

Optimizing User, Group, and Role Management with Access Control and Workflows in ServiceNow

Project Introduction

Our project, "Optimizing User, Group, and Role Management with Access Control and Workflows in ServiceNow," focuses on improving how user roles and permissions are managed in an organization.

It aims to streamline access control and automate workflows so that each user gets the right level of access based on their job role. Using Role-Based Access Control (RBAC) and Flow Designer, the system automatically handles approvals, assigns tasks, and ensures data security. This helps reduce manual work, prevent unauthorized access, and improve accountability. The project also includes features like user impersonation for testing, dynamic dashboards, and automated data imports, making it a secure, scalable, and efficient identity management solution built on the ServiceNow platform.

Project Overview

The objective of this project is to enhance the management of users, groups, and roles in ServiceNow through the use of automated workflows and access control mechanisms.

It focuses on establishing secure, role-based access, minimizing manual administrative work, and ensuring regulatory compliance and accountability. The solution is designed to improve operational efficiency, data security, and organizational governance.

Description

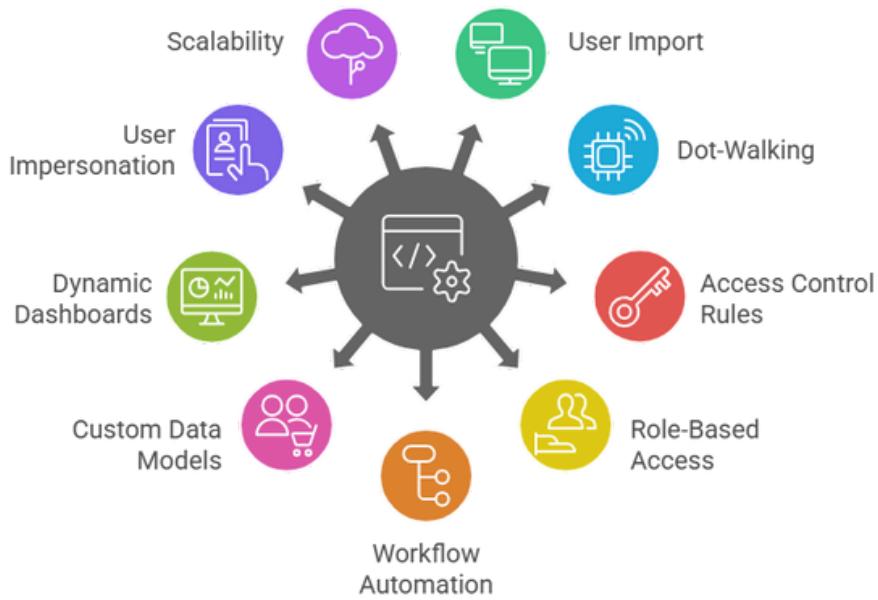
This project aims to build a robust and scalable system within the ServiceNow platform to effectively manage identity and access across an organization.

By leveraging Role-Based Access Control (RBAC) and workflow automation, the system automates user provisioning, role assignments, and approval processes. It ensures that users have access only to the data and resources necessary for their roles.

Key components include Import Sets, Access Control Lists (ACLs), Flow Designer automation, and user impersonation testing to validate permissions.

Ultimately, the solution provides a secure, efficient, and compliant framework for managing user access and improving organizational productivity.

Role-Based Access Management Features



Project Features

- User, Group, and Role Import: Imports user, group, and role data using Import Sets and Transform Maps for accurate identity mapping.
- Dot-Walking Relationships: Automatically retrieves related details like department, location, and manager for consistent data.
- Access Control Rules (ACLs): Enforces secure, role-based access to tables, forms, and fields across the system.
- Role-Based Access Management: Assigns and controls permissions for Admins, Managers, and End Users using RBAC principles.
- Workflow Automation: Automates role assignment and approval processes using Flow Designer for faster operations.
- Custom Data Models: Creates custom tables and fields to manage extra data such as audit logs and workflow triggers.
- Dynamic Dashboards and Reports: Provides real-time insights into user distribution, access patterns, and compliance status.
- User Impersonation for Testing: Allows admins to test access controls and workflows by impersonating users.
- Scalability and Optimization: Ensures high performance, secure access, and smooth operation for enterprise-scale use.



Project Feature

- The project aims to solve challenges in managing user roles and access within a small project team by implementing a structured ServiceNow solution.
- Currently, unclear access controls and manual approvals cause confusion and delays.
- The proposed idea focuses on defining user roles, implementing secure access control, and automating workflows using ServiceNow.

This will help ensure accountability, improve team coordination, and enhance data governance with minimal manual intervention.

Requirement Analysis Phase

- Create two users (Alice and Bob).
- Create two groups for organizing users.
- Define roles and assign them to users.
- Create tables to store project and task data.
- Assign users to groups and roles to users.
- Set up Access Control Lists (ACLs) to secure fields and tables based on roles.
- Design a Flow to automatically assign operation tickets to groups.
- Test and verify all links, access permissions, and workflow functionality.

Project Planning Phase

- Divide the project into phases: Ideation, Requirement Analysis, Design, Development, Testing, and Review.
- Define risks like wrong role assignments, ACL errors, or workflow delays.
- Create mitigation plans such as approval workflows and access reviews.
- Allocate tasks among team members with time estimates.
- Use tools like ServiceNow Studio, Flow Designer, ACL Editor, and Performance Analytics.
- Conduct testing using user impersonation to validate roles and permissions.
- Review final results and prepare documentation for deployment.

Risk Management

| Risk | Impact | Probability | Mitigation Strategy |
|-----------------------------------|--------|-------------|---------------------------------|
| Incorrect role assignment grants | High | Medium | Implement approval |
| Misconfigured ACLs expose | High | Medium | Enforce least-privilege access |
| Role revocation delays after user | High | Medium | Automate de-provisioning using |
| Workflow misrouting delays | High | Low | Test all approval paths and set |

Task Allocation

| Task | Assigned To | Time Estimate | Tools Used |
|---------------------------------|--------------|---------------|---------------------------------|
| User & Group Data Import | Developer | 2 Days | ServiceNow Studio, Import |
| Role Mapping & Assignment Logic | Developer | 2 Days | Role Management Module, Flow |
| ACL Definition & Testing | Admin | 2 Days | ACL Editor, Impersonation |
| Workflow for Role Approvals | Developer | 2 Days | Flow Designer, Approval |
| Group Membership | Developer | 1 Day | Script Includes, Business Rules |
| Access Review Dashboard | Analyst | 1 Day | Performance Analytics, Report |
| User Impersonation | Tester/Admin | 1 Day | Impersonate Feature in |

Project Design

1. Open service now
2. Click on All >> search for users
3. Select Users under system security
4. Click on new

The screenshot shows the ServiceNow user list interface. The left sidebar navigation menu is open, showing categories like Configuration, System Security, and User Administration. Under System Security, the 'Users' category is expanded, and 'Users' is selected. The main area displays a table of users with columns: User ID, Name, Email, Active, Created, and Updated. A specific user, 'alejandro.mascall', is highlighted in blue. The bottom of the screen shows a navigation bar with icons for search, refresh, and other functions.

5. Fill the following details to create a new user
6. Create a user named as "alice p".

The screenshot shows the ServiceNow user creation form. The top navigation bar indicates the user is being created ('User - alice p'). The form fields include: User ID ('alice'), First name ('alice'), Last name ('p'), Title (empty), Department (empty), Password needs reset (unchecked), Locked out (unchecked), Active (checked), Web service access only (unchecked), Internal Integration User (unchecked), and various optional settings like Language, Calendar integration, Time zone, Date format, Business phone, and Mobile phone. At the bottom of the form are buttons for 'Update', 'Set Password', and 'Delete'. Below the form, there is a 'Related Links' section with links to 'View linked accounts', 'View Subscriptions', 'Reset a password', and '[SN Utils] Versions (0)'.

7.Create one more user:

8.Create another user with the following details

9.Username: "bob p".

10.Click on submit.

The screenshot shows the ServiceNow User creation interface. The User ID field contains 'bob'. Other fields include First name ('Bob'), Last name ('p'), Title (''), Department (''), Email ('bob@gmail.com'), Language ('None'), Calendar integration ('Outlook'), Time zone ('System (America/Los_Angeles)'), Date format ('System (yyyy-MM-dd)'), Business phone (''), Mobile phone (''), and Photo ('Click to add...'). The Active checkbox is checked. Below the form are related links: View linked accounts, View Subscriptions, and Reset a password. At the bottom are Update, Set Password, and Delete buttons.

Create Group

1. Open service now.
2. Click on All > search for groups
3. Select groups under system security
4. Click on new
5. Fill the following details to create a new group
6. Click on submit

The screenshot shows the ServiceNow Group creation interface. The Name field contains 'project team'. Other fields include Manager (''), Group email (''), and Parent (''). Below the form are Update and Delete buttons. At the bottom is a table titled 'Group = project team' with columns for Created, Role, Granted by, and Inherits. A note says 'No records to display'.

Create Roles

1. Open service now.
2. Click on All >> search for roles Select roles under system security
3. Click on new
4. Fill the following details to create a new role
5. Click on submit

The screenshot shows the ServiceNow interface for creating a new role. The left sidebar shows the navigation tree with 'Roles' selected under 'System Security'. The main panel displays the 'Role - project member' record. The 'Name' field is set to 'project member', 'Application' is 'Global', and 'Elevated privilege' is unchecked. A large empty text area labeled 'Description' is present. Below the main form, there are tabs for 'Contains Roles', 'Applications with Role', 'Modules with Role', and 'Custom Tables'. A search bar with the placeholder 'for text' and a 'Search' button are located below these tabs. At the bottom of the panel, there are 'New' and 'Edit...' buttons.

6. Create one more role:
7. Create another role with the following details
8. Click on submit

This screenshot shows the continuation of the role creation process. It displays the 'Role - project team member' record. The 'Name' field is set to 'project team member', 'Application' is 'Global', and 'Elevated privilege' is checked. The rest of the interface is identical to the previous screenshot, showing the 'Description' field, the 'Contains Roles' section, and the 'New' and 'Edit...' buttons at the bottom.

Create Tables

1. Open service now.
2. Click on All >> search for tables
3. Select tables under system definition
4. Click on new
5. Fill the following details to create a new table Label : project table Check the boxes Create module & Create mobile module
6. Under new menu name : project table
7. Under table columns give the columns

The screenshot shows the ServiceNow interface for creating a new table. The left sidebar is collapsed, showing the 'Tables' section under 'System Definition'. The main area is titled 'Table - New Record' for 'Table'. The 'Label' field is set to 'project table' and the 'Name' field is set to 'u_project_table'. The 'Create module' and 'Create mobile module' checkboxes are checked. The 'New menu name' is set to 'project table'. The 'Columns' tab is selected, showing a table of columns with the following data:

| Column label | Type | Default value |
|-----------------|---------|---------------|
| project id | Integer | false |
| project name | String | false |
| project manager | String | false |
| start date | Date | false |
| end date | Date | false |
| status | Choice | false |
| description | String | false |

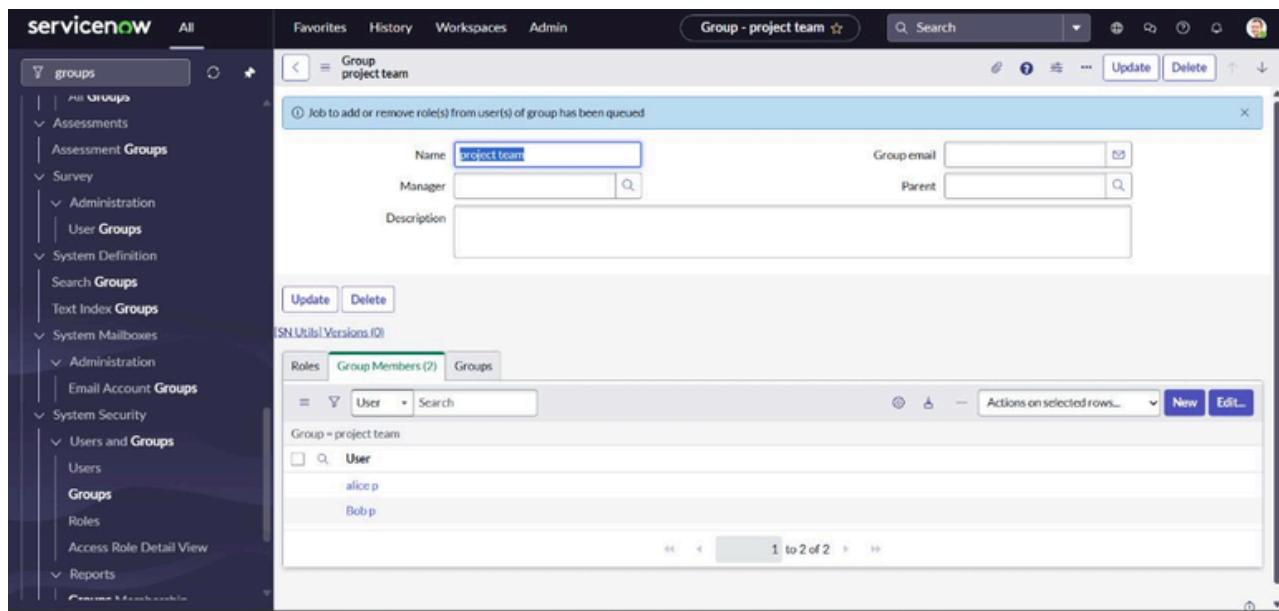
8. Click on submit
9. Create one more table:
10. Create another table as:task table 2 and fill with following details.
11. Click on submit.

The screenshot shows the ServiceNow interface for creating a new table. The left sidebar is collapsed, showing the 'Tables' section under 'System Definition'. The main area is titled 'Table - New Record' for 'Table'. The 'Label' field is set to 'task table 2' and the 'Name' field is set to 'u_task_table_2'. The 'Create module' and 'Create mobile module' checkboxes are checked. The 'New menu name' is set to 'task table 2'. The 'Columns' tab is selected, showing a table of columns with the following data:

| Column label | Type | Default value |
|--------------|---------|---------------|
| taskid | Integer | false |
| taskname | String | false |
| assigned to | String | false |
| due date | Date | false |
| status | Choice | false |
| comments | String | false |

Assign users to project team group

1. Open service now
2. Click on All >> search for groups
3. Select tables under system definition
4. Select the project team group
5. Under group members
6. Click on edit
7. Select alice p and bob p and save.



The screenshot shows the ServiceNow interface with the 'groups' module selected. A modal window is open for the 'project team' group, showing its basic details: Name (project team), Manager (empty), Group email (empty), and Parent (empty). Below the modal, the 'Group Members' tab is selected in the main content area, showing a list of users: 'alice p' and 'Bob p'. The interface includes standard ServiceNow navigation elements like Favorites, History, Workspaces, and Admin.

Assign roles to users

1. Assign roles to alice user
2. Open servicenow
3. Click on All >> search for user
4. Select tables under system definition
5. Select the project manager user
6. Under project manager
7. Click on edit
8. Select project member and save
9. Click on edit add u_project_table role and u_task_table role
10. Click on save and update the form.

The screenshot shows the ServiceNow user interface for managing users. The left sidebar is titled 'servicenow' and has a search bar at the top. Under 'All' in the search bar, the 'user' entry is selected. The main content area shows a user record for 'User - alice p'. At the top right, there are buttons for 'Update', 'Set Password', and 'Delete'. Below the buttons, there is a section for 'Related Links' with links to 'View linked accounts', 'View Subscriptions', 'Reset a password', and '[SN Utils] Versions (0)'. A tabs bar below the links includes 'Entitled Custom Tables', 'Roles (3)', 'Groups (1)', 'Delegates', 'Subscriptions', and 'User Client Certificates'. The 'Roles (3)' tab is selected. A table below shows the assigned roles:

| Role | State | Inherited | Inheritance Count |
|----------------------|--------|-----------|-------------------|
| u_project_table_user | Active | false | |
| project member | Active | false | |
| u_task_table_2_user | Active | false | |

At the bottom of the table, it says '1 to 3 of 3'.

1. Assign roles to bob user
2. Open servicenow
3. Click on All >> search for user Select tables under system definition
4. Select the bob p user
5. Under team member
6. Click on edit
7. Select team member and give table role and save
8. Click on profile icon Impersonate user to bob
9. We can see the task table2

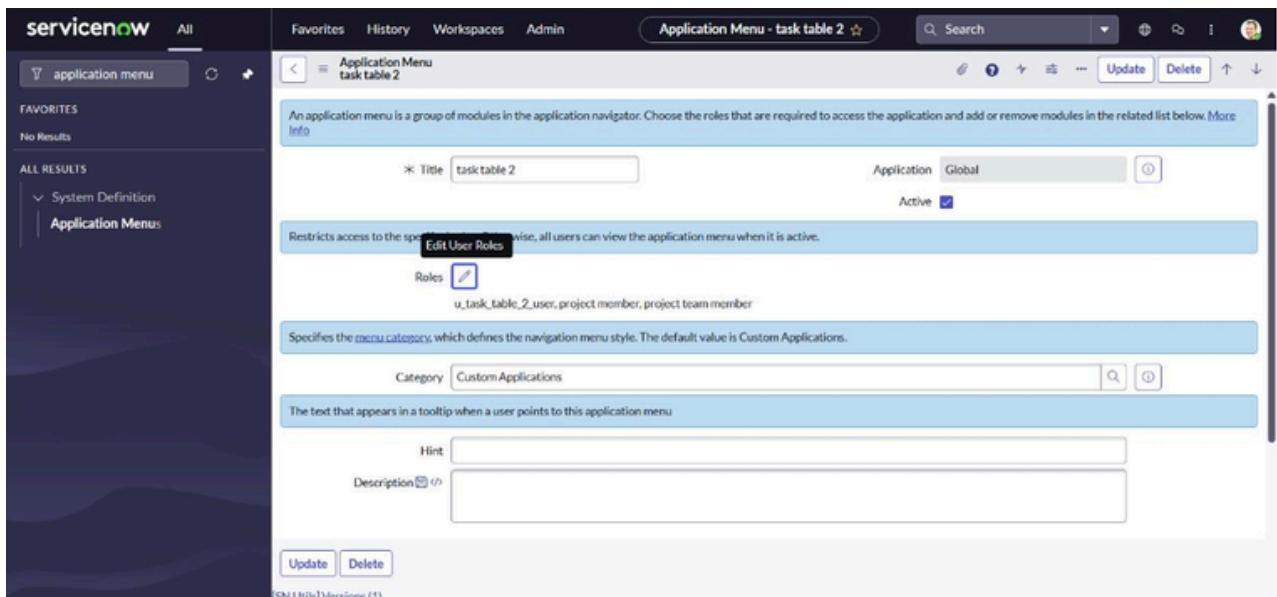
The screenshot shows the ServiceNow user interface for managing users. The left sidebar is titled 'servicenow' and has a search bar at the top. Under 'All' in the search bar, the 'user' entry is selected. The main content area shows a user record for 'User - Bob p'. At the top right, there are buttons for 'Update', 'Set Password', and 'Delete'. Below the buttons, there is a section for 'Related Links' with links to 'View linked accounts', 'View Subscriptions', 'Reset a password', and '[SN Utils] Versions (0)'. A tabs bar below the links includes 'Entitled Custom Tables', 'Roles (2)', 'Groups (1)', 'Delegates', 'Subscriptions', and 'User Client Certificates'. The 'Roles (2)' tab is selected. A table below shows the assigned roles:

| Role | State | Inherited | Inheritance Count |
|---------------------|--------|-----------|-------------------|
| u_task_table_2_user | Active | false | |
| project team member | Active | false | |

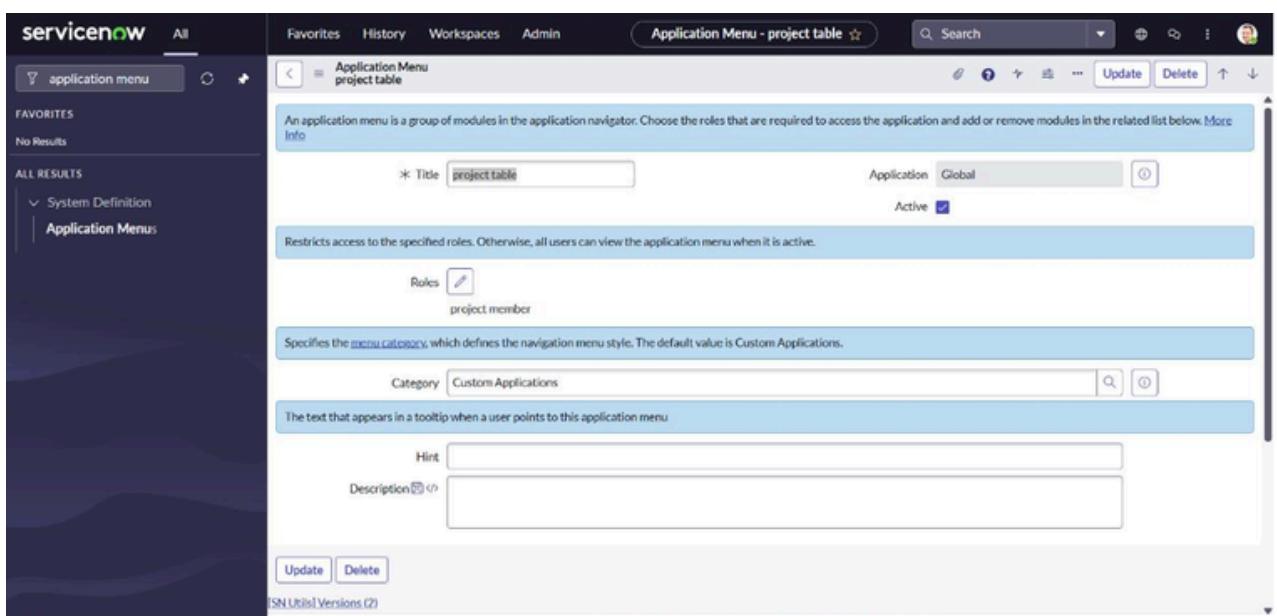
At the bottom of the table, it says '1 to 2 of 2'.

Application access

1. Assign table access to application
2. While creating a table it automatically creates an application and module for that table
3. Go to application navigator search for search project table application
4. Click on edit module
5. Give project member roles to that application
6. Search for task table2 and click on edit application.
7. Give the project member and team member role for task table 2 application.



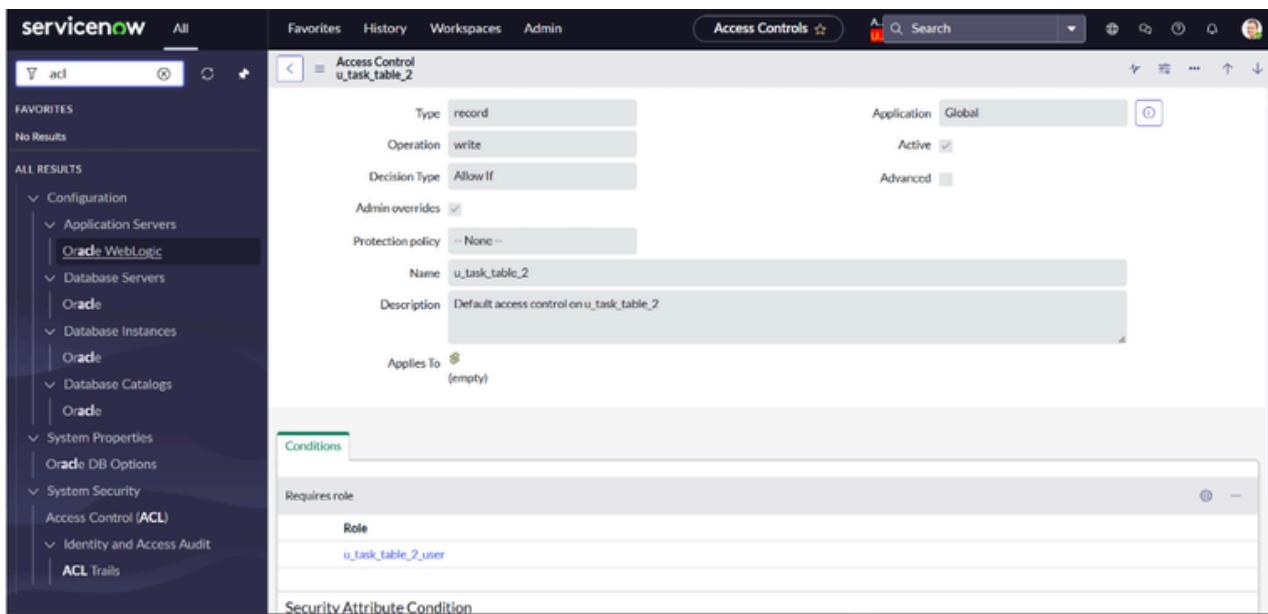
This screenshot shows the ServiceNow application menu editor for 'task table 2'. The title field is set to 'task table 2'. The 'Application' dropdown is set to 'Global'. The 'Active' checkbox is checked. Under 'Edit User Roles', the 'Roles' field contains 'u_task_table_2_user, project member, project team member'. The 'Category' field is set to 'Custom Applications'. There are fields for 'Hint' and 'Description'. At the bottom are 'Update' and 'Delete' buttons.



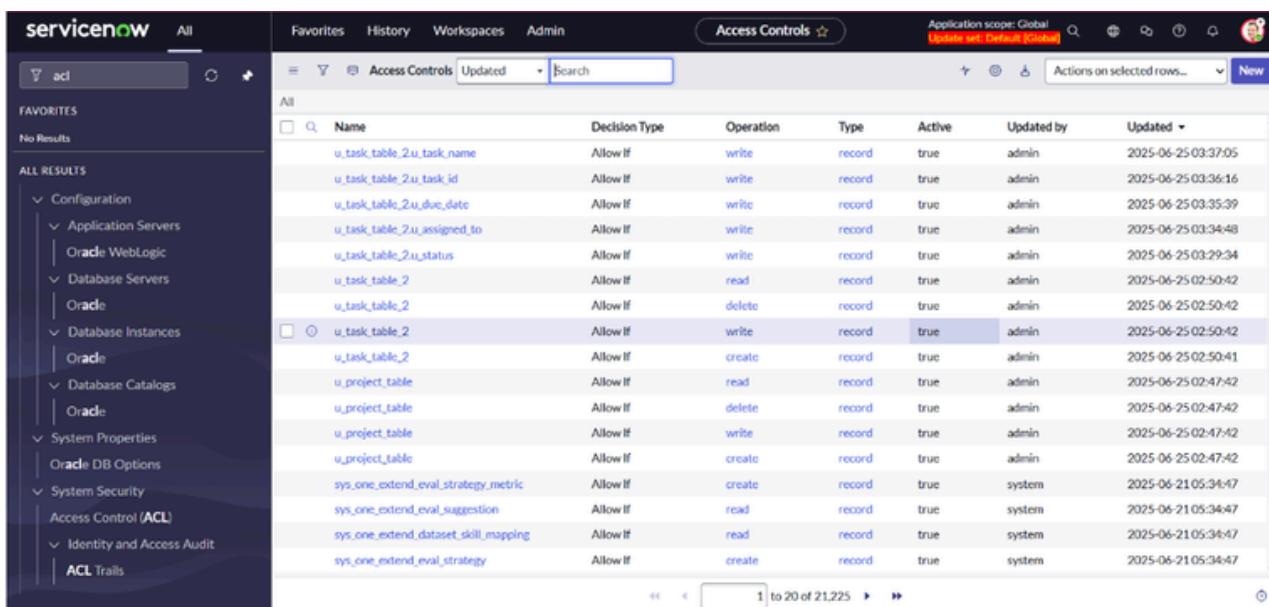
This screenshot shows the ServiceNow application menu editor for 'project table'. The title field is set to 'project table'. The 'Application' dropdown is set to 'Global'. The 'Active' checkbox is checked. Under 'Edit User Roles', the 'Roles' field contains 'project member'. The 'Category' field is set to 'Custom Applications'. There are fields for 'Hint' and 'Description'. At the bottom are 'Update' and 'Delete' buttons.

Access control list

- 1.Create ACL
- 2.Open service now.
- 3.Click on All >> search for ACL
- 4.Select Access Control(ACL) under system security
- 5.Click on elevate role
- 6.Click on new
- 7.Fill the following details to create a new ACL



- 8.Scroll down under requires role
- 9.Double click on insert a new row
- 10.Give task table and team member role
- 11.Click on submit
- 12.Similarly create 4 acl for the following fields



| Name | Decision Type | Operation | Type | Active | Updated by | Updated |
|--------------------------------------|---------------|-----------|--------|--------|------------|---------------------|
| u_task_table_2.u_task_name | Allow If | write | record | true | admin | 2025-06-25 03:37:05 |
| u_task_table_2.u_task_id | Allow If | write | record | true | admin | 2025-06-25 03:36:16 |
| u_task_table_2.u_due_date | Allow If | write | record | true | admin | 2025-06-25 03:35:39 |
| u_task_table_2.u_assigned_to | Allow If | write | record | true | admin | 2025-06-25 03:34:48 |
| u_task_table_2.u_status | Allow If | write | record | true | admin | 2025-06-25 03:29:34 |
| u_task_table_2 | Allow If | read | record | true | admin | 2025-06-25 02:50:42 |
| u_task_table_2 | Allow If | delete | record | true | admin | 2025-06-25 02:50:42 |
| u_task_table_2 | Allow If | write | record | true | admin | 2025-06-25 02:50:42 |
| u_task_table_2 | Allow If | create | record | true | admin | 2025-06-25 02:50:41 |
| u_project_table | Allow If | read | record | true | admin | 2025-06-25 02:47:42 |
| u_project_table | Allow If | delete | record | true | admin | 2025-06-25 02:47:42 |
| u_project_table | Allow If | write | record | true | admin | 2025-06-25 02:47:42 |
| u_project_table | Allow If | create | record | true | admin | 2025-06-25 02:47:42 |
| sys_one_extend_eval_strategy_metric | Allow If | create | record | true | system | 2025-06-21 05:34:47 |
| sys_one_extend_eval_suggestion | Allow If | read | record | true | system | 2025-06-21 05:34:47 |
| sys_one_extend_dataset_skill_mapping | Allow If | read | record | true | system | 2025-06-21 05:34:47 |
| sys_one_extend_eval_strategy | Allow If | create | record | true | system | 2025-06-21 05:34:47 |

- 13.Click on profile on top right side
- 14.Click on impersonate user
- 15.Select bob user
- 16.Go to all and select task table2 in the application menu bar
- 17.Comment and status fields are have the edit access

The screenshot shows the 'task table 2 - Create' page in ServiceNow. The page title is 'task table 2 - Create Created'. At the top, there are navigation links for 'All', 'Favorites', 'History', and 'Admin'. On the left, there's a breadcrumb trail: 'task table 2' and 'New record'. The main form contains several input fields: 'task id' (text input), 'task name' (text input), 'assigned to' (text input), 'status' (dropdown menu with option '--None--'), 'comments' (text input), and 'due date' (text input). Below the form are 'Submit' and 'Cancel' buttons.

Flow

- 1.Create a Flow to Assign operations ticket to group
- 2.Open service now.
- 3.Click on All >> search for Flow Designer
- 4.Click on Flow Designer under Process Automation.
- 5.After opening Flow Designer Click on new and select Flow.
- 6.Under Flow properties Give Flow Name as “ task table”.
- 7.Application should be Global.
- 8.Click build flow.

The screenshot shows the ServiceNow homepage. The left sidebar has a search bar with 'flow' typed in. Below it is a list of applications under 'Process Automation': Docker Webhook Answer Subf..., Docker Webhook Answer Subf..., Webhook Answer Subflow, Process Automation, Workflow Studio, Flow Designer, Flow Administration, Today's Executions, Active Flows, Content Definitions, Content Filtering Rules, Inbound Email Flows, Event Queue, Settings, Complex Object Templates, Feature Access List, Pre-Compiled Actions, and Pre-Compiled Flows. The main content area shows the 'About ServiceNow' page, which includes a search bar, a 'ServiceNow' logo, and a 'Search' button. The page text discusses ServiceNow's workflow capabilities and provides links to more information.

The screenshot shows the Workflow Studio interface. At the top, there's a navigation bar with 'Workflow Studio' and other tabs like 'Homepage', 'Operations', and 'Integrations'. Below the navigation is a toolbar with buttons for 'Playbooks', 'Flows' (which is selected), 'Subflows', 'Actions', and 'Decision tables'. A 'New' button is also present. The main area displays a list of flows with columns for Name, Application, Status, Active, Updated, and Updated. The flows listed include 'Admin Deployment Approval Flow Error Notifier', 'Admin Install App to Production Environment Flow Error Notifier', 'Application Intake Request Flow', 'Application Intake Request V2', 'Benchmark Recommendation Evaluator', 'Business process approval flow', 'Change - Cloud Infrastructure - Authorize', 'Change - Emergency - Authorize', and 'Change - Emergency - Implement'. To the right, there's a sidebar titled 'Pick up where you left off' with links to 'Create Flow Data', 'Deployment Environment T...', and 'Steps'. Another section titled 'Latest updates' shows activity from 'System Administrator'.

This screenshot shows the 'New Flow' dialog box. On the left, there's a preview area showing a simple flow diagram with two parallel tasks. The main right panel has a title 'Let's get the details for your flow'. It contains fields for 'Flow name *' (set to 'task table'), 'Application *' (set to 'Global'), and 'Description' (with placeholder 'Describe your flow.'). Below these fields is a link 'Show additional properties'. At the bottom right are 'Cancel' and 'Build flow' buttons.

- Define ACL (Employees) Click on Add a trigger
- Select the trigger in that Search for “create record” and select that.
- Give the table name as “ task table ”.
- Give the Condition as:
- Field : status Operator :is Value : in progress
- Field : comments Operator :is Value : feedback
- Field : assigned to Operator :is Value : bob
- After that click on Done.

Workflow Studio | task table Flow | inactive

TRIGGER

task table 2 Created where (status is in progress, and comments is feedback, and assigned to is bob)

Trigger: Created
Table: task table 2 [u_task_table_2]

Condition: All of these conditions must be met

- status is in progress
- comments is feedback
- assigned to is bob

Advanced Options

Delete Cancel Done

Status: Modified | Application: Global

- Click on Add an action.
- Select action in that ,search for “ update records”.
- In Record field drag the fields from the data navigation from Right Side(Data pill)
- Table will be auto assigned after that
- Add fields as “status” and value as “completed”
- Click on Done.

Workflow Studio | task table Now | inactive

ACTIONS Select multiple

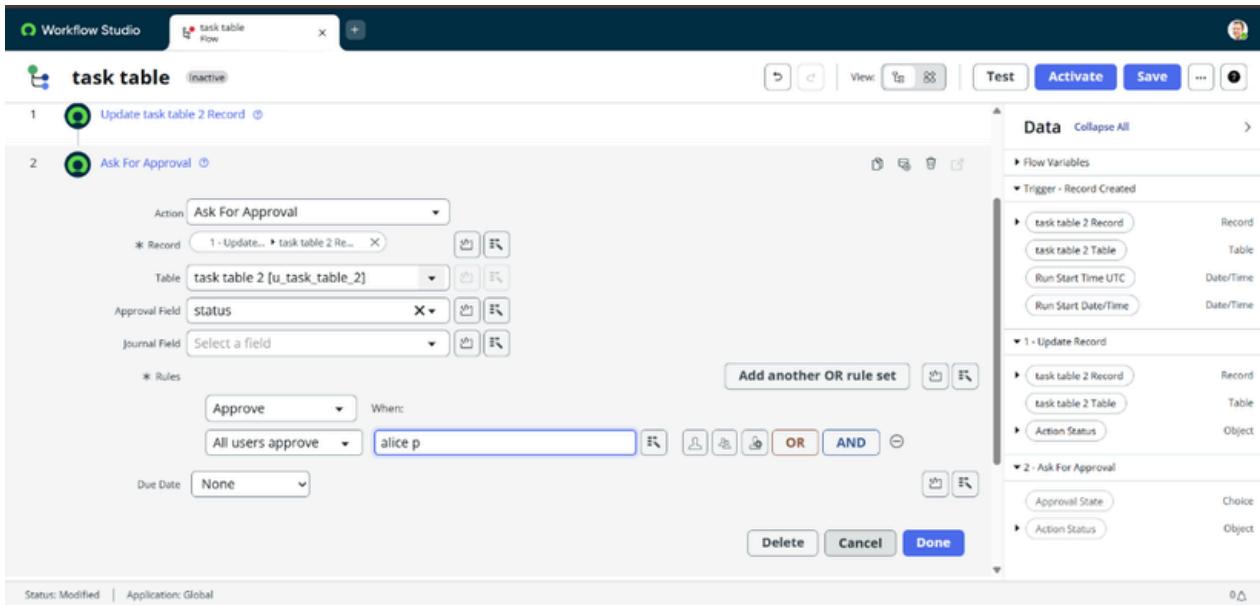
1 Update Task table 2 Record

Action: Update Record
Record: Trigger - Re... > task table 2 R...
Table: task table 2 [u_task_table_2]
Fields: status completed

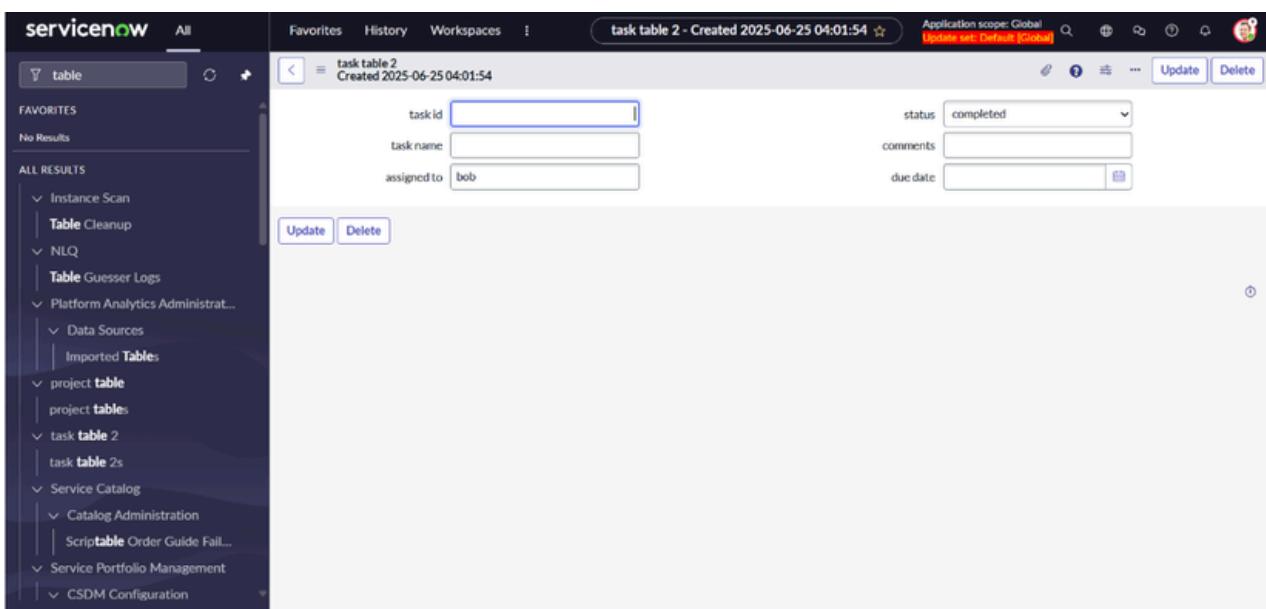
Done

Status: Modified | Application: Global

- Now under Actions.
- Click on Add an action.
- Select action in that ,search for “ ask for approval ”.
- In Record field drag the fields from the data navigation from Right side
- Table will be auto assigned after that
- Give the approve field as “ status”
- Give approver as alice p
- Click on Done.



- Go to application navigator search for task table.
- It status field is updated to completed



- Go to application navigator and search for my approval
- Click on my approval under the service desk.
- Alice p got approval request then right click on requested then select approved

| State | Approver | Comments | Approval for | Created |
|-----------|---------------|----------|--------------|---------------------|
| Approved | alice p | (empty) | | 2024-06-25 04:54:54 |
| Requested | Bernard Laboy | | CHG0000053 | 2024-11-19 05:09:38 |
| Requested | Bernard Laboy | | CHG0000071 | 2024-11-19 05:12:10 |
| Requested | Bernard Laboy | | CHG0000037 | 2024-11-19 05:04:51 |
| Requested | Bernard Laboy | | CHG0000076 | 2024-11-19 05:13:15 |
| Requested | Bernard Laboy | | CHG0000094 | 2024-11-19 05:15:21 |
| Requested | Bernard Laboy | | CHG0000051 | 2024-11-19 05:09:31 |
| Requested | Bernard Laboy | | CHG0000073 | 2024-11-19 05:12:19 |
| Requested | Bernard Laboy | | CHG0000090 | 2024-11-19 05:15:07 |
| Requested | Bernard Laboy | | CHG0000074 | 2024-11-19 05:12:23 |
| Requested | Bernard Laboy | | CHG0000055 | 2024-11-19 05:09:47 |
| Requested | Bernard Laboy | | CHG0000078 | 2024-11-19 05:13:24 |
| Requested | Bernard Laboy | | CHG0000091 | 2024-11-19 05:15:11 |
| Requested | Bernard Laboy | | CHG0000045 | 2024-11-19 05:07:48 |
| Requested | Bernard Laboy | | CHG0000081 | 2024-11-19 05:13:36 |
| Requested | Bernard Laboy | | CHG0000052 | 2024-11-19 05:09:35 |

EXECUTION DETAILS task table

Show Action Details

FLOW STATISTICS

Run as: System Administrator Open flow logs ↗ Completed 2025-06-25 04:54:53 308ms

TRIGGER

task table 2 Created Open current record ⓘ

ACTIONS

- 1 Update Record Core Action Completed 2025-06-25 04:54:53 11ms
- 2 Ask For Approval Core Action Completed 2025-06-25 04:54:53 297ms

ERROR HANDLER

Conclusion

The project “Optimizing User, Group, and Role Management with Access Control and Workflows in ServiceNow” successfully demonstrates how automation and access control can enhance organizational efficiency and data security.

By defining clear user roles, implementing Role-Based Access Control (RBAC), and automating workflows through Flow Designer, the system ensures that every user has appropriate access based on their responsibilities.

This approach minimizes manual work, prevents unauthorized access, and improves accountability through audit-ready processes.

Overall, the project provides a scalable, secure, and efficient framework for managing users, groups, and roles—supporting better governance, faster approvals, and enhanced productivity within the ServiceNow environment.