

PROJECT TITLE:

**Optimizing User, Group, and Role Management with Access Control and
Workflows**

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1. Ideation Phase

This phase focuses on identifying the problem and conceptualizing the solution.

- Modern project teams face challenges with unclear roles, lack of access control, and unstructured workflows.
- Problems identified include:
 - Ambiguity in task assignments
 - Inefficient progress tracking
 - Overlapping permissions
 - Lack of accountability
- The idea is to develop a role-based management framework to enforce proper permissions, ensure ownership, and improve collaboration.

Outcome of Ideation Phase:

A clear concept to create a system that optimizes user, group, and role management through access control and workflow automation.

2. Project Planning Phase

This phase involves setting the objectives and outlining the steps to achieve the project goals.

- Objectives:
 1. Define clear roles and responsibilities.
 2. Implement Role-Based Access Control (RBAC).
 3. Create structured workflows for task management.
 4. Improve visibility and accountability.
 5. Provide an intuitive dashboard for monitoring.
- System Overview:
 - Integration of user, group, and role management with access control and workflow automation.
 - Key components planned: User Management, Group Management, Role Management, Access Control, Workflow Management.

Outcome of Planning Phase:

A well-defined roadmap that outlines how the system will manage users, roles, and permissions to streamline project execution.

3. Project Design Phase

This phase deals with designing the system's structure and functionality.

- Design Components:
 1. User Management: Define user accounts and unique identifiers.

2. Group Management: Organize users based on roles or departments.
 3. Role Management: Predefine roles (Manager, Member, Reviewer) with permissions.
 4. Access Control: Apply RBAC to restrict user actions.
 5. Workflow Management: Define states such as *To Do* → *In Progress* → *Review* → *Done*.
- Example Workflow:
 - Alice (Manager): Create and assign tasks, monitor progress.
 - Bob (Member): Update task status and add comments.

Outcome of Design Phase:

A blueprint of the system defining how components interact, ensuring secure, organized, and role-based task management.

4. Requirement Analysis Phase

This phase identifies and documents what is needed to implement the system.

- Functional Requirements:
 - Ability to create and manage users, roles, and groups.
 - Automated assignment of tasks and approvals via workflows.
 - Implementation of Access Control Lists (ACL) for defining permissions (read, write, delete).
 - Logging all actions and generating reports.
- Non-Functional Requirements:
 - Security: Restrict access based on user roles.
 - Usability: Provide an intuitive dashboard.
 - Efficiency: Automate processes to reduce manual intervention.

Outcome of Requirement Analysis Phase:

A comprehensive list of functional and non-functional requirements that serve as the foundation for system development.

Use Case Example

Actor	Action	Access Level
Alice (Manager)	Create task, assign to Bob, monitor progress	Full access
Bob (Team Member)	Update task status, add comments	Limited access
System	Log all actions, generate reports	Automated

This structured approach ensures that only authorized users can perform specific actions, reducing conflicts and improving clarity.

Implementation

Step 1: User Management

- Create and manage user accounts in the system.
- Define user details such as username, email, and role.
- Ensure each user has a unique identifier to maintain accountability.

The screenshot shows the ServiceNow user management interface for a user named 'alice p'. The top navigation bar includes 'All', 'Favorites', 'History', 'Workspaces', and 'Admin'. The user's profile is displayed with fields for First name (alice), Last name (p), Title, and Department. There are checkboxes for 'Password needs reset', 'Locked out', 'Active' (checked), and 'Internal Integration User'. On the right, there are dropdown menus for 'Identity type' (Human), 'Language' (None), 'Calendar integration' (Outlook), 'Time zone' (System (America/Los_Angeles)), and 'Date format' (System (yyyy-MM-dd)). There are also input fields for 'Business phone' and 'Mobile phone'. Below the profile, there are buttons for 'Update', 'Set Password', and 'Delete'. A 'Related Links' section contains links for 'View linked accounts', 'View Subscriptions', and 'Reset a password'. At the bottom, there is a table titled 'Entitled Custom Tables' with columns for 'Role', 'State', 'Inherited', and 'Inheritance Count'. The table shows three roles: 'u_task_table_user', 'u_project_table_user', and 'project member', all with a state of 'Active' and 'Inherited' as 'false'.

Role	State	Inherited	Inheritance Count
u_task_table_user	Active	false	
u_project_table_user	Active	false	
project member	Active	false	

The screenshot shows the ServiceNow user management interface for a user named 'Bob p'. The top navigation bar includes 'All', 'Favorites', 'History', 'Workspaces', and 'Admin'. The user's profile is displayed with fields for First name (Bob), Last name (p), Title, and Department. There are checkboxes for 'Password needs reset', 'Locked out', 'Active' (checked), and 'Internal Integration User'. On the right, there are dropdown menus for 'Identity type' (Human), 'Language' (None), 'Calendar integration' (Outlook), 'Time zone' (System (America/Los_Angeles)), and 'Date format' (System (yyyy-MM-dd)). There are also input fields for 'Business phone' and 'Mobile phone'. Below the profile, there are buttons for 'Update', 'Set Password', and 'Delete'. A 'Related Links' section contains links for 'View linked accounts', 'View Subscriptions', and 'Reset a password'. At the bottom, there is a table titled 'Entitled Custom Tables' with columns for 'Role', 'State', 'Inherited', and 'Inheritance Count'. The table shows two roles: 'u_task_table_user' and 'team member', both with a state of 'Active' and 'Inherited' as 'false'. The page number '1 to 2 of 2' is visible at the bottom.

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

Step 2: Group Management

- Create groups to organize users based on their department, role, or project.
- Groups help in managing permissions collectively.
- Example: *Development Group, Operations Group, Testing Group*.

servicenow

AllFavoritesHistoryWorkspacesAdmin

Group - project team

Search

Group project team

UpdateDelete

Job to add or remove role(s) from user(s) of group has been queued

Nameproject team

Group email

Manager

Parent

Description

UpdateDelete

RolesGroup Members (2)Groups

User

Search

Actions on selected rows...NewEdit

Group = project team

User

alice p

Bob p

1 to 2 of 2

servicenow

AllFavoritesHistoryWorkspacesAdmin

Table - task table

Search

Table task table

DeleteUpdateDelete All Records

Labeltask table

ApplicationGlobal

ColumnsControlsApplication Access

Table Columns

for text

Search

1 to 12 of 12New

Column label	Type	Reference	Max length	Default value	Display
task id	Integer	(empty)	40		false
assigned to	String	(empty)	40		false
Comments	String	(empty)	40		false
Due date	Choice	(empty)	40		false
status	Choice	(empty)	40		false
Created by	String	(empty)	40		false
task name	String	(empty)	40		false
Sys ID	Sys ID (GUID)	(empty)	32		false
Created	Date/Time	(empty)	40		false
Updated by	String	(empty)	40		false
Updates	Integer	(empty)	40		false
Updated	Date/Time	(empty)	40		false

servicenow

AllFavoritesHistoryWorkspacesAdmin

Table - project table

Search

Table project table

DeleteUpdateDelete All Records

Labelproject table

ApplicationGlobal

Nameu_project_table

ColumnsControlsApplication Access

Table Columns

for text

Search

1 to 13 of 13New

Column label	Type	Reference	Max length	Default value	Display
status	Choice	(empty)	40		false
Created	Date/Time	(empty)	40		false
project name	String	(empty)	40		false
Updated by	String	(empty)	40		false
Updates	Integer	(empty)	40		false
Updated	Date/Time	(empty)	40		false
Created by	String	(empty)	40		false
start date	Date	(empty)	40		false
description	String	(empty)	40		false
Sys ID	Sys ID (GUID)	(empty)	32		false
project id	Integer	(empty)	40		false
project manager	String	(empty)	40		false
end date	Date	(empty)	40		false

Step 3: Role Management

- Define different roles such as *Project Manager*, *Team Member*, *Reviewer*, etc.
- Each role determines what actions a user can perform in the system.
- Example:
 - Manager: Create and assign tasks.
 - Member: Update and complete assigned tasks.

Step 4: Assign Users to Groups

- Assign each user to one or more groups depending on their responsibilities.
- This ensures that group-level permissions are automatically applied to the users.
- Example: Alice → Project Managers group, Bob → Team Members group.

Step 5: Application Access

- Define access levels for different applications within the system.
- This step ensures that only authorized groups or roles can access specific modules or data.

Sub-step: Assign Table Access to Application

- Grant access to database tables or records required by the application.
- Restrict read, write, and delete permissions based on the user's role or group.

The screenshot shows the ServiceNow configuration page for 'Application Menu - task table'. The page includes a header with the ServiceNow logo and navigation tabs (All, Favorites, History, Workspaces). The main content area contains several sections for configuring the application menu:

- Title:** A text field containing 'task table'.
- Application:** A dropdown menu set to 'Global'.
- Active:** A checkbox that is checked.
- Roles:** A section with a list of roles: 'u_task_table_user', 'project member', and 'team member'.
- Category:** A dropdown menu set to 'Custom Applications'.
- Hint:** A text field for a tooltip.
- Description:** A text area for a description.

At the bottom, there are 'Update' and 'Delete' buttons, and a table with columns for 'Modules', 'Order', 'Search', and 'Actions on selected rows...'. The table is currently empty.

servicenow All Favorites History Workspaces : Application Menu - project table

Application Menu project table

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: 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

Specifies the menu category, which defines the navigation menu style. The default value is Custom Applications.

Category: Custom Applications

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

Hint: Description:

Update Delete

Modules Order Search Actions on selected rows... New

Title	Table	Active	Filter	Order	Link type	Device type	Roles	Updated
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Step 6: Access Control List (ACL)

- Create an Access Control List (ACL) to manage what actions each role can perform on the system resources.

Sub-step: Create ACL

- Define explicit permissions in the ACL such as:
 - Read access → Allowed for all users.
 - Write access → Allowed for Managers only.
 - Delete access → Restricted to Admins.

servicenow All Favorites History Workspaces Admin Access Controls

Access Controls Updated Search

Name	Decision Type	Operation	Type	Active	Updated by	Updated
u_task_table.u_task_name	Allow If	write	record	true	admin	2025-10-27 23:06:05
u_task_table.u_task_id	Allow If	write	record	true	admin	2025-10-27 23:04:40
u_task_table.u_due_date	Allow If	write	record	true	admin	2025-10-27 23:03:02
u_task_table.u_assigned_to	Allow If	write	record	true	admin	2025-10-27 23:01:40
u_task_table.u_status	Allow If	write	record	true	admin	2025-10-27 22:50:10
u_task_table	Allow If	delete	record	true	admin	2025-10-27 22:03:45
u_task_table	Allow If	create	record	true	admin	2025-10-27 22:03:45
u_task_table	Allow If	write	record	true	admin	2025-10-27 22:03:45
u_task_table	Allow If	read	record	true	admin	2025-10-27 22:03:45
u_project_table	Allow If	write	record	true	admin	2025-10-27 22:02:50
u_project_table	Allow If	create	record	true	admin	2025-10-27 22:02:50
u_project_table	Allow If	delete	record	true	admin	2025-10-27 22:02:50
u_project_table	Allow If	read	record	true	admin	2025-10-27 22:02:50
nowdecisioninlinebuilder?	Allow If	read	ux_route	true	system	2025-10-27 18:09:40
sys_user_role.elevated_privilege	Allow If	write	record	true	developer.program.hop@snc	2025-10-27 17:26:48
**	Allow If	query_match	record	true	system	2025-08-22 01:07:12
sys_script_pattern.script_source_table	Allow If	query_range	record	true	@@snc_write_audit@@	2025-08-22 01:07:02
gsn_content_group.done_status_text	Allow If	query_range	record	true	@@snc_write_audit@@	2025-08-22 01:07:01

Step 7: Flow (Workflow Automation)

- Design workflows to automate task assignments and approvals.
- Workflows ensure that the right person receives the right task at the right time.

Sub-step: Create a Flow to Assign Operations Ticket to Group

- Create an automated flow that assigns operational tickets to a specific group (e.g., Operations Group).
- When a new operations request is created, the system automatically routes it to the designated group.
- Improves efficiency and eliminates manual intervention.

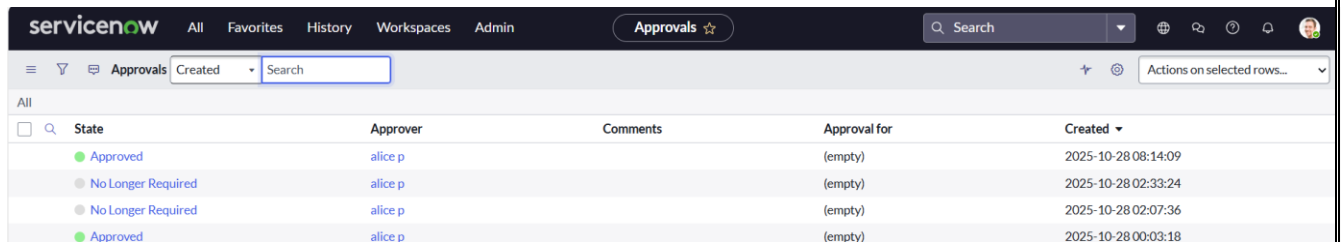
The screenshot shows the 'task table' flow configuration in Workflow Studio. The 'TRIGGER' section is active, showing a trigger event 'Created' for the table 'task table [u_task_table]'. The condition is set to 'All of these conditions must be met' with three criteria: 'status is In progress', 'Comments is feedback', and 'assigned to is bob'. The 'Data' panel on the right shows the flow variables: 'task table Record' (Record), 'task table Table' (Table), 'Run Start Time UTC' (DateTime), and 'Run Start Date/Time' (DateTime). The '1 - Update Record' section shows the 'task table Record' (Record), 'task table Table' (Table), and 'Action Status' (Object). The '2 - Ask For Approval' section shows 'Approval State' (Choice) and 'Action Status' (Object).

The screenshot shows the 'ACTIONS' section of the 'task table' flow configuration. The first action is 'Update task table Record', which is configured with the 'task table [u_task_table]' table and the 'status' field set to 'Completed'. The second action is 'Ask For Approval', which is configured with the 'task table [u_task_table]' table and the 'status' field. The 'Rules' section shows a rule set with 'Approve' and 'All users approve' conditions. The 'Due Date' is set to 'None'. The 'Data' panel on the right shows the flow variables: 'task table Record' (Record), 'task table Table' (Table), 'Run Start Time UTC' (DateTime), and 'Run Start Date/Time' (DateTime). The '1 - Update Record' section shows the 'task table Record' (Record), 'task table Table' (Table), and 'Action Status' (Object). The '2 - Ask For Approval' section shows 'Approval State' (Choice) and 'Action Status' (Object).

1. Outcome

After completing all the above steps:

- Roles and access are clearly defined.
- Users and groups are organized logically.
- Access is controlled securely through ACLs.
- Tasks and workflows are automated for better accountability and efficiency.



The screenshot displays the ServiceNow 'Approvals' page. The top navigation bar includes 'servicenow', 'All', 'Favorites', 'History', 'Workspaces', 'Admin', and a search bar. Below the navigation bar, there's a filter section with 'Approvals' selected, a 'Created' dropdown, and a search input. The main content area shows a table of approval records with columns: State, Approver, Comments, Approval for, and Created. The table contains four rows of data.

State	Approver	Comments	Approval for	Created
Approved	alice p		(empty)	2025-10-28 08:14:09
No Longer Required	alice p		(empty)	2025-10-28 02:33:24
No Longer Required	alice p		(empty)	2025-10-28 02:07:36
Approved	alice p		(empty)	2025-10-28 00:03:18

2. Conclusion

This project successfully demonstrates how optimizing user, group, and role management using access control and workflow automation enhances efficiency in project management.

By defining structured roles, secure permissions, and task workflows, the system ensures transparency, accountability, and scalability for growing project teams.