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How To Add an SSH Key to GitHub

Deploy SSH keys correctly

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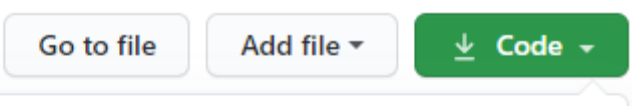
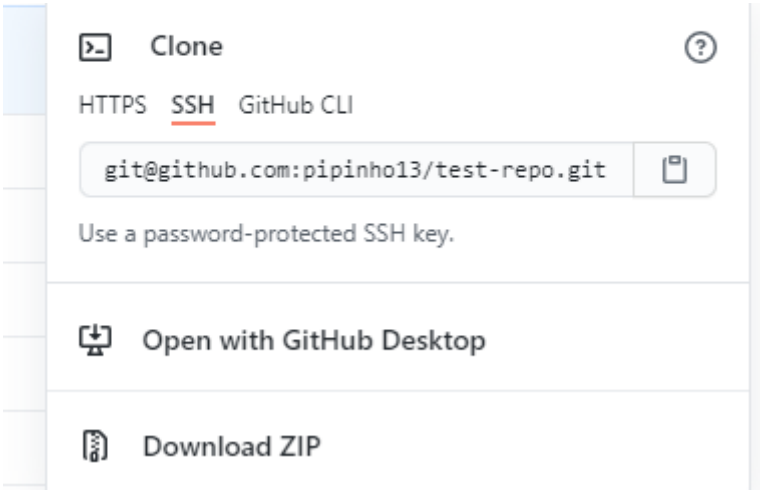
Photo by Brina Blum on Unsplash.

When working with Git and GitHub, you can interact with HTTPS or SSH. Today, we will provide a tutorial on how you can deploy an SSH key to your GitHub repository.





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Set Up an SSH Key

You can generate an SSH key by running the `ssh-keygen` procedure on your computer. You will need to remember where you have saved the generated public and private RSA key pair. The steps for generating a new SSH key are:

- Open the Git bash.
- Copy-paste the following command by entering your GitHub email address:

```
$ ssh-keygen -t ed25519 -C "[email protected]"
```

Note: If you are using a legacy system that doesn't support the Ed25519 algorithm, use:

```
$ ssh-keygen -t rsa -b 4096 -C "[email protected]"
```

This creates a new SSH key using the provided email as a label.

```
> Generating public/private ed25519 key pair.
```

- Accept the default file location when you are prompted to "Enter a file in which to save the key":

```
> Enter a file in which to save the key
(/c/Users/you/.ssh/id_ed25519):[Press enter]
```

- Then you will be asked to enter a passphrase. You can leave it empty. You can have a look at passphrases in the documentation.

```
> Enter passphrase (empty for no passphrase): [Type a passphrase]
> Enter same passphrase again: [Type passphrase again]
```

. . .

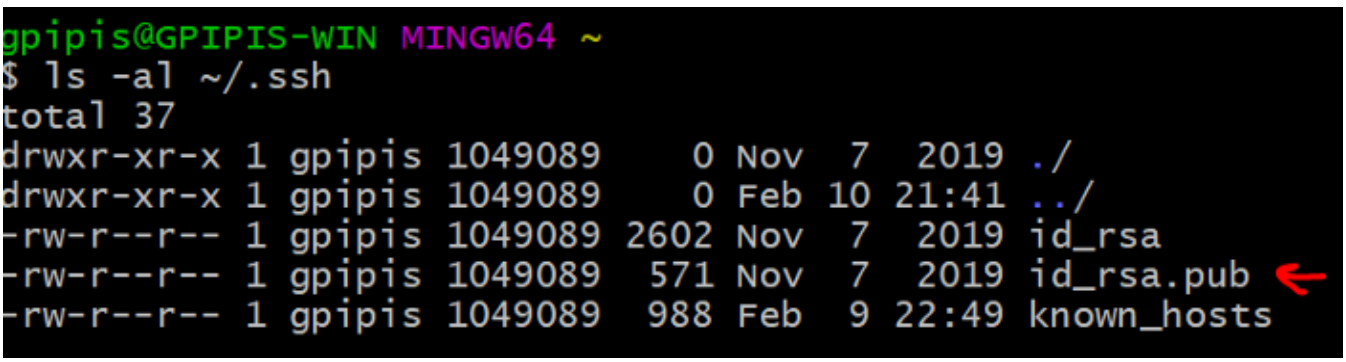
Checking for Existing SSH Keys

Before you generate an SSH key, you should check if you already have an existing SSH key. You can easily check for existing SSH keys by using the Git bash and entering the following command that lists the files in the `.ssh` directory:

```
ls -al ~/.ssh
```

By default, the filenames of the public keys are one of the following:

```
id_rsa.pub id_ecdsa.pub id_ed25519.pub
```



As you can see, I have an `id_rsa.pub` file.

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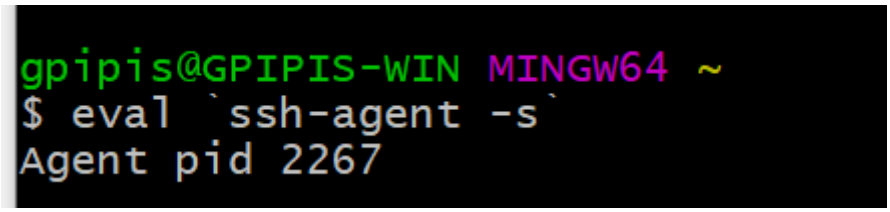
Adding Your SSH Key to the ssh-agent

You can start the `ssh-agent` in the background by typing:

```
$ eval `ssh-agent -s`
```



And then you can add the private key file that you have generated by typing:

```
$ ssh-add ~/.ssh/id_rsa
```

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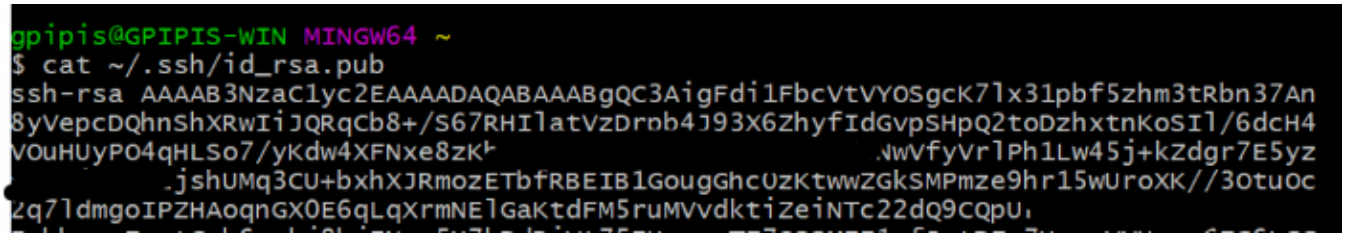
Adding the SSH Key to Your GitHub

You have to copy the SSH public key. There are two options. One option is to use the `cat` command and copy it from the terminal:

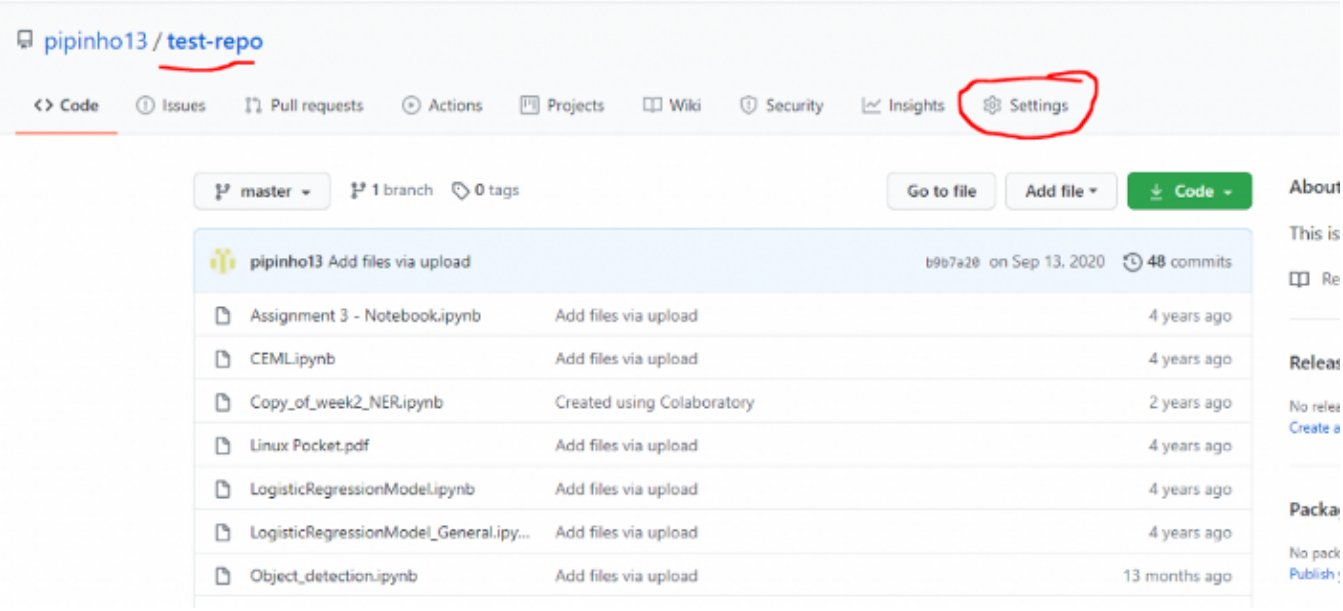
```
$ cat ~/.ssh/id_rsa.pub
```



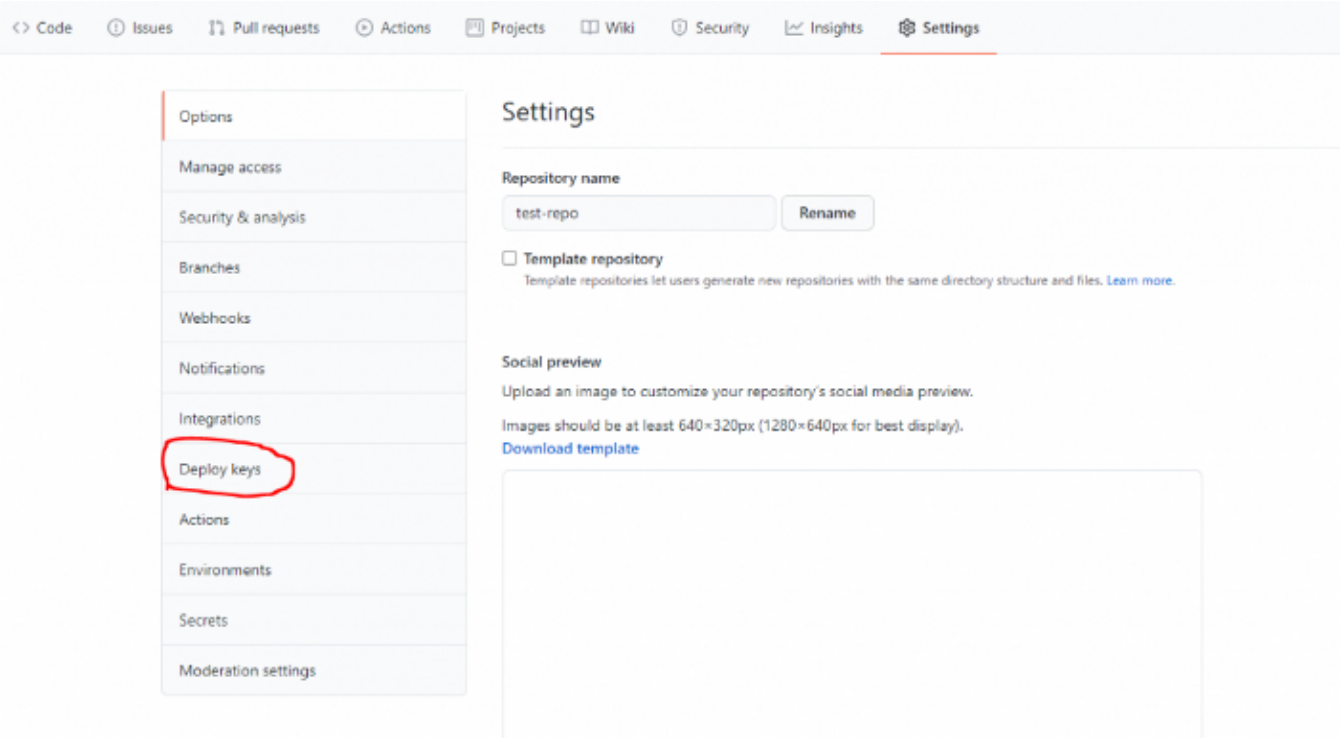
The other option is to copy it to your clipboard by typing:

```
$ clip < ~/.ssh/id_rsa.pub
```

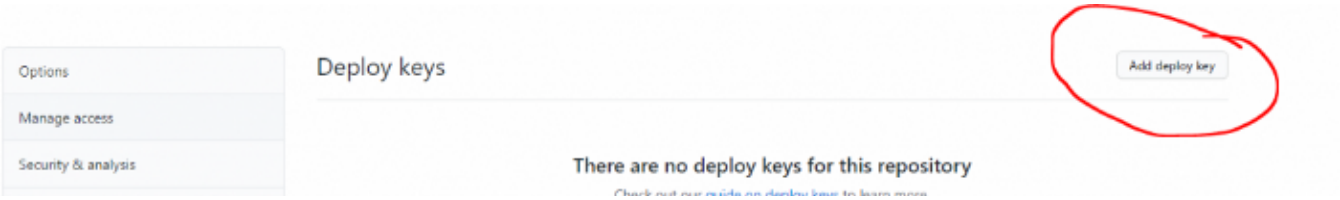
Then, go to your repository that you want to work on and click on “Settings”:

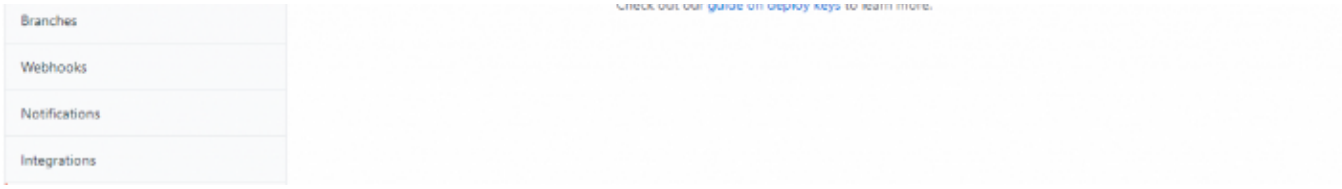


Then go to the “Deploy keys”:

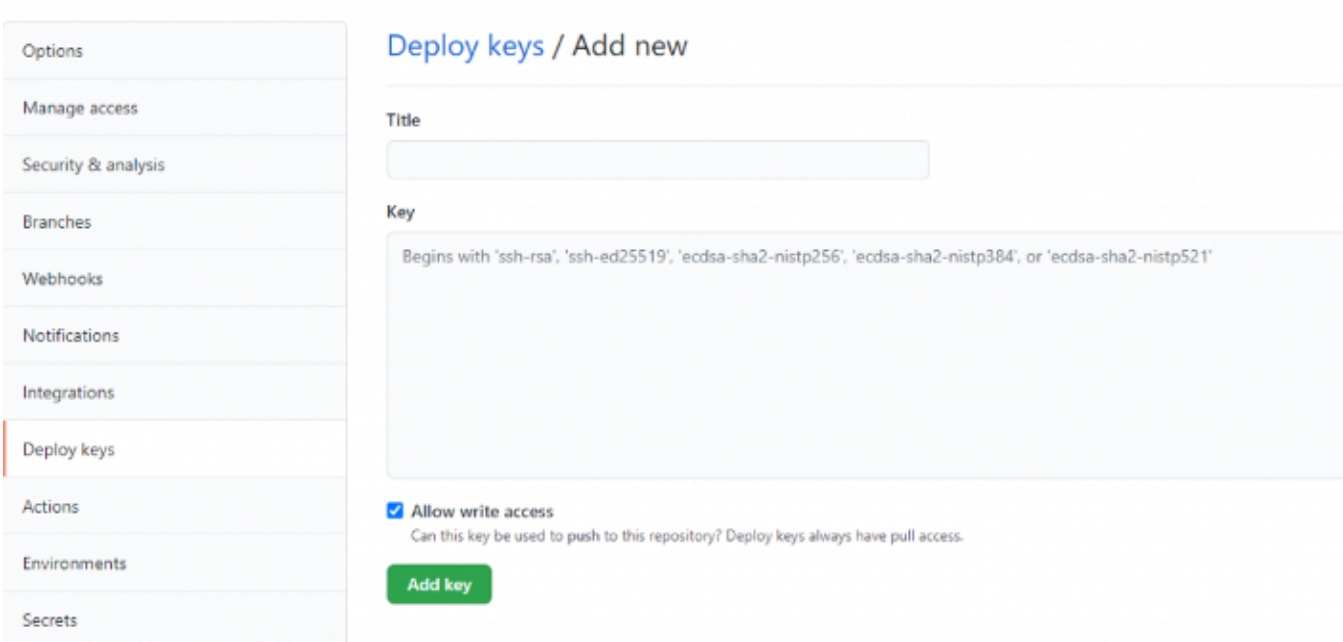


Then click “Add deploy key”:





In the title section, you can write whatever you want. In the key section, paste your public key, tick the “Allow write access” checkbox, and click “Add key.” You are set!



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Using Multiple Repositories

If you are using multiple repositories on one server, you will need to generate a dedicated key pair for each one. You can’t reuse a deploy key for multiple repositories.

In the server’s SSH configuration file (usually `~/.ssh/config`), add an alias entry for each repository. For example:

```
Host github.com-repo-0
        Hostname github.com
        IdentityFile=/home/user/.ssh/repo-0_deploy_key

Host github.com-repo-1
        Hostname github.com
        IdentityFile=/home/user/.ssh/repo-1_deploy_key
```

- `Host github.com-repo-0` is the repository's alias.
- `Hostname github.com` configures the hostname to use with the alias.
- `IdentityFile=/home/user/.ssh/repo-0_deploy_key` assigns a private key to the alias.

You can then use the hostname's alias to interact with the repository using SSH, which will use the unique deploy key assigned to that alias. For example:

```
$ git clone[email protected]:OWNER/repo-1.git
```

In case you do not have a `config` file, you can generate a new one as explained on Stack Overflow. Also, this post may be helpful.

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