
Force.com REST API Developer's Guide

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CHAPTER 1 Introducing Force.com REST API

In this chapter ...

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- [Using Compression](#)
- [Using Conditional Requests](#)
- [Using cURL in the REST Examples](#)
- [Understanding Authentication](#)

[REST API](#) provides a powerful, convenient, and simple Web services API for interacting with Force.com. Its advantages include ease of integration and development, and it's an excellent choice of technology for use with mobile applications and Web 2.0 projects. However, if you have many records to process, consider using Bulk API, which is based on REST principles and optimized for large sets of data.

REST API uses the same underlying data model and standard objects as those in SOAP API. See the [SOAP API Developer's Guide](#) for details. REST API also follows the same limits as SOAP API. See the [Limits](#) section in the SOAP API Developer's Guide.

To use this document, you should have a basic familiarity with software development, Web services, and the Salesforce user interface.

Use this introduction to understand:

- The key characteristics and architecture of REST API. This will help you understand how your applications can best use the Force.com REST resources.
- How to set up your development environment so you can begin working with REST API immediately.
- How to use REST API by following a quick start that leads you step by step through a typical use case.

Understanding Force.com REST Resources

A REST resource is an abstraction of a piece of information, such as a single data record, a collection of records, or even dynamic real-time information. Each resource in the Force.com REST API is identified by a named URI, and is accessed using standard HTTP methods (HEAD, GET, POST, PATCH, DELETE). The Force.com REST API is based on the usage of resources, their URIs, and the links between them. You use a resource to interact with your Salesforce or Force.com organization. For example, you can:

- Retrieve summary information about the API versions available to you.
- Obtain detailed information about a Salesforce object such as an Account or a custom object.
- Obtain detailed information about Force.com objects, such as User or a custom object.
- Perform a query or search.
- Update or delete records.

Suppose you want to retrieve information about the Salesforce version. To do this, submit a request for the [Versions](#) resource (this example uses cURL on the *na1* instance):

```
curl https://na1.salesforce.com/services/data/
```

The output from this request is as follows:

```
[
  {
    "version": "20.0",
    "url": "/services/data/v20.0",
    "label": "Winter '11"
  }
  ...
]
```



Note: Salesforce runs on multiple server instances. The examples in this guide use the *na1* instance. The instance your organization uses might be different.

Important characteristics of the Force.com REST API resources and architecture:

Stateless

Each request from client to server must contain all the information necessary to understand the request, and not use any stored context on the server. However, the representations of the resources are interconnected using URLs, which allow the client to progress between states.

Caching behavior

Responses are labeled as cacheable or non-cacheable.

Uniform interface

All resources are accessed with a generic interface over HTTP.

Named resources

All resources are named using a base URI that follows your Force.com URI.

Layered components

The Force.com REST API architecture allows for the existence of such intermediaries as proxy servers and gateways to exist between the client and the resources.

Authentication

The Force.com REST API supports OAuth 2.0 (an open protocol to allow secure API authorization). See [Understanding Authentication](#) for more details.

Support for JSON and XML


JSON is the default. You can use the `HTTP ACCEPT` header to select either JSON or XML, or append `.json` or `.xml` to the URI (for example, `/Account/001D000000INjVe.json`).

The JavaScript Object Notation (JSON) format is supported with UTF-8. Date-time information is in [ISO8601](#) format.

XML serialization is similar to SOAP API. XML requests are supported in UTF-8 and UTF-16, and XML responses are provided in UTF-8.

Using Compression

The REST API allows the use of compression on the request and the response, using the standards defined by the HTTP 1.1 specification. Compression is automatically supported by some clients, and can be manually added to others. Visit [Salesforce Developers](#) for more information on particular clients.

 **Tip:** For better performance, we suggest that clients accept and support compression as defined by the HTTP 1.1 specification.

To use compression, include the HTTP header `Accept-Encoding: gzip` or `Accept-Encoding: deflate` in a request. The REST API compresses the response if the client properly specifies this header. The response includes the header `Content-Encoding: gzip` or `Accept-Encoding: deflate`. You can also compress any request by including a `Content-Encoding: gzip` or `Content-Encoding: deflate` header.

Response Compression

The REST API can optionally compress responses. Responses are compressed only if the client sends an `Accept-Encoding` header. The REST API is not required to compress the response even if you have specified `Accept-Encoding`, but it normally does. If the REST API compresses the response, it also specifies a `Content-Encoding` header.

Request Compression

Clients can also compress requests. The REST API decompresses any requests before processing. The client must send a `Content-Encoding` HTTP header in the request with the name of the appropriate compression algorithm. For more information, see:

- Content-Encoding at: www.w3.org/Protocols/rfc2616/rfc2616-sec14.html#sec14.11
- Accept-Encoding at: www.w3.org/Protocols/rfc2616/rfc2616-sec14.html#sec14.3
- Content Codings at: www.w3.org/Protocols/rfc2616/rfc2616-sec3.html#sec3.5

Using Conditional Requests

To support response caching, REST API allows conditional request headers that follow the standards defined by the HTTP 1.1 specification.

For strong validation, include either the `If-Match` or `If-None-Match` header in a request, and reference the entity tags (ETag) of the records you want to match against. For weak validation, include either the `If-Modified-Since` or `If-Unmodified-Since` header in a request along with the date and time you want to check against. The REST API conditional headers follow the HTTP 1.1 specification with the following exceptions.

- When you include an invalid header value for `If-Match`, `If-None-Match`, or `If-Unmodified-Since` on a PATCH, POST, or DELETE request, a `400 Bad Request` status code is returned.
- The `If-Range` header isn't supported.

ETag

HTTP 1.1 specification: www.w3.org/Protocols/rfc2616/rfc2616-sec14.html#sec14.19

The `ETag` header is a response header that's returned when you access the `SObject Rows` resource. It's a hash of the content that's used by the `If-Match` and `If-None-Match` request headers in subsequent requests to determine if the content has changed.

Supported resources: `SObject Rows` (account records only)

Example: `ETag: "U5iWijwWbQD18jeiXwsqxeGpZQk=-gzip"`

If-Match

HTTP 1.1 specification: www.w3.org/Protocols/rfc2616/rfc2616-sec14.html#sec14.24

The `If-Match` header is a request header for `SObject Rows` that includes a list of ETags. If the ETag of the record you're requesting matches an ETag specified in the header, the request is processed. Otherwise, a `412 Precondition Failed` status code is returned, and the request isn't processed.

Supported resources: `SObject Rows` (account records only)

Example: `If-Match: "Jbjuzw7dbhaEG3fd90kJbx6A0ow=-gzip",
"U5iWijwWbQD18jeiXwsqxeGpZQk=-gzip"`

If-None-Match

HTTP 1.1 specification: www.w3.org/Protocols/rfc2616/rfc2616-sec14.html#sec14.26

The `If-None-Match` header is a request header for `SObject Rows` that's the inverse of `If-Match`. If the ETag of the record you're requesting matches an ETag specified in the header, the request isn't processed. A `304 Not Modified` status code is returned for GET or HEAD requests, and a `412 Precondition Failed` status code is returned for PATCH requests.

Supported resources: `SObject Rows` (account records only)

Example: `If-None-Match: "Jbjuzw7dbhaEG3fd90kJbx6A0ow=-gzip",
"U5iWijwWbQD18jeiXwsqxeGpZQk=-gzip"`

If-Modified-Since

HTTP 1.1 specification: www.w3.org/Protocols/rfc2616/rfc2616-sec14.html#sec14.25

The `If-Modified-Since` header is a time-based request header. The request is processed only if the data has changed since the date and time specified in the header. Otherwise, a `304 Not Modified` status code is returned, and the request isn't processed.

Supported resources: `SObject Rows`, `SObject Describe`, `Describe Global`, and `Invocable Actions`

Example: `If-Modified-Since: Tue, 10 Aug 2015 00:00:00 GMT`

If-Unmodified-Since

HTTP 1.1 specification: www.w3.org/Protocols/rfc2616/rfc2616-sec14.html#sec14.28

The `If-Unmodified-Since` header is a request header that's the inverse of `If-Modified-Since`. If you make a request and include the `If-Unmodified-Since` header, the request is processed only if the data hasn't changed since the specified date. Otherwise, a `412 Precondition Failed` status code is returned, and the request isn't processed.

Supported resources: `SObject Rows`, `SObject Describe`, `Describe Global`, and `Invocable Actions`

Example: `If-Unmodified-Since: Tue, 10 Aug 2015 00:00:00 GMT`

Using cURL in the REST Examples

The examples in this guide use the cURL tool to send HTTP requests to access, create, and manipulate REST resources on the Force.com platform. cURL is pre-installed on many Linux and Mac systems. Windows users can download a version at curl.haxx.se/. When using HTTPS on Windows, ensure that your system meets the cURL requirements for SSL.

 **Note:** cURL is an open source tool and is not supported by Salesforce.

Escaping the Session ID or Using Single Quotes on Mac and Linux Systems

When running the cURL examples for the REST resources, you may get an error on Mac and Linux systems due to the presence of the exclamation mark special character in the session ID argument. To avoid getting this error, do one of the following:

- Escape the exclamation mark (!) special character in the session ID by inserting a backslash before it (\!) when the session ID is enclosed within double quotes. For example, the session ID string in this cURL command has the exclamation mark (!) escaped:

```
curl https://instance_name.salesforce.com/services/data/v35.0/  
-H "Authorization: Bearer  
00D50000000IehZ\!AQcAQH0dMHZfz972Szmpkb58urFRkgeBGsxL_QJWwYMfAbUeeG7c1E6  
LYUfiDUkWe6H34r1AAwOR8B8fLEz6n04NPGRrq0FM"
```

- Enclose the session ID within single quotes. For example:

```
curl https://instance_name.salesforce.com/services/data/v35.0/  
-H 'Authorization: Bearer sessionID'
```

Understanding Authentication

Salesforce uses the OAuth protocol to allow users of applications to securely access data without having to reveal username and password credentials.

Before making REST API calls, you must authenticate the application user using [OAuth 2.0](#). To do so, you'll need to:

- [Set up your application as a connected app](#) in the Salesforce organization.
- Determine the correct Salesforce [OAuth endpoint](#) for your connected app to use.
- Authenticate the connected app user via one of several different OAuth 2.0 authentication flows. An OAuth authentication flow defines a series of steps used to coordinate the authentication process between your application and Salesforce. Supported OAuth flows include:
 - [Web server flow](#), where the server can securely protect the consumer secret.
 - [User-agent flow](#), used by applications that cannot securely store the consumer secret.
 - [Username-password flow](#), where the application has direct access to user credentials.

After successfully authenticating the connected app user with Salesforce, you'll receive an access token which can be used to make authenticated REST API calls.

Defining Connected Apps

To authenticate using OAuth, you must create a connected app that defines your application's OAuth settings for the Salesforce organization.

When you develop an external application that needs to authenticate with Salesforce, you need to define it as a new connected app within the Salesforce organization that informs Salesforce of this new authentication entry point.

Use the following steps to create a new connected app.

1. From Setup, enter *Apps* in the *Quick Find* box, then select **Apps** and click **New** to start defining a connected app.
2. Enter the name of your application.
3. Enter the contact email information, as well as any other information appropriate for your application.
4. Select **Enable OAuth Settings**.
5. Enter a *Callback URL*. Depending on which OAuth flow you use, this is typically the URL that a user's browser is redirected to after successful authentication. As this URL is used for some OAuth flows to pass an access token, the URL must use secure HTTP (HTTPS) or a custom URI scheme.
6. Add all supported OAuth scopes to **Selected OAuth Scopes**. These scopes refer to permissions given by the user running the connected app.
7. Enter a URL for *Info URL*. This is where the user can go for more information about your application.
8. Click **Save**. The *Consumer Key* is created and displayed, and the *Consumer Secret* is created (click the link to reveal it).

Once you define a connected app, you use the consumer key and consumer secret to authenticate your application. See [Creating a Connected App](#) in the Salesforce online help for specific steps to create a connected app for the type of authentication you need.

Understanding OAuth Endpoints

OAuth endpoints are the URLs you use to make OAuth authentication requests to Salesforce.

You need to use the correct Salesforce OAuth endpoint when issuing authentication requests in your application. The primary OAuth endpoints are:

- For authorization: `https://login.salesforce.com/services/oauth2/authorize`
- For token requests: `https://login.salesforce.com/services/oauth2/token`
- For revoking OAuth tokens: `https://login.salesforce.com/services/oauth2/revoke`

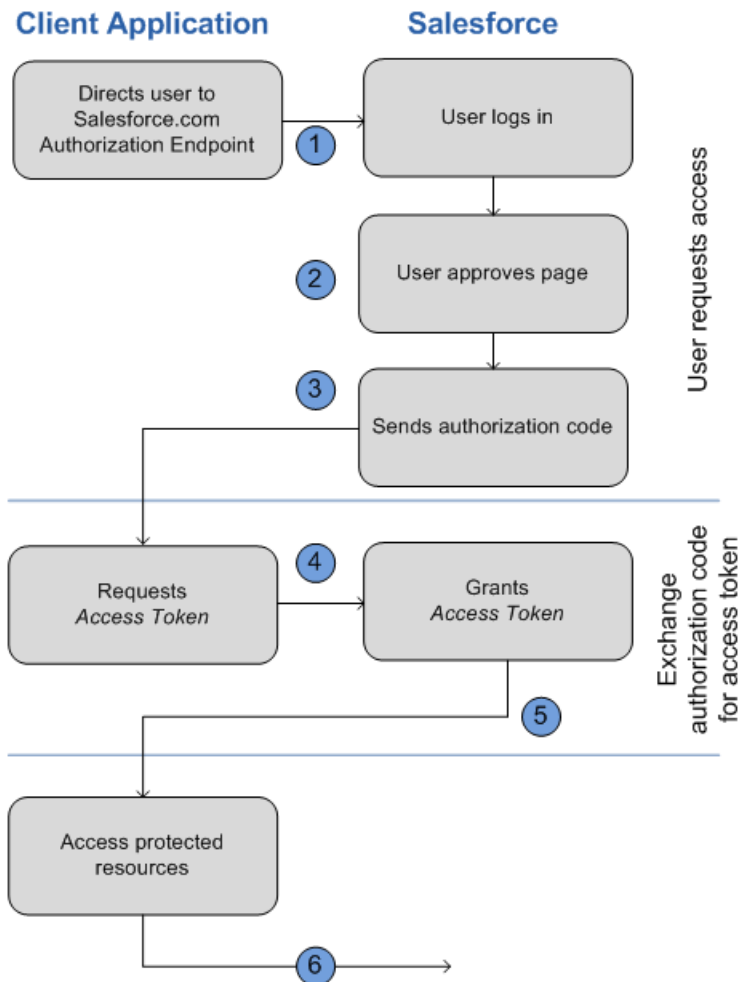
All endpoints require secure HTTP (HTTPS). Each OAuth flow defines which endpoints you need to use and what request data you need to provide.

If you're verifying authentication on a sandbox organization, use "test.salesforce.com" instead of "login.salesforce.com" in all the OAuth endpoints listed above.

Understanding the Web Server OAuth Authentication Flow

The Web server authentication flow is used by applications that are hosted on a secure server. A critical aspect of the Web server flow is that the server must be able to protect the consumer secret. You can also use code challenge and verifier values in the flow to prevent authorization code interception.

In this flow, the client application requests the authorization server to redirect the user to another web server or resource that authorizes the user and sends the application an authorization code. The application uses the authorization code to request an access token. The following shows the steps for this flow.




1. The application redirects the user to the appropriate Salesforce authorization endpoint, such as <https://login.salesforce.com/services/oauth2/authorize>. The following parameters are required:

Parameter	Description
<code>response_type</code>	Must be <code>code</code> for this authentication flow.
<code>client_id</code>	The <code>Consumer Key</code> from the connected app definition.
<code>redirect_uri</code>	The <code>Callback URL</code> from the connected app definition.

The following parameters are optional:

Parameter	Description
<code>code_challenge</code>	Specifies the SHA256 hash value of the <code>code_verifier</code> value in the token request to help prevent authorization code interception attacks. The hash value must be base64url encoded as defined here: https://tools.ietf.org/html/rfc4648#section-5 .

Parameter	Description
	<ul style="list-style-type: none"> If the <code>code_challenge</code> value is provided in the authorization request and a <code>code_verifier</code> value is provided in the token request, Salesforce compares the <code>code_challenge</code> to the <code>code_verifier</code>. If the <code>code_challenge</code> is invalid or doesn't match, the login fails with the <code>invalid_request</code> error code. If the <code>code_challenge</code> value is provided in the authorization request, but a <code>code_verifier</code> value is not provided in the token request, the login fails with the <code>invalid_grant</code> error code. <p> Note: The value should be base64url-encoded only once.</p>
<code>display</code>	<p>Changes the login page's display type. Valid values are:</p> <ul style="list-style-type: none"> <code>page</code>—Full-page authorization screen. This is the default value if none is specified. <code>popup</code>—Compact dialog optimized for modern Web browser popup windows. <code>touch</code>—Mobile-optimized dialog designed for modern smartphones such as Android and iPhone. <code>mobile</code>—Mobile optimized dialog designed for smartphones such as BlackBerry OS 5 that don't support touch screens.
<code>immediate</code>	<p>Determines whether the user should be prompted for login and approval. Values are either <code>true</code> or <code>false</code>. Default is <code>false</code>.</p> <ul style="list-style-type: none"> If set to <code>true</code>, and if the user is currently logged in and has previously approved the application, the approval step is skipped. If set to <code>true</code> and the user is not logged in or has not previously approved the application, the session is immediately terminated with the <code>immediate_unsuccessful</code> error code.
<code>login_hint</code>	<p>Provides a valid username value to pre-populate the login page with the username. For example: <code>login_hint=username@company.com</code>. If a user already has an active session in the browser, then the <code>login_hint</code> parameter does nothing; the active user session continues.</p>
<code>nonce</code>	<p>Specifies a value to be returned in the response; this is useful for detecting "replay" attacks. Optional with the <code>openid</code> scope for getting a user ID token.</p>

Parameter	Description
<code>prompt</code>	<p>Specifies how the authorization server prompts the user for reauthentication and reapproval. This parameter is optional. The only values Salesforce supports are:</p> <ul style="list-style-type: none"> <code>login</code>—The authorization server <i>must</i> prompt the user for reauthentication, forcing the user to log in again. <code>consent</code>—The authorization server <i>must</i> prompt the user for reapproval before returning information to the client. <p>It is valid to pass both values, separated by a space, to require the user to both log in and reauthorize. For example:</p> <pre>?prompt=login%20consent</pre>
<code>scope</code>	Specifies what data your application can access. See “Scope Parameter Values” in the online help for more information.
<code>state</code>	Specifies any additional URL-encoded state data to be returned in the callback URL after approval.

An example authorization URL might look something like the following:

```
https://login.salesforce.com/services/oauth2/authorize?response_type=code
&client_id=3MVG91KcPoNINVBIPJjdwlJ9LLM82HnFVVX19KY1uA5mu0QqEWhqKpoW3svG3X
HrXDiCQjKlmdgAvhCscA9GE&redirect_uri=https%3A%2F%2Fwww.mysite.com%2F
code_callback.jsp&state=mystate
```

- The user logs into Salesforce with their credentials. The user is interacting with the authorization endpoint directly, so the application never sees the user’s credentials. After successfully logging in, the user is asked to authorize the application. Note that if the user has already authorized the application, this step is skipped.
- After Salesforce confirms that the client application is authorized, the end-user’s Web browser is redirected to the callback URL specified by the `redirect_uri` parameter. Salesforce appends authorization information to the redirect URL with the following values:

Parameters	Description
<code>code</code>	Authorization code the consumer must use to obtain the access and refresh tokens.
<code>state</code>	The state value that was passed in as part of the initial request, if applicable.

An example callback URL with authorization information might look something like:


```
https://www.mysite.com/authcode_callback?code=aWekysIEeqM9PiT
hEfM0Cnr6MoLIfwWyRJcqOqHdF8f9INokharAS09ia7UNP6RiVScerfhc4w%3D%3D
```

4. The application extracts the authorization code and passes it in a request to Salesforce for an access token. This request is a POST request sent to the appropriate Salesforce token request endpoint, such as `https://login.salesforce.com/services/oauth2/token`. The following parameters are required:

Parameter	Description
<code>grant_type</code>	Value must be <code>authorization_code</code> for this flow.
<code>client_id</code>	The <code>Consumer Key</code> from the connected app definition.
<code>client_secret</code>	The <code>Consumer Secret</code> from the connected app definition.
<code>redirect_uri</code>	The <code>Callback URL</code> from the connected app definition.
<code>code</code>	Authorization code the consumer must use to obtain the access and refresh tokens.

The following parameters are optional:


Parameter	Description
<code>client_assertion</code>	Instead of passing in <code>client_secret</code> you can choose to provide a <code>client_assertion</code> and <code>client_assertion_type</code> . If a <code>client_secret</code> parameter is not provided, Salesforce checks for the <code>client_assertion</code> and <code>client_assertion_type</code> automatically. The value of <code>client_assertion</code> must be a typical JWT bearer token, signed with the private key associated with the OAuth consumer's uploaded certificate. Only the RS256 algorithm is currently supported. For more information on using <code>client_assertion</code> , see the OpenID Connect specifications for the <code>private_key_jwt</code> client authentication method.
<code>client_assertion_type</code>	Provide this value when using the <code>client_assertion</code> parameter. The value of <code>client_assertion_type</code> must be <code>urn:ietf:params:oauth:client-assertion-type:jwt-bearer</code> .
<code>code_verifier</code>	Specifies 128 bytes of random data with high enough entropy to make it difficult to guess the value to help prevent authorization code interception attacks. The value also must be base64url encoded as defined here: https://tools.ietf.org/html/rfc4648#section-5 . <ul style="list-style-type: none"> If the <code>code_verifier</code> value is provided in the token request and a <code>code_challenge</code> value is in the authorization request, Salesforce compares the <code>code_verifier</code> to the <code>code_challenge</code>. If the <code>code_verifier</code> is invalid or doesn't match, the login fails with the <code>invalid_grant</code> error code. If the <code>code_verifier</code> value is provided in the token request, but a <code>code_challenge</code> value was not provided

Parameter	Description
	<p>in the authorization request, the login fails with the <code>invalid_grant</code> error code.</p> <p> Note: The value should be base64url-encoded only once.</p>
<code>format</code>	<p>Expected return format. The default is <code>json</code>. Values are:</p> <ul style="list-style-type: none"> <code>urlencoded</code> <code>json</code> <code>xml</code> <p>The return format can also be specified in the header of the request using one of the following:</p> <ul style="list-style-type: none"> <code>Accept: application/x-www-form-urlencoded</code> <code>Accept: application/json</code> <code>Accept: application/xml</code>

An example access token POST request might look something like:

```
POST /services/oauth2/token HTTP/1.1
Host: login.salesforce.com
grant_type=authorization_code&code=aPrxsmIEeqM9PiQroGEWx1UiMQd95_5JUJ
VEhsOFhS8EVvbfYBBJli2W5fn3zbo.8hojaNW_1g%3D%3D&client_id=3MVG9lKcPoNI
NVBIPJjdw1J9LLM82HnFVVX19KY1uA5mu0QqEWhqKpoW3svG3XhrXDicQjKlmdgAvhCs
cA9GE&client_secret=1955279925675241571&
redirect_uri=https%3A%2F%2Fwww.mysite.com%2Fcode_callback.jsp
```

5. If this request is successful, the server returns a response body that contains the following:

Parameters	Description
<code>access_token</code>	Access token that acts as a session ID that the application uses for making requests. This token should be protected as though it were user credentials.
<code>refresh_token</code>	<p>Token that can be used in the future to obtain new access tokens.</p> <p> Warning: This value is a secret. You should treat it like the user's password and use appropriate measures to protect it.</p>
<code>instance_url</code>	Identifies the Salesforce instance to which API calls should be sent.
<code>id</code>	Identity URL that can be used to both identify the user as well as query for more information about the user. Can be used in an HTTP request to get more information about the end user.

Parameters	Description
<code>issued_at</code>	When the signature was created, represented as the number of seconds since the Unix epoch (00:00:00 UTC on 1 January 1970).
<code>signature</code>	Base64-encoded HMAC-SHA256 signature signed with the consumer's private key containing the concatenated ID and <code>issued_at</code> value. The <code>signature</code> can be used to verify that the identity URL wasn't modified because it was sent by the server.

An example JSON response body might look something like:

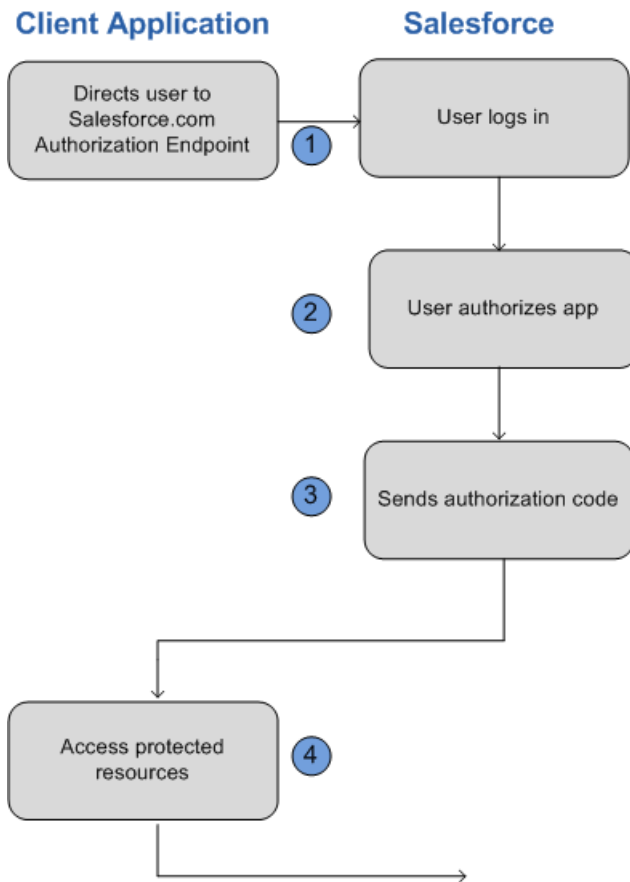
```
{ "id": "https://login.salesforce.com/id/00Dx0000000BV7z/005x00000012Q9P",
  "issued_at": "1278448101416",
  "refresh_token": "5Aep8614iLM.Dq661ePDmPEgaAW9Oh_L3JKkDpB4xReb54_
pZebnUG0h6Sb4KUVDpNtWEofWM39yg==",
  "instance_url": "https://na1.salesforce.com",
  "signature": "CMJ4l+CCaPQiKjoOEwEig9H4wqhpuLSk4J2urAe+fVg=",
  "access_token": "00Dx0000000BV7z!AR8AQp0jITN80ESESj5EbaZTFG0R
NBaT1cyWk7TrqoDjoNIWQ2ME_sTZzBjfmOE6zMHq6y8PIW4eWze9JksNEkWU1.Cju7m4" }
```

- The application uses the provided access token and refresh token to access protected user data.

Understanding the User-Agent OAuth Authentication Flow

The user-agent authentication flow is used by client applications (consumers) residing in the user's device. This could be implemented in a browser using a scripting language such as JavaScript, or from a mobile device or a desktop application. These consumers cannot keep the client secret confidential.

In this flow, the client application requests the authorization server to redirect the user to another Web server or resource which is capable of extracting the access token and passing it back to the application. The following shows the steps for this flow.



1. The application redirects the user to the appropriate Salesforce authorization endpoint, such as <https://login.salesforce.com/services/oauth2/authorize>. The following parameters are required:

Parameter	Description
<code>response_type</code>	Must be <code>token</code> for this authentication flow
<code>client_id</code>	The <code>Consumer Key</code> from the connected app definition.
<code>redirect_uri</code>	The <code>Callback URL</code> from the connected app definition.

The following parameters are optional:


Parameter	Description
<code>display</code>	<p>Changes the login page's display type. Valid values are:</p> <ul style="list-style-type: none"> <code>page</code>—Full-page authorization screen. This is the default value if none is specified. <code>popup</code>—Compact dialog optimized for modern Web browser popup windows. <code>touch</code>—Mobile-optimized dialog designed for modern smartphones such as Android and iPhone.

Parameter	Description
	<ul style="list-style-type: none"> <code>mobile</code>—Mobile optimized dialog designed for smartphones such as BlackBerry OS 5 that don't support touch screens.
<code>scope</code>	Specifies what data your application can access. See "Scope Parameter Values" in the online help for more information.
<code>state</code>	Specifies any additional URL-encoded state data to be returned in the callback URL after approval.

An example authorization URL might look something like the following:

```
https://login.salesforce.com/services/oauth2/authorize?response_type=token&
client_id=3MVG9lKcPoNINVBIPJjdwlJ9LLJbP_pqwoJYyuisjQhr_LLurNDv7AgQvDTZwCoZuD
ZrXcPCmBv4o.8ds.5iE&redirect_uri=https%3A%2F%2Fwww.mysite.com%2Fuser_callback.jsp&
state=mystate
```

- The user logs into Salesforce with their credentials. The user interacts with the authorization endpoint directly, so the application never sees the user's credentials.
- Once authorization is granted, the authorization endpoint redirects the user to the redirect URL. This URL is defined in the remote access application created for the application. Salesforce appends access token information to the redirect URL with the following values:

Parameters	Description
<code>access_token</code>	Access token that acts as a session ID that the application uses for making requests. This token should be protected as though it were user credentials.
<code>expires_in</code>	Amount of time the access token is valid, in seconds.
<code>refresh_token</code>	<p>Token that can be used in the future to obtain new access tokens.</p> <p> Warning: This value is a secret. You should treat it like the user's password and use appropriate measures to protect it.</p> <p>The refresh token is only returned if the redirect URI is <code>https://login.salesforce.com/services/oauth2/success</code> or used with a custom protocol that is not HTTPS.</p>
<code>state</code>	The state value that was passed in as part of the initial request, if applicable.
<code>instance_url</code>	Identifies the Salesforce instance to which API calls should be sent.
<code>id</code>	Identity URL that can be used to both identify the user as well as query for more information about the user. Can be used in an HTTP request to get more information about the end user.

Parameters	Description
<code>issued_at</code>	When the signature was created, represented as the number of seconds since the Unix epoch (00:00:00 UTC on 1 January 1970).
<code>signature</code>	Base64-encoded HMAC-SHA256 signature signed with the consumer's private key containing the concatenated ID and <code>issued_at</code> value. The <code>signature</code> can be used to verify that the identity URL wasn't modified because it was sent by the server.

An example callback URL with access information appended after the hash sign (#) might look something like:

```
https://www.mysite.com/user_callback.jsp#access_token=00Dx000000BV7z%21AR8
AQBM8J_xr9kLqmZIRyQxZgLCm4HVi4laGtW0qW3JCzf5xdTGGGSovim8FfJkZEqxbjaFbberKGk
8v8AnYrvChG4qJbQo8&refresh_token=5Aep8614iLM.Dq661ePDmPEgaAW9Oh_L3JKkDpB4xR
eb54_pZfVtildPEk8aimw4Hr9ne7VXXVSIQ%3D%3D&expires_in=7200&state=mystate
```

4. The application uses the provided access token and refresh token to access protected user data.

Keep the following considerations in mind when using the user-agent OAuth flow:

- Because the access token is encoded into the redirection URI, it might be exposed to the end-user and other applications residing on the computer or device. If you're authenticating using JavaScript, call `window.location.replace()` to remove the callback from the browser's history.

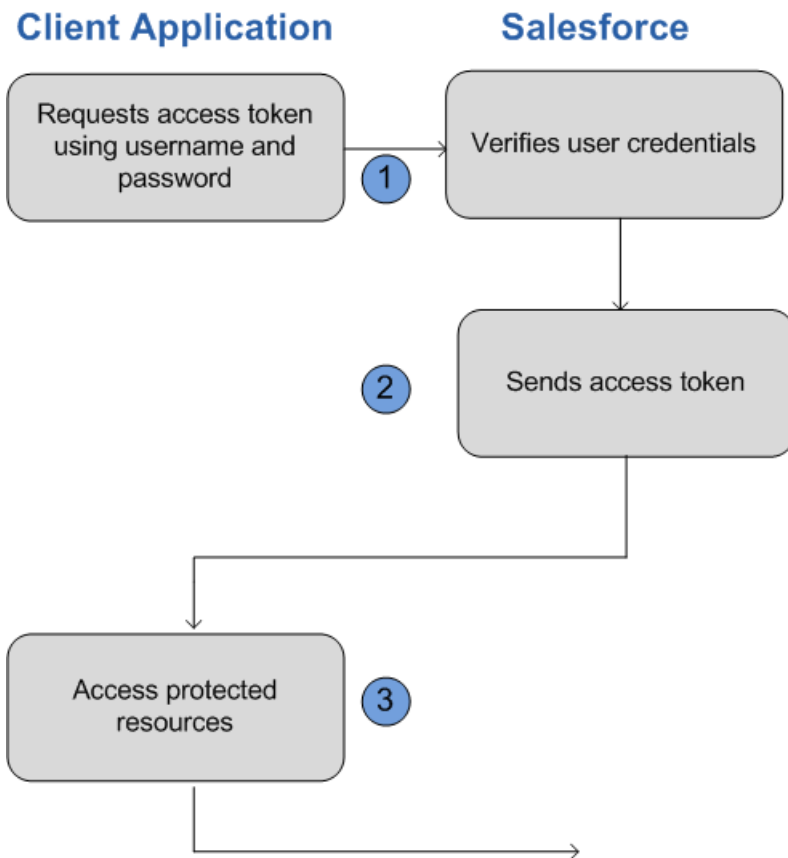
Understanding the Username-Password OAuth Authentication Flow

The username-password authentication flow can be used to authenticate when the consumer already has the user's credentials.

In this flow, the user's credentials are used by the application to request an access token as shown in the following steps.




Warning: This OAuth authentication flow involves passing the user's credentials back and forth. Use this authentication flow only when necessary. No refresh token will be issued.



1. The application uses the user's username and password to request an access token. This is done via an out-of-band POST request to the appropriate Salesforce token request endpoint, such as <https://login.salesforce.com/services/oauth2/token>. The following request fields are required:

Parameter	Description
<code>grant_type</code>	Must be <code>password</code> for this authentication flow.
<code>client_id</code>	The <code>Consumer Key</code> from the connected app definition.
<code>client_secret</code>	The <code>Consumer Secret</code> from the connected app definition.
<code>username</code>	End-user's username.
<code>password</code>	End-user's password.

 **Note:** You must append the user's security token to their password. A security token is an automatically-generated key from Salesforce. For example, if a user's password is `mypassword`, and their security token is `XXXXXXXXXX`, then the value provided for this parameter must be `mypasswordXXXXXXXXXX`. For more information on security tokens see "Reset Your Security Token" in the online help.

An example request body might look something like the following:

```
grant_type=password&client_id=3MVG9lKcPoNINVBIPJjdwlJ9LLM82Hn
FVVX19KY1uA5mu0QqEWhqKpoW3svG3XHrXDICQjKlmdgAvhCscA9GE&client_secret=
1955279925675241571&username=testuser%40salesforce.com&password=mypassword123456
```

2. Salesforce verifies the user credentials, and if successful, sends a response to the application with the access token. This response contains the following values:

Parameters	Description
<code>access_token</code>	Access token that acts as a session ID that the application uses for making requests. This token should be protected as though it were user credentials.
<code>instance_url</code>	Identifies the Salesforce instance to which API calls should be sent.
<code>id</code>	Identity URL that can be used to both identify the user as well as query for more information about the user. Can be used in an HTTP request to get more information about the end user.
<code>issued_at</code>	When the signature was created, represented as the number of seconds since the Unix epoch (00:00:00 UTC on 1 January 1970).
<code>signature</code>	Base64-encoded HMAC-SHA256 signature signed with the consumer's private key containing the concatenated ID and <code>issued_at</code> value. The <code>signature</code> can be used to verify that the identity URL wasn't modified because it was sent by the server.

An example response body might look something like:

```
{"id":"https://login.salesforce.com/id/00Dx0000000BV7z/005x00000012Q9P",
"issued_at":"1278448832702","instance_url":"https://na1.salesforce.com",
"signature":"0CmxinZir53Yex7nE0TD+zMpvIWYGb/bdJh6XfOH6EQ=", "access_token":
"00Dx0000000BV7z!AR8AQAxo9UfVkh8AlV0Gomt9Czx9LjHnSSpwBMmbRcgKFmxOtvxjTrKW1
9ye6PE3Ds1eQz3z8jr3W7_VbWmEu4Q8TVGSTHxs"}
```

3. The application uses the provided access token to access protected user data.

Keep the following considerations in mind when using the user-agent OAuth flow:

- Since the user is never redirected to login at Salesforce in this flow, the user can't directly authorize the application, so no refresh tokens can be used. If your application requires refresh tokens, you should consider using the Web server or user-agent OAuth flow.

Understanding the OAuth Refresh Token Process

The Web server OAuth authentication flow and user-agent flow both provide a refresh token that can be used to obtain a new access token.

Access tokens have a limited lifetime specified by the session timeout in Salesforce. If an application uses an expired access token, a "Session expired or invalid" error is returned. If the application is using the Web server or user-agent OAuth authentication flows, a refresh token may be provided during authorization that can be used to get a new access token.

The client application obtains a new access token by sending a POST request to the token request endpoint with the following request parameters:

Parameters	Description
grant_type	Value must be refresh_token.
refresh_token	The refresh token the client application already received.
client_id	The Consumer Key from the connected app definition.
client_secret	The Consumer Secret from the connected app definition. This parameter is optional.
format	<p>Expected return format. The default is json. Values are:</p> <ul style="list-style-type: none"> • urlencoded • json • xml <p>The return format can also be specified in the header of the request using one of the following:</p> <ul style="list-style-type: none"> • Accept: application/x-www-form-urlencoded • Accept: application/json • Accept: application/xml <p>This parameter is optional.</p>

An example refresh token POST request might look something like:

```
POST /services/oauth2/token HTTP/1.1
Host: https://login.salesforce.com/
grant_type=refresh_token&client_id=3MVG91KcPoNINVBIPJjdwlJ9LLM82HnFVVX19KY1uA5mu0
QqEWhqKpoW3svG3XHrXDiCQjKlmdgAvhCscA9GE&client_secret=1955279925675241571
&refresh_token=your token here
```

Once Salesforce verifies the refresh token request, it sends a response to the application with the following response body parameters:

Parameters	Description
access_token	Access token that acts as a session ID that the application uses for making requests. This token should be protected as though it were user credentials.
instance_url	Identifies the Salesforce instance to which API calls should be sent.
id	Identity URL that can be used to both identify the user as well as query for more information about the user. Can be used in an HTTP request to get more information about the end user.
issued_at	When the signature was created, represented as the number of seconds since the Unix epoch (00:00:00 UTC on 1 January 1970).

Parameters	Description
signature	Base64-encoded HMAC-SHA256 signature signed with the consumer's private key containing the concatenated ID and <code>issued_at</code> value. The <code>signature</code> can be used to verify that the identity URL wasn't modified because it was sent by the server.

An example JSON response body might look something like:

```
{ "id": "https://login.salesforce.com/id/00Dx0000000BV7z/005x00000012Q9P",
  "issued_at": "1278448384422", "instance_url": "https://na1.salesforce.com",
  "signature": "SSSbLO/gBhmmyNUvN18ODBDfYHzakxOMgqYtu+hDPsc=",
  "access_token": "00Dx0000000BV7z!AR8AQP0jITN80ESESj5EbaZTFG0RNBaT1cyWk7T
rqoDjoNIWQ2ME_sTZzBjfmOE6zMHq6y8PIW4eWze9JksNEkWU1.Cju7m4" }
```

Keep in mind the following considerations when using the refresh token OAuth process:

- The session timeout for an access token can be configured in Salesforce from Setup by entering *Session Settings* in the Quick Find box, then selecting **Session Settings**.
- If the application uses the username-password OAuth authentication flow, no refresh token is issued, as the user cannot authorize the application in this flow. If the access token expires, the application using username-password OAuth flow must re-authenticate the user.

Finding Additional Resources

The following resources provide additional information about using OAuth with Salesforce:

- [Authenticating Apps with OAuth](#)
- [Digging Deeper into OAuth on Force.com](#)
- [Using OAuth to Authorize External Applications](#)

The following resources are examples of third party client libraries that implement OAuth that you might find useful:

- For Ruby on Rails: [OmniAuth](#)
- For Java: [Apache Amber](#)
- Additional OAuth client libraries: [OAuth.net](#)

CHAPTER 2 Quick Start

In this chapter ...

- [Prerequisites](#)
- [Step One: Obtain a Salesforce Developer Edition Organization](#)
- [Step Two: Set Up Authorization](#)
- [Step Three: Send HTTP Requests with cURL](#)
- [Step Four: Walk Through the Sample Code](#)
- [Using Workbench](#)

Create a sample REST application in your development environment to see the power and flexibility of the REST API.

Prerequisites

Completing the prerequisites makes it easier to build and use the quick-start sample.

If you're unfamiliar with cURL and JavaScript Object Notation (JSON), you can also use [Workbench](#) to obtain data.

- Install your development platform according to its product documentation.
- Become familiar with cURL, the tool used to execute REST requests in this quick start. If you use another tool, you should be familiar enough with it to translate the example code.
- Become familiar with JSON which is used in this quick start, or be able to translate samples from JSON to the standard you use.
- Enable an SSL endpoint in your application server.
- Become familiar with OAuth 2.0, which requires some setup. We provide the steps, but it will help if you are familiar with the basic concepts and workflow.
- Read through all the steps before beginning this quick start. You may also wish to review the rest of this document to familiarize yourself with terms and concepts.

Step One: Obtain a Salesforce Developer Edition Organization

Set up a Developer Edition organization for testing your code.

If you are not already a member of the Force.com developer community, go to developer.salesforce.com/signup and follow the instructions for signing up for a Developer Edition organization. Even if you already have Enterprise Edition, Unlimited Edition, or Performance Edition, use Developer Edition for developing, staging, and testing your solutions against sample data to protect your organization's live data. This is especially true for applications that insert, update, or delete data (as opposed to simply reading data).

If you already have a Developer Edition organization, verify that you have the "API Enabled" permission. This permission is enabled by default, but may have been changed by an administrator. For more information, see the help in the Salesforce user interface.

Step Two: Set Up Authorization

You can set up authorization using OAuth 2.0 or by passing a session ID.


 **Important:** If you're handling someone else's password, don't use session ID.

Partners, who wish to get an OAuth consumer Id for authentication, can contact Salesforce

Setting Up OAuth 2.0

Setting up OAuth 2.0 requires that you take some steps within Salesforce and in other locations. If any of the steps are unfamiliar, see [Understanding Authentication](#) or the Salesforce online help. The following example uses the [Web server OAuth flow](#).

1. In Salesforce, from Setup, enter *Apps* in the *Quick Find* box, then select **Apps**, and under **Connected Apps** click **New** to create a new connected app if you have not already done so. The *Callback URL* you supply here is the same as your Web application's callback URL. Usually it is a servlet if you work with Java. It must be secure: `http://` does not work, only `https://`. For development environments, the callback URL is similar to `https://localhost:8443/RestTest/oauth/_callback`. When you click Save, the *Consumer Key* is created and displayed, and a *Consumer Secret* is created (click the link to reveal it).

 **Note:** The OAuth 2.0 specification uses "client" instead of "consumer." Salesforce supports OAuth 2.0.

The values here correspond to the following values in the sample code in the rest of this procedure:

- `client_id` is the Consumer Key
- `client_secret` is the Consumer Secret
- `redirect_uri` is the Callback URL.

In your client application, redirect the user to the appropriate Salesforce authorization endpoint. On successful user login, Salesforce will call your redirect URI with an authorization code. You use the authorization code in the next step to get the access token.

2. From your Java or other client application, make a request to the appropriate Salesforce token request endpoint that passes in `grant_type`, `client_id`, `client_secret`, and `redirect_uri`. The `redirect_uri` is the URI that Salesforce sends a callback to.

```
initParams = {
    @WebInitParam(name = "clientId", value =
        "3MVG9lKcPoNINVBJSOqSNCD.HHDdbugPsNXwwyFbgb47Kwa_PTv"),
    @WebInitParam(name = "clientSecret", value = "5678471853609579508"),
    @WebInitParam(name = "redirectUri", value =
        "https://localhost:8443/RestTest/oauth/_callback"),
    @WebInitParam(name = "environment", value =
        "https://na1.salesforce.com/services/oauth2/token") }

HttpClient httpClient = new HttpClient();
PostMethod post = new PostMethod(environment);
post.addParameter("code", code);
post.addParameter("grant_type", "authorization_code");

/** For session ID instead of OAuth 2.0, use "grant_type", "password" */
post.addParameter("client_id", clientId);
post.addParameter("client_secret", clientSecret);
post.addParameter("redirect_uri", redirectUri);
```

If the value of `client_id` (or consumer key) and `client_secret` (or consumer secret) are valid, Salesforce sends a callback to the URI specified in `redirect_uri` that contains a value for `access_token`.

3. Store the access token value as a cookie to use in all subsequent requests. For example:

```
//exception handling removed for brevity...
//this is the post from step 2
httpClient.executeMethod(post);
String responseBody = post.getResponseBodyAsString();

String accessToken = null;
JSONObject json = null;
try {
    json = new JSONObject(responseBody);
    accessToken = json.getString("access_token");
    issuedAt = json.getString("issued_at");
    /** Use this to validate session
     * instead of expiring on browser close.
     */

} catch (JSONException e) {
    e.printStackTrace();
```

```

    }

    HttpServletResponse httpResponse = (HttpServletResponse)response;
    Cookie session = new Cookie(ACCESS_TOKEN, accessToken);
    session.setMaxAge(-1); //cookie not persistent, destroyed on browser exit
    httpResponse.addCookie(session);

```

This completes the authentication.

4. Once authenticated, every request must pass in the `access_token` value in the header. It cannot be passed as a request parameter.

```

HttpClient httpclient = new HttpClient();
GetMethod gm = new GetMethod(serviceUrl);

//set the token in the header
gm.setRequestHeader("Authorization", "Bearer "+accessToken);
//set the SOQL as a query param
NameValuePair[] params = new NameValuePair[1];

/**
 * other option instead of query string, pass just the fields you want back:
 * https://instance_name.salesforce.com/services/data/v20.0/objects/Account/
 *      001D0000000INjVe?fields=AccountNumber,BillingPostalCode
 */
params[0] = new NameValuePair("q","SELECT name, title FROM Contact LIMIT 100");
gm.setQueryString(params);

httpclient.executeMethod(gm);
String responseBody = gm.getResponseBodyAsString();
//exception handling removed for brevity
JSONObject json = new JSONObject(responseBody);

JSONArray results = json.getJSONArray("records");

for(int i = 0; i < results.length(); i++)
    response.getWriter().write(results.getJSONObject(i).getString("Name")+      ",
    "+results.getJSONObject(i).getString("Title")+"\n");

```

The syntax to provide the access token in your REST requests:

```
Authorization: Bearer access_token
```

For example:

```
curl https://instance_name.salesforce.com/services/data/v20.0/ -H 'Authorization: Bearer
access_token'
```

Session ID Authorization

You can use a session ID instead of an OAuth 2.0 access token if you aren't handling someone else's password:

1. Obtain a session ID, for example, a SOAP API `login()` call returns the session ID. You may also have the session ID, for example as part of the Apex current context. If you need a session ID just for testing purposes during development, you can use the username-password OAuth flow in a cURL command similar to the following:

```
curl https://login.salesforce.com/services/oauth2/token -d "grant_type=password" -d
"client_id=myclientid" -d "client_secret=myclientsecret"
-d "username=mylogin@salesforce.com" -d "password=mypassword123456"
```

You will need to provide your client id, client secret, username and password with user security token appended.

2. Use the session ID when you send a request to the resource. Substitute the ID for the `token` value. The syntax is the same:

```
Authorization: Bearer access_token
```

For example:

```
curl https://instance_name.salesforce.com/services/data/v20.0/ -H 'Authorization: Bearer
access_token'
```

Step Three: Send HTTP Requests with cURL

To interact with the Force.com REST API, you need to set up your client application (we use cURL) to construct HTTP requests.

Setting Up Your Client Application

The REST API uses HTTP GET and HTTP POST methods to send and receive JSON and XML content, so it is very simple to build client applications using the tool or the language of your choice. We use a command-line tool called cURL to simplify sending and receiving HTTP requests and responses.

cURL is pre-installed on many Linux and Mac systems. Windows users can download a version at curl.haxx.se/. When using HTTPS on Windows, ensure that your system meets the cURL requirements for SSL.

Sending HTTP Requests Using REST API Resources

Your HTTP requests to a REST API resource should contain the following information:

- An HTTP method (HEAD, GET, POST, PATCH, or DELETE).
- An OAuth 2.0 access token used to authenticate the request. For information on how to retrieve the token, see [Quick Start](#) on page 20.
- An HTTP ACCEPT header used to indicate the resource format (XML or JSON), or a `.json` or `.xml` extension to the URI. The default is JSON.
- The Force.com REST resource.
- Any JSON or XML files containing information needed for requests, such as updating a record with new information.

The HTTP methods are used to indicate the desired action, such as retrieving information, as well as creating, updating, and deleting records.

- HEAD is used to retrieve resource metadata.
- GET is used to retrieve information, such as basic resource summary information.
- POST is used to create a new object.
- PATCH is used to update a record.

- DELETE is used to delete a record.

To access a resource, submit an HTTP request containing a header, method, and resource name.

For example, assume you want to create an Account record using a JSON-formatted file called `newaccount.json`. It contains the information to be stored in the new account:

```
{
  "Name" : "test"
}
```

Using cURL on instance na1, the request would appear as follows:

```
curl https://na1.salesforce.com/services/data/v20.0/subjects/Account/ -H "Authorization: Bearer token" -H "Content-Type: application/json" -d "@newaccount.json"
```

The request HTTP header:

```
POST /services/data/v20.0/subjects/Account HTTP/1.1
User-Agent: curl/7.19.7 (universal-apple-darwin10.0) libcurl/7.19.7 OpenSSL/0.9.8l zlib/1.2.3
Host: na1.salesforce.com
Accept: */*
Content-Length: 1411
Content-Type: application/json
Authorization: Bearer XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
X-PrettyPrint:1
```

The response:

```
Date: Thu, 21 Oct 2010 22:16:22 GMT
Content-Length: 71
Location: /services/data/v20.0/subjects/Account/001T000000NU96UIAT
Content-Type: application/json; charset=UTF-8 Server:
{ "id" : "001T000000NU96UIAT",
  "errors" : [ ],
  "success" : true }
```

For a list of the resources and their corresponding URIs, see [Reference](#) on page 85.

SEE ALSO:

[Using cURL in the REST Examples](#)

Step Four: Walk Through the Sample Code

In this section you will create a series of REST requests. cURL will be used to construct the requests, and JSON will be used as the format for all requests and responses.

In each request, a base URI will be used in conjunction with the REST resource. The base URI for these examples is `https://na1.salesforce.com/services/data`. For more information, see [Understanding Force.com REST Resources](#) on page 2.

In this example, a series of REST requests will be used in the following scenario:

1. [Get the Salesforce version.](#)
2. [Use the Salesforce version to get a list of the resources available.](#)

3. Use one of the resources to get a list of the available objects.
4. Select one of the objects and get a description of its metadata.
5. Get a list of fields on that same object.
6. Execute a SOQL query to retrieve values from all `name` fields on Account records.
7. Update the Billing City for one of the Account objects.

Get the Salesforce Version

Begin by retrieving information about each available Salesforce version. To do this, submit a request for the [Versions](#) resource. In this case the request does not require authentication:

```
curl https://na1.salesforce.com/services/data/
```

The output from this request, including the response header:

```
Content-Length: 88
Content-Type: application/json;
charset=UTF-8 Server:
[
  {
    "version": "20.0",
    "url": "/services/data/v20.0",
    "label": "Winter '11"
  }
  ...
]
```

The output specifies the resources available for all valid versions (your result may include more than one value). Next, use one of these versions to discover the resources it contains.

Get a List of Resources

The next step is to retrieve a list of the resources available for Salesforce, in this example for version 20.0. To do this, submit a request for the [Resources by Version](#):

```
curl https://na1.salesforce.com/services/data/v20.0/ -H "Authorization: Bearer access_token"
-H "X-PrettyPrint:1"
```

The output from this request is as follows:

```
{
  "subjects" : "/services/data/v20.0/subjects",
  "search" : "/services/data/v20.0/search",
  "query" : "/services/data/v20.0/query",
  "recent" : "/services/data/v20.0/recent"
}
```

From this output you can see that `subjects` is one of the available resources in Salesforce version 20.0. You will be able to use this resource in the next request to retrieve the available objects.

Get a List of Available Objects

Now that you have the list of available resources, you can request a list of the available objects. To do this, submit a request for the [Describe Global](#):

```
curl https://na1.salesforce.com/services/data/v20.0/subjects/ -H "Authorization: Bearer access_token" -H "X-PrettyPrint:1"
```

The output from this request is as follows:

```
Transfer-Encoding: chunked
Content-Type: application/json;
charset=UTF-8 Server:
{
  "encoding" : "UTF-8",
  "maxBatchSize" : 200,
  "subjects" : [ {
    "name" : "Account",
    "label" : "Account",
    "custom" : false,
    "keyPrefix" : "001",
    "updateable" : true,
    "searchable" : true,
    "labelPlural" : "Accounts",
    "layoutable" : true,
    "activateable" : false,
    "urls" : { "subject" : "/services/data/v20.0/subjects/Account",
    "describe" : "/services/data/v20.0/subjects/Account/describe",
    "rowTemplate" : "/services/data/v20.0/subjects/Account/{ID}" },
    "createable" : true,
    "customSetting" : false,
    "deletable" : true,
    "deprecatedAndHidden" : false,
    "feedEnabled" : false,
    "mergeable" : true,
    "queryable" : true,
    "replicateable" : true,
    "retrieveable" : true,
    "undeletable" : true,
    "triggerable" : true },
  },
  ...
}
```

From this output you can see that the Account object is available. You will be able to get more information about the Account object in the next steps.

Get Basic Object Information

Now that you have identified the Account object as an available resource, you can retrieve some basic information about its metadata. To do this, submit a request for the [SObject Basic Information](#):

```
curl https://na1.salesforce.com/services/data/v20.0/subjects/Account/ -H "Authorization: Bearer access_token" -H "X-PrettyPrint:1"
```

The output from this request is as follows:

```
{
  "objectDescribe" :
  {
    "name" : "Account",
    "updateable" : true,
    "label" : "Account",
    "keyPrefix" : "001",

    ...

    "replicateable" : true,
    "retrieveable" : true,
    "undeletable" : true,
    "triggerable" : true
  },
  "recentItems" :
  [
    {
      "attributes" :
      {
        "type" : "Account",
        "url" : "/services/data/v20.0/subjects/Account/001D000000INjVeIAL"
      },
      "Id" : "001D000000INjVeIAL",
      "Name" : "asdasdasd"
    },
    ...
  ]
}
```

From this output you can see some basic attributes of the Account object, such as its name and label, as well as a list of the most recently used Accounts. Since you may need more information about its fields, such as length and default values, in the next step you will retrieve more detailed information about the Account object.

Get a List of Fields

Now that you have some basic information about the Account object's metadata, you may be interested in retrieving more detailed information. To do this, submit a request for the [SObject Describe](#):

```
curl https://na1.salesforce.com/services/data/v20.0/subjects/Account/describe/ -H
"Authorization: Bearer access_token" -H "X-PrettyPrint:1"
```

The output from this request is as follows:

```
{
  "name" : "Account",
  "fields" :
  [
    {
      "length" : 18,
      "name" : "Id",
```

```

        "type" : "id",
        "defaultValue" : { "value" : null },
        "updateable" : false,
        "label" : "Account ID",
        ...
    },
    ...
],
"updateable" : true,
"label" : "Account",
...
"urls" :
{
    "uiEditTemplate" : "https://na1.salesforce.com/{ID}/e",
    "subject" : "/services/data/v20.0/subjects/Account",
    "uiDetailTemplate" : "https://na1.soma.salesforce.com/{ID}",
    "describe" : "/services/data/v20.0/subjects/Account/describe",
    "rowTemplate" : "/services/data/v20.0/subjects/Account/{ID}",
    "uiNewRecord" : "https://na1.salesforce.com/001/e"
},
"childRelationships" :
[
    {
        "field" : "ParentId",
        "deprecatedAndHidden" : false,
        ...
    },
    ...
],

"createable" : true,
"customSetting" : false,
...
}

```

From this output you can see much more detailed information about the Account object, such as its field attributes and child relationships. Now you have enough information to construct useful queries and updates for the Account objects in your organization, which you will do in the next steps.

Execute a SOQL Query

Now that you know the field names on the Account object, you can execute a SOQL query, for example, to retrieve a list of all the Account name values. To do this, submit a [Query](#) request:

```
curl https://na1.salesforce.com/services/data/v20.0/query?q=SELECT+name+from+Account -H
"Authorization: Bearer access_token" -H "X-PrettyPrint:1"
```

The output from this request is as follows:

```

{
    "done" : true,
    "totalSize" : 14,
    "records" :
    [

```

```
{
  "attributes" :
  {
    "type" : "Account",
    "url" : "/services/data/v20.0/subjects/Account/001D000000IRFmaIAH"
  },
  "Name" : "Test 1"
},
{
  "attributes" :
  {
    "type" : "Account",
    "url" : "/services/data/v20.0/subjects/Account/001D000000IomazIAB"
  },
  "Name" : "Test 2"
},
...
]
```

From this output you have a listing of the available Account names, and each name's preceding attributes include the Account IDs. In the next step you will use this information to update one of the accounts.

 **Note:** You can find more information about SOQL in the [Salesforce SOQL and SOSL Reference Guide](#).

Update a Field on a Record

Now that you have the Account names and IDs, you can retrieve one of the accounts and update its Billing City. To do this, you will need to submit an [Object Rows](#) request. To update the object, supply the new information about the Billing City. Create a text file called `patchaccount.json` containing the following information:

```
{
  "BillingCity" : "Fremont"
}
```

Specify this JSON file in the REST request. The cURL notation requires the `-d` option when specifying data. For more information, see <http://curl.haxx.se/docs/manpage.html>.

Also, specify the `PATCH` method, which is used for updating a REST resource. The following cURL command retrieves the specified Account object using its ID field, and updates its Billing City.

```
curl https://na1.salesforce.com/services/data/v20.0/subjects/Account/001D000000IroHJ -H
"Authorization: Bearer access_token" -H "X-PrettyPrint:1" -H "Content-Type:
application/json" --data-binary @patchaccount.json -X PATCH
```

No response body is returned, just the headers:

```
HTTP/1.1 204 No Content
Server:
Content-Length: 0
```

Refresh the page on the account and you will see that the Billing Address has changed to Fremont.

Other Resources

- Search for Ruby on developer.salesforce.com
- [Force.com Cookbook recipe for getting started in Ruby](#)
- [Force.com REST API Board](#)

Using Workbench

Use the Workbench tool to obtain data about your organization.

If you don't want to use CURL, you can use the Workbench REST explorer to obtain response data.

1. Log in to your organization.
2. Open a new browser tab and navigate to `https://developer.salesforce.com/page/Workbench`.
3. Log in to Workbench and allow access to your organization. Workbench is a public site and won't retain your data.
4. Click **Utilities > REST Explorer**.
5. Ensure that **Get** is selected. The Execute text box is prepopulated with a portion of a resource path. Add the remaining information for your resource. For example, if your cURL syntax is

```
https://na1.salesforce.com/services/data/v32.0/subjects/EventLogFile/describe -H  
"Authorization: Bearer token"
```

type

```
/services/data/v32.0/subjects/EventLogFile/describe.
```

6. Click **Execute**.
7. Click **Expand All** or **Show Raw Response** to view your data.



Tip: If you receive a "Service not found" message, verify your resource path.

CHAPTER 3 Examples

In this chapter ...

- [Getting Information About My Organization](#)
- [Working with Object Metadata](#)
- [Working with Records](#)
- [Working with Searches and Queries](#)
- [Working with Recently Viewed Information](#)
- [Managing User Passwords](#)
- [Working with Approval Processes and Process Rules](#)
- [Using Event Monitoring](#)
- [Using Composite Resources](#)

This section provides examples of using REST API resources to do a variety of different tasks, including working with objects, organization information, and queries.

For complete reference information on REST API resources, see [Reference](#) on page 85.

Getting Information About My Organization

The examples in this section use REST API resources to retrieve organization-level information, such as a list of all objects available in your organization.

IN THIS SECTION:

[List Available REST API Versions](#)

Use the [Versions](#) resource to list summary information about each REST API version currently available, including the version, label, and a link to each version's root. You do not need authentication to retrieve the list of versions.

[List Organization Limits](#)

Use the [Limits](#) resource to list limits information for your organization.

[List Available REST Resources](#)

Use the [Resources by Version](#) resource to list the resources available for the specified API version. This provides the name and URI of each additional resource.

[Get a List of Objects](#)

Use the [Describe Global](#) resource to list the objects available in your organization and available to the logged-in user. This resource also returns the organization encoding, as well as maximum batch size permitted in queries.

[Get a List of Objects If Metadata Has Changed](#)

Use the Describe Global resource and the `If-Modified-Since` HTTP header to determine if an object's metadata has changed.

List Available REST API Versions

Use the [Versions](#) resource to list summary information about each REST API version currently available, including the version, label, and a link to each version's root. You do not need authentication to retrieve the list of versions.

Example usage

```
curl http://na1.salesforce.com/services/data/
```

Example request body

none required

Example JSON response body

```
[
  {
    "version" : "20.0",
    "label" : "Winter '11",
    "url" : "/services/data/v20.0"
  },
  {
    "version" : "21.0",
    "label" : "Spring '11",
    "url" : "/services/data/v21.0"
  },
  ...
  {
    "version" : "26.0",
    "label" : "Winter '13",
```

```

        "url" : "/services/data/v26.0"
    }
]

```

Example XML response body

```

<?xml version="1.0" encoding="UTF-8"?>
<Versions>
  <Version>
    <label>Winter &apos;11</label>
    <url>/services/data/v20.0</url>
    <version>20.0</version>
  </Version>
  <Version>
    <label>Spring &apos;11</label>
    <url>/services/data/v21.0</url>
    <version>21.0</version>
  </Version>
  ...
  <Version>
    <label>Winter &apos;13</label>
    <url>/services/data/v26.0</url>
    <version>26.0</version>
  </Version>
</Versions>

```

List Organization Limits

Use the [Limits](#) resource to list limits information for your organization.

- Max is the limit total for the organization.
- Remaining is the total number of calls or events left for the organization.

Example usage

```

curl https://instance.salesforce.com/services/data/v29.0/limits/ -H "Authorization:
Bearer token "X-PrettyPrint:1"

```

Example request body

none required

Example response body

```

{
  "ConcurrentAsyncGetReportInstances":
  {
    "Remaining" : 200,
    "Max": 200
  },
  "ConcurrentSyncReportRuns":
  {
    "Remaining" : 20,
    "Max" : 20
  },
  "DailyApiRequests":

```



```
{
  "Remaining" : 14998,
  "Max" : 15000
},
"DailyAsyncApexExecutions":
{
  "Remaining" : 250000,
  "Max" : 250000
},
"DailyBulkApiRequests":
{
  "Remaining" : 5000,
  "Max" : 5000
},
"DailyGenericStreamingApiEvents":
{
  "Remaining" : 10000,
  "Max" : 10000
},
"DailyStreamingApiEvents":
{
  "Remaining": 10000,
  "Max" : 10000
},
"DailyWorkflowEmails":
{
  "Remaining" : 75,
  "Max" : 75
},

"DataStorageMB":
{
  "Remaining" : 1073,
  "Max" : 1073
},
"FileStorageMB":
{
  "Remaining" : 1073,
  "Max" : 1073
},
"HourlyAsyncReportRuns":
{
  "Remaining" : 1200,
  "Max" : 1200
},
"HourlyDashboardRefreshes":
{
  "Remaining" : 200,
  "Max" : 200
},
"HourlyDashboardResults":
{
  "Remaining" : 5000,
  "Max" : 5000
}
```

```

    },
    "HourlyDashboardStatuses":
    {
        "Remaining" : 999999999,
        "Max" : 999999999
    },
    "HourlySyncReportRuns":
    {
        "Remaining" : 500,
        "Max" : 500
    },
    "HourlyTimeBasedWorkflow":
    {
        "Remaining" : 50,
        "Max" : 50
    },
    "MassEmail":
    {
        "Remaining" : 10,
        "Max" : 10
    },
    "SingleEmail":
    {
        "Remaining" : 15,
        "Max" : 15
    },
    "StreamingApiConcurrentClients":
    {
        "Remaining" : 1000,
        "Max" : 1000
    }
}

```

List Available REST Resources

Use the [Resources by Version](#) resource to list the resources available for the specified API version. This provides the name and URI of each additional resource.

Example

```
curl https://na1.salesforce.com/services/data/v26.0/ -H "Authorization: Bearer token"
```

Example request body

none required

Example JSON response body

```

{
    "subjects" : "/services/data/v26.0/subjects",
    "licensing" : "/services/data/v26.0/licensing",
    "connect" : "/services/data/v26.0/connect",
    "search" : "/services/data/v26.0/search",
    "query" : "/services/data/v26.0/query",
    "tooling" : "/services/data/v26.0/tooling",
    "chatter" : "/services/data/v26.0/chatter",
}

```

```

    "recent" : "/services/data/v26.0/recent"
  }

```

Example XML response body

```

<?xml version="1.0" encoding="UTF-8"?>
<urls>
  <subjects>/services/data/v26.0/subjects</subjects>
  <licensing>/services/data/v26.0/licensing</licensing>
  <connect>/services/data/v26.0/connect</connect>
  <search>/services/data/v26.0/search</search>
  <query>/services/data/v26.0/query</query>
  <tooling>/services/data/v26.0/tooling</tooling>
  <chatter>/services/data/v26.0/chatter</chatter>
  <recent>/services/data/v26.0/recent</recent>
</urls>

```

Get a List of Objects

Use the [Describe Global](#) resource to list the objects available in your organization and available to the logged-in user. This resource also returns the organization encoding, as well as maximum batch size permitted in queries.

Example usage

```

curl https://na1.salesforce.com/services/data/v26.0/subjects/ -H "Authorization: Bearer token"

```

Example request body

none required

Example response body

```

{
  "encoding" : "UTF-8",
  "maxBatchSize" : 200,
  "subjects" : [ {
    "name" : "Account",
    "label" : "Account",
    "keyPrefix" : "001",
    "labelPlural" : "Accounts",
    "custom" : false,
    "layoutable" : true,
    "activateable" : false,
    "urls" : {
      "subject" : "/services/data/v26.0/subjects/Account",
      "describe" : "/services/data/v26.0/subjects/Account/describe",
      "rowTemplate" : "/services/data/v26.0/subjects/Account/{ID}"
    },
    "searchable" : true,
    "updateable" : true,
    "createable" : true,
    "deprecatedAndHidden" : false,
    "customSetting" : false,
    "deletable" : true,
    "feedEnabled" : true,

```

```

    "mergeable" : true,
    "queryable" : true,
    "replicateable" : true,
    "retrieveable" : true,
    "undeletable" : true,
    "triggerable" : true
  },
  ...
]
}

```

Get a List of Objects If Metadata Has Changed

Use the `Describe Global` resource and the `If-Modified-Since` HTTP header to determine if an object's metadata has changed.

You can include the `If-Modified-Since` header with a date in `EEE, dd MMM yyyy HH:mm:ss z` format when you use the [Describe Global](#) resource. If you do, response metadata is returned only if an available object's metadata has changed since the provided date. If no metadata has been modified since the provided date, a `304 Not Modified` status code is returned with no response body.

The following example assumes that no changes have been made to objects after March 23, 2015.

Example `Describe Global` request

```
/services/data/v34.0/subjects
```

Example `If-Modified-Since` header used with request

```
If-Modified-Since: Tue, 23 Mar 2015 00:00:00 GMT
```

Example response body

No response body returned

Example response status code

```

HTTP/1.1 304 Not Modified
Date: Wed, 25 Jul 2015 00:05:46 GMT

```

If changes to an object were made after March 23, 2015, the response body contains metadata for all available objects. For an example, see [Get a List of Objects](#).

Working with Object Metadata

The examples in this section use REST API resources to retrieve object metadata information. For modifying or creating object metadata information, see the [Metadata API Developer's Guide](#).

IN THIS SECTION:

[Retrieve Metadata for an Object](#)

Use the [SObject Basic Information](#) resource to retrieve metadata for an object.

[Get Field and Other Metadata for an Object](#)

Use the [SObject Describe](#) resource to retrieve all the metadata for an object, including information about each field, URLs, and child relationships.

[Get Object Metadata Changes](#)

Use the `SObject Describe` resource and the `If-Modified-Since` HTTP header to determine if object metadata has changed.

Retrieve Metadata for an Object

Use the [SObject Basic Information](#) resource to retrieve metadata for an object.

Example for retrieving Account metadata

```
curl https://na1.salesforce.com/services/data/v20.0/subjects/Account/ -H "Authorization: Bearer token"
```

Example request body for retrieving Account metadata

none required

Example response body for retrieving Account metadata

```
{
  "objectDescribe" :
  {
    "name" : "Account",
    "updateable" : true,
    "label" : "Account",
    "keyPrefix" : "001",
    ...

    "replicateable" : true,
    "retrieveable" : true,
    "undeletable" : true,
    "triggerable" : true
  },
  "recentItems" :
  [
    {
      "attributes" :
      {
        "type" : "Account",
        "url" : "/services/data/v20.0/subjects/Account/001D000000INjVeIAL"
      },
      "Id" : "001D000000INjVeIAL",
      "Name" : "asdasdasd"
    },
    ...
  ]
}
```

To get a complete description of an object, including field names and their metadata, see [Get a List of Objects](#).

Get Field and Other Metadata for an Object

Use the [SObject Describe](#) resource to retrieve all the metadata for an object, including information about each field, URLs, and child relationships.

Example

```
https://na1.salesforce.com/services/data/v20.0/subjects/Account/describe/ -H
"Authorization: Bearer token"
```

Example request body

none required

Example response body

```
{
  "name" : "Account",
  "fields" :
  [
    {
      "length" : 18,
      "name" : "Id",
      "type" : "id",
      "defaultValue" : { "value" : null },
      "updateable" : false,
      "label" : "Account ID",
      ...
    },
    ...
  ],

  "updateable" : true,
  "label" : "Account",
  "keyPrefix" : "001",
  "custom" : false,

  ...

  "urls" :
  {
    "uiEditTemplate" : "https://na1.salesforce.com/{ID}/e",
    "subject" : "/services/data/v20.0/subjects/Account",
    "uiDetailTemplate" : "https://na1.salesforce.com/{ID}",
    ...
  },

  "childRelationships" :
  [
    {
      "field" : "ParentId",
      "deprecatedAndHidden" : false,
      ...
    },
    ....
  ],
}
```

```

    "createable" : true,
    "customSetting" : false,
    ...
  }

```

Get Object Metadata Changes

Use the `SObject Describe` resource and the `If-Modified-Since` HTTP header to determine if object metadata has changed.

You can include the `If-Modified-Since` header with a date in `EEE, dd MMM yyyy HH:mm:ss z` format when you use the [SObject Describe](#) resource. If you do, response metadata will only be returned if the object metadata has changed since the provided date. If the metadata has not been modified since the provided date, a `304 Not Modified` status code is returned, with no response body.

The following example assumes that no changes, such as new custom fields, have been made to the `Merchandise__c` object after July 3rd, 2013.

Example SObject Describe request

```
/services/data/v29.0/objects/Merchandise__c/describe
```

Example If-Modified-Since header used with request

```
If-Modified-Since: Wed, 3 Jul 2013 19:43:31 GMT
```

Example response body

No response body returned

Example response status code

```

HTTP/1.1 304 Not Modified
Date: Fri, 12 Jul 2013 05:03:24 GMT

```

If there were changes to `Merchandise__c` made after July 3rd, 2013, the response body would contain the metadata for `Merchandise__c`. See [Get Field and Other Metadata for an Object](#) for an example.

Working with Records

The examples in this section use REST API resources to create, retrieve, update, and delete records, along with other record-related operations.

IN THIS SECTION:

[Create a Record](#)

Use the [SObject Basic Information](#) resource to create new records. You supply the required field values in the request data, and then use the POST method of the resource. The response body will contain the ID of the created record if the call is successful.

[Update a Record](#)

You use the [SObject Rows](#) resource to update records. Provide the updated record information in your request data and use the PATCH method of the resource with a specific record ID to update that record. Records in a single file must be of the same object type.

[Delete a Record](#)

Use the [SObject Rows](#) resource to delete records. Specify the record ID and use the DELETE method of the resource to delete a record.

Get Field Values from a Standard Object Record

You use the [SObject Rows](#) resource to retrieve field values from a record. Specify the fields you want to retrieve in the `fields` parameter and use the GET method of the resource.

Get Field Values from an External Object Record by Using the Salesforce ID

You use the [SObject Rows](#) resource to retrieve field values from a record. Specify the fields you want to retrieve in the `fields` parameter and use the GET method of the resource.

Get Field Values from an External Object Record by Using the External ID Standard Field

You use the [SObject Rows](#) resource to retrieve field values from a record. Specify the fields you want to retrieve in the `fields` parameter and use the GET method of the resource.

Retrieve a Record Using an External ID

You can use the GET method of the [SObject Rows by External ID](#) resource to retrieve records with a specific external ID.

Insert or Update (Upsert) a Record Using an External ID

You can use the [SObject Rows by External ID](#) resource to create new records or update existing records (upsert) based on the value of a specified external ID field.

Get Attachment Content from a Record

Use the [SObject Blob Retrieve](#) resource to retrieve blob data for a given record.

Insert or Update Blob Data

You can use [SObject Basic Information](#) and [SObject Rows](#) REST resources to insert or update blob data in Salesforce standard objects. You can upload files of any type, and you must use a multipart message that conforms to the MIME multipart content-type standard. For more information, see the [WC3 Standards](#). You can insert or update files on any standard object that contains a blob field. The maximum file size for uploads is 2 GB for ContentVersion objects and 500 MB for all other eligible standard objects.

Get a List of Deleted Records Within a Given Timeframe

Use the [SObject Get Deleted](#) resource to get a list of deleted records for the specified object. Specify the date and time range within which the records for the given object were deleted. Deleted records are written to a delete log (that is periodically purged), and will be filtered out of most operations, such as SObject Rows or Query (although QueryAll will include deleted records in results).

Get a List of Updated Records Within a Given Timeframe

Use the [SObject Get Updated](#) resource to get a list of updated (modified or added) records for the specified object. Specify the date and time range within which the records for the given object were updated.

Create a Record

Use the [SObject Basic Information](#) resource to create new records. You supply the required field values in the request data, and then use the POST method of the resource. The response body will contain the ID of the created record if the call is successful.

The following example creates a new Account record, with the field values provided in `newaccount.json`.

Example for creating a new Account

```
curl https://na1.salesforce.com/services/data/v20.0/objects/Account/ -H "Authorization: Bearer token" -H "Content-Type: application/json" -d "@newaccount.json"
```

Example request body `newaccount.json` file for creating a new Account

```
{
  "Name" : "Express Logistics and Transport"
}
```


Example response body after successfully creating a new Account

```
{
  "id" : "001D000000IghSLIAZ",
  "errors" : [ ],
  "success" : true
}
```

Update a Record

You use the [SObject Rows](#) resource to update records. Provide the updated record information in your request data and use the PATCH method of the resource with a specific record ID to update that record. Records in a single file must be of the same object type.

In the following example, the Billing City within an Account is updated. The updated record information is provided in `patchaccount.json`.

Example for updating an Account object

```
curl https://na1.salesforce.com/services/data/v20.0/objects/Account/001D000000INjVe -H
"Authorization: Bearer token" -H "Content-Type: application/json" -d @patchaccount.json
-X PATCH
```

Example request body `patchaccount.json` file for updating fields in an Account object

```
{
  "BillingCity" : "San Francisco"
}
```

Example response body for updating fields in an Account object

none returned

Error response

See [Status Codes and Error Responses](#) on page 179.

The following example uses Java and HttpClient to update a record using REST API. Note that there is no PatchMethod in HttpClient, so PostMethod is overridden to return "PATCH" as its method name. This example assumes the resource URL has been passed in and contains the object name and record ID.

```
public static void patch(String url, String sid) throws IOException {
    PostMethod m = new PostMethod(url) {
        @Override public String getName() { return "PATCH"; }
    };

    m.setRequestHeader("Authorization", "OAuth " + sid);

    Map<String, Object> accUpdate = new HashMap<String, Object>();
    accUpdate.put("Name", "Patch test");
    ObjectMapper mapper = new ObjectMapper();
    m.setRequestEntity(new StringRequestEntity(mapper.writeValueAsString(accUpdate),
"application/json", "UTF-8"));

    HttpClient c = new HttpClient();
    int sc = c.executeMethod(m);
    System.out.println("PATCH call returned a status code of " + sc);
    if (sc > 299) {
        // deserialize the returned error message
    }
}
```

```

    List<ApiError> errors = mapper.readValue(m.getResponseBodyAsStream(), new
TypeReference<List<ApiError>>() {} );
    for (ApiError e : errors)
        System.out.println(e.errorCode + " " + e.message);
    }
}

private static class ApiError {
    public String errorCode;
    public String message;
    public String [] fields;
}

```

If you use an HTTP library that doesn't allow overriding or setting an arbitrary HTTP method name, you can send a POST request and provide an override to the HTTP method via the query string parameter `_HttpMethod`. In the PATCH example, you can replace the `PostMethod` line with one that doesn't use `override`:

```
PostMethod m = new PostMethod(url + "?_HttpMethod=PATCH");
```

Delete a Record

Use the [SObject Rows](#) resource to delete records. Specify the record ID and use the DELETE method of the resource to delete a record.

Example for deleting an Account record

```
curl https://na1.salesforce.com/services/data/v20.0/objects/Account/001D000000INjVe -H
"Authorization: Bearer token" -X DELETE
```

Example request body

None needed

Example response body

None returned

Get Field Values from a Standard Object Record

You use the [SObject Rows](#) resource to retrieve field values from a record. Specify the fields you want to retrieve in the `fields` parameter and use the GET method of the resource.

In the following example, the Account Number and Billing Postal Code are retrieved from an Account.

Example for retrieving values from fields on an Account object

```
/services/data/v20.0/objects/Account/001D000000INjVe
?fields=AccountNumber,BillingPostalCode
```

Example request body

None required

Example response body

```
{
  "AccountNumber" : "CD656092",
  "BillingPostalCode" : "27215",
}
```

Get Field Values from an External Object Record by Using the Salesforce ID

You use the [SObject Rows](#) resource to retrieve field values from a record. Specify the fields you want to retrieve in the `fields` parameter and use the GET method of the resource.

In the following example, the `Country__c` custom field is retrieved from an external object that's associated with a non-high-data-volume external data source.

Example for retrieving values from fields on the Customer external object

```
/services/data/v32.0/subjects/Customer__x/x01D0000000002RIAQ?fields=Country__c
```

Example request body

None required

Example response body

```
{
  "attributes" : {
    "type" : "Customer__x",
    "url" : "/services/data/v32.0/subjects/Customer__x/x01D0000000002RIAQ"
  },
  "Country__c" : "Argentina",
  "Id" : "x01D0000000002RIAQ"
}
```

Get Field Values from an External Object Record by Using the External ID Standard Field

You use the [SObject Rows](#) resource to retrieve field values from a record. Specify the fields you want to retrieve in the `fields` parameter and use the GET method of the resource.

In the following example, the `Country__c` custom field is retrieved from an external object. Notice that the `id` (CACTU) isn't a Salesforce ID. Instead, it's the External ID standard field of the external object.

Example for retrieving values from fields on the Customer external object

```
/services/data/v32.0/subjects/Customer__x/CACTU?fields=Country__c
```

Example request body

None required

Example response body

```
{
  "attributes" : {
    "type" : "Customer__x",
    "url" : "/services/data/v32.0/subjects/Customer__x/CACTU"
  },
  "Country__c" : "Argentina",
  "ExternalId" : "CACTU"
}
```

Retrieve a Record Using an External ID

You can use the GET method of the [SObject Rows by External ID](#) resource to retrieve records with a specific external ID.

The following example assumes there is a Merchandise__c custom object with a MerchandiseExtID__c external ID field.

Example usage for retrieving a Merchandise__c record using an external ID

```
curl
https://na1.salesforce.com/services/data/v20.0/subjects/Merchandise__c/MerchandiseExtID__c/123
-H "Authorization: Bearer token"
```

Example request body

none required

Example response body

```
{
  "attributes" : {
    "type" : "Merchandise__c",
    "url" : "/services/data/v20.0/subjects/Merchandise__c/a00D00000008oWP8IAM"
  },
  "Id" : "a00D00000008oWP8IAM",
  "OwnerId" : "005D00000001KyEIIA0",
  "IsDeleted" : false,
  "Name" : "Example Merchandise",
  "CreatedDate" : "2012-07-12T17:49:01.000+0000",
  "CreatedById" : "005D00000001KyEIIA0",
  "LastModifiedDate" : "2012-07-12T17:49:01.000+0000",
  "LastModifiedById" : "005D00000001KyEIIA0",
  "SystemModstamp" : "2012-07-12T17:49:01.000+0000",
  "Description__c" : "Merch with external ID",
  "Price__c" : 10.0,
  "Total_Inventory__c" : 100.0,
  "Distributor__c" : null,
  "MerchandiseExtID__c" : 123.0
}
```

Insert or Update (Upsert) a Record Using an External ID

You can use the [SObject Rows by External ID](#) resource to create new records or update existing records (upsert) based on the value of a specified external ID field.

- If the specified value doesn't exist, a new record is created.
- If a record does exist with that value, the field values specified in the request body are updated.
- If the value is not unique, REST API returns a 300 response with the list of matching records.

The following sections show you how to work with the external ID resource to retrieve records by external ID and upsert records.

Upserting New Records

This example uses the PATCH method to insert a new record. It assumes that an external ID field, "customExtIdField__c," has been added to Account. It also assumes that an Account record with a customExtIdField value of 11999 does not already exist.

Example for upserting a record that does not yet exist

```
curl
https://na1.salesforce.com/services/data/v20.0/subjects/Account/customExtIdField__c/11999
-H "Authorization: Bearer token" -H "Content-Type: application/json" -d @newrecord.json
-X PATCH
```

Example JSON request body `newrecord.json` file

```
{

  "Name" : "California Wheat Corporation",
  "Type" : "New Customer"

}
```

Response

Successful response:

```
{
  "id" : "001900000001pPvHAAU",
  "errors" : [ ],
  "success" : true
}
```

The response body is empty. HTTP status code 201 is returned if a new record is created.

Error responses

Incorrect external ID field:

```
{
  "message" : "The requested resource does not exist",
  "errorCode" : "NOT_FOUND"
}
```

For more information, see [Status Codes and Error Responses](#) on page 179.

Upserting Existing Records

This example uses the PATCH method to update an existing record. It assumes that an external ID field, "customExtIdField__c," has been added to Account and an Account record with a customExtIdField value of 11999 exists. The request uses `updates.json` to specify the updated field values.

Example for upserting a record that already exists

```
curl
https://na1.salesforce.com/services/data/v20.0/subjects/Account/customExtIdField__c/11999
-H "Authorization: Bearer token" -H "Content-Type: application/json" -d @updates.json
-X PATCH
```

Example JSON request body `updates.json` file

```
{

  "BillingCity" : "San Francisco"

}
```

JSON example response

HTTP status code 204 is returned if an existing record is updated.

Error responses

If the external ID value isn't unique, an HTTP status code 300 is returned, plus a list of the records that matched the query. For more information about errors, see [Status Codes and Error Responses](#) on page 179.

If the external ID field doesn't exist, an error message and code is returned:

```
{
  "message" : "The requested resource does not exist",
  "errorCode" : "NOT_FOUND"
}
```

Upserting Records and Associating with an External ID

If you have an object that references another object using a relationship, you can use REST API to both insert or update a new record, and also reference another object using an external ID.

The following example creates a new record and associates it with a parent record via external ID. It assumes the following:

- A Merchandise__c custom object that has an external ID field named MerchandiseExtID__c.
- A Line_Item__c custom object that has an external ID field named LineItemExtID__c, and a relationship to Merchandise__c.
- A Merchandise__c record exists that has a MerchandiseExtID__c value of 123.
- A Line_Item__c record with a LineItemExtID__c value of 456 does **not** exist. This is the record that will get created and associated to the Merchandise__c record.

Example for upserting a new record and referencing a related object

```
curl
https://na1.salesforce.com/services/data/v25.0/objects/Line_Item__c/LineItemExtID__c/456
-H "Authorization: Bearer token" -H "Content-Type: application/json" -d @new.json -X
PATCH
```

Example JSON request body new.json file

Notice that the related Merchandise__c record is referenced using the Merchandise__c's external ID field.

```
{
  "Name" : "LineItemCreatedViaExtID",
  "Merchandise__r" :
  {
    "MerchandiseExtID__c" : 123
  }
}
```

JSON example response

HTTP status code 201 is returned on successful create.

```
{
  "id" : "a02D00000006YUhrIAO",
  "errors" : [ ],
  "success" : true
}
```

Error responses

If the external ID value isn't unique, an HTTP status code 300 is returned, plus a list of the records that matched the query. For more information about errors, see [Status Codes and Error Responses](#) on page 179.

If the external ID field doesn't exist, an error message and code is returned:

```
{
  "message" : "The requested resource does not exist",
  "errorCode" : "NOT_FOUND"
}
```

You can also use this approach to update existing records. For example, if you created the `Line_Item__c` shown in the example above, you can try to update the related `Merchandise__c` using another request.

Example for updating a record

```
curl
https://na1.salesforce.com/services/data/v25.0/subjects/Line_Item__c/LineItemExtID__c/456
-H "Authorization: Bearer token" -H "Content-Type: application/json" -d @updates.json
-X PATCH
```

Example JSON request body `updates.json` file

This assumes another `Merchandise__c` record exists with a `MerchandiseExtID__c` value of 333.

```
{
  "Merchandise__r" :
  {
    "MerchandiseExtID__c" : 333
  }
}
```

JSON example response

HTTP status code 204 is returned if an existing record is updated.

Note that if your relationship type is master-detail and the relationship is set to not allow reparenting, and you try to update the parent external ID, you will get an HTTP status code 400 error with an error code of `INVALID_FIELD_FOR_INSERT_UPDATE`.

Get Attachment Content from a Record

Use the [SObject Blob Retrieve](#) resource to retrieve blob data for a given record.

The following example retrieves the blob data for an Attachment record. The Attachment can be associated with a Case, Campaign, or other object that allows attachments.

Example for retrieving blob body for an Attachment record

```
curl
https://na1.salesforce.com/services/data/v20.0/subjects/Attachment/001D000000INjVe/body
-H "Authorization: Bearer token"
```

Example request body

none required

Example response body

Attachment body content is returned in binary form. Note that the response content type will not be JSON or XML since the returned data is binary.

The following example retrieves the blob data for a Document record.

Example for retrieving blob body for a Document record

```
curl
https://na1.salesforce.com/services/data/v20.0/subjects/Document/015D0000000NdJOIA0/body
-H "Authorization: Bearer token"
```

Example request body

none required

Example response body

Document body content is returned in binary form. Note that the response content type will not be JSON or XML since the returned data is binary.

Insert or Update Blob Data

You can use [SObject Basic Information](#) and [SObject Rows](#) REST resources to insert or update blob data in Salesforce standard objects. You can upload files of any type, and you must use a multipart message that conforms to the MIME multipart content-type standard. For more information, see the [WC3 Standards](#). You can insert or update files on any standard object that contains a blob field. The maximum file size for uploads is 2 GB for ContentVersion objects and 500 MB for all other eligible standard objects.



Note: You can insert or update blob data using a non-multipart message, but if you do, you are limited to 50 MB of text data or 37.5 MB of base64-encoded data.

The first part of the request message body contains non-binary field data such as the Description or Name. The second part of the message contains the binary data of the file that you're uploading.

The following sections provide JSON examples of how to insert or update blob data using a multipart content-type.

- [Inserting a New Document](#)
- [Updating a Document](#)
- [Inserting a ContentVersion](#)
- [Multipart Message Considerations](#)

Inserting a New Document

This section contains the syntax and code for creating a new Document. In addition to the binary data of the file itself, this code also specifies other field data such as the Description, Keywords, Name, and so on.



Tip: After you add a new Document, you can view the results of your changes on the Documents tab.

Example for creating a new Document

```
curl https://na1.salesforce.com/services/data/v23.0/subjects/Document/ -H "Authorization:
Bearer token" -H "Content-Type: multipart/form-data; boundary=\"boundary_string\""
--data-binary @newdocument.json
```

Example request body for creating a new Document

This code is the contents of `newdocument.json`. Note that the binary data for the PDF content has been omitted for brevity and replaced with "Binary data goes here." An actual request will contain the full binary content.

```
--boundary_string
Content-Disposition: form-data; name="entity_document";
Content-Type: application/json
```



```
{
  "Description" : "Marketing brochure for Q1 2011",
  "Keywords" : "marketing,sales,update",
  "FolderId" : "005D0000001GiU7",
  "Name" : "Marketing Brochure Q1",
  "Type" : "pdf"
}

--boundary_string
Content-Type: application/pdf
Content-Disposition: form-data; name="Body"; filename="2011Q1MktgBrochure.pdf"

Binary data goes here.

--boundary_string--
```

Example response body for creating a new Document

On success, the ID of the new Document is returned.

```
{
  "id" : "015D00000000N3ZZIA0",
  "errors" : [ ],
  "success" : true
}
```

Example error response

```
{
  "fields" : [ "FolderId" ],
  "message" : "Folder ID: id value of incorrect type: 005D0000001GiU7",
  "errorCode" : "MALFORMED_ID"
}
```

Updating a Document

This section contains the syntax and code for updating an existing Document. In addition to the binary data of the file itself, this code also updates other field data such as the Name and Keywords.

Example usage for updating fields in a Document object

```
curl https://na1.salesforce.com/services/data/v23.0/Document/015D00000000N3ZZIA0 -H
"Authorization: Bearer token" -H "Content-Type: multipart/form-data;
boundary=\"boundary_string\"" --data-binary @UpdateDocument.json -X PATCH
```

Example request body for updating fields in a Document object

This code is the contents of the file `UpdateDocument.json`. Note that the binary data for the PDF content has been omitted for brevity and replaced with "Updated document binary goes here." An actual request will contain the full binary content.

```
--boundary_string
Content-Disposition: form-data; name="entity_content";
Content-Type: application/json

{
  "Name" : "Marketing Brochure Q1 - Sales",
  "Keywords" : "sales, marketing, first quarter"
```

```

}

--boundary_string
Content-Type: application/pdf
Content-Disposition: form-data; name="Body"; filename="2011Q1MktgBrochure.pdf"

Updated document binary data goes here.

--boundary_string--

```

Example response body for updating fields in a Document object

none returned

Error responses

See [Status Codes and Error Responses](#) on page 179.

Inserting a ContentVersion

This section contains the syntax and code for inserting a new ContentVersion. In addition to the binary data of the file itself, this code also updates other fields such as the ReasonForChange and PathOnClient. This message contains the ContentDocumentId because a ContentVersion is always associated with a ContentDocument.



Tip: The ContentVersion object doesn't support updates. Therefore, you cannot update a ContentVersion, you can only insert a new ContentVersion. You can see the results of your changes on the Content tab.

Example usage for inserting a ContentVersion

```

curl https://na1.salesforce.com/services/data/v23.0/subjects/ContentVersion -H
"Authorization: Bearer token" -H "Content-Type: multipart/form-data;
boundary=\"boundary_string\"" --data-binary @NewContentVersion.json

```

Example request body for inserting a ContentVersion

This code is the contents of the file `NewContentVersion.json`. Note that the binary data for the PDF content has been omitted for brevity and replaced with "Binary data goes here." An actual request would will the full binary content.

```

--boundary_string
Content-Disposition: form-data; name="entity_content";
Content-Type: application/json

{
  "ContentDocumentId" : "069D00000000so2",
  "ReasonForChange" : "Marketing materials updated",
  "PathOnClient" : "Q1 Sales Brochure.pdf"
}

--boundary_string
Content-Type: application/octet-stream
Content-Disposition: form-data; name="VersionData"; filename="Q1 Sales Brochure.pdf"

Binary data goes here.

--boundary_string--

```

Example response body for inserting a ContentVersion

```
{
  "id" : "068D00000000pgOIAQ",
  "errors" : [ ],
  "success" : true
}
```

Error responses for inserting a ContentVersion

See [Status Codes and Error Responses](#) on page 179.

Multipart Message Considerations

Following are some considerations for the format of a multipart message when you insert or update blob data.

Boundary String

- Separates the various parts of a multipart message.
- Required in a multipart content-type.
- Can be up to 70 characters.
- Cannot be a string value that appears anywhere in any of the message parts.
- The first boundary string must be prefixed by two hyphens (--).
- The last boundary string must be postfixed by two hyphens (--).

Content-Disposition Header

- Required in each message part.
- Must be the value `form-data` and have a `name` attribute.
 - In the non-binary part of the message, the `name` attribute can be any value.
 - In the binary part of the message, the `name` attribute should contain the name of the object field that will contain the binary data. In the previous example of adding a new Document, the name of the binary field that contains the file is `Body`.
- The binary part of the message must have a `filename` attribute which represents the name of the local file.

Content-Type Header

- Required in each message part.
- The content types supported by the non-binary message part are `application/json` and `application/xml`.
- The `Content-Type` header for the binary part of the message can be any value.

New Line

There must be a new line between the message part header and the data of the part. As shown in the code examples, there must be a new line between the `Content-Type` and `Content-Disposition` headers and the JSON or XML. In the binary part, there must be a new line between the `Content-Type` and `Content-Disposition` headers and the binary data.

Get a List of Deleted Records Within a Given Timeframe

Use the [SObject Get Deleted](#) resource to get a list of deleted records for the specified object. Specify the date and time range within which the records for the given object were deleted. Deleted records are written to a delete log (that is periodically purged), and will be filtered out of most operations, such as SObject Rows or Query (although QueryAll will include deleted records in results).

Example usage for getting a list of Merchandise__c records that were deleted between May 5th, 2013 and May 10th, 2013

```
/services/data/v29.0/subjects/Merchandise__c/deleted/
?start=2013-05-05T00%3A00%3A00%2B00%3A00&end=2013-05-10T00%3A00%3A00%2B00%3A00
```

Example request body

None required

JSON example response body

```
{
  "deletedRecords" :
  [
    {
      "id" : "a00D0000008pQRAIA2",
      "deletedDate" : "2013-05-07T22:07:19.000+0000"
    }
  ],
  "earliestDateAvailable" : "2013-05-03T15:57:00.000+0000",
  "latestDateCovered" : "2013-05-08T21:20:00.000+0000"
}
```

XML example response body

```
<?xml version="1.0" encoding="UTF-8"?>
<Merchandise__c>
  <deletedRecords>
    <deletedDate>2013-05-07T22:07:19.000Z</deletedDate>
    <id>a00D0000008pQRAIA2</id>
  </deletedRecords>
  <earliestDateAvailable>2013-05-03T15:57:00.000Z</earliestDateAvailable>
  <latestDateCovered>2013-05-08T21:20:00.000Z</latestDateCovered>
</Merchandise__c>
```

Get a List of Updated Records Within a Given Timeframe

Use the [SObject Get Updated](#) resource to get a list of updated (modified or added) records for the specified object. Specify the date and time range within which the records for the given object were updated.

Example usage for getting a list of Merchandise__c records that were updated between May 6th, 2013 and May 10th, 2013

```
/services/data/v29.0/subjects/Merchandise__c/updated/
?start=2013-05-06T00%3A00%3A00%2B00%3A00&end=2013-05-10T00%3A00%3A00%2B00%3A00
```

Example request body

None required

JSON example response body

```
{
  "ids" :
  [
    "a00D0000008pQR5IAM",
    "a00D0000008pQRGIA2",
    "a00D0000008pQRFIA2"
  ],
}
```

```
    "latestDateCovered" : "2013-05-08T21:20:00.000+0000"
  }
```

XML example response body

```
<?xml version="1.0" encoding="UTF-8"?>
<Merchandise__c>
  <ids>a00D00000008pQR5IAM</ids>
  <ids>a00D00000008pQRGIA2</ids>
  <ids>a00D00000008pQRFIA2</ids>
  <latestDateCovered>2013-05-08T21:20:00.000Z</latestDateCovered>
</Merchandise__c>
```

Working with Searches and Queries

The examples in this section use REST API resources to search and query records using Salesforce Object Search Language (SOSL) and Salesforce Object Query Language (SOQL), and other search APIs. For more information on SOSL and SOQL see the [Force.com SOQL and SOSL Reference](#).

IN THIS SECTION:

[Execute a SOQL Query](#)

Use the [Query](#) resource to execute a SOQL query that returns all the results in a single response, or if needed, returns part of the results and an identifier used to retrieve the remaining results.

[Execute a SOQL Query that Includes Deleted Items](#)

Use the [QueryAll](#) resource to execute a SOQL query that includes information about records that have been deleted because of a merge or delete. Use QueryAll rather than Query, because the Query resource will automatically filter out items that have been deleted.

[Get Feedback on Query Performance](#)

Use the [Query](#) resource along with the `explain` parameter to get feedback on how Salesforce will execute your query, report, or list view. Salesforce analyzes each query to find the optimal approach to obtain the query results. Depending on the query and query filters, an index or internal optimization might get used. You use the `explain` parameter to return details on how Salesforce will optimize your query, without actually running the query. Based on the response, you can decide whether to fine-tune the performance of your query by making changes like adding filters to make the query more selective.

[Search for a String](#)

Use the [Search](#) resource to execute a SOSL search. Use the HTTP GET method to search for a simple string. Use the HTTP POST method to search for a more complex string using a JSON file, for a more visual hierarchy.

[Get the Default Search Scope and Order](#)

Use the [Search Scope and Order](#) resource to retrieve the default global search scope and order for the logged-in user, including any pinned objects in the user's search results page.

[Get Search Result Layouts for Objects](#)

Use the [Search Result Layouts](#) resource to retrieve the search result layout configuration for each object specified in the query string.

[View Relevant Items](#)

Use the [Relevant Items](#) resource to get a list of relevant records.

Execute a SOQL Query

Use the [Query](#) resource to execute a SOQL query that returns all the results in a single response, or if needed, returns part of the results and an identifier used to retrieve the remaining results.

The following query requests the value from `name` fields from all Account records.

Example usage for executing a query

```
curl https://na1.salesforce.com/services/data/v20.0/query/?q=SELECT+name+from+Account
-H "Authorization: Bearer token"
```

Example request body for executing a query

none required

Example response body for executing a query

```
{
  "done" : true,
  "totalSize" : 14,
  "records" :
  [
    {
      "attributes" :
      {
        "type" : "Account",
        "url" : "/services/data/v20.0/subjects/Account/001D000000IRFmaIAH"
      },
      "Name" : "Test 1"
    },
    {
      "attributes" :
      {
        "type" : "Account",
        "url" : "/services/data/v20.0/subjects/Account/001D000000IomazIAB"
      },
      "Name" : "Test 2"
    },
    ...
  ]
}
```

Retrieving the Remaining SOQL Query Results

If the initial query returns only part of the results, the end of the response will contain a field called `nextRecordsUrl`. For example, you might find this attribute at the end of your query:

```
"nextRecordsUrl" : "/services/data/v20.0/query/01gD0000002HU6KIAW-2000"
```

In such cases, request the next batch of records and repeat until all records have been retrieved. These requests use `nextRecordsUrl`, and do not include any parameters.

Example usage for retrieving the remaining query results

```
curl https://na1.salesforce.com/services/data/v20.0/query/01gD0000002HU6KIAW-2000 -H
"Authorization: Bearer token"
```

Example request body for retrieving the remaining query results

none required

Example response body for retrieving the remaining query results

```
{
  "done" : true,
  "totalSize" : 3214,
  "records" : [...]
}
```

Execute a SOQL Query that Includes Deleted Items

Use the [QueryAll](#) resource to execute a SOQL query that includes information about records that have been deleted because of a merge or delete. Use QueryAll rather than Query, because the Query resource will automatically filter out items that have been deleted.

The following query requests the value from the `Name` field from all deleted `Merchandise__c` records, in an organization that has one deleted `Merchandise__c` record. The same query using Query instead of QueryAll would return no records, because Query automatically filters out any deleted record from the result set.

Example usage for executing a query for deleted Merchandise__c records

```
/services/data/v29.0/queryAll/?q=SELECT+Name+from+Merchandise__c+WHERE+isDeleted+=+TRUE
```

Example request body for executing a query

none required

Example response body for executing a query

```
{
  "done" : true,
  "totalSize" : 1,
  "records" :
  [
    {
      "attributes" :
      {
        "type" : "Merchandise__c",
        "url" : "/services/data/v29.0/subjects/Merchandise__c/a00D0000008pQRAIX2"
      },
      "Name" : "Merchandise 1"
    },
  ]
}
```

Retrieving the Remaining SOQL Query Results

If the initial query returns only part of the results, the end of the response will contain a field called `nextRecordsUrl`. For example, you might find this attribute at the end of your query:

```
"nextRecordsUrl" : "/services/data/v29.0/query/01gD0000002HU6KIAW-2000"
```

In such cases, request the next batch of records and repeat until all records have been retrieved. These requests use `nextRecordsUrl`, and do not include any parameters.

Note that even though `nextRecordsUrl` has `query` in the URL, it will still provide remaining results from the initial QueryAll request. The remaining results will include deleted records that matched the initial query.

Example usage for retrieving the remaining results

```
/services/data/v29.0/query/01gD0000002HU6KIAW-2000
```

Example request body for retrieving the remaining results

none required

Example response body for retrieving the remaining results

```
{
  "done" : true,
  "totalSize" : 3214,
  "records" : [...]
}
```

Get Feedback on Query Performance

Use the [Query](#) resource along with the `explain` parameter to get feedback on how Salesforce will execute your query, report, or list view. Salesforce analyzes each query to find the optimal approach to obtain the query results. Depending on the query and query filters, an index or internal optimization might get used. You use the `explain` parameter to return details on how Salesforce will optimize your query, without actually running the query. Based on the response, you can decide whether to fine-tune the performance of your query by making changes like adding filters to make the query more selective.



Note: Using `explain` with the REST API query resource is a beta feature. There is no support associated with this beta feature. For more information, contact Salesforce.

The response will contain one or more query execution plans that, sorted from most optimal to least optimal. The most optimal plan is the plan that's used when the query, report, or list view is executed.

See the `explain` parameter in [Query](#) for more details on the fields returned when using `explain`. See "More Efficient SOQL Queries" in the [Apex Code Developer's Guide](#) for more information on making your queries more selective.



Example:

Example usage for getting performance feedback on a query that uses `Merchandise__c`

```
/services/data/v35.0/query/?explain=
SELECT+Name+FROM+Merchandise__c+WHERE+CreatedDate+=+TODAY+AND+Price__c+>+10.0
```

Example response body for executing a performance feedback query

```
{
  "plans" : [ {
    "cardinality" : 1,
    "fields" : [ "CreatedDate" ],
```



```

    "leadingOperationType" : "Index",
    "notes" : [ {
      "description" : "Not considering filter for optimization because unindexed",
      "fields" : [ "IsDeleted" ],
      "tableEnumOrId" : "Merchandise__c"
    } ],
    "relativeCost" : 0.0,
    "subjectCardinality" : 3,
    "subjectType" : "Merchandise__c"
  }, {
    "cardinality" : 1,
    "fields" : [ ],
    "leadingOperationType" : "TableScan",
    "notes" : [ {
      "description" : "Not considering filter for optimization because unindexed",
      "fields" : [ "IsDeleted" ],
      "tableEnumOrId" : "Merchandise__c"
    } ],
    "relativeCost" : 0.65,
    "subjectCardinality" : 3,
    "subjectType" : "Merchandise__c"
  } ]
}

```

This response indicates that Salesforce found two possible execution plans for this query. The first plan uses the CreatedDate index field to improve the performance of this query. The second plan scans all records without using an index. The first plan will be used if the query is actually executed. Both plans note that a secondary optimization used when filtering out records marked as deleted was not used because the IsDeleted field is not indexed.



Example:

Example usage for getting performance feedback on a report

```
/services/data/v35.0/query/?explain=000D00000001hCzMMCu
```

Example response body for getting performance feedback on a report

```

{
  "plans" : [ {
    "cardinality" : 1,
    "fields" : [ ],
    "leadingOperationType" : "TableScan",
    "notes" : [ {
      "description" : "Not considering filter for optimization because unindexed",
      "fields" : [ "IsDeleted" ],
      "tableEnumOrId" : "Merchandise__c"
    } ],
    "relativeCost" : 0.65,
    "subjectCardinality" : 3,
    "subjectType" : "Merchandise__c"
  } ]
}

```

This response indicates that Salesforce found one possible execution plan for the query behind this report. The plan scans all records without using an index, and can't apply a secondary optimization used when filtering out records marked as deleted because the `IsDeleted` field is not indexed.

Search for a String

Use the [Search](#) resource to execute a SOSL search. Use the HTTP GET method to search for a simple string. Use the HTTP POST method to search for a more complex string using a JSON file, for a more visual hierarchy.

Example SOSL Search Using the GET Method

The following example executes a SOSL search for `Acme`. The search string in this example must be URL-encoded.

Example usage

```
curl https://na1.salesforce.com/services/data/v35.0/search/?q=FIND+%7BAcme%7D -H
"Authorization: Bearer token"
```

Example request body

None required

Example response body

```
[
  {
    "attributes" :
    {
      "type" : "Account",
      "url" : "/services/data/v35.0/objects/Account/001D000000IqhSLIAZ"
    },
    "Id" : "001D000000IqhSLIAZ"
  },
  {
    "attributes" :
    {
      "type" : "Account",
      "url" : "/services/data/v35.0/objects/Account/001D000000IomazIAB"
    },
    "Id" : "001D000000IomazIAB"
  }
]
```

Example Simple Search Using the GET Method (Beta)

The following example executes a search for `test`. The search string in this example must be URL-encoded.

Example usage

```
curl https://na1.salesforce.com/services/data/v35.0/search/?qs=Acme&fields=id,name,
email,title&sObject=Account&sObject=Contact&sObject=Lead&Account.fields=id,name,numberofemployees&Account.
where=numberofemployees<100&overallLimit=300&defaultLimit=100&Account.limit=50
```

Example request body

None required

Example response body

```
[
  {
    "attributes" :
    {
      "type" : "Account",
      "url" : "/services/data/v35.0/subjects/Account/001D000000IqhSLIAZ"
    },
    "Id" : "001D000000IqhSLIAZ"
  },
  {
    "attributes" :
    {
      "type" : "Account",
      "url" : "/services/data/v35.0/subjects/Account/001D000000IomazIAB"
    },
    "Id" : "001D000000IomazIAB"
  }
]
```

Example Search Using the POST Method (Beta)

Execute a search using the POST method to access all search features available.

Example usage

```
curl https://na1.salesforce.com/services/data/v35.0/search "Authorization: Bearer token-H"
"Content-Type: application/json" -d "@search.json"
```

Example request body

None required

Example JSON file

```
{
  "qs": "Acme",
  "fields" : ["id", "firstName", "lastName"],
  "subjects": [{"fields": ["id", "name"],
    "name": "Account",
    "where": "DISTANCE(My_Location_Field__c, GEOLOCATION(37,122), 'mi') < 100",
    "orderBy": {"fields": "name",
      "order": "ASC",
      "whereAreNulls": "last"
    },
    "limit": 20
  },
  {"name": "Contact"}
],
  "in": "ALL",
  "overallLimit": 100,
  "defaultLimit": 10,
  "updateViewStat": true,
```

```
"updateTracking": true,
}
```

Example response body

```
[
  {
    "attributes" :
    {
      "type" : "Account",
      "url" : "/services/data/v35.0/subjects/Account/001D000000IqhSLIAZ"
    },
    "Id" : "001D000000IqhSLIAZ"
  },
  {
    "attributes" :
    {
      "type" : "Contact",
      "url" : "/services/data/v35.0/subjects/Contact/0030000000000000"
    },
    "Id" : "0030000000000000"
  }
]
```

Get the Default Search Scope and Order

Use the [Search Scope and Order](#) resource to retrieve the default global search scope and order for the logged-in user, including any pinned objects in the user's search results page.

In the following example, the default global search scope of the logged-in user consists of the site, idea, case, opportunity, account, and user objects, in the order in which they are returned in the response body.

Example usage

```
curl https://na1.salesforce.com/services/data/v26.0/search/scopeOrder -H "Authorization:
Bearer token"
```

Example request body

none required

Example response body

```
[
  {
    "type": "Site",
    "url": "/services/data/v26.0/subjects/Site/describe"
  },
  {
    "type": "Idea",
    "url": "/services/data/v26.0/subjects/Idea/describe"
  },
  {
    "type": "Case",
    "url": "/services/data/v26.0/subjects/Case/describe"
  },
  {

```

```

    "type": "Opportunity",
    "url": "/services/data/v26.0/subjects/Opportunity/describe"
  },
  {
    "type": "Account",
    "url": "/services/data/v26.0/subjects/Account/describe"
  },
  {
    "type": "User",
    "url": "/services/data/v26.0/subjects/User/describe"
  }
]

```

Get Search Result Layouts for Objects

Use the [Search Result Layouts](#) resource to retrieve the search result layout configuration for each object specified in the query string.

Example usage

```

curl
https://na1.salesforce.com/services/data/v28.0/searchlayout/?q=Account,Contact,Lead,Asset
"Authorization: Bearer token"

```

Example request body

None required

Example response body

```

[ { "label" : "Search Results",
    "limitRows" : 25,
    "searchColumns" : [ { "field" : "Account.Name",
                          "format" : null,
                          "label" : "Account Name",
                          "name" : "Name"
                        },
                        { "field" : "Account.Site",
                          "format" : null,
                          "label" : "Account Site",
                          "name" : "Site"
                        },
                        { "field" : "Account.Phone",
                          "format" : null,
                          "label" : "Phone",
                          "name" : "Phone"
                        },
                        { "field" : "User.Alias",
                          "format" : null,
                          "label" : "Account Owner Alias",
                          "name" : "Owner.Alias"
                        }
                      ]
  },
  { "label" : "Search Results",
    "limitRows" : 25,
    "searchColumns" : [ { "field" : "Contact.Name",

```

```

        "format" : null,
        "label" : "Name",
        "name" : "Name"
    },
    { "field" : "Account.Name",
      "format" : null,
      "label" : "Account Name",
      "name" : "Account.Name"
    },
    { "field" : "Account.Site",
      "format" : null,
      "label" : "Account Site",
      "name" : "Account.Site"
    },
    { "field" : "Contact.Phone",
      "format" : null,
      "label" : "Phone",
      "name" : "Phone"
    },
    { "field" : "Contact.Email",
      "format" : null,
      "label" : "Email",
      "name" : "Email"
    },
    { "field" : "User.Alias",
      "format" : null,
      "label" : "Contact Owner Alias",
      "name" : "Owner.Alias"
    }
  ]
},
{ "label" : "Search Results",
  "limitRows" : 25,
  "searchColumns" : [ { "field" : "Lead.Name",
    "format" : null,
    "label" : "Name",
    "name" : "Name"
  },
    { "field" : "Lead.Title",
      "format" : null,
      "label" : "Title",
      "name" : "Title"
    },
    { "field" : "Lead.Phone",
      "format" : null,
      "label" : "Phone",
      "name" : "Phone"
    },
    { "field" : "Lead.Company",
      "format" : null,
      "label" : "Company",
      "name" : "Company"
    },
    { "field" : "Lead.Email",

```

```

        "format" : null,
        "label" : "Email",
        "name" : "Email"
      },
      { "field" : "Lead.Status",
        "format" : null,
        "label" : "Lead Status",
        "name" : "toLabel(Status)"
      },
      { "field" : "Name.Alias",
        "format" : null,
        "label" : "Owner Alias",
        "name" : "Owner.Alias"
      }
    ]
  },
]

```

View Relevant Items

Use the [Relevant Items](#) resource to get a list of relevant records.

Example usage for getting a list of the current user's most relevant records

/vXX.X/subjects/relevantItems

Example request body

None required

Example response body

```

[ {
  "key" : "003",
  "label" : "Contacts",
  "recordIds" : [ "003xx000004TxBA" ]
}, {
  "key" : "001",
  "label" : "Accounts",
  "recordIds" : [ "001xx000003DWsT" ]
}, {
  "key" : "005",
  "label" : "Users",
  "recordIds" : [ "005xx000001Svqw", "005xx000001SvwK", "005xx000001SvwA" ]
}, {
  "key" : "069",
  "label" : "Content Documents",
  "recordIds" : [ "069xx0000000006", "069xx0000000001", "069xx0000000002" ]
} ]

```

Example usage for filtering the response to certain objects

/v35.0/subjects/relevantItems?subjects=Account,User

Example request body

None required

Example response body

```
[ {
  "key" : "001",
  "label" : "Accounts",
  "recordIds" : [ "001xx000003DWsT" ]
}, {
  "key" : "005",
  "label" : "Users",
  "recordIds" : [ "005xx000001Svqw", "005xx000001SvwK", "005xx000001SvwA" ]
} ]
```

Example usage for comparing the user's current list of relevant records to a previous version

/v35.0/subjects/relevantItems?lastUpdatedId=08ses9Fjkjs8sNFO28423q

Example request body

None required

Example response body

```
[  lastUpdatedId: 08ses9Fjkjs8sNFO28423r
  newResultSetSinceLastQuery: true
  {
    "key" : "003",
    "label" : "Contacts",
    "recordIds" : [ "003xx000004TxBA" ]
  }, {
    "key" : "001",
    "label" : "Accounts",
    "recordIds" : [ "001xx000003DWsT" ]
  }, {
    "key" : "005",
    "label" : "Users",
    "recordIds" : [ "005xx000001Svqw", "005xx000001SvwA" ]
  } ]
```

Working with Recently Viewed Information

The examples in this section use REST API Query and Recently Viewed resources to programmatically retrieve and update recently viewed record information.

IN THIS SECTION:

[View Recently Viewed Records](#)

Use the [Recently Viewed Items](#) resource to get a list of recently viewed records.

[Mark Records as Recently Viewed](#)

To mark a record as recently viewed using REST API, use the [Query](#) resource with a `FOR VIEW` or `FOR REFERENCE` clause. Use SOQL to mark records as recently viewed to ensure that information such as the date and time the record was viewed is correctly set.

View Recently Viewed Records

Use the [Recently Viewed Items](#) resource to get a list of recently viewed records.

Example usage for getting the last two most recently viewed records

```
/services/data/v28.0/recent/?limit=2
```

Example request body

none required

Example response body

```
{
  "attributes" :
  {
    "type" : "Account",
    "url" : "/services/data/v28.0/subjects/Account/a06U000000CelH0IAJ"
  },
  "Id" : "a06U000000CelH0IAJ",
  "Name" : "Acme"
},
{
  "attributes" :
  {
    "type" : "Opportunity",
    "url" : "/services/data/v28.0/subjects/Opportunity/a06U000000CelGvIAJ"
  },
  "Id" : "a06U000000CelGvIAJ",
  "Name" : "Acme - 600 Widgets"
}
```

Mark Records as Recently Viewed

To mark a record as recently viewed using REST API, use the [Query](#) resource with a `FOR VIEW` or `FOR REFERENCE` clause. Use SOQL to mark records as recently viewed to ensure that information such as the date and time the record was viewed is correctly set.

Use `FOR VIEW` to notify Salesforce when a record is viewed from a custom interface, such as a mobile application or from a custom page. Use `FOR REFERENCE` when a record is referenced from a custom interface. A record is referenced every time a related record is viewed. For more information, see “FOR VIEW” and “FOR REFERENCE” in the *Force.com SOQL and SOSL Reference*.

Example usage for executing a query that marks one Account record as recently viewed

```
/services/data/v28.0/query/?q=SELECT+Name+FROM+Account+LIMIT+1+FOR+VIEW
```

Example request body for executing a query

none required

Example response body for executing a query

```
{
  "done" : true,
  "totalSize" : 1,
  "records" :
  [
    {
      "attributes" :
```

```

    {
      "type" : "Account",
      "url" : "/services/data/v28.0/subjects/Account/001D000000IRFmaIAH"
    },
    "Name" : "Acme"
  },
]
}

```

Managing User Passwords

The examples in this section use REST API resources to manage user passwords, such as setting or resetting passwords.

IN THIS SECTION:

[Manage User Passwords](#)

Use the [SOBJect User Password](#) resource to set, reset, or get information about a user password. Use the HTTP GET method to get password expiration status, the HTTP POST method to set the password, and the HTTP DELETE method to reset the password.

Manage User Passwords

Use the [SOBJect User Password](#) resource to set, reset, or get information about a user password. Use the HTTP GET method to get password expiration status, the HTTP POST method to set the password, and the HTTP DELETE method to reset the password.

The associated session must have permission to access the given user password information. If the session does not have proper permissions, an HTTP error 403 response is returned from these methods.

These methods are available for both users and self-service users. For managing self-service user passwords, use `SelfServiceUser` instead of `User` in the REST API URL.

Here is an example of retrieving the current password expiration status for a user:

Example usage for getting current password expiration status

```

curl
https://na1.salesforce.com/services/data/v25.0/subjects/User/005D0000001KyEIIA0/password
-H "Authorization: Bearer token"

```

Example request body for getting current password expiration status

None required

JSON example response body for getting current password expiration status

```

{
  "isExpired" : false
}

```

XML example response body for getting current password expiration status

```

<Password>
  <isExpired>false</isExpired>
</Password>

```

Example error response if session has insufficient privileges

```
{
  "message" : "You do not have permission to view this record.",
  "errorCode" : "INSUFFICIENT_ACCESS"
}
```

Here is an example of changing the password for a given user:

Example usage for changing a user password

```
curl
https://na1.salesforce.com/services/data/v25.0/subjects/User/005D0000001KyEIIA0/password
-H "Authorization: Bearer token" -H "Content-Type: application/json" -d @newpwd.json
-X POST
```

Contents for file newpwd.json

```
{
  "NewPassword" : "myNewPassword1234"
}
```

Example response for changing a user password

No response body on successful password change, HTTP status code 204 returned.

Example error response if new password does not meet organization password requirements

```
{
  "message" : "Your password must have a mix of letters and numbers.",
  "errorCode" : "INVALID_NEW_PASSWORD"
}
```

And finally, here is an example of resetting a user password:

Example usage for resetting a user password

```
curl
https://na1.salesforce.com/services/data/v25.0/subjects/User/005D0000001KyEIIA0/password
-H "Authorization: Bearer token" -X DELETE
```

Example request body for resetting a user password

None required

JSON example response body for resetting a user password

```
{
  "NewPassword" : "2sv0xHAuM"
}
```

XML example response body for resetting a user password

```
<Result>
  <NewPassword>2sv0xHAuM</NewPassword>
</Result>
```

Working with Approval Processes and Process Rules

The examples in this section use REST API resources to work with approval processes and process rules.

IN THIS SECTION:

[Get a List of All Approval Processes](#)

Use the [Process Approvals](#) resource to get information about approvals.

[Submit a Record for Approval](#)

Use the [Process Approvals](#) resource to submit a record or a collection of records for approval. Each call takes an array of requests.

[Approve a Record](#)

Use the [Process Approvals](#) resource to approve a record or a collection of records. Each call takes an array of requests. The current user must be an assigned approver.

[Reject a Record](#)

Use the [Process Approvals](#) resource to reject a record or a collection of records. Each call takes an array of requests. The current user must be an assigned approver.

[Bulk Approvals](#)

Use the [Process Approvals](#) resource to do bulk approvals. You can specify a collection of different Process Approvals requests to have them all executed in bulk.

[Get a List of Process Rules](#)

Use the [Process Rules](#) resource to get information about process rules.

[Get a Particular Process Rule](#)

Use the [Process Rules](#) resource and specify the *sObjectName* and *workflowRuleId* of the rule you want to get the metadata for.

[Trigger Process Rules](#)

Use the [Process Rules](#) resource to trigger process rules. All rules associated with the specified ID will be evaluated, regardless of the evaluation criteria. All IDs must be for records on the same object.

Get a List of All Approval Processes

Use the [Process Approvals](#) resource to get information about approvals.

Example usage

```
curl https://na1.salesforce.com/services/data/v30.0/process/approvals/ -H "Authorization: Bearer token"
```

Example request body

none required

Example JSON response body

```
{
  "approvals" : {
    "Account" : [ {
      "description" : null,
      "id" : "04aD00000008Py9",
      "name" : "Account Approval Process",
      "object" : "Account",
      "sortOrder" : 1
    } ]
  }
}
```

Submit a Record for Approval

Use the [Process Approvals](#) resource to submit a record or a collection of records for approval. Each call takes an array of requests.

Example usage

```
curl https://na1.salesforce.com/services/data/v30.0/process/approvals/ -H "Authorization: Bearer token" -H "Content-Type: application/json" -d @submit.json"
```

Example request body `submit.json` file

In the following example, the record "001D000000I8mIm" is submitted for approval process "PTO_Request_Process" by skipping its entry criteria on behalf of submitter "005D00000015rZy."

```
{
  "requests" : [{
    "actionType": "Submit",
    "contextId": "001D000000I8mIm",
    "nextApproverIds": ["005D00000015rY9"],
    "comments": "this is a test",
    "contextActorId": "005D00000015rZy",
    "processDefinitionNameOrId" : "PTO_Request_Process",
    "skipEntryCriteria": "true"}]
}
```

Example JSON response body

```
[ {
  "actorIds" : [ "005D00000015rY9IAI" ],
  "entityId" : "001D000000I8mImIAJ",
  "errors" : null,
  "instanceId" : "04gD0000000Cvm5IAC",
  "instanceStatus" : "Pending",
  "newWorkitemIds" : [ "04iD0000000Cw6SIAS" ],
  "success" : true } ]
```

Approve a Record

Use the [Process Approvals](#) resource to approve a record or a collection of records. Each call takes an array of requests. The current user must be an assigned approver.

Example usage

```
curl https://na1.salesforce.com/services/data/v30.0/process/approvals/ -H "Authorization: Bearer token" -H "Content-Type: application/json" -d @approve.json"
```

Example request body `approve.json` file

```
{
  "requests" : [{
    "actionType" : "Approve",
    "contextId" : "04iD0000000Cw6SIAS",
    "nextApproverIds" : ["005D00000015rY9"],
    "comments" : "this record is approved"}]
}
```

Example JSON response body

```
[ {
  "actorIds" : null,
  "entityId" : "001D0000000I8mImIAJ",
  "errors" : null,
  "instanceId" : "04gD00000000CvmAIAS",
  "instanceStatus" : "Approved",
  "newWorkitemIds" : [ ],
  "success" : true
} ]
```

Reject a Record

Use the [Process Approvals](#) resource to reject a record or a collection of records. Each call takes an array of requests. The current user must be an assigned approver.

Example usage

```
curl https://na1.salesforce.com/services/data/v30.0/process/approvals/ -H "Authorization: Bearer token" -H "Content-Type: application/json" -d @reject.json"
```

Example request body `reject.json` file

```
{
  "requests" : [{
    "actionType" : "Reject",
    "contextId" : "04iD00000000Cw6cIAC",
    "comments" : "This record is rejected."}]
}
```

Example JSON response body

```
[ {
  "actorIds" : null,
  "entityId" : "001D0000000I8mImIAJ",
  "errors" : null,
  "instanceId" : "04gD00000000CvmFIAS",
  "instanceStatus" : "Rejected",
  "newWorkitemIds" : [ ],
  "success" : true
} ]
```

Bulk Approvals

Use the [Process Approvals](#) resource to do bulk approvals. You can specify a collection of different Process Approvals requests to have them all executed in bulk.

Example usage

```
curl https://na1.salesforce.com/services/data/v30.0/process/approvals/ -H "Authorization: Bearer token" -H "Content-Type: application/json" -d @bulk.json"
```

Example request body `bulk.json` file

```
{
  "requests" :
  [{
    "actionType" : "Approve",
    "contextId" : "04iD0000000Cw6r",
    "comments" : "approving an account"
  }, {
    "actionType" : "Submit",
    "contextId" : "001D0000000JRWBd",
    "nextApproverIds" : ["005D000000015rY9"],
    "comments" : "submitting an account"
  }, {
    "actionType" : "Submit",
    "contextId" : "003D0000000QBZ08",
    "comments" : "submitting a contact"
  }]
}
```

Example JSON response body

```
[ {
  "actorIds" : null,
  "entityId" : "001D0000000I8mImIAJ",
  "errors" : null,
  "instanceId" : "04gD0000000CvmZIAS",
  "instanceStatus" : "Approved",
  "newWorkitemIds" : [ ],
  "success" : true
}, {
  "actorIds" : null,
  "entityId" : "003D0000000QBZ08IAH",
  "errors" : null,
  "instanceId" : "04gD0000000CvmeIAC",
  "instanceStatus" : "Approved",
  "newWorkitemIds" : [ ],
  "success" : true
}, {
  "actorIds" : [ "005D000000015rY9IAI" ],
  "entityId" : "001D0000000JRWBdIAP",
  "errors" : null,
  "instanceId" : "04gD0000000CvmfIAC",
  "instanceStatus" : "Pending",
  "newWorkitemIds" : [ "04iD0000000Cw6wIAC" ],
  "success" : true
} ]
```

Get a List of Process Rules

Use the [Process Rules](#) resource to get information about process rules.

Example usage

```
curl https://na1.salesforce.com/services/data/v30.0/process/rules/ -H "Authorization: Bearer token"
```

Example request body

none required

Example JSON response body

```
{
  "rules" : {
    "Account" : [ {
      "actions" : [ {
        "id" : "01VD0000000D2w7",
        "name" : "ApprovalProcessTask",
        "type" : "Task"
      } ],
      "description" : null,
      "id" : "01QD0000000APli",
      "name" : "My Rule",
      "namespacePrefix" : null,
      "object" : "Account"
    } ]
  }
}
```

Get a Particular Process Rule

Use the [Process Rules](#) resource and specify the *SObjectName* and *workflowRuleId* of the rule you want to get the metadata for.

Example usage

```
curl https://na1.salesforce.com/services/data/v30.0/process/rules/Account/01QD0000000APli -H "Authorization: Bearer token"
```

Example request body

none required

Example JSON response body

```
{
  "actions" : [ {
    "id" : "01VD0000000D2w7",
    "name" : "ApprovalProcessTask",
    "type" : "Task"
  } ],
  "description" : null,
  "id" : "01QD0000000APli",
  "name" : "My Rule",
  "namespacePrefix" : null,
  "object" : "Account"
}
```


Trigger Process Rules

Use the [Process Rules](#) resource to trigger process rules. All rules associated with the specified ID will be evaluated, regardless of the evaluation criteria. All IDs must be for records on the same object.

Example usage

```
curl https://na1.salesforce.com/services/data/v30.0/process/rules/ -H "Authorization: Bearer token" -H "Content-Type: application/json" -d @rules.json"
```

Example request body `rules.json` file

```
{
  "contextIds" : [
    "001D000000JRWBd",
    "001D000000I8mIm",
    "001D000000I8aaf"]
}
```

Example JSON response body

```
{
  "errors" : null,
  "success" : true
}
```

Using Event Monitoring

The examples in this section use REST API event monitoring data that contains information useful for assessing organizational usage trends and user behavior. Because event monitoring is accessed through the Force.com SOAP API and REST API by way of the EventLogFile object, you can integrate log data with your own back-end storage and data marts so that you can correlate data from multiple organizations and across disparate systems easily.



Note: Refer to the [Object Reference](#) for Salesforce and Force.com for important information about the EventLogFile object.

When using event monitoring, keep the following in mind.

- In the unlikely case where no log files are generated for 24 hours, contact Salesforce.
- Log data is read-only. You can't insert, update, or delete log data.
- Use the `EventType` field to determine which files were generated for your organization
- `LogDate` tracks usage activity for a 24-hour period, from 12:00 a.m. to 11:59 p.m. UTC time.
- An event generates log data in real time. *However, log files are generated the day after an event takes place, during nonpeak hours.* Therefore, log file data is unavailable for at least one day after an event.
- `CreatedDate` tracks when the log file was generated.
- Log files, represented by the `EventType` field, are only generated if there is at least one event of that type for the day. If no events took place, the file won't be generated for that day
- Log files are available based on `CreatedDate` for the last 30 days when organizations purchase User Event Monitoring or one day for Developer Edition organizations.
- All event monitoring logs are exposed to the API through the EventLogFile object, however there is no access through the user interface.

Event monitoring can be used with 29 different file types:

- Apex Callout
- Apex Execution
- Apex SOAP
- Apex Trigger
- API
- Async Report
- Bulk API
- Change Set Operation
- Content Distribution
- Content Document Link
- Content Transfer
- Dashboard
- Document Attachment Downloads
- Login
- Login As
- Logout
- MDAPI Operation
- Multiblock Report
- Package Install
- Queued Execution
- Report
- Report Export
- REST API
- Salesforce1 Adoption (UI Tracking)
- Sandbox
- Sites
- Time-Based Workflow
- URI
- Visualforce

All of the queries and examples shown in this section require the “View Event Log Files” and “API Enabled” user permissions. Users with the “View All Data” permission also have the ability to view event monitoring data.

IN THIS SECTION:

[Describe Event monitoring Using REST](#)

Use the [SObject Describe](#) resource to retrieve all metadata for an object, including information about fields, URLs, and child relationships.

[Query Event Monitoring Data with REST](#)

Use the [Query](#) resource to retrieve field values from a record. Specify the fields you want to retrieve in the fields parameter and use the `GET` method of the resource.

Get Event Monitoring Content from a Record

Use the [SObject Blob Retrieve](#) resource to retrieve BLOB data for a given record.

Download Large Event Log Files Using cURL with REST

You might have some event log files that are larger than your tool can handle. A command line tool such as cURL is one method to download files larger than 100 MB using the SObject Blob Retrieve object

Describe Event monitoring Using REST

Use the [SObject Describe](#) resource to retrieve all metadata for an object, including information about fields, URLs, and child relationships.

Example

You can use [Workbench](#) to describe event log files. In the Execute text box, type
`/services/data/v32.0/objects/EventLogFile/describe.`

Example raw response

```
{
  "actionOverrides" : [ ],
  "activateable" : false,
  "childRelationships" : [ ],
  "compactLayoutable" : false,
  "createable" : false,
  "custom" : false,
  "customSetting" : false,
  "deletable" : false,
  "deprecatedAndHidden" : false,
  "feedEnabled" : false,
  "fields" : [ {
    "autoNumber" : false,
    "byteLength" : 18,
    "calculated" : false,
    "calculatedFormula" : null,
    "cascadeDelete" : false,
    "caseSensitive" : false,
    "controllerName" : null,
    "createable" : false,
    ...
  }
}
```

Query Event Monitoring Data with REST

Use the [Query](#) resource to retrieve field values from a record. Specify the fields you want to retrieve in the fields parameter and use the GET method of the resource.

You can use [Workbench](#) to query event monitoring data. To retrieve event monitoring records based on `LogDate` and `EventType`, in the Execute text box, type:

```
/services/data/v32.0/query?q=SELECT+Id+,+EventType+,+LogFile+,+LogDate+,+LogFileLength+FROM+EventLogFile+WHERE+LogDate+>+Yesterday+AND+EventType+=+'API'
```

Example raw response

```
{
  "totalSize" : 4,
  "done" : true,
  "records" : [ {
    "attributes" : {
      "type" : "EventLogFile",
      "url" : "/services/data/v32.0/subjects/EventLogFile/0ATD000000001bROAQ"    },
      "Id" : "0ATD000000001bROAQ",
      "EventType" : "API",
      "LogFile" : "/services/data/v32.0/subjects/EventLogFile/0ATD000000001bROAQ/LogFile",

      "LogDate" : "2014-03-14T00:00:00.000+0000",
      "LogFileLength" : 2692.0
    }, {
      "attributes" : {
        "type" : "EventLogFile",
        "url" : "/services/data/v32.0/subjects/EventLogFile/0ATD000000001SdOAI"    },
        "Id" : "0ATD000000001SdOAI",
        "EventType" : "API",
        "LogFile" :
"/services/data/v32.0/subjects/EventLogFile/0ATD000000001SdOAI/LogFile",
        "LogDate" : "2014-03-13T00:00:00.000+0000",
        "LogFileLength" : 1345.0
      }, {
        "attributes" : {
          "type" : "EventLogFile",
          "url" : "/services/data/v32.0/subjects/EventLogFile/0ATD000000003p1OAA"    },
          "Id" : "0ATD000000003p1OAA",
          "EventType" : "API",
          "LogFile" :
"/services/data/v32.0/subjects/EventLogFile/0ATD000000003p1OAA/LogFile",
          "LogDate" : "2014-06-21T00:00:00.000+0000",
          "LogFileLength" : 605.0    },
        {
          "attributes" : {
            "type" : "EventLogFile",
            "url" : "/services/data/v32.0/subjects/EventLogFile/0ATD0000000055eOAA"    },
            "Id" : "0ATD0000000055eOAA",
            "EventType" : "API",
            "LogFile" :
"/services/data/v32.0/subjects/EventLogFile/0ATD0000000055eOAA/LogFile",
            "LogDate" : "2014-07-03T00:00:00.000+0000",
            "LogFileLength" : 605.0
          } ]
    } ]
  }
```

Get Event Monitoring Content from a Record

Use the [SObject Blob Retrieve](#) resource to retrieve BLOB data for a given record.

Example

You can use [Workbench](#) to retrieve BLOB data for event monitoring. In the Execute text box, use a GET request similar to this:
 /services/data/v32.0/subjects/EventLogFile/0ATD00000000pyOAA/LogFile.

Example response body

Event monitoring content is returned in binary form. Note that the response content type won't be JSON or XML because the returned data is binary.

```
HTTP/1.1 200 OK
Date: Tue, 06 Aug 2013 16:46:10 GMT
Sforce-Limit-Info: api-usage=135/5000
Content-Type: application/octetstream
Transfer-Encoding: chunked
"EVENT_TYPE", "ORGANIZATION_ID", "TIMESTAMP", "USER_ID", "CLIENT_IP",
"URI", "REFERRER_URI", "RUN_TIME"
"URI", "00DD000000K5xD", "20130728185606.020", "005D0000001REDy",
"10.0.62.141", "/secur/contentDoor", "https-//login-salesforce-com/",
"11"
"URI", "00DD000000K5xD", "20130728185556.930", "005D0000001REI0",
"10.0.62.141", "/secur/logout.jsp", "https-//na1-salesforce-com/000/o",
"54"
"URI", "00DD000000K5xD", "20130728185536.725", "005D0000001REI0",
"10.0.62.141", "/00OD0000001ckx3",
"https-//na1-salesforce-com/00OD0000001ckx3", "93"
```

Download Large Event Log Files Using cURL with REST

You might have some event log files that are larger than your tool can handle. A command line tool such as cURL is one method to download files larger than 100 MB using the SObject Blob Retrieve object

Example: Use the “X-PrettyPrint” header and the “-o” flag to output large files to .csv formats

This command downloads a file onto your machine into your downloads folder.

```
curl
https://na1.salesforce.com/services/data/v32.0/subjects/EventLogFile/0AT30000000000uGAA/LogFile
-H "Authorization: Bearer token" -H "X-PrettyPrint:1" -o ~/downloads/outputLogFile.csv
```

We recommend using compression when downloading large event log files. See [Using Compression](#).

Using Composite Resources

The examples in this section use composite resources to improve your application's performance by minimizing the number of round-trips between the client and server.

IN THIS SECTION:

[Update a Record and Get Its Field Values in a Single Request](#)

Use the Batch resource to execute multiple requests in a single API call.

Create Nested Records

Use the SObject Tree resource to create nested records that share a root record type. For example, in a single request, you can create an account along with its child contacts, and a second account along with its child accounts and contacts. Once the request is processed, the records are created and parents and children are automatically linked by ID. In the request data, you supply the record hierarchies, required and optional field values, each record's type, and a reference ID for each record, and then use the POST method of the resource. The response body will contain the IDs of the created records if the request is successful. Otherwise, the response contains only the reference ID of the record that caused the error and the error information.

Create Multiple Records

While the SObject Tree resource can be used to create nested records, you can also create multiple, unrelated records of the same type. In a single request, you can create up to two hundred records. In the request data, you supply the required and optional field values for each record, each record's type, and a reference ID for each record, and then use the POST method of the resource. The response body will contain the IDs of the created records if the request is successful. Otherwise, the response contains only the reference ID of the record that caused the error and the error information.

Update a Record and Get Its Field Values in a Single Request

Use the Batch resource to execute multiple requests in a single API call.

The following example updates the name on an account and gets some of the account's field values in a single request. The `batch.json` file contains the subrequest data.

Update a record and query its name and billing postal code in a single request

```
curl https://na1.salesforce.com/services/data/v34.0/composite/batch/ -H "Authorization: Bearer token" -H "Content-Type: application/json" -d "@batch.json"
```

Request body `batch.json` file

```
{
  "batchRequests" : [
    {
      "method" : "PATCH",
      "url" : "v34.0/subjects/account/001D000000K0fXOIAZ",
      "richInput" : {"Name" : "NewName"}
    }, {
      "method" : "GET",
      "url" : "v34.0/subjects/account/001D000000K0fXOIAZ?fields=Name,BillingPostalCode"
    }
  ]
}
```

Response body after successfully executing the subrequests

```
{
  "hasErrors" : false,
  "results" : [{
    "statusCode" : 204,
    "result" : null
  }, {
    "statusCode" : 200,
    "result": {
      "attributes" : {
        "type" : "Account",
        "url" : "/services/data/v34.0/subjects/Account/001D000000K0fXOIAZ"
      }
    }
  ]
}
```

```

        "Name" : "NewName",
        "BillingPostalCode" : "94105",
        "Id" : "001D000000K0fXOIAZ"
    }
}
}]
}

```

SEE ALSO:

[Batch](#)

Create Nested Records

Use the SObject Tree resource to create nested records that share a root record type. For example, in a single request, you can create an account along with its child contacts, and a second account along with its child accounts and contacts. Once the request is processed, the records are created and parents and children are automatically linked by ID. In the request data, you supply the record hierarchies, required and optional field values, each record's type, and a reference ID for each record, and then use the POST method of the resource. The response body will contain the IDs of the created records if the request is successful. Otherwise, the response contains only the reference ID of the record that caused the error and the error information.

The following example creates two sets of nested records. The first set includes an account and two child contact records. The second set includes an account, one child account record, and one child contact record. The record data is provided in `newrecords.json`.

Example for creating two new accounts and their child records

```

curl https://na1.salesforce.com/services/data/v34.0/composite/tree/Account/ -H
"Authorization: Bearer token" -H "Content-Type: application/json" -d "@newrecords.json"

```

Example request body `newrecords.json` file for creating two new Accounts and their child records

```

{
  "records" : [{
    "attributes" : {"type" : "Account", "referenceId" : "ref1"},
    "name" : "SampleAccount1",
    "phone" : "1234567890",
    "website" : "www.salesforce.com",
    "numberOfEmployees" : "100",
    "industry" : "Banking",
    "Contacts" : {
      "records" : [{
        "attributes" : {"type" : "Contact", "referenceId" : "ref2"},
        "lastname" : "Smith",
        "Title" : "President",
        "email" : "sample@salesforce.com"
      }, {
        "attributes" : {"type" : "Contact", "referenceId" : "ref3"},
        "lastname" : "Evans",
        "title" : "Vice President",
        "email" : "sample@salesforce.com"
      }
    ]
  }
}, {
  "attributes" : {"type" : "Account", "referenceId" : "ref4"},
  "name" : "SampleAccount2",

```

```

    "phone" : "1234567890",
    "website" : "www.salesforce.com",
    "numberOfEmployees" : "52000",
    "industry" : "Banking",
    "childAccounts" : {
      "records" : [{
        "attributes" : {"type" : "Account", "referenceId" : "ref5"},
        "name" : "SampleChildAccount1",
        "phone" : "1234567890",
        "website" : "www.salesforce.com",
        "numberOfEmployees" : "100",
        "industry" : "Banking"
      }]
    },
    "Contacts" : {
      "records" : [{
        "attributes" : {"type" : "Contact", "referenceId" : "ref6"},
        "lastname" : "Jones",
        "title" : "President",
        "email" : "sample@salesforce.com"
      }]
    }
  }
}

```

Example response body after successfully creating records and relationships

```

{
  "hasErrors" : false,
  "results" : [{
    "referenceId" : "ref1",
    "id" : "001D000000K0fXOIAZ"
  }, {
    "referenceId" : "ref2",
    "id" : "001D000000K0fXPtIAZ"
  }, {
    "referenceId" : "ref3",
    "id" : "003D000000QV9n2IAD"
  }, {
    "referenceId" : "ref4",
    "id" : "003D000000QV9n3IAD"
  }, {
    "referenceId" : "ref5",
    "id" : "001D000000K0fXQIAZ"
  }, {
    "referenceId" : "ref6",
    "id" : "003D000000QV9n4IAD"
  }]
}

```

Once the request is processed, all six records are created with the parent-child relationships specified in the request.

SEE ALSO:

[SObject Tree](#)

Create Multiple Records

While the SObject Tree resource can be used to create nested records, you can also create multiple, unrelated records of the same type. In a single request, you can create up to two hundred records. In the request data, you supply the required and optional field values for each record, each record's type, and a reference ID for each record, and then use the POST method of the resource. The response body will contain the IDs of the created records if the request is successful. Otherwise, the response contains only the reference ID of the record that caused the error and the error information.

The following example creates four new accounts. The record data is provided in `newrecords.json`.

Example for creating four new accounts

```
curl https://na1.salesforce.com/services/data/v34.0/composite/tree/Account/ -H
"Authorization: Bearer token" -H "Content-Type: application/json" -d "@newrecords.json"
```

Example request body `newrecords.json` file for creating four new accounts

```
{
  "records" : [{
    "attributes" : {"type" : "Account", "referenceId" : "ref1"},
    "name" : "SampleAccount1",
    "phone" : "1111111111",
    "website" : "www.salesforce1.com",
    "numberOfEmployees" : "100",
    "industry" : "Banking"
  }, {
    "attributes" : {"type" : "Account", "referenceId" : "ref2"},
    "name" : "SampleAccount2",
    "phone" : "2222222222",
    "website" : "www.salesforce2.com",
    "numberOfEmployees" : "250",
    "industry" : "Banking"
  }, {
    "attributes" : {"type" : "Account", "referenceId" : "ref3"},
    "name" : "SampleAccount3",
    "phone" : "3333333333",
    "website" : "www.salesforce3.com",
    "numberOfEmployees" : "52000",
    "industry" : "Banking"
  }, {
    "attributes" : {"type" : "Account", "referenceId" : "ref4"},
    "name" : "SampleAccount4",
    "phone" : "4444444444",
    "website" : "www.salesforce4.com",
    "numberOfEmployees" : "2500",
    "industry" : "Banking"
  }]
}
```

Example response body after successfully creating records

```
{
  "hasErrors" : false,
  "results" : [{
    "referenceId" : "ref1",
    "id" : "001D000000K1YFjIAN"
```

```
    }, {  
      "referenceId" : "ref2",  
      "id" : "001D000000K1YFkIAN"  
    }, {  
      "referenceId" : "ref3",  
      "id" : "003D000000K1YFlIAN"  
    }, {  
      "referenceId" : "ref4",  
      "id" : "003D000000K1YFmIAN"  
    }  
  ]  
}
```

SEE ALSO:

[SObject Tree](#)

CHAPTER 4 Reference

The following table lists supported REST resources in the API and provides a brief description for each. In each case, the URI for the resource follows the base URI, which you retrieve from the authentication service: `http://domain/services/data`. *domain* might be the Salesforce instance you are using, or a [custom domain](#). For example, to retrieve basic information about an Account object in version 20.0: `http://na1.salesforce.com/services/data/v20.0/objects/Account/`.

Click a call name to see syntax, usage, and more information for that call.

Resource Name	URI	Description
Versions	/	Lists summary information about each Salesforce version currently available, including the version, label, and a link to each version's root.
Resources by Version	/vXX.X/	Lists available resources for the specified API version, including resource name and URI.
Limits	/vXX.X/limits/	Lists information about limits in your organization.
Describe Global	/vXX.X/objects/	Lists the available objects and their metadata for your organization's data.
SObject Basic Information	/vXX.X/objects/ SObject /	Describes the individual metadata for the specified object. Can also be used to create a new record for a given object.
SObject Describe	/vXX.X/objects/ SObject /describe/	Completely describes the individual metadata at all levels for the specified object.
SObject Get Deleted	/vXX.X/objects/ SObject /deleted/ ?start= startDateAndTime &end= endDateAndTime	Retrieves the list of individual records that have been deleted within the given timespan for the specified object.
SObject Get Updated	/vXX.X/objects/ SObject /updated/ ?start= startDateAndTime &end= endDateAndTime	Retrieves the list of individual records that have been updated (added or changed) within the given timespan for the specified object.
SObject Named Layouts	/vXX.X/objects/ Object /describe/namedLayouts/ layoutName	Retrieves information about alternate named layouts for a given object.
SObject Rows	/vXX.X/objects/ SObject / id /	Accesses records based on the specified object ID. Retrieves, updates, or deletes records. This resource can also be used to retrieve field values.
SObject Rows by External ID	/vXX.X/objects/ SObject / fieldName / fieldValue	Creates new records or updates existing records (upserts records) based on the value of a specified external ID field.
SObject ApprovalLayouts	/vXX.X/objects/ SObjectName /describe/approvalLayouts/	Returns a list of approval layouts for a specified object.

Resource Name	URI	Description
SObject CompactLayouts	/vXX.X/subjects/ Object /describe/compactLayouts/	Returns a list of compact layouts for a specific object.
Describe Layouts	/vXX.X/subjects/global/describe/layouts/ /vXX.X/subjects/ object /describe/layouts/	Returns a list of layouts and descriptions.
SObject PlatformAction	/services/data/vXX.X/subjects/PlatformAction	PlatformAction is a virtual read-only object. It enables you to query for actions displayed in the UI—such as standard and custom buttons, quick actions, and productivity actions—given a user, a context, device format, and a record ID.
SObject Blob Retrieve	/vXX.X/subjects/ SObject / id / blobField	Retrieves the specified blob field from an individual record.
SObject Quick Actions	/vXX.X/subjects/ object /quickActions/ /vXX.X/subjects/ object /quickActions/{ action name } /vXX.X/subjects/ object /quickActions/{ action name }/describe/ services/data/vXX.X/subjects/ object /quickActions/{ action name }/defaultValues/ vXX.X/subjects/ object /quickActions/{ action name }/defaultValues/{ parent id }	Returns a list of actions and their details.
SObject Suggested Articles for Case	vXX.X/subjects/Case/suggestedArticles?language= article language &subject= case subject &description= case description vXX.X/subjects/Case/ ID /suggestedArticles?language= article language	Returns a list of suggested Salesforce Knowledge articles for a case.
SObject User Password	/vXX.X/subjects/User/ user id /password /vXX.X/subjects/SelfServiceUser/ self service user id /password	Set, reset, or get information about a user password.
AppMenu	/vXX.X/appMenu/AppSwitcher/ /vXX.X/appMenu/Salesforce1/	Returns a list of items in either the Salesforce app drop-down menu or the Salesforce1 navigation menu.
Compact Layouts	/vXX.X/compactLayouts?q= object list	Returns a list of compact layouts for multiple objects.
FlexiPage	/vXX.X/flexiPage/ ID of Lightning Page	Returns a list of Lightning Pages and their details. Information returned includes Lightning Page regions, the components within each region, and each component's properties, as well as any associated QuickActions.

Resource Name	URI	Description
Process Approvals	/vXX.X/process/approvals/	Returns a list of all approval processes. Can also be used to submit a particular record if that entity supports an approval process and one has already been defined. Records can be approved and rejected if the current user is an assigned approver.
Process Rules	/vXX.X/process/rules/	Returns a list of all active workflow rules. If a rule has actions, the actions will be listed under the rule. Can also be used to trigger all workflow rules that are associated with a specified record. The actions for a rule are only fired if the rule's criteria is met.
Query	/vXX.X/query/?q= soql	Executes the specified SOQL query.
QueryAll	/vXX.X/queryAll/?q= soql	Executes the specified SOQL query. Results can include deleted, merged and archived records.
Quick Actions	/vXX.X/quickActions/	Return a list of global quick actions and their types, as well as custom fields and objects that appear in the Chatter feed.
Recently Viewed Items	/vXX.X/recent	Gets the most recently accessed items that were viewed or referenced by the current user.
Relevant Items	/vXX.X/subjects/relevantItems	Gets the current user's most relevant items. Relevant items include records for objects in the user's global search scope and also most recently used (MRU) objects.
Search	/vXX.X/search/?q= sosl /vXX.X/search/?qs= search string	Executes a search.
Search Scope and Order	/vXX.X/search/scopeOrder	Returns an ordered list of objects in the default global search scope of a logged-in user. Global search keeps track of which objects the user interacts with and how often and arranges the search results accordingly. Objects used most frequently appear at the top of the list.
Search Result Layouts	/vXX.X/searchlayout/?q= Comma delimited object list	Returns search result layout information for the objects in the query string. For each object, this call returns the list of fields displayed on the search results page as columns, the number of rows displayed on the first page, and the label used on the search results page.
Search Suggested Article Title Matches	/vXX.X/search/suggestTitleMatches?q= search string &language= article language &publishStatus= article publication status	Returns a list of Salesforce Knowledge articles whose titles match the user's search query string. Provides a shortcut to navigate directly to likely relevant articles, before the user performs a search.

Resource Name	URI	Description
Search Suggested Queries	<code>vXX.X/search/suggestSearchQueries?q=search string&language=language of query</code>	Returns a list of suggested searches based on the user's query string text matching searches that other users have performed in Salesforce Knowledge. Provides a way to improve search effectiveness, before the user performs a search.
Tabs	<code>/vXX.X/tabs</code>	Returns a list of all tabs—including Lightning Page tabs—available to the current user, regardless of whether the user has chosen to hide tabs via the All Tabs (+) tab customization feature.
Themes	<code>/vXX.X/theme</code>	Gets the list of icons and colors used by themes in the Salesforce application.

Composite Resources

Resource Name	URI	Description
Batch	<code>/vXX.X/composite/batch</code>	Executes up to 25 subrequests in a single request.
SObject Tree	<code>/vXX.X/composite/tree</code>	Creates one or more sObject trees with root records of the specified type. An sObject tree is a collection of nested, parent-child records with a single root record.

Versions

Lists summary information about each Salesforce version currently available, including the version, label, and a link to each version's root.

URI

/

Formats

JSON, XML

HTTP Method

GET

Authentication

none

Parameters

none

Example

See [List Available REST API Versions](#) on page 33.

Resources by Version

Lists available resources for the specified API version, including resource name and URI.

URI

/vXX.X/

Formats

JSON, XML

HTTP Method

GET

Authentication

Authorization: Bearer *token*

Parameters

none

Example

See [List Available REST Resources](#) on page 36

Limits

Lists information about limits in your organization. This resource is available in REST API version 29.0 and later for API users with the “View Setup and Configuration” permission. The resource returns these limits:

- Daily API calls
- Daily Batch Apex and future method executions
- Daily Bulk API calls
- Daily Streaming API events
- Streaming API concurrent clients
- Daily generic streaming events (if generic streaming is enabled for your organization)
- Daily number of mass emails that are sent to external email addresses by using Apex or Force.com APIs
- Daily number of single emails that are sent to external email addresses by using Apex or Force.com APIs
- Concurrent REST API requests for results of asynchronous report runs
- Concurrent synchronous report runs via REST API
- Hourly asynchronous report runs via REST API
- Hourly synchronous report runs via REST API
- Hourly dashboard refreshes via REST API
- Hourly REST API requests for dashboard results
- Hourly dashboard status requests via REST API
- Daily workflow emails
- Hourly workflow time triggers

The resource also returns these limits if the API user has the “Manage Users” permission.

- Data storage (MB)
- File storage (MB)

URI

/vXX.X/limits/

Formats

JSON, XML

HTTP Method

GET

Authentication

Authorization: Bearer *token*

Example

See [List Organization Limits](#).

Describe Global

Lists the available objects and their metadata for your organization's data. In addition, it provides the organization encoding, as well as the maximum batch size permitted in queries. For more information on encoding, see [Internationalization and Character Sets](#).

You can use the `If-Modified-Since` header with this resource, with the date format `EEE, dd MMM yyyy HH:mm:ss z`. When using this header, if no available object's metadata has changed since the provided date, a `304 Not Modified` status code is returned with no response body.

URI

/vXX.X/subjects/

Formats

JSON, XML

HTTP Method

GET

Authentication

Authorization: Bearer *token*

Parameters

none required

Example

See [Get a List of Objects](#) on page 37.

Error responses

See [Status Codes and Error Responses](#) on page 179.

SObject Basic Information

Describes the individual metadata for the specified object. Can also be used to create a new record for a given object. For example, this can be used to retrieve the metadata for the Account object using the GET method, or create a new Account object using the POST method.

URI

/vXX.X/subjects/*SObjectName*/

Formats

JSON, XML

HTTP Method

GET, POST

AuthenticationAuthorization: Bearer *token***Parameters**

none required

Examples

- For an example of retrieving metadata for an object, see [Retrieve Metadata for an Object](#) on page 39.
- For an example of creating a new record using POST, see [Create a Record](#) on page 42.
- For an example of create a new record along with providing blob data for the record, see [Insert or Update Blob Data](#) on page 50.

SObject Describe

Completely describes the individual metadata at all levels for the specified object. For example, this can be used to retrieve the fields, URLs, and child relationships for the Account object.

The `If-Modified-Since` header can be used with this resource, with a date format of `EEE, dd MMM yyyy HH:mm:ss z`. When this header is used, if the object metadata has not changed since the provided date, a `304 Not Modified` status code is returned, with no response body.

URI`/vXX.X/objects/SObjectName/describe/`**Formats**

JSON, XML

HTTP Method

GET

AuthenticationAuthorization: Bearer *token***Parameters**

none required

Example

See [Get Field and Other Metadata for an Object](#) on page 39. For an example that uses the `If-Modified-Since` HTTP header, see [Get Object Metadata Changes](#) on page 41.

SObject Get Deleted

Retrieves the list of individual records that have been deleted within the given timespan for the specified object. SObject Get Deleted is available in API version 29.0 and later.

This resource is commonly used in data replication applications. Note the following considerations:

- Deleted records are written to a delete log which this resource accesses. A background process that runs every two hours purges records that have been in an organization's delete log for more than two hours if the number of records is above a certain limit. Starting with the oldest records, the process purges delete log entries until the delete log is back below the limit. This is done to protect Salesforce from performance issues related to massive delete logs

- Information on deleted records are returned only if the current session user has access to them.
- Results are returned for no more than 15 days previous to the day the call is executed (or earlier if an administrator has purged the Recycle Bin).

See “Data Replication” in the [SOAP API Developer's Guide](#) for additional details on data replication and data replication limits.

URI

/vXX.X/subjects/***SObjectName***/deleted/?start=***startDateAndTime***&end=***endDateAndTime***

Formats

JSON, XML

HTTP Method

GET

Authentication

Authorization: Bearer ***token***

Parameters

Parameter	Description
start	Starting date/time (Coordinated Universal Time (UTC)—not local— timezone) of the timespan for which to retrieve the data. The API ignores the seconds portion of the specified dateTime value (for example, 12:30:15 is interpreted as 12:30:00 UTC). The date and time should be provided in ISO 8601 format: <i>YYYY-MM-DDThh:mm:ss+hh:mm</i> . The date/time value for start must chronologically precede end . This parameter should be URL-encoded.
end	Ending date/time (Coordinated Universal Time (UTC)—not local— timezone) of the timespan for which to retrieve the data. The API ignores the seconds portion of the specified dateTime value (for example, 12:35:15 is interpreted as 12:35:00 UTC). The date and time should be provided in ISO 8601 format: <i>YYYY-MM-DDThh:mm:ss+hh:mm</i> . This parameter should be URL-encoded.

Response format

Property	Type	Description
deletedRecords	array	Array of deleted records that satisfy the start and end dates specified in the request. Each entry contains the record ID and the date and time the record was deleted in ISO 8601 format, using Coordinated Universal Time (UTC) timezone.
earliestDateAvailable	String	ISO 8601 format timestamp (Coordinated Universal Time (UTC)—not local— timezone) of the last physically deleted object.
latestDateCovered	String	ISO 8601 format timestamp (Coordinated Universal Time (UTC)—not local— time zone) of the last date covered in the request.

Example

For an example of getting a list of deleted items, see [Get a List of Deleted Records Within a Given Timeframe](#) on page 53.

SObject Get Updated

Retrieves the list of individual records that have been updated (added or changed) within the given timespan for the specified object. SObject Get Updated is available in API version 29.0 and later.

This resource is commonly used in data replication applications. Note the following considerations:

- Results are returned for no more than 30 days previous to the day the call is executed.
- Your client application can replicate any objects to which it has sufficient permissions. For example, to replicate all data for your organization, your client application must be logged in with “View All Data” access rights to the specified object. Similarly, the objects must be within your sharing rules.
- There is a limit of 200,000 IDs returned from this resource. If more than 200,000 IDs would be returned, EXCEEDED_ID_LIMIT is returned. You can correct the error by choosing start and end dates that are closer together.

See “Data Replication” in the [SOAP API Developer's Guide](#) for additional details on data replication and data replication limits.

URI

/vXX.X/objects/**SObjectName**/updated/?start=**startDateAndTime**&end=**endDateAndTime**

Formats

JSON, XML

HTTP Method

GET

Authentication

Authorization: Bearer **token**

Parameters

Parameter	Description
start	Starting date/time (Coordinated Universal Time (UTC) time zone—not local—timezone) of the timespan for which to retrieve the data. The API ignores the seconds portion of the specified dateTime value (for example, 12:30:15 is interpreted as 12:30:00 UTC). The date and time should be provided in ISO 8601 format: <i>YYYY-MM-DDThh:mm:ss+hh:mm</i> . The date/time value for start must chronologically precede end . This parameter should be URL-encoded
end	Ending date/time (Coordinated Universal Time (UTC) time zone—not local—timezone) of the timespan for which to retrieve the data. The API ignores the seconds portion of the specified dateTime value (for example, 12:35:15 is interpreted as 12:35:00 UTC). The date and time should be provided in ISO 8601 format: <i>YYYY-MM-DDThh:mm:ss+hh:mm</i> . This parameter should be URL-encoded

Response format

Property	Type	Description
ids	array	Array of updated records that satisfy the start and end dates specified in the request. Each entry contains the record ID.
latestDateCovered	String	ISO 8601 format timestamp (Coordinated Universal Time (UTC)—not local—time zone) of the last date covered in the request.

Example

For an example of getting a list of updated deleted items, see [Get a List of Updated Records Within a Given Timeframe](#) on page 54.

SObject Named Layouts

Retrieves information about alternate named layouts for a given object.

Syntax

URI

`/vXX.X/subjects/Object/describe/namedLayouts/layoutName`

Available since release

31.0

Formats

JSON, XML

HTTP methods

GET

Authentication

Authorization: Bearer **token**

Request body

None

Example

`/services/data/v31.0/subjects/User/describe/namedLayouts/UserAlt`

This example retrieves information on the “UserAlt” named layout for User.

Usage

Use this resource to get information on a named layout for a given object. You must provide a valid named layout name as part of the resource URI.

To get a list of named layouts for a given object, use the [SObject Describe](#) resource and look for the “namedLayoutInfos” field in the response body.

SObject Rows

Accesses records based on the specified object ID. Retrieves, updates, or deletes records. This resource can also be used to retrieve field values. Use the GET method to retrieve records or fields, the DELETE method to delete records, and the PATCH method to update records.

To create new records, use the [SObject Basic Information](#) resource.

URI

`/vXX.X/subjects/SObjectName/id/`

Formats

JSON, XML

HTTP Method

GET, PATCH, DELETE

AuthenticationAuthorization: Bearer *token***Parameters**

Parameter	Description
<i>fields</i>	Optional list of fields used to return values for.

Usage

This resource can be used with external objects in API version 32.0 and later.

- External objects that are associated with non-high-data-volume external data sources use the 18-character Salesforce ID for the *id*. Otherwise, external objects use the External ID standard field of the external object for the *id*.

Examples

- For examples of retrieving field values using GET, see:
 - [Get Field Values from a Standard Object Record](#) on page 44
 - [Get Field Values from an External Object Record by Using the External ID Standard Field](#) on page 45
 - [Get Field Values from an External Object Record by Using the Salesforce ID](#) on page 45
- For an example of updating a record using PATCH, see [Update a Record](#) on page 43.
- For an example of deleting a record using DELETE, see [Delete a Record](#) on page 44.
- For an example of updating the blob data for an object, see [Insert or Update Blob Data](#) on page 50.

SObject Rows by External ID

Creates new records or updates existing records (upserts records) based on the value of a specified external ID field.

- If the specified value doesn't exist, a new record is created.
- If a record does exist with that value, the field values specified in the request body are updated.
- If the value is not unique, the REST API returns a 300 response with the list of matching records.



Note: Do not specify *Id* or an external ID field in the request body or an error is generated.

URI

/vXX.X/objects/***SObjectName***/***fieldName***/***fieldValue***

Formats

JSON, XML

HTTP Method

HEAD, GET, PATCH, DELETE

AuthenticationAuthorization: Bearer *token***Parameters**

None

Examples

- For an example of retrieving a record based on an external ID, see [Retrieve a Record Using an External ID](#) on page 46.
- For examples of creating and updating records based on external IDs, see [Insert or Update \(Upsert\) a Record Using an External ID](#) on page 46.

SObject Blob Retrieve

Retrieves the specified blob field from an individual record.

URI

`/vXX.X/subjects/SObjectName/id/blobField`

Formats

Because blob fields contain binary data, you can't use JSON or XML to retrieve this data.

HTTP Method

GET

Authentication

Authorization: Bearer *token*

Parameters

none required

Example

For an example of retrieving the blob data from an Attachment or Document, see [Get Attachment Content from a Record](#) on page 49.

Error responses

See [Status Codes and Error Responses](#) on page 179.

SObject ApprovalLayouts

Returns a list of approval layouts for a specified object. Specify a particular approval process name to limit the return value to one specific approval layout. This resource is available in REST API version 30.0 and later.

Syntax

URI

To get an approval layout description for a specified object, use

`/vXX.X/subjects/SObjectName/describe/approvalLayouts/`

To get an approval layout description for a particular approval process, use

`/vXX.X/subjects/SObjectName/describe/approvalLayouts/approvalProcessName`

Formats

JSON, XML

HTTP methods

HEAD, GET

Authentication

Authorization: Bearer *token*

Request parameters

None required

Example

Getting all approval layouts for an sObject

```
curl
https://na1.salesforce.com/services/data/v30.0/subjects/Account/describe/approvalLayouts/
-H "Authorization: Bearer token"
```

Example JSON Response body

```
{
  "approvalLayouts" : [ {
    "id" : "04aD00000008Py9IAE",
    "label" : "MyApprovalProcessName",
    "layoutItems" : [...],
    "name" : "MyApprovalProcessName"
  }, {
    "id" : "04aD00000008Q0KIAU",
    "label" : "Process1",
    "layoutItems" : [...],
    "name" : "Process1"
  } ]
}
```

If you haven't defined any approval layouts for an object, the response is `{"approvalLayouts" : []}`.

Getting the approval layout for a particular approval process

```
curl
https://na1.salesforce.com/services/data/v30.0/subjects/Account/describe/approvalLayouts/MyApprovalProcessName
-H "Authorization: Bearer token"
```

Example JSON Response body

```
{
  "approvalLayouts" : [ {
    "id" : "04aD00000008Py9IAE",
    "label" : "MyApprovalProcessName",
    "layoutItems" : [...],
    "name" : "MyApprovalProcessName"
  } ]
}
```

SObject CompactLayouts

Returns a list of compact layouts for a specific object. This resource is available in REST API version 29.0 and later.

Syntax

URI

For a compact layout description for a specific object, use `/vXX.X/subjects/Object/describe/compactLayouts/`

Formats

JSON, XML

HTTP methods

HEAD, GET

Authentication

Authorization: Bearer **token**

Request parameters

None required

Example

Getting compact layouts

```
/services/data/v29.0/subjects/Account/describe/compactLayouts
```

Example JSON Response body

This sample JSON response is for compact layouts created on the Account object. In this example, only one custom compact layout was created for Account. The custom compact layout is assigned as the primary compact layout for the object, and it contains two fields: Account Name and Phone.

```
{
  "compactLayouts" : [ {
    "actions" : [ {
      "custom" : false,
      "icons" : null,
      "label" : "Call",
      "name" : "CallHighlightAction"
    }, {
      "custom" : false,
      "icons" : null,
      "label" : "Send Email",
      "name" : "EmailHighlightAction"
    }, {
      "custom" : false,
      "icons" : null,
      "label" : "Map",
      "name" : "MapHighlightAction"
    }, {
      "custom" : false,
      "icons" : null,
      "label" : "Read News",
      "name" : "NewsHighlightAction"
    }, {
      "custom" : false,
      "icons" : null,
      "label" : "View Website",
```



```

    "name" : "WebsiteHighlightAction"
  } ],
  "fieldItems" : [ {
    "editable" : false,
    "label" : "Account Name",
    "layoutComponents" : [ {
      "components" : [ ],
      "details" : {
        "autoNumber" : false,
        "byteLength" : 765,
        "calculated" : false,
        "calculatedFormula" : null,
        "cascadeDelete" : false,
        "caseSensitive" : false,
        "controllerName" : null,
        "createable" : true,
        "custom" : false,
        "defaultValue" : null,
        "defaultValueFormula" : null,
        "defaultedOnCreate" : false,
        "dependentPicklist" : false,
        "deprecatedAndHidden" : false,
        "digits" : 0,
        "displayLocationInDecimal" : false,
        "externalId" : false,
        "extraTypeInfo" : null,
        "filterable" : true,
        "groupable" : true,
        "htmlFormatted" : false,
        "idLookup" : false,
        "inlineHelpText" : null,
        "label" : "Account Name",
        "length" : 255,
        "mask" : null,
        "maskType" : null,
        "name" : "Name",
        "nameField" : true,
        "namePointing" : false,
        "nillable" : false,
        "permissionable" : false,
        "picklistValues" : [ ],
        "precision" : 0,
        "queryByDistance" : false,
        "referenceTo" : [ ],
        "relationshipName" : null,
        "relationshipOrder" : null,
        "restrictedDelete" : false,
        "restrictedPicklist" : false,
        "scale" : 0,
        "soapType" : "xsd:string",
        "sortable" : true,
        "type" : "string",
        "unique" : false,
        "updateable" : true,

```

```

        "writeRequiresMasterRead" : false
    },
    "displayLines" : 1,
    "tabOrder" : 2,
    "type" : "Field",
    "value" : "Name"
} ],
"placeholder" : false,
"required" : false
}, {
    "editable" : false,
    "label" : "Phone",
    "layoutComponents" : [ {
        "components" : [ ],
        "details" : {
            "autoNumber" : false,
            "byteLength" : 120,
            "calculated" : false,
            "calculatedFormula" : null,
            "cascadeDelete" : false,
            "caseSensitive" : false,
            "controllerName" : null,
            "createable" : true,
            "custom" : false,
            "defaultValue" : null,
            "defaultValueFormula" : null,
            "defaultedOnCreate" : false,
            "dependentPicklist" : false,
            "deprecatedAndHidden" : false,
            "digits" : 0,
            "displayLocationInDecimal" : false,
            "externalId" : false,
            "extraTypeInfo" : null,
            "filterable" : true,
            "groupable" : true,
            "htmlFormatted" : false,
            "idLookup" : false,
            "inlineHelpText" : null,
            "label" : "Account Phone",
            "length" : 40,
            "mask" : null,
            "maskType" : null,
            "name" : "Phone",
            "nameField" : false,
            "namePointing" : false,
            "nillable" : true,
            "permissionable" : true,
            "picklistValues" : [ ],
            "precision" : 0,
            "queryByDistance" : false,
            "referenceTo" : [ ],
            "relationshipName" : null,
            "relationshipOrder" : null,
            "restrictedDelete" : false,

```

```

        "restrictedPicklist" : false,
        "scale" : 0,
        "soapType" : "xsd:string",
        "sortable" : true,
        "type" : "phone",
        "unique" : false,
        "updateable" : true,
        "writeRequiresMasterRead" : false
    },
    "displayLines" : 1,
    "tabOrder" : 3,
    "type" : "Field",
    "value" : "Phone"
} ],
"placeholder" : false,
"required" : false
} ],
"id" : "0AHD0000000000AboAI",
"imageItems" : [ {
    "editable" : false,
    "label" : "Photo URL",
    "layoutComponents" : [ {
        "components" : [ ],
        "details" : {
            "autoNumber" : false,
            "byteLength" : 765,
            "calculated" : false,
            "calculatedFormula" : null,
            "cascadeDelete" : false,
            "caseSensitive" : false,
            "controllerName" : null,
            "createable" : false,
            "custom" : false,
            "defaultValue" : null,
            "defaultValueFormula" : null,
            "defaultedOnCreate" : false,
            "dependentPicklist" : false,
            "deprecatedAndHidden" : false,
            "digits" : 0,
            "displayLocationInDecimal" : false,
            "externalId" : false,
            "extraTypeInfo" : "imageurl",
            "filterable" : true,
            "groupable" : true,
            "htmlFormatted" : false,
            "idLookup" : false,
            "inlineHelpText" : null,
            "label" : "Photo URL",
            "length" : 255,
            "mask" : null,
            "maskType" : null,
            "name" : "PhotoUrl",
            "nameField" : false,
            "namePointing" : false,

```

```

        "nillable" : true,
        "permissionable" : false,
        "picklistValues" : [ ],
        "precision" : 0,
        "queryByDistance" : false,
        "referenceTo" : [ ],
        "relationshipName" : null,
        "relationshipOrder" : null,
        "restrictedDelete" : false,
        "restrictedPicklist" : false,
        "scale" : 0,
        "soapType" :
        "xsd:string",
        "sortable" : true,
        "type" : "url",
        "unique" : false,
        "updateable" : false,
        "writeRequiresMasterRead" : false
    },
    "displayLines" : 1,
    "tabOrder" : 1,
    "type" : "Field",
    "value" : "PhotoUrl"
} ],
"placeholder" : false,
"required" : false
} ],
"label" : "Custom Account Compact Layout",
"name" : "Custom_Account_Compact_Layout"
} ],
"defaultCompactLayoutId" : "0AHD000000000AbOAI",
"recordTypeCompactLayoutMappings" : [ {
    "available" : true,
    "compactLayoutId" : "0AHD000000000AbOAI",
    "compactLayoutName" : "Custom_Account_Compact_Layout",
    "recordTypeId" : "0120000000000000AAA",
    "recordTypeName" : "Master",
    "urls" : {
        "compactLayout" :
"/services/data/v31.0/subjects/Account/describe/compactLayouts/0120000000000000AAA"
    }
} ],
"urls" : {
    "primary" : "/services/data/v31.0/subjects/Account/describe/compactLayouts/primary"
}
}
}

```

If you haven't defined any compact layouts for an object, the `compactLayoutId` returns as `Null`.

Describe Layouts

Returns a list of layouts and descriptions. The list of fields and the layout name are returned.

URI

To return descriptions of global publisher layouts, the URI is: `/vXX.X/subjects/Global/describe/layouts/`

For a layout description for a specific object, use `/vXX.X/subjects/Object/describe/layouts/`

Formats

JSON, XML

HTTP Method

HEAD, GET

Authentication

Authorization: Bearer **token**

Parameters

None required

Example for getting global publisher layouts

```
curl https://na1.salesforce.com/services/data/v35.0/subjects/Global/describe/layouts/  
-H "Authorization: Bearer token"
```

Example JSON Response body `contactlayout.json` file

```
[ { "name" : "contactlayout",  
  "searchColumns" : [ { "field" : "Account.Name",  
    "format" : null,  
    "label" : "Account Name",  
    "name" : "Name"  
  },  
  { "field" : "Account.Site",  
    "format" : null,  
    "label" : "Account Site",  
    "name" : "Site"  
  },  
  { "field" : "Account.Phone",  
    "format" : null,  
    "label" : "Phone",  
    "name" : "Phone"  
  },  
  { "field" : "User.Alias",  
    "format" : null,  
    "label" : "Account Owner Alias",  
    "name" : "Owner.Alias"  
  }  
],  
  "label" : "Search Results",  
  "limitRows" : 25,  
  "searchColumns" : [ { "field" : "Contact.Name",  
    "format" : null,  
    "label" : "Name",  
    "name" : "Name"  
  },  
  { "field" : "Account.Name",  
    "format" : null,  
    "label" : "Account Name",
```

```

        "name" : "Account.Name"
    },
    { "field" : "Account.Site",
      "format" : null,
      "label" : "Account Site",
      "name" : "Account.Site"
    },
    { "field" : "Contact.Phone",
      "format" : null,
      "label" : "Phone",
      "name" : "Phone"
    },
    { "field" : "Contact.Email",
      "format" : null,
      "label" : "Email",
      "name" : "Email"
    },
    { "field" : "User.Alias",
      "format" : null,
      "label" : "Contact Owner Alias",
      "name" : "Owner.Alias"
    }
  ]
},
{ "label" : "Search Results",
  "limitRows" : 25,
  "searchColumns" : [ { "field" : "Lead.Name",
    "format" : null,
    "label" : "Name",
    "name" : "Name"
  },
    { "field" : "Lead.Title",
      "format" : null,
      "label" : "Title",
      "name" : "Title"
    },
    { "field" : "Lead.Phone",
      "format" : null,
      "label" : "Phone",
      "name" : "Phone"
    },
    { "field" : "Lead.Company",
      "format" : null,
      "label" : "Company",
      "name" : "Company"
    },
    { "field" : "Lead.Email",
      "format" : null,
      "label" : "Email",
      "name" : "Email"
    },
    { "field" : "Lead.Status",
      "format" : null,
      "label" : "Lead Status",

```

```

        "name" : "toLabel (Status) "
      },
      { "field" : "Name.Alias",
        "format" : null,
        "label" : "Owner Alias",
        "name" : "Owner.Alias"
      }
    ]
  },
]

```

SObject PlatformAction

PlatformAction is a virtual read-only object. It enables you to query for actions displayed in the UI—such as standard and custom buttons, quick actions, and productivity actions—given a user, a context, device format, and a record ID.

Returns the description of the PlatformAction.

Syntax

URI

Use `/services/data/vXX.X/objects/PlatformAction`

Available since release

This resource is available in API version 33.0 and later.

Formats

JSON, XML

HTTP methods

GET

Authentication

Authorization: Bearer *token*

Request body

None.

Usage

The only thing you can do with this resource is [Query](#) it.

SObject Quick Actions

Returns a list of actions and their details. This resource is available in REST API version 28.0 and later. When working with actions, also refer to [Quick Actions](#).

URI

To return a specific object's actions as well as global actions, use: `/vXX.X/objects/object/quickActions/`

To return a specific action, use `/vXX.X/objects/object/quickActions/{action name}`

To return a specific action's descriptive detail, use `/vXX.X/subjects/object/quickActions/{action name}/describe/`

To return a specific action's default values, including default field values, use `services/data/vXX.X/subjects/object/quickActions/{action name}/defaultValues/`

In API version 28.0, to evaluate the default values for an action, use `vXX.X/subjects/object/quickActions/{action name}/defaultValues/{parent id}`

In API version 29.0 and greater, to evaluate the default values for an action, use `vXX.X/subjects/object/quickActions/{action name}/defaultValues/{context id}`

This returns the default values specific to the {context id} object.

Formats

JSON, XML

HTTP Method

HEAD, GET, POST

Authentication

Authorization: Bearer **token**

Parameters

None required

Example for getting Account actions

```
curl https://na1.salesforce.com/services/data/v28.0/subjects/Account/quickActions -H
"Authorization: Bearer token"
```

Example for creating a contact on Account using an action

```
curl
https://na1.salesforce.com/services/data/v28.0/subjects/Account/quickActions/CreateContact
-H 'Authorization: Bearer access_token -H "Content-Type: application/json" -d
@newcontact.json'
```

Example JSON request body `newcontact.json` file

```
{
  "contextId" : "001D000000JRSGf",
  "record" : { "LastName" : "Smith" }
}
```

Considerations

- The resources return all actions—both global and standard—in addition to the ones requested.

SObject Suggested Articles for Case

Returns a list of suggested Salesforce Knowledge articles for a case.

Syntax

URI

To return suggested articles for a case that is being created—that is, as the case title, description, and other information are being entered but before the case has been saved and assigned an ID, use

`vXX.X/subjects/Case/suggestedArticles?language=article language&subject=case subject&description=case description`

To return suggested articles for an existing case with an ID, use

`vXX.X/subjects/Case/ID/suggestedArticles?language=article language`

Available since release

30.0

Formats

JSON, XML

HTTP methods

GET

Authentication

Authorization: Bearer **token**

Request body

None required

Request parameters

Parameter	Description
<code>articleTypes</code>	Optional. Three-character ID prefixes indicating the desired article types. You can specify multiple values for this parameter in a single REST call, by repeating the parameter name for each value. For example, <code>articleTypes=ka0&articleTypes=ka1</code> .
<code>categoryIds</code>	Optional. IDs of the desired data categories. You can specify multiple values for this parameter in a single REST call, by repeating the parameter name for each value. For example, <code>categoryIds=02nx0000000GpZ8&categoryIds=02oRR0000004MNj</code> .
<code>description</code>	Text of the case's description. Valid only for <code>vXX.X/subjects/Case/suggestedArticles?language=article language&subject=case subject&description=case description</code> and required if <code>subject</code> is null. Article suggestions are based on the case's subject, description, or both.
<code>language</code>	Required. Language that the article is written in.
<code>limit</code>	Optional. Specifies the maximum number of suggested articles to return.
<code>publishStatus</code>	Optional. The article's publication status. Valid values: <ul style="list-style-type: none"> • Draft—Not published • Online—Published in Salesforce Knowledge • Archived

Parameter	Description
subject	Text of the case's subject. Valid only for <code>vXX.X/subjects/Case/suggestedArticles?language=article language&subject=case subject&description=case description</code> and required if <code>description</code> is null. Article suggestions are based on the case's subject, description, or both.
validationStatus	Optional. The validation status of returned articles.

Example for getting suggested articles for a case that's being created

```
curl https://na1.salesforce.com/services/data/v30.0/subjects/Case/suggestedArticles?
language=en_US&subject=orange+banana&articleTypes=ka0&articleTypes=ka1
-H "Authorization: Bearer token"
```

Example JSON response body

```
[ {
  "attributes" : {
    "type" : "KnowledgeArticleVersion",
    "url" : "/services/data/v30.0/subjects/KnowledgeArticleVersion/ka0D00000004CcQ"
  },
  "Id" : "ka0D00000004CcQ"
}, {
  "attributes" : {
    "type" : "KnowledgeArticleVersion",
    "url" : "/services/data/v30.0/subjects/KnowledgeArticleVersion/ka0D00000004CXo"
  },
  "Id" : "ka0D00000004CXo"
} ]
```

Usage

Salesforce Knowledge must be enabled in your organization. The user must have the "View Articles" permission enabled. The articles suggested include only the articles the user can access, based on the data categories and article types the user has permissions to view.

Articles are suggested based on a relevancy algorithm. The `suggestedArticles` resource is designed to get the IDs of articles relevant to a case. It's intended to be used in conjunction with other services that then use the IDs to get article data for display.

SObject User Password

Set, reset, or get information about a user password. This resource is available in REST API version 24.0 and later.

URI

`/vXX.X/subjects/User/user ID/password`

For managing passwords for self-service users, the URI is:

`/vXX.X/subjects/SelfServiceUser/self service user ID/password`

Formats

JSON, XML

HTTP Method

HEAD, GET, POST, DELETE

Authentication`Authorization: Bearer token`**Parameters**

None required

Example

For examples of getting password information, setting a password, and resetting a password, see [Manage User Passwords](#) on page 68.

Considerations

- If the session does not have permission to access the user information, an `INSUFFICIENT_ACCESS` error will be returned.
- When using this resource to set a new password, the new password must conform to the password policies for the organization, otherwise you will get an `INVALID_NEW_PASSWORD` error response.
- You can only set one password per request.
- When you use the `DELETE` method of this resource, Salesforce will reset the user password to an auto-generated password, which will be returned in the response.

AppMenu

Returns a list of items in either the Salesforce app drop-down menu or the Salesforce1 navigation menu.

Syntax

URI

To return a list of the Salesforce app drop-down menu items, the URI is: `/vXX.X/appMenu/AppSwitcher/`

To return a list of the Salesforce1 navigation menu items, the URI is: `/vXX.X/appMenu/Salesforce1/`

Available since release

29.0

Formats

JSON, XML

HTTP methods

GET, HEAD

Authentication`Authorization: Bearer token`**Request body**

None

Request parameters

None required

Example

Getting appMenu types

```
curl https://na1.salesforce.com/services/data/v29.0/appMenu/ -H "Authorization: Bearer token"
```

Example response body for /vXX.X/appMenu/AppSwitcher/

```
{
  "appMenuItems" : [ {
    "type" : "Tabset",
    "content" : null,
    "icons" : null,
    "colors" : null,
    "label" : "Sales",
    "url" : "/home/home.jsp?tsid=02uxx00000056Sq"
  }, {
    "type" : "Tabset",
    "content" : null,
    "icons" : null,
    "colors" : null,
    "label" : "Call Center",
    "url" : "/home/home.jsp?tsid=02uxx00000056Sr"
  }, {
    "type" : "Tabset",
    "content" : null,
    "icons" : null,
    "colors" : null,
    "label" : "Marketing",
    "url" : "/home/home.jsp?tsid=02uxx00000056St"
  }, {
    "type" : "Tabset",
    "content" : null,
    "icons" : null,
    "colors" : null,
    "label" : "Salesforce Chatter",
    "url" : "/home/home.jsp?tsid=02uxx00000056Su"
  }, {
    "type" : "Tabset",
    "content" : null,
    "icons" : null,
    "colors" : null,
    "label" : "Community",
    "url" : "/home/home.jsp?tsid=02uxx00000056Sw"
  }, {
    "type" : "Tabset",
    "content" : null,
    "icons" : null,
    "colors" : null,
    "label" : "App Launcher",
    "url" : "/app/mgmt/applauncher/appLauncher.apexp?tsid=02uxx00000056Sx"
  } ]
}
```

Example response body for /vXX.X/appMenu/Salesforce1/

```
{
  "appMenuItems" : [ {
    "type" : "Standard.Search",
    "content" : null,
    "icons" : null,
    "colors" : null,
    "label" : "Smart Search Items",
    "url" : "/search"
  }, {
    "type" : "Standard.MyDay",
    "content" : null,
    "icons" : null,
    "colors" : null,
    "label" : "Today",
    "url" : "/myDay"
  }, {
    "type" : "Standard.Tasks",
    "content" : null,
    "icons" : null,
    "colors" : null,
    "label" : "Tasks",
    "url" : "/tasks"
  }, {
    "type" : "Standard.Dashboards",
    "content" : null,
    "icons" : null,
    "colors" : null,
    "label" : "Dashboards",
    "url" : "/dashboards"
  }, {
    "type" : "Tab.flexiPage",
    "content" : "MySampleFlexiPage",
    "icons" : [ {
      "contentType" : "image/png",
      "width" : 32,
      "height" : 32,
      "theme" : "theme3",
      "url" : "http://myorg.com/img/icon/custom51_100/bell132.png"
    }, {
      "contentType" : "image/png",
      "width" : 16,
      "height" : 16,
      "theme" : "theme3",
      "url" : "http://myorg.com/img/icon/custom51_100/bell116.png"
    }, {
      "contentType" : "image/svg+xml",
      "width" : 0,
      "height" : 0,
      "theme" : "theme4",
      "url" : "http://myorg.com/img/icon/t4/custom/custom53.svg"
    }, {
      "contentType" : "image/png",
```

```

        "width" : 60,
        "height" : 60,
        "theme" : "theme4",
        "url" : "http://myorg.com/img/icon/t4/custom/custom53_60.png"
    }, {
        "contentType" : "image/png",
        "width" : 120,
        "height" : 120,
        "theme" : "theme4",
        "url" : "http://myorg.com/img/icon/t4/custom/custom53_120.png"
    } ],
    "colors" : [ {
        "context" : "primary",
        "color" : "FC4F59",
        "theme" : "theme4"
    }, {
        "context" : "primary",
        "color" : "FC4F59",
        "theme" : "theme3"
    } ],
    "label" : "My App Home Page",
    "url" : "/servlet/servlet.Integration?lid=01rxx0000000Vsd&ic=1"
}, {
    "type" : "Tab.apexPage",
    "content" : "/apex/myapexpage",
    "icons" : [ {
        "contentType" : "image/png",
        "width" : 32,
        "height" : 32,
        "theme" : "theme3",
        "url" : "http://myorg.com/img/icon/cash32.png"
    }, {
        "contentType" : "image/png",
        "width" : 16,
        "height" : 16,
        "theme" : "theme3",
        "url" : "http://myorg.com/img/icon/cash16.png"
    }, {
        "contentType" : "image/svg+xml",
        "width" : 0,
        "height" : 0,
        "theme" : "theme4",
        "url" : "http://myorg.com/img/icon/t4/custom/custom41.svg"
    }, {
        "contentType" : "image/png",
        "width" : 60,
        "height" : 60,
        "theme" : "theme4",
        "url" : "http://myorg.com/img/icon/t4/custom/custom41_60.png"
    }, {
        "contentType" : "image/png",
        "width" : 120,
        "height" : 120,
        "theme" : "theme4",

```

```

    "url" : "http://myorg.com/img/icon/t4/custom/custom41_120.png"
  } ],
  "colors" : [ {
    "context" : "primary",
    "color" : "3D8D8D",
    "theme" : "theme4"
  }, {
    "context" : "primary",
    "color" : "3D8D8D",
    "theme" : "theme3"
  } ],
  "label" : "label",
  "url" : "/servlet/servlet.Integration?lid=01rxx0000000Vyb&ic=1"
} ]
}

```

Compact Layouts

Returns a list of compact layouts for multiple objects. This resource is available in REST API version 31.0 and later.

This resource returns the primary compact layout for a set of objects. The set of objects is specified using a query parameter. Up to 100 objects can be queried at once.



Note: PersonAccount isn't supported for bulk queries. If you want to get the primary compact layout for PersonAccount, get it directly from

`/services/data/v31.0/objects/Account/describe/compactLayouts/primaryPersonAccount.`

Syntax

URI

`/vXX.X/compactLayouts?q=object list`

Available since release

31.0

Formats

JSON, XML

HTTP methods

GET

Authentication

Authorization: Bearer **token**

Request parameters

Parameter	Description
q	A comma-delimited list of objects. The primary compact layout for each object in this list will be returned in the response of this resource.

Example

Request for getting compact layouts for multiple objects

```
/services/data/v31.0/compactLayouts?q=Account,Contact,CustomObj__c
```

Response for compact layouts for multiple objects

```
{
  "Account" : {
    "actions" : [ {
      "behavior" : null,
      "content" : null,
      "contentSource" : null,
      "custom" : false,
      "encoding" : null,
      "height" : null,
      "icons" : null,
      "label" : "Call",
      "menubar" : false,
      "name" : "CallHighlightAction",
      "overridden" : false,
      "resizeable" : false,
      "scrollbars" : false,
      "showsLocation" : false,
      "showsStatus" : false,
      "toolbar" : false,
      "url" : null,
      "width" : null,
      "windowPosition" : null
    },
    ...
    "id" : "0AHD000000000AbOAI",
    "label" : "Custom Account Compact Layout",
    "name" : "Custom_Account_Compact_Layout"
  },
  "Contact" : {
    "actions" : [ {
      "behavior" : null,
      "content" : null,
      "contentSource" : null,
      "custom" : false,
      "encoding" : null,
      "height" : null,
      "icons" : null,
      "label" : "Call",
      "menubar" : false,
      "name" : "CallHighlightAction",
      "overridden" : false,
      "resizeable" : false,
      "scrollbars" : false,
      "showsLocation" : false,
      "showsStatus" : false,
      "toolbar" : false,
      "url" : null,
```



```

        "width" : null,
        "windowPosition" : null
    },
    ...
    "id" : null,
    "label" : "System Default",
    "name" : "SYSTEM"
}
"CustomObj__c" : {
    "actions" : [ {
        "behavior" : null,
        "content" : null,
        "contentSource" : null,
        "custom" : false,
        "encoding" : null,
        "height" : null,
        "icons" : null,
        "label" : "Call",
        "menubar" : false,
        "name" : "CallHighlightAction",
        "overridden" : false,
        "resizeable" : false,
        "scrollbars" : false,
        "showsLocation" : false,
        "showsStatus" : false,
        "toolbar" : false,
        "url" : null,
        "width" : null,
        "windowPosition" : null
    },
    ...
    "id" : null,
    "imageItems" : null,
    "label" : "System Default",
    "name" : "SYSTEM"
}
}

```

FlexiPage

Returns a list of Lightning Pages and their details. Information returned includes Lightning Page regions, the components within each region, and each component's properties, as well as any associated QuickActions. This resource is available in API version 29.0 and later.



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

Syntax

URI

To return all the details of a Lightning Page, use `/vXX.X/flexiPage/ID of Lightning Page`.

Formats

JSON, XML

HTTP methods

HEAD, GET

AuthenticationAuthorization: Bearer *token***Parameters**

None required

Example

Getting root Lightning Page resource

```
curl https://na1.salesforce.com/services/data/v29.0/flexiPage/ -H "Authorization: Bearer token"
```

Getting a Lightning Page whose name is Deliveries

```
curl https://na1.salesforce.com/services/data/v29.0/flexiPage/Deliveries -H "Authorization: Bearer token"
```

Example request body for /vXX.X/flexiPage/

none required

Example response body for /vXX.X/flexiPage/

```
{
  "urls" : {
    "flexiPage" : "/services/data/v29.0/flexiPage",
    "rowTemplate" : "/services/data/v29.0/flexiPage/{Developer Name of FlexiPage}"
  }
}
```

Example request body for /vXX.X/flexiPage/{Developer Name of FlexiPage}

none required

Example response body for /vXX.X/flexiPage/{Developer Name of FlexiPage}

Note: This code example contains quickActionList information. To find out more about quick actions in the REST API, see [Quick Actions](#) and [SOBJect Quick Actions](#).

```
[ {
  "id" : "0M0xx0000000049CAA",
  "name" : "Deliveries",
  "label" : "Deliveries",
  "type" : "AppPage",
  "regions" : [ {
    "name" : "main",
    "components" : [ {
      "properties" : [ {
        "name" : "filterName",
        "value" : "Todays_Deliveries"
      }, {
        "name" : "entityName",
```

```

        "value" : "Delivery__c"
    } ],
    "typeName" : "filterListCard",
    "typeNamespace" : "flexipage"
}, {
    "properties" : [ {
        "name" : "entityNames",
        "value" : "Delivery__c,Return_Item__c"
    } ],
    "typeName" : "recentItems",
    "typeNamespace" : "flexipage"
} ]
} ],
"quickActionList" : {
    "quickActionListItems" : [ {
        "quickActionName" : "New_Delivery",
        "type" : "Create",
        "colors" : [ {
            "color" : "e1be5c",
            "theme" : "theme4",
            "context" : "primary"
        }, {
            "color" : "AA8E0A",
            "theme" : "theme3",
            "context" : "primary"
        } ],
        "accessLevelRequired" : null,
        "globalAction" : true,
        "miniIconUrl" :
"http://{SALESFORCE-APPSERVER-DOMAIN}/img/icon/custom51_100/truck16.png",
        "label" : "New Delivery",
        "urls" : {
            "defaultValuesTemplate" :
"/services/data/v29.0/quickActions/New_Delivery/defaultValues/{ID}",
            "quickAction" : "/services/data/v29.0/quickActions/New_Delivery",
            "defaultValues" : "/services/data/v29.0/quickActions/New_Delivery/defaultValues",

            "describe" : "/services/data/v29.0/quickActions/New_Delivery/describe"
        },
        "targetSubjectType" : "Delivery__c",
        "iconUrl" :
"http://{SALESFORCE-APPSERVER-DOMAIN}/img/icon/custom51_100/truck32.png",
        "icons" : [ {
            "url" : "http://{SALESFORCE-APPSERVER-DOMAIN}/img/icon/custom51_100/truck32.png",

            "contentType" : "image/png",
            "theme" : "theme3",
            "height" : 32,
            "width" : 32
        }, {
            "url" : "http://{SALESFORCE-APPSERVER-DOMAIN}/img/icon/custom51_100/truck16.png",

            "contentType" : "image/png",
            "theme" : "theme3",

```

```

        "height" : 16,
        "width" : 16
      }, {
        "url" : "http://{SALESFORCE-APPSERVER-DOMAIN}/img/icon/t4/custom/custom98.svg",

        "contentType" : "image/svg+xml",
        "theme" : "theme4",
        "height" : 0,
        "width" : 0
      }, {
        "url" : "http://{SALESFORCE-APPSERVER-DOMAIN}/img/icon/t4/custom/custom98_60.png",

        "contentType" : "image/png",
        "theme" : "theme4",
        "height" : 60,
        "width" : 60
      }, {
        "url" :
"http://{SALESFORCE-APPSERVER-DOMAIN}/img/icon/t4/custom/custom98_120.png",
        "contentType" : "image/png",
        "theme" : "theme4",
        "height" : 120,
        "width" : 120
      } ]
    } ]
  }
} ]

```

In the code sample above:

- **name**—the name of the region
- **components**—an array of Lightning components in the region
- **properties**—an array of properties for the component
- **typeName**—the name of the Lightning component
- **typeNameSpace**—the namespace of the Lightning component

Invocable Actions

Represents an invocable action.

This resource is available in REST API version 32.0 and later.

Syntax

URI

Get a list of custom actions:

/vXX.X/actions

Formats

JSON, XML

HTTP Methods

GET

AuthenticationAuthorization: Bearer *token***Parameters**

None

Example

Retrieving a list of general action types for the current organization:

```
/services/data/v32.0/actions
```

JSON Response body

```
{
  "standard" : "/services/data/v32.0/actions/standard"
  "custom" : "/services/data/v32.0/actions/custom",
}
```

Standard Invocable Actions

Returns the list of actions that can be statically invoked. You can also get basic information for each type of action.

This resource is available in REST API version 32.0 and later.

Syntax

URI

Get a list of standard actions:

```
/vXX.X/actions/standard
```

Formats

JSON, XML

HTTP Methods

GET, HEAD, POST

AuthenticationAuthorization: Bearer *token***Parameters**

None

Notes

The Post to Chatter action supports the following features using a special format in the body post.

- @mentions using @[<id>]
- Topics using #[<topicString>]

For example, the string `Hi @[0050000000000001] check this out #[some_topic].` is stored appropriately as `Hi @Joe, check this out #some_topic.` where “@Joe” and “#some_topic” are links to the user and topic, respectively.

Examples

Retrieving a list of standard actions for the current organization

```
/services/data/v32.0/actions/standard
```

JSON Response body

```
{
  "actions" : [ {
    "label" : "Submit for Approval",
    "name" : "submit",
    "type" : "SUBMITAPPROVAL"
  }, {
    "label" : "Post to Chatter",
    "name" : "chatterPost",
    "type" : "CHATTERPOST" },
  {
    "label" : "Send Email",
    "name" : "emailSimple",
    "type" : "EMAILSIMPLE"
  } ]
}
```

Get the attributes of a single standard action, for example, `emailSimple`

```
/services/data/v32.0/actions/standard/emailSimple
```

JSON Response body

```
{
  "description" : "Send an email where you specify the subject, body, and recipients.",
  "inputs" : [ {
    "byteLength" : 0,
    "description" : "Optional. The email recipients specified as a comma-separated list.",
    "label" : "Email Addresses (comma-separated)",
    "maxOccurs" : 1,
    "name" : "emailAddresses",
    "picklistValues" : null,
    "required" : false,
    "subjectType" : null,
    "type" : "STRING"
  }, {
    "byteLength" : 0,
    "description" : "Optional. The email recipients specified as a collection of Strings.",
    "label" : "Email Addresses (collection)",
    "maxOccurs" : 5,
    "name" : "emailAddressesArray",
    "picklistValues" : null,
    "required" : false,
    "subjectType" : null,
    "type" : "STRING"
  }, {
    "byteLength" : 0,
    "description" : "Optional. Who the email is from. Defaults to the current user.",
```

```

    "label" : "Sender Type",
    "maxOccurs" : 1,
    "name" : "senderType",
    "picklistValues" : null,
    "required" : false,
    "sobjectType" : null,
    "type" : "STRING"
  }, {
    "byteLength" : 0,
    "description" : "Required. The email's subject.",
    "label" : "Subject",
    "maxOccurs" : 1,
    "name" : "emailSubject",
    "picklistValues" : null,
    "required" : true,
    "sobjectType" : null,
    "type" : "STRING"
  }, {
    "byteLength" : 0,
    "description" : "Required. The body of the email in plain text.",
    "label" : "Body",
    "maxOccurs" : 1,
    "name" : "emailBody",
    "picklistValues" : null,
    "required" : true,
    "sobjectType" : null,
    "type" : "TEXTAREA"
  } ],
  "label" : "Send Email",
  "name" : "emailSimple",
  "outputs" : [ ],
  "standard" : true,
  "targetEntityName" : null,
  "type" : "EMAILSIMPLE"
}

```

Custom Invocable Actions

Returns the list of all custom actions. You can also get basic information for each type of action.

This resource is available in REST API version 32.0 and later.

Syntax

URI

Get a list of custom actions:

/vXX.X/actions/custom

Formats

JSON, XML

HTTP Methods

GET, HEAD, POST

Authentication

Authorization: Bearer *token*

Parameters

None

Notes

Sending email with the emailAlert action counts against your daily email limit for workflows. For more information, see “Daily Limits for Workflow Emails” in the Salesforce Help.

When invoking an Apex action using the POST method and supplying the inputs in the request, only the following primitive types are supported as inputs:

- Blob
- Boolean
- Date
- Datetime
- Decimal
- Double
- ID
- Integer
- Long
- String
- Time

Describe and invoke for an Apex action respect the profile access for the Apex class. An error is issued if you don't have access.

If you add an Apex action to a flow, and then remove the Invocable Method annotation from the Apex class, you'll get a runtime error in the flow.

When a flow user invokes an autolaunched flow, the active flow version is run. If there's no active version, the latest version is run. When a flow admin invokes an autolaunched flow, the latest version is always run.

If any of the following elements are used in a flow, packageable components that reference these elements aren't automatically included in the package.

- Apex
- Email alerts
- Post to Chatter
- Quick Actions
- Send Email
- Submit for Approval

For example, if you use an email alert, you must manually add the email template that is used by that email alert. To deploy the package successfully, manually add those referenced components to the package.

Describe and invoke for an Apex action respect the profile access for the Apex class. An error is issued if you don't have access.

Example

Retrieving a list of custom actions for the current organization:

```
/services/data/v33.0/actions/custom
```


JSON Response body

```
{
  "quickAction" : "/services/data/v33.0/actions/custom/quickAction",
  "apex" : "/services/data/v33.0/actions/custom/apex",
  "emailAlert" : "/services/data/v33.0/actions/custom/emailAlert",
  "flow" : "/services/data/v33.0/actions/custom/flow"
}
```

List View Describe

Returns detailed information about a list view, including the ID, the columns, and the SOQL query.

This resource is available in REST API version 32.0 and later.

URI

/vXX.X/objects/{objectType}/listviews/{queryLocator}/describe

Formats

JSON, XML

HTTP Method

GET

Authentication

Authorization: Bearer *token*

Parameters

None

**Example:****Retrieving information about a list view**

```
curl
https://na1.salesforce.com/services/data/v32.0/objects/Account/listviews/00BD0000005WcBeMAK/describe
-H "Authorization: Bearer token"
```

JSON Response body

```
{
  "columns" : [ {
    "ascendingLabel" : "Z-A",
    "descendingLabel" : "A-Z",
    "fieldNameOrPath" : "Name",
    "hidden" : false,
    "label" : "Account Name",
    "selectListItem" : "Name",
    "sortDirection" : "ascending",
    "sortIndex" : 0,
    "sortable" : true,
    "type" : "string"
  }, {
    "ascendingLabel" : "Z-A",
    "descendingLabel" : "A-Z",
    "fieldNameOrPath" : "Site",
    "hidden" : false,
```

```

    "label" : "Account Site",
    "selectListItem" : "Site",
    "sortDirection" : null,
    "sortIndex" : null,
    "sortable" : true,
    "type" : "string"
  }, {
    "ascendingLabel" : "Z-A",
    "descendingLabel" : "A-Z",
    "fieldNameOrPath" : "BillingState",
    "hidden" : false,
    "label" : "Billing State/Province",
    "selectListItem" : "BillingState",
    "sortDirection" : null,
    "sortIndex" : null,
    "sortable" : true,
    "type" : "string"
  }, {
    "ascendingLabel" : "9-0",
    "descendingLabel" : "0-9",
    "fieldNameOrPath" : "Phone",
    "hidden" : false,
    "label" : "Phone",
    "selectListItem" : "Phone",
    "sortDirection" : null,
    "sortIndex" : null,
    "sortable" : true,
    "type" : "phone"
  }, {
    "ascendingLabel" : "Low to High",
    "descendingLabel" : "High to Low",
    "fieldNameOrPath" : "Type",
    "hidden" : false,
    "label" : "Type",
    "selectListItem" : "toLabel(Type)",
    "sortDirection" : null,
    "sortIndex" : null,
    "sortable" : true,
    "type" : "picklist"
  }, {
    "ascendingLabel" : "Z-A",
    "descendingLabel" : "A-Z",
    "fieldNameOrPath" : "Owner.Alias",
    "hidden" : false,
    "label" : "Account Owner Alias",
    "selectListItem" : "Owner.Alias",
    "sortDirection" : null,
    "sortIndex" : null,
    "sortable" : true,
    "type" : "string"
  }, {
    "ascendingLabel" : null,
    "descendingLabel" : null,
    "fieldNameOrPath" : "Id",

```

```

    "hidden" : true,
    "label" : "Account ID",
    "selectListItem" : "Id",
    "sortDirection" : null,
    "sortIndex" : null,
    "sortable" : false,
    "type" : "id"
  }, {
    "ascendingLabel" : null,
    "descendingLabel" : null,
    "fieldNameOrPath" : "CreatedDate",
    "hidden" : true,
    "label" : "Created Date",
    "selectListItem" : "CreatedDate",
    "sortDirection" : null,
    "sortIndex" : null,
    "sortable" : false,
    "type" : "datetime"
  }, {
    "ascendingLabel" : null,
    "descendingLabel" : null,
    "fieldNameOrPath" : "LastModifiedDate",
    "hidden" : true,
    "label" : "Last Modified Date",
    "selectListItem" : "LastModifiedDate",
    "sortDirection" : null,
    "sortIndex" : null,
    "sortable" : false,
    "type" : "datetime"
  }, {
    "ascendingLabel" : null,
    "descendingLabel" : null,
    "fieldNameOrPath" : "SystemModstamp",
    "hidden" : true,
    "label" : "System Modstamp",
    "selectListItem" : "SystemModstamp",
    "sortDirection" : null,
    "sortIndex" : null,
    "sortable" : false,
    "type" : "datetime"
  } ],
  "id" : "00BD0000005WcBe",
  "orderBy" : [ {
    "fieldNameOrPath" : "Name",
    "nullsPosition" : "first",
    "sortDirection" : "ascending"
  }, {
    "fieldNameOrPath" : "Id",
    "nullsPosition" : "first",
    "sortDirection" : "ascending"
  } ],
  "query" : "SELECT name, site, billingstate, phone, tolabel(type), owner.alias,
id, createddate, lastmodifieddate, systemmodstamp FROM Account WHERE CreatedDate =
THIS_WEEK ORDER BY Name ASC NULLS FIRST, Id ASC NULLS FIRST",

```

```
"scope" : null,
"sojectType" : "Account",
"whereCondition" : {
  "field" : "CreatedDate",
  "operator" : "equals",
  "values" : [ "THIS_WEEK" ]
}
}
```

List View Results

Executes the SOQL query for the list view and returns the resulting data and presentation information.

This resource is available in REST API version 32.0 and later.

URI

/vXX.X/objects/{sojectType}/listviews/{listViewID}/results

Formats

JSON, XML

HTTP Method

GET

Authentication

Authorization: Bearer *token*

Parameters

None

Example:

Retrieving results from a specific list view

```
curl
https://na1.salesforce.com/services/data/v32.0/objects/Account/listviews/00BD0000005WcCNMA0/results
-H "Authorization: Bearer token"
```

JSON Response body

```
{
  "columns" : [ {
    "ascendingLabel" : "Z-A",
    "descendingLabel" : "A-Z",
    "fieldNameOrPath" : "Name",
    "hidden" : false,
    "label" : "Account Name",
    "selectListItem" : "Name",
    "sortDirection" : "ascending",
    "sortIndex" : 0,
    "sortable" : true,
    "type" : "string"
  }, {
    "ascendingLabel" : "Z-A",
    "descendingLabel" : "A-Z",
    "fieldNameOrPath" : "Site",
```

```

    "hidden" : false,
    "label" : "Account Site",
    "selectListItem" : "Site",
    "sortDirection" : null,
    "sortIndex" : null,
    "sortable" : true,
    "type" : "string"
  }, {
    "ascendingLabel" : "Z-A",
    "descendingLabel" : "A-Z",
    "fieldNameOrPath" : "BillingState",
    "hidden" : false,
    "label" : "Billing State/Province",
    "selectListItem" : "BillingState",
    "sortDirection" : null,
    "sortIndex" : null,
    "sortable" : true,
    "type" : "string"
  }, {
    "ascendingLabel" : "9-0",
    "descendingLabel" : "0-9",
    "fieldNameOrPath" : "Phone",
    "hidden" : false,
    "label" : "Phone",
    "selectListItem" : "Phone",
    "sortDirection" : null,
    "sortIndex" : null,
    "sortable" : true,
    "type" : "phone"
  }, {
    "ascendingLabel" : "Low to High",
    "descendingLabel" : "High to Low",
    "fieldNameOrPath" : "Type",
    "hidden" : false,
    "label" : "Type",
    "selectListItem" : "toLabel(Type)",
    "sortDirection" : null,
    "sortIndex" : null,
    "sortable" : true,
    "type" : "picklist"
  }, {
    "ascendingLabel" : "Z-A",
    "descendingLabel" : "A-Z",
    "fieldNameOrPath" : "Owner.Alias",
    "hidden" : false,
    "label" : "Account Owner Alias",
    "selectListItem" : "Owner.Alias",
    "sortDirection" : null,
    "sortIndex" : null,
    "sortable" : true,
    "type" : "string"
  }, {
    "ascendingLabel" : null,
    "descendingLabel" : null,

```

```

    "fieldNameOrPath" : "Id",
    "hidden" : true,
    "label" : "Account ID",
    "selectListItem" : "Id",
    "sortDirection" : null,
    "sortIndex" : null,
    "sortable" : false,
    "type" : "id"
  }, {
    "ascendingLabel" : null,
    "descendingLabel" : null,
    "fieldNameOrPath" : "CreatedDate",
    "hidden" : true,
    "label" : "Created Date",
    "selectListItem" : "CreatedDate",
    "sortDirection" : null,
    "sortIndex" : null,
    "sortable" : false,
    "type" : "datetime"
  }, {
    "ascendingLabel" : null,
    "descendingLabel" : null,
    "fieldNameOrPath" : "LastModifiedDate",
    "hidden" : true,
    "label" : "Last Modified Date",
    "selectListItem" : "LastModifiedDate",
    "sortDirection" : null,
    "sortIndex" : null,
    "sortable" : false,
    "type" : "datetime"
  }, {
    "ascendingLabel" : null,
    "descendingLabel" : null,
    "fieldNameOrPath" : "SystemModstamp",
    "hidden" : true,
    "label" : "System Modstamp",
    "selectListItem" : "SystemModstamp",
    "sortDirection" : null,
    "sortIndex" : null,
    "sortable" : false,
    "type" : "datetime"
  } ],
  "developerName" : "MyAccounts",
  "done" : true,
  "id" : "00BD0000005WcCN",
  "label" : "My Accounts",
  "records" : [ {
    "columns" : [ {
      "fieldNameOrPath" : "Name",
      "value" : "Burlington Textiles Corp of America"
    }, {
      "fieldNameOrPath" : "Site",
      "value" : null
    }, {

```

```

    "fieldNameOrPath" : "BillingState",
    "value" : "NC"
  }, {
    "fieldNameOrPath" : "Phone",
    "value" : "(336) 222-7000"
  }, {
    "fieldNameOrPath" : "Type",
    "value" : "Customer - Direct"
  }, {
    "fieldNameOrPath" : "Owner.Alias",
    "value" : "TUser"
  }, {
    "fieldNameOrPath" : "Id",
    "value" : "001D000000JliSTIAZ"
  }, {
    "fieldNameOrPath" : "CreatedDate",
    "value" : "Fri Aug 01 21:15:46 GMT 2014"
  }, {
    "fieldNameOrPath" : "LastModifiedDate",
    "value" : "Fri Aug 01 21:15:46 GMT 2014"
  }, {
    "fieldNameOrPath" : "SystemModstamp",
    "value" : "Fri Aug 01 21:15:46 GMT 2014"
  } ]
}, {
  "columns" : [ {
    "fieldNameOrPath" : "Name",
    "value" : "Dickenson plc"
  }, {
    "fieldNameOrPath" : "Site",
    "value" : null
  }, {
    "fieldNameOrPath" : "BillingState",
    "value" : "KS"
  }, {
    "fieldNameOrPath" : "Phone",
    "value" : "(785) 241-6200"
  }, {
    "fieldNameOrPath" : "Type",
    "value" : "Customer - Channel"
  }, {
    "fieldNameOrPath" : "Owner.Alias",
    "value" : "TUser"
  }, {
    "fieldNameOrPath" : "Id",
    "value" : "001D000000JliSVIAZ"
  }, {
    "fieldNameOrPath" : "CreatedDate",
    "value" : "Fri Aug 01 21:15:46 GMT 2014"
  }, {
    "fieldNameOrPath" : "LastModifiedDate",
    "value" : "Fri Aug 01 21:15:46 GMT 2014"
  }, {
    "fieldNameOrPath" : "SystemModstamp",

```

```

      "value" : "Fri Aug 01 21:15:46 GMT 2014"
    } ]
  }, {
    "columns" : [ {
      "fieldNameOrPath" : "Name",
      "value" : "Edge Communications"
    }, {
      "fieldNameOrPath" : "Site",
      "value" : null
    }, {
      "fieldNameOrPath" : "BillingState",
      "value" : "TX"
    }, {
      "fieldNameOrPath" : "Phone",
      "value" : "(512) 757-6000"
    }, {
      "fieldNameOrPath" : "Type",
      "value" : "Customer - Direct"
    }, {
      "fieldNameOrPath" : "Owner.Alias",
      "value" : "TUser"
    }, {
      "fieldNameOrPath" : "Id",
      "value" : "001D000000JlISSIAZ"
    }, {
      "fieldNameOrPath" : "CreatedDate",
      "value" : "Fri Aug 01 21:15:46 GMT 2014"
    }, {
      "fieldNameOrPath" : "LastModifiedDate",
      "value" : "Fri Aug 01 21:15:46 GMT 2014"
    }, {
      "fieldNameOrPath" : "SystemModstamp",
      "value" : "Fri Aug 01 21:15:46 GMT 2014"
    } ]
  }, {
    "columns" : [ {
      "fieldNameOrPath" : "Name",
      "value" : "Express Logistics and Transport"
    }, {
      "fieldNameOrPath" : "Site",
      "value" : null
    }, {
      "fieldNameOrPath" : "BillingState",
      "value" : "OR"
    }, {
      "fieldNameOrPath" : "Phone",
      "value" : "(503) 421-7800"
    }, {
      "fieldNameOrPath" : "Type",
      "value" : "Customer - Channel"
    }, {
      "fieldNameOrPath" : "Owner.Alias",
      "value" : "TUser"
    }, {

```



```

      "fieldNameOrPath" : "Id",
      "value" : "001D000000JliSXIAZ"
    }, {
      "fieldNameOrPath" : "CreatedDate",
      "value" : "Fri Aug 01 21:15:46 GMT 2014"
    }, {
      "fieldNameOrPath" : "LastModifiedDate",
      "value" : "Fri Aug 01 21:15:46 GMT 2014"
    }, {
      "fieldNameOrPath" : "SystemModstamp",
      "value" : "Fri Aug 01 21:15:46 GMT 2014"
    } ]
  }, {
    "columns" : [ {
      "fieldNameOrPath" : "Name",
      "value" : "GenePoint"
    }, {
      "fieldNameOrPath" : "Site",
      "value" : null
    }, {
      "fieldNameOrPath" : "BillingState",
      "value" : "CA"
    }, {
      "fieldNameOrPath" : "Phone",
      "value" : "(650) 867-3450"
    }, {
      "fieldNameOrPath" : "Type",
      "value" : "Customer - Channel"
    }, {
      "fieldNameOrPath" : "Owner.Alias",
      "value" : "TUser"
    }, {
      "fieldNameOrPath" : "Id",
      "value" : "001D000000JliSPIAZ"
    }, {
      "fieldNameOrPath" : "CreatedDate",
      "value" : "Fri Aug 01 21:15:46 GMT 2014"
    }, {
      "fieldNameOrPath" : "LastModifiedDate",
      "value" : "Fri Aug 01 21:15:46 GMT 2014"
    }, {
      "fieldNameOrPath" : "SystemModstamp",
      "value" : "Fri Aug 01 21:15:46 GMT 2014"
    } ]
  }, {
    "columns" : [ {
      "fieldNameOrPath" : "Name",
      "value" : "Grand Hotels and Resorts Ltd"
    }, {
      "fieldNameOrPath" : "Site",
      "value" : null
    }, {
      "fieldNameOrPath" : "BillingState",
      "value" : "IL"
    } ]
  }

```

```

    }, {
      "fieldNameOrPath" : "Phone",
      "value" : "(312) 596-1000"
    }, {
      "fieldNameOrPath" : "Type",
      "value" : "Customer - Direct"
    }, {
      "fieldNameOrPath" : "Owner.Alias",
      "value" : "TUser"
    }, {
      "fieldNameOrPath" : "Id",
      "value" : "001D000000JliSWIAZ"
    }, {
      "fieldNameOrPath" : "CreatedDate",
      "value" : "Fri Aug 01 21:15:46 GMT 2014"
    }, {
      "fieldNameOrPath" : "LastModifiedDate",
      "value" : "Fri Aug 01 21:15:46 GMT 2014"
    }, {
      "fieldNameOrPath" : "SystemModstamp",
      "value" : "Fri Aug 01 21:15:46 GMT 2014"
    } ]
  }, {
    "columns" : [ {
      "fieldNameOrPath" : "Name",
      "value" : "Pyramid Construction Inc."
    }, {
      "fieldNameOrPath" : "Site",
      "value" : null
    }, {
      "fieldNameOrPath" : "BillingState",
      "value" : null
    }, {
      "fieldNameOrPath" : "Phone",
      "value" : "(014) 427-4427"
    }, {
      "fieldNameOrPath" : "Type",
      "value" : "Customer - Channel"
    }, {
      "fieldNameOrPath" : "Owner.Alias",
      "value" : "TUser"
    }, {
      "fieldNameOrPath" : "Id",
      "value" : "001D000000JliSUIAZ"
    }, {
      "fieldNameOrPath" : "CreatedDate",
      "value" : "Fri Aug 01 21:15:46 GMT 2014"
    }, {
      "fieldNameOrPath" : "LastModifiedDate",
      "value" : "Fri Aug 01 21:15:46 GMT 2014"
    }, {
      "fieldNameOrPath" : "SystemModstamp",
      "value" : "Fri Aug 01 21:15:46 GMT 2014"
    } ]
  } ]

```

```

}, {
  "columns" : [ {
    "fieldNameOrPath" : "Name",
    "value" : "sForce"
  }, {
    "fieldNameOrPath" : "Site",
    "value" : null
  }, {
    "fieldNameOrPath" : "BillingState",
    "value" : "CA"
  }, {
    "fieldNameOrPath" : "Phone",
    "value" : "(415) 901-7000"
  }, {
    "fieldNameOrPath" : "Type",
    "value" : null
  }, {
    "fieldNameOrPath" : "Owner.Alias",
    "value" : "TUser"
  }, {
    "fieldNameOrPath" : "Id",
    "value" : "001D000000JliSaIAJ"
  }, {
    "fieldNameOrPath" : "CreatedDate",
    "value" : "Fri Aug 01 21:15:46 GMT 2014"
  }, {
    "fieldNameOrPath" : "LastModifiedDate",
    "value" : "Fri Aug 01 21:15:46 GMT 2014"
  }, {
    "fieldNameOrPath" : "SystemModstamp",
    "value" : "Fri Aug 01 21:15:46 GMT 2014"
  } ]
}, {
  "columns" : [ {
    "fieldNameOrPath" : "Name",
    "value" : "United Oil and Gas Corp."
  }, {
    "fieldNameOrPath" : "Site",
    "value" : null
  }, {
    "fieldNameOrPath" : "BillingState",
    "value" : "NY"
  }, {
    "fieldNameOrPath" : "Phone",
    "value" : "(212) 842-5500"
  }, {
    "fieldNameOrPath" : "Type",
    "value" : "Customer - Direct"
  }, {
    "fieldNameOrPath" : "Owner.Alias",
    "value" : "TUser"
  }, {
    "fieldNameOrPath" : "Id",
    "value" : "001D000000JliSZIAZ"
  } ]
}

```

```

    }, {
      "fieldNameOrPath" : "CreatedDate",
      "value" : "Fri Aug 01 21:15:46 GMT 2014"
    }, {
      "fieldNameOrPath" : "LastModifiedDate",
      "value" : "Fri Aug 01 21:15:46 GMT 2014"
    }, {
      "fieldNameOrPath" : "SystemModstamp",
      "value" : "Fri Aug 01 21:15:46 GMT 2014"
    } ]
  }, {
    "columns" : [ {
      "fieldNameOrPath" : "Name",
      "value" : "United Oil and Gas, Singapore"
    }, {
      "fieldNameOrPath" : "Site",
      "value" : null
    }, {
      "fieldNameOrPath" : "BillingState",
      "value" : "Singapore"
    }, {
      "fieldNameOrPath" : "Phone",
      "value" : "(650) 450-8810"
    }, {
      "fieldNameOrPath" : "Type",
      "value" : "Customer - Direct"
    }, {
      "fieldNameOrPath" : "Owner.Alias",
      "value" : "TUser"
    }, {
      "fieldNameOrPath" : "Id",
      "value" : "001D000000JliSRIAZ"
    }, {
      "fieldNameOrPath" : "CreatedDate",
      "value" : "Fri Aug 01 21:15:46 GMT 2014"
    }, {
      "fieldNameOrPath" : "LastModifiedDate",
      "value" : "Fri Aug 01 21:15:46 GMT 2014"
    }, {
      "fieldNameOrPath" : "SystemModstamp",
      "value" : "Fri Aug 01 21:15:46 GMT 2014"
    } ]
  }, {
    "columns" : [ {
      "fieldNameOrPath" : "Name",
      "value" : "United Oil and Gas, UK"
    }, {
      "fieldNameOrPath" : "Site",
      "value" : null
    }, {
      "fieldNameOrPath" : "BillingState",
      "value" : "UK"
    }, {
      "fieldNameOrPath" : "Phone",

```

```

    "value" : "+44 191 4956203"
  }, {
    "fieldNameOrPath" : "Type",
    "value" : "Customer - Direct"
  }, {
    "fieldNameOrPath" : "Owner.Alias",
    "value" : "TUser"
  }, {
    "fieldNameOrPath" : "Id",
    "value" : "001D000000JliSQIAZ"
  }, {
    "fieldNameOrPath" : "CreatedDate",
    "value" : "Fri Aug 01 21:15:46 GMT 2014"
  }, {
    "fieldNameOrPath" : "LastModifiedDate",
    "value" : "Fri Aug 01 21:15:46 GMT 2014"
  }, {
    "fieldNameOrPath" : "SystemModstamp",
    "value" : "Fri Aug 01 21:15:46 GMT 2014"
  } ]
}, {
  "columns" : [ {
    "fieldNameOrPath" : "Name",
    "value" : "University of Arizona"
  }, {
    "fieldNameOrPath" : "Site",
    "value" : null
  }, {
    "fieldNameOrPath" : "BillingState",
    "value" : "AZ"
  }, {
    "fieldNameOrPath" : "Phone",
    "value" : "(520) 773-9050"
  }, {
    "fieldNameOrPath" : "Type",
    "value" : "Customer - Direct"
  }, {
    "fieldNameOrPath" : "Owner.Alias",
    "value" : "TUser"
  }, {
    "fieldNameOrPath" : "Id",
    "value" : "001D000000JliSYIAZ"
  }, {
    "fieldNameOrPath" : "CreatedDate",
    "value" : "Fri Aug 01 21:15:46 GMT 2014"
  }, {
    "fieldNameOrPath" : "LastModifiedDate",
    "value" : "Fri Aug 01 21:15:46 GMT 2014"
  }, {
    "fieldNameOrPath" : "SystemModstamp",
    "value" : "Fri Aug 01 21:15:46 GMT 2014"
  } ]
} ],

```

```
"size" : 12
}
```

List Views

Returns the list of list views for the specified sObject, including the ID and other basic information about each list view. You can also get basic information for a specific list view by ID.

This resource is available in REST API version 32.0 and later.

URI

Get a list of list views:

`/vXX.X/objects/{objectType}/listviews`

Get basic information about one list view:

`/vXX.X/objects/{objectType}/listviews/{listViewID}`

Available since release

31.0

Formats

JSON, XML

HTTP Methods

GET

Authentication

Authorization: Bearer *token*

Parameters

None

Example:

Retrieving a list of list views for the Account object

```
curl https://na1.salesforce.com/services/data/v32.0/objects/Account/listviews -H
"Authorization: Bearer token"
```

JSON Response body

```
{
  "done" : true,
  "listviews" : [ {
    "describeUrl" :
"/services/data/v32.0/objects/Account/listviews/00BD0000005WcBeMAK/describe",
    "developerName" : "NewThisWeek",
    "id" : "00BD0000005WcBeMAK",
    "label" : "New This Week",
    "resultsUrl" :
"/services/data/v32.0/objects/Account/listviews/00BD0000005WcBeMAK/results",
    "soqlCompatible" : true,
    "url" : "/services/data/v32.0/objects/Account/listviews/00BD0000005WcBeMAK"
  }, {
    "describeUrl" :
"/services/data/v32.0/objects/Account/listviews/00BD0000005WcBpMAK/describe",
```

```

    "developerName" : "NewLastWeek",
    "id" : "00BD0000005WcBpMAK",
    "label" : "New Last Week",
    "resultsUrl" :
"/services/data/v32.0/subjects/Account/listviews/00BD0000005WcBpMAK/results",
    "soqlCompatible" : true,
    "url" : "/services/data/v32.0/subjects/Account/listviews/00BD0000005WcBpMAK"
  }, {
    "describeUrl" :
"/services/data/v32.0/subjects/Account/listviews/00BD0000005WcC6MAK/describe",
    "developerName" : "PlatinumandGoldSLACustomers",
    "id" : "00BD0000005WcC6MAK",
    "label" : "Platinum and Gold SLA Customers",
    "resultsUrl" :
"/services/data/v32.0/subjects/Account/listviews/00BD0000005WcC6MAK/results",
    "soqlCompatible" : true,
    "url" : "/services/data/v32.0/subjects/Account/listviews/00BD0000005WcC6MAK"
  }, {
    "describeUrl" :
"/services/data/v32.0/subjects/Account/listviews/00BD0000005WcCEMA0/describe",
    "developerName" : "RecentlyViewedAccounts",
    "id" : "00BD0000005WcCEMA0",
    "label" : "Recently Viewed Accounts",
    "resultsUrl" :
"/services/data/v32.0/subjects/Account/listviews/00BD0000005WcCEMA0/results",
    "soqlCompatible" : true,
    "url" : "/services/data/v32.0/subjects/Account/listviews/00BD0000005WcCEMA0"
  }, {
    "describeUrl" :
"/services/data/v32.0/subjects/Account/listviews/00BD0000005WcCFMA0/describe",
    "developerName" : "AllAccounts",
    "id" : "00BD0000005WcCFMA0",
    "label" : "All Accounts",
    "resultsUrl" :
"/services/data/v32.0/subjects/Account/listviews/00BD0000005WcCFMA0/results",
    "soqlCompatible" : true,
    "url" : "/services/data/v32.0/subjects/Account/listviews/00BD0000005WcCFMA0"
  }, {
    "describeUrl" :
"/services/data/v32.0/subjects/Account/listviews/00BD0000005WcCNMA0/describe",
    "developerName" : "MyAccounts",
    "id" : "00BD0000005WcCNMA0",
    "label" : "My Accounts",
    "resultsUrl" :
"/services/data/v32.0/subjects/Account/listviews/00BD0000005WcCNMA0/results",
    "soqlCompatible" : true,
    "url" : "/services/data/v32.0/subjects/Account/listviews/00BD0000005WcCNMA0"
  } ],
  "nextRecordsUrl" : null,
  "size" : 6,
  "subjectType" : "Account"
}

```

Retrieving basic information about one list view

Use the ID of a list view to get basic information about a specific list view.

```
curl
https://na1.salesforce.com/services/data/v32.0/subjects/Account/listviews/00BD0000005WcBeMAK
-H "Authorization: Bearer token"
```

JSON Response body

```
{
  "describeUrl" :
"/services/data/v32.0/subjects/Account/listviews/00BD0000005WcBeMAK/describe",
  "developerName" : "NewThisWeek",
  "id" : "00BD0000005WcBeMAK",
  "label" : "New This Week",
  "resultsUrl" :
"/services/data/v32.0/subjects/Account/listviews/00BD0000005WcBeMAK/results",
  "soqlCompatible" : true,
  "url" : "/services/data/v32.0/subjects/Account/listviews/00BD0000005WcBeMAK"
}
```

Process Approvals

Returns a list of all approval processes. Can also be used to submit a particular record if that entity supports an approval process and one has already been defined. Records can be approved and rejected if the current user is an assigned approver. When using a POST request to do bulk approvals, the requests that succeed are committed and the requests that don't succeed send back an error.

Syntax

URI

To return a list of the approvals, the URI is: `/vXX.X/process/approvals/`

Available since release

30.0

Formats

JSON, XML

HTTP methods

GET, HEAD, POST

Authentication

Authorization: Bearer **token**

Request parameters

None required

Request body

The request body contains an array of process requests that contain the following information:

Name	Type	Description
actionType	string	Represents the kind of action to take: <i>Submit</i> , <i>Approve</i> , or <i>Reject</i> .

Name	Type	Description
contextActorId	ID	The ID of the submitter who's requesting the approval record.
contextId	ID	The ID of the item that is being acted upon.
comments	string	The comment to add to the history step associated with this request.
nextApproverIds	ID[]	If the process requires specification of the next approval, the ID of the user to be assigned the next request.
processDefinitionNameOrId	string	The developer name or ID of the process definition.
skipEntryCriteria	boolean	Determines whether to evaluate the entry criteria for the process (true) or not (false) if the process definition name or ID isn't null. If the process definition name or ID isn't specified, this argument is ignored, and standard evaluation is followed based on process order. By default, the entry criteria isn't skipped if it's not set by this request.

Response body

The response contains an array of process results that contain the following information:

Name	Type	Description
actorIds	ID[]	IDs of the users who are currently assigned to this approval step.
entityId	ID	The object being processed.
errors	Error[]	The set of errors returned if the request failed.
instanceId	ID	The ID of the ProcessInstance associated with the object submitted for processing.
instanceStatus	string	The status of the current process instance (not an individual object but the entire process instance). The valid values are "Approved," "Rejected," "Removed," or "Pending."
newWorkItemIds	ID[]	Case-insensitive IDs that point to ProcessInstanceWorkitem items (the set of pending approval requests)
success	boolean	true if processing or approval completed successfully.

Examples

- See [Get a List of All Approval Processes](#).
- See [Submit a Record for Approval](#).
- See [Approve a Record](#).
- See [Reject a Record](#).
- See [Bulk Approvals](#).

Process Rules

Returns a list of all active workflow rules. If a rule has actions, the actions will be listed under the rule. Can also be used to trigger all workflow rules that are associated with a specified record. The actions for a rule are only fired if the rule's criteria is met. When using a POST request, if anything fails, the whole transaction is rolled back.

Cross-object workflow rules cannot be invoked using the REST API.

Syntax

URI

To get a list of the workflow rules or to trigger one or more workflow rules, the URI is: `/vXX.X/process/rules/`

To get the rules for a particular object: `/vXX.X/process/rules/SObjectName`

To get the metadata for a particular rule: `/vXX.X/process/rules/SObjectName/workflowRuleId`

Available since release

30.0

Formats

JSON, XML

HTTP methods

HEAD, GET, POST

Authentication

Authorization: Bearer *token*

Request parameters

None required

Request body

The request body contains an array of context IDs:

Name	Type	Description
<code>contextId</code>	ID	The ID of the item that is being acted upon.

Examples

- See [Get a List of Process Rules](#).
- See [Get a Particular Process Rule](#).
- See [Trigger Process Rules](#).

Query

Executes the specified SOQL query.

If the query results are too large, the response contains the first batch of results and a query identifier in the `nextRecordsUrl` field of the response. The identifier can be used in an additional request to retrieve the next batch.

URI

`/vXX.X/query/?q=SOQL query`

For retrieving query performance feedback without executing the query:

```
/vXX.X/query/?explain=SOQL query
```

For retrieving query performance feedback on a report or list view:

```
/vXX.X/query/?explain=report or list view ID
```

For retrieving additional query results if the initial results are too large:

```
/vXX.X/query/query identifier
```

Formats

JSON, XML


HTTP Method

GET

Authentication

Authorization: Bearer **token**

Parameters

Parameter	Description
q	A SOQL query. Note that you will need to replace spaces with “+” characters in your query string to create a valid URI. An example query parameter string might look like: “SELECT+Name+FROM+MyObject”. If the SOQL query string is invalid, a MALFORMED_QUERY response is returned.
explain	<p>A SOQL query to get performance feedback on. Use <code>explain</code> instead of <code>q</code> to get a response that details how Salesforce will process your query. You can use this feedback to further optimize your queries. You can also use a report or list view ID in place of the query string to get feedback on how Salesforce will process your report or list view.</p> <p>The <code>explain</code> parameter is available in API version 30.0 and later.</p> <p> Note: Using <code>explain</code> with the REST API query resource is a beta feature. There is no support associated with this beta feature. For more information, contact Salesforce.</p> <p>If the SOQL query string is invalid, a MALFORMED_QUERY response is returned. If the report or list view ID is invalid, an INVALID_ID response is returned.</p>

Response body

For a query using the `q` parameter, the response contains an array of query result records. For a query using the `explain` parameter, the response contains one or more query plans that can be used to execute the query, report, or list view. The plans are sorted from most optimal to least optimal. Each plan has the following information:

Name	Type	Description
cardinality	number	The estimated number of records the query would return, based on index fields, if any.
fields	string[]	The index fields used for the query, if the leading operation type is <code>Index</code> , otherwise null.

Name	Type	Description
<code>leadingOperationType</code>	string	The primary operation type that will be used to optimize the query. This can be one of these values: <ul style="list-style-type: none"> • Index—The query will use an index on the query object. • Other—The query will use optimizations internal to Salesforce. • Sharing—The query will use an index based on the user's sharing rules. If there are sharing rules that limit which records are visible to the current user, those rules can be used to optimize the query. • TableScan—The query will scan all records for the query object, and won't use an index.
<code>notes</code>	feedback note[]	An array of one or more feedback notes. Each note contains: <ul style="list-style-type: none"> • description—A detailed description of an aspect of the optimization. This could include information on optimizations that could not be used, with details on why they weren't used. • fields—An array of one or more fields used for the optimization. • tableEnumOrId—The table name for the fields used for the optimization. <p>This response field is available in API version 33.0 and later.</p>
<code>relativeCost</code>	number	The cost of this query compared to the SOQL selective query threshold. A value greater than 1.0 means the query won't be selective. See "More Efficient SOQL Queries" in the Apex Code Developer's Guide for more information on selective queries.
<code>subjectCardinality</code>	number	The approximate count of all records in your organization for the query object.
<code>subjectType</code>	string	The name of the query object, such as <code>Merchandise__c</code> .

Example

For an example of making a query and retrieving additional query results using the query identifier, see [Execute a SOQL Query](#) on page 56.

For an example using the `explain` parameter to get feedback on a query and a report, see [Get Feedback on Query Performance](#) on page 58.

For more information on SOQL see the [Force.com SOQL and SOSL Reference](#). For more information on query batch sizes, see [Changing the Batch Size in Queries](#) in the *SOAP API Developer's Guide*.

QueryAll

Executes the specified SOQL query. Unlike the Query resource, QueryAll will return records that have been deleted because of a merge or delete. QueryAll will also return information about archived Task and Event records. QueryAll is available in API version 29.0 and later.

If the query results are too large, the response contains the first batch of results and a query identifier in the `nextRecordsUrl` field of the response. The identifier can be used in an additional request to retrieve the next batch. Note that even though `nextRecordsUrl` has `query` in the URL, it will still provide remaining results from the initial QueryAll request. The remaining results will include deleted records that matched the initial query.

URI

/vXX.X/queryAll/?q=**SOQL query**

For retrieving additional query results if the initial results are too large:

/vXX.X/queryAll/**query identifier**

Formats

JSON, XML

HTTP Method

GET

Authentication

Authorization: Bearer **token**

Parameters

Parameter	Description
q	A SOQL query. Note that you will need to replace spaces with "+" characters in your query string to create a valid URI. An example query parameter string might look like: "SELECT+Name+FROM+MyObject".

Example

- For an example of making a query that includes deleted items, see [Execute a SOQL Query that Includes Deleted Items](#) on page 57
- For an example of a query that retrieves additional results using the query identifier, see [Retrieving the Remaining SOQL Query Results](#) on page 58

For more information on SOQL see the [Force.com SOQL and SOSL Reference](#). For more information on query batch sizes, see [Changing the Batch Size in Queries](#) in the *SOAP API Developer's Guide*.

Quick Actions

Returns a list of global actions and object-specific actions. This resource is available in REST API version 28.0 and later. When working with actions, also refer to [SObject Quick Actions](#).

URI

/vXX.X/quickActions/

Formats

JSON, XML

HTTP Method

HEAD, GET, POST

Authentication

Authorization: Bearer **token**

Parameters

None required

Considerations

Add all required fields to an object before you create a quick action for that object. If you add a required field after creating a quick action, the field won't appear in the quick action's describe results. Then, when the quick action runs, the field won't be available and an error occurs for the missing field. If you don't want the required field to appear in the quick action's layout, set a default value for the field.

Example usage for getting global quick actions

```
curl https://na1.salesforce.com/services/data/v28.0/quickActions/ -H "Authorization: Bearer token"
```

Example for creating a contact using an action

```
curl https://na1.salesforce.com/services/data/v28.0/quickActions/CreateContact -H 'Authorization: Bearer access_token -H "Content-Type: application/json" -d @newcontact.json'
```

Example JSON request body `newcontact.json` file

```
{
  "record" : { "LastName" : "Smith" }
}
```

Recent List Views

Returns the list of recently used list views for the given sObject type.

This resource is available in REST API version 32.0 and later.

URI

/vXX.X/subjects/{subjectType}/listviews/recent

Formats

JSON, XML

HTTP Method

GET

Authentication

Authorization: Bearer **token**

Parameters

None

**Example:****Retrieving recent list views for the Account object**

```
curl https://na1.salesforce.com/services/data/v32.0/subjects/Account/listviews/recent -H "Authorization: Bearer token"
```

JSON Response body

```
{
  "done" : true,
  "listviews" : [ {
```

```

    "describeUrl" :
"/services/data/v32.0/subjects/Account/listviews/00BD0000005WcCNMA0/describe",
    "developerName" : "MyAccounts",
    "id" : "00BD0000005WcCNMA0",
    "label" : "My Accounts",
    "resultsUrl" :
"/services/data/v32.0/subjects/Account/listviews/00BD0000005WcCNMA0/results",
    "soqlCompatible" : true,
    "url" : "/services/data/v32.0/subjects/Account/listviews/00BD0000005WcCNMA0"
  }, {
    "describeUrl" :
"/services/data/v32.0/subjects/Account/listviews/00BD0000005WcBeMAK/describe",
    "developerName" : "NewThisWeek",
    "id" : "00BD0000005WcBeMAK",
    "label" : "New This Week",
    "resultsUrl" :
"/services/data/v32.0/subjects/Account/listviews/00BD0000005WcBeMAK/results",
    "soqlCompatible" : true,
    "url" : "/services/data/v32.0/subjects/Account/listviews/00BD0000005WcBeMAK"
  }, {
    "describeUrl" :
"/services/data/v32.0/subjects/Account/listviews/00BD0000005WcCFMA0/describe",
    "developerName" : "AllAccounts",
    "id" : "00BD0000005WcCFMA0",
    "label" : "All Accounts",
    "resultsUrl" :
"/services/data/v32.0/subjects/Account/listviews/00BD0000005WcCFMA0/results",
    "soqlCompatible" : true,
    "url" : "/services/data/v32.0/subjects/Account/listviews/00BD0000005WcCFMA0"
  } ],
  "nextRecordsUrl" : null,
  "size" : 3,
  "subjectType" : "Account"
}

```

Recently Viewed Items

Gets the most recently accessed items that were viewed or referenced by the current user. Salesforce stores information about record views in the interface and uses it to generate a list of recently viewed and referenced records, such as in the sidebar and for the auto-complete options in search.

This resource only accesses most recently used item information. If you want to modify the list of recently viewed items, you'll need to update recently viewed information directly by using a [SOQL Query](#) with a `FOR VIEW` or `FOR REFERENCE` clause.

URI

/vXX.X/recent

Formats

JSON, XML

HTTP Method

GET

Authentication

Authorization: Bearer *token*

Parameters

Parameter	Description
<code>limit</code>	An optional limit that specifies the maximum number of records to be returned. If this parameter is not specified, the default maximum number of records returned is the maximum number of entries in RecentlyViewed, which is 200 records per object.

Example

- For an example of retrieving a list of recently viewed items, see [View Recently Viewed Records](#) on page 67.
- For an example of setting records as recently viewed, see [Mark Records as Recently Viewed](#) on page 67.

Relevant Items

Gets the current user's most relevant items. Relevant items include records for objects in the user's global search scope and also most recently used (MRU) objects.

Relevant items include up to 50 of the most recently viewed or updated records for each object in the user's global search scope.



Note: The user's global search scope includes the objects the user interacted with most in the last 30 days, including objects the user pinned from the search results page in the Salesforce Classic.

Then, the resource finds additional recent records for each most recently used (MRU) object until the maximum number of records, which is 2,000, is returned.

This resource only accesses the relevant item information. Modifying the list of relevant items is not currently supported.

This resource is available in API version 35.0 and later.

URI

`/vXX.X/objects/relevantItems`

Formats

JSON

HTTP Method


GET

Authentication

Authorization: Bearer *token*

Parameters

Parameter	Description
<code>lastUpdatedId</code>	Optional. Compares the current list of relevant items to a previous version, if available. Specify the <code>lastUpdatedId</code> value returned in a previous response.

Parameter	Description
<code>sObjects</code>	Optional. To scope the results to a particular object or set of objects, specify the plural label for one or more sObjects.
 Note: sObject names are case sensitive.	

Response body

The response contains an array of records for each object returned. The response includes the following information.

Name	Type	Description
<code>lastUpdatedId</code>	string	A unique code that can be used in subsequent calls to compare the results with the results in this response list.
<code>newResultSetSinceLastQuery</code>	boolean (true or false)	If a response was previously requested for the current user, indicates whether the current response matches the previous response, or the one specified by a <code>lastUpdatedId</code> .
<code>key</code>	ID	The first three characters of the sObject's ID that indicates the object type.
<code>label</code>	string	The sObject's plural label, such as <code>Accounts</code> .
<code>recordIds</code>	ID	A list of IDs for the matching records.

Example

See [View Relevant Items](#).

Search

Executes a search.

URI

For SOSL searches using the GET method and a SOSL search string:

```
/vXX.X/search/?q=SOSL search string
```

For searches using the GET method and that only use parameter values without any SOSL search strings

```
/vXX.X/search/?qs=search string
```

For searches using the POST method and query parameters appended in the JSON file:

```
/vXX.X/search
```

This is a beta feature available in API version 35.0 and later, when enabled. This release contains a beta version of the `qs` parameter that is production quality. You can provide feedback and suggestions for this parameter on the IdeaExchange. For information on enabling this feature for your organization, contact Salesforce.


Formats

JSON, XML

HTTP Method

GET, POST

AuthenticationAuthorization: Bearer *token***Parameters**Include one (**but not both**) of these required parameters.

Required Parameter (use either)	Description
<code>q</code>	A SOSL statement that is properly URL-encoded.
<code>qs</code>	<p>A search string that is properly URL-encoded.</p> <p> Note: SOSL clauses aren't supported.</p> <p>Available in version 35.0 and later when enabled. Contact Salesforce to enable.</p>

These additional optional parameters are supported when using the `qs` parameter.

Global Parameter	Description
<code>sObject</code> (with GET method)	<p>Optional. Object to return in the response. Must be a valid object type.</p> <p>You can use multiple <code>sObject</code> parameter values, such as <code>sObject=Account&sObject=Contact</code>.</p> <p>If unspecified, then the search results contain the IDs of all objects.</p>
<code>fields</code>	<p>Optional. Comma-separated list of one or more fields to return in the response for each <code>sObject</code> specified, such as <code>fields=id,name</code>.</p> <p>At least one <code>sObject</code> must be specified.</p> <p>When additional <code>sObject</code> fields are specified using <code>sObject.fields=field names</code>, such as <code>Account.fields=id,name</code>, this parameter is ignored for that object.</p> <p>If unspecified, then the search results contain the IDs of records matching all fields for the specified object.</p>
<code>in</code>	<p>Optional. Scope of fields to search. If you specify one or more fields, the fields are returned for all found objects.</p> <p>One of the following values:</p> <ul style="list-style-type: none"> • ALL • NAME • EMAIL • PHONE • SIDEBAR

Global Parameter	Description
	 Note: This clause doesn't apply to articles, documents, feed comments, feed items, files, products, and solutions. If any of these objects are specified, the search is not limited to specific fields; all fields are searched.
<code>division</code>	Optional. Single value. Filter search results based on the <code>division</code> field. For example, <code>division=global</code> . Specify a division by its name rather than ID. All searches within a specific division also include the <code>global</code> division.
<code>networkIds</code>	Optional. Filter search results by a comma-separated list of one or more <code>networkIds</code> . A network ID represents the community ID.
<code>overallLimit</code>	Optional. Single value. The maximum number of results to return across all <code>sObject</code> parameters specified. The maximum <code>overallLimit</code> is 2000.
<code>defaultLimit</code>	<p>Optional. Single value. The maximum number of results to return for each <code>sObject</code> specified.</p> <p>When an <code>sObject</code> limit is specified using <code>sObject.limit=value</code>, such as <code>Account.limit=10</code>, this parameter is ignored for that object.</p> <p>At least one <code>sObject</code> must be specified. The maximum <code>defaultLimit</code> is 2000.</p>
<code>offset</code>	<p>Optional. Single value. The starting row offset into the result set returned.</p> <p>Only one <code>sObject</code> must be specified when using this parameter. The maximum <code>offset</code> is 2000.</p>
<code>dataCategory</code>	<p>Optional. Single value. If an organization uses Salesforce Knowledge articles or answers, filters all search results based on one or more data categories, such as <code>dataCategory=GlobalCategory__c</code> below <code>NorthAmerica__c</code>.</p> <p>If you require multiple <code>dataCategory</code> filters, use the POST method, which supports multiple data category specifiers.</p> <p>For the POST method, use the following:</p> <ul style="list-style-type: none"> • <code>dataCategories</code>: Optional. If an organization uses Salesforce Knowledge articles or answers, filters all search results based on one or more data categories. Use the following parameters: <ul style="list-style-type: none"> – <code>groupName</code>: Single value. The name of the data category group to filter by. – <code>operator</code>: Single value. Use <code>AT</code>, <code>ABOVE</code>, <code>BELOW</code>, <code>ABOVE_OR_BELOW</code>. – <code>categories</code>: A list array. The name of the categories to filter by.
<code>snippet</code>	Optional. The target maximum number of characters to return in Salesforce Knowledge article search results. If an organization uses Salesforce Knowledge articles, displays contextual snippets and highlights the search term for each article in the search results. By default, each snippet displays up to about 300 characters, which is usually about three lines of text in a standard browser window. Specify an alternate target length, which can be from 100 and 500 characters. Snippet results are used to differentiate matches to the search term in article search results.

Global Parameter	Description
	<p>Snippet highlights are generated from email, text, and text area (long and rich) fields. Snippets aren't displayed for partially matching searches or if the user doesn't have access to the field that contains the snippet. Snippets are displayed for the first 20 articles returned. If more than 20 articles are returned, snippets aren't generated.</p> <p>Snippets are displayed for Salesforce Knowledge articles only. At least one of the following <code>sObject</code> values must be specified.</p> <ul style="list-style-type: none"> To search a specific article type, use the article type name with the suffix <code>__kav</code>. To search all article types, use <code>KnowledgeArticleVersion</code>.
<code>updateTracking</code>	<p>Optional. Specify a value of <code>true</code> to track keywords that are used in Salesforce Knowledge article searches.</p> <p>If unspecified, the default value of <code>false</code> is applied.</p>
<code>updateViewStat</code>	<p>Optional. Specify a value of <code>true</code> to determine the number of views for each Salesforce Knowledge article included in the response.</p> <p>If unspecified, the default value of <code>false</code> is applied.</p>

The following optional parameters can be used with the `sObject` parameter to further refine search results. The format is `sObject.parameter`, such as `Account.fields`. An `sObject` must be specified to use these parameters. For example, `sObject=Account`.

sObject Parameter	Description
<code>fields</code>	<p>Required for Knowledge object. Optional for other objects. Comma-separated list of one or more fields to return in the response. For example, <code>Account.fields=id,name</code>.</p>
<code>where</code>	<p>Required for Knowledge object. Optional for other objects. Filter search results for this object by specific field values.</p> <p>Syntax: <code>subject.where = conditionExpression</code>. Here the <code>conditionExpression</code> of the WHERE clause uses the following syntax: <code>fieldExpression [logicalOperator fieldExpression2 ...]</code></p> <p>You can add multiple field expressions to a condition expression by using logical and comparison operators. For example, <code>Account.where=(NumberOfEmployees < 100) and (BillingState IN ('California', 'New York'))</code>.</p>
<code>limit</code>	<p>Optional. Displays a subset of results for the object. For example, <code>Account.limit=10</code>.</p> <p>If specified, the global <code>defaultLimit</code> parameter is ignored for this object.</p>
<code>orderBy</code>	<p>Optional. Specify the order of search results to be returned using the <code>fieldname</code> and one or more of the following values:</p> <ul style="list-style-type: none"> <code>ASC</code> or <code>DESC</code>: Orders the results in ascending or descending order. Results are listed in ascending order by default. <code>first</code> <code>last</code>: Places null records at the beginning or end of the results. By default, null values are sorted last in ascending order and first in descending order.

sObject Parameter	Description
	You can include more than one <code>orderBy</code> value. For example, <code>Account.orderBy=fieldname [ASC DESC][first last]</code>

Usage

For the GET method, use the following syntax with the `qs` parameter.

```
.../vXX.X/search/?qs=Acme&sObject=object name&fields=field types&in=SearchGroup&division=division field&netWorkIds=network Ids&overallLimit=integer < 2,000&defaultLimit=integer < 2,000&offset=integer < 2,000&dataCategory=DataCategorySpec&snippet=integer&updateViewStat=boolean true or false&updateTracking=boolean true or false
```

```
...&sObjectName.fields=comma-separated list of field types&sObjectName.where=conditionExpression&sObjectName.limit=value&sObjectName.orderBy=field name[ASC | DESC][first | last]
```

For the POST method, use the following syntax with the `qs` parameter.

```
{
  "qs": "Acme",
  "fields" : ["id", "firstName", "lastName"],
  "subjects": [{ "fields": ["id", "name"],
    "name": "Account",
    "where": "DISTANCE(My_Location_Field__c, GEOLOCATION(37,122), 'mi') < 100",
    "orderBy": { "fields": "name",
      "order": "ASC",
      "whereAreNulls": "last"
    },
    "limit": 20
  },
  { "name": "Contact" }
],
  "in": "ALL",
  "overallLimit": 100,
  "defaultLimit": 10,
  "updateViewStat": true,
  "updateTracking": true,
}
```



Note: In the example, more parameters were used in the POST method not listed in the parameter tables.

- `sObjects`: Optional. A list array for the objects to return in the response. When listing parameters within `sObjects`, the syntax is different than the GET method.
- `name`: Required if using `sObjects`. Name of the object to return in the response. This parameter is contained within the `sObjects` list array.
- `fields`: Required if using the `orderBy` parameter. Name of the field to apply the ordering in the response. This parameter is contained within the `orderBy` parameter.
- `order`: Optional. Orders the results in ascending or descending order. This parameter is contained within the `orderBy` parameter.

- `whereAreNulls`: Optional. Places the null records at the beginning or end of the results. This parameter is contained within the `orderBy` parameter.

Examples

See [Search for a String](#).

For more information on SOSL, see the [Force.com SOQL and SOSL Reference](#).

Search Scope and Order

Returns an ordered list of objects in the default global search scope of a logged-in user. Global search keeps track of which objects the user interacts with and how often and arranges the search results accordingly. Objects used most frequently appear at the top of the list.

The returned list reflects the object order in the user's default search scope, including any pinned objects on the user's search results page. This call is useful if you want to implement a custom search results page using the optimized global search scope. The search string must be URL-encoded.

URI

`/vXX.X/search/scopeOrder`

Formats

JSON, XML

HTTP Method

GET

Authentication

Authorization: Bearer *token*

Example

See [Get the Default Search Scope and Order](#).

Search Result Layouts

Returns search result layout information for the objects in the query string. For each object, this call returns the list of fields displayed on the search results page as columns, the number of rows displayed on the first page, and the label used on the search results page. This call supports bulk fetch for up to 100 objects in a query.

URI

`/vXX.X/search/layout/?q=Comma delimited object list`

Formats

JSON, XML

HTTP Method

GET

Authentication

Authorization: Bearer *token*

Example

[Get Search Result Layouts for Objects](#)

Search Suggested Records

Returns a list of suggested records whose names match the user's search string. The suggestions resource provides a shortcut for users to navigate directly to likely relevant records, before performing a full search.

Syntax

URI

vXX.X/search/suggestions?q=**search string**&subject=**object type**

Available since release

32.0

Formats

JSON, XML

HTTP methods

GET

Authentication

Authorization: Bearer **token**

Request body

None required

Request parameters

Parameter	Description
fields	Optional. Used for creating lookup queries. Specify multiple fields using a comma-separated list. Specifies which lookup fields should be returned in the response.
groupId	Optional. Specifies the unique identifier(s) of the group(s) that the question to return was posted to. Specify multiple groups using a comma-separated list. This parameter is only applicable when the parameter type equals <code>question</code> . Should not be used in combination with the <code>userId</code> .
limit	Optional. Specifies the maximum number of suggested records to return. If a limit isn't specified, five records are returned by default. If there are more suggested records than the limit specified, the response body's <code>hasMoreResults</code> property is <code>true</code> .
networkId	Optional. Specifies the unique identifier(s) for the community(ies) that the question to return is associated to. Specify multiple communities using a comma-separated list. This parameter is only applicable when the parameter type equals <code>question</code> or parameter <code>subject</code> equals <code>user</code> .
q	Required. The user's search query string, properly URL-encoded. Suggestions are returned only if the user's query string meets the minimum length requirements: one character for queries in Chinese, Japanese, Korean, and Thai; three characters for all other languages. Query strings that exceed the maximum length of 255 characters (or 200 consecutive characters without a space break) return an error.
subject	Required. The object that the search is scoped to, such as <code>account</code> or <code>offer__c</code> . If the <code>subject</code> value is <code>feedItem</code> , it is required to have the <code>type</code> parameter with a value of <code>question</code> .

Parameter	Description
<code>topicId</code>	Optional. Specifies the unique identifier of the single topic that the question to return was tagged as. This parameter is only applicable when the parameter <code>type</code> equals <code>question</code> .
<code>type</code>	Required when the <code>subject</code> value is <code>feedItem</code> . Including this parameter for all other <code>subject</code> values will not affect the query. Specifies that the type of Feed is questions. Valid value: <code>question</code> .
<code>userId</code>	Optional. Specifies the unique identifier(s) of the user(s) who authored the question to return. Specify multiple users using a comma-separated list. This parameter is only applicable when the parameter <code>type</code> equals <code>question</code> . Shouldn't be used in combination with the <code>groupId</code> .
<code>where</code>	Optional. A filter constraint following the same syntax as the SOQL where clause. For example: <code>my_field__c LIKE 'foo%' AND RecordType='bar'</code> This expression should be properly URL encoded.

Usage

The suggestions resource returns records when the record's name field includes the exact text in the search string. The last term in the search string can match the beginning of a word. Records that contain the search string within a word aren't considered a match.



Note: If the user's search query contains quotation marks or wildcards, those symbols are automatically removed from the query string in the URI.



Example: The text string `national u` is treated as `national u*` and returns "National Utility", "National Urban Company", and "First National University".

Suggested Records Response

The suggestions resource returns display-ready data about likely relevant records that the user can access.

The order of results is determined by a relevancy algorithm.

Each suggested record in the results contains these elements:

Element	Description
<code>Attributes</code>	The record's object type and the URL for accessing the record. Also includes the requested lookup fields' values. For example, if you requested <code>fields=Id, Name</code> , the result would include the ID and name.
<code>Name (or Title)</code>	The record's Name field. In the absence of a standard Name field, the Title field is used for these objects: <ul style="list-style-type: none"> • Dashboard • Idea • IdeaTheme • Note

Element	Description
	<ul style="list-style-type: none"> Question <p>In the absence of a standard Name or Title field, the main identifying field is used. For example, in cases, the Case Number is used.</p>
Id	The record's unique identifier.

Example JSON Response Body

```
[ {
  "attributes" : {
    "type" : "Account",
    "url" : "/services/data/v32.0/subjects/Account/001xx000003DH6WAAW"
  },
  "Id" : "001xx000003DH6WAAW"
  "Name" : "National Utility Company"
}, {
{
  "attributes" : {
    "type" : "Account",
    "url" : "/services/data/v32.0/subjects/Account/001xx000003DHJ4AAO"
  },
  "Id" : "001xx000003DHJ4AAO"
  "Name" : "National Utility Service"
}, {
{
  "attributes" : {
    "type" : "Account",
    "url" : "/services/data/v32.0/subjects/Account/001xx000003DHscAAG"
  },
  "Id" : "001xx000003DHscAAG"
  "Name" : "National Urban Technology Center"
} ]
```

Example XML Response Body

```
<?xml version="1.0" encoding="UTF-8"?>
<suggestions>
  <autoSuggestResults type="Account"
url="/services/data/v32.0/subjects/Account/001xx000003DH6WAAW">
    <Id>001xx000003DH6WAAW</Id>
    <Name>National Utility Company</Name>
  </autoSuggestResults>
  <autoSuggestResults type="Account"
url="/services/data/v32.0/subjects/Account/001xx000003DHJ4AAO">
    <Id>001xx000003DHJ4AAO</Id>
    <Name>National Utility Service</Name>
  </autoSuggestResults>
  <autoSuggestResults type="Account"
url="/services/data/v32.0/subjects/Account/001xx000003DHscAAG">
```

```
<Id>001xx000003DHscAAG</Id>
<Name>National Urban Technology Center</Name>
</autoSuggestResults>
<hasMoreResults>true</hasMoreResults>
</suggestions>
```

Unsupported Objects

The suggestions resource supports all objects except these.

- Article (Use the suggestTitleMatches resource to return a list of Salesforce Knowledge articles whose titles match the user's search query string.)
- ContentNote
- Event
- FeedComment
- FeedPost
- IdeaComment
- Pricebook2
- Reply
- TagDefinition
- Task

Search Suggested Article Title Matches

Returns a list of Salesforce Knowledge articles whose titles match the user's search query string. Provides a shortcut to navigate directly to likely relevant articles, before the user performs a search.

Syntax

URI

```
/vXX.X/search/suggestTitleMatches?q=search string&language=article language&publishStatus=article publication status
```

Available since release

30.0

Formats

JSON, XML

HTTP methods

GET

Authentication

Authorization: Bearer **token**

Request body

None required

Request parameters

Parameter	Description
<code>articleTypes</code>	Optional. Three-character ID prefixes indicating the desired article types. You can specify multiple values for this parameter in a single REST call, by repeating the parameter name for each value. For example, <code>articleTypes=ka0&articleTypes=ka1</code> .
<code>categories</code>	Optional. The name of the data category group and name of the data category for desired articles, expressed as a JSON mapping. You can specify multiple data category group and data category pairs in this parameter. For example, <code>categories={"Regions":"Asia","Products":"Laptops"}</code> . Characters in the URL might need to be escaped. For this example, <code>categories=%7B%22Regions%22%3A%22Asia%22%2C%22Products%22%3A%22Laptops%22%7D</code> .
<code>channel</code>	<p>Optional. The channel where the matching articles are visible. Valid values:</p> <ul style="list-style-type: none"> • <code>AllChannels</code>—Visible in all channels the user has access to • <code>App</code>—Visible in the internal Salesforce Knowledge application • <code>Pkb</code>—Visible in the public knowledge base • <code>Csp</code>—Visible in the Customer Portal • <code>Prm</code>—Visible in the Partner Portal <p>If <code>channel</code> isn't specified, the default value is determined by the type of user.</p> <ul style="list-style-type: none"> • <code>Pkb</code> for a guest user • <code>Csp</code> for a Customer Portal user • <code>Prm</code> for a Partner Portal user • <code>App</code> for any other type of user <p>If <code>channel</code> is specified, the specified value may not be the actual value requested, because of certain requirements.</p> <ul style="list-style-type: none"> • For guest, Customer Portal, and Partner Portal users, the specified value must match the default value for each user type. If the values don't match or <code>AllChannels</code> is specified, then <code>App</code> replaces the specified value. • For all users other than guest, Customer Portal, and Partner Portal users: <ul style="list-style-type: none"> – If <code>Pkb</code>, <code>Csp</code>, <code>Prm</code>, or <code>App</code> are specified, then the specified value is used. – If <code>AllChannels</code> is specified, then <code>App</code> replaces the specified value.
<code>language</code>	Required. The language of the user's query. Specifies the language that matching articles are written in.
<code>limit</code>	Optional. Specifies the maximum number of articles to return. If there are more suggested articles than the limit specified, the response body's <code>hasMoreResults</code> property is <code>true</code> .
<code>publishStatus</code>	<p>Required. The article's publication status. Valid values:</p> <ul style="list-style-type: none"> • <code>Draft</code>—Articles aren't published in Salesforce Knowledge. • <code>Online</code>—Articles are published in Salesforce Knowledge.

Parameter	Description
	<ul style="list-style-type: none"> Archived—Articles aren't published and are available in Archived Articles view.
q	Required. The user's search query string, properly URL-encoded. Suggestions are returned only if the user's query string meets the minimum length requirements: one character for queries in Chinese, Japanese, and Korean, and three characters for all other languages. Query strings exceeding the maximum length of 250 characters return an error.
validationStatus	Optional. The validation status of returned articles.

Example for getting suggested articles with matching titles

```
curl https://na1.salesforce.com/services/data/v30.0/search/suggestTitleMatches?
q=orange+banana&language=en_US&publishStatus=Online -H "Authorization: Bearer token"
```

Example JSON response body

```
{
  "autoSuggestResults" : [ {
    "attributes" : {
      "type" : "KnowledgeArticleVersion",
      "url" : "/services/data/v30.0/objects/KnowledgeArticleVersion/ka0D00000004CcQ"
    },
    "Id" : "ka0D00000004CcQ",
    "UrlName" : "orange-banana",
    "Title" : "orange banana",
    "KnowledgeArticleId" : "kA0D00000004Cfz"
  } ],
  "hasMoreResults" : false
}
```

Usage

Salesforce Knowledge must be enabled in your organization. The user must have the “View Articles” permission enabled. The articles suggested include only the articles the user can access, based on the data categories and article types the user has permissions to view.

The Suggest Article Title Matches resource is designed to return display-ready data about likely relevant articles. Articles are suggested if their titles contain the entire query string, except stopwords, such as “a,” “for,” and “the.”

For example, a search for *Backpacking for desert* returns the article, “Backpacking in the desert.”



Note: Articles with titles that include stopwords from the query string, such as “Backpacking for desert survival” in this example, appear before matching articles with titles that don’t include the stopwords.

Stopwords at the end of the query string are treated as search terms.

A wildcard is automatically appended to the last token in the query string.



Note: If the user's search query contains quotation marks or wildcards, those symbols are automatically removed from the query string in the URI along with any other special characters.

If the number of suggestions returned exceeds the limit specified in the request, the end of the response will contain a field called `hasMoreResults`. Its value is `true` if the suggestions returned are only a subset of the suggestions available, and `false` otherwise.

SEE ALSO:

[SObject Suggested Articles for Case](#)

Search Suggested Queries

Returns a list of suggested searches based on the user's query string text matching searches that other users have performed in Salesforce Knowledge. Provides a way to improve search effectiveness, before the user performs a search.

Syntax

URI

`vXX.X/search/suggestSearchQueries?q=search string&language=language of query`

Available since release

30.0

Formats

JSON, XML

HTTP methods

GET

Authentication

Authorization: Bearer **token**

Request body

None required

Request parameters

Parameter	Description
<code>channel</code>	<p>Optional. Specifies the Salesforce Knowledge channel where the article can be viewed. Valid values:</p> <ul style="list-style-type: none"> • <code>AllChannels</code>—Visible in all channels the user has access to • <code>App</code>—Visible in the internal Salesforce Knowledge application • <code>Pkb</code>—Visible in the public knowledge base • <code>Csp</code>—Visible in the Customer Portal • <code>Prm</code>—Visible in the Partner Portal <p>If <code>channel</code> isn't specified, the default value is determined by the type of user.</p> <ul style="list-style-type: none"> • <code>Pkb</code> for a guest user • <code>Csp</code> for a Customer Portal user • <code>Prm</code> for a Partner Portal user • <code>App</code> for any other type of user

Parameter	Description
	<p>If <code>channel</code> is specified, the specified value may not be the actual value requested, because of certain requirements.</p> <ul style="list-style-type: none"> For guest, Customer Portal, and Partner Portal users, the specified value must match the default value for each user type. If the values don't match or <code>AllChannels</code> is specified, then <code>App</code> replaces the specified value. For all users other than guest, Customer Portal, and Partner Portal users: <ul style="list-style-type: none"> If <code>Pkb</code>, <code>Csp</code>, <code>Prm</code>, or <code>App</code> are specified, then the specified value is used. If <code>AllChannels</code> is specified, then <code>App</code> replaces the specified value.
<code>language</code>	Required. The language of the user's query.
<code>limit</code>	Optional. Specifies the maximum number of suggested searches to return. If there are more suggested queries than the limit specified, the response body's <code>hasMoreResults</code> property is <code>true</code> .
<code>q</code>	Required. The user's search query string, properly URL-encoded. Suggestions are returned only if the user's query string meets the minimum length requirements: one character for queries in Chinese, Japanese, and Korean, and three characters for all other languages. Query strings exceeding the maximum length of 250 characters return an error.

Example for getting suggested queries

```
curl https://na1.salesforce.com/services/data/v30.0/search/suggestSearchQueries?
q=app&language=en_US -H "Authorization: Bearer token"
```

Example JSON response body

```
{
  "autoSuggestResults" : [ {
    "0" : "apple",
    "1" : "apple banana",
  } ],
  "hasMoreResults" : false
}
```

Usage

Salesforce Knowledge must be enabled in your organization.

Queries are suggested if they exactly match the query string text. The text string must be a prefix within the query; it's not considered a match if it appears within a word. For example, the text string `app` would return suggested queries *apple banana* and *banana apples* but not *pineapple*.

If the number of suggestions returned exceeds the limit specified in the request, the end of the response will contain a field called `hasMoreResults`. Its value is `true` if the suggestions returned are only a subset of the suggestions available, and `false` otherwise.

If the user's search query contains quotation marks or wildcards, those symbols are automatically removed from the query string in the URI.

Tabs

Returns a list of all tabs—including Lightning Page tabs—available to the current user, regardless of whether the user has chosen to hide tabs via the All Tabs (+) tab customization feature. This resource is available in REST API version 31.0 and later.

Syntax

URI

/vXX.X/tabs/

Formats

JSON, XML

HTTP methods

GET, HEAD

Authentication

Authorization: Bearer *token*

Request body

None

Request parameters

None

Example

Usage for getting tabs

```
/services/data/v31.0/tabs
```

Sample JSON Response body for /vXX.X/tabs/

This is a partial code sample, representing the Accounts tab.

```
[... ,
  "colors" : [ {
    "color" : "6f7ccb",
    "context" : "primary",
    "theme" : "theme4"
  }, {
    "color" : "236FBD",
    "context" : "primary",
    "theme" : "theme3"
  } ],
  "custom" : false,
  "iconUrl" : "http://na1.salesforce.com/img/icon/accounts32.png",
  "icons" : [ {
    "contentType" : "image/png",
    "height" : 32,
    "theme" : "theme3",
    "url" : "http://na1.salesforce.com/img/icon/accounts32.png",
```

```

        "width" : 32
    }, {
        "contentType" : "image/png",
        "height" : 16,
        "theme" : "theme3",
        "url" : "http://na1.salesforce.com/img/icon/accounts16.png",
        "width" : 16
    }, {
        "contentType" : "image/svg+xml",
        "height" : 0,
        "theme" : "theme4",
        "url" : "http://na1.salesforce.com/img/icon/t4/standard/account.svg",
        "width" : 0
    }, {
        "contentType" : "image/png",
        "height" : 60,
        "theme" : "theme4",
        "url" : "http://na1.salesforce.com/img/icon/t4/standard/account_60.png",
        "width" : 60
    }, {
        "contentType" : "image/png",
        "height" : 120,
        "theme" : "theme4",
        "url" : "http://na1.salesforce.com/img/icon/t4/standard/account_120.png",
        "width" : 120
    } ],
    "label" : "Accounts",
    "miniIconUrl" : "http://na1.salesforce.com/img/icon/accounts16.png",
    "name" : "standard-Account",
    "objectName" : "Account",
    "url" : "http://na1.salesforce.com/001/o",
    ...]

```

Themes

Gets the list of icons and colors used by themes in the Salesforce application. Theme information is provided for objects in your organization that use icons and colors in the Salesforce UI.

The `If-Modified-Since` header can be used with this resource, with a date format of `EEE, dd MMM yyyy HH:mm:ss z`. When this header is used, if the object metadata has not changed since the provided date, a `304 Not Modified` status code is returned, with no response body.

Syntax

URI

`/vXX.X/theme`

Available since release

29.0

Formats

JSON, XML

HTTP methods

GET

AuthenticationAuthorization: Bearer *token***Request body**

None

Request parameters

None

Response data

An array of theme items. Each theme item contains the following fields:

Name	Type	Description
colors	array of theme colors	Array of theme colors.
icons	array of theme icons	Array of theme icons.
name	string	Name of the object that the theme colors and icons are associated with.

Each theme color contains the following fields:

Name	Type	Description
color	string	The color described in Web color RGB format, for example, "00FF00".
context	string	The color context, which determines whether the color is the main color ("primary") for the object, or not.
theme	string	The associated theme. Possible values include: <ul style="list-style-type: none"> • "theme2": Salesforce theme used prior to Spring '10 • "theme3": The current Salesforce theme, introduced in Spring '10 • "theme4": Theme introduced in Winter '14 for the mobile touchscreen version of Salesforce • "custom": Theme associated with a custom icon

Each theme icon contains the following fields:

Name	Type	Description
contentType	string	The icon's content type, for example, "image/png."
height	number	The icon's height in pixels. If the icon content type is an SVG type, height and width values are not used.
theme	string	The associated theme. Possible values include: <ul style="list-style-type: none"> • "theme2": Salesforce theme used prior to Spring '10 • "theme3": The current Salesforce theme, introduced in Spring '10

Name	Type	Description
		<ul style="list-style-type: none"> “theme4”: Theme introduced in Winter ‘14 for the mobile touchscreen version of Salesforce “custom”: Theme associated with a custom icon
url	string	The fully qualified URL for this icon.
width	number	The icon’s width in pixels. If the icon content type is an SVG type, height and width values are not used.

Example

The following is an example JSON response using a request of `services/data/v29.0/theme`:

```
{
  "themeItems" : [
    {
      "name" : "Merchandise__c",
      "icons" : [
        {
          "contentType" : "image/png",
          "width" : 32,
          "url" : "https://na1.salesforce.com/img/icon/computer32.png",
          "height" : 32,
          "theme" : "theme3"
        },
        {
          "contentType" : "image/png",
          "width" : 16,
          "url" : "https://na1.salesforce.com/img/icon/computer16.png",
          "height" : 16,
          "theme" : "theme3"
        }
      ],
      "colors" : [
        {
          "context" : "primary",
          "color" : "6666CC",
          "theme" : "theme3"
        },
        {
          "context" : "primary",
          "color" : "66895F",
          "theme" : "theme4"
        }
      ],
      ...
    }
  ],
  ...
}
```

Composite Resources

Use REST API composite resources to improve your application's performance by minimizing the number of round-trips between the client and server.

IN THIS SECTION:

[Batch](#)

Executes up to 25 subrequests in a single request. The response bodies and HTTP statuses of the subrequests in the batch are returned in a single response body. Each subrequest counts against rate limits.

[SObject Tree](#)

Creates one or more sObject trees with root records of the specified type. An sObject tree is a collection of nested, parent-child records with a single root record.

Batch

Executes up to 25 subrequests in a single request. The response bodies and HTTP statuses of the subrequests in the batch are returned in a single response body. Each subrequest counts against rate limits.

The requests in a batch are called subrequests. All subrequests are executed in the context of the same user. Subrequests are independent, and you can't pass information between them. Subrequests execute serially in their order in the request body. When a subrequest executes successfully, it commits its data. Commits are reflected in the output of later subrequests. If a subrequest fails, commits made by previous subrequests are not rolled back. If a batch request doesn't complete within 10 minutes, the batch times out and the remaining subrequests aren't executed.

Batching for the following resources and resource groups is available in API version 34.0 and later.

- Limits—`vXX.X/limits`
- SObject resources—`vXX.X/sobjects/`
- Query—`vXX.X/query/?q=soql`
- QueryAll—`vXX.X/queryAll/?q=soql`
- Search—`vXX.X/search/?q=sosl`
- Connect resources—`vXX.X/connect/`
- Chatter resources—`vXX.X/chatter/`

Batching for the following resources and resource groups is available in API version 35.0 and later.

- Actions—`vXX.X/actions`

The API version of the resource accessed in each subrequest must be no earlier than 34.0 and no later than the Batch version in the top-level request. For example, if you post a Batch request to `/services/data/v35.0/composite/batch`, you can include subrequests that access version 34.0 or 35.0 resources. But if you post a Batch request to `/services/data/v34.0/composite/batch`, you can only include subrequests that access version 34.0 resources.

URI

`/vXX.X/composite/batch`

Formats

JSON, XML

HTTP method

POST

Authentication

Authorization: Bearer *token*

Parameters

None required

Request body

[Batch Request Body](#) on page 166

Response body

[Batch Response Body](#) on page 174

Examples

For an example of using the Batch resource, see [Update a Record and Get Its Field Values in a Single Request](#) on page 80.

IN THIS SECTION:

[Batch Request Body](#)

Describes a collection of subrequests to execute with the Batch resource.

[Batch Response Body](#)

Describes the result of a Batch request.

Batch Request Body

Describes a collection of subrequests to execute with the Batch resource.

Batch Collection Input

The request body contains a `batchRequests` collection that includes subrequests to execute.

Properties

Name	Type	Description	Required or Optional
<code>batchRequests</code>	Subrequest[]	Collection of subrequests to execute.	Required
<code>haltOnError</code>	Boolean	<p>The default is <code>false</code>.</p> <p>If the value is <code>false</code> and a subrequest in the batch doesn't complete, Salesforce attempts to execute the subsequent subrequests in the batch.</p> <p>If the value is <code>true</code> and a subrequest in the batch doesn't complete due to an HTTP response in the 400 or 500 range, Salesforce halts execution. It returns an HTTP 412 status code and a <code>BATCH_PROCESSING_HALTED</code> error message for each subsequent subrequest. The top-level request to <code>/composite/batch</code> returns HTTP 200, and the <code>hasErrors</code> property in the response is set to <code>true</code>.</p>	Optional

Root XML Tag

<batch>

JSON example

```
{
  "batchRequests" : [
    {
      "method" : "PATCH",
      "url" : "v34.0/subjects/account/001D000000K0fXOIAZ",
      "richInput" : {"Name" : "NewName"}
    }, {
      "method" : "GET",
      "url" : "v34.0/subjects/account/001D000000K0fXOIAZ?fields=Name,BillingPostalCode"
    }
  ]
}
```

Subrequest

Contains the resource, method, and accompanying information for the subrequest.

Properties

Name	Type	Description	Required or Optional
<code>binaryPartName</code>	String	<p>The name of the binary part in the multipart request.</p> <p>When multiple binary parts are uploaded in one batch request, this value is used to map a request to its binary part. To prevent name collisions, use a unique value for each <code>binaryPartName</code> property in a batch request.</p> <p>If this value exists, a <code>binaryPartNameAlias</code> value must also exist.</p>	Optional
<code>binaryPartNameAlias</code>	String	<p>The <code>name</code> parameter in the Content-Disposition header of the binary body part. Different resources expect different values. See Insert or Update Blob Data.</p> <p>If this value exists, a <code>binaryPartName</code> value must also exist.</p>	Optional
<code>method</code>	String	The method to use with the requested resource. For a list of valid methods, refer to the documentation for the requested resource.	Required
<code>richInput</code>		<p>The input body for the request.</p> <p>The type depends on the request specified in the <code>url</code> property.</p>	Optional
<code>url</code>	String	<p>The resource to request.</p> <ul style="list-style-type: none"> The URL can include any query string parameters that the subrequest supports. The query string must be URL-encoded. You can use parameters to filter response bodies. You cannot apply headers at the subrequest level. 	Required

Root XML Tag

```
<request>
```

JSON example

```
{
  "method" : "GET",
  "url" : "v34.0/subjects/account/001D000000K0fXOIAZ?fields=Name,BillingPostalCode"
}
```

SEE ALSO:

[Batch](#)[Update a Record and Get Its Field Values in a Single Request](#)

Batch Response Body

Describes the result of a Batch request.

Batch Results**Properties**


Name	Type	Description
hasErrors	Boolean	true if at least one of the results in the result set is an HTTP status code in the 400 or 500 range; false otherwise.
results	Subrequest Result[]	Collection of subrequest results.

JSON example

```
{
  "hasErrors" : false,
  "results" : [{
    "statusCode" : 204,
    "result" : null
  }, {
    "statusCode" : 200,
    "result": {
      "attributes" : {
        "type" : "Account",
        "url" : "/services/data/v34.0/subjects/Account/001D000000K0fXOIAZ"
      },
      "Name" : "NewName",
      "BillingPostalCode" : "94105",
      "Id" : "001D000000K0fXOIAZ"
    }
  ]
}
```

Subrequest Result

Properties

Name	Type	Description
result	The type depends on the response type of the subrequest.  Important: If the result is an error, the type is a collection containing the error message and error code.	The response body of this subrequest.
statusCode	Integer	An HTTP status code indicating the status of this subrequest.

JSON example

```
{
  "attributes" : {
    "type" : "Account",
    "url" : "/services/data/v34.0/objects/Account/001D000000K0fXOIAZ"
  },
  "Name" : "NewName",
  "BillingPostalCode" : "94015",
  "Id" : "001D000000K0fXOIAZ"
}
```

SEE ALSO:

[Batch](#)

[Update a Record and Get Its Field Values in a Single Request](#)

SObject Tree

Creates one or more sObject trees with root records of the specified type. An sObject tree is a collection of nested, parent-child records with a single root record.

In the request data, you supply the record hierarchies, required and optional field values, each record's type, and a reference ID for each record. Upon success, the response contains the IDs of the created records. If an error occurs while creating a record, the entire request fails. In this case, the response contains only the reference ID of the record that caused the error and the error information.

The request can contain the following:

- Up to a total of 200 records across all trees
- Up to five records of different types
- SObject trees up to five levels deep

Because an sObject tree can contain a single record, you can use this resource to create up to 200 unrelated records of the same type.

When the request is processed and records are created, triggers, processes, and workflow rules fire separately for each of the following groups of records.

- Root records across all sObject trees in the request
- All second-level records of the same type—for example, second-level Contacts across all sObject trees in the request
- All third-level records of the same type
- All fourth-level records of the same type
- All fifth-level records of the same type



Note: The SObject Tree resource is currently available only through a pilot program. For information on enabling this resource for your organization, contact Salesforce.

URI

/vXX.X/composite/tree/*SObjectName*

Formats

JSON, XML

HTTP method

POST

Authentication

Authorization: Bearer *token*

Parameters

None required

Request body

[SObject Tree Request Body](#) on page 170

Response body

[SObject Tree Response Body](#) on page 174

Examples

- For an example of creating unrelated records of the same type, see [Create Multiple Records](#) on page 83.
- For an example of creating nested records, see [Create Nested Records](#) on page 81.

IN THIS SECTION:

[SObject Tree Request Body](#)

Describes a collection of sObject trees to create with the SObject Tree resource.

[SObject Tree Response Body](#)

Describes the result of an SObject Tree request.

SObject Tree Request Body

Describes a collection of sObject trees to create with the SObject Tree resource.

SObject Tree Collection Input

The request body contains a `records` collection that includes sObject trees.

Properties

Name	Type	Description	Required or Optional
records	SObject Tree Input[]	Collection of record trees to create. Each tree's root record type must correspond to the sObject specified in the SObject Tree URL.	Required

Root XML Tag

```
<SObjectTreeRequest>
```

JSON example

```
{
  "records" : [{
    "attributes" : {"type" : "Account", "referenceId" : "ref1"},
    "name" : "SampleAccount",
    "phone" : "1234567890",
    "website" : "www.salesforce.com",
    "numberOfEmployees" : "100",
    "industry" : "Banking",
    "Contacts" : {
      "records" : [{
        "attributes" : {"type" : "Contact", "referenceId" : "ref2"},
        "lastname" : "Smith",
        "title" : "President",
        "email" : "sample@salesforce.com"
      }, {
        "attributes" : {"type" : "Contact", "referenceId" : "ref3"},
        "lastname" : "Evans",
        "title" : "Vice President",
        "email" : "sample@salesforce.com"
      }
    ]
  }
}, {
  "attributes" : {"type" : "Account", "referenceId" : "ref4"},
  "name" : "SampleAccount2",
  "phone" : "1234567890",
  "website" : "www.salesforce2.com",
  "numberOfEmployees" : "100",
  "industry" : "Banking"
}]
}
```

XML example

```
<SObjectTreeRequest>
  <records type="Account" referenceId="ref1">
    <name>SampleAccount</name>
    <phone>1234567890</phone>
    <website>www.salesforce.com</website>
    <numberOfEmployees>100</numberOfEmployees>
    <industry>Banking</industry>
```

```
<Contacts>
  <records type="Contact" referenceId="ref2">
    <lastname>Smith</lastname>
    <title>President</title>
    <email>sample@salesforce.com</email>
  </records>
  <records type="Contact" referenceId="ref3">
    <lastname>Evans</lastname>
    <title>Vice President</title>
    <email>sample@salesforce.com</email>
  </records>
</Contacts>
</records>
<records type="Account" referenceId="ref4">
  <name>SampleAccount2</name>
  <phone>1234567890</phone>
  <website>www.salesforce2.com</website>
  <numberOfEmployees>100</numberOfEmployees>
  <industry>Banking</industry>
</records>
</SObjectTreeRequest>
```

SObject Tree Input

An sObject tree is a recursive data structure that contains a root record, its data, and its child records represented as other sObject trees.

Properties

Name	Type	Description	Required or Optional
attributes	Collection	Attributes for this record. The <code>attributes</code> property contains two subproperties: <ul style="list-style-type: none"><code>type</code> (required)—This record’s type.<code>referenceId</code> (required)—Reference ID for this record. Must be unique in the context of the request and start with an alphanumeric character. In XML, include attributes inside the <code>records</code> element.	Required
Required object fields	Depends on field	Required fields and field values for this record.	Required
Optional object fields	Depends on field	Optional fields and field values for this record.	Optional
Child relationships	SObject Tree Collection Input	This record’s child relationships, such as an account’s child contacts. Child relationships are either master-detail or lookup relationships. To view an object’s valid child relationships, use the SObject Describe resource or Schema Builder. The value of this property is an SObject Tree Collection Input that contains child sObject trees.	Optional

Root XML Tag

```
<records>
```

JSON example

```
{
  "attributes" : {"type" : "Account", "referenceId" : "ref1"},
  "name" : "SampleAccount",
  "phone" : "1234567890",
  "website" : "www.salesforce.com",
  "NumberOfEmployees" : "100",
  "industry" : "Banking",
  "Contacts" : {
    "records" : [{
      "attributes" : {"type" : "Contact", "referenceId" : "ref2"},
      "lastname" : "Smith",
      "title" : "President",
      "email" : "sample@salesforce.com"
    }, {
      "attributes" : {"type" : "Contact", "referenceId" : "ref3"},
      "lastname" : "Evans",
      "title" : "Vice President",
      "email" : "sample@salesforce.com"
    }
  ]
}
```

XML example

```
<records type="Account" referenceId="ref1">
  <name>SampleAccount</name>
  <phone>1234567890</phone>
  <website>www.salesforce.com</website>
  <numberOfEmployees>100</numberOfEmployees>
  <industry>Banking</industry>
  <Contacts>
    <records type="Contact" referenceId="ref2">
      <lastname>Smith</lastname>
      <title>President</title>
      <email>sample@salesforce.com</email>
    </records>
    <records type="Contact" referenceId="ref3">
      <lastname>Evans</lastname>
      <title>Vice President</title>
      <email>sample@salesforce.com</email>
    </records>
  </Contacts>
</records>
```

SEE ALSO:
[SObject Tree](#)
[Create Multiple Records](#)
[Create Nested Records](#)

SObject Tree Response Body

Describes the result of an SObject Tree request.

Properties

Name	Type	Description
<code>hasErrors</code>	Boolean	<code>true</code> if an error occurred while creating a record; <code>false</code> otherwise.
<code>results</code>	Collection	Upon success, <code>results</code> contains the reference ID of each requested record and its new record ID. Upon failure, it contains only the reference ID of the record that caused the error, error status code, error message, and fields related to the error. In the case of duplicate reference IDs, <code>results</code> contains one item for each instance of the duplicate ID.

JSON example upon success

```
{
  "hasErrors" : false,
  "results" : [{
    "referenceId" : "ref1",
    "id" : "001D000000K0fXOIAZ"
  }, {
    "referenceId" : "ref2",
    "id" : "001D000000K0fXPIAZ"
  }, {
    "referenceId" : "ref3",
    "id" : "003D000000QV9n2IAD"
  }, {
    "referenceId" : "ref4",
    "id" : "003D000000QV9n3IAD"
  }]
}
```

XML example upon success

```
<?xml version="1.0" encoding="UTF-8"?>
<SObjectTreeResponse>
  <hasErrors>false</hasErrors>
  <results>
    <id>001D000000K0fXOIAZ</id>
    <referenceId>ref1</referenceId>
  </results>
  <results>
    <id>001D000000K0fXPIAZ</id>
    <referenceId>ref2</referenceId>
  </results>
  <results>
    <id>003D000000QV9n2IAD</id>
    <referenceId>ref3</referenceId>
  </results>
  <results>
    <id>003D000000QV9n3IAD</id>
  </results>
</SObjectTreeResponse>
```

```

        <referenceId>ref4</referenceId>
    </results>
</SObjectTreeResponse>

```

JSON example upon failure

```

{
  "hasErrors" : true,
  "results" : [{
    "referenceId" : "ref2",
    "errors" : [{
      "statusCode" : "INVALID_EMAIL_ADDRESS",
      "message" : "Email: invalid email address: 123",
      "fields" : [ "Email" ]
    }]
  }]
}

```

XML example upon failure

```

<SObjectTreeResponse>
  <hasErrors>true</hasErrors>
  <results>
    <errors>
      <fields>Email</fields>
      <message>Email: invalid email address: 123</message>
      <statusCode>INVALID_EMAIL_ADDRESS</statusCode>
    </errors>
    <referenceId>ref2</referenceId>
  </results>
</SObjectTreeResponse>

```

SEE ALSO:

[SObject Tree](#)

[Create Multiple Records](#)

[Create Nested Records](#)

Headers

This section lists custom HTTP request and response headers used for REST API.

IN THIS SECTION:

[Assignment Rule Header](#)

The Assignment Rule header is a request header applied when creating or updating Cases or Leads. If enabled, the active assignment rules are used. If disabled, the active assignment rules are not applied. If a valid AssignmentRule ID is provided, the AssignmentRule is applied. If the header is not provided with a request, REST API defaults to using the active assignment rules.

[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.

Limit Info Header

This response header is returned in each request to the REST API. You can use the information to monitor API limits.

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.

Query Options Header

Specifies options used in a query, such as the query results batch size. Use this request header with the Query resource.

Assignment Rule Header

The Assignment Rule header is a request header applied when creating or updating Cases or Leads. If enabled, the active assignment rules are used. If disabled, the active assignment rules are not applied. If a valid AssignmentRule ID is provided, the AssignmentRule is applied. If the header is not provided with a request, REST API defaults to using the active assignment rules.

Header Field Name and Values

Field name

`Sforce-Auto-Assign`

Field values

- `TRUE`. Active assignment rules are applied for created or updated Cases or Leads.
- `FALSE`. Active assignment rules are not applied for created or updated Cases or Leads.
- Valid AssignmentRule ID. The given AssignmentRule is applied for created Cases or Leads.

`TRUE` and `FALSE` are not case-sensitive.

If the header is not provided in the request, the default value is `TRUE`.

Example

`Sforce-Auto-Assign: FALSE`

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/v35.0/subjects/Merchandise__c/a00D00000008pQSNIA2"
},
"Id" : "a00D00000008pQSNIA2",
"OwnerId" : "005D00000001QX8WIAW",
"IsDeleted" : false,
"Name" : "Phone Case - iPhone 4/4S",
"CreatedDate" : "2013-05-20T20:49:32.000+0000",
"CreatedById" : "005D00000001QX8WIAW",
"LastModifiedDate" : "2013-05-20T20:49:32.000+0000",
"LastModifiedById" : "005D00000001QX8WIAW",
"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
```

Status Codes and Error Responses

Either when an error occurs or when a response is successful, the response header contains an HTTP code, and the response body usually contains:

- The HTTP response code
- The message accompanying the HTTP response code
- The field or object where the error occurred (if the response returns information about an error)

HTTP response code	Description
200	"OK" success code, for GET or HEAD request.
201	"Created" success code, for POST request.
204	"No Content" success code, for DELETE request.
300	The value returned when an external ID exists in more than one record. The response body contains the list of matching records.
304	The request content has not changed since a specified date and time. The date and time is provided in a <code>If-Modified-Since</code> header. See Get Object Metadata Changes for an example.
400	The request couldn't be understood, usually because the JSON or XML body contains an error.
401	The session ID or OAuth token used has expired or is invalid. The response body contains the <code>message</code> and <code>errorCode</code> .
403	The request has been refused. Verify that the logged-in user has appropriate permissions.
404	The requested resource couldn't be found. Check the URI for errors, and verify that there are no sharing issues.
405	The method specified in the Request-Line isn't allowed for the resource specified in the URI.
415	The entity in the request is in a format that's not supported by the specified method.
500	An error has occurred within Force.com, so the request couldn't be completed. Contact Salesforce Customer Support.

Incorrect ID example

Using a non-existent ID in a request using JSON or XML (*request_body.json* or *request_body.xml*)

```
{
  "fields" : [ "Id" ],
  "message" : "Account ID: id value of incorrect type: 001900K0001pPuOAAU",
  "errorCode" : "MALFORMED_ID"
}
```

Resource does not exist

Requesting a resource that doesn't exist, for example, if you try to create a record using a misspelled object name

```
{
  "message" : "The requested resource does not exist",
  "errorCode" : "NOT_FOUND"
}
```

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