

A Comprehensive Document

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Importing and Securing Data in ServiceNow



# ServiceNow Project - SmartBridge

**Project Title:** Importing & Securing Data in ServiceNow

**Team Details**

Role	Name
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**Team ID**

LTVIP2026TMIDS89825

**Team Size**

4 Members

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**1. Executive Summary**

The “**Importing & Securing Data in ServiceNow**” project was initiated to address challenges in managing and securing employee-related data within the organization. Previously, data was maintained in scattered files and lacked proper access control, leading to inconsistencies, reporting difficulties, and potential security risks.

The solution leverages ServiceNow’s Import Sets, Transform Maps, reference fields, and Access Control Lists (ACLs) to create a structured and secure data management system. It enables efficient data import, dynamic linking of employee information through dot-walking, and implementation of role-based access control to ensure data integrity and confidentiality.

This project demonstrates how ServiceNow can streamline enterprise data handling, enhance reporting accuracy, strengthen security through controlled access, and improve overall operational efficiency within the organization.

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## 2. Problem Statement

Organizations manage large volumes of employee-related data, but the current data handling process faces multiple challenges:

- **Manual data management:** Employee records and training details are stored in spreadsheets or external files without centralized control.
- **Prone to inconsistencies:** Data duplication, missing values, and incorrect mappings lead to reporting errors.
- **Lack of structured linkage:** Employee information such as department details is not dynamically connected, making analysis difficult.
- **Weak access control:** Sensitive data is not protected with proper role-based security mechanisms.
- **Limited reporting capability:** Without structured reference relationships, generating department-wise or employee-specific reports becomes inefficient.

These issues result in reduced data accuracy, security risks, reporting difficulties, and overall operational inefficiencies within the organization.

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## 3. Objectives

The key objectives of the project are:

1. Create a custom table in ServiceNow to store employee training and related records.
  2. Implement data import using Import Sets and Transform Maps to efficiently load external datasets.
  3. Establish reference fields to dynamically link records with the Employee table.
  4. Enable dot-walking to fetch related information such as department details without data duplication.
  5. Implement Access Control Lists (ACLs) to secure records at table and field levels.
  6. Create and assign custom roles to enforce role-based access control.
  7. Improve data accuracy, reporting capability, and overall security through a structured and centralized system.
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## 4. Scope of the Project

### In Scope

- Development of a custom table in ServiceNow to store employee training and related data.
- Importing external data using Import Sets and Transform Maps.
- Mapping source data to target tables with proper field configuration.
- Establishing reference fields to link records with the Employee table.

- Implementing dot-walking to retrieve related employee information dynamically.
- Creating Access Control Lists (ACLs) for table-level and field-level security.
- Assigning custom roles to enforce role-based access control and data protection.

### Out of Scope

- Integration with external third-party reporting or analytics tools.
- Advanced workflow automation beyond data import and security configuration.
- Enterprise-wide HR system implementation outside the defined custom application scope.
- Real-time API integrations with external systems.

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## 5. Stakeholders

Stakeholder	Role / Responsibility
System Users (Employees / Data Entry Users)	View and manage employee training records based on assigned roles
Data Administrator	Import external datasets, configure Transform Maps, and maintain data accuracy
Reporting Manager	Generate department-wise and employee-based reports using structured data
ServiceNow Admin	Create custom tables, configure reference fields, implement ACLs, and manage roles
Compliance / Security Team	Monitor access permissions, audit logs, and ensure data security policies are enforced

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## 6. Solution Design

The solution leverages the ServiceNow platform to replace manual and unstructured data handling with a centralized, secure, and well-organized data management system. It enables efficient data import, structured record linkage, and role-based security implementation to ensure accuracy, confidentiality, and improved reporting capabilities.

### 6.1 Custom Table Configuration

- **Table Name:** Employee Training Records (Custom Table)
- **Short Description:** Stores employee training details with secure access control
- **Reference Field:** Linked to Employee table for dynamic data retrieval
- **Access Control:** Role-based permissions implemented using ACL

## 6.2 Table Fields and Data Behavior

Field Name	Type	Description	Data / System Behavior
Training Name	String	Name of the training program	Mandatory field for record creation
Completion Date	Date	Date on which training was completed	Prevents invalid date entry
Status	Choice	Options like Completed / In Progress / Not Completed	Used for tracking and reporting
Employee	Reference (Employee Table)	Links training record to a specific employee	Enables relational data retrieval
Department	Reference / Dot-Walked Field	Department of the selected employee	Automatically fetched using employee.department

## 6.3 Import Validation:

- Transform Map field mapping ensures correct data alignment.
- Coalesce field prevents duplicate records during import.

Invalid records are logged in Import Set error logs.

## 6.4 Security Design – ACL and Role Implementation

The project enforces strong data security using ServiceNow Access Control Lists (ACLs) and Role-Based Access Control (RBAC).

### Table-Level ACL

- Field = --None--
- Operations Controlled:
  - Create
  - Read
  - Write
  - Delete
- Only users assigned the custom role (e.g., training\_user) can access records.

### Field-Level ACL

- Sensitive fields can be restricted individually.
- Ensures unauthorized users cannot view or edit specific data.

**Role Management**

- Custom role created for controlled access.
- Role assigned to authorized users.
- Admin Overrides configured based on testing requirement

**Security Testing**

- Tested access with authorized role → Access granted.
  - Tested access without role → Access denied.
  - Used **Debug Security Rules** to verify ACL execution.
  - Validated table-level and field-level restrictions.
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**7. Implementation Steps****1. Requirement Gathering:**

- Identified challenges in manual data management and lack of structured access control.
  - Defined required table fields, reference relationships, import process, and security requirements.
  - Determined need for role-based access and department-level reporting.
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**2. Design:**

- Designed custom table structure for Employee Training Records.
  - Planned reference relationship with Employee table.
  - Designed data flow for Import Set → Transform Map → Target Table.
  - Defined ACL structure (table-level and field-level).
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**3. Development:**

- Created custom table in ServiceNow.
  - Configured fields: Training Name, Completion Date, Status, Employee, Department.
  - Implemented reference field to Employee table.
  - Configured Import Set and Data Source.
  - Created Transform Map and mapped fields correctly.
  - Implemented dot-walking to auto-fetch department details.
  - Created custom role and assigned permissions.
  - Configured ACLs for Create, Read, Write, and Delete operations.
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**4. Security Integration:**

- Implemented table-level ACL with --None-- field configuration.
- Added role-based restrictions.
- Tested Admin Overrides behavior.

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## 5. Testing:

- Performed functional testing of data import and mapping.
  - Verified dot-walking retrieves correct department data.
  - Conducted security testing using Debug Security Rules.
  - Tested access with authorized and unauthorized users.
  - Validated duplicate prevention using coalesce logic.
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## 6. Deployment:

- Captured changes in Update Set.
  - Validated configurations before final submission.
  - Ensured system stability and data integrity.
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## 7. Documentation & Knowledge Sharing:

- Prepared project documentation including architecture, security design, and testing results.
  - Documented ACL configuration and role assignment process.
  - Provided usage guidance for administrators and authorized users.
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## 8. Testing and Quality Assurance

Test Type	Description	Result
Functional Testing	Validated table fields (Training Name, Completion Date, Status, Employee, Department), record creation, and dot-walking behavior	Passed
Data Import Testing	Verified Import Set loading, Transform Map execution, and correct field mapping	Passed
Duplicate Prevention Testing	Tested coalesce configuration to prevent duplicate record insertion	Passed
Security Testing	Verified ACL rules (Create, Read, Write, Delete) and role-based access restrictions	Passed
Debug Security Testing	Used Debug Security Rules to validate ACL evaluation logic	Passed
User Acceptance Testing (UAT)	Authorized users tested record creation and reporting functionality	Passed
Data Integrity Verification	Confirmed accurate reference linking and department auto-population	Passed

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## 9. Benefits

- **Efficiency:** Reduces request processing time and manual intervention.
  - **Efficiency:** Automates data import and structured record management, reducing manual data entry and administrative effort.
  - **Accuracy:** Transform Maps and reference fields ensure correct field mapping and eliminate duplicate or inconsistent records.
  - **Data Integrity:** Dot-walking dynamically retrieves related employee information, avoiding redundant data storage.
  - **Security:** Role-based access control and ACL implementation protect sensitive data from unauthorized access.
  - **Improved Reporting:** Structured linkage between training records and employee details enables accurate department-wise and employee-based reporting.
  - **Governance:** System logs and controlled access mechanisms ensure compliance, traceability, and accountability
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## 10. Challenges and Solutions

Challenge	Solution
Manual data entry errors and inconsistent records	Implemented Import Sets and Transform Maps to ensure accurate field mapping and structured data loading
Duplicate records during data import	Configured Coalesce fields in Transform Map to prevent duplicate entries
Lack of structured linkage between employee and department data	Implemented reference fields and dot-walking (employee.department) to dynamically fetch related information
Unauthorized access to sensitive records	Implemented table-level and field-level ACLs with role-based access control
Difficulty in identifying security rule failures	Used Debug Security Rules to analyze and resolve ACL evaluation issues
Resistance to system change	Provided documentation and usage guidance for administrators and authorized users

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## 11. Future Enhancements

- **Advanced Reporting & Dashboards:** Integration with ServiceNow reporting tools to create interactive dashboards for department-wise and employee-based analytics.
  - **Workflow Automation:** Implementation of automated approval workflows for training record validation and updates.
  - **Integration with External Systems:** Integration with HR or Learning Management Systems (LMS) for real-time data synchronization.
  - **Advanced Data Validation Rules:** Implementation of scripted validations and business rules to enforce stricter data governance.
  - **Role Hierarchy Enhancement:** Expansion of role-based access control with hierarchical permissions for managers and department heads.
  - **Audit & Compliance Enhancements:** Advanced audit tracking and compliance reporting for regulatory requirements.
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## 12. Conclusion

The **Importing & Securing Data in ServiceNow** project successfully replaces manual and unstructured data handling processes with a centralized, secure, and efficient data management solution. By leveraging Import Sets, Transform Maps, reference relationships, dot-walking, and Access Control Lists (ACLs), the project ensures data accuracy, integrity, and controlled access within the organization.

The implementation has improved data reliability, strengthened security through role-based access control, enhanced reporting capabilities, and reduced administrative effort. This project demonstrates how ServiceNow can be effectively utilized to modernize enterprise data management practices and deliver structured, secure, and scalable service solutions.