

# Optimizing Users, Groups And Role Management with Access control And workflow

## INTRODUCTION

### **Project Overview:**

Here's a possible project overview

Project Overview: Optimizing Users, Groups, and Role Management with Access Control and Workflows

The objective of this project is to design and implement an optimized system for managing users, groups, and roles, with robust access control and workflow features. This system aims to enhance security, efficiency, and productivity within an organization.

### **Purpose :**

The purpose of optimizing User, Group, and Role Management with Access Control and Workflows is to

By optimizing User, Group, and Role Management with Access Control and Workflows, organizations can achieve a more secure.

## IDEATION PHASE:

### **Problem Statement:**

Here's a concise problem statement: Problem Statement The organization's current user, group, and role management system with access control and workflows faces issues with Inefficient user management Manual processes and lack of automation.Inadequate access control Overly permissive or restrictive access permissions \*Workflow bottlenecks\*: Manual approvals and processing delays.Lack of visibility and compliance\*: Insufficient reporting and analytics.

## **CHALLENGES**

- Translating organizational structures and workflows into an access control model can be time-consuming and require significant effort.
- Ensuring users only have the necessary access for their roles while minimizing permissions is a continuous process, especially as roles and workflows evolve.
- As organizations grow and change, roles can become complex and hard to manage, leading to potential security vulnerabilities and inefficiencies.

## **OBJECTIVE:**

. The current system lacks clear role definitions, access controls, and a structured workflow, leading to confusion regarding task assignments and progress tracking.

## **REQUIREMENT ANALYSIS :**

### **Solution Requirement:**

**Team Id. :**

**Project name :** optimizing Users, Groups And role management with Access control and workflow

### **Functional requirements**

<b>FR no.</b>	<b>Functional requirements</b>	<b>Sub Requirements</b>
---------------	--------------------------------	-------------------------

FR 1	Users	Key aspects include defining clear roles and responsibilities, utilizing group hierarchies, automating user provisioning and de-provisioning, and enforcing strong security practices.
FR 2	Groups	structuring user access based on roles and responsibilities, leveraging groups for efficient management, and implementing access control mechanisms to ensure the principle of least privilege
FR 3	Roles	implementing Role-Based Access Control (RBAC) to streamline permissions and enhance security.
FR 4	Tables	This includes defining clear roles with specific permissions, utilizing role-based access control (RBAC) for efficient management, implementing the principle of least privilege, and automating the process where possible.
FR 5	Assign users to groups	implementing Role-Based Access Control (RBAC) to streamline access provisioning and ensure users have the necessary permissions based on their roles.

FR 6	Assign roles to users	implementing Role-Based Access Control (RBAC) to streamline access provisioning and de-provisioning, enforce the principle of least privilege, and enhance security and operational efficiency.
FR 7	Application Access	Effective RBAC, combined with a well-defined workflow, ensures users only access the resources they need, enhancing security and operational efficiency.
FR 8	Access control list	grouping users, defining roles with specific permissions, using workflows for access .
FR 9	Flow	structuring your system to grant appropriate access based on roles and responsibilities, ensuring efficient workflows and strong security

## NON-FUNCTIONAL

Following are the functions requirements

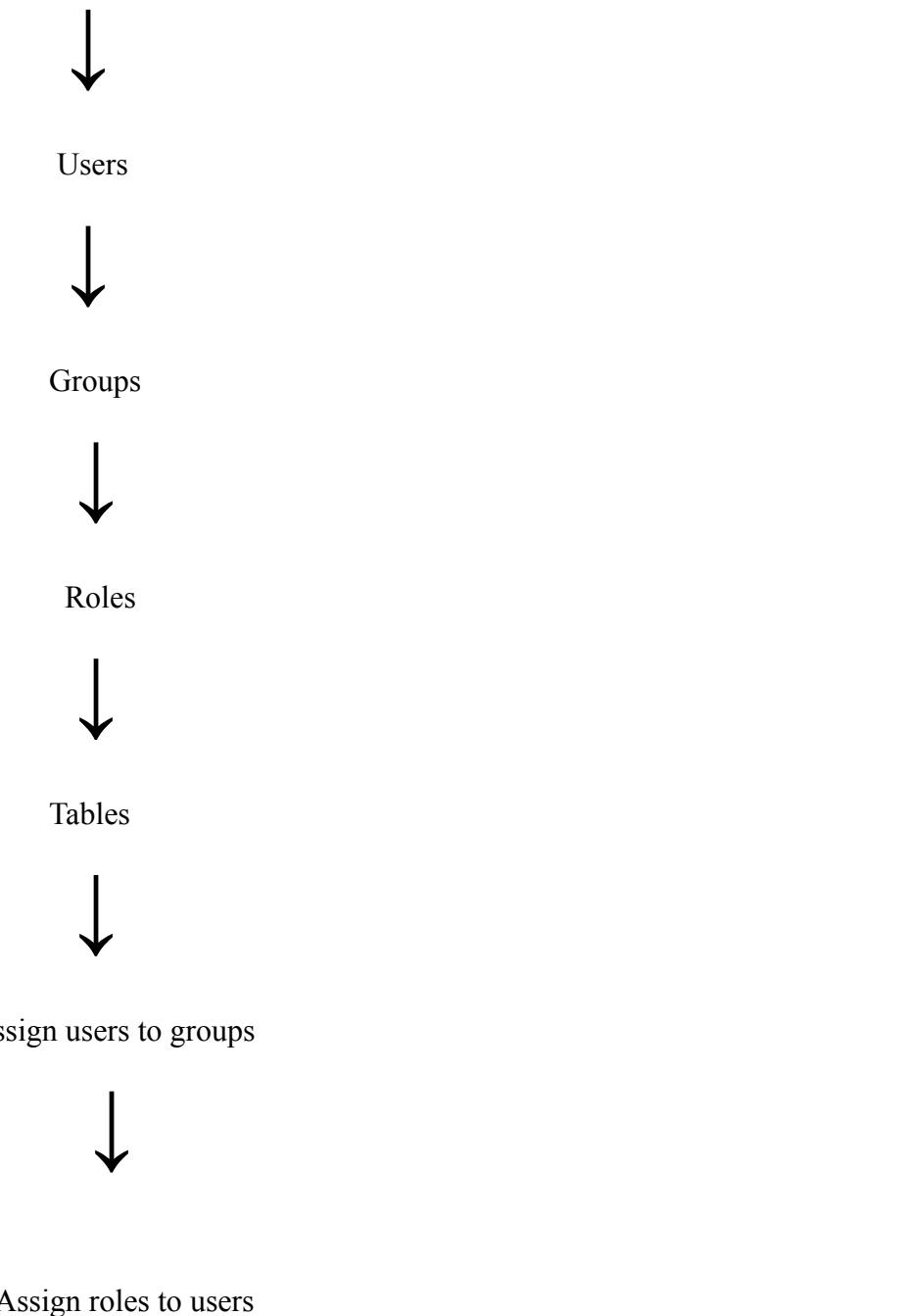
FR NO	Non functional requirements	Description

NFR-1	Usability	Optimizing user group role management with access control and workflow focuses on improving usability by streamlining user access, reducing administrative overhead, and enhancing security. This involves clearly defining roles, implementing role-based access control (RBAC), and establishing efficient workflows that align with user needs.
NFR-2	Security	Optimizing User, Group, and Role Management with Access Control and Workflow from a Security perspective involves strengthening identity governance, reducing risks, and ensuring compliance. Here's a breakdown of how to design and optimize this system securely:
NFR-3	Reliability	This is achieved through role-based access control (RBAC), which assigns permissions based on roles rather than individual users, reducing administrative overhead and the risk of errors.
NFR-4	Performance	streamlining user access, reducing administrative overhead, and enhancing security. This involves using Role-Based Access Control (RBAC) principles, such as grouping users by roles and assigning permissions to those roles rather than directly to individuals
NFR-5	Availability	implementing a system where users are grouped based on their roles, with each role assigned specific permissions to access resources and perform actions.
NFR-5	Scalability	Implementing Role-Based Access Control (RBAC) and adhering to best practices like least privilege, along with efficient workflows, ensures security and

		manageability as the system grows.
--	--	------------------------------------

## Data flow Diagram

Optimizing Users, Groups And role management with Access control and workflow





Application Access



Access control list



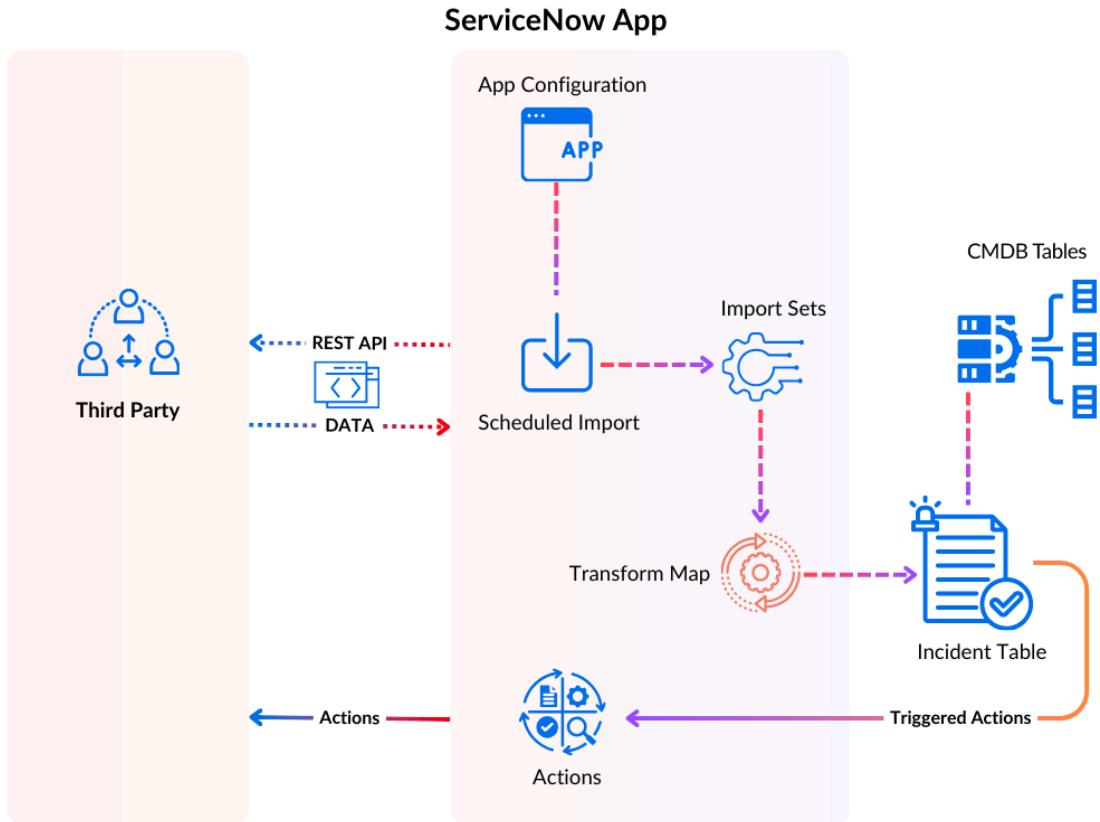
Flow



Conclusion

## Technology Stack

A technology stack, or tech stack, refers to the combination of programming languages, frameworks, libraries, and tools used to build and operate a software application or system.



## PROJECT DESIGN

### Proposed solution:

Sno	Parameters	Description
1	Problem statement	Modern digital systems, especially in large organizations or platforms, require efficient and secure user management.
2	Idea	In modern organizations, managing access to systems and data is critical for security, compliance, and operational efficiency

3	Novelty	While access control and user management are not new concepts, this solution introduces innovations in automation, intelligence, and scalability that address the limitations of conventional systems. Here's what sets it apart:
4	Social impact	In a digitally connected world, effective access control systems are not just technical tools — they have a significant social and organizational
5	Business model	cloud-based SaaS platform that helps organizations manage users, groups, roles, and access rights with automated workflows, intelligent recommendations, and built-in compliance features
6	Scalability of solution	Scalability refers to the ability of the system to handle growth — in users, roles, permissions, workflows, integrations, and audit requirements — without compromising performance, usability, or security.

### MILESTONE -1 : Users

**Purpose.** :Ensure only authorized users can access sensitive data and systems. Minimize risk of data breaches by applying the principle of least privilege. Improve Operational Efficiency Automate user provisioning and de-provisioning. work through predefined workflows and access rules.

**USE.** :Ensure only the right people can access specific systems, applications, or data based on their roles. Prevent unauthorized access or internal misuse.

#### ACTIVITY -1. : create Users

##### STEPS :

- 1.Open service now
- 2.Click on All >> search for users

3. Select Users under system security

4. click on new

5. Fill the following details to create a

New User

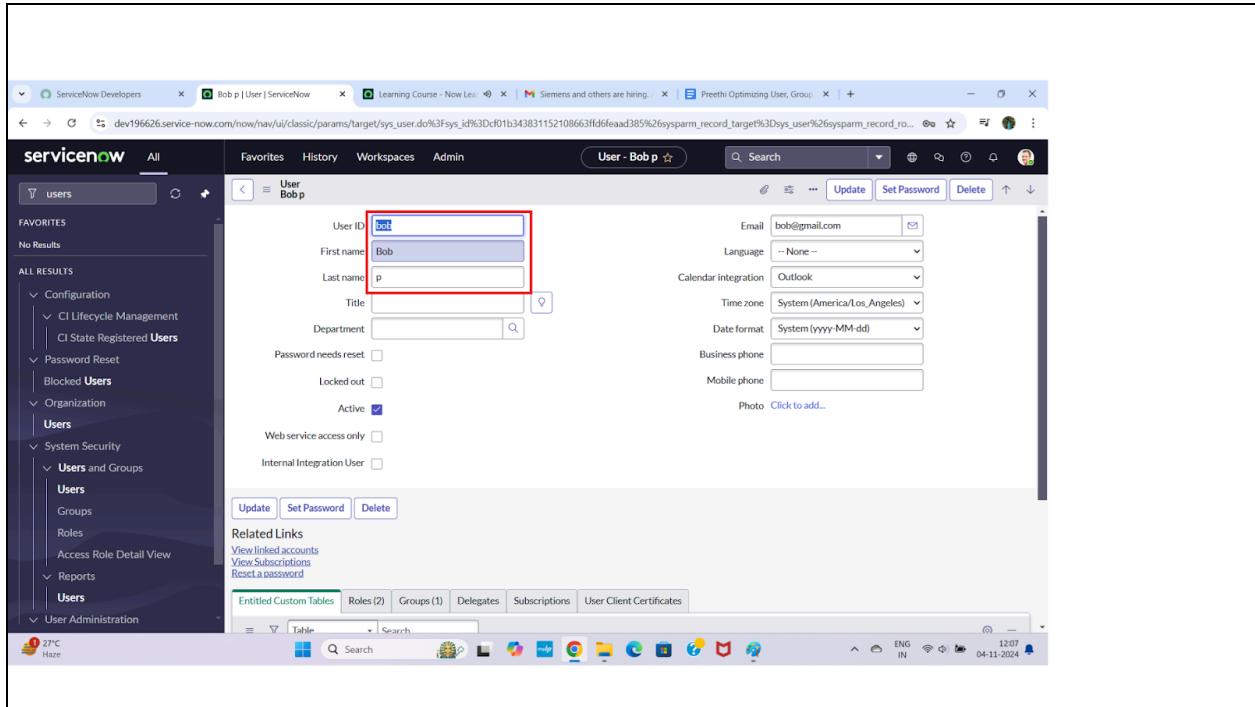
6. Click on submit

The screenshot shows the ServiceNow 'User' creation interface. On the left, a sidebar navigation tree is visible with nodes like Configuration, CI Lifecycle Management, CI State Registered Users, Password Reset, Blocked Users, Organization, and System Security. Under System Security, the 'Users' node is expanded, showing 'Groups', 'Roles', 'Access Role Detail View', and another 'Users' node. This second 'Users' node is also expanded, showing 'Groups', 'Roles', 'Access Role Detail View', and 'Users'. The main workspace displays a 'User - alice p' record. The 'User ID' field contains 'alice' and is highlighted with a red box. The 'First name' field contains 'alice' and is also highlighted with a red box. Other fields include 'Last name' (p), 'Title' (empty), 'Department' (empty), 'Password needs reset' (unchecked), 'Locked out' (unchecked), 'Active' (checked), 'Email' (alice@gmail.com), 'Language' (None), 'Calendar integration' (Outlook), 'Time zone' (System (America/Los\_Angeles)), 'Date format' (System (yyyy-MM-dd)), 'Business phone' (empty), 'Mobile phone' (empty), and a 'Photo' placeholder. Below the form are buttons for 'Update', 'Set Password', and 'Delete'. At the bottom, there are tabs for 'Entitled Custom Tables', 'Roles (3)', 'Groups (1)', 'Delegates', 'Subscriptions', and 'User Client Certificates'. The status bar at the bottom right shows the date and time.

.Create one more user:

9. Create another user with the following.

10. Click on submit



## MILESTONE -2: Groups

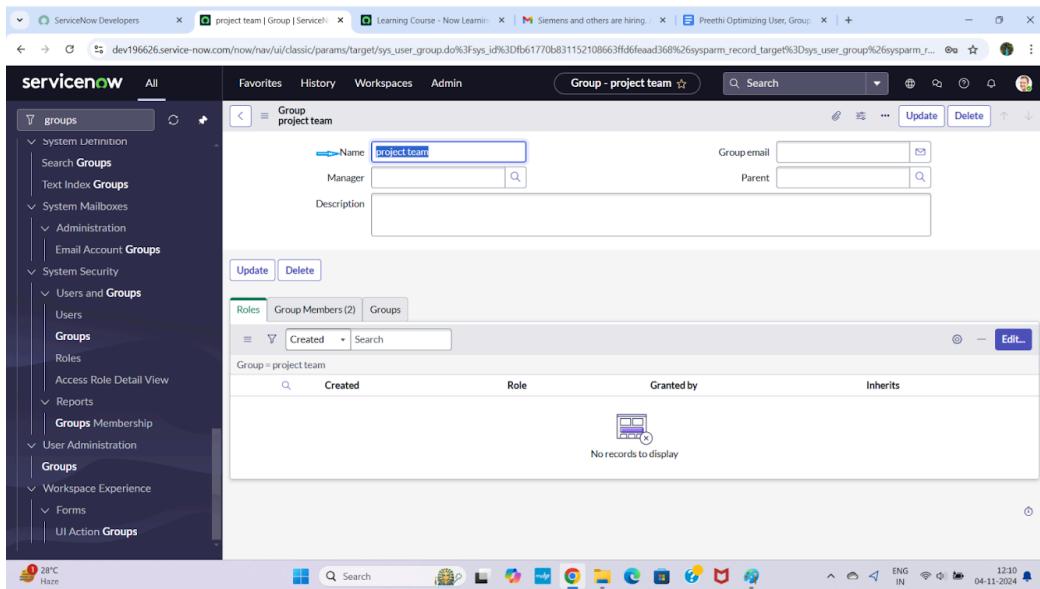
**ACTIVITY -1.** : Create groups

**PURPOSE.** : Groups simplify user management by allowing administrators to manage users in bulk

**USE.** : Groups improve access control by allowing administrators on the user's role or group membership.

**STEPS.** :

- 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



### MILESTONE -3: Roles

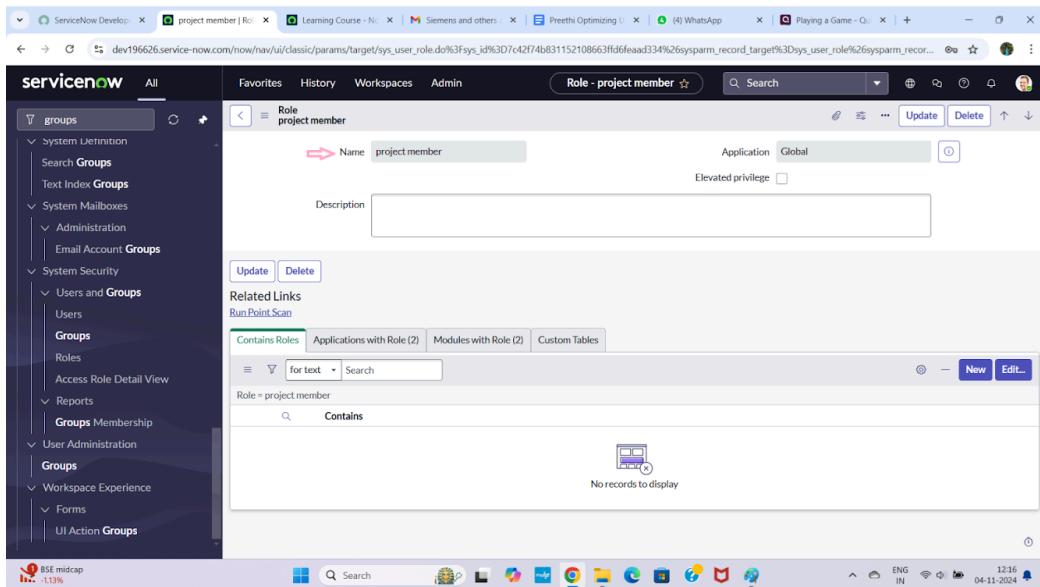
#### ACTIVITY -1 :create roles

**PURPOSE.** :A technology stack, or tech stack, refers to the combination of programming languages, frameworks, libraries, and tools used to build and operate a software application or system

**USE.** :Optimizing user group role management with access control and workflow involves strategically using roles to streamline access to resources and tasks within an organization. This approach, often referred to as Role-Based Access Control (RBAC), significantly enhances security, efficiency, and compliance

#### STEPS. :

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



Create one more role:

7.Create another role with the following details

8.Click on submit

#### **MILESTONE -4. : Tables**

##### **ACTIVITY -1. :create tables**

**PURPOSE.** : Tables can be used to manage user information, including user IDs, names, and roles

**USE.** : Tables enhance access control by defining access control rules and specifying which users or groups have access to specific resources.

##### **STEPS :**

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 'Role - team member' edit screen in ServiceNow. The left sidebar navigation includes 'groups', 'System Definition', 'System Mailboxes', 'Administration', 'Email Account Groups', 'System Security', 'Users and Groups', 'Groups', 'Reports', 'Groups Membership', 'User Administration', 'Groups', 'Workspace Experience', 'Forms', and 'UI Action Groups'. The main panel displays the 'team member' role details. The 'Name' field is populated with 'team member'. The 'Application' dropdown is set to 'Global'. The 'Elevated privilege' checkbox is unchecked. Below these fields is a 'Description' input box which is empty. At the bottom of the panel are 'Update' and 'Delete' buttons. Under the heading 'Related Links', there are tabs for 'Contains Roles', 'Applications with Role (1)', 'Modules with Role (1)', and 'Custom Tables'. A search bar with the placeholder 'for text' and a 'Search' button are located below the tabs. The 'Contains Roles' section has a sub-section titled 'Role = team member' with a 'Contains' dropdown and a search bar. The message 'No records to display' is shown. The bottom right corner of the screen shows system status icons and the date '04-11-2024'.

8.Click on submit

The screenshot shows the ServiceNow Table - New Record interface. The table name is set to 'u\_project\_table'. Under 'Create module', 'Create mobile module', and 'Add module to menu', the 'Create new' option is selected. A new menu item named 'project table' is being added. The 'Dictionary Entries' section lists columns: project id (Integer), project name (String), project manger (String), start date (Date), end date (Date), status (Choice), and description (String). The 'description' column is currently selected.

Create one more table

- . Create another table as:task table 2 and fill following details.
- . Click on submit.

The screenshot shows the ServiceNow Table - task table 2 interface. The table has the following columns: Updated by (String), Updates (Integer), Updated (Date/Time), Sys ID (Sys ID (GUID)), Created by (String), Created (Date/Time), task id (Integer), task name (String), assigned to (String), due date (Date), status (Choice), and comments (String). The 'comments' column is currently selected. The interface includes standard ServiceNow navigation and action buttons (Delete, Update, Delete All Records) at the bottom.

## MILESTONE -5. : Assign users to group

### ACTIVITY -1. : Assign users to projectTeamgrups

**PURPOSE.** : Optimizing user group role management with access control and workflows involves strategically assigning users to groups based on their roles and responsibilities, then implementing access controls to grant appropriate permissions to those groups

**USE.** : Optimizing user group role management with access control and workflow involves strategically organizing users into groups, defining roles with specific permissions, and implementing workflows to streamline access provisioning.

### STEPS. :

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 Groups page. The left sidebar has a 'groups' search bar and a 'Favorites' section with 'No Results'. The main area shows the 'Group - project team' details: Name (project team), Manager (empty), Group email (empty), Parent (empty), and Description (empty). Below this is a 'Roles' section with 'Group Members (2)'. A modal window displays the 'User' list with two entries: 'Bob p' and 'alice p', both highlighted with a red box. At the bottom of the modal, there are navigation arrows and a message '1 to 2 of 2'.

## MILESTONE - 6: Assign roles to users

### ACTIVITY -1 : Assign roles to Alice users

**PURPOSE.** Roles are assigned to users during the user management process, ensuring that users have the necessary permissions and access to perform their job functions.

**USE.** Assigning roles to users controls access to resources, ensuring that users only have access to the resources they need to perform their job functions.

#### STEPS :

1. Open servicenow. Click on All >> search for user
2. Select tables under system definition
3. Select the project manager user
4. Under project manager
5. Click on edit
6. Select project member and save
7. click on edit add u\_project\_table role. and u task table role
8. click on save and update the form.

The screenshot shows the ServiceNow User edit screen for a user named 'alice p'. The left sidebar navigation is visible, showing various system categories like System Definition, Administration, and Reports. The main panel displays the user's details, including their name, email, and active status. A section for 'Related Links' is present. Below this, there are tabs for 'Entitled Custom Tables', 'Roles (3)', 'Groups (1)', 'Delegates', 'Subscriptions', and 'User Client Certificates'. The 'Roles (3)' tab is selected, showing a table of assigned roles. The table has columns for Role, State, Inherited, and Inheritance Count. Three roles are listed: 'u.task\_table\_2\_user' (Active, Inherited false), 'project\_member' (Active, Inherited false), and 'u.project\_table\_user' (Active, Inherited false). The last two roles are highlighted with a red border. At the bottom of the screen, the browser's address bar shows the URL: https://dev196626.service-now.com/nav/u/classic/params/target/sys\_user.do?sys\_id=3Dc8d0f7c7831152108663ffdf6feead3b6%26sysparam.record\_target%3Dsys\_user%26sysparam.record.row%3D. The taskbar at the bottom of the window shows various open applications.

### ACTIVITY -2: Assign roles to bob users

**STEPS.** :

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

**MILESTONE-7:** Application Access

**ACTIVITY -1.** : Assign table to Access to application    **PURPOSE.** : Application access controls ensure that users only have access to authorized applications and data, protecting sensitive information from unauthorized access.

**USE.** : Application access controls are used to manage user access to applications, ensuring that users only have access to the applications they need to perform their job functions

**STEPS.** :

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

Screenshot of the ServiceNow Application Menu - project table configuration page.

**Title:** project table

**Application:** Global

**Active:**

**Restricts access to the specified roles. Otherwise, all users can view the application menu when it is active.**

**Roles:** project member

**Category:** Custom Applications

**Hint:** (empty)

**Description:** (empty)

**Buttons:** Update, Delete

**Activate Windows:** Go to Settings to activate Windows.

Screenshot of the ServiceNow Application Menu - task table 2 configuration page.

**Title:** task table 2

**Application:** Global

**Active:**

**Restricts access to the specified roles. Otherwise, all users can view the application menu when it is active.**

**Roles:** u\_task\_table\_2\_user, project member, team member

**Category:** Custom Applications

**Hint:** (empty)

**Description:** (empty)

**Buttons:** Update, Delete

**Activate Windows:** Go to Settings to activate Windows.

**Actions:** Modules, Order, Search, Actions on selected rows..., New

## MILESTONE-8 : Access control list

**ACTIVITY - 1. :** create ACL

**PURPOSE.** : Optimizing user group role management with access control and workflow access control lists (ACLs).

**USE.** : Optimizing user group role management with access control and workflow access control lists (ACLs) enhances security and streamlines operations by ensuring users only have access to the resources they need.

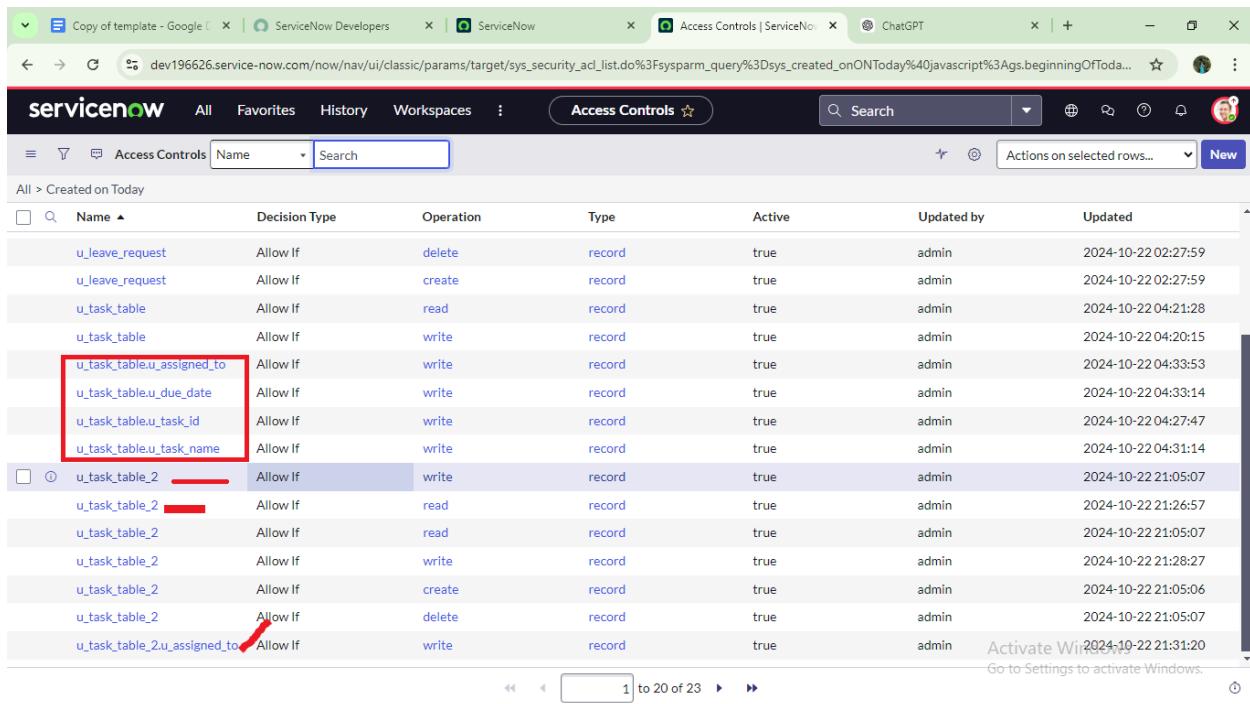
**STEPS. :**

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

The screenshot shows the ServiceNow Access Control - New Record interface. The main form includes fields for Type (set to record), Operation (set to write), and Decision Type (set to Allow If). The 'Active' checkbox is checked. Below these, there's a section for 'Admin overrides' with a checked checkbox. Protection policy is set to 'None'. Under 'Applies To', there's a dropdown for 'Name' containing 'task table 2 [u\_task\_table\_2]' and a dropdown for 'status'. A 'Description' field is present. At the bottom, there are buttons for 'Add Filter Condition' and 'Add "OR" Clause'. A 'Conditions' section is visible at the bottom left. A warning message at the top states: 'Warning: A role, security attribute, data condition, or script is required to properly secure access with this ACL.'

7. Scroll down under requires role
8. Double click on insert a new row
9. Give task table and team member role
10. Click on submit

11. Similarly create 4 acl for the following fields



Name	Decision Type	Operation	Type	Active	Updated by	Updated
u_leave_request	Allow If	delete	record	true	admin	2024-10-22 02:27:59
u_leave_request	Allow If	create	record	true	admin	2024-10-22 02:27:59
u_task_table	Allow If	read	record	true	admin	2024-10-22 04:21:28
u_task_table	Allow If	write	record	true	admin	2024-10-22 04:20:15
u_task_table.u_assigned_to	Allow If	write	record	true	admin	2024-10-22 04:33:53
u_task_table.u_due_date	Allow If	write	record	true	admin	2024-10-22 04:33:14
u_task_table.u_task_id	Allow If	write	record	true	admin	2024-10-22 04:27:47
u_task_table.u_task_name	Allow If	write	record	true	admin	2024-10-22 04:31:14
u_task_table_2	Allow If	write	record	true	admin	2024-10-22 21:05:07
u_task_table_2	Allow If	read	record	true	admin	2024-10-22 21:26:57
u_task_table_2	Allow If	read	record	true	admin	2024-10-22 21:05:07
u_task_table_2	Allow If	write	record	true	admin	2024-10-22 21:28:27
u_task_table_2	Allow If	create	record	true	admin	2024-10-22 21:05:06
u_task_table_2	Allow If	delete	record	true	admin	2024-10-22 21:05:07
u_task_table_2.u_assigned_to	Allow If	write	record	true	admin	2024-10-22 21:31:20

12. Click on profile on top right side

13. Click on impersonate user

14. Select bob user

15. Go to all and select task table2 in the application menu bar

16. Comment and status fields are have the edit access

task table 2 - Create Created

task id	assigned to
task name	comments
status	due date

**Submit**

Activate Windows  
Go to Settings to activate Windows.

## MILESTONE-9: Flow

**ACTIVITY.** : create A flow to assign operations ticket to groups

**PURPOSE.** : Optimizing user group role management with access control and workflow flow aims to enhance security.

**USE.** : User group role management with access control and workflow involves creating and managing roles, assigning users to thoseRoles.

**STEPS. :**

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

## MILESTONE-9: Flow

**ACTIVITY.** : create A flow to assign operations ticket to groups

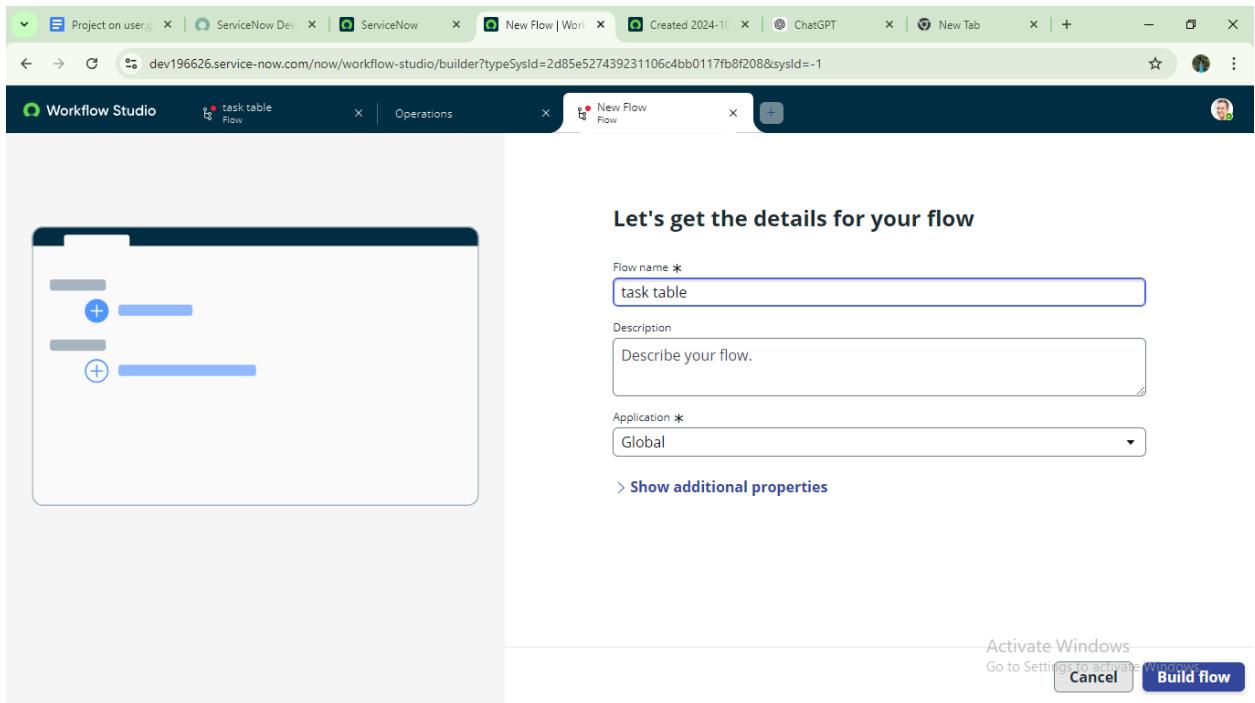
**PURPOSE.** : Optimizing user group role management with access control and workflow flow aims to enhance security.

**USE.** : User group role management with access control and workflow involves creating and managing roles, assigning users to those Roles.

**STEPS. :**

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

The screenshot shows the ServiceNow Workflow Studio interface. At the top, there are several tabs: Project on user.g, ServiceNow Dev, ServiceNow, Homepage - Fl..., Created 2024-10, ChatGPT, and New Tab. Below the tabs, the title bar reads "Workflow Studio" and "task table Flow". The main navigation bar includes "Homepage", "Operations", and "Integrations". The "Flows" tab is selected, showing a list of 39 flows. The first few flows listed are: Benchmark Recommendation Evaluator, Business process approval flow, Change - Cloud Infrastructure - Authorize, Change - Emergency - Authorize, Change - Emergency - Implement, Change - Emergency - Review, Change - Normal - Assess, Change - Normal - Authorize, and Change - Normal - Implement. To the right of the flow list, there is a "New" dropdown menu with options: Playbook, Flow (which is highlighted), Subflow, Action, and Decision table. A sidebar on the right titled "Pick up where you left off" lists recent items: task table (Last updated: 14 min. ago by Syst...), Create Flow Data (Last updated: 5 months ago by Syst...), and Steps (Last updated: 5 months ago by Syst...). Another section titled "Latest updates" shows activity logs: System Administrator modified task table 14 min. ago, System Administrator modified Create Flow Data 5 months ago, and System Administrator modified Steps Settings to activate Windows. 5 months ago.



1. Click on Add a trigger
2. Select the trigger in that Search for “create record” and select that.
3. Give the table name as “ task table ”.
4. Give the Condition as Field : status Operator :is Value : in progress  
Field : comments Operator :is Value : feedback  
Field : assigned to Operator :is Value : bob
5. After that click on Done.

The screenshot shows the ServiceNow Workflow Studio interface. A trigger named 'task table' is active. The trigger configuration is as follows:

- 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

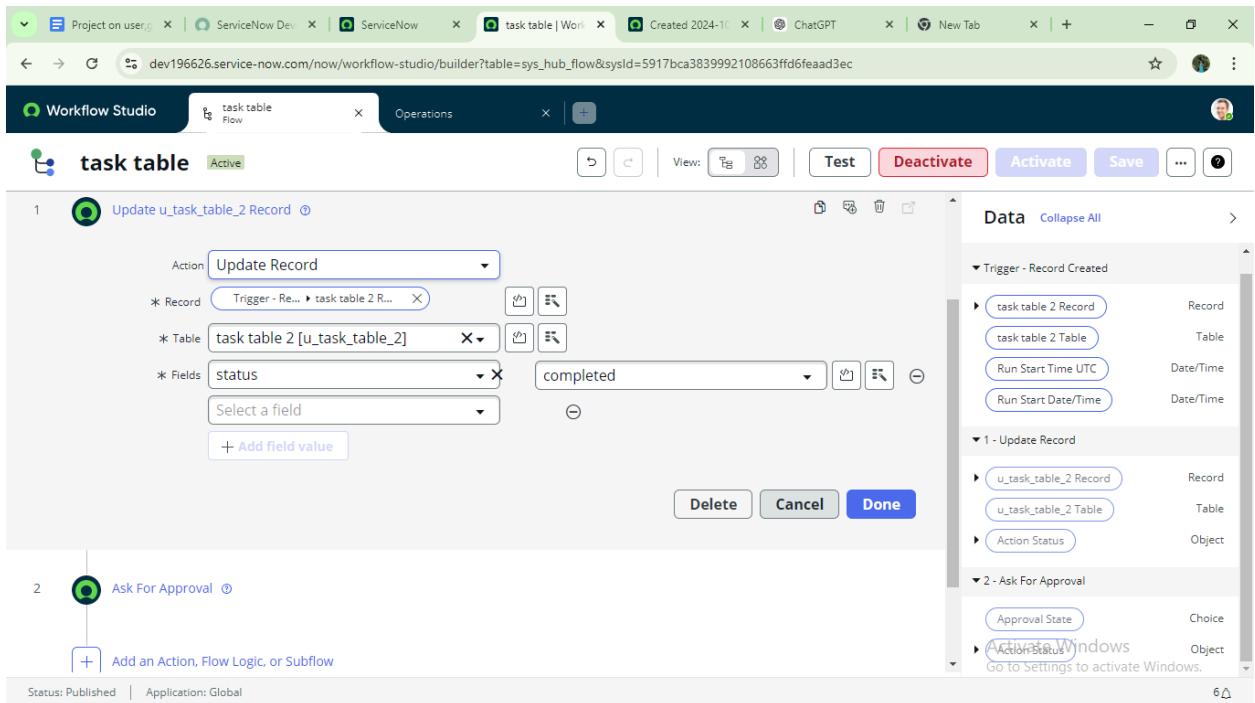
On the right, a data pill displays various objects and their types:

- Trigger - Record Created
  - task table 2 Record (Record)
  - task table 2 Table (Table)
  - Run Start Time UTC (Date/Time)
  - Run Start Date/Time (Date/Time)
- 1 - Update Record
  - u\_task\_table\_2 Record (Record)
  - u\_task\_table\_2 Table (Table)
  - Action Status (Object)
- 2 - Ask For Approval
  - Approval State (Choice)
  - Action Status (Object)

Next step:

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

Click on Done.



Next step:

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

The screenshot shows the ServiceNow Workflow Studio interface. A flow named 'task table' is active. It consists of two steps: '1 Update u\_task\_table\_2 Record' and '2 Ask For Approval'. The 'Ask For Approval' step is currently selected. In the configuration pane, the 'Action' is set to 'Ask For Approval'. The 'Record' is '1 - Upda... > u\_task\_table\_2 R...'. The 'Table' is 'task table 2 [u\_task\_table\_2]'. The 'Approval Field' is 'status' and the 'Journal Field' is 'Select a field'. Under 'Rules', there is a condition 'Approve' when 'All users approve' (with user 'alice p'). There are also 'OR' and 'AND' options. On the right side, a 'Data' panel is open, showing the trigger 'Record Created' and its details.

1. Go to application navigator search for task table.

2. It status field is updated to completed

The screenshot shows the ServiceNow application navigator. A record titled 'task table 2' is displayed, created on 'Created 2024-10-22 22:25:18'. The record details are as follows:

- task id: [redacted]
- task name: [redacted]
- status: completed
- assigned to: bob
- comments: [redacted]
- due date: [redacted]

Buttons for 'Update' and 'Delete' are available at the bottom left. A message at the bottom right says 'Activate Windows Go to Settings to activate Windows.'

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

The screenshot shows a ServiceNow interface titled "Approvals". The table has columns: State, Approver, Comments, Approval for, and Created. A search bar at the top is set to "Created". The first row, which is highlighted, shows the state as "Approved" and the approver as "alice p". The "Comments" column contains "(empty)". The "Approval for" column shows various CHG numbers. The "Created" column shows dates from 2024-09-01 to 2024-10-22. The status bar at the bottom indicates "1 to 20 of 664".

State	Approver	Comments	Approval for	Created
Approved	alice p	(empty)	2024-10-22 22:26:19	
Rejected	Fred Luddy	(empty)	2024-09-01 12:19:33	
Requested	Fred Luddy	(empty)	2024-09-01 12:17:03	
Requested	Fred Luddy	(empty)	2024-09-01 12:15:44	
Requested	Howard Johnson	CHG0000096	2024-09-01 06:15:29	
Requested	Ron Kettering	CHG0000096	2024-09-01 06:15:29	
Requested	Luke Wilson	CHG0000096	2024-09-01 06:15:29	
Requested	Christen Mitchell	CHG0000096	2024-09-01 06:15:29	
Requested	Bernard Laboy	CHG0000096	2024-09-01 06:15:29	
Requested	Howard Johnson	CHG0000095	2024-09-01 06:15:25	
Requested	Ron Kettering	CHG0000095	2024-09-01 06:15:25	
Requested	Luke Wilson	CHG0000095	2024-09-01 06:15:25	
Requested	Christen Mitchell	CHG0000095	2024-09-01 06:15:25	
Requested	Bernard Laboy	CHG0000095	2024-09-01 06:15:25	

## PROJECT PLANNING & SCHEDULING

### Project Planning:



**Note: Request you to please click on "Tick mark ✓" after assigning the activities for each milestone.**

### Assign Roles & Responsibilities to Team

[→ Proceed to Workspace](#)

Users	Create Users	* Koppala Sailaja	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Groups	Create Groups	* Muddada Bhargavi	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Roles	Create Roles	* Nagalla Hemalatha	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Table	Create Table	* Koppala Sailaja	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Assign users to gr	Assign users to pi	* Muddada Bhargavi	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Assign roles to us	Assign roles to ali	* Nagalla Hemalatha	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Assign roles to us	Assign roles to bc	* Nimmala Rani	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Application acces:	Assign table acces:	* Muddada Bhargavi	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Access control list	Create ACL	* Koppala Sailaja	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Flow	Create a Flow to /	* Nagalla Hemalatha	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**+ ADD**

<b>Functional requirements</b>	<b>User story</b>	<b>No of activity</b>	<b>Team members</b>
Users	This user story format is structured for use in Agile/Scrum environments and includes variations for different user types and outcomes	1	K.sailaja
Groups	As an IT Administrator, I want to create and manage user groups dynamically and link them to role-based access controls.	1	M.Bhargavi
Roles	a system where users are assigned roles that define their permissions, which are then applied to workflows.	1	N.Hemalatha
Tables	optimize user, group, and role management with access control and workflow, user stories should clearly	1	K.sailaja

	define the intended user, their desired action, and the resulting benefit, while incorporating acceptance criteria to ensure functionality		
Assign users to groups	Securing access to software applications and computer systems is essential across all industries.	1	M.Bhargavi
Assign roles to users	User roles and permissions play a pivotal role in this process by defining and controlling access levels for different users within a system.	1	N.Rani
Application Access	streamlining user access and permissions within an application, ensuring users only have access to what they need, when they need it	1	M.Bhargavi

Access control list	User roles and permissions play a pivotal role in this process by defining and controlling access levels for different users within a system.	2	K.sailaja
Flow	Optimizing user, group, and role management with access control and workflow requires a structured approach.	1	N.Hemalatha

## **FUNCTIONAL AND PERFORMANCE TESTING**

### **MILESTONE-9: Flow**

**ACTIVITY.** : create A flow to assign operations ticket to groups

**PURPOSE.** : Optimizing user group role management with access control and workflow flow aims to enhance security.

**USE.** : User group role management with access control and workflow involves creating and managing roles, assigning users to thoseRoles.

**STEPS. :**

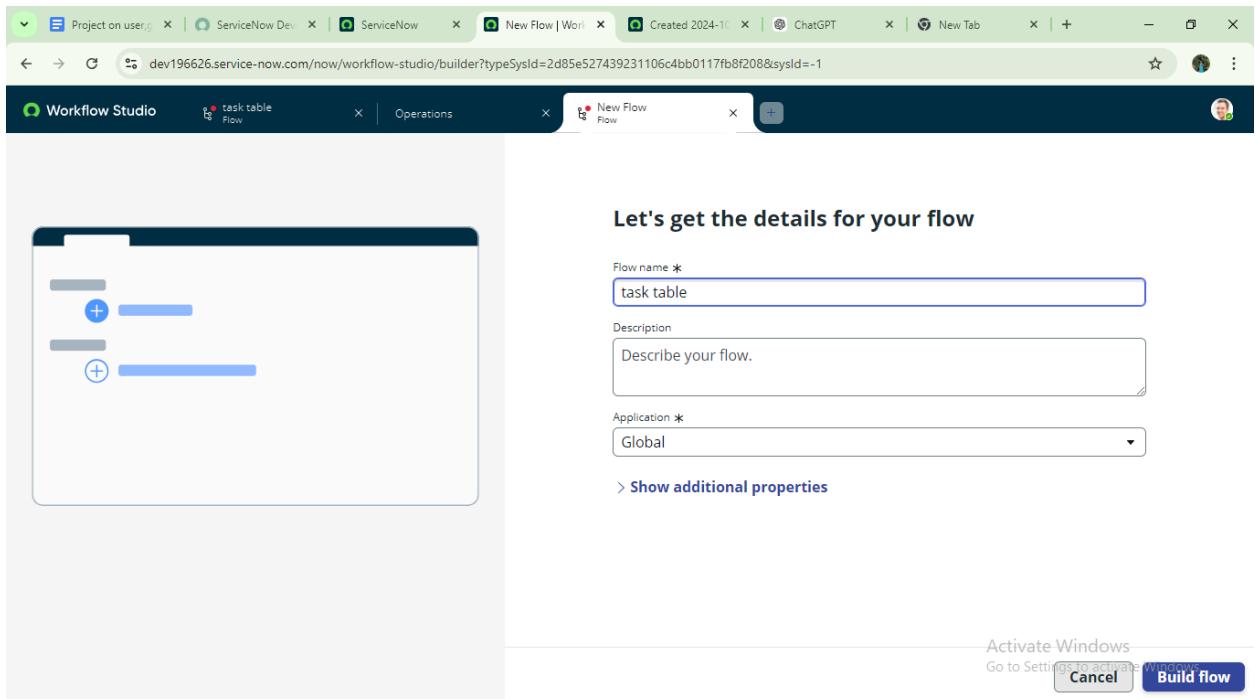
- 1.Open service now.
- 2.Click on All >> search for Flow Designer
- 3.Click on Flow Designer under Process Automation.
- 4.After opening Flow Designer Click on new and select Flow.
- 5.Under Flow properties Give Flow Name as “ task table”.

6. Application should be Global.

7. Click build flow.

The screenshot shows the ServiceNow Workflow Studio interface. The top navigation bar includes tabs for Project on user.g, ServiceNow Dev, ServiceNow, Homepage - Flow, Created 2024-10, ChatGPT, New Tab, and a user icon. Below the navigation is a header with Workflow Studio, task table, Flow, and a plus sign for creating new items. The main area has tabs for Homepage, Operations, and Integrations, with the Homepage tab selected. A sub-header below the tabs shows Playbooks, Flows (selected), Subflows, Actions, and Decision tables. On the left, a sidebar lists 'Flows [39]' with a note 'Last refreshed just now'. A table lists flows with columns: Name, Application, Status, Active, and Update. The first flow listed is 'Benchmark Recommendation Evaluator' under 'Benchmarks Spoke'. A context menu is open over the 'Flow' entry in the table, listing options: Playbook, Flow (selected), Subflow, Action, Decision table, and Steps. To the right of the table, a sidebar titled 'Pick up where you left off' shows recent updates: 'task table' (last updated 14 min ago by System Administrator), 'Create Flow Data' (last updated 5 months ago by System Administrator), and 'Steps' (last updated 5 months ago by System Administrator). Another sidebar titled 'Latest updates' shows three entries: 'System Administrator modified task table 14 min. ago', 'System Administrator modified Create Flow Data 5 months ago', and 'System Administrator modified Steps Settings to activate Windows. 5 months ago'.

Name	Application	Status	Active	Update
Benchmark Recommendation Evaluator	Benchmarks Spoke	Published	true	2024-09-27 22:00:13
Business process approval flow	Global	Published	true	2020-09-27 22:00:13
Change - Cloud Infrastructure - Authorize	Global	Published	true	2020-11-11 07:08:05
Change - Emergency - Authorize	Global	Published	true	2020-10-06 05:39:49
Change - Emergency - Implement	Global	Published	true	2020-09-23 05:06:26
Change - Emergency - Review	Global	Published	true	2020-10-27 04:18:08
Change - Normal - Assess	Global	Published	true	2020-10-06 05:37:05
Change - Normal - Authorize	Global	Published	true	2020-10-06 05:38:35
Change - Normal - Implement	Global	Published	true	2020-09-23 04:23:59



1. Click on Add a trigger
2. Select the trigger in that Search for “create record” and select that.
3. Give the table name as “ task table ”.
4. Give the Condition as Field : status Operator :is Value : in progress  
Field : comments Operator :is Value : feedback  
Field : assigned to Operator :is Value : bob
5. After that click on Done.

The screenshot shows the ServiceNow Workflow Studio interface. A trigger named 'task table' is active. The trigger configuration is as follows:

- 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

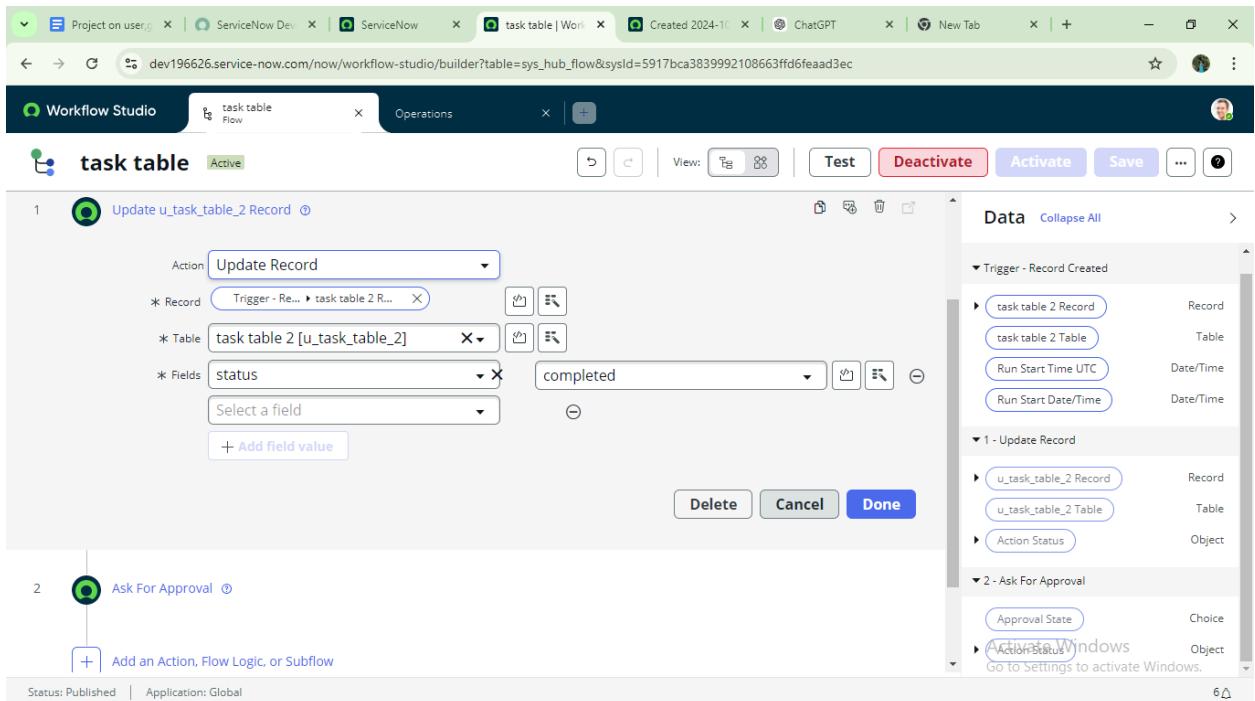
On the right, a data pill displays various objects and their types:

- Trigger - Record Created
  - task table 2 Record (Record)
  - task table 2 Table (Table)
  - Run Start Time UTC (Date/Time)
  - Run Start Date/Time (Date/Time)
- 1 - Update Record
  - u\_task\_table\_2 Record (Record)
  - u\_task\_table\_2 Table (Table)
  - Action Status (Object)
- 2 - Ask For Approval
  - Approval State (Choice)
  - Action Status (Object)

Next step:

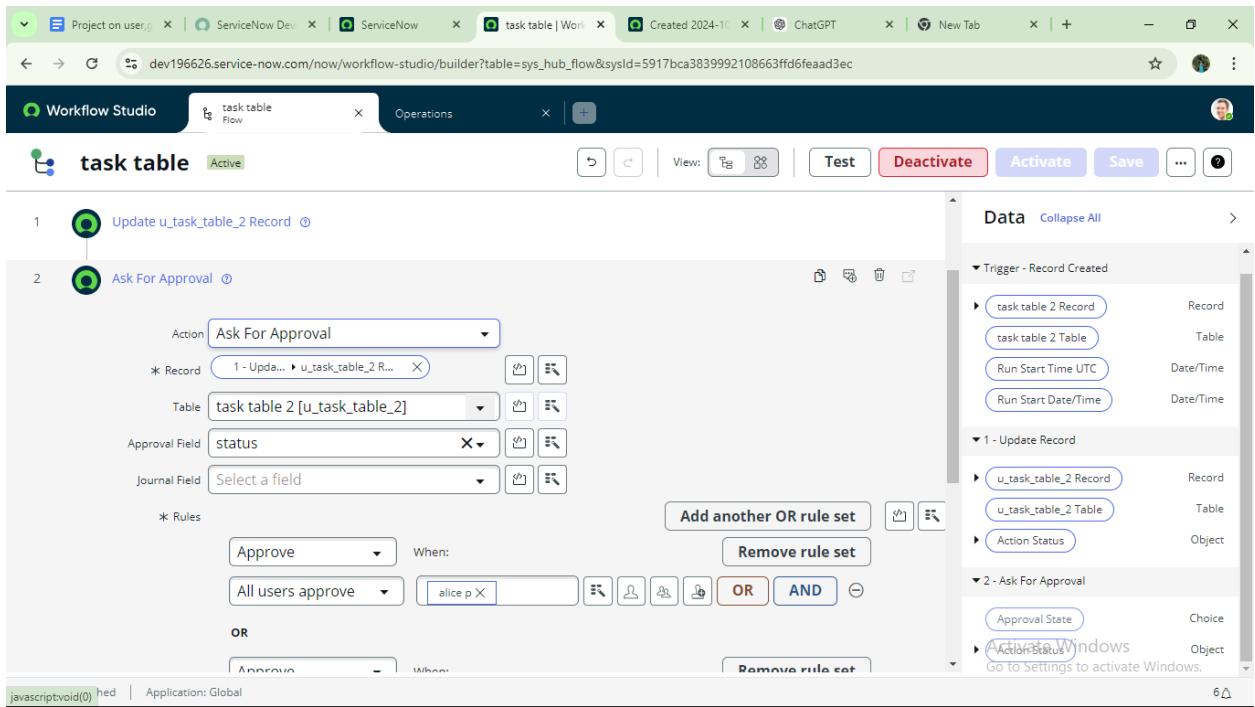
1. Click on Add an action.
2. Select action in that ,search for “ update records”.
3. In Record field drag the fields from the data navigation from Right Side(Data pill)
4. Table will be auto assigned after that
5. Add fields as “status” and value as “completed”

Click on Done.



Next step:

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



1. Go to application navigator search for task table.

2. It status field is updated to completed

Project on user.g ServiceNow Dev ServiceNow task table | Work Created 2024-10-22 ChatGPT New Tab

task table 2 - Created 2024-10-22 2...

task table 2  
Created 2024-10-22 22:25:18

task id	<input type="text"/>	assigned to	<input type="text"/> bob
task name	<input type="text"/>	comments	<input type="text"/>
status	<input type="text"/> completed	due date	<input type="text"/>

[Update](#) [Delete](#)

Activate Windows  
Go to Settings to activate Windows.

Project on user.g ServiceNow Dev ServiceNow task table | Work Created 2024-10-22 ChatGPT New Tab

task table 2 - Created 2024-10-22 2...

task table 2  
Created 2024-10-22 22:25:18

task id	<input type="text"/>	assigned to	<input type="text"/> bob
task name	<input type="text"/>	comments	<input type="text"/>
status	<input type="text"/> completed	due date	<input type="text"/>

[Update](#) [Delete](#)

Activate Windows  
Go to Settings to activate Windows.

Screenshot of a ServiceNow Approvals list view. The browser tabs show multiple windows open, including "Project on user.g", "ServiceNow Dev", "ServiceNow", "task table | Work", "Approvals | Serv", "ChatGPT", and "New Tab".

The main window title is "Approvals". The search bar shows "Search" and the filter dropdown shows "Created".

The table has columns: State, Approver, Comments, Approval for, and Created.

Approvals listed:

State	Approver	Comments	Approval for	Created
Approved	alice p	(empty)		2024-10-22 22:26:19
Rejected	Fred Luddy	(empty)		2024-09-01 12:19:33
Requested	Fred Luddy	(empty)		2024-09-01 12:17:03
Requested	Fred Luddy	(empty)		2024-09-01 12:15:44
Requested	Howard Johnson	CHG0000096		2024-09-01 06:15:29
Requested	Ron Kettering	CHG0000096		2024-09-01 06:15:29
Requested	Luke Wilson	CHG0000096		2024-09-01 06:15:29
Requested	Christen Mitchell	CHG0000096		2024-09-01 06:15:29
Requested	Bernard Laboy	CHG0000096		2024-09-01 06:15:29
Requested	Howard Johnson	CHG0000095		2024-09-01 06:15:25
Requested	Ron Kettering	CHG0000095		2024-09-01 06:15:25
Requested	Luke Wilson	CHG0000095		2024-09-01 06:15:25
Requested	Christen Mitchell	CHG0000095		2024-09-01 06:15:25
Requested	Bernard Laboy	CHG0000095		2024-09-01 06:15:25

Pagination: 1 to 20 of 664

## RESULTS

### OUTPUT Screenshot:

ServiceNow Developers | Users | ServiceNow

User ID: alice

First name: alice

Last name: p

Title:

Department:

Password:

Password needs reset:

Locked out:

Active:

Web service access only:

Internal Integration User:

Email: alice@gmail.com

Language: -- None --

Calendar integration: Outlook

Time zone: System (America/Los\_Angeles)

Date format: System (yyyy-MM-dd)

Business phone:

Mobile phone:

Photo: Click to add...

[Update](#) [Set Password](#) [Delete](#)

**Related Links**

- [View linked accounts](#)
- [View Subscriptions](#)
- [Reset a password](#)

Entitled Custom Tables Roles (3) Groups (1) Delegates Subscriptions User Client Certificates

Breaking news: Some countries...

Search Bar: Search

System Status: ENG IN 11:06 26-06-2025

ServiceNow Developers | Bob P | User | ServiceNow

User ID: Bob

First name: Bob

Last name: P

Title:

Department:

Password needs reset:

Locked out:

Active:

Web service access only:

Internal Integration User:

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:

Photo: Click to add...

[Update](#) [Set Password](#) [Delete](#)

**Related Links**

- [View linked accounts](#)
- [View Subscriptions](#)
- [Reset a password](#)

Entitled Custom Tables Roles Groups (1) Delegates Subscriptions User Client Certificates

Very humid Now

Search Bar: Search

System Status: ENG IN 11:07 26-06-2025

ServiceNow Developers | project team | Group | ServiceNow

Group - project team ★

Name: project team Manager: Description:

Group email: Parent:

Update Delete

Roles Group Members (2) Groups

Created Search Edit...

Group = project team

Created Role Granted by Inherits

No records to display

Very humid Now 11:08 26-06-2025

This screenshot shows the 'Group' page in ServiceNow. The group 'project team' is selected. The 'Name' field contains 'project team'. There are fields for 'Manager' and 'Description', both currently empty. Below the main form, there are tabs for 'Roles', 'Group Members (2)', and 'Groups'. Under 'Group Members', there is a search bar and a sorting dropdown set to 'Created'. A table lists one member, which is a system role named 'System User'. The table has columns for 'Created', 'Role', 'Granted by', and 'Inherits'. The status message at the bottom indicates 'Very humid Now'.

ServiceNow Developers | Roles | ServiceNow

Roles ★

Name: team member Application: Global Description: Elevated privilege:

Contains Roles: for text Search Actions on selected rows... New Edit...

Role = team member Contains: No records to display

Applications with Role: for text Search Actions on selected rows... New

Application Menus

Title	Active	Order	Roles	Name	Updated

28°C Cloudy 11:26 26-06-2025

This screenshot shows the 'Roles' page in ServiceNow. The role 'team member' is selected. The 'Name' field contains 'team member'. The 'Application' dropdown is set to 'Global'. There is a checkbox for 'Elevated privilege' which is unchecked. Below the main form, there is a section for 'Contains Roles' with a search bar and a table for 'Applications with Role'. The table has columns for 'Title', 'Active', 'Order', 'Roles', 'Name', and 'Updated'. The status message at the bottom indicates '28°C Cloudy'.

Microphone off

Do you want to continue and set up voice access? Yes, continue No, thanks

ServiceNow Developers project table | Table | ServiceNow

dev350186.service-now.com/nav/ui/classic/params/target/sys\_db\_object.do%3Fsys\_id%3D39f76c3dc35ea2500458bfddd401310%26sysparm\_record\_target%3Dsys\_db\_object%26sysparm\_rec...

servicenow All Favorites History Workspaces Admin Table - project table

Table project table

Search

Delete Update Delete All Records

A table is a collection of records in the database. Each record corresponds to a row in a table, and each field on a record corresponds to a column on that table. Applications use tables and records to manage data and processes. [More Info](#)

\* Label project table

\* Name u\_team\_number

Application Global

Remote Table

Columns Controls Application Access

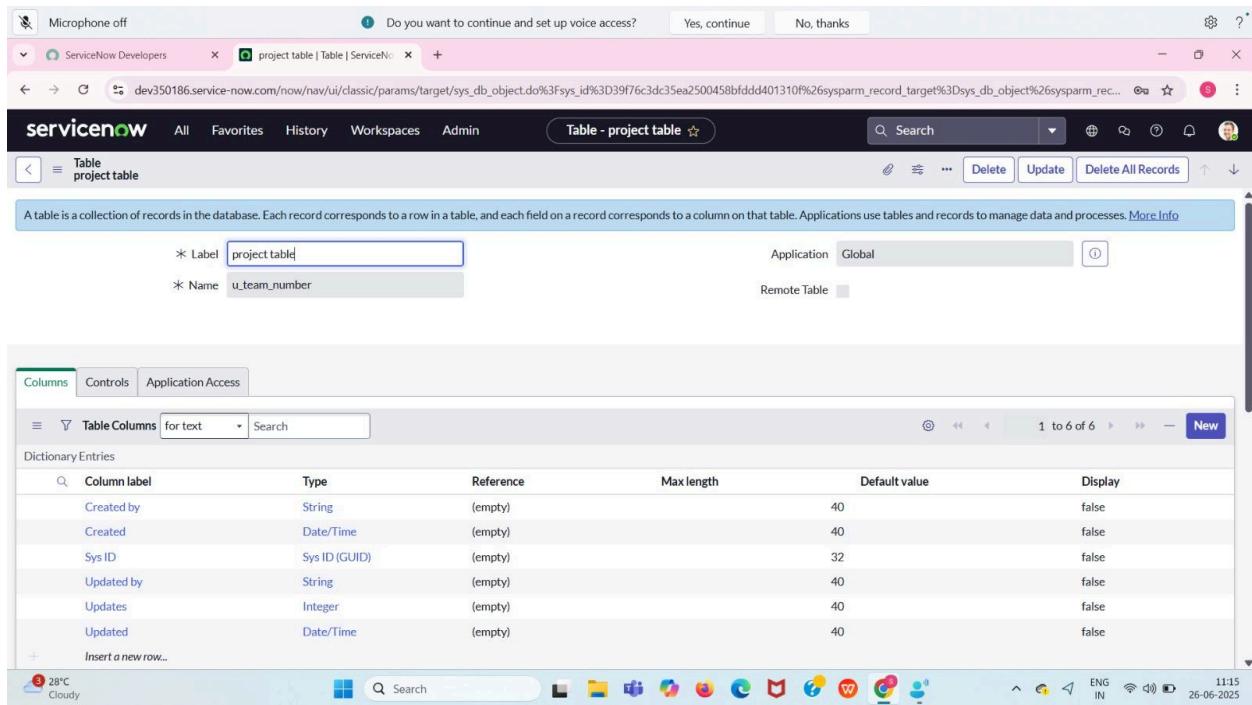
Table Columns for text Search

Dictionary Entries

Column label	Type	Reference	Max length	Default value	Display
Created by	String	(empty)	40	false	
Created	Date/Time	(empty)	40	false	
Sys ID	Sys ID (GUID)	(empty)	32	false	
Updated by	String	(empty)	40	false	
Updates	Integer	(empty)	40	false	
Updated	Date/Time	(empty)	40	false	

Insert a new row...

28°C Cloudy Search ENG IN 11:15 26-06-2025



ServiceNow Developers | project tables | Module | Service

Module - project tables

Title: project tables

Application: Global

Order:

Hint:

Display name: project tables

Visibility

Link Type

Roles: u\_project\_table\_user

Override application menu roles:

Active:

Update Delete

Related Links

New Classic Mobile Module

Classic Mobile Modules

Name	Active	Application menu	Filter	Order	Path	Path Relative To Root	Roles	Domain	Table
Cloudy	31°C								

Actions on selected rows...

12:40 27-06-2025

ServiceNow Developers | task table2s | Module | Service

Module - task table2s

Title: task table2s

Application: Global

Order:

Hint:

Display name: task table2s

Visibility

Link Type

Roles: u\_task\_table2\_user

Override application menu roles:

Active:

Update Delete

Related Links

New Classic Mobile Module

Classic Mobile Modules

Name	Active	Application menu	Filter	Order	Path	Path Relative To Root	Roles	Domain	Table
Cloudy	31°C								

Actions on selected rows...

12:41 27-06-2025

ServiceNow Developers | project team | Group | ServiceNow

dev350186.service-now.com/nav/ui/classic/params/target/sys\_user\_group.do?sys\_id=3D263a4649c39ae100458bfddd4013190%26sysparm\_record\_list%3Dname%253E%253Dproject%28team...

### Group - project team ★

Name: project team  
Manager:   
Description:

Group email:

Parent:

Update Delete

Roles [Group Members (2)] Groups

User Search Actions on selected rows... New Edit...

Group = project team

User Bob P alice p

1 to 2 of 2

Rainy days ahead 31°C 12:33 27-06-2025

ServiceNow Developers | Bob P | User | ServiceNow

dev350186.service-now.com/nav/ui/classic/params/target/sys\_user.do?sys\_id=3Dd9fef5b5c316e2500458bfddd40131b6%26sysparm\_view%3D%26sysparm\_target%3Dsys\_user%26s...

### User - Bob P ★

Department:

Password needs reset:

Locked out:

Active:

Web service access only:

Internal Integration User:

Date format: System (yyyy-MM-dd)

Business phone:

Mobile phone:

Photo: Click to add...

Update Set Password Delete

Related Links

[View linked accounts](#)  
[View Subscriptions](#)  
[Reset a password](#)

Entitled Custom Tables Roles (2) Groups (1) Delegates Subscriptions User Client Certificates

User = Bob P

Role	State	Inherited	Inheritance Count
u_task_table_2_user	Active	false	
team member	Active	false	

1 to 2 of 2

1 cm of rain Monday 12:37 27-06-2025

Screenshot of the ServiceNow Application Menu - task table2 configuration page.

The page shows the following details:

- Title:** task table2
- Application:** Global
- Active:** Checked
- Roles:** u\_task\_table\_2\_user, project members, team member
- Category:** Custom Applications
- Hint:** (empty)
- Description:** (empty)

At the bottom, there are **Update** and **Delete** buttons.

The browser tabs at the top include WhatsApp, ServiceNow Developers, task table2 | Application Menu, and Homepage - Playbooks | Work.

ServiceNow Developers > New Record | Access Control

Access Control - New Record

Access Control  
New record

Requires role.

Role

- x u\_task\_table.u\_assigned\_to
- x u\_task\_table.u\_due\_date
- x u\_task\_table.u\_task\_id
- x u\_task\_table.u\_task\_name

+ Insert a new row..

Security Attribute Condition

Local or Existing  Existing  Local

Condition All of these conditions must be met

-- choose field --

or

New Criteria

AND

OR

Data Condition

Condition No. of records matching the condition: 0

Add Filter Condition Add OR Clause

-- choose field --

-- oper --

-- value --

29°C Cloudy ENG IN 12:04 26-06-2024

An application menu is a group of modules in the application navigator. Choose the roles that are required to access the application and add or remove modules in the related list below. [More Info](#)

\* Title  Application Global

Active

Restricts access to the specified roles. Otherwise, all users can view the application menu when it is active.

Roles  u\_task\_table\_2\_user, project members, team member

Specifies the [menu\\_category](#), which defines the navigation menu style. The default value is Custom Applications.

Category

The text that appears in a tooltip when a user points to this application menu

Hint

Description

ServiceNow Developers | New Record | Access Control | +

dev350186.service-now.com/nav/ui/classic/params/target/sys\_security\_acl.do%3Fsys\_id%3D-1%26sys\_is\_list%3Dtrue%26sys\_target%3Dsys\_security\_acl%26sysparm\_checked\_items%3D%26sysparm...

## servicenow

- All
- Favorites
- History
- Workspaces
- ...

### Access Control - New Record

Access Control Rules have two decision types, and these types will behave differently depending on conditions.

- Allow Access: Allows access to a resource if all conditions are met. Additional ACLs may grant access to records where this ACL has not granted access.
- Deny Access: Denies access to a resource unless all conditions are met. Additional ACLs may not grant access to records where this ACL has denied access.

[More Info](#)

Requires role

Role

- task table
- team member

[Insert a new row...](#)

Security Attribute Condition

Local or Existing  Existing  Local

Condition All of these conditions must be met

-- choose field -- OR AND

or

New Criteria

Data Condition

Condition No. of records matching the condition: 0

Add Filter Condition Add OR Clause

(3) WhatsApp | ServiceNow Developers | ServiceNow | task table | Workflow Studio | +

dev350186.service-now.com/nav/workflow-studio/builder%3Ftable%3Dsys\_hub\_flow%26sysId%3Da2fe807ec35ae6500458bfddd4013159

## Workflow Studio

### task table

Flow • Global

1 Update task table 2 Record

Action Properties

Action

Action Inputs

\* Record Trigger - Re... ▶ task table 2 R...

\* Table task table 2 [u\_task\_table\_2]

\* Fields status    -- None --

+ Add Field Value

2 Ask For Approval

javascipt:void(0)

Application: Global

Rainy days ahead 30°C

The screenshot displays two separate configurations within the ServiceNow Workflow Studio interface.

**Trigger Configuration:**

- Action:** task table
- Trigger:** task table 2 Created where (status is , and comments is feedback, and assign to is bob)
- Condition:** All of these conditions must be met
  - status is -- None --
  - comments is feedback
  - assign to is bob
- Advanced Options:** Available
- Buttons:** Delete, Cancel, Done

**Action Configuration:**

- Action:** Ask For Approval
- Table:** task table 2 [u\_task\_table\_2]
- Approval Reason:** status
- Approval Field:** status
- Journal Field:** Select a field
- Rules:**
  - Approve When: All users approve (Value: alice p) OR AND
  - Approve When: All users approve (Value: ) OR AND
- Buttons:** Add another OR rule set, Remove rule set

## ADVANTAGES & DISADVANTAGE

Optimizing user, group, and role management with access control and workflows offers significant advantages like enhanced security, streamlined operations, and improved compliance.

However, it can also introduce challenges related to complexity, potential for errors, and the need for ongoing maintenance.

**Advantages:**

Enhanced Security:

By limiting access to only the necessary resources based on roles, organizations can significantly reduce the risk of unauthorized access and data breaches. This granular control helps protect sensitive information and critical systems.

Improved Efficiency:

RBAC allows for the efficient assignment and management of permissions, streamlining workflows and improving productivity. Users can easily access the resources they need for their specific roles, reducing time wasted on navigating permissions or requesting access.

Simplified Administration:

Managing access rights becomes easier as permissions are tied to roles rather than individual users. This simplifies onboarding new employees, updating access rights, and auditing user activity.

Enhanced Compliance:

RBAC helps organizations adhere to regulatory requirements and internal policies by providing clear audit trails and controlled access. This simplifies compliance efforts and reduces the risk of penalties.

Reduced Errors:

Centralizing access control and using roles to define permissions reduces the likelihood of misconfigurations and errors associated with managing individual user permissions.

**Disadvantages:**

Complexity:

Designing and implementing RBAC can be complex, especially in large organizations with diverse roles and responsibilities. This complexity can increase the time and resources required for setup and maintenance.

Potential for Role Explosion:

In large organizations, the number of roles can become unwieldy, leading to "role explosion". This can make it difficult to manage roles and permissions effectively.

Maintenance Overhead:

Maintaining RBAC requires ongoing effort to update roles, permissions, and workflows as organizational structures and user responsibilities change.

Potential for Over-Permissioning:

While RBAC aims to minimize access, there's still a risk of over-permissioning, where users have access to more resources than they need. This can be mitigated by carefully designing roles and regularly reviewing access permissions.

Reliance on Accurate Role Definition:

RBAC's effectiveness depends on accurate and up-to-date role definitions. If roles are not defined correctly, it can lead to security vulnerabilities or inefficiencies.

## CONCLUSION

This scenario highlights a structured approach to project management, showcasing the roles of Alice and Bob within a defined workflow. With Alice's oversight and Bob's execution, the team effectively collaborates to ensure project success. The use of tables organizes key information, facilitating easy tracking of projects, tasks, and progress updates. Overall, this system promotes accountability, enhances communication, and leads to the successful completion of projects.