# SALESFORCE CONTACT INTEGRATION

| | |
|---|---|
| DOCUMENT VERSION | V1.0 |
| DOCUMENT STATUS | ON TRACK |
| OBJECTIVE | AUTOMATE THE SYNCHRONIZATION OF CUSTOMER PROFILE INTO SALESFORCE CONTACT |
| TARGET AUDIENCE | CUSTOMER SERVICE AGENTS, SUPPORT MANAGERS, SALESFORCE ADMINS, IT TEAMS |
| TESTING TOOLS | POSTMAN, SALESFORCE WORKBENCH |
| RELEVANT DOCUMENT | https://developer.salesforce.com/docs/apis |

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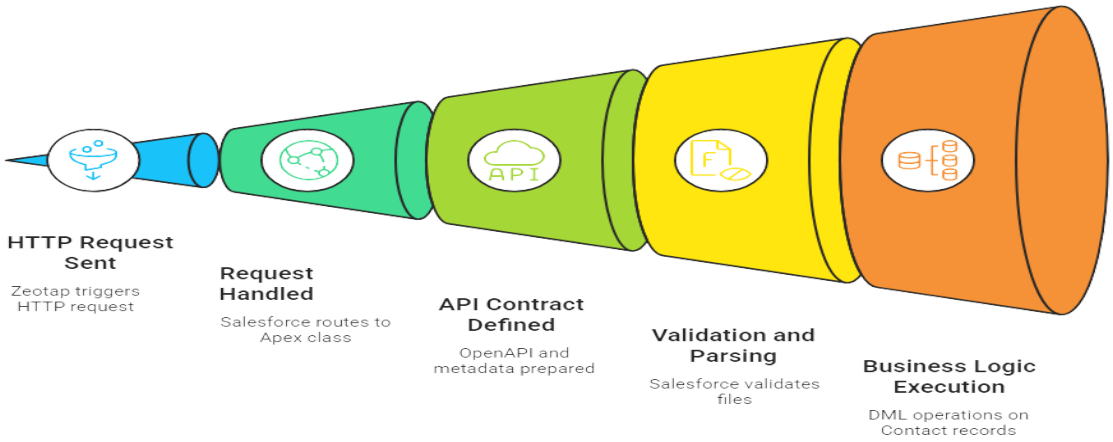
## OVERVIEW

Salesforce Contact records often lack enriched, unified customer data gathered from multiple channels such as marketing platforms, chat tools, and support interactions. Without this enriched view, agents in Freshdesk or Freshsales may face slower response times, context switching, and missed opportunities to deliver personalized service.By integrating enriched customer data directly into Salesforce Contact records, this solution enhances operational efficiency, reduces average handling time, and improves overall customer satisfaction.The primary target audience for this integration includes customer service agents, support managers, and sales teams who rely on Salesforce for customer engagement and case resolution.

## GOALS

The purpose of this integration is to synthesize all the customer data from multiple sources into one, 360-degree view by directly integrating Freshworks' enriched customer data into Salesforce Contact records. Agents will have access to real-time insights during interactions, which will lead to drop in average handling time (AHT) by an estimated 10–15% by surfacing enriched data within 2 seconds of a query,faster response times, more customized service, and improved decision-making. Additionally, automating the data transfer eliminates manual entry errors and ensures that Salesforce always reflects the latest customer state within 5 minutes of an update on Freshworks.

## DATA FLOW OVERVIEW




1. **User updates his profile on Freshworks**

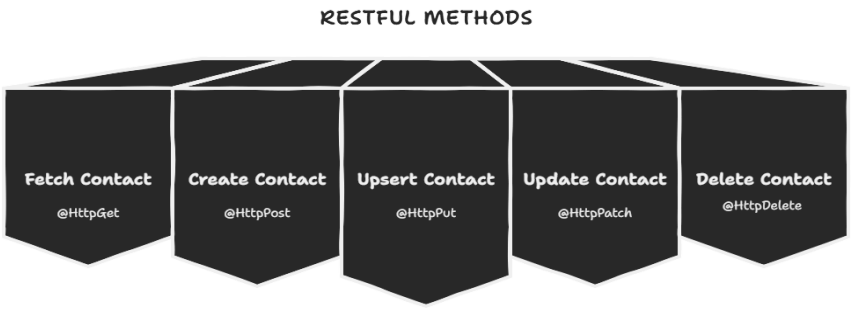
   The user performs an action such as creating a new profile, updating existing details (e.g., email, phone), or deleting their profile via a Freshworks-managed application or portal.

2. **Freshworks sends an HTTP request to Salesforce**

   Freshworks detects the change and triggers the appropriate HTTP request to the Salesforce endpoint defined in the Apex REST class.
   **Example endpoint:**
   https://<instance>.salesforce.com/services/apexrest/apex-rest-examples/v1/Contacts/<contact Id>

3. **Apex REST class handles the request**

   Salesforce receives the HTTP request and routes it to the appropriate Apex class — in this case, ContactManager.cls. This class contains RESTful methods that interact with the **Contact** object by creating, updating, or deleting records based on the request type and payload.




4. **OpenAPI and Metadata**

   The **OpenAPI document** (a .yaml file) defines what the API does — including endpoints, request/response formats, supported HTTP methods, and parameters.

   The accompanying .externalServiceRegistration-meta.xml file provides the **metadata** Salesforce needs to internally register and expose this API for use (e.g., as agent actions).

   Together, the .yaml and .xml files form an **API contract**, making the Apex REST API **discoverable and consumable** within Salesforce and by external systems.

5. **Parsing and Validation**

   The YAML and XML files are parsed and validated by Salesforce. Each operation (GET, POST, PATCH, DELETE) is listed as a separate actionable endpoint.
   Once validated, this API becomes **ready to be consumed.**

6. **Salesforce Business Logic**

   The Apex method processes the request body or URL parameters received from Freshworks. It executes DML operations such as insert, update, or delete on Contact records, depending on the request type.

**EXAMPLE**

**Use Case**: A User wants to update their contact details on **Freshworks**-managed platform.

Expected data flow:

1. User updates his profile details (name,phone etc) in the Freshworks system.
2. Freshworks triggers a Data update event internally.
3. Freshworks identifies the matching user record using a unique identifier (e.g., CRM ID, email, or external ID).
4. Freshworks sends a RESTful API call to the Salesforce Apex REST endpoint.

5. Salesforce Apex Class (ContactManager.cls) receives and parses the request using the @HttpPatch or @HttpPut method.
6. **Data is updated** in the Contact record or a custom object.
7. Salesforce returns a response indicating success or failure.
8. Freshworks receives a success/failure response from the destination.


## FIELD MAPPING

Field mapping is essential to ensure that data from Freshworks is accurately and reliably integrated into Salesforce Contact records. It aligns each data point with the correct Salesforce field, prevents sync errors, and ensures required fields are populated.
This section outlines the mapping between fields in Freshworks' customer profile schema and the corresponding fields in Salesforce's `Contact` object.

| ZEOTAP FIELD | SALESFORCE CONTACT FIELD | REQUIRED |
|---|---|---|
| crm_id | External_Id__c | ✅ |
| first_name | FirstName | ❌ |
| last_name | LastName | ✅ |
| email | Email | ❌ |
| phone_number | Phone | ❌ |
| address.city | MailingCity | ❌ |
| address.zip | MailingPostalCode | ❌ |
| source_system | Source__c | ❌ |

## AUTHENTICATION METHODS

Salesforce uses the **OAuth 2.0** protocol to issue access tokens to clients. This is the most widely adopted and secure method of API authentication. It enables **secure, token-based communication** between Freshworks and Salesforce, ensuring that only authorized applications can access Salesforce data.

Here's how tokens can be obtained and accessed:

1. **Register Freshworks as a Connected App**
   Register Freshworks as a Connected App in Salesforce and obtain **Client ID** and **Client Secret**.
2. **Requesting for a token:**

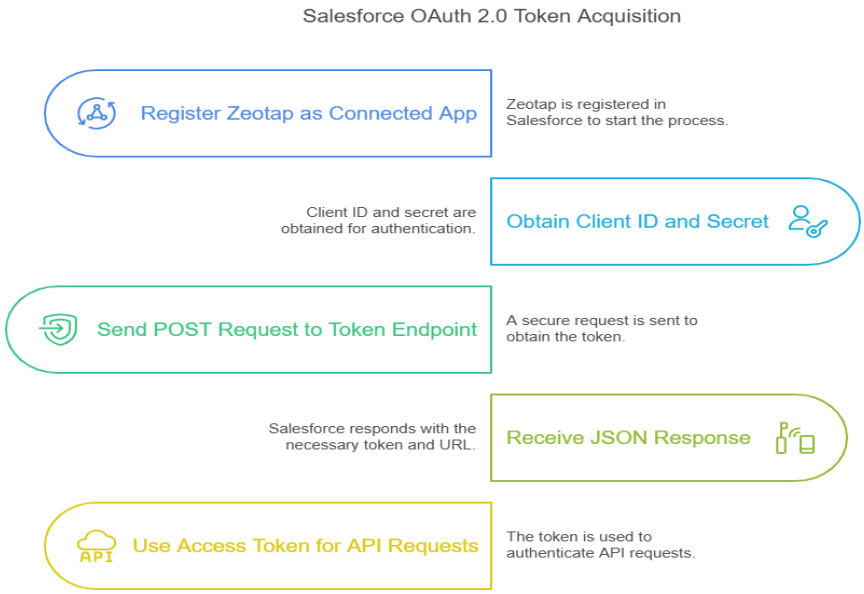
   - Send a POST request to the Salesforce token endpoint:
     https://login.salesforce.com/services/oauth2/token

   - Include the following form fields in the request body:
     - grant_type: password
     - client_id
     - Client_secret
     - Username
     - Password

   Note: GET does not work because of security reasons.

3. **Salesforce Response**
   Upon successful validation, Salesforce returns a **JSON response** containing
   - **access token :** A token used to authorize API requests.
   - **instance_url :** The base URL for all API calls.

   Note: Access token is time limited. Valid for 10-15 mins.



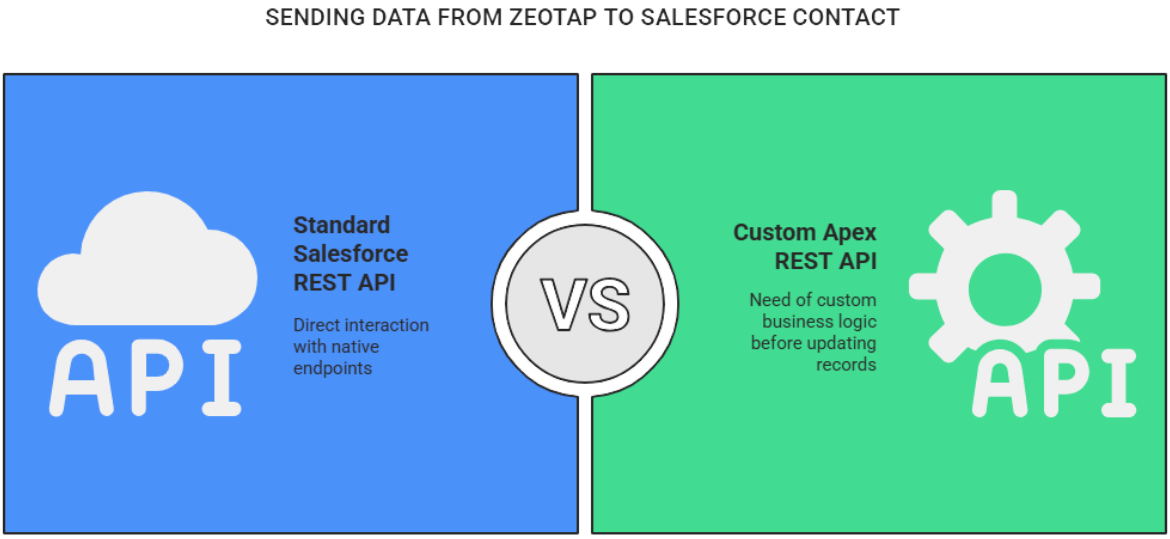

**Common Edge Cases in Authentication:**

1. ***"I'm trying to post my credentials, but I keep getting an "unauthorized" error."***
   Where it fails: Token request to /oauth2/token
   Status code: 401 Unauthorised
   Fix:Double-check client_id, client_secret, username, and password.
2. ***"I used the correct URL, but nothing works — maybe it's a network issue?"***
   Where it fails: Using HTTP instead of HTTPS
   Status code: 403 or blocked
   Fix:Make sure you're using **HTTPS**, not HTTP.
3. ***"I'm logging in from a new IP and my password alone doesn't work."***
   Where it fails: Token request
   Status code: 401 Unauthorized
   Fix:Append your **security token** to the end of your password.
4. ***My API calls were working fine earlier, but now they all say "unauthorized."***
   Where it fails: API request after token expiry
   Status code: 401 Unauthorized
   Fix:Get a **new access token** or implement token refresh logic.
5. ***"I posted the data as JSON, and now the request fails with a weird error."***
   Where it fails: Token request
   Status code: 400 Bad Request
   Fix:Use application/x-www-form-urlencoded as the content type.
6. ***"I entered the wrong password a few times and now nothing works."***
   Where it fails: Token request

Status code: 403 Forbidden
Fix:Wait for account unlock or reset password.

7. ***"I'm sending multiple login requests quickly and now they're blocked."***
   Where it fails: Token request
   Status code: 429 Too Many Requests
   Fix:Add a retry mechanism with **exponential backoff**.

## KEY ENDPOINTS




Salesforce provides two principal methods of programmatic data access through its REST APIs: **Salesforce REST API** and **custom Apex REST APIs**.

Using the standard Salesforce REST API, one has access to predefined endpoints that allow for the execution of CRUD operations on standard and custom objects, including the creation or updating of Contact records via specific URL endpoints.

Conversely, Custom Apex REST APIs grant developers the capability of extending the capabilities of existing APIs by defining their own endpoints within Apex classes using the @RestResource annotation.

Both methods are secured with OAuth authentication and support common HTTP verbs like GET, POST, PATCH, and DELETE, but the selection between them lies in the use case customization and complexity needed.

1. **Salesforce REST API Endpoint**

   a. **AUTHENTICATION**

   Before making any API request, you must authenticate with Salesforce and obtain an access token.

   **Endpoint:** POST https://login.salesforce.com/services/oauth2/token
   Content-Type: application/x-www-form-urlencoded

   b. **CREATING A NEW CONTACT**

   **Endpoint**: POST /services/data/v60.0/sobjects/Contact/

| REQUEST | RESPONSE |
| --- | --- |
| { "FirstName": "John", "LastName": "Doe", "Email": "john.doe@example.com" } | { "id": "0031t00000XXXXXXAA2", "success": true, "errors": [] } |

   c. **UPDATING AN EXISTING CONTACT**

   **Endpoint:** POST **/services/data/v60.0/sobjects/Contact/{ContactId}**

| REQUEST | RESPONSE |
| --- | --- |
| { "Phone": "9876543210", "Title": "Marketing Manager" } | No Content , Status code 204 |

## COMMON ERRORS

| ERROR | CAUSE | FIX |
|---|---|---|
| INVALID_FIELD | Misspelled or non-existent field in the request. | Use correct API field names from Salesforce Object Manager. |
| REQUIRED_FIELD_MISSING | A required field (e.g., LastName for Contact) was not included in the request. | Include all required fields for the object. |
| INVALID_TYPE_ON_FIELD_IN_RECORD | Field value has the wrong data type (e.g., string instead of date). | Ensure data types match the field definition. |
| DUPLICATES_DETECTED | Duplicate rules triggered due to similar existing records. | Provide unique values or modify duplicate rules in Salesforce. |
| INVALID_OR_NULL_FOR_RESTRICTED_PICKLIST | Invalid value sent for a restricted picklist field. | Use only values that exist in the picklist definition. |
| STRING_TOO_LONG | Field value exceeds the maximum allowed character length. | Shorten the string to comply with the field length limit. |
| INVALID_SESSION_ID / INVALID_TOKEN | OAuth token/session ID is invalid or expired. | Re-authenticate using OAuth 2.0 and obtain a valid access token. |
| INSUFFICIENT_ACCESS_OR_READONLY | User does not have permission to create or edit the record. | Ensure the user has proper object/field-level permissions via profiles or permission sets. |
| CANNOT_INSERT_UPDATE_ACTIVATE_ENTITY | Trigger, flow, or automation failed during insert/update. | Debug and fix the logic in the associated automation or Apex trigger. |

## 2. Custom APEX REST API Endpoint

We generally use Apex classes when we need custom logic or validation not handled by standard Salesforce configuration
In a custom Apex REST class, the logic for each operation—such as creating, updating, or deleting a record—is defined using Apex methods. These methods are annotated with HTTP method annotations like @HttpPost, @HttpPatch, @HttpGet, etc., and are grouped under a @RestResource annotation, which defines the base URL of the API.

### 1. Creating a contact

**Endpoint: POST /services/apexrest/custom-api/v1/contacts/**

| REQUEST | RESPONSE |
|---|---|
| {<br>"firstName": "Ravi",<br>"lastName": "Verma",<br>"email": "ravi@zeotap.com",<br>"phone": "9876543210"<br>} | "0038c00002xXXXXXAAK" |

2. **Updating a contact**
   **Endpoint:**
   **PATCH /services/apexrest/custom-api/v1/contacts/0037F00000XXXXXX**

| REQUEST | RESPONSE |
| --- | --- |
| {<br>"Phone": "9876543210",<br>"Title": "Marketing Manager"<br>} | No Content , Status code 204 |

**Understanding Response**: It's a primitive string returned directly by the Apex method. It's just the ID of the record that was created or updated.

| # | TTILE | USER STORY | ACCEPTANCE CRITERIA | PRIORITY | NOTES |
| --- | --- | --- | --- | --- | --- |
| 1 | Add Contact | As a user, I want to add a contact so that I can save their details | - A form to enter name, phone, email<br>- Save button stores the contact<br>- Shows success message | High | Basic CRUD feature |
| 2 | Update Contact | As a user, I want to update an existing contact | - Click edit on contact<br>- Form pre-filled with contact details<br>- Save updates info correctly | High | Editable inline or in separate form |
| 3 | Delete Contact | As a user, I want to delete a contact | - Delete button available<br>- Confirmation before delete<br>- Contact is removed from the list | High | Soft delete optional |
| 4 | View Contact List | As a user, I want to view a list of all my contacts | - List displays contact names & details<br>- Pagination if too many<br>- Search or filter available | High | Add sort/filter later |
| 5 | Search Contacts | As a user, I want to search for a contact by name or number | - Search bar filters contact list<br>- Case insensitive search | Medium | Real-time filtering preferred |
| 6 | View Contact Details Page | As a user, I want to view full contact details by clicking on a contact name | - Contact card or detail page<br>- Displays all saved fields | Low | Modal view or separate route |

## KEY CONSTRAINTS

1. **Path parameters:**
   Caseid must be provided in path for get patch and delete

2. **Authentication Constraints:**

   Authentication is handled using **OAuth 2.0 with a valid access token.**

3. **Request Body Constraints:**
   **Post**: /Cases/
   Required: subject (String)
   Optional: status, origin , priority

   **Put**: /Cases/
   id is optional: If provided, the case will be updated. If not, a new case will be created.

   **Patch** /Cases/{caseId}
   At least one updatable field must be included in the body. Only fields defined in the schema can be updated.

4. **Data Format Constraints**
   1. All requests must have content type application/json.
   2. All string values must be UTF-8 encoded and free from injection-pron characters (<, >, etc.).
   3. Max length for subject: 255 characters.

5. **General Constraints**
   1. API usage must respect Salesforce rate limits and daily quotas.

### Required fields for Contacts

To ensure successful creation or update of a **Contact** in Salesforce, the following fields must be provided:

- LastName – Mandatory by default in Salesforce for Contact creation.

- Additional required fields – These may include Email, Phone, or other custom fields marked as required in your Salesforce org.

### API Errors & Fixes

1. ***"Invalid credentials during token request"***
   Where it fails: POST /services/oauth2/token
   Status code: 401 Unauthorized
   Fix:Double-check credentials; ensure user has API access
2. ***"Using HTTP instead of HTTPS"***
   Where it fails: Using HTTP instead of HTTPS
   Status code: 403 Forbidden
   Fix:Always use `https://`
3. ***"Missing security token on new IP login"***
   Where it fails: Token request
   Status code: 401 Unauthorized
   Fix:Append your **security token** to the end of your password.
4. ***"Token expired"***
   Where it fails: API request after token expiry
   Status code: 401 Unauthorized
   Fix:Request a new token or implement refresh token flow
5. ***"JSON posted with wrong content type"***
   Where it fails: Token request
   Status code: 400 Bad Request
   Fix:Set proper `Content-Type` header in the request
6. ***"Too many failed login attempts"***
   Where it fails: Token request
   Status code: 403 Forbidden
   Fix:Wait for unlock or reset password
7. ***"Multiple rapid login attempts."***
   Where it fails: Token request
   Status code: 429 Too Many Requests
   Fix:Add a retry mechanism with **exponential backoff**.
8. ***"Missing required fields in Contact creation"***
   Where it fails: Token request
   Status code: 400 Bad Request
   Fix:Ensure required fields (`LastName`, etc.) are provided

## Rate Limiting Policies

Salesforce imposes limits on API usage based on the edition and user count of the org. If you exceed these, you may:

- Hit performance issues
- Be blocked from adding new ones

| LIMIT TYPE | ENTERPRISE |
| --- | --- |
| Daily API Call Limit | 100,000 per day |
| Concurrent Request Limit | 25–50 concurrent calls |
| Bulk API Limit | 10,000 records per batch |

.

You can monitor usage via the Limits API:
GET /services/data/vXX.X/limits

**Measures to stay within limits:**

1. **Disable Specific Operations**

   To reduce the number of active operations in the API catalog:

   Set <active>false</active> in the ExternalServiceRegistration metadata.

2. **Delete an Entire API Registration**

   If an API is no longer required:

   - Remove references (e.g., agent actions or flows).
   - Generate a destructive manifest to delete the registration.

## TECHNICAL ENVIRONMENT SETUP:

1. Developer has installed Agentforce for Developers via VS Code or is using Code Builder.
2. It's assumed that the developer already has access to a Salesforce org (e.g., an AI AppDev org) that can be used for Apex development and deployment.
3. developer has installed the MuleSoft for Agentforce API Design Extension, needed for validating OpenAPI documents.
4. The Salesforce Command Line Interface (sf CLI) is installed and properly configured
5. Apex class follows @RestResource and contains at least one method with an appropriate HTTP method annotation
6. The Apex REST class must include sharing, without sharing, or inherited sharing to be eligible for OpenAPI spec generation and registration.

7. Developers have successfully decomposed the External Service Registration (ESR) files using the required CLI command before making modifications in the YAML editor.
8. structure of the generated YAML and XML OpenAPI files is valid
9. The user understands how to use the Org Browser to retrieve and locate Apex REST classes stored at /force-app/main/default/classes.
10. All work is done inside a properly configured Salesforce DX project, with a valid sfdx-project.json file and connected to the default org.

## EDGE CASES

1. If your Apex class lacks the @RestResource annotation, the system will not recognize it as a REST resource and it will be excluded from OpenAPI spec generation.
2. Classes without any method-level HTTP annotations (@HttpGet, @HttpPost, etc.) will be ignored during OpenAPI spec generation.
3. Using an unsupported or misspelled HTTP method annotation (e.g., @HttpPatch if not supported) can cause failures in spec generation or runtime errors.
4. Apex classes must explicitly declare sharing (with sharing, without sharing, or inherited sharing). If omitted, the class won't qualify for custom action generation.
5. If urlMapping contains invalid characters or dynamic path variables without proper formatting, the endpoint may not be callable or may not register correctly.
6. Even minor formatting errors in the OpenAPI YAML (like incorrect indentation or bad parameter types) will cause the MuleSoft extension or sf generate spec command to fail.
7. If the path in OpenAPI spec doesn't match the actual Apex class path (urlMapping), the action may be registered but will fail at runtime.
8. Trying to generate a spec or register the custom action before deploying the Apex class to the org will result in metadata not found or empty spec errors.
9. Two methods (even across different classes) with the same operationId can lead to conflicts when registering the OpenAPI spec.
10. If the parameter types in the OpenAPI spec don't match the Apex method's expected input types, the action might register but fail when called.
11. If you forget to re-deploy the modified YAML or XML ESR files after editing them, the custom action won't update in the org, even though your local files are correct.
12. Salesforce metadata is case-sensitive in many places. Having mismatched casing in paths, class names, or identifiers can lead to subtle bugs or failed deployments.

## VALIDATING AND TESTING API

Before we send data from Freshworks to Salesforce using the API, we need to make sure everything works correctly. This means checking that the API is written properly, follows Salesforce's rules, and does what it's supposed to do.

The **MuleSoft for Agentforce Extension Pack (beta)** offers comprehensive tools to validate API specifications for correctness, governance compliance, and readiness for agent actions.

It's like a toolkit that helps us check and test our API. It has:

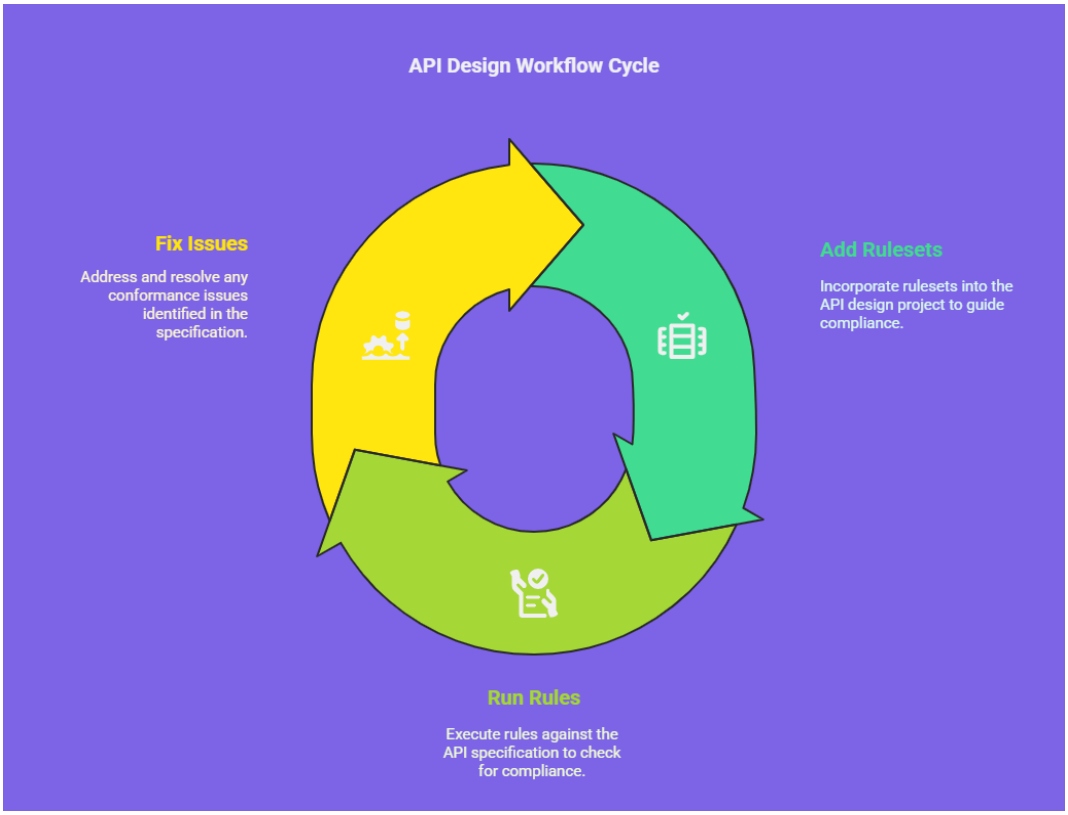
**MuleSoft for Agentforce API Design Extension -** A tool to design and review the API
**MuleSoft for Agentforce Dependencies Extension -** A tool that helps with Salesforce-specific needs
**MuleSoft for Agentforce Platform Extension-** A tool that checks the setup for the platform

Salesforce Set of rules:

1. **Salesforce API Topic and Action Enablement -** Rules to connect the API with Salesforce topics and actions
2. **Salesforce Apex REST Best Practices-**Best practices for using Apex REST (Salesforce's custom APIs)

## Validating API against Rulesets

This document guides you through the process of running validations on your API specification to ensure it complies with organizational or platform-specific rules.



**Workflow:**

1. **Add Rulesets to the API Design Project**
    - Rulesets (e.g., *Anypoint Best Practices*, *HTTPS Enforcement*) are added from Anypoint Exchange.
    - Teams may create and publish custom rulesets.

2. **Run Governance Validation**
    - Execute validation rules from the Governance Rulesets panel.
    - Rules can be run at:
        - All rulesets level
        - Individual ruleset level
        - Single rule level
    - Errors () and warnings () are highlighted in the Governance Results panel.

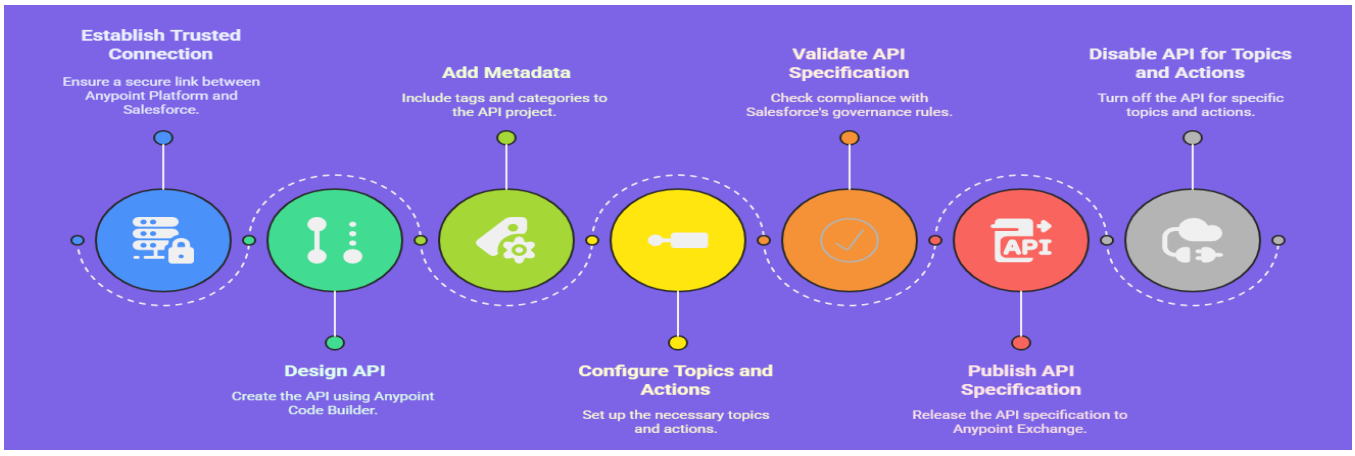
3. **Fix Conformance Issues**

    - Developers modify the RAML/OpenAPI specification to address issues such as:
        - Using HTTPS protocol only.
        - Providing required API descriptions and documentation.
    - Rules are re-executed post-fix to verify compliance.

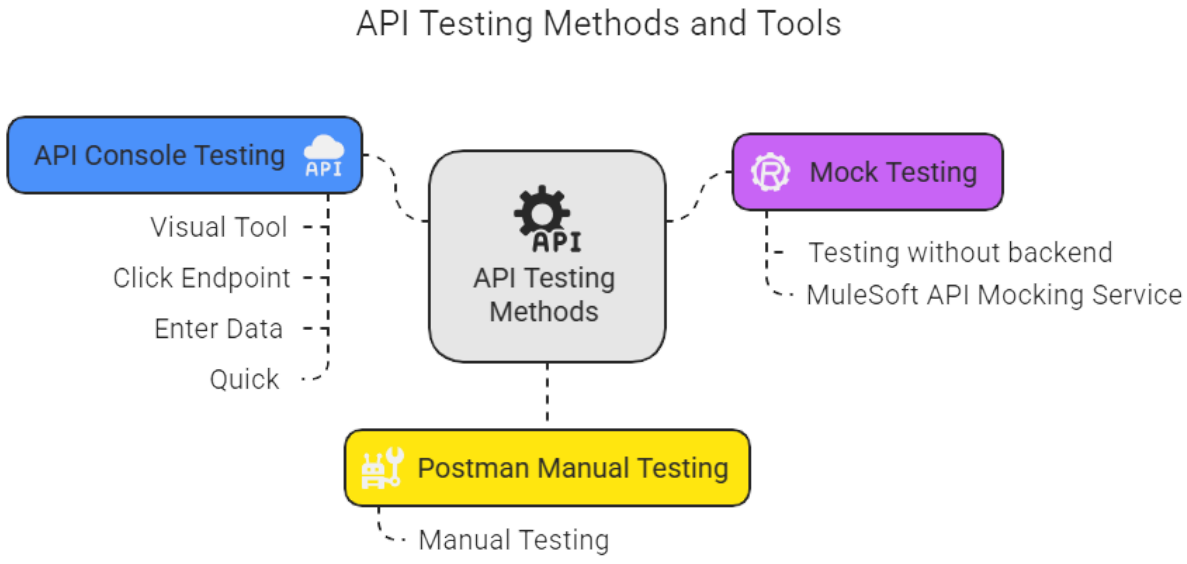
## Enabling an API Project for Topics and Agent Actions

This doc provides instructions for enhancing your API definition so it can interact with Salesforce's real-time and event-driven systems, particularly through topics (like Pub/Sub) and agent actions (used by tools like Einstein or Agentforce).

It allows you to integrate MuleSoft APIs with Salesforce Agentforce, enabling automation tasks and real-time decision-making by Salesforce agents.



1. Ensure a trusted connection between Anypoint Platform and a Salesforce organization with agent entitlements.
2. Verify API Catalog is enabled in Salesforce.
3. Ensure the required permissions are in place for asset management, application deployment, and API design.
4. In Anypoint Code Builder, create a project and select Enable this API for Agent Topics and Actions.
5. Define Project Name, API Type (REST), API Specification Language (OAS 3.0), and Business Group.
6. Add metadata (tags, categories) to the API Project Properties tab, including sf-api-catalog and sf-api-topic tags.
7. Configure topics by defining labels, classification descriptions, scope, and instructions for agent actions.
8. Annotate API operations with x-sfdc/agent/action/publishAsAgentAction set to true for enabling actions.
9. Validate API governance rules using the SF API Topic and Action Enablement ruleset.
10. Publish the API specification to Anypoint Exchange to make it available in API Catalog.
11. To disable topics, deselect Enable this API for Agent Topics and Actions and apply changes.



## API Console Testing (for PRD)

To validate the integration between Freshworks and Salesforce before deployment, we use API console testing tools such as **Postman** and **Salesforce Workbench**. These tools allow us to simulate authentication, record creation, updates, and error scenarios in a controlled environment.

**Goals of Console Testing:**

- Confirm endpoint accessibility
- Validate authentication and token usage
- Ensure payload formats match Salesforce expectations
- Test common success and error scenarios
- Document sample requests/responses

**Test Examples:**

- POST `/services/oauth2/token`: validate access token retrieval
- POST `/sobjects/Contact/`: create new contact with required fields
- PATCH `/sobjects/Contact/{Id}`: update existing contact details
- Simulate failures (e.g., missing `LastName`, invalid token)

Testing will be done using:

- **Postman** for request simulation and payload verification
- **Workbench** for native Salesforce testing
- **Manual token refresh handling** and error retry logic will be validated