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Placement Empowerment Program

Cloud Computing and DevOps Centre

Create a Simple Backup Script: Create a script that backs up your entire Git repository to a local folder daily

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AUTONOMOUS INSTITUTIONS, AFFILIATED TO ANNA UNIVERSITY

Introduction

Backing up your Git repositories is essential for safeguarding your work and maintaining version control integrity. It protects against unexpected data loss caused by accidental deletions, hardware failures, or repository corruption. Automating the backup process not only ensures regular updates but also saves time and minimizes manual effort, providing a reliable and hassle-free solution.

Overview

This guide walks you through setting up an automated backup system for your Git repository on a Windows machine using a batch script and Task Scheduler. The script fetches the latest updates from the repository daily and saves them in a designated backup folder. Additionally, it compresses the repository into a timestamped archive for better organization. This ensures that your codebase and version history are securely stored in a local directory, minimizing the risk of data loss.

Key Components

- **Batch Script**: A .bat file executes commands to clone the repository, pull the latest updates, and compress the backup for efficient storage.
- **Task Scheduler**: A built-in Windows utility automates the script, ensuring it runs daily without requiring manual execution.

Objectives

1. Automate Backups: Develop a script to back up the entire Git repository daily.

2. Minimize Data Loss: Safeguard the repository from accidental deletions or hardware failures.

3. Ease of Management: Create timestamped backups for quick identification and restoration.

4. Hands-Free Automation: Leverage Task Scheduler to eliminate the need for manual execution.

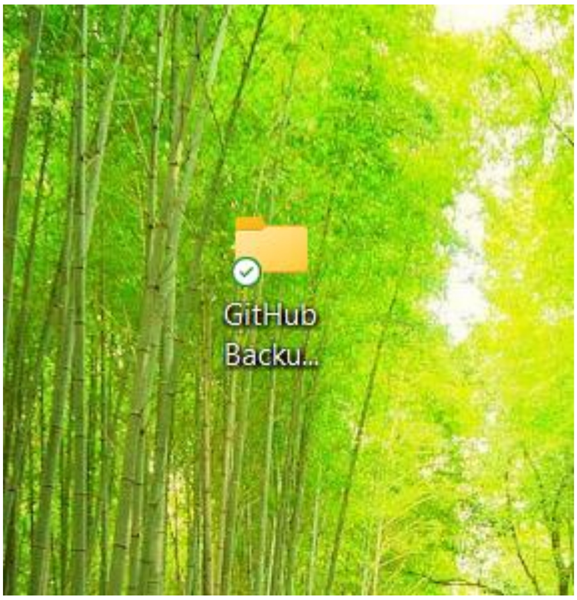
Importance

- **Disaster Recovery:** In case of repository failures or accidental deletions, you can quickly restore your work from the local backup.
- **Version History Preservation:** All changes and version history are secured, ensuring no progress is lost.
- **Efficient Workflow:** Automating the process allows you to focus on development tasks instead of managing backups manually.
- **Organization:** Timestamped backups provide a clear, structured way to keep track of changes over time.

Step-by-Step Overview

Step 1:

Create a folder named **GitHub Backup Folder** to store your backup files.



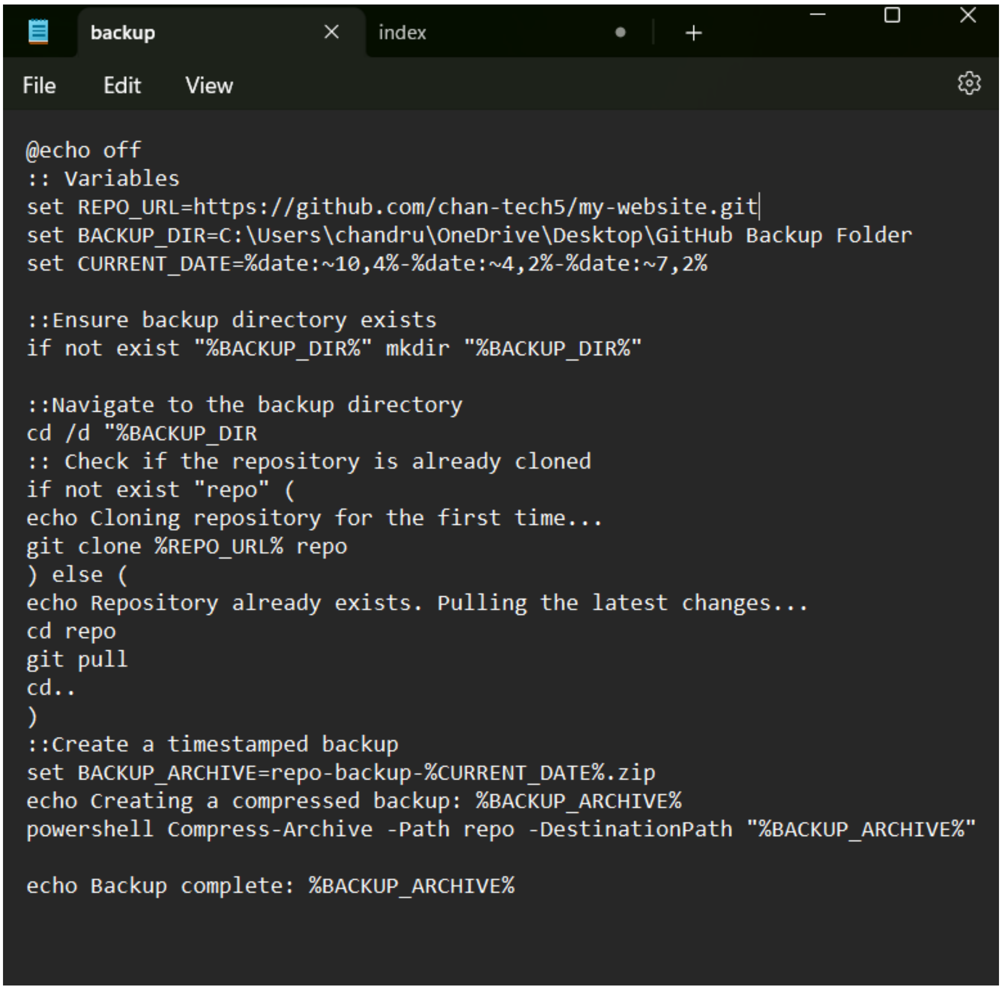
Step 2:

- Open **Notepad** and type the following script:

  Set REPO_URL to the URL of the repository you want to back up.

  Set BACK_DIR to the path of the folder created in Step 1.

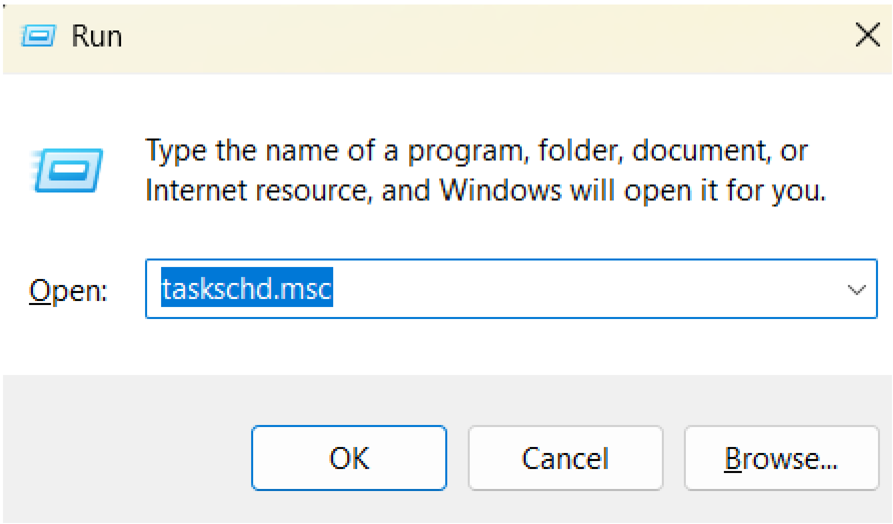
- Save the file with a .bat extension (e.g., backup.bat) on your **Desktop**.



```
@echo off
:: Variables
set REPO_URL=https://github.com/chan-tech5/my-website.git
set BACKUP_DIR=C:\Users\chandru\OneDrive\Desktop\GitHub Backup Folder
set CURRENT_DATE=%date:~10,4%-%date:~4,2%-%date:~7,2%

::Ensure backup directory exists
if not exist "%BACKUP_DIR%" mkdir "%BACKUP_DIR%"

::Navigate to the backup directory
cd /d "%BACKUP_DIR
:: Check if the repository is already cloned
if not exist "repo" (
echo Cloning repository for the first time...
git clone %REPO_URL% repo
) else (
echo Repository already exists. Pulling the latest changes...
cd repo
git pull
cd..
)
::Create a timestamped backup
set BACKUP_ARCHIVE=repo-backup-%CURRENT_DATE%.zip
echo Creating a compressed backup: %BACKUP_ARCHIVE%
powershell Compress-Archive -Path repo -DestinationPath "%BACKUP_ARCHIVE%"

echo Backup complete: %BACKUP_ARCHIVE%
```

Step 3:

- Press **Win + R**, type taskschd.msc, and press **Enter**.
- The **Task Scheduler** window will open.

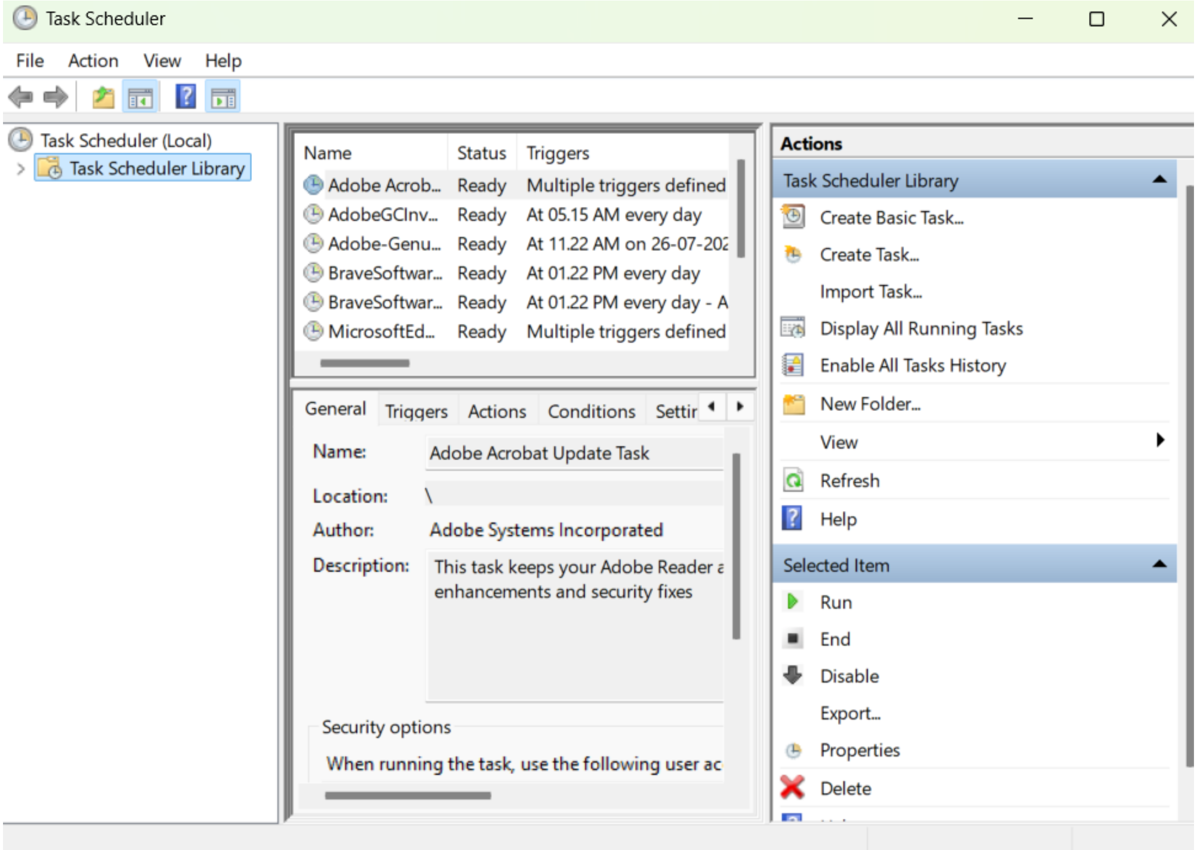


Type the name of a program, folder, document, or Internet resource, and Windows will open it for you.

Open: taskschd.msc

Step 4:

- Click **"Create Basic Task"** on the right-hand panel.
- A wizard will guide you through the setup.



Name	Status	Triggers
Adobe Acrob...	Ready	Multiple triggers defined
AdobeGCInv...	Ready	At 05.15 AM every day
Adobe-Genu...	Ready	At 11.22 AM on 26-07-202
BraveSoftwar...	Ready	At 01.22 PM every day
BraveSoftwar...	Ready	At 01.22 PM every day - A
MicrosoftEd...	Ready	Multiple triggers defined

Name: Adobe Acrobat Update Task

Location: \

Author: Adobe Systems Incorporated

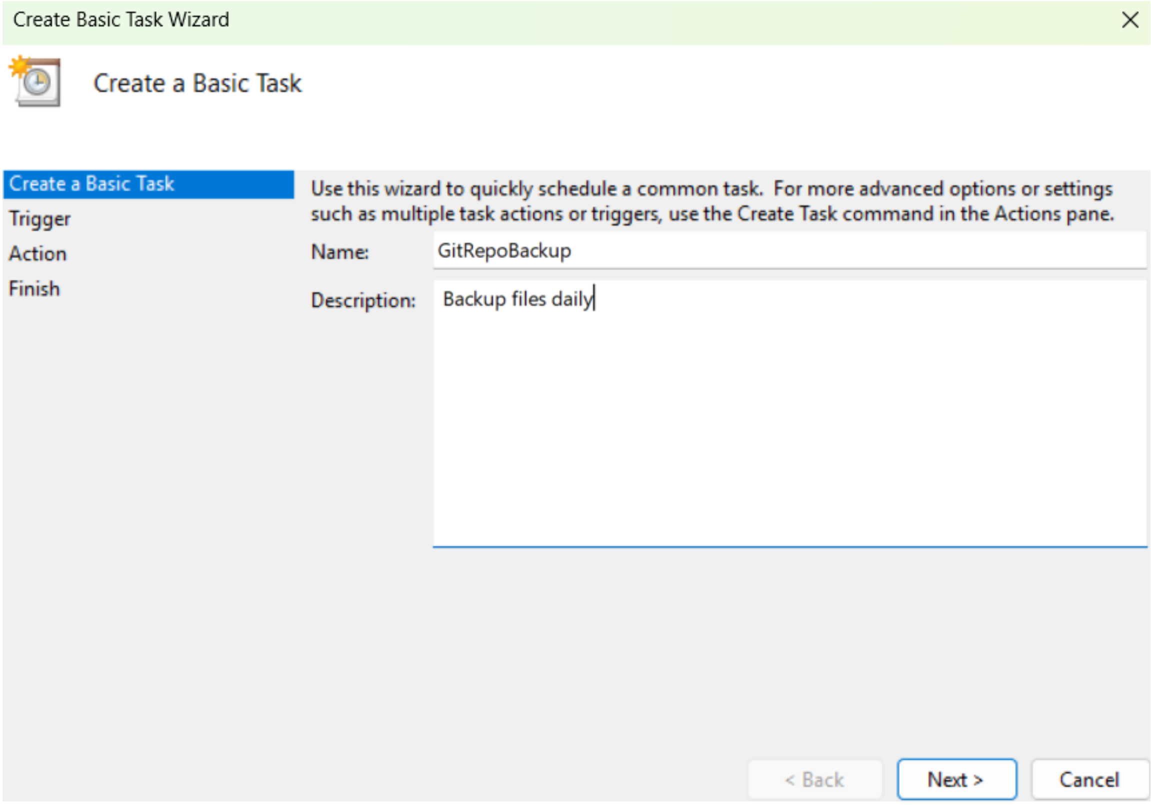
Description: This task keeps your Adobe Reader a enhancements and security fixes

Security options

When running the task, use the following user ac

Step 5:

- Enter a **name** (e.g., GitRepoBackup).
- Optionally, add a **description** (e.g., *"Backs up files daily"*).
- Click **Next**.



Create Basic Task Wizard

Create a Basic Task

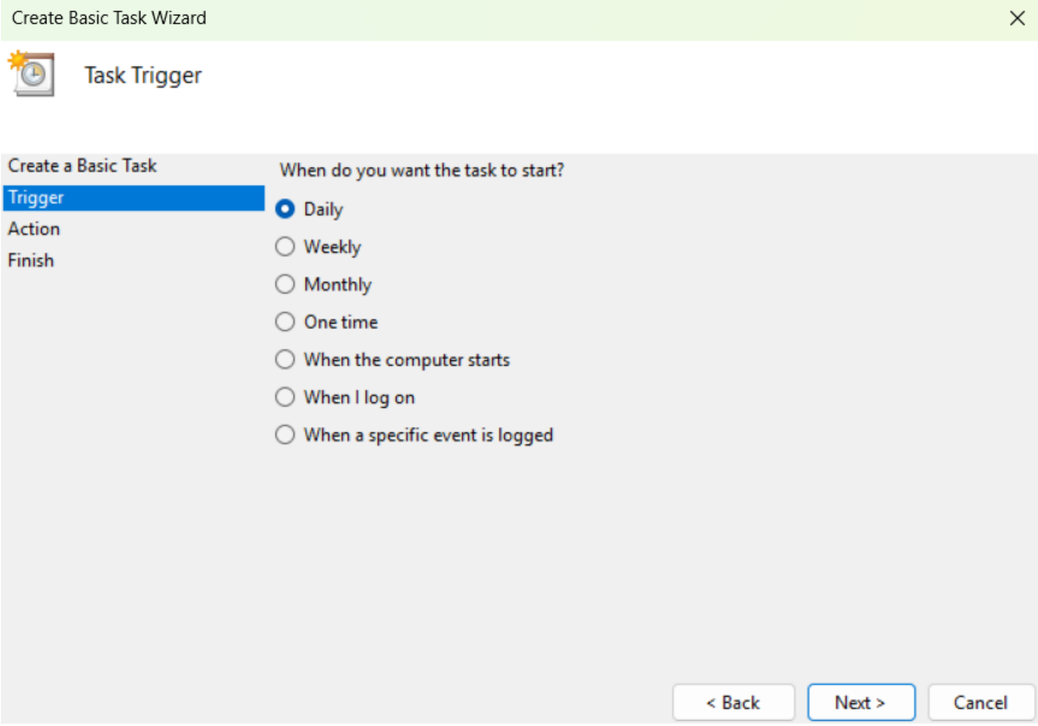
Use this wizard to quickly schedule a common task. For more advanced options or settings such as multiple task actions or triggers, use the Create Task command in the Actions pane.

Name: GitRepoBackup

Description: Backup files daily

Step 6:

- Select how often the task should run:
  - **Daily** (recommended)
  - **Weekly**
  - **One-time**
- Click **Next**.



Create Basic Task Wizard

Task Trigger

When do you want the task to start?

● Daily

○ Weekly

○ Monthly

○ One time

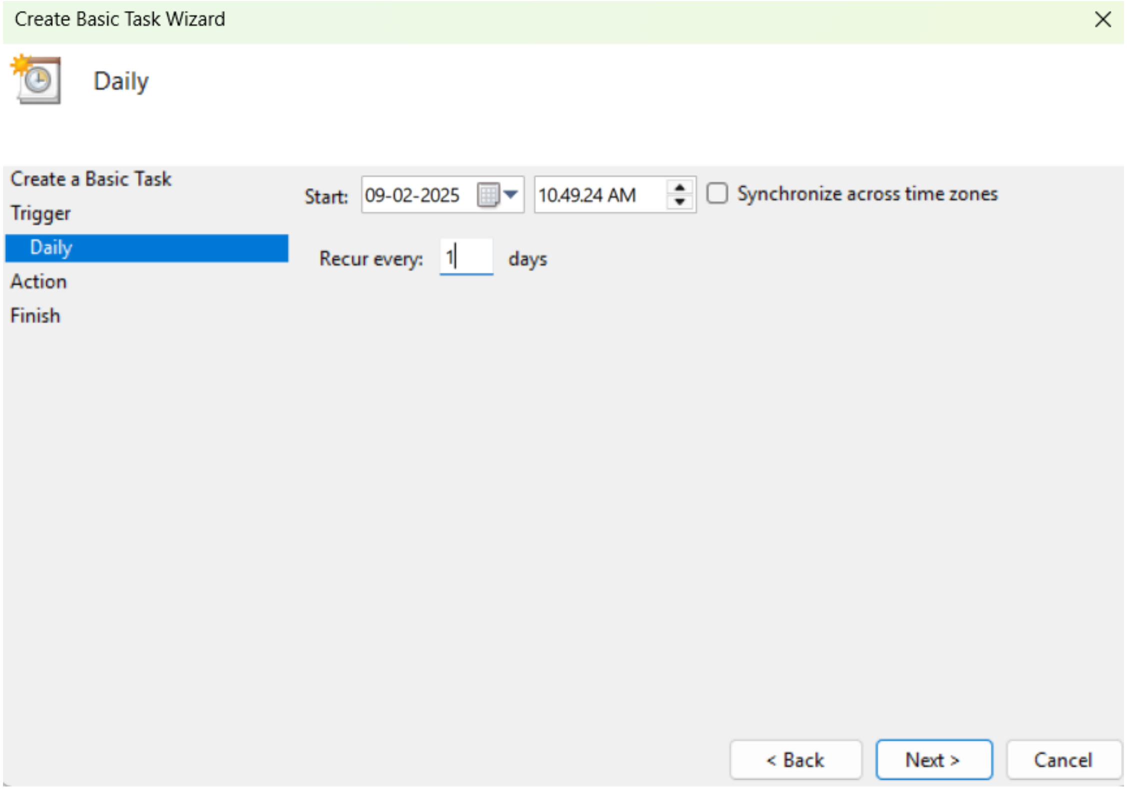
○ When the computer starts

○ When I log on

○ When a specific event is logged

Step 7:

- If you chose **Daily**, specify:
  - The **start date** (defaults to today).
  - The **time** (e.g., **06:20 PM**).
- Click **Next**.



Create Basic Task Wizard

Daily

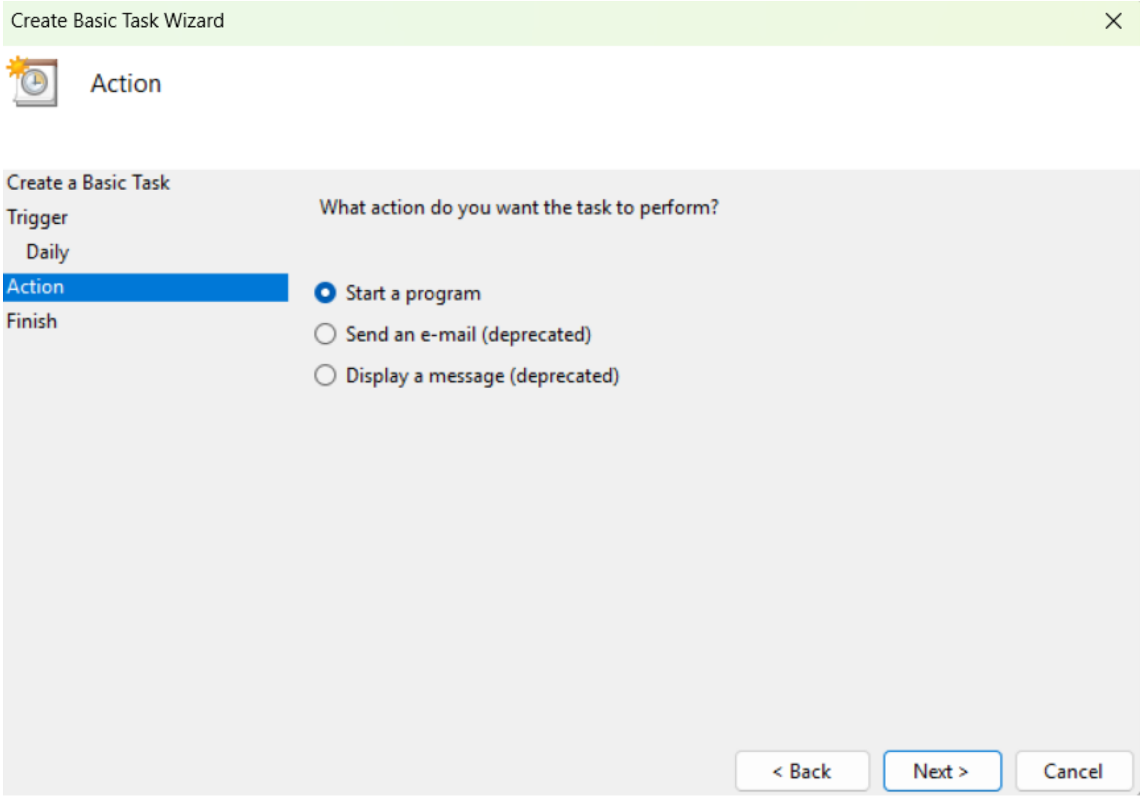
Start: 09-02-2025 10.49.24 AM

□ Synchronize across time zones

Recur every: 1 days

Step 8:

Select **"Start a Program"** and click **Next.**

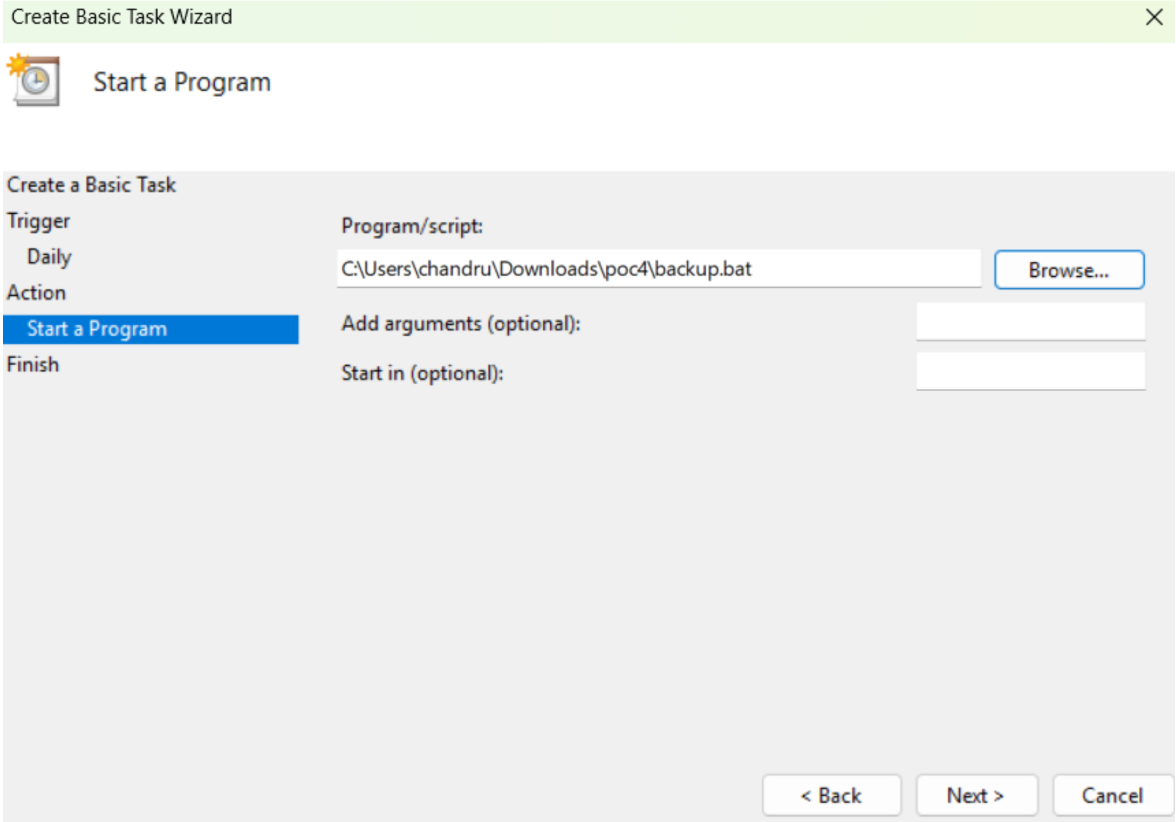


What action do you want the task to perform?

- ● Start a program
- ○ Send an e-mail (deprecated)
- ○ Display a message (deprecated)

Step 9:

- In the **Program/script** field, click **Browse** and locate your .bat file (e.g., backup.bat on the Desktop).
- Click **Next**.



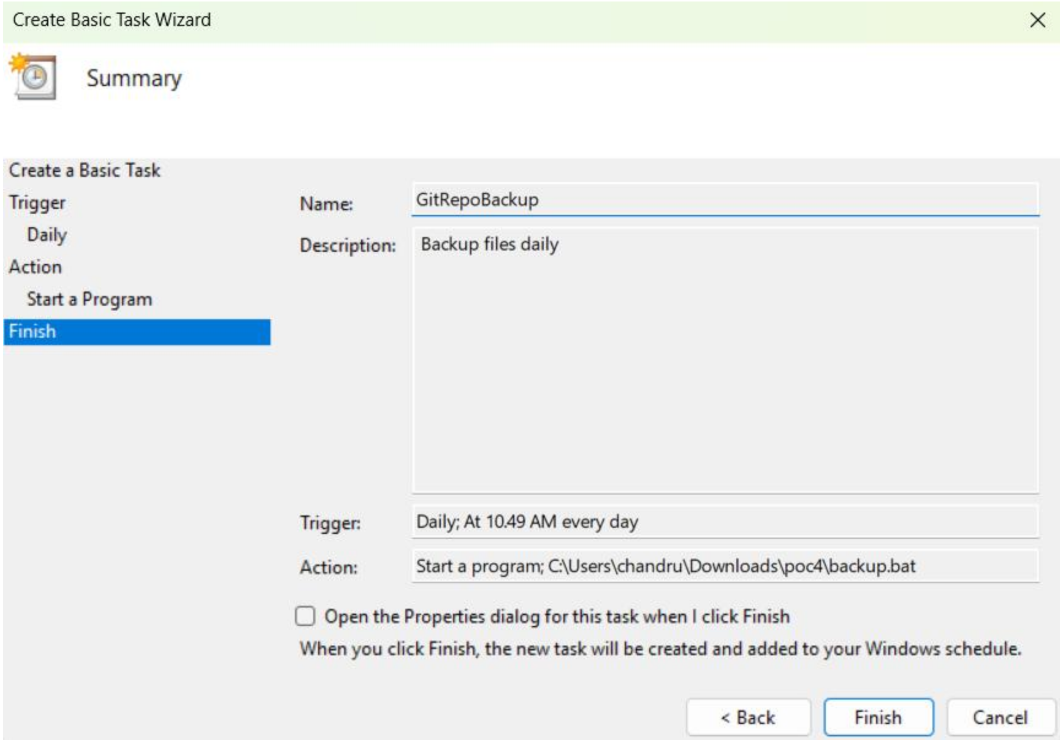
Program/script: C:\Users\chandru\Downloads\poc4\backup.bat

Add arguments (optional):

Start in (optional):

Step 10:

Click **Finish** to save and schedule the task.



Name: GitRepoBackup

Description: Backup files daily

Trigger: Daily; At 10.49 AM every day

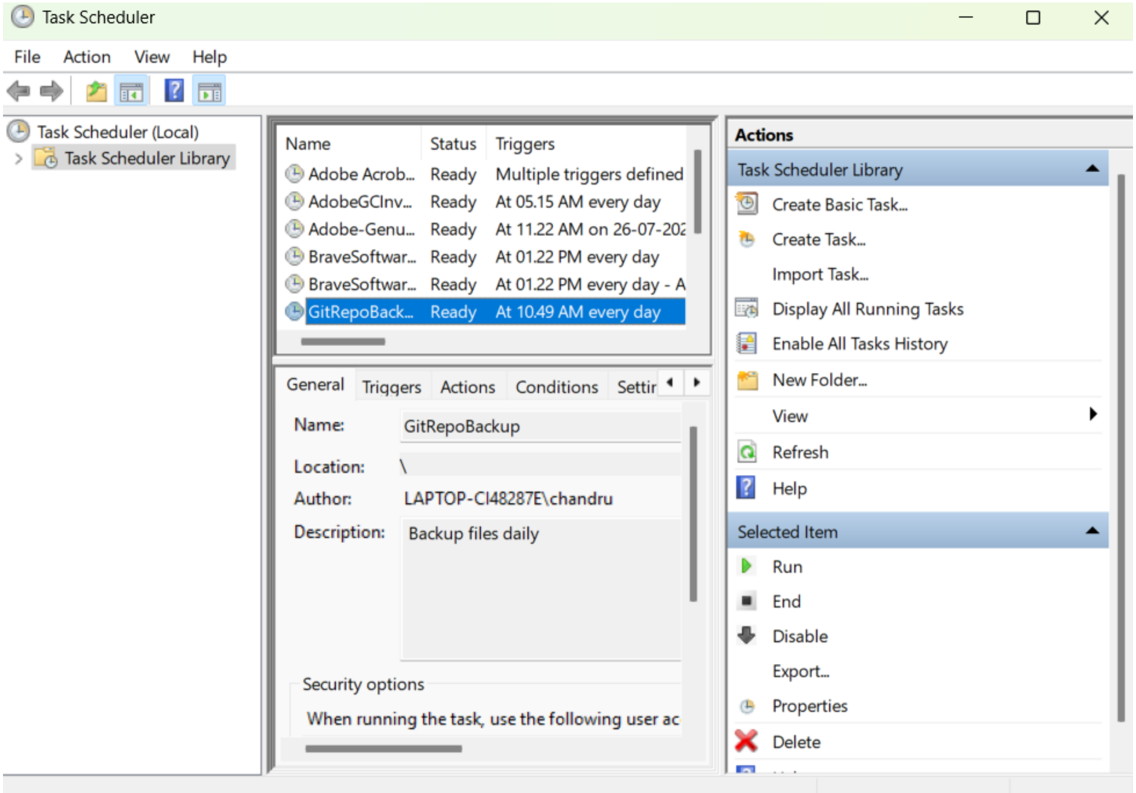
Action: Start a program; C:\Users\chandru\Downloads\poc4\backup.bat

☐ Open the Properties dialog for this task when I click Finish

When you click Finish, the new task will be created and added to your Windows schedule.

Step 11:

- In **Task Scheduler**, go to **Task Scheduler Library** (left panel).
- Find your task (GitRepoBackup), right-click it, and select **Run**.



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BraveSoftwar...	Ready	At 01.22 PM every day - A
GitRepoBack...	Ready	At 10.49 AM every day

Name: GitRepoBackup

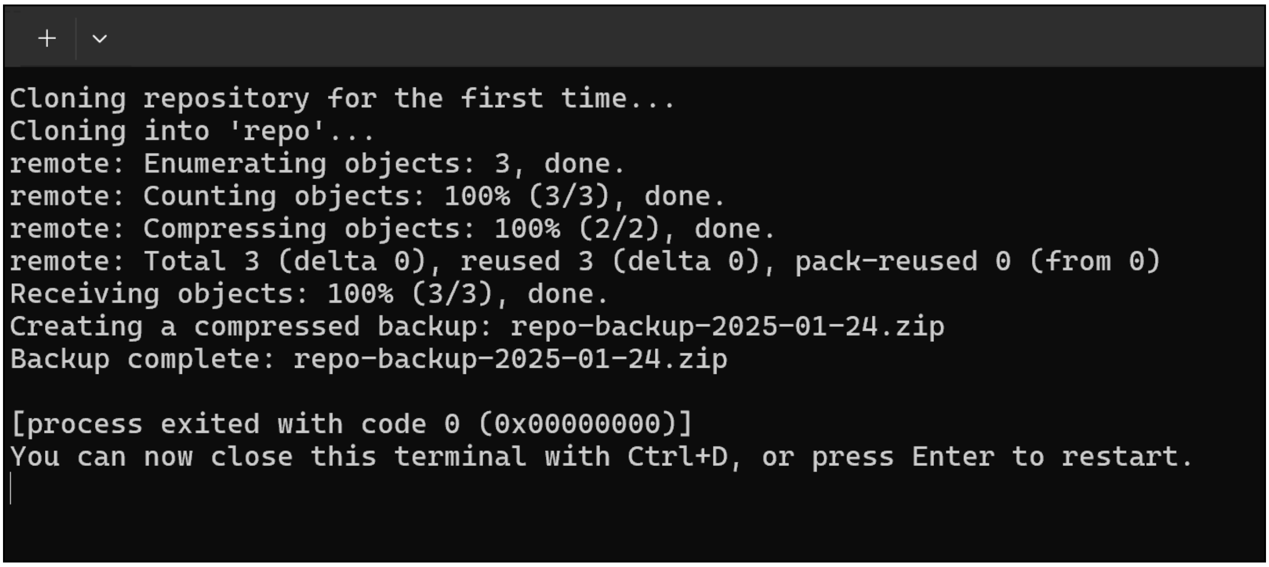
Location: \

Author: LAPTOP-CI48287E\chandru

Description: Backup files daily

Security options

When running the task, use the following user ac

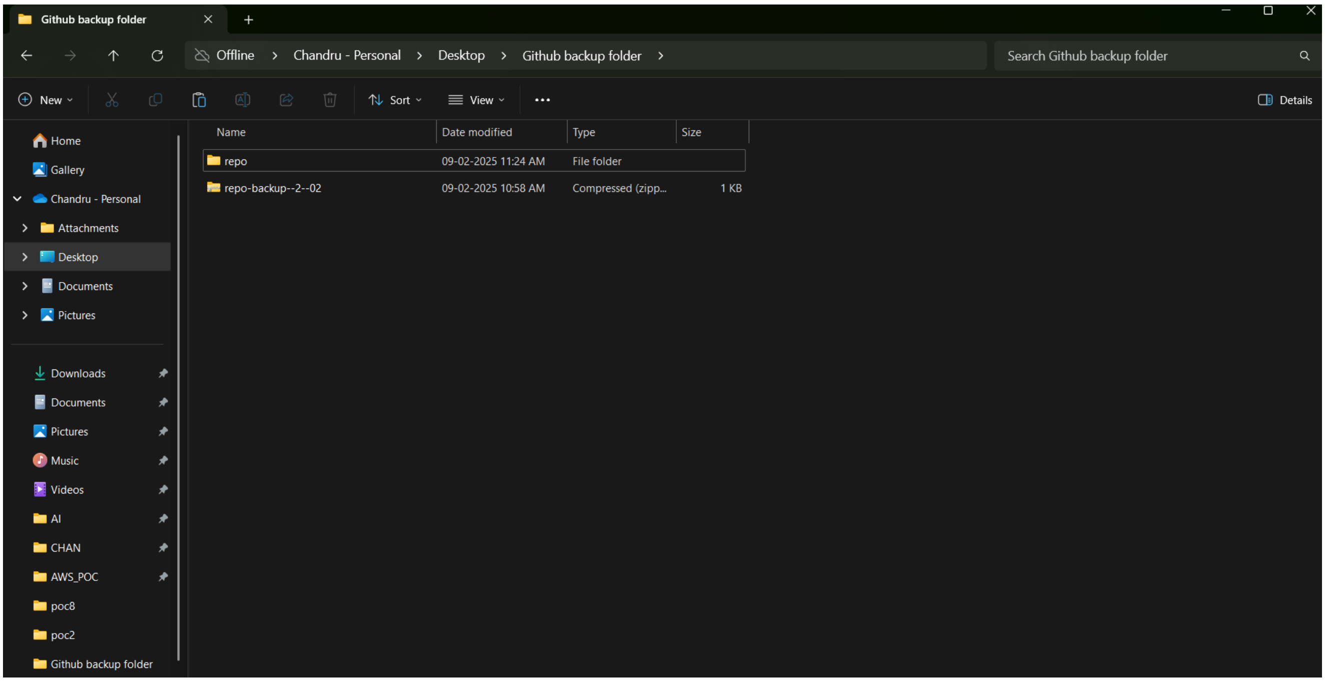


```
Cloning repository for the first time...
Cloning into 'repo'...
remote: Enumerating objects: 3, done.
remote: Counting objects: 100% (3/3), done.
remote: Compressing objects: 100% (2/2), done.
remote: Total 3 (delta 0), reused 3 (delta 0), pack-reused 0 (from 0)
Receiving objects: 100% (3/3), done.
Creating a compressed backup: repo-backup-2025-01-24.zip
Backup complete: repo-backup-2025-01-24.zip

[process exited with code 0 (0x00000000)]
You can now close this terminal with Ctrl+D, or press Enter to restart.
```

Step 12:

- Open the **GitHub Backup Folder** created in Step 1.
- It should now contain the files from your repository.



Name	Date modified	Type	Size
repo	09-02-2025 11:24 AM	File folder	
repo-backup--2--02	09-02-2025 10:58 AM	Compressed (zipp...	1 KB

Outcome

By completing this Proof of Concept (PoC) of automating Git repository backups, you will:

- **Successfully implement a backup system for Git repositories**: Automate the process of creating daily backups for your Git repositories, ensuring that all updates and changes are securely stored in a local folder.
- **Master the use of batch scripting for task automation**: Learn to create and execute a .bat script that clones, pulls updates, and compresses a Git repository into timestamped backup archives.
- **Understand Task Scheduler's automation capabilities**: Gain practical experience with Task Scheduler, learning how to set triggers, define actions, and configure conditions to automate repetitive tasks seamlessly on a Windows system.