

PROJECT TITLE:

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

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TEAM MEMBERS:

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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 image displays two screenshots of the ServiceNow User management interface. Both screenshots show the 'User' record for two different users: 'User - alice p' and 'User - Bob p'. Each screenshot includes a top navigation bar with 'servicenow', 'All', 'Favorites', 'History', 'Workspaces', and 'Admin' tabs, and a search bar at the top right.

User - alice p: This screenshot shows the profile for user 'alice'. The 'First name' field contains 'alice' and the 'Last name' field contains 'p'. The 'Title' and 'Department' fields are empty. Under the 'Identity type' section, 'Human' is selected. The 'Calendar integration' is set to 'Outlook'. The 'Time zone' is 'System (America/Los_Angeles)' and the 'Date format' is 'System (yyyy-MM-dd)'. The 'Mobile phone' field is empty. The 'Active' checkbox is checked. Below the main profile, there is a 'Related Links' section with links to 'View linked accounts', 'View Subscriptions', and 'Reset a password'. At the bottom, there is a 'Entitled Custom Tables' section showing roles assigned to the user, with three roles listed: 'u_task_table_user', 'u_project_table_user', and 'project.member'. Each role has an 'Active' status and an 'Inherited' status of 'false'.

User - Bob p: This screenshot shows the profile for user 'Bob'. The 'First name' field contains 'Bob' and the 'Last name' field contains 'p'. The 'Title' and 'Department' fields are empty. Under the 'Identity type' section, 'Human' is selected. The 'Calendar integration' is set to 'Outlook'. The 'Time zone' is 'System (America/Los_Angeles)' and the 'Date format' is 'System (yyyy-MM-dd)'. The 'Mobile phone' field is empty. The 'Active' checkbox is checked. Below the main profile, there is a 'Related Links' section with links to 'View linked accounts', 'View Subscriptions', and 'Reset a password'. At the bottom, there is a 'Entitled Custom Tables' section showing roles assigned to the user, with two roles listed: 'u_task_table_user' and 'team member'. Both roles have an 'Active' status and an 'Inherited' status of '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 All Favorites History Workspaces Admin Group - project team

Group project team

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

Name	project team	Manager		Group email	
Description					
Update Delete					
<input type="radio"/> Roles <input checked="" type="radio"/> Group Members (2) <input type="radio"/> Groups User Search Actions on selected rows... New Edit...					
Group = project team User alice p Bob p					
1 to 2 of 2					

servicenow All Favorites History Workspaces Admin Table - task table

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	task table	Application	Global		
* Name	u_task_table				
<input type="radio"/> Columns <input type="radio"/> Controls <input type="radio"/> Application Access					
Table Columns for text Search					
Dictionary Entries					
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	Date	(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 All Favorites History Workspaces Admin Table - project table

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	Application	Global		
* Name	u_project_table				
<input type="radio"/> Columns <input type="radio"/> Controls <input type="radio"/> Application Access					
Table Columns for text Search					
Dictionary Entries					
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 application menu configuration interface for the 'task table' application. The top navigation bar includes 'servicenow', 'All', 'Favorites', 'History', 'Workspaces', and a search bar. The main title is 'Application Menu - task table'. The configuration form has the following fields:

- Title:** task table
- Application:** Global
- Active:** checked
- Roles:** u_task_table_user, project member, team member
- Category:** Custom Applications
- Hint:** (empty)
- Description:** (empty)

At the bottom, there are 'Update' and 'Delete' buttons, and a footer with 'Modules', 'Order', 'Search', and 'Actions on selected rows...' buttons.

The screenshot shows the 'Application Menu - project table' configuration page in ServiceNow. The top navigation bar includes 'All', 'Favorites', 'History', 'Workspaces', and a search bar. The main form fields include:

- Title:** project table
- Application:** Global
- Active:** checked
- Roles:** project member
- Category:** Custom Applications
- Hint:** (empty field)
- Description:** (empty field)

At the bottom, there are 'Update' and 'Delete' buttons. Below the form is a table titled 'Application menu = project table' with columns: Title, Table, Active, Filter, Order ▲, Link type, Device type, Roles, and Updated.

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.

The screenshot shows the 'Access Controls' list page in ServiceNow. The top navigation bar includes 'All', 'Favorites', 'History', 'Workspaces', 'Admin', and a search bar. The main table displays a list of access controls with columns: Name, Decision Type, Operation, Type, Active, Updated by, and Updated.

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
now.decisioninlinebuilder*	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
gsw_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 Oracle Workflow Studio interface for creating a flow named "task table".

TRIGGER:

- Trigger: Created
- * Table: task table [u_task_table]
- Condition: All of these conditions must be met
 - status is In progress
 - Comments is feedback
 - assigned to is bob

ACTIONS:

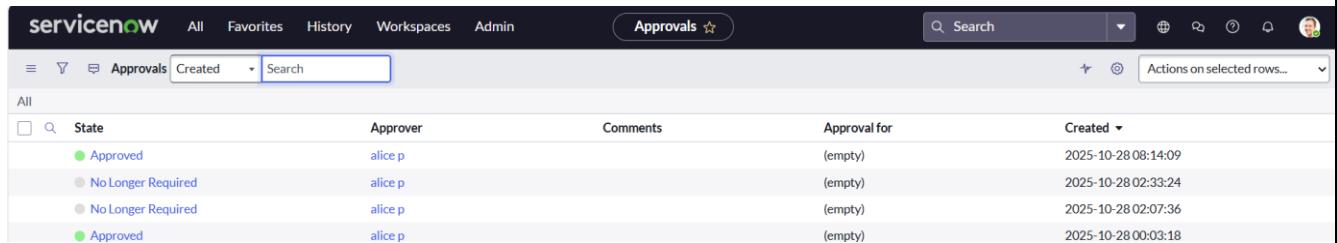
1. Update task table Record
 - Action: Update Record
 - * Record: Trigger - Rec... > task table Rec...
 - * Table: task table [u_task_table]
 - * Fields: status > Completed
2. Ask For Approval
 - Action: Ask For Approval
 - * Record: 1 - Update ... > task table Rec...
 - Table: task table [u_task_table]
 - Approval Field: status
 - Journal Field: Select a field
 - * Rules: Approve When: All users approve > alice p X
 - Due Date: None

The right side of the screen displays a sidebar with various workflow components and their descriptions, such as "Trigger - Record Created", "Update Record", and "Ask For Approval".

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 shows a ServiceNow interface with the title bar "servicenow" and tabs "All", "Favorites", "History", "Workspaces", and "Admin". The current page is titled "Approvals". The main content area displays a table with the following 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.