

Phase 7: Integration & External Access

Project Title – “Finance Management System – Salesforce CRM”

Named Credentials

Purpose: To securely store API endpoints and credentials for external services (e.g., SMS provider).

Implementation in Project: Created a Named Credential for SMS Service to support automated contribution reminders.

The screenshot shows the Salesforce Setup interface with the following details:

- Left Sidebar:** Includes sections for User Interface (Rename Tabs and Labels), Security, and Named Credentials. The "Named Credentials" section is currently selected.
- Top Bar:** Shows the path "SETUP > NAMED CREDENTIALS" and the name "SMS Service". There are "Edit" and "Delete" buttons on the right.
- Form Fields:**
 - Label:** SMS Service
 - Name:** SMS_Service
 - URL:** https://api.smsprovider.com
 - Enabled for Callouts:** A toggle switch is turned on.
 - Authentication:** Options include "External Credential" and "Authorize".
 - Client Certificate:** An empty field.
 - Callout Options:** Options include "Generate Authorization Header" (checked), "Allow Formulas in HTTP Header" (unchecked), "Allow Formulas in HTTP Body" (unchecked), and "Outbound Network Connection" (unchecked).
 - Managed Package Access:** An empty section.

Remote Site Settings

Purpose: Required when making external HTTP callouts from Apex.

Implementation in Project: Configured Remote Site Setting for SMS API endpoint.

Remote Site Details

Remote Site Detail	
Remote Site Name	SMS_Service
Modified By	Manikanta Pemmireddy, 9/26/2025, 3:59 AM
Remote Site URL	https://api.smsprovider.com
Disable Protocol Security	<input type="checkbox"/>
Description	
Active	<input checked="" type="checkbox"/>
Created By	Manikanta Pemmireddy, 9/26/2025, 3:59 AM

Web Services (REST Callouts)

Purpose: Enable Salesforce to integrate with external systems using REST APIs.

Implementation in Project:

- Created an Apex class NotificationIntegration with a **@future(callout=true)** method.
- Simulated sending SMS reminders using a dummy API endpoint.

```
public with sharing class NotificationIntegration {
    @future(callout=true)
    public static void sendSMS(String phone, String message) {
        HttpRequest req = new HttpRequest();
        req.setEndpoint('https://api.smsprovider.com/send');
        req.setMethod('POST');
        req.setHeader('Content-Type', 'application/json');
        req.setBody('{"to":"' + phone + '", "message":"' + message + '"}');
        Http http = new Http();
        HttpResponse res = http.send(req);
        System.debug('Response: ' + res.getBody());
    }
}
```

}

The screenshot shows the Salesforce code editor with the following code:

```
1 public with sharing class NotificationIntegration {
2     @future(callout=true)
3     public static void sendSMS(String phone, String message) {
4         HttpRequest req = new HttpRequest();
5         req.setEndpoint('callout:SMS_Service/send'); // from Named Credential
6         req.setMethod('POST');
7         req.setHeader('Content-Type', 'application/json');
8         req.setBody('{"to":"' + phone + '","message":"' + message + '"}');
9
10        Http http = new Http();
11        HttpResponse res = http.send(req);
12        System.debug('Response: ' + res.getBody());
13    }
14
15 }
```

User	Application	Operation	Time	Status	Read	Size
Manikanta Pemmireddy	Unknown	/services/data/v64.0/...	9/26/2025, 4:30:26 PM	Success		2.25 KB
Manikanta Pemmireddy	Unknown	FutureHandler	9/26/2025, 4:30:26 PM	We couldn't access th...		5.27 KB

Execution Log		
Timestamp	Event	Details
16:30:26:001	USER_INFO	[EXTERNAL] 005gL000008Lxdt manikantapemmireddy66579@agentforce.com (GMT-07:00) Pacific Daylight Time (America/Los_Angeles) GMT-07:00
16:30:26:001	EXECUTION_ST...	
16:30:26:001	CODE_UNIT_ST...	[EXTERNAL] FutureHandler - state load
16:30:26:002	CODE_UNIT_FI...	FutureHandler - state load
16:30:26:002	EXECUTION_FI...	
16:30:26:018	USER_INFO	[EXTERNAL] 005gL000008Lxdt manikantapemmireddy66579@agentforce.com (GMT-07:00) Pacific Daylight Time (America/Los_Angeles) GMT-07:00
16:30:26:018	EXECUTION_ST...	
16:30:26:018	CODE_UNIT_ST...	[EXTERNAL] 01pgL000005s533 NotificationIntegration.sendSMS(String, String)
16:30:26:021	HEAP_ALLOCATE	[95] Bytes:3
16:30:26:021	HEAP_ALLOCATE	[100] Bytes:152
16:30:26:022	HEAP_ALLOCATE	[417] Bytes:408
16:30:26:022	HEAP_ALLOCATE	[430] Bytes:408
16:30:26:022	HEAP_ALLOCATE	[317] Bytes:6
16:30:26:022	HEAP_ALLOCATE	[EXTERNAL] Bytes:1
16:30:26:022	HEAP_ALLOCATE	[EXTERNAL] Bytes:2
16:30:26:022	METHOD_ENTRY	[1] 01pgL000005s533 NotificationIntegration.NotificationIntegration()
16:30:26:022	STATEMENT_EX...	[1]
16:30:26:022	STATEMENT_EX...	[1]
16:30:26:022	HEAP_ALLOCATE	[68] Bytes:5
16:30:26:022	HEAP_ALLOCATE	[74] Bytes:5
16:30:26:022	HEAP_ALLOCATE	[82] Bytes:7
16:30:26:022	SYSTEM_MODE...	false
16:30:26:022	HEAP_ALLOCATE	[EXTERNAL] Bytes:5
16:30:26:022	SYSTEM_MODE...	false
16:30:26:022	METHOD_EXIT	[1] NotificationIntegration
16:30:26:022	HEAP_ALLOCATE	[EXTERNAL] Bytes:13
16:30:26:022	HEAP_ALLOCATE	[EXTERNAL] Bytes:27

Platform Events

Purpose: Event-driven communication inside Salesforce and with external systems.

Implementation in Project:

- Created Platform Event Contribution_Reminder__e.
- Fields: MemberId (Text), DueDate (Date), Amount (Number 16,2).
- Use Case: Notify agents when contributions approach due date.

The screenshot shows the Salesforce Setup interface with the following details:

- Platform Event Definition Detail:**
 - Singular Label: Contribution Reminder
 - Plural Label: Contribution Reminders
 - Object Name: Contribution_Reminder
 - API Name: Contribution_Reminder_e
 - Event Type: High Volume
 - Publish Behavior: Publish Immediately
 - Created By: Manikanta Pemmireddy, 9/26/2025, 4:02 AM
 - Modified By: Manikanta Pemmireddy, 9/26/2025, 4:02 AM
- Standard Fields:**

Action	Field Label	Field Name	Data Type	Controlling Field	Indexed
Created By	Created By	CreatedBy	Lookup(User)		
Created Date	Created Date	CreatedDate	Date/Time		
Event UUID	Event UUID	EventUuid	Text(36)		
Replay ID	Replay ID	ReplayId	External Lookup		
- Custom Fields & Relationships:**

Action	Field Label	API Name	Data Type	Indexed	Controlling Field	Modified By
Edit Del	Amount	Amount_c	Number(16, 2)			Manikanta Pemmireddy, 9/26/2025, 4:04 AM
Edit Del	Due Date	DueDate_c	Date			Manikanta Pemmireddy, 9/26/2025, 4:03 AM
Edit Del	Member ID	MemberId_c	Text(10)			Manikanta Pemmireddy, 9/26/2025, 4:03 AM
- Triggers:** No triggers defined.
- Subscriptions:**

Subscriber	Last Processed Id	Last Published Id	State	Batch Size	User

Change Data Capture (CDC)

Purpose: Publish real-time events when records change.

Implementation in Project:

- Enabled Change Data Capture for **Contribution__c** object.
- External systems can subscribe to contribution status changes (e.g., Pending → Paid).

The screenshot shows the Salesforce Setup interface. The top navigation bar includes icons for Home, Object Manager, and a search bar labeled "Search Setup". Below the navigation is a sidebar with sections for Apps (AppExchange Marketplace), Integrations (Change Data Capture selected), and Identity (Token Exchange Handlers). A message at the bottom of the sidebar says, "Didn't find what you're looking for? Try using Global Search." The main content area is titled "Change Data Capture" under the "SETUP" section. It explains that the feature sends notifications for created, updated, deleted, and undeleted records. On the right, there are two panels: "Available Entities" (listing various objects like Account, Asset, etc.) and "Selected Entities" (containing "Contribution (Contribution__c)"). At the bottom are "Cancel" and "Save" buttons.

Salesforce Connect

Purpose: Access external databases in real-time without storing data in Salesforce.

Implementation in Project: Not configured — marked as **future scope** (e.g., integrating with regulator databases).

API Limits

Purpose: Awareness of org API limits.

Implementation in Project:

- Developer Edition allows **15,000 API calls/day**.
- This is sufficient for demo but must be scaled for production.

OAuth & Authentication

Purpose: Secure external access to Salesforce APIs.

Implementation in Project: Not required for demo; considered **future scope** for secure integration with regulators or payment gateways.

Summary

In Phase 7, the Finance Management System was prepared for **external integration**.

- **Named Credentials & Remote Site Settings** → secured API endpoints.
- **Apex REST Callout** → simulated sending SMS reminders.
- **Platform Events & CDC** → enabled real-time notifications and status updates.
- **API Limits & OAuth** → documented for production readiness.
- **Salesforce Connect** → identified as future scope.

This phase ensures the application is **integration-ready, scalable, and extensible** for real-world financial systems.