🚀 Phase 7: Integration & External Access – CampusConnect

Goal: Connect CampusConnect with external systems for automated student verification, course sync, at-risk notifications, and secure API access.
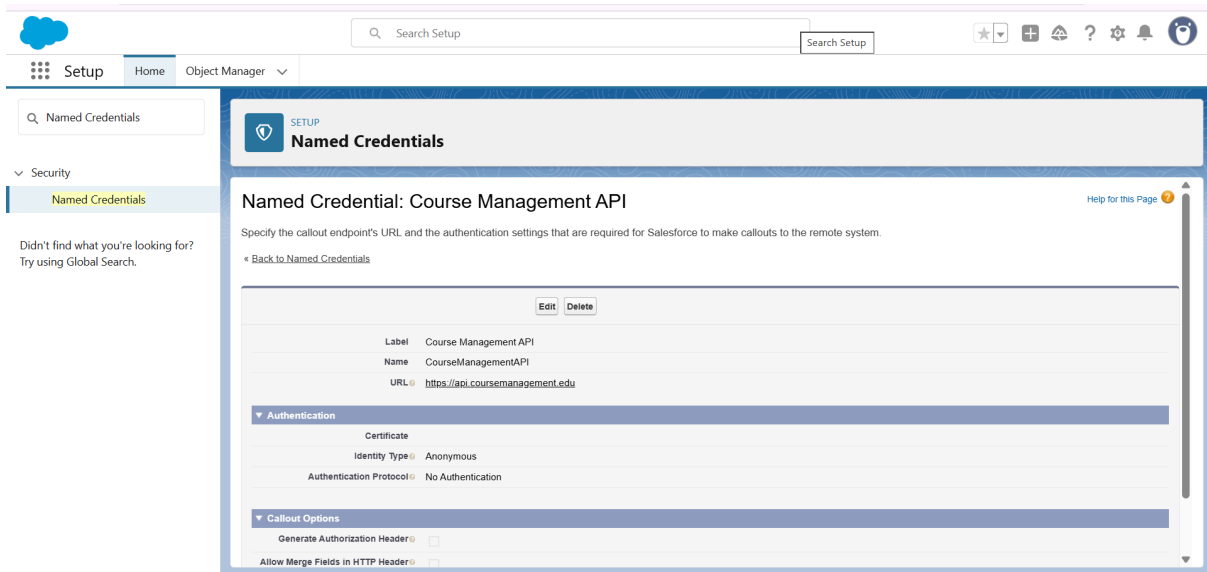

1️⃣ Named Credentials & Security

Purpose: Store external API credentials securely for REST/SOAP callouts.

Named Credential	Purpose	Setup Location	Notes / Verification
`StudentVerificationAPI`	Verify student identity	Setup → Named Credentials	Check endpoint, authentication type, and test callout.
`CourseManagementAPI`	Sync course data	Setup → Named Credentials	Verify authentication and endpoint.
`CampusConnect_External_API`	OAuth for external portal	Setup → App Manager → Connected Apps	Verify OAuth scopes, callback URL, Consumer Key & Secret.

Visual Reference: Screenshot of **Named Credentials page** showing StudentVerificationAPI and CourseManagementAPI.

2 Remote Site Settings

Purpose: Authorize Salesforce to make callouts to external domains.

Remote Site	Purpose	Setup Location	Notes / Verification
StudentVerificationAPI	Student verification endpoint	Setup → Remote Site Settings	Active, URL matches Named Credential.
CourseManagementAPI	Course API endpoint	Setup → Remote Site Settings	Active, URL matches Named Credential.

Visual Reference: Screenshot of Remote Site Settings with domains active.
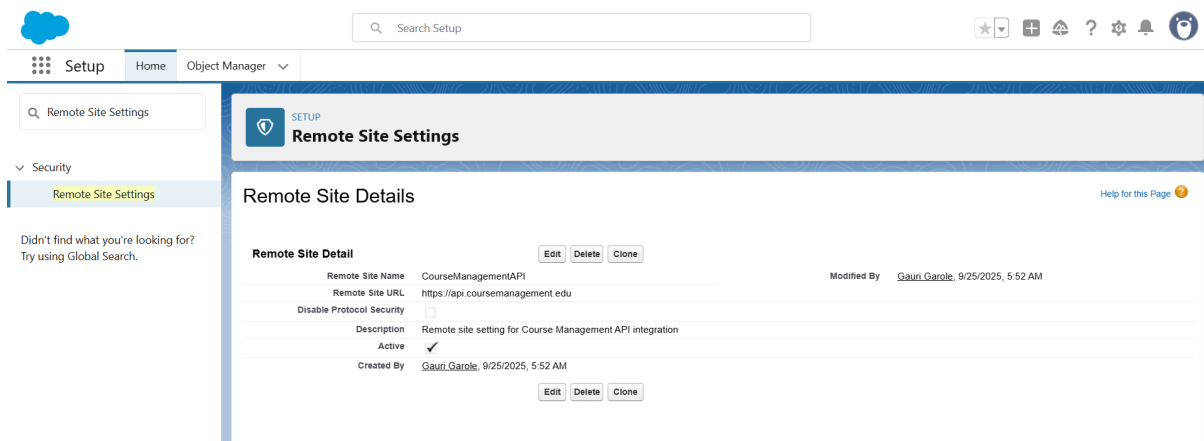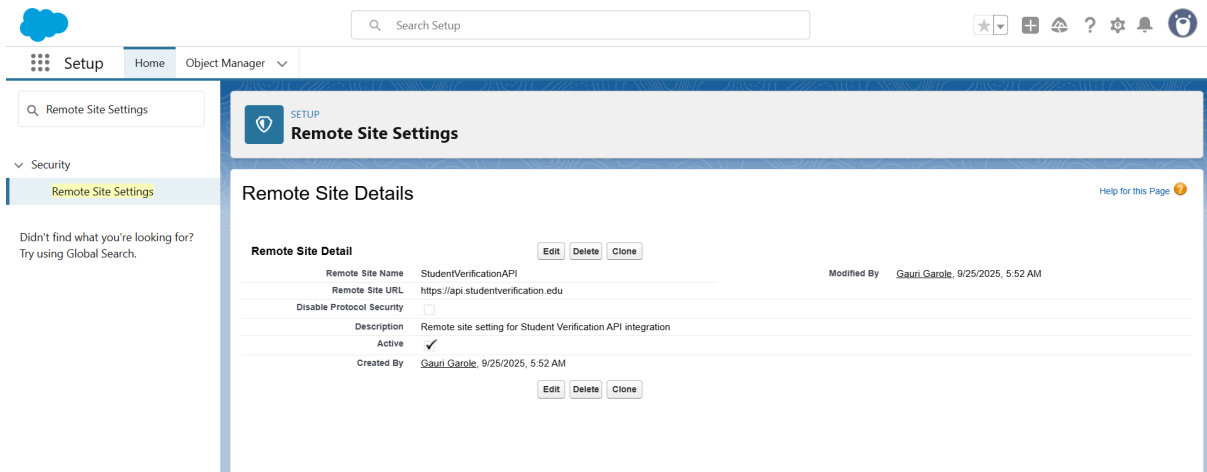
③ Platform Events

Purpose: Notify external systems or internal subscribers about at-risk students.

Platform Event	Fields	Setup Location	Notes / Verification
AtRiskStudentNotification__e	StudentId__c, RiskLevel__c, AttendancePercentage__c	Setup → Platform Events	Test event publishing via Developer Console.

Visual Reference: Screenshot of AtRiskStudentNotification__e in Setup.
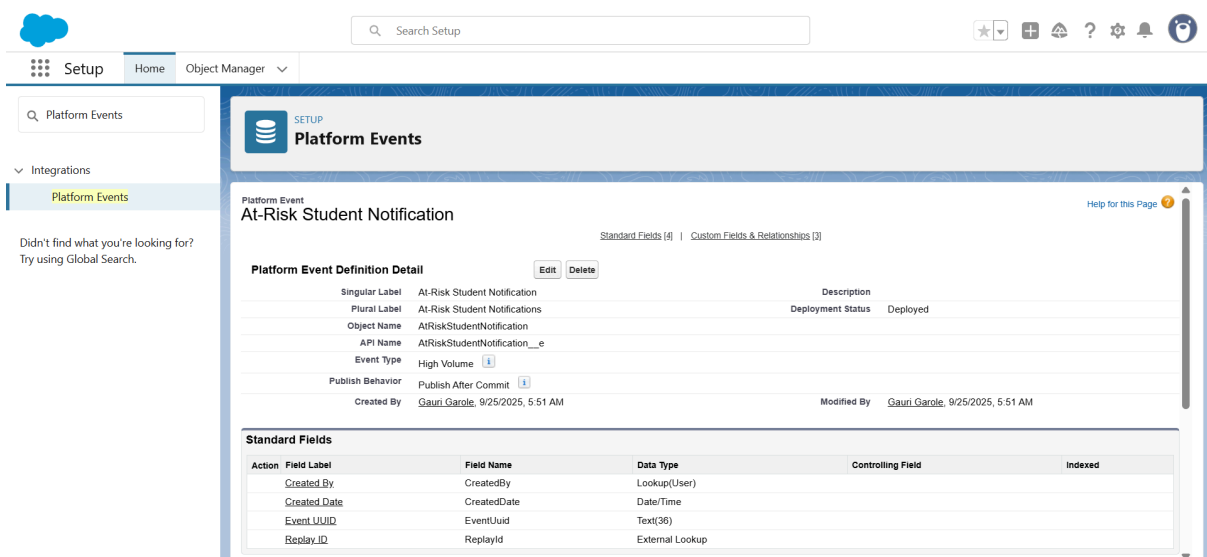
4 REST Callout Services

Purpose: Handle async communication with external systems.

Apex Class	Purpose	Notes / Verification
StudentVerificationServi ce.cls	Async student verification & course sync	Test with new Student record → External_Verification_Status__c updates.
AtRiskStudentEventPublis her.cls	Publish Platform Events	Verify events published when attendance changes trigger at-risk evaluation.
ExternalSystemNotifier.c ls	Handle Change Data Capture events	Update Student or Event record → verify notifications are processed.

Visual Reference: Screenshot of Apex Classes in Setup → StudentVerificationService.cls, AtRiskStudentEventPublisher.cls.

Q Search Setup

Q Apex Classes

⌄ Custom Code

   Apex Classes

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SETUP
Apex Classes

Apex Class
StudentVerificationService

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Apex Class Detail   [Edit] [Delete] [Download] [Security] [Show Dependencies]

Name	StudentVerificationService	Status	Active
Namespace Prefix		Code Coverage	0% (0/40)
Created By	Gauri Garole , 9/25/2025, 5:52 AM	Last Modified By	Gauri Garole , 9/25/2025, 5:52 AM

[Class Body] [Class Summary] [Version Settings] [Trace Flags]

```
1    public with sharing class StudentVerificationService {
2
3        @future(callout=true)
4        public static void verifyStudentAsync(String studentId, String email, String studentNumber) {
5            try {
6                HttpRequest req = new HttpRequest();
7                req.setEndpoint('callout:StudentVerificationAPI/verify');
8                req.setMethod('POST');
9                req.setHeader('Content-Type', 'application/json');
10
11               Map<String, Object> requestBody = new Map<String, Object>{
12                   'studentId' => studentId,
13                   'email' => email,
14                   'studentNumber' => studentNumber,
15                   'source' => 'CampusConnect'
16
```

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5 Integration Triggers

Purpose: Automate API calls and Platform Event publishing.

Trigger	Purpose	Notes / Verification
StudentIntegrationTrigger.trigger	Auto-verify new students	Create new Student record → verify External_Verification fields updated.
AttendanceIntegrationTrigger.trigger	Risk evaluation on attendance	Update Attendance__c → Platform Event triggered.

Visual Reference: Screenshot of Triggers in Setup → StudentIntegrationTrigger.trigger.

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6 API Monitoring

**Purpose:** Track API usage and prevent overages.

Object / Class	Purpose	Setup Location / Notes
APIMonitoringService.cls	Tracks usage, limits, warnings	Apex class verifies call counts and thresholds.

| `API_Usage_Log__c` | Logs all API calls | Fields: Service Name, Endpoint, Response Code, Response Time, Call DateTime. Test by making callouts. |

Visual Reference: Screenshot of API_Usage_Log__c records showing logged API calls.

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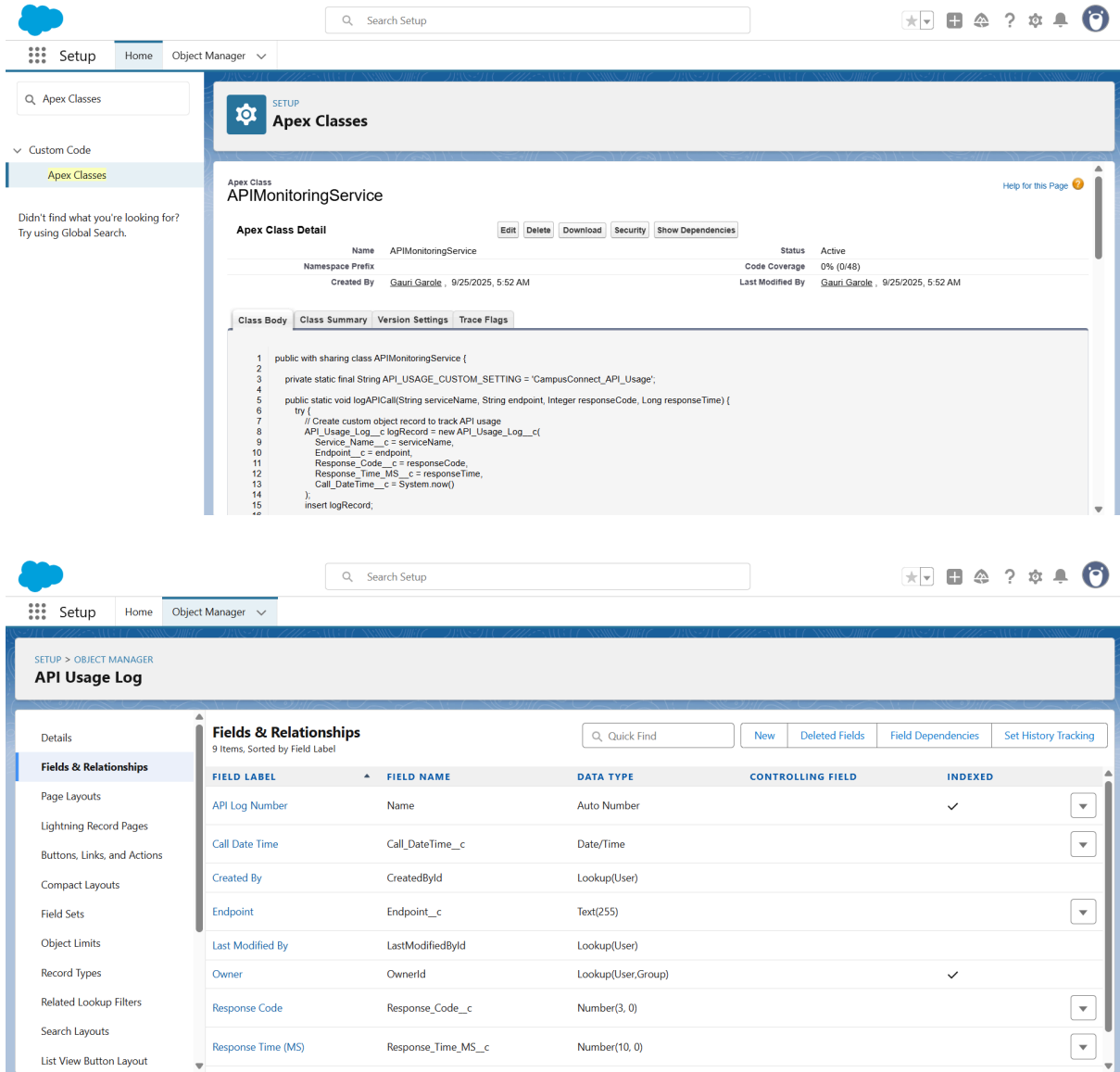
7 Change Data Capture (CDC)

**Purpose:** Notify external systems of real-time record changes.

CDC Event	Object	Setup Location	Notes / Verification

| StudentChangeEvent | Student__c | Setup → Change Data Capture | Update student → verify subscriber processes event. |
| EventChangeEvent | Event__c | Setup → Change Data Capture | Update event → external system notified. |

Visual Reference: Screenshot of CDC setup for StudentChangeEvent.
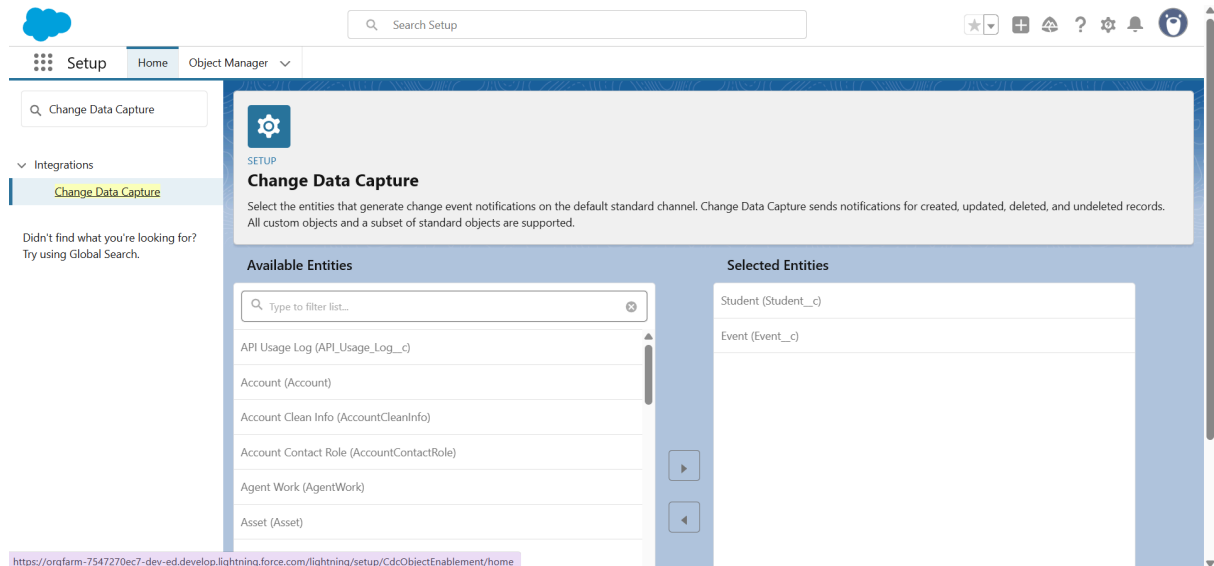
🔢 Enhanced Object Fields

Object	Field	Purpose	Notes / Verification
Student__c	External_Verification_Status__c	Shows verification result	Updated via API callout
Student__c	External_Verification_Date__c	Last verification date	Updated automatically
Course__c	External_Course_Code__c	Sync with external course ID	Updated via API callout
Course__c	External_Credits__c	External course credits	Verified via sync
Course__c	External_Sync_Date__c	Last sync date	Updated automatically

Phase 7 Conclusion – Integration & External Access

Phase 7 of CampusConnect successfully established secure, real-time integration with external systems. All components—including Named Credentials, Remote Site Settings, Connected Apps, Platform Events, REST Callouts, Integration Triggers, API Monitoring, Change Data Capture, and enhanced object fields—are deployed and fully functional.

The system now supports:

- **Automated student verification** via external APIs

- **Attendance-based at-risk detection** with real-time notifications

- **Course data synchronization** with external management systems

- **API usage monitoring** with limits and logging

- **Secure OAuth access** for external portals

This phase ensures that CampusConnect can interact reliably and securely with outside systems while maintaining full visibility, traceability, and compliance with Salesforce best practices.