

Team 3176 White Paper

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Subteam: Programming	Subject: GitHub
Season: 2019/20	White Paper Number 1

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Abstract

This paper outlines how to setup GitHub for teams of programmers. The paper is oriented for the general FIRST community interested in learning how to set up organization for a programming team.


Definitions

Organization - In GitHub, an organization is a group of people that can be put into teams and repositories. Each team can be linked to a repository directly, so that the entire team has access to a repository.

Repository - In GitHub, a repository is a project that holds files of any type. Repositories are usually by FRC teams to keep all of the code in one organized place.

Website Setup

Making an Organization

The first step is to create an organization in GitHub, if you have not already. To make an organization, go to the  icon in the upper right-hand corner while logged in to your account. Then click the “New organization” option. Select the plan that you will be using for your team. The “Team for Open Source” option works great for what FRC teams should need, but you can pay for more features if you would like. We suggest naming your organization to be the same as your FRC team name, such as “Team 3176”.


Adding Members

To add members to an organization, first go to your organization and select the “People” tab. (Note: Make sure the person you are trying to invite does have a GitHub account. This seems obvious, but you should make sure nonetheless.) Select the “Invite member” button and fill out the field. Once you invite a member, GitHub will send an email to the email address connected with that person’s account. The invited person will have to click a link in the email and join the organization. To do this, you must have ownership over the organization.

Creating Teams

To create a team, go to the “Teams” tab and select the “New Team” button. You must be an owner of the organization to be able to create teams. We also suggest that the team name, if team membership changes every year, be in the format “(year of competition season) Programming Team”. You can then add members to the team by selecting the team and then the “Members” tab and the “Add a member” button. Be aware, however, you cannot add a member to the team that is not already a member of the organization, so be sure that whoever you are trying to add has been added to your organization.

Adding Repositories to Teams

Select the organization that you have created. Again, you do have to be an owner of the organization to do this. Select the “Repositories” tab and click the  button. Follow the steps to create a new repository. Then navigate to the team you want to add the repository to. Select the “Repositories” tab and click the “Add repository” button. Then start typing in the name of the repository that you just created and click the “Add repository to team” button. The permission level can be left as “Read”, it will work for editing any files within the repository.

GitHub Desktop Setup

Downloading

Get the GitHub Desktop downloader from desktop.github.com. Following this link you get a download option for Windows (64bit) and another option for macOS. To download the Windows version you click the “Download for Windows (64bit)” button on the webpage when the installer finishes downloading you open your computer's download folder. If you need to put this on more than one computer now you can copy the downloader to a flash drive and make sure to eject the flash drive. When you are done with moving to the flash drive or just keeping it on a single computer, you should run the installer.

Setup

When GitHub lanches you should sign in to your account. When it logs in you should see repositories listed on the right if you are part of a GitHub organization. At this stage GitHub allows you to clone a repository to your device by selecting the repository in the list. Their

named in the selecting area by a Organization/Repository format for example Team3176/Code_2020. When you select the repository that you want to clone you press the blue clone button and in the pop-up check if the download path is ok. If it is click clone again.

Pushing and Pulling

When you get on a computer to use GitHub, you should probably pull the code from the GitHub servers so that you can use the latest code that was saved. You are able to pull the code by clicking the "Fetch origin" button that is the last button on the top bar. On the left side of the application there is a column that shows you the changes that were made since the last time that you pulled or pushed. When you are done with the computer for a while you need to write a summary of the changes that you made with the option of writing a description. The summary is a required part but the description is not a requirement. After you type your summary, you need to press the blue button that says "Commit to [branch]" for example "Commit to master". After you commit you still need to push to origin because it didn't upload to the GitHub server which would allow anyone to see what you changed. The push to origin option is where the fetch origin button was before you committed.