Shared Resources Setup Document

**Project 2**

**Last Updated: September 24, 2025**

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# Overview

This document outlines the setup process for the shared\_resources directory structure for Project 2. It covers user and group management, permissions, file population, backup configuration, and verification steps. Visual demonstrations are referenced where applicable.

# Directory Structure

The directory structure for shared\_resources is as follows:

shared\_resources/

├── private

│ ├── file1.txt

│ ├── file2.txt

│ └── file3.txt

├── public

│ ├── file1.txt

│ ├── file2.txt

│ └── file3.txt

├── backup\_for\_private

│ ├── file1.txt

│ ├── file2.txt

│ └── file3.txt

├── backup\_for\_public

│ ├── file1.txt

│ ├── file2.txt

│ └── file3.txt

## Explanation

* private: Contains restricted files accessible only by the owner and project2grp

group members.

* public: Contains files readable and traversable by everyone, with write permissions restricted to the owner.
* Files in both directories are project-related documents or scripts.

## Directory Structure Visualization

[Placeholder for Image: Directory Structure]

# Users and Groups

## Users

* employee1: Member of project2grp.
* employee2: Not a member of project2grp.

## Groups

* project2grp: Controls access to the private directory.

## Commands Used

Listing 1: User and group creation commands

# Create users with home directories

sudo useradd -m -d /home/shared\_resources/employee1 employee1 sudo useradd -m -d /home/shared\_resources/employee2 employee2

# Create groups

sudo groupadd project2grp

# Add users to groups

sudo usermod -aG project2grp employee1

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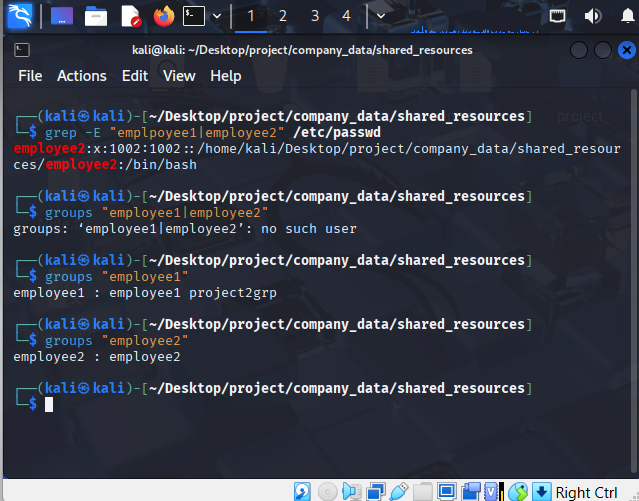
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## User and Group Verification Visualization



# Ownership and Permissions

## Private Directory

* **Owner**: Full access (rwx).
* **Group** (project2grp): Read and execute (r-x).
* **Others**: No access (—).

### Commands Used

Listing 2: Private directory permissions

sudo chown kali:project2grp shared\_resources/private sudo chmod 750 shared\_resources/private

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## Public Directory

* **Owner**: Full access (rwx).
* **Group**: Read and execute (r-x).
* **Others**: Read and execute (r-x).
* **Sticky Bit**: Prevents file deletion by non-owners.
* **Setgid**: Ensures new files inherit the group.

### Commands Used

Listing 3: Public directory permissions

sudo chown kali:project2grp shared\_resources/public

sudo chmod 2775 shared\_resources/public # setgid (2), owner (rwx), group (rwx), others (r-x)

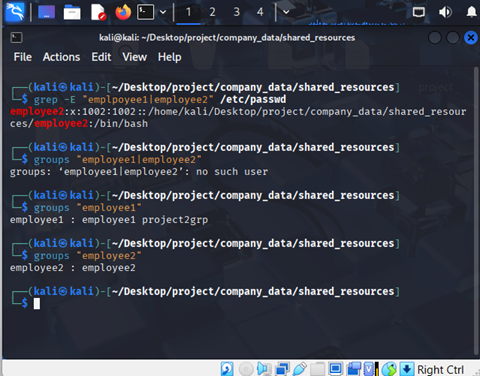
sudo chmod +t shared\_resources/public # sticky bit

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## Permissions Setup Visualization



# File Population

* private Directory: Contains file1.txt, file2.txt, file3.txt.
* public Directory: Contains file1.txt, file2.txt, file3.txt.

## Commands Used

Listing 4: File creation and permissions

setfacl -m u::rwx,g::r-x,o::r-x ./public/

setfacl -m u::rwx,g::rw-,o::--- ./private/ # Create files

touch shared\_resources/private/file1.txt shared\_resources/private/ file2.txt shared\_resources/private/file3.txt

touch shared\_resources/public/file1.txt shared\_resources/public/ file2.txt shared\_resources/public/file3.txt

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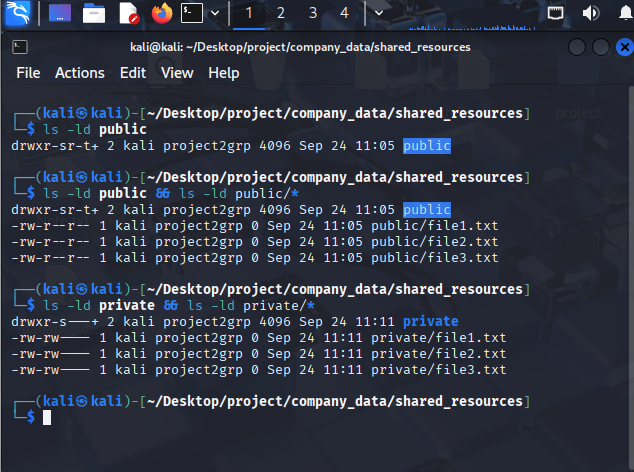
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## File Permissions Visualization



# Backup and Sync

## Manual Backup

Listing 5: Manual backup commands

rsync -av shared\_resources/public /home/kali/Desktop/project/ company\_data/shared\_resources/backup\_for\_public

rsync -av shared\_resources/private /home/kali/Desktop/project/ company\_data/shared\_resources/backup\_for\_private

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## Automated Backup (Cron)

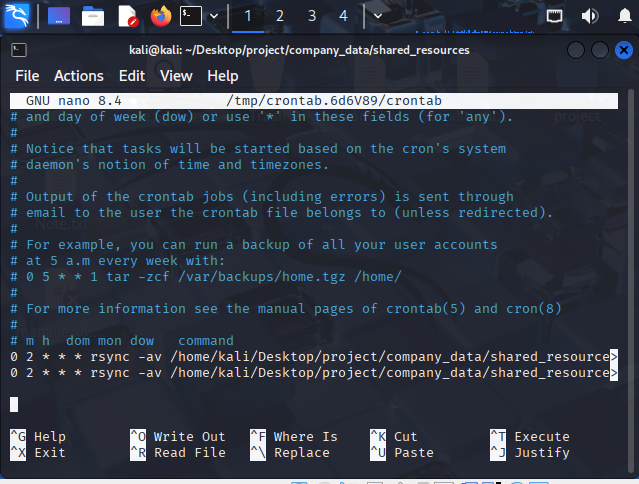
* **Schedule**: Daily at 2 AM.
* **Command**:

Listing 6: Cron job for automated backup

0 2 \* \* \* rsync -av /home/kali/Desktop/project/company\_data/ shared\_resources/public /home/kali/Desktop/project/company\_data/ shared\_resources/backup\_for\_public && rsync -av /home/kali/ Desktop/project/company\_data/shared\_resources/private /home/kali/ Desktop/project/company\_data/shared\_resources/backup\_for\_private

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## Cron Job Setup Visualization



# Verification and Testing

## Access Testing

* private Directory: Only the owner and project2grp members can read-

/execute files.

* public Directory: Everyone can read/traverse; only the owner can write.

## Verification Commands

Listing 7: Verification commands

# List directory and file permissions

ls -ld shared\_resources/private shared\_resources/public ls -l shared\_resources/private

ls -l shared\_resources/public

# Verify user group membership groups employee1

groups employee2

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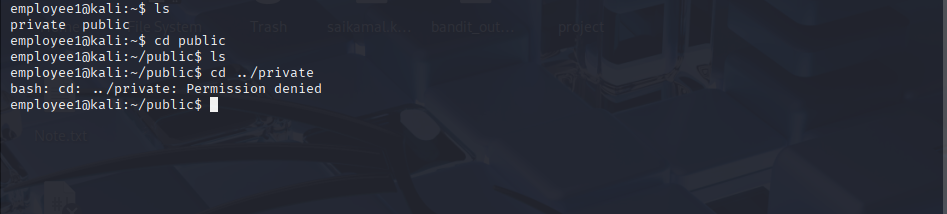
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## Access Testing Visualization



**8. Overall process image**

