



NextWork.org

# Connect a GitHub Repo with AWS



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```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
Verifying : perl-L-Error-1.19_17929-5,znznr023.8.2,noar 4/8
Verifying : perl-L-File-Path-1.12_17929-5,znznr023.8.5,noob 5/8
Verifying : perl-Q-IO-1.49_1-1,amz-1.3,znznr023.8.6,noob 5/8
Verifying : perl-T-TermReadKey-2.38-9,znznr023.8.2,x86 7/8
Verifying : perl-U-Util-0.05-47,znznr023.8.0,x86_64 8/8

Installed:
git<-->4.44.1-1,znznr023.8.3,x86_64
git-core<-->2.38.1-1,znznr023.8.5,x86_64
git-core-doc<-->2.48.1-1,znznr023.8.3,noarch
perl-Algorithm-Diff-1.17-1,znznr023.8.4,noarch
perl-File-Find-Dirs-1.37-47,znznr023.8.4,noarch
perl-Git-2.48.1-1,znznr023.8.3,noarch
perl-IPC-Cmd-1.02-1,znznr023.8.3,noarch
perl-IPC-Simple-1.02-1,znznr023.8.3,noarch
perl-lib-DBI-1.65-477,znznr023.8.6,x86_64

Complete!
• [ec2-user@ip-172-31-82-37 nextwork-web-project]$ git --version
git version 2.38.1
• [ec2-user@ip-172-31-82-37 nextwork-web-project]$
```

# Introducing Today's Project!

## What is GitHub?

GitHub is a cloud service that stores our code and tracks changes made to the code. It uses Git to track those changes, and it's a great tool for teamwork and collaboration.

## One thing I didn't expect...

I did not expect to see how well integrated GitHub is to EC2 instances when you use the correct command from the CLI.

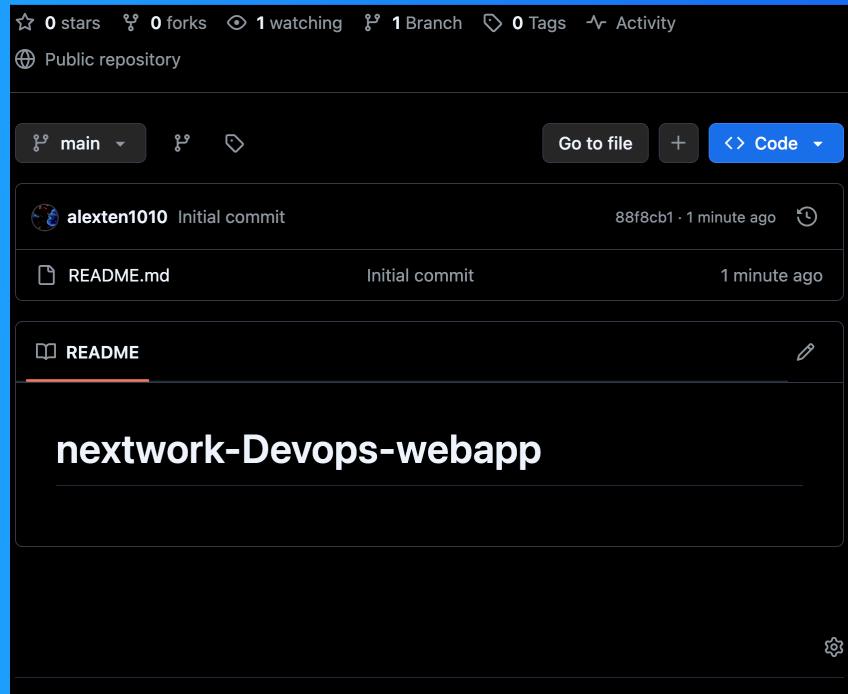
## This project took me...

I took about 2 hours to complete this project.

# Git and GitHub

Git a version control system, which mean it helps us with tracking changes and who made those changes. We installed git using the commands `sudo dnf install git -y` .

GitHub is a cloud storage space for to keep source code for our applications and projects. GitHub uses git to track changes in our source code and comes with tools that help with collaboration.



# My local repository

Git repo is a folder in Git that holds the source code of our application / project files and their entire version history.

Git init is a command that initializes a local repo in our Ec2 instance (nextwork-project-folder). We ran git init in our EC2 instance.

After running git init, the response from the terminal is that a master branch has been created. A branch in git is a parallel version of our code.



The screenshot shows a terminal window within a blue-themed interface. The terminal tab is selected, showing the following command and its output:

```
[ec2-user@ip-172-31-82-37 nextwork-web-project]$ pwd  
/home/ec2-user/nextwork-web-project  
[ec2-user@ip-172-31-82-37 nextwork-web-project]$ git init  
hint: Using 'master' as the name for the initial branch. This default branch name  
hint: is subject to change. To configure the initial branch name to use in all  
hint: of your new repositories, which will suppress this warning, call:  
hint:  
hint:   git config --global init.defaultBranch <name>  
hint:  
hint: Names commonly chosen instead of 'master' are 'main', 'trunk' and  
hint: 'development'. The just-created branch can be renamed via this command:  
hint:  
hint:   git branch -m <name>  
Initialized empty Git repository in /home/ec2-user/nextwork-web-project/.git/  
[ec2-user@ip-172-31-82-37 nextwork-web-project]$
```

The terminal window includes standard navigation and status bars at the bottom, such as line count (Ln 6, Col 1), character count (Spaces: 4), and file encoding (UTF-8).

# To push local changes to GitHub, I ran three commands

## **git add**

The first command (git add .) which puts all our changes into a staging area. This command helps add our code to an area where we can review our code together and helps us catch bugs.

## **git commit**

The second command we ran was git commit -m. Updated index.jsp. Using this command means we can leave a message about the work we've just saved into our Git history.

## **git push**

The third command we ran was git push which allows to push all our reviewed code to github. It pushes local changes to the master branch origin github repo.

# Authentication

When I commit changes to GitHub, Git asks for my credentials because it wants to know that we have authority to push changes to the GitHub repo we're using.

## Local Git identity

Git need my email because it needs to assign the changes I made to the local repo with name and email address.

Running git log showed me that' my previous commit which reveal the the author name has been set to EC2 default user by default.

```
● [ec2-user@ip-172-31-82-37 nextwork-web-project]$ git log
commit d645e4cf85e63953fd6030b876ac57026a4c4e72 (HEAD --> master, origin/master)
Author: EC2 Default User <ec2-user@ip-172-31-82-37.ec2.internal>
Date:   Sat Dec 7 03:29:28 2024 +0000

        Updated index.jsp with new content
○ [ec2-user@ip-172-31-82-37 nextwork-web-project]$ █
```

# GitHub tokens

GitHub authentication failed when I entered my password because password authentication is no longer supported. We need to use tokens instead.

A GitHub token is replacement for passwords in terms of authentication. Im using one in this project because we cant give our EC2 instance access to our GitHub acct. until we give a valid non password authentication method.

I could set up a GitHub token by visiting developer settings in our GitHub account.

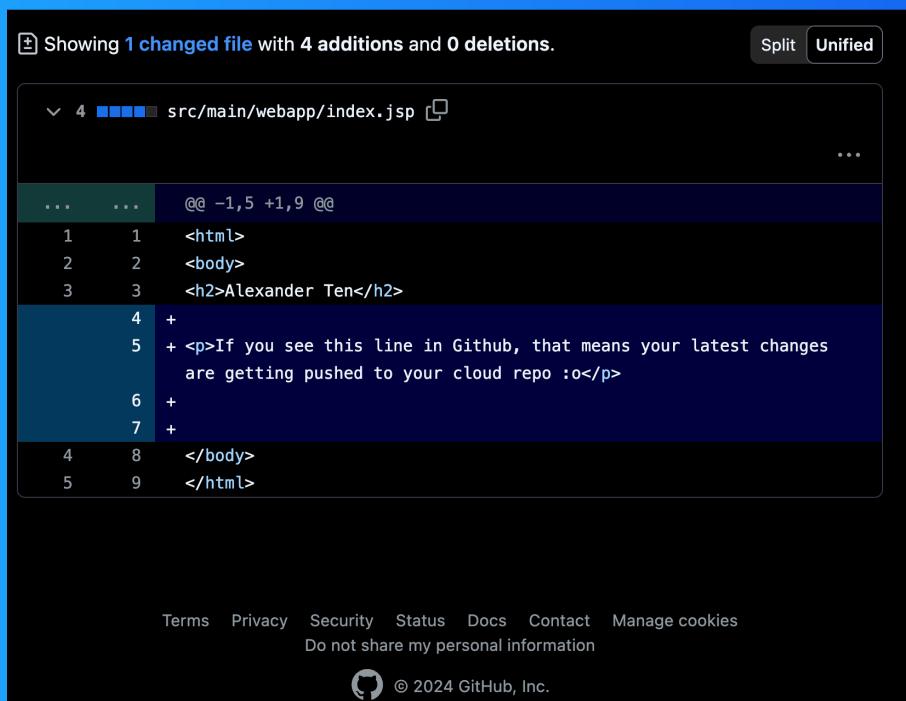
The screenshot shows the GitHub 'Generate token' form. At the top, a note says 'Generated for Ec2 instance access. Nextwork devops project set'. Below it, 'What's this token for?' is listed. Under 'Expiration \*', '30 days' is selected, with a note that it will expire on Sun, Jan 5 2025. In the 'Select scopes' section, a note says 'Scopes define the access for personal tokens.' followed by a link to 'Read more about OAuth scopes.'. A table lists several scopes:

Scope	Description
<input checked="" type="checkbox"/> repo	Full control of private repositories
<input checked="" type="checkbox"/> repo:status	Access commit status
<input checked="" type="checkbox"/> repo_deployment	Access deployment status
<input checked="" type="checkbox"/> public_repo	Access public repositories
<input checked="" type="checkbox"/> repo:invite	Access repository invitations
<input checked="" type="checkbox"/> security_events	Read and write security events

# Making changes again

I wanted to see Git working in action, so I updated index.jsp by adding a new line. We couldnt see the changes because we hadnt committed those changes in our GitHub repo because we hadn't commit and pushed those changes.

We finally saw the changes in our GitHub repo after we ran git add, git commit and git push again. We also had to enter github user name and personal access token to push changes upstream.



The screenshot shows a GitHub commit interface. At the top, it says "Showing 1 changed file with 4 additions and 0 deletions." Below this, there's a "Unified" view button. The commit details show a file named "src/main/webapp/index.jsp". The diff shows the following changes:

```
@@ -1,5 +1,9 @@
1   1 <html>
2   2 <body>
3   3 <h2>Alexander Ten</h2>
4 +<p>If you see this line in Github, that means your latest changes
5 + are getting pushed to your cloud repo :o</p>
6 +
7 +
4   8 </body>
5   9 </html>
```

At the bottom of the commit page, there are links for Terms, Privacy, Security, Status, Docs, Contact, Manage cookies, and a link to "Do not share my personal information". The GitHub logo and copyright notice "© 2024 GitHub, Inc." are also present.



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