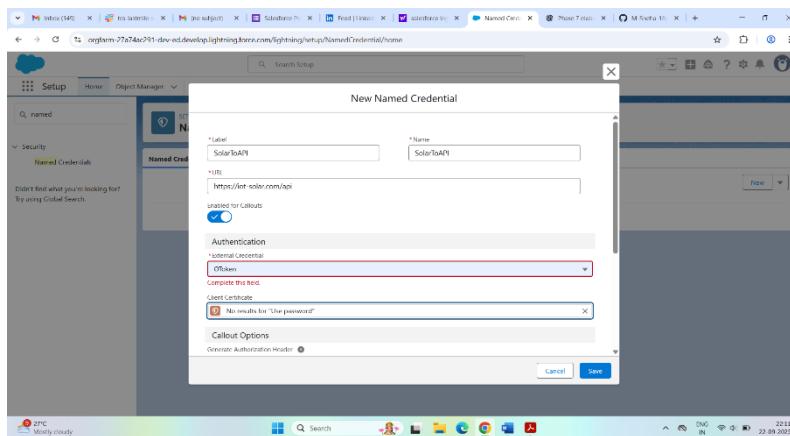


Phase 7: Integration & External Access – Solar Energy Management System

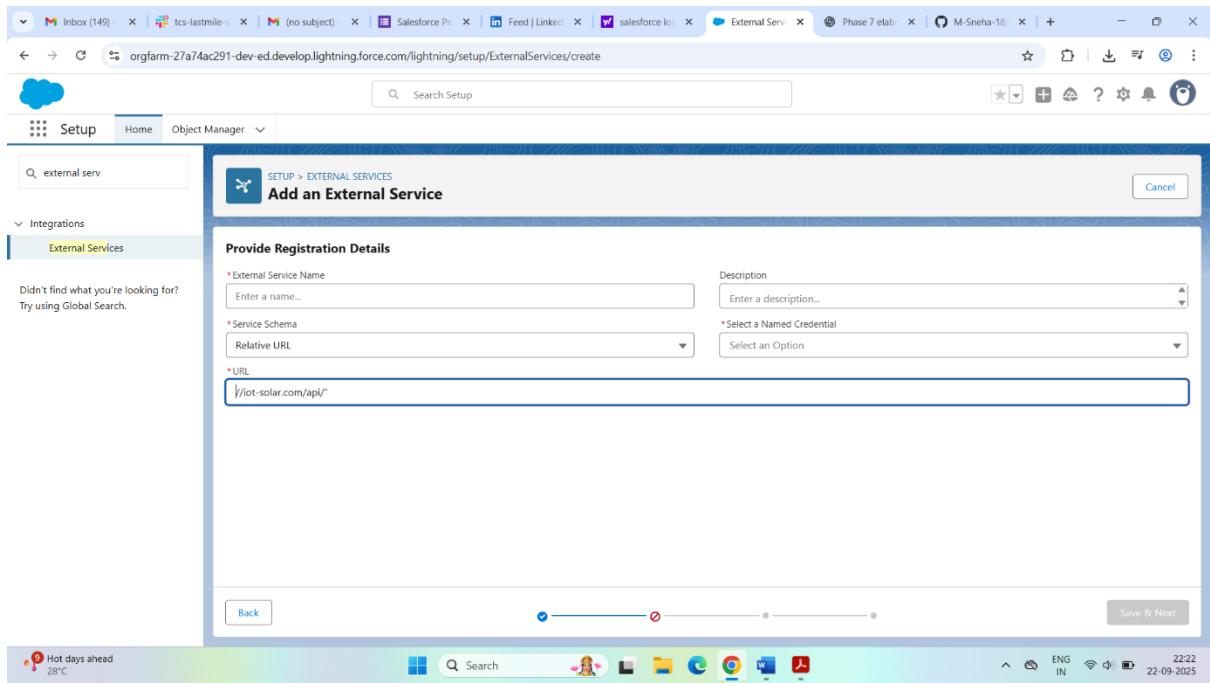
Step 1: Named Credentials (Store API login securely)

1. Go to Setup → Named Credentials → New.
2. Fill in details:
 - o Label: SolarIoTAPI
 - o URL: <https://iot-solar.com/api>
 - o Auth: OAuth / Token / Username-Password.
3. Save → Use in Apex/Flows with callout:SolarIoTAPI.



◆ Step 2: External Services (No-code API integration)

1. Go to Setup → External Services.
2. Click New External Service → upload API schema (Swagger file).
3. Salesforce auto-generates actions (like “Get Panel Output”).
4. Use these in Flows → e.g., when “Check Output” button is clicked, it fetches data from IoT.



◆ Step 3: Web Services (REST/SOAP)

- REST → Get energy production data from IoT panels.
- SOAP → If billing system provides WSDL service.

REST Callout Example (Apex):

```
HttpRequest req = new HttpRequest();
req.setEndpoint('callout:SolarIoTAPI/panelData?panelId=123');
req.setMethod('GET');

Http http = new Http();
HttpResponse res = http.send(req);
System.debug(res.getBody());
```

◆ Step 4: Callouts (Triggered APIs)

Why? Automate sending data out when events happen.

Examples:

- When a Solar Project is created → send customer/project info to billing system.

- When Maintenance Request is logged → call IoT system to pause/shut down panel safely.

Easy Way:

- Create an Apex Trigger → inside call a Queueable class (since triggers require async callouts).
- ◆ Step 5: Platform Events (Real-time Alerts)

Examples:

- If Solar Panel Breakdown reported in Salesforce → publish PanelFailureEvent.
- IoT Monitoring System subscribes → alerts technician.

How?

1. Go to Setup → Platform Events → New.
2. Create PanelFailureEvent with fields like PanelId, FailureType.
3. Use Flow or Apex to publish when a failure is logged.

The screenshot shows the Salesforce Platform Events setup page. The URL in the address bar is <https://orgfarm-27a74ac291-dev-ed.lightning.force.com/lightning/setup/EventObjects/page?address=%2F01gL000002KLAP%3Fsetupid%3DEventObjects>. The page title is "Platform Events". The left sidebar shows the navigation menu with "Platform Events" selected. The main content area displays the "Platform Event Definition Detail" for "PanelFailureEvent". The "Standard Fields" section includes fields like Action, Field Label, Field Name, Data Type, Controlling Field, and Indexed. The "Custom Fields & Relationships" section shows "No custom fields defined". The "Triggers" section shows "No triggers defined". The browser status bar at the bottom right shows "ENG IN" and the date "22-09-2025".

- ◆ Step 6: Change Data Capture (CDC)

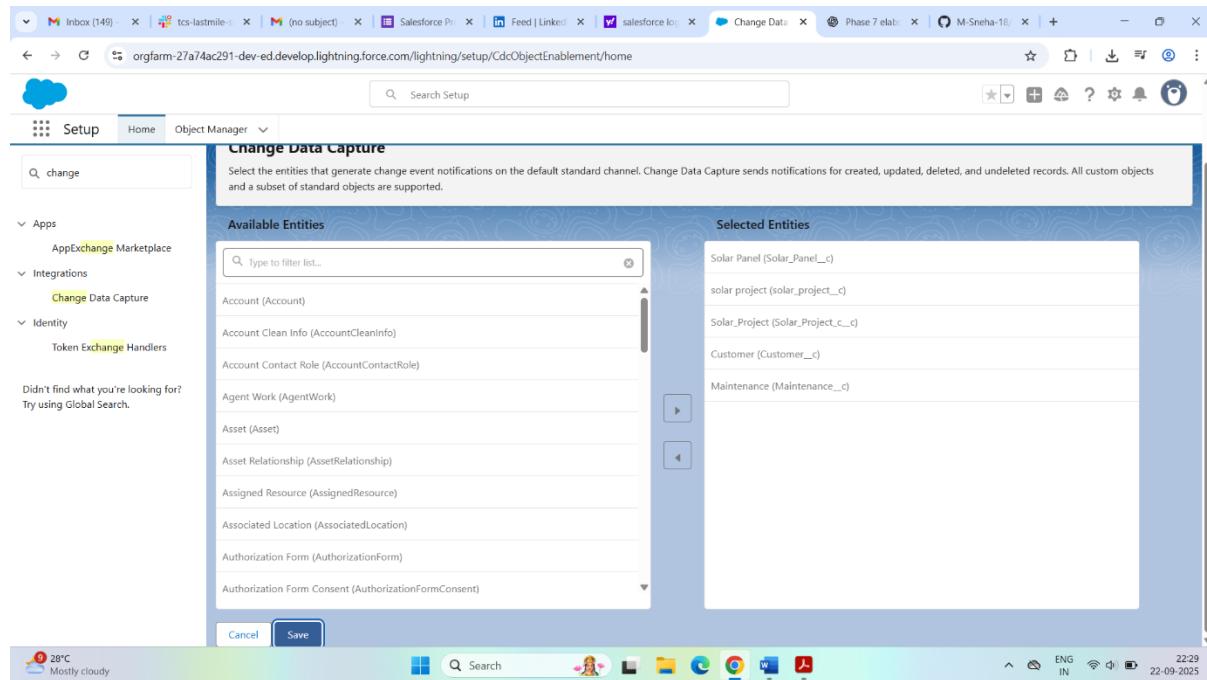
Examples:

- If Panel Status changes → IoT app is notified.

- If Customer Contact Info is updated → billing app is updated.

How?

1. Go to Setup → Change Data Capture.
2. Enable objects: Solar Panel, Solar Project, Customer.
3. External app subscribes via CometD API or Pub/Sub API.

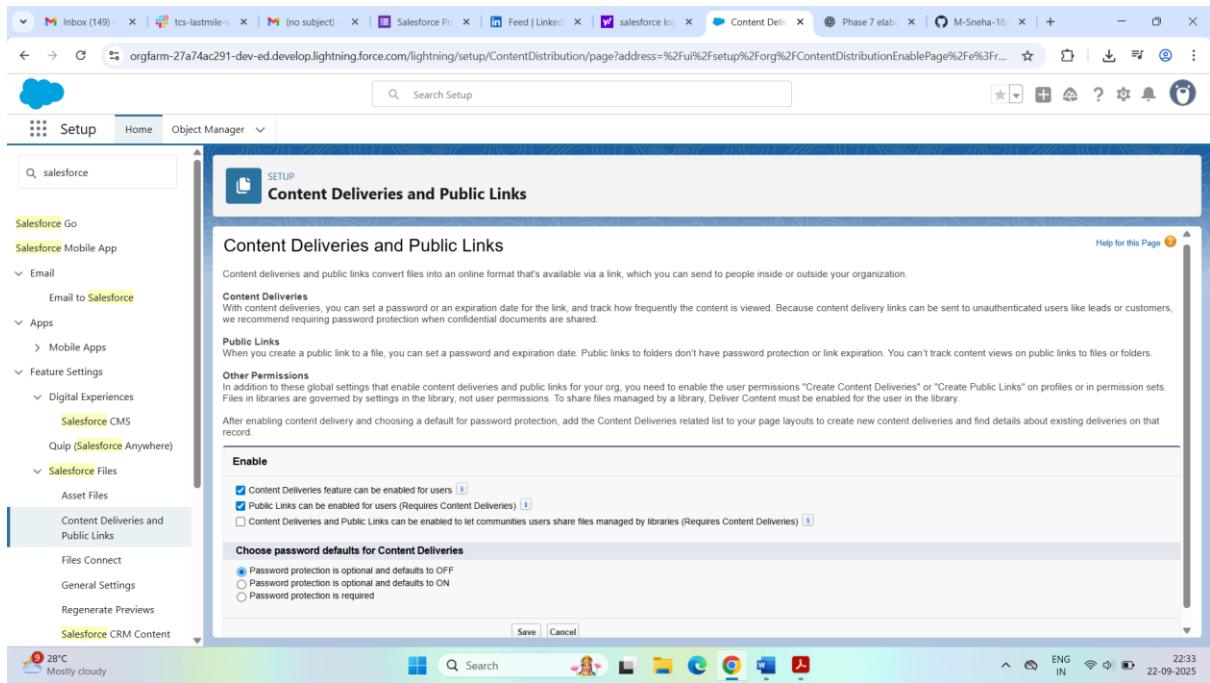


◆ Step 7: Salesforce Connect (View external data in Salesforce)

Example: Show Solar Panel Logs stored in external SQL DB as if they're inside Salesforce.

How?

1. Setup → Salesforce Connect.
2. Create External Data Source → connect to database.
3. Panels appear as External Objects → viewable like normal records.



◆ Step 8: API Limits

Why? Salesforce has daily API call limits.

Tips:

- If IoT sends 10,000 panel updates → use Bulk API or Streaming API instead of individual calls.
- Monitor in Setup → System Overview → API Usage.

◆ Step 9: OAuth & Authentication

Example: Customers log in to a Solar Portal to view energy usage.

How?

1. Setup → Identity Provider.
2. Enable OAuth providers (Google, Microsoft, etc.).
3. Link customer portal login with OAuth.

SETUP Certificate and Key Management

Certificates

Certificate and Key Detail

Label	https://iot-solar.com/api	Unique Name	https_iot_solar_com_api
Type	Self-Signed	Active	<input checked="" type="checkbox"/>
Expiration Date	9/22/2025, 5:00 AM	Created Date	9/22/2025, 10:05 AM
Key Size	2048	Exportable Private Key	<input checked="" type="checkbox"/>
Certificate C=USA, ST=CA, L=San Francisco, O=Salesforce.com, OU=00Dg1L000007Rwxs, CN=https_iot_solar_com_api Expiration: 22 Sep 2026 12:00:00 GMT			

◆ Step 10: Remote Site Settings

Example: Before calling <https://iot-solar.com>, add it.

How?

1. Go to Setup → Remote Site Settings.
2. Click New Remote Site.
3. Add:
 - Name: SolarIoT
 - URL: <https://iot-solar.com>
4. Save → Now callouts will work.

SETUP Remote Site Settings

Remote Site Details

Remote Site Name	SolarIoT	Modified By	Madhuri Seneha
Remote Site URL	https://iot-solar.com	Created By	Madhuri Seneha
Disable Protocol Security	<input checked="" type="checkbox"/>	Created Date	9/22/2025, 10:06 AM
Description	<input checked="" type="checkbox"/>	Modified Date	9/22/2025, 10:06 AM

