

Title: -

A complete end-to-end Salesforce solution for archiving, storing, searching, and retrieving high-volume Activity Log Data using Batch Apex, ContentVersion (Salesforce Files), Apex Services, and Lightning Web Components.

Meta Description

Explore a robust Salesforce Data Archival framework built with Batch Apex, ContentVersion (Salesforce Files), DTO-based architecture, and Lightning Web Components. The solution is designed to archive, store, search, and retrieve large volumes of historical activity data efficiently, ensuring better performance, enhanced scalability, and long-term data retention within Salesforce.

Problem Statement:

As the volume of activity data continued to grow, Salesforce performance was increasingly impacted by large datasets, resulting in slower queries, reporting delays, and challenges in accessing historical records. To overcome these limitations, a robust archival solution was implemented using Batch Apex, Salesforce Files (ContentVersion), Apex Services, and Lightning Web Components. This framework efficiently archives and stores historical data, provides rapid search and retrieval capabilities, reduces storage overhead on transactional objects, and enhances overall platform scalability and performance.

Solution :

Objective of the Package

The Activity Data Archive Framework is designed to deliver a scalable and maintainable solution for managing large volumes of historical activity data within Salesforce. As organizations accumulate increasing amounts of activity records, maintaining all data within transactional objects can lead to storage challenges, slower query execution, and reduced reporting performance.

This framework addresses these concerns by implementing an automated archival process that extracts historical activity records, converts them into structured CSV files,

and stores them securely in Salesforce Files (ContentVersion). Additionally, a Lightning Web Component-based user interface enables efficient searching, filtering, and retrieval of archived records. The solution enhances system scalability, optimizes Salesforce performance, and provides reliable access to historical data without impacting day-to-day business operations.

Key Objectives

- Archive historical Counsellor Activity records in a structured and scalable manner.
- Reduce dependency on querying large transactional datasets.
- Improve Salesforce performance by minimizing load on active objects.
- Enable fast and efficient retrieval of archived records.
- Provide advanced search capabilities using Mobile Number and Date Range filters.
- Offer a user-friendly Lightning Web Component for archive exploration.
- Support large data volumes through automated Batch Apex processing.
- Store archived data securely within Salesforce Files (ContentVersion).
- Improve reporting and operational efficiency by separating active and historical data.
- Deliver a reusable and package-based solution that can be easily deployed across Salesforce organizations.

Business Objective

The business objective of this package is to ensure that historical activity data remains accessible for operational, reporting, auditing, and analytical purposes while maintaining optimal Salesforce performance and delivering a seamless user experience for end users.

Technical Objective

From a technical perspective, the package leverages **Batch Apex**, **Salesforce Files**, **Apex Service Classes**, **DTO Architecture**, and **Lightning Web Components** to create a reliable archival framework that supports long-term data management, scalability, and maintainability.

Expected Outcome

By implementing the Activity Data Archive Framework, organizations can efficiently manage growing activity data volumes, improve system performance, simplify historical record access, and establish a future-ready archival strategy within Salesforce.

How the Package Works:

How the Package Works

The **Activity Data Archive Framework** is designed to archive historical Counsellor Activity records and provide users with a fast and efficient way to retrieve archived information without directly querying large transactional datasets.

Step 1: Activity Records are Created

Business users, counsellors, or integrated systems continuously create records within the **Counsellor Activity** object. As the number of records increases over time, the object grows significantly in size, making historical searches and reporting more resource-intensive.

Step 2: Batch Process Extracts Historical Data

The package includes the **CounsellorActivityBatch** Apex class, which is responsible for extracting activity records from the Counsellor Activity object. The batch dynamically retrieves the required fields and prepares the data for archival processing.

Step 3: CSV Archive Files are Generated

The extracted records are converted into a structured CSV format. If the volume of records is large, the framework automatically splits the data into multiple archive files to ensure efficient storage and retrieval.

Example:

CounsellorActivity_Part_1.csv

CounsellorActivity_Part_2.csv

CounsellorActivity_Part_3.csv

Step 4: Archive Files are Stored in Salesforce Files

Once generated, the CSV files are stored as **Salesforce Files (ContentVersion)** records. This ensures that archived data remains securely stored within Salesforce while reducing dependency on querying large transactional objects.

Step 5: Users Access the Archive Interface

The package provides a Lightning Web Component named:

counsellorActivityArchiveReport

This user-friendly interface allows users to:

- Select an archive file
- Search by Mobile Number
- Filter by Start Date

- Filter by End Date
- Navigate through paginated results

Step 6: Archive File is Read and Processed

When a user selects an archive file and performs a search, the **CounsellorActivityManager** Apex class reads the selected CSV file directly from Salesforce Files.

The manager class:

- Reads CSV content
- Parses individual rows
- Converts data into DTO objects
- Applies filters
- Performs pagination
- Returns results to the Lightning Web Component

Step 7: Filtered Results are Displayed

The Lightning Web Component displays the filtered records in a Lightning Datatable, enabling users to quickly locate historical activity information without querying the live object.

Package Components

Package Components

Component	Name	Purpose
Custom Object	Counsellor_s_Activity__c	Stores counsellor activity records that need to be archived.
DTO Class	CounsellorActivityDTO	Transfers archive data between Apex and Lightning Web Components.
Apex Manager	CounsellorActivityManager	Retrieves archive files, parses CSV data, applies filters, and supports pagination.
Batch Class	CounsellorActivityBatch	Extracts activity records and generates CSV archive files.
Salesforce Files	ContentVersion	Stores generated archive files securely within Salesforce.

Lightning Web Component	counsellorActivityArchiveReport	Provides a user interface for searching and viewing archived records.
Test Classes	Apex Test Classes	Validate functionality and ensure deployment readiness.
Package Assets	Metadata Components	Includes custom object, fields, Apex classes, LWC, and supporting metadata.

Component Flow

Step	Component	Function
1	Counsellor Activity Object	Stores activity data
2	CounsellorActivityBatch	Generates CSV archives
3	ContentVersion	Stores archive files
4	CounsellorActivityManager	Reads and filters archive data
5	CounsellorActivityDTO	Transfers data to UI

Package Installation Steps

Package Installation Steps

Follow the steps below to install the Activity Data Archive package in your Salesforce organization.

Installation URL

<https://login.salesforce.com/packaging/installPackage.apexp?p0=04tJ20000004gFW>

Package Information

Property	Value
Package Name	Activity Data Archive
Version Name	Address Search v1.2
Version Number	1.2
Package Type	Unmanaged Package

Installation Process

Step 1: Open the package installation URL in your browser.

Step 2: Log in to your Salesforce organization using Administrator credentials.

Step 3: Review the package details and verify the package name and version information.

Step 4: Click the **Install** button to begin the installation process.

Step 5: Select the preferred security option:

- Install for Admins Only (Recommended)
- Install for All Users
- Install for Specific Profiles

Step 6: Review third-party access permissions if prompted and click **Continue**.

Step 7: Wait for Salesforce to complete the installation process.

Step 8: Once installation is complete, navigate to:

Setup → Installed Packages

Verify that **Activity Data Archive** appears in the list of installed packages.

Post-Installation Steps

1. Verify that all package components are installed successfully.
2. Confirm the availability of the following components:
 - a. CounsellorActivityDTO
 - b. CounsellorActivityManager
 - c. CounsellorActivityBatch
 - d. counsellorActivityArchiveReport (LWC)
3. Add the Lightning Web Component to the required Lightning App Page.
4. Activate the Lightning Page.
5. Execute the batch process to generate archive files.
6. Verify that archive files are created in Salesforce Files.
7. Open the Activity Data Archive component and perform a test search.

Validation Checklist

- ✓ Package Installed Successfully
- ✓ Apex Classes Available
- ✓ Lightning Web Component Available
- ✓ Archive Files Generated

- ✓ Search Functionality Working
- ✓ Pagination Working
- ✓ Date Filters Working
- ✓ Mobile Number Search Working

Business Benefits

- Enhanced user productivity through faster record searches.
- Improved system responsiveness and performance.
- Better management of historical activity data.
- Reduced administrative effort for handling large datasets.
- Supports long-term data retention and audit requirements.

Technical Benefits

- Built using native Salesforce technologies.
- Leverages Batch Apex for bulk processing.
- Uses Salesforce Files for secure archival storage.
- Supports scalable and maintainable architecture.
- Easy to extend and customize for future business requirements.

Conclusion

The **Activity Data Archive Framework** provides a robust, scalable, and efficient solution for managing historical Counsellor Activity data within Salesforce. By leveraging **Batch Apex**, **Salesforce Files (ContentVersion)**, **Apex Service Classes**, and **Lightning Web Components**, the solution successfully addresses the challenges associated with storing and retrieving large volumes of activity records.

The framework enables organizations to archive historical data in a structured format, reduce the load on transactional objects, improve overall Salesforce performance, and provide users with a fast and intuitive search experience. Through features such as archive file management, date-based filtering, mobile number search, and pagination, users can efficiently access historical records without impacting live business operations.