist, Sort</p> <p><b>Description</b> The enum (for example, Account) or ID of the object for this workflow rule.</p>

## WorkflowTask

Represents a workflow task that is used to fire off a specific workflow action when the specified criteria is met. Includes access to the associated WorkflowRule object in Salesforce Metadata API.

Available from API version 32.0 or later.

## Supported SOAP Calls

`create()`, `delete()`, `query()`, `retrieve()`, `search()`, `update()`, `upsert()`

## Supported REST HTTP Methods

Query, DELETE, GET, PATCH, POST

## Fields

Field Name	Details
EntityDefinition	<p><b>Type</b> <a href="#">EntityDefinition</a></p> <p><b>Properties</b> Filter, Group, Sort.</p> <p><b>Description</b> Required. The entity definition for the object associated with the validation rule.</p>
EntityDefinitionId	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Sort</p> <p><b>Description</b> The ID of the entity containing the workflow task.</p>
FullName	<p><b>Type</b> string</p>

Field Name	Details
	<p><b>Properties</b> Create, Group, Nillable</p> <p><b>Description</b> The full name of the associated metadata object in Metadata API.  Query this field only if the query result contains no more than one record. Otherwise, an error is returned. If more than one record exists, use multiple queries to retrieve the records. This limit protects performance.</p>
ManageableState	<p><b>Type</b> ManageableState enumerated list</p> <p><b>Properties</b> Create, Filter, Update</p> <p><b>Description</b> Indicates the manageable state of the specified component that is contained in a package:</p> <ul style="list-style-type: none"> <li>• beta</li> <li>• deleted</li> <li>• deprecated</li> <li>• installed</li> <li>• released</li> <li>• unmanaged</li> </ul>
Metadata	<p><b>Type</b> mns : WorkflowTask</p> <p><b>Properties</b> Create, Nillable, Update</p> <p><b>Description</b> Workflow task metadata.  Query this field only if the query result contains no more than one record. Otherwise, an error is returned. If more than one record exists, use multiple queries to retrieve the records. This limit protects performance.</p>
NamespacePrefix	<p><b>Type</b> string</p> <p><b>Properties</b> Filter, Group, Nillable, Sort</p> <p><b>Description</b> The namespace of the package containing the workflow task object.</p>
Priority	<p><b>Type</b> picklist</p>

Field Name	Details
	<p data-bbox="646 268 760 296"><b>Properties</b></p> <p data-bbox="683 302 854 329">Filter, Group, Sort</p> <p data-bbox="646 348 773 375"><b>Description</b></p> <p data-bbox="683 382 964 409">The task's priority. Values are:</p> <ul data-bbox="683 428 797 541" style="list-style-type: none"><li data-bbox="683 428 769 455">• High</li><li data-bbox="683 470 797 497">• Normal</li><li data-bbox="683 512 769 539">• Low</li></ul>
Status	<p data-bbox="646 592 699 619"><b>Type</b></p> <p data-bbox="683 625 753 653">picklist</p> <p data-bbox="646 672 760 699"><b>Properties</b></p> <p data-bbox="683 705 854 732">Filter, Group, Sort</p> <p data-bbox="646 751 773 779"><b>Description</b></p> <p data-bbox="683 785 954 812">The task's status. Values are:</p> <ul data-bbox="683 831 969 1029" style="list-style-type: none"><li data-bbox="683 831 834 858">• Not Started</li><li data-bbox="683 873 829 900">• In Progress</li><li data-bbox="683 915 834 942">• Completed</li><li data-bbox="683 957 969 984">• Waiting on someone else</li><li data-bbox="683 999 808 1026">• Deferred</li></ul>
Subject	<p data-bbox="646 1081 699 1108"><b>Type</b></p> <p data-bbox="683 1115 737 1142">string</p> <p data-bbox="646 1161 760 1188"><b>Properties</b></p> <p data-bbox="683 1194 954 1222">Filter, Group, idLookup, Sort</p> <p data-bbox="646 1241 773 1268"><b>Description</b></p> <p data-bbox="683 1274 1446 1344">A subject for the workflow task. It is used if an email notification is sent when the task is assigned.</p>

# CHAPTER 3 SOAP Headers for Tooling API

## In this chapter ...

- [AllOrNoneHeader](#)
- [AllowFieldTruncationHeader](#)
- [CallOptions](#)
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- [DisableFeedTrackingHeader](#)
- [MetadataWarningsHeader](#)
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Tooling API provides SOAP headers similar to the SOAP API headers.

Control the behavior of SOAP calls:

## AllOrNoneHeader

---

Allows a call to roll back all changes unless all records are processed successfully.

Without the AllOrNoneHeader header, records without errors are committed, while records with errors are marked as failed in the call results. This header is available in API version 20.0 and later.

Even if the header is enabled, it's still necessary to inspect the `success` field in the call result for each record to identify records with errors. Each `success` field contains `true` or `false` indicating whether the call was processed successfully.

If there is an error associated with at least one record, the `errors` field in the call result for the record gives more information on the error. If other records in the same call have no errors, their `errors` fields indicate that they were rolled back due to other errors.

## API Calls

`create()`, `delete()`, `undelete()`, `update()`, `upsert()`

## Fields

Element Name	Type	Description
<code>allOrNone</code>	boolean	<p>If <code>true</code>, any failed records in a call cause all changes for the call to be rolled back. Record changes aren't committed unless all records are processed successfully.</p> <p>The default is <code>false</code>. Some records can be processed successfully while others are marked as failed in the call results.</p>

## Sample Code—Java

This sample shows how to use the AllOrNoneHeader. It attempts to create two contacts. The second contact doesn't have all required fields set and causes a failure on creation. Next, the sample sets the `allOrNone` field to `true`, and then attempts to create the contacts. Creating one of the contacts results in an error, so the entire transaction is rolled back and no contacts are created.

```
public void allOrNoneHeaderSample() {
    try {
        // Create the first contact.
        SObject[] sObjects = new SObject[2];
        Contact contact1 = new Contact();
        contact1.setFirstName("Robin");
        contact1.setLastName("Van Persie");

        // Create the second contact. This contact doesn't
        // have a value for the required
        // LastName field so the create will fail.
        Contact contact2 = new Contact();
        contact2.setFirstName("Ashley");
        sObjects[0] = contact1;
        sObjects[1] = contact2;

        // Set the SOAP header to roll back the create unless
```

```

// all contacts are successfully created.
connection.setAllOrNoneHeader(true);
// Attempt to create the two contacts.
SaveResult[] sr = connection.create(sObjects);
for (int i = 0; i < sr.length; i++) {
    if (sr[i].isSuccess()) {
        System.out.println("Successfully created contact with id: " +
            sr[i].getId() + ".");
    }
    else {
        // Note the error messages as the operation was rolled back
        // due to the all or none header.
        System.out.println("Error creating contact: " +
            sr[i].getErrors()[0].getMessage());
        System.out.println("Error status code: " +
            sr[i].getErrors()[0].getStatusCode());
    }
}
} catch (ConnectionException ce) {
    ce.printStackTrace();
}
}
}

```

## AllowFieldTruncationHeader

---

Specifies that for some fields, when a string is too large, the operation fails. Without the header, strings for these fields are truncated.

The `AllowFieldTruncationHeader` header affects the following datatypes:

- anyType, if it represents one of the other datatypes in this list
- email
- encryptedstring
- multipicklist
- phone
- picklist
- string
- textarea

In API versions previous to 15.0, if a value for one of the listed fields is too large, the value is truncated.

For API version 15.0 and later, if a value is too large, the operation fails and the fault code `STRING_TOO_LONG` is returned.

`AllowFieldTruncationHeader` allows you to specify that the previous behavior, truncation, be used instead of the new behavior in API versions 15.0 and later.

This header has no effect in versions 14.0 and earlier.

## API Calls

`convertLead()`, `create()`, `merge()`, `process()`, `undelete()`, `update()`, and `upsert()`

Apex: [executeanonymous\(\)](#)

## Fields

Element Name	Type	Description
<code>allowFieldTruncation</code>	boolean	<p>If <code>true</code>, truncate field values that are too long, which is the behavior in API versions 14.0 and earlier.</p> <p>Default is <code>false</code>: no change in behavior. If a <code>string</code> or <code>textarea</code> value is too large, the operation fails and the fault code <code>STRING_TOO_LONG</code> is returned.</p> <p>The following list shows the field types affected by truncation and this header:</p> <ul style="list-style-type: none"> <li>• <code>anyType</code>, if it represents one of the other datatypes in this list</li> <li>• <code>email</code></li> <li>• <code>encryptedstring</code></li> <li>• <code>multipicklist</code></li> <li>• <code>phone</code></li> <li>• <code>picklist</code></li> <li>• <code>string</code></li> <li>• <code>textarea</code></li> </ul>

## Sample Code—Java

To create an account with a name that is too long for the `Name` field, use the `AllowFieldTruncation` header.

This sample:

1. Creates an `Account` object with a name that exceeds the field limit of 255 characters.
2. Sends the create call, which fails because of the name field length.
3. Sets the `AllowFieldTruncationHeader` to `true` and retries the account creation, which succeeds.

```
public void allowFieldTruncationSample() {
    try {
        Account account = new Account();
        // Construct a string that is 256 characters long.
        // Account.Name's limit is 255 characters.
        String accName = "";
        for (int i = 0; i < 256; i++) {
            accName += "a";
        }
        account.setName(accName);
        // Construct an array of SObjects to hold the accounts.
        SObject[] sObjects = new SObject[1];
        sObjects[0] = account;
        // Attempt to create the account. It will fail in API version 15.0
        // and above because the account name is too long.
        SaveResult[] results = connection.create(sObjects);
        System.out.println("The call failed because: "
            + results[0].getErrors()[0].getMessage());
        // Now set the SOAP header to allow field truncation.
        connection.setAllowFieldTruncationHeader(true);
    }
}
```



```

// Attempt to create the account now.
results = connection.create(sObjects);
System.out.println("The call: " + results[0].isSuccess());
} catch (ConnectionException ce) {
    ce.printStackTrace();
}
}
}

```

## CallOptions

---

Specifies the API client identifier.

### Version

This call is available in all API versions.

### Supported Calls

All Metadata API calls.

### Fields

Field Name	Type	Description
client	string	A value that identifies an API client.

### Sample Code—Java

To change the API client ID, add the `CallOptions` header to the metadata connection before you perform a call as follows:

```
metadataConnection.setCallOptions("client ID");
```

## DebuggingHeader

---

Specifies that the deployment result will contain the debug log output, and specifies the level of detail included in the log. The debug log contains the output of Apex tests that are executed as part of a deployment.

### Version

This header is available in all API versions.

### Supported Calls

deploy()

## Fields

Field Name	Type	Description
categories	LogInfo[]	A list of log categories with their associated log levels.
debugLevel	LogType (enumeration of type string)	<p>Deprecated. This field is provided only for backward compatibility. If you provide values for both <code>debugLevel</code> and <code>categories</code>, the <code>categories</code> value is used.</p> <p>The <code>debugLevel</code> field specifies the type of information returned in the debug log. The values are listed from the least amount of information returned to the most information returned. Valid values include:</p> <ul style="list-style-type: none"> <li>• None</li> <li>• Debugonly</li> <li>• Db</li> <li>• Profiling</li> <li>• Callout</li> <li>• Detail</li> </ul>

## LogInfo

Specifies the type and amount of information to be returned in the debug log. The `categories` field takes a list of these objects. LogInfo is a mapping of `category` to `level`.

Element Name	Type	Description
category	LogCategory	<p>Specify the type of information returned in the debug log. Valid values are:</p> <ul style="list-style-type: none"> <li>• Db</li> <li>• Workflow</li> <li>• Validation</li> <li>• Callout</li> <li>• Apex_code</li> <li>• Apex_profiling</li> <li>• Visualforce</li> <li>• System</li> <li>• All</li> </ul>
level	LogCategoryLevel	<p>Specifies the level of detail returned in the debug log.</p> <p>Valid log levels are (listed from lowest to highest):</p> <ul style="list-style-type: none"> <li>• NONE</li> <li>• ERROR</li> <li>• WARN</li> </ul>

Element Name	Type	Description
		<ul style="list-style-type: none"> <li>• INFO</li> <li>• DEBUG</li> <li>• FINE</li> <li>• FINER</li> <li>• FINEST</li> </ul>

## Sample Code—Java

Add the `DebuggingHeader` to the metadata connection before you perform the `deploy()` call as follows.

```
LogInfo[] logs = new LogInfo[1];
logs[0] = new LogInfo();
logs[0].setCategory(LogCategory.Apex_code);
logs[0].setLevel(LogCategoryLevel.Fine);
metadataConnection.setDebuggingHeader(logs);
```

The result of the `deploy()` call is obtained by calling `checkDeployStatus()`. After the deployment finishes, and if tests were run, the response of `checkDeployStatus()` contains the debug log output in the `debugLog` field of a `DebuggingInfo` output header.

## DisableFeedTrackingHeader

Specifies that changes made in the current call are tracked in feeds.

Use this header if you want to process many records without tracking the changes in various feeds related to the records. This header is available if the Chatter feature is enabled for your organization.

## API Calls

`convertLead()`, `create()`, `delete()`, `merge()`, `process()`, `undelete()`, `update()`, `upsert()`

## Fields

Element Name	Type	Description
<code>disableFeedTracking</code>	boolean	If <code>true</code> , the changes made in the current call are not tracked in feeds. The default is <code>false</code> .

## Sample Code—Java

This sample shows how to use the `DisableFeedTrackingHeader`. It sets this header to `true` to disable feed tracking and then creates many account records in bulk.

```
public void disableFeedTrackingHeaderSample() {
    try {
```

```

// Insert a large number of accounts.
SObject[] sObjects = new SObject[500];
for (int i = 0; i < 500; i++) {
    Account a = new Account();
    a.setName("my-account-" + i);
    sObjects[i] = a;
}
// Set the SOAP header to disable feed tracking to avoid generating a
// large number of feed items because of this bulk operation.
connection.setDisableFeedTrackingHeader(true);
// Perform the bulk create. This won't result in 500 feed items, which
// would otherwise be generated without the DisableFeedTrackingHeader.
SaveResult[] sr = connection.create(sObjects);
for (int i = 0; i < sr.length; i++) {
    if (sr[i].isSuccess()) {
        System.out.println("Successfully created account with id: " +
            sr[i].getId() + ".");
    } else {
        System.out.println("Error creating account: " +
            sr[i].getErrors()[0].getMessage());
    }
}
} catch (ConnectionException ce) {
    ce.printStackTrace();
}
}

```

## MetadataWarningsHeader

---

Allows you to save metadata even if warnings are returned.

### Version

This header is available in API version 35.0 and later.

### Supported Calls

`delete()`, `update()`, `upsert()`

### Field

Field Name	Type	Description
<code>ignoreSaveWarnings</code>	boolean	If <code>true</code> , you can save metadata such as a flow even if there are warnings, but not if there are errors.

## PackageVersionHeader

---

Specifies the package version for each installed managed package.

A managed package can have several versions with different content and behavior. This header allows you to specify the version used for each package referenced by your API client.

If a package version is not specified, the API client uses the version of the package specified in Setup (enter *API* in the **Quick Find** box, then select **API**).

This header is available in API version 16.0 and later.

### Associated API Calls

`convertLead()`, `create()`, `delete()`, `describeGlobal()`, `describeLayout()`, `describeSObject()`, `describeSObjects()`, `describeSoftphoneLayout()`, `describeTabs()`, `merge()`, `process()`, `query()`, `retrieve()`, `search()`, `undelete()`, `update()`, `upsert()`

### Fields

Element Name	Type	Description
<code>packageVersions</code>	<a href="#">PackageVersion</a> []	A list of package versions for installed managed packages referenced by your API client.

### PackageVersion

Specifies a version of an installed managed package. A package version is *majorNumber.minorNumber*, for example *2.1*.

Fields

Field	Type	Description
<code>majorNumber</code>	int	The major version number of a package version.
<code>minorNumber</code>	int	The minor version number of a package version.
<code>namespace</code>	string	The unique namespace of the managed package.

### Sample Code—Java

This sample sets the package version for one installed package in the `PackageVersionHeader`. Next, it executes the code passed into this method via the `executeAnonymous` Apex method.

```
public void PackageVersionHeaderSample(String code) throws Exception
{
    _PackageVersionHeader pvh = new _PackageVersionHeader();
    PackageVersion pv = new PackageVersion();
    pv.setNamespace("installedPackageNamespaceHere");
    pv.setMajorNumber(1);
    pv.setMinorNumber(0);
    // In this case, we are only referencing one installed package.
```

```
PackageVersion[] pvs = new PackageVersion[]{pv};
pvh.setPackageVersions(pvs);

apexBinding.setHeader(new SforceServiceLocator().getServiceName().getNamespaceURI(),
    "PackageVersionHeader", pvh);
// Execute the code passed into the method.
ExecuteAnonymousResult r = apexBinding.executeAnonymous(code);
if (r.isSuccess()) {
    System.out.println("Code executed successfully");
}
else {
    System.out.println("Exception message: " + r.getExceptionMessage());
    System.out.println("Exception stack trace: " + r.getExceptionStackTrace());
}
}
```

## SessionHeader

---

Specifies the session ID returned from the login server after a successful `login()`. This session ID is used in all subsequent calls.

In version 12.0 and later, include the API namespace in the SOAP message associated with this header. The namespace is defined in the enterprise or partner WSDL.

## API Calls

All calls, including utility calls.

## Fields

Element Name	Type	Description
<code>sessionId</code>	string	Session ID returned by the <code>login()</code> call to be used for subsequent call authentication.

## Sample Code

See the examples provided for `login()`.

# CHAPTER 4 REST Headers for Tooling API

## In this chapter ...

- [Call Options Header](#)
- [Limit Info Header](#)
- [Package Version Header](#)
- [Query Options Header](#)

Tooling API provides a subset of the REST headers available in REST API.

Control the behavior of REST requests:

## Call Options Header

---

Specifies the client-specific options when accessing REST API resources. For example, you can write client code that ignores namespace prefixes by specifying the prefix in the call options header.

The Call Options header can be used with SObject Basic Information, SObject Rows, Query, QueryAll, Search, and SObject Rows by External ID.

### Header Field Name and Values

#### Field name

`Sforce-Call-Options`

#### Field values

- `client`—A string that identifies a client.
- `defaultNamespace`—A string that identifies a developer namespace prefix. Resolve field names in managed packages without having to specify the namespace everywhere.

#### Example

If the developer namespace prefix is `battle`, and you have a custom field called `botId` in a package, set the default namespace with the call options header:

```
Sforce-Call-Options: client=SampleCaseSensitiveToken/100, defaultNamespace=battle
```

Then queries such as the following succeed:

```
/vXX.X/query/?q=SELECT+Id+botID__c+FROM+Account
```

In this case the actual field queried is the `battle__botId__c` field.

Using this header allows you to write client code without having to specify the namespace prefix. In the previous example, without the header you must write `battle__botId__c`.

If this field is set, and the query also specifies the namespace, the response doesn't include the prefix. For example, if you set this header to `battle`, and issue a query like `SELECT+Id+battle__botID__c+FROM+Account`, the response uses a `botId__c` element, not a `battle_botId__c` element.

The `defaultNamespace` field is ignored when retrieving describe information, which avoids ambiguity between namespace prefixes and customer fields of the same name.

## Limit Info Header

---

This response header is returned in each request to the REST API. You can use the information to monitor API limits.

### Header Field Name and Values

#### Field name

`Sforce-Limit-Info`

#### Field values

- `api-usage`—Specifies the API usage for the organization against which the call was made in the format `nn/nnnn`. The first number is the number of API calls used, and the second number is the API limit for the organization.



- `per-app-api-usage`—Specifies the limit quota information for the currently connected app. API limit app quotas are currently available through a pilot program. For information on enabling this feature for your organization, contact Salesforce. This example includes the limit quota for a `sample-connected-app` connected app. If there is no limit quota information, this field isn't returned.

```
Sforce-Limit-Info: api-usage=25/5000;
per-app-api-usage=17/250 (appName=sample-connected-app)
```

### Example

Response to a REST request for a Merchandise record, including the limit information in line three:

```
HTTP/1.1 200 OK
Date: Mon, 20 May 2013 22:21:46 GMT
Sforce-Limit-Info: api-usage=18/5000
Last-Modified: Mon, 20 May 2013 20:49:32 GMT
Content-Type: application/json;charset=UTF-8
Transfer-Encoding: chunked

{
  "attributes" : {
    "type" : "Merchandise__c",
    "url" : "/services/data/v37.0/subjects/Merchandise__c/a00D0000008pQSNIA2"
  },
  "Id" : "a00D0000008pQSNIA2",
  "OwnerId" : "005D0000001QX8WIAW",
  "IsDeleted" : false,
  "Name" : "Phone Case - iPhone 4/4S",
  "CreatedDate" : "2013-05-20T20:49:32.000+0000",
  "CreatedById" : "005D0000001QX8WIAW",
  "LastModifiedDate" : "2013-05-20T20:49:32.000+0000",
  "LastModifiedById" : "005D0000001QX8WIAW",
  "SystemModstamp" : "2013-05-20T20:49:32.000+0000",
  "LastActivityDate" : null,
  "LastViewedDate" : "2013-05-20T22:19:56.000+0000",
  "LastReferencedDate" : "2013-05-20T22:19:56.000+0000",
  "Description__c" : "Phone Case for iPhone 4/4S",
  "Price__c" : 16.99,
  "Stock_Price__c" : 12.99,
  "Total_Inventory__c" : 108.0
}
```

## Package Version Header

Specifies the version of each package referenced by a client. A package version is a number that identifies the set of components and behavior contained in a package. This header can also be used to specify a package version when making calls to an Apex REST web service.

The Package Version header can be used with the following resources: Describe Global, SObject Describe, SObject Basic Information, SObject Rows, Describe Layouts, Query, QueryAll, Search, and SObject Rows by External ID.

## Header Field Name and Values

### Field name and value

`x-sfdc-packageversion-[namespace]: xx.x`, where `[namespace]` is the unique namespace of the managed package and `xx.x` is the package version.

### Example

```
x-sfdc-packageversion-clientPackage: 1.0
```

## Query Options Header

---

Specifies options used in a query, such as the query results batch size. Use this request header with the Query resource.

## Header Field Name and Values

### Field name

```
sforce-Query-Options
```

### Field values

- `batchSize`—A numeric value that specifies the number of records returned for a query request. Child objects count toward the number of records for the batch size. For example, in relationship queries, multiple child objects are returned per parent row returned.

The default is 2,000; the minimum is 200, and the maximum is 2,000. There is no guarantee that the requested batch size is the actual batch size. Changes are made as necessary to maximize performance.

### Example

```
sforce-Query-Options: batchSize=1000
```

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