

## OpenHeart Project – Data Repositories

*A guide to all things data repositories within the OpenHeart Project*

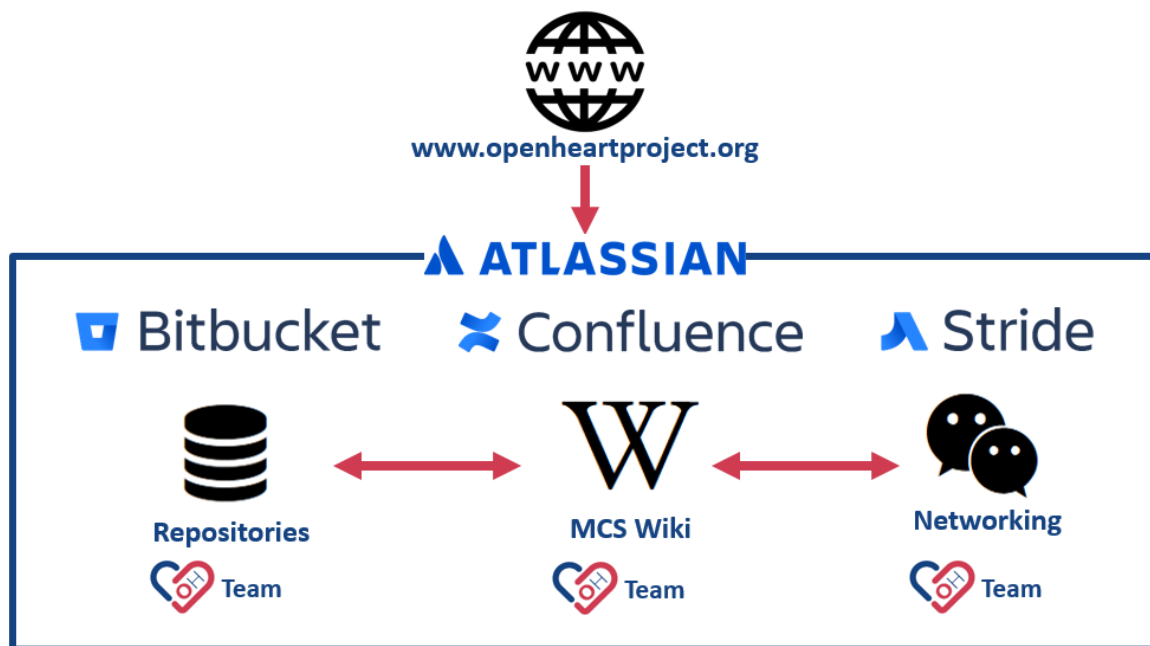
### Contents

General Overview - Structure .....	2
What should be included in an OpenHeart Repository? .....	3
How to Create a Data Repository .....	3
Creating a Repository Page .....	3
README.md .....	5
Sourcetree.....	5
Install Sourcetree .....	5
Cloning a Repository from Bitbucket into Sourcetree .....	11
Working with your Repository .....	13
<b>Before Starting</b> .....	13
<b>Adding/Editing Files</b> .....	14
Documents to be included in every repository.....	17
What Should I Share?.....	18
Additional Resources .....	18
OHP – Repository Overview Page / Confluence .....	19
Create a Confluence Page for your Data Repository .....	19
MCS Wiki .....	22

## General Overview - Structure

The OpenHeart data repositories, hosted on Bitbucket, are an integral part of the OpenHeart Project. Within these data repositories research outcomes, experimental designs and equipment plans (among other research data) can be shared within the OpenHeart community

Overall, key entities of the OpenHeart community are the OpenHeart website, data repositories, MCS Wiki and team collaboration tools. The website is hosted on wordpress.com while the team collaboration tools, MCS wiki and data repository will be implemented using the software solutions Stride, Confluence and Bitbucket (Atlassian, Sydney, Australia). Atlassian offers free user licenses to open-source research projects, thus making the participation in the OpenHeart Project free for everyone.



All Bitbucket repositories will be indexed within the [OHP-Repositories space](#) in Confluence to give researchers a chance to easily search for specific topics or repositories. The individual Confluence pages for each repository will give a brief overview about the content of the individual repository. Making it easy for researchers to assess if it is of interest or not, without having to visit Bitbucket. Bitbucket will only display a list of all available repositories, however, within confluence we have the ability to group / organise repositories by topic, making it easier for researcher to initially find areas of interest.

Links of interest:

- [OpenHeart Website](#)
- [Confluence Repository Overview](#)
- [Confluence Repository Index](#) (Pages)
- [Bitbucket Repository List](#)
- [Stride Lobby](#)

## What should be included in an OpenHeart Repository?

Within OpenHeart repositories researchers can share whatever data they think will be useful for other researchers within the community. However, Bitbucket currently has a repository size limit of 2 Gbyte. Besides the data and information to be shared, there are commonly other documents included within an open-source repository:

- README.md
- Participation guidelines
- Licenses

A [template repository](#) has been created with the participation guidelines and licenses available for download. The template repository also includes a template for a README.md. The README.md file (whose name by convention is written in all-caps, and represents a request to one and all— “read me!”) is one of the first things that researchers will encounter when learning about your data repository. The aim of the README is to welcome, orient, and encourage others to participate. More information on how to write a README.md can be found [here](#).

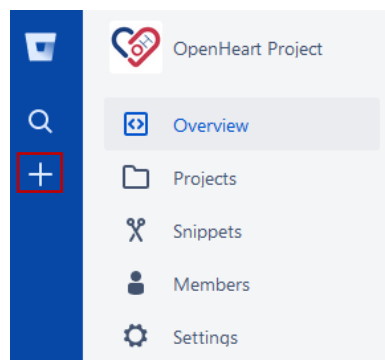
## How to Create a Data Repository

Thank you for your interest in sharing your knowledge with the OpenHeart community. On the next few pages you will learn how to create a Bitbucket repository to share your data.

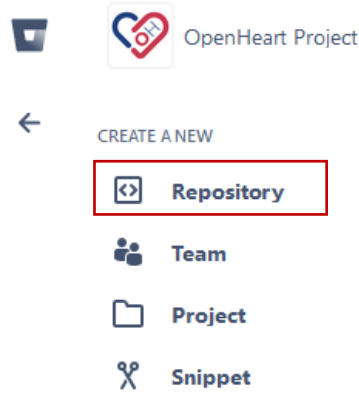
### Creating a Repository Page

In order to create a data repository within Bitbucket follow the link to the [OpenHeart repository list](#) within Bitbucket. Your web browser should open automatically. If the Bitbucket website displays the message ‘Nothing to see here’ it is an indication that you are currently not logged into your Atlassian account. You need to be logged in to be able to create a new repository. To create a Bitbucket repository follow these steps:

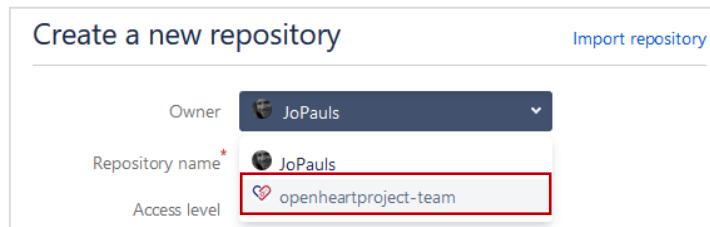
1. Click the “+” button on the left side toolbar



2. Click ‘Repository’ to create a new Repository



3. Set the owner to the openheartproject-team. (TIPP: If you don't have a repository to share yet, however want to learn how to set up and work within a repository choose yourself as the owner. That way the repository will only be visible to yourself and not part of the OpenHeart Project.)



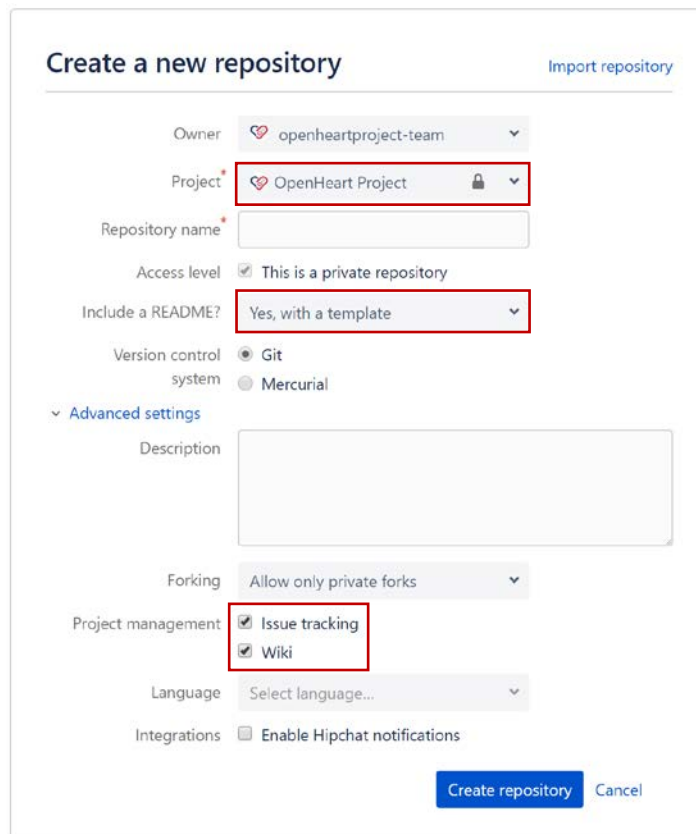
Create a new repository [Import repository](#)

Owner: JoPauls

Repository name: JoPauls

Access level: **openheartproject-team**

4. Set the project to the OpenHeart Project; include a README 'Yes, with a template' (Note: Make sure to NOT choose 'Yes, with a tutorial for beginners') and tick boxes 'Issue Tracking' and 'Wiki' (you need to click on advanced settings to do this).



Create a new repository [Import repository](#)

Owner: openheartproject-team

Project: **OpenHeart Project**

Repository name:

Access level:  This is a private repository

Include a README?: **Yes, with a template**

Version control system:  Git  Mercurial

Advanced settings

Description:

Forking: Allow only private forks

Project management:  Issue tracking  Wiki

Language: Select language...

Integrations:  Enable Hipchat notifications

[Create repository](#) [Cancel](#)

5. Give your repository a name
6. Then click 'Create repository'

## README.md

The README.md file (whose name by convention is written in all-caps, and represents a request to one and all— “read me!”) is one of the first things that researchers will encounter when learning about your data repository. The aim of the README is to welcome, orient, and encourage others to participate. Bitbucket will create a README.md file automatically. You can either edit the automatically generated README.md according to the [template](#) or you can download the template README.md and replace it with the existing one. An easy way to edit, change and delete documents within a repository is through the GIT client Sourcetree. How to install Sourcetree and work within a repository will be explained below.

The readme document gives an overview for your project. It should include the following sections (where applicable) but not limited to:

- Background
- Aims and Objectives
- Key Documents
- Manufacturing and Assembly
- References
- Licence Information\*
- Acknowledgements


## Sourcetree

Bitbucket utilises Git ([learn more about Git here](#)) for the creation of data repositories and version control. Git is a free and open source version control system, originally created by Linus Torvalds in 2005. Repositories and files can be added through the Git command line, however this approach is not the most user friendly when starting with Bitbucket. Thus, Atlassian developed Sourcetree, a free Git client for Windows or Mac that provides a simple GIT graphical user interface (GUI). Through Sourcetree Bitbucket repositories can be easily visualised and managed (e.g. add, delete, copy or edit files within a repository).




Sourcetree can be downloaded for free [here](#). In depth information on how to install Sourcetree can be found [here](#).

## Install Sourcetree

1. After downloading the Sourcetree installation file, run the SourcetreeSetup.exe file (if needed, further information can be found [here](#)).
2. An installation prompt will open. Tick the box to agree to the license agreement. Untick the second box, if you do not want to send data about your usage. Then click 'continue'.

 **Sourcetree**×

- Install
- License agreement**
- Atlassian account
- Remotes
- Install tools
- Starting repository
- Clone repository




Sourcetree is a Git client provided completely free by [Atlassian](#)

I agree to the [license agreement](#)

Help improve Sourcetree by sending [data about your usage](#)


Continue

3. Click 'Use an existing account'.

 **Sourcetree**×

### Log in to your Atlassian account

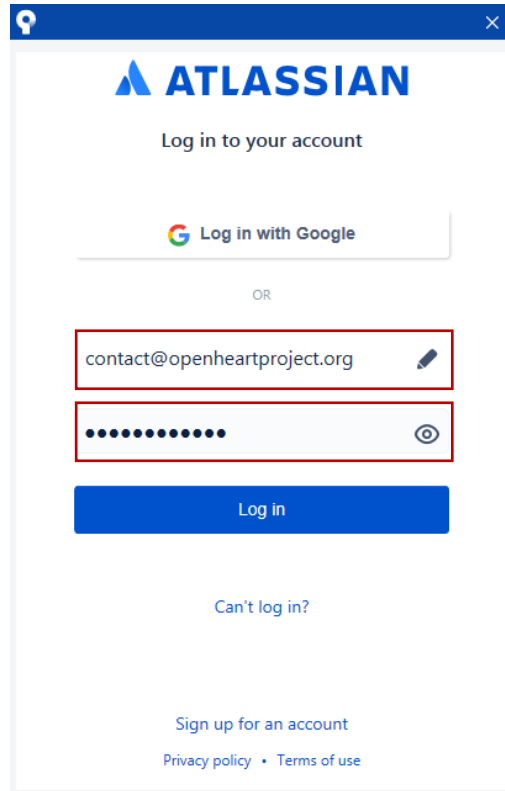
You will be prompted for your Atlassian account details. You only have to log in once to complete your registration.



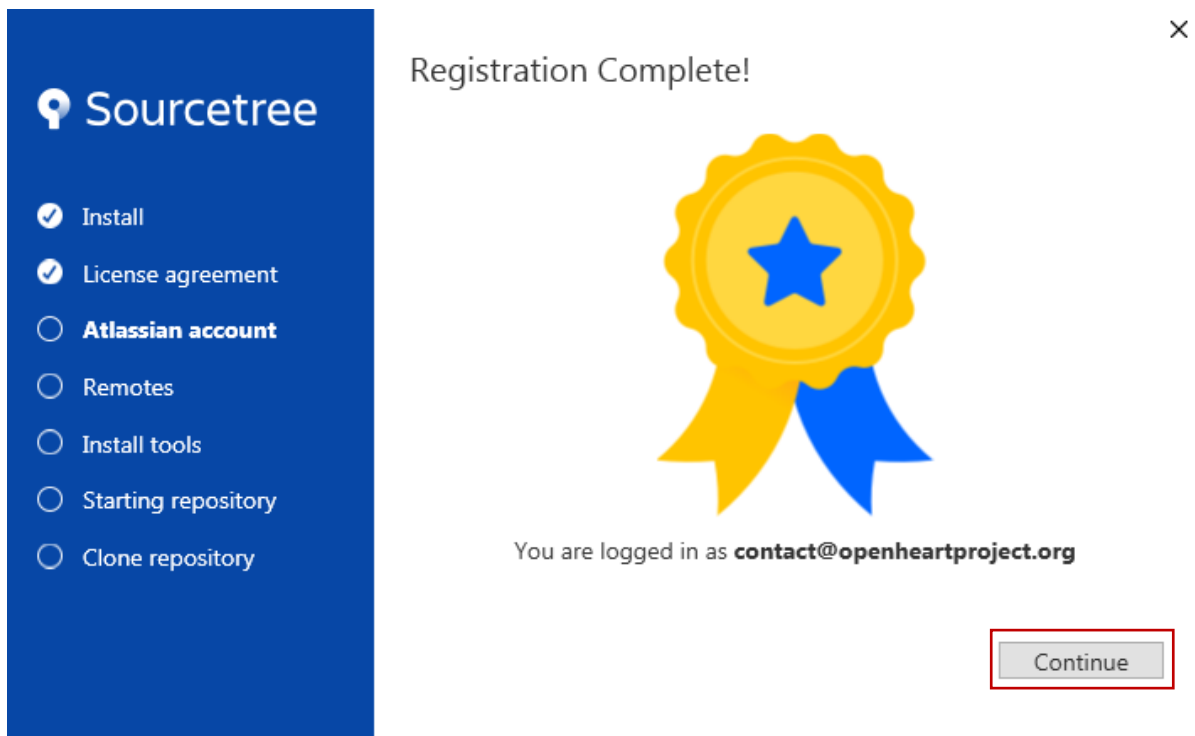
Use an existing account

Go to My Atlassian

4. Log in with your Atlassian account details.



5. Once registration is complete click 'Continue'.



6. Click 'Skip Setup'


## 🔑 Sourcetree


- Install
- License agreement
- Atlassian account
- Remotes**
- Install tools
- Starting repository
- Clone repository


×

### Connect an Account

Connect to a remote server to clone existing repositories. If you don't already have a Bitbucket account, you can [sign up for free](#).

  
**Bitbucket**

  
**Bitbucket Server**


  
**GitHub**

Host URL:

Authentication:

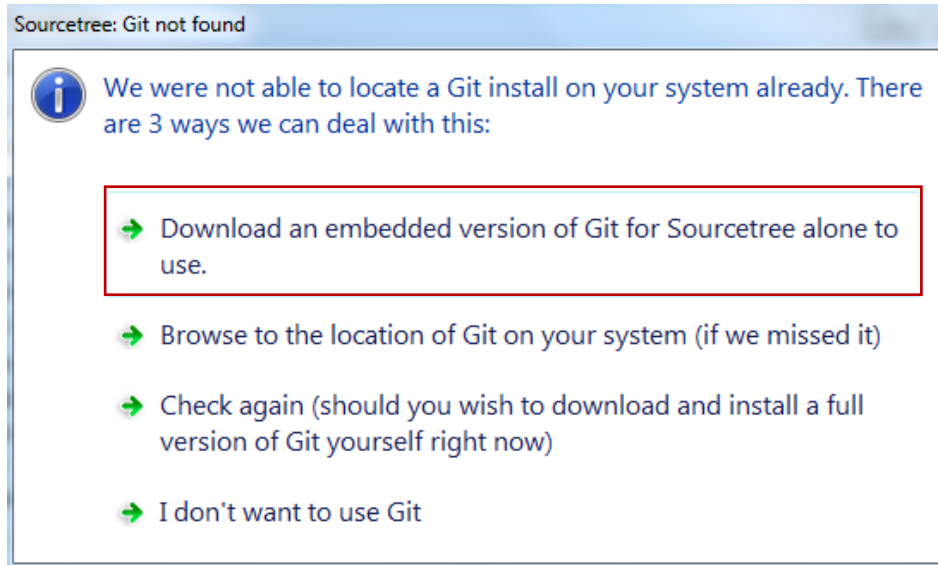
- A pop-up will appear asking for an SSH Key. Click 'No'. You can create an SSH key later on if wanted.

🔑 Load SSH Key? ×

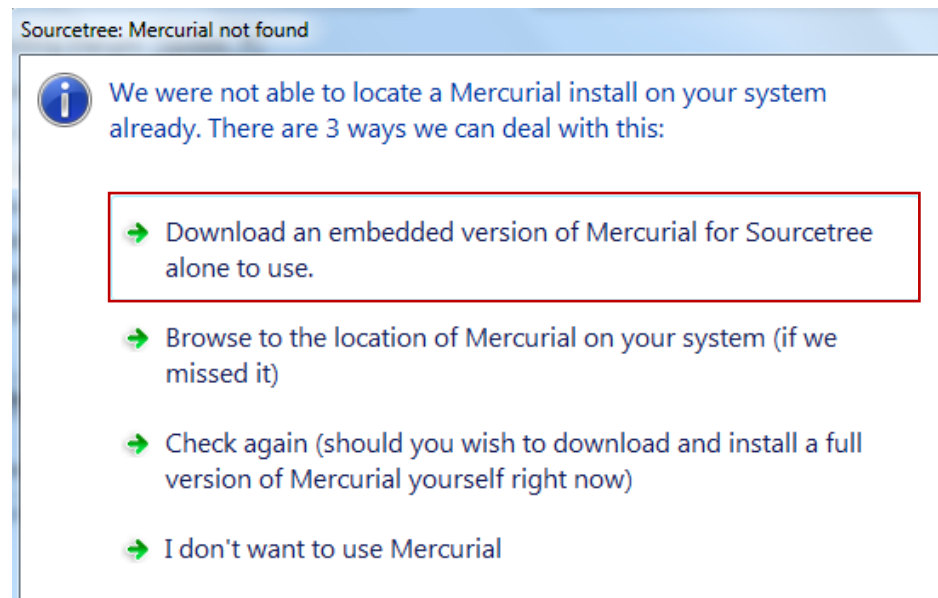
 Do you have an SSH key that you'd like to load now? If not you can click 'No' and create one later if you like.

- If no Git install is available on your system a pop-up will appear. Click 'Download an embedded version of Git for Sourcetree alone to use.'

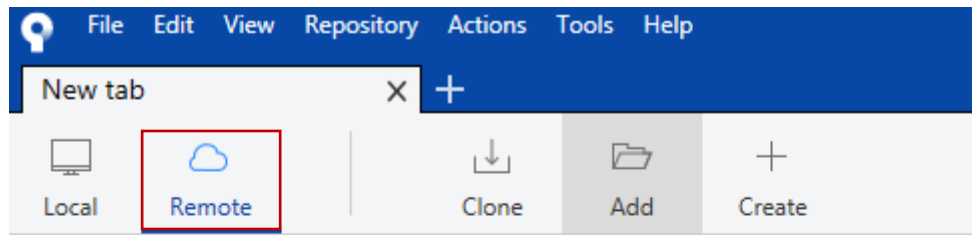




9. If no Mercurial install is available on your system a pop-up will appear. Click 'Download an embedded version of Mercurial for Sourcetree alone to use.'



10. Once Sourcetree is successfully installed you can connect your account. In a new tab click on 'Remote' and then 'Add an account...'

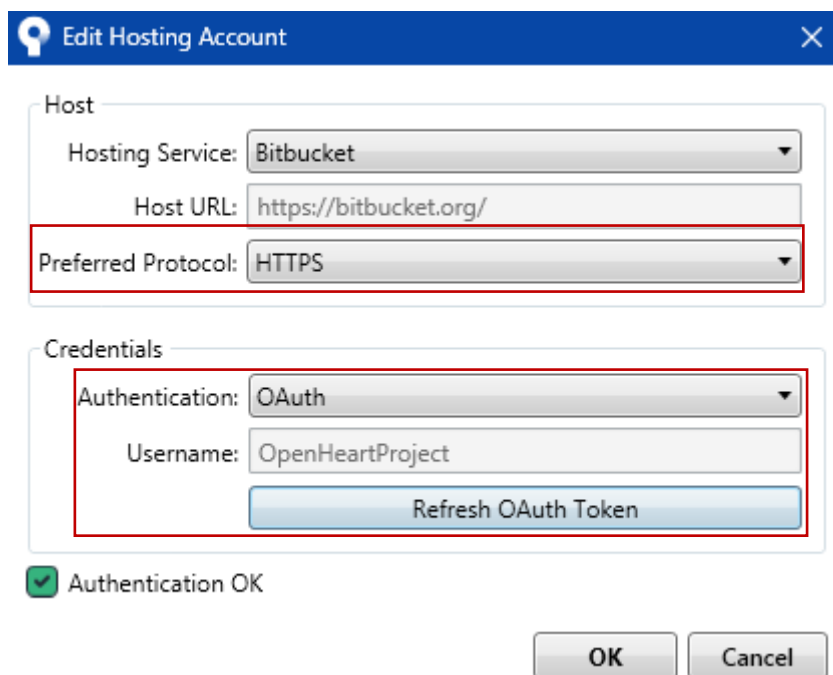


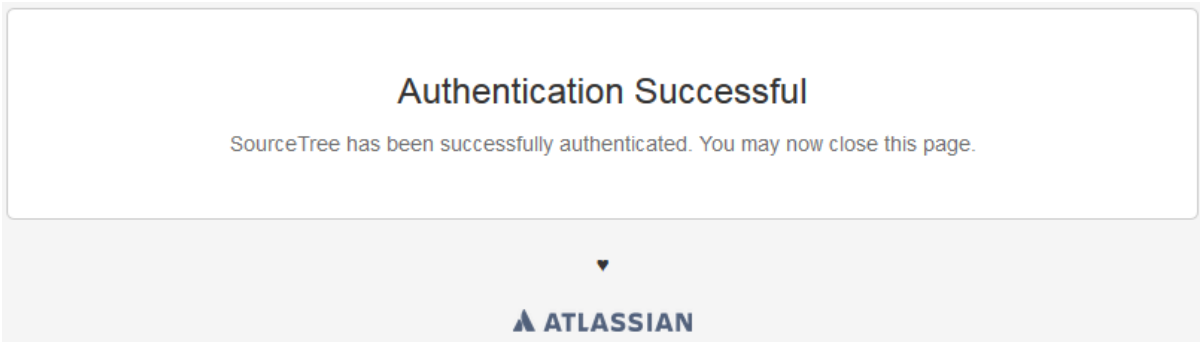
## Remote repositories



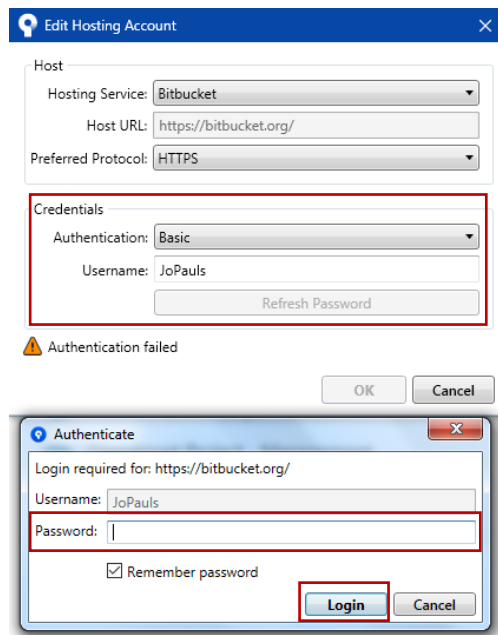
[Edit Accounts...](#)

11. A pop-up will appear to edit and authenticate your account. Under Host choose 'HTTPS' as the preferred protocol. You have two options for authentication under credentials:
  - a. Choose 'OAuth' under authentication and click 'Refresh OAuth Token'. This will open a browser page and ask you to authenticate your Atlassian details if you are currently logged into your account.





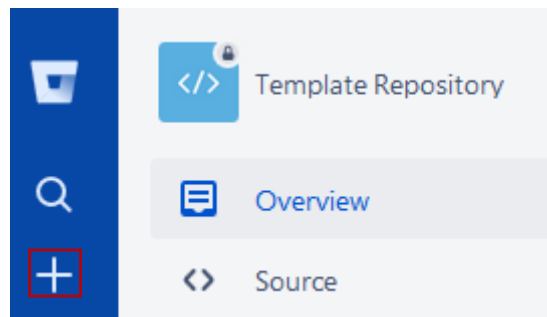
- b. Choose 'Basic' under Authentication and type in your username. When clicking 'Refresh Password' a pop-up will appear asking for your password. Type in your password and click 'Login'.



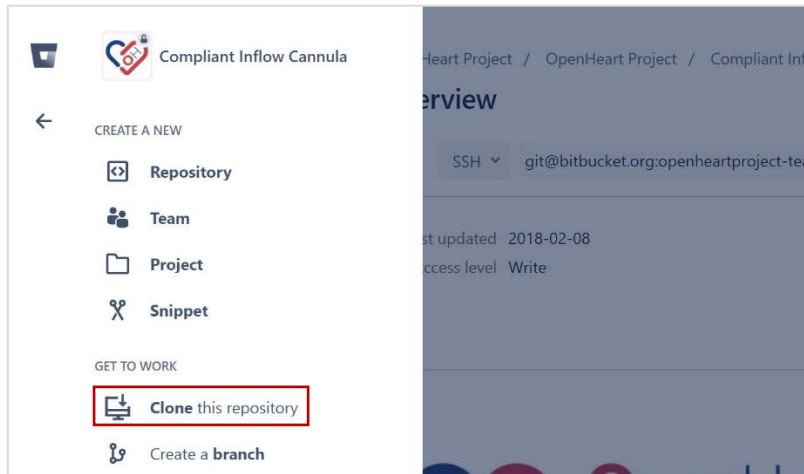
## Cloning a Repository from Bitbucket into Sourcetree

In order to work on a repository in Sourcetree the respective repository needs to be cloned from Bitbucket. This step will copy all existing files from the Bitbucket cloud onto your local device. To clone the repository:

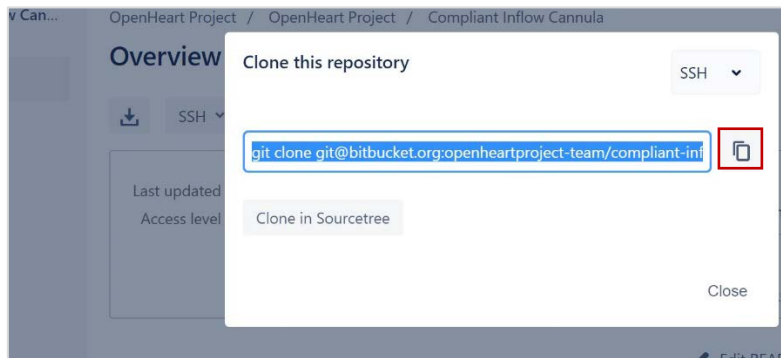
1. Visit the repository you wish to clone on the Bitbucket website. Click the '+' on the top left side toolbar.



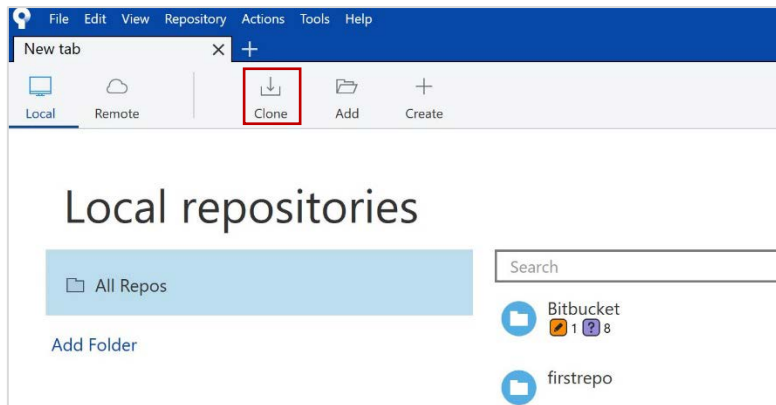
2. Click 'Clone this repository'



3. Copy the presented URL



4. Now go back into Sourcetree. Add a new tab and click 'Clone' from the top menu bar.



5. Paste the URL you previously copied from Bitbucket into the field 'Source Path / URL'. Set the destination path to a folder of your choice on your local device. (Note: Please choose an empty or new folder in which to clone) Click 'Clone'.

# Clone

Cloning is even easier if you set up a [remote account](#)

Repository Type: No path / URL supplied Browse

Browse

Local Folder:

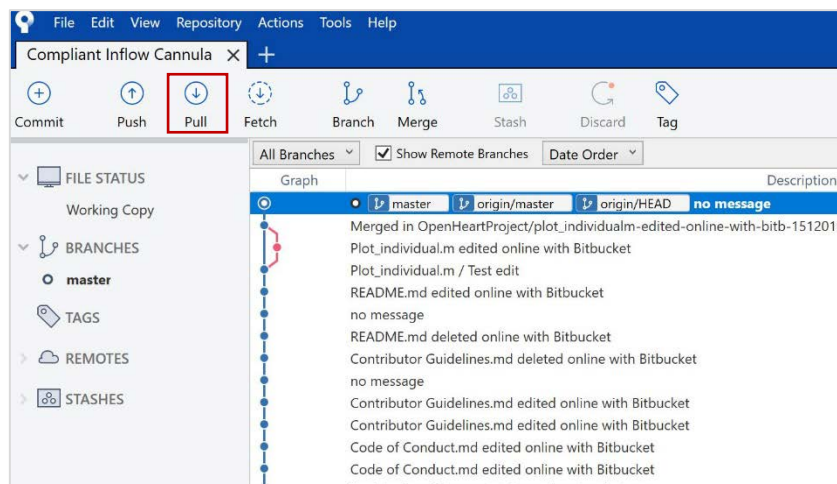
Advanced Options

## Working with your Repository

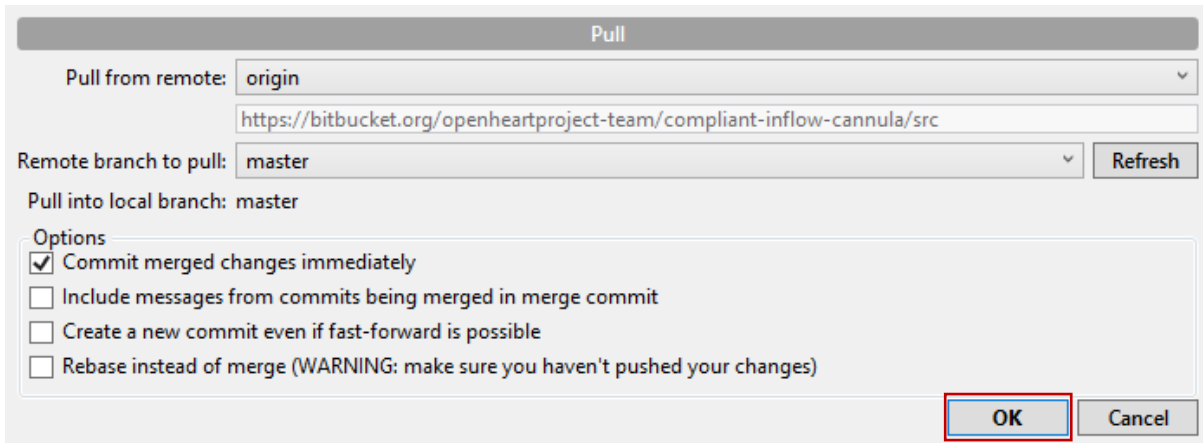
### Before Starting

Prior to working on a repository within Sourcetree you should make sure that the repository files on your local device are up to date with the most current version in the Bitbucket cloud. This is done by opening Sourcetree and choosing the repository you want to work in (only applicable if you have more than one repository cloned between Bitbucket and Sourcetree).

1. Press 'Pull' from the top menu bar.

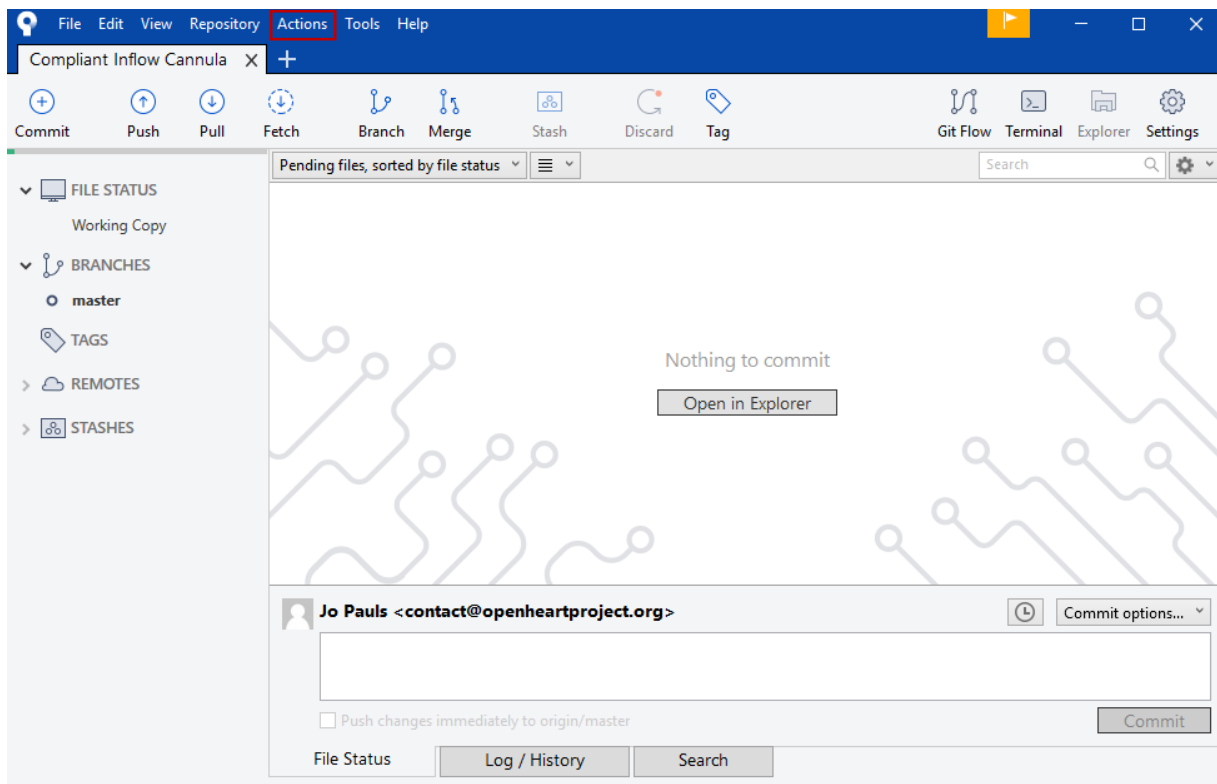


2. A pop-up window will appear. Click 'OK'. All local files will now be updated to be the same as what is in the cloud on Bitbucket.

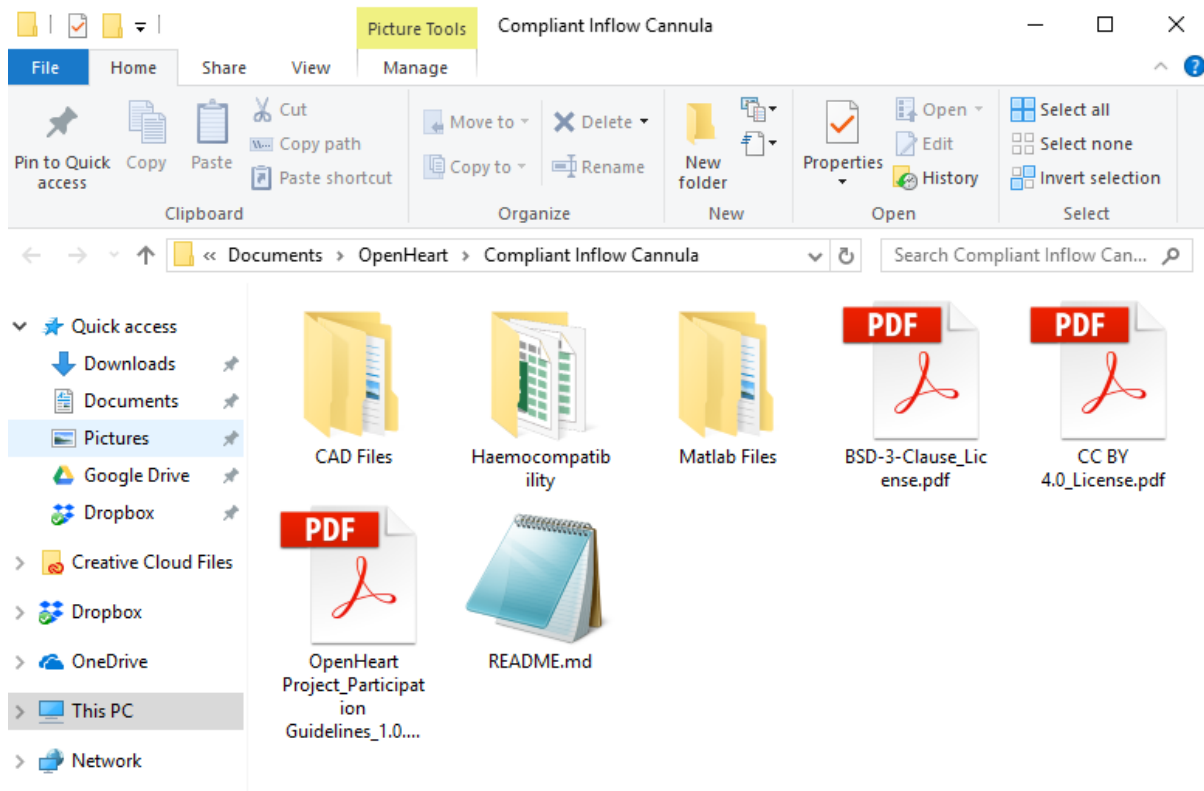


## Adding/Editing Files

Once your local repository files are up to date with the files in the Bitbucket cloud you can add or edit files on your local device like you would do in any other folder. You can either open the repository folder through your data explorer on your device or click on 'Actions' followed by 'Show in Explorer'.



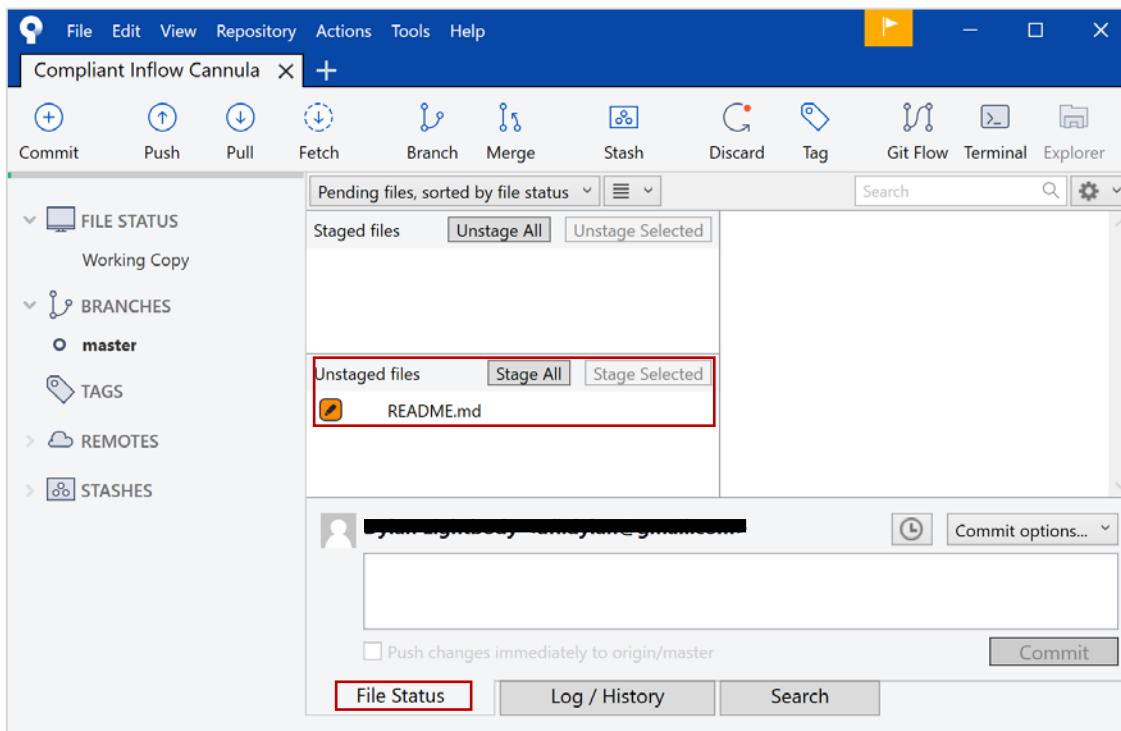
This will open the repository folder on your local device.



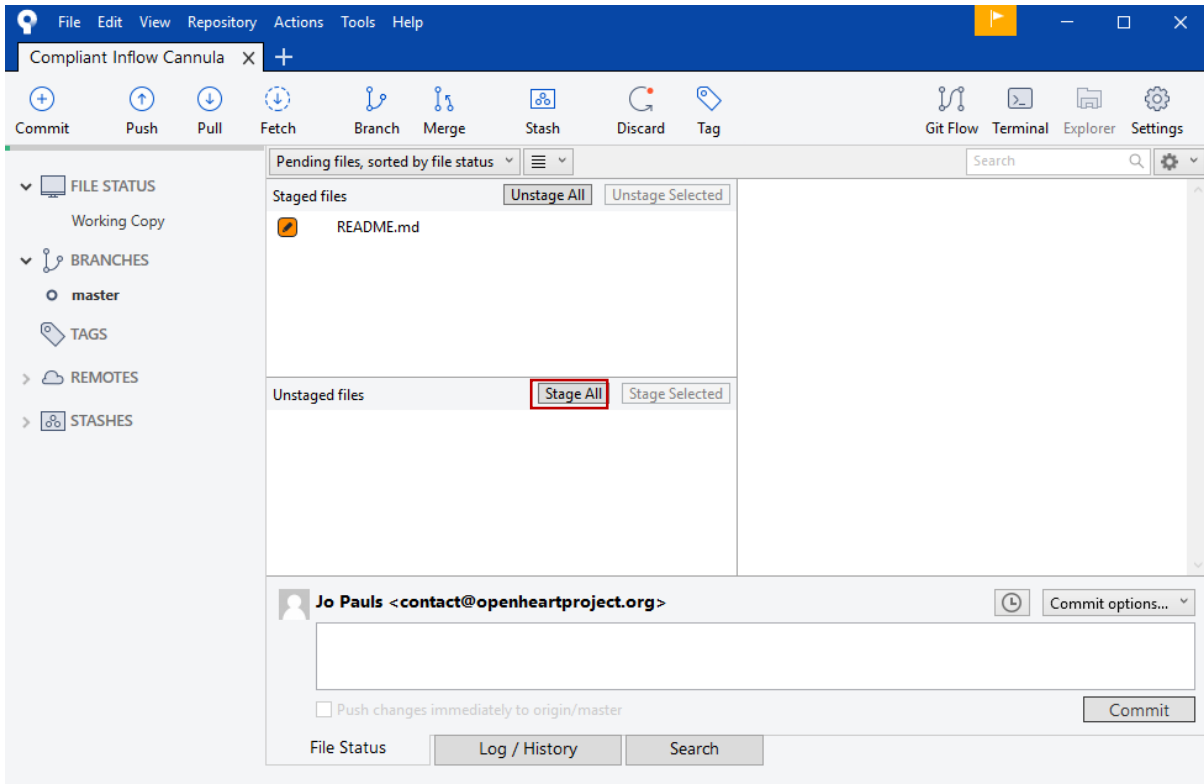
To add or edit files in the repository:

Once you have added, edited or deleted files in the repository the changes need to be committed and pushed back in the Bitbucket cloud.

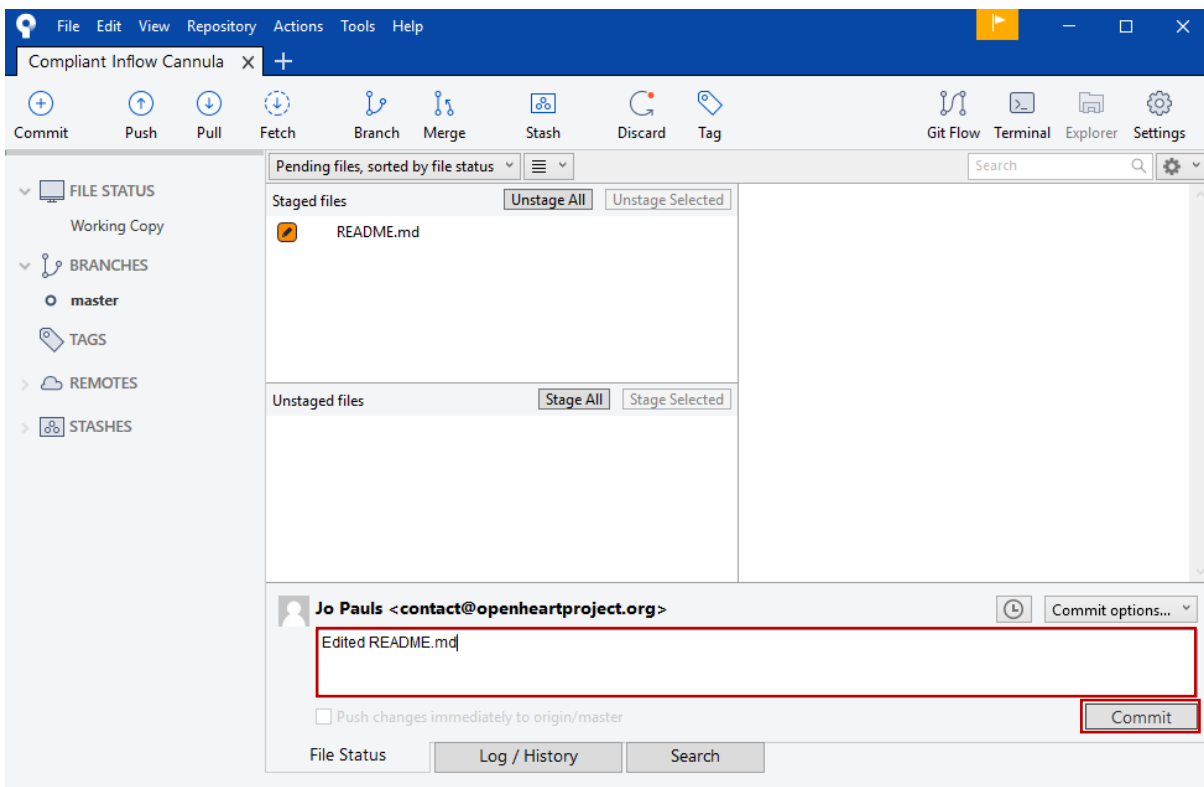
1. Within SourceTree click on 'File Status'. Sourcetree will show you all files that have been changed under 'Unstaged files'.



- In order to prepare the files to be uploaded to the Bitbucket cloud first click 'Stage All'. This will move the respective files to the 'Staged files' section. Click 'Stage All'

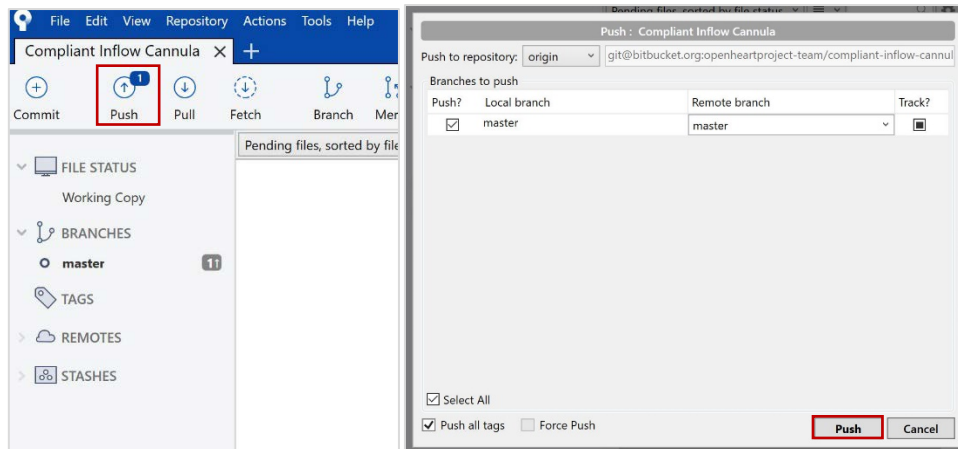


- You can include a comment about the changes you made in the text box (e.g. 'Edited README.md'). Then click 'Commit'.





- Finally, click 'Push' from the top menu bar to copy all your new files and changes onto the cloud copy in Bitbucket. A pop-up window will appear. Click 'Push' once more, and the updated files are being synced with the Bitbucket cloud.



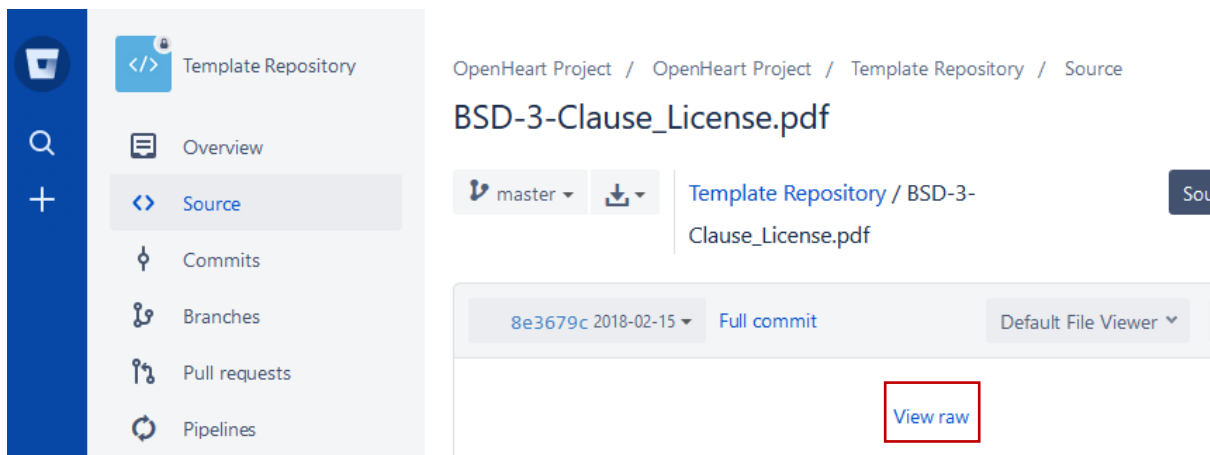
## Documents to be included in every repository

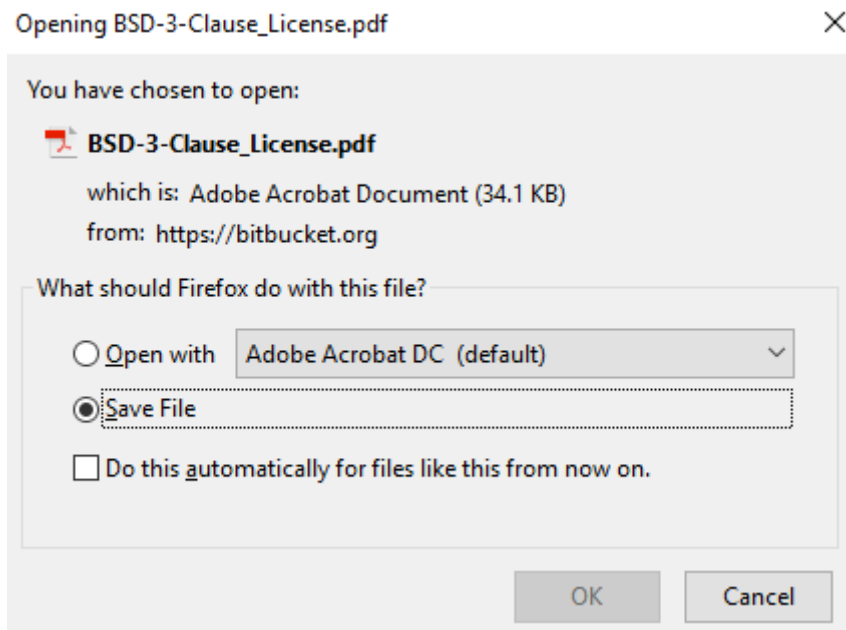
Every Bitbucket repository should contain the following documents:

- README.md
- BSD-3-Clause\_Licence.pdf
- CC BY 4.0\_Licence.pdf
- OpenHeart Project\_Participation Guidelines\_1.0.pdf.

These documents are available for download from the template repository [here](#).

1. Click on the document you want to download (e.g. BSD-3-Clause\_License.pdf). Click on 'View raw'. A pop-up will appear to either view the document or save the file.





## What Should I Share?

The OpenHeart platform is open-source so the level of detail shared is up to the user's discretion. Most researchers will look to share experimental data, CAD files and information as to how to manufacture and assemble devices. Others may choose to share more detailed information including post-processing data analysis and/or experimental procedures as well.

## Additional Resources

If you are still struggling with Bitbucket and/or Sourcetree, here are some additional learning resources:

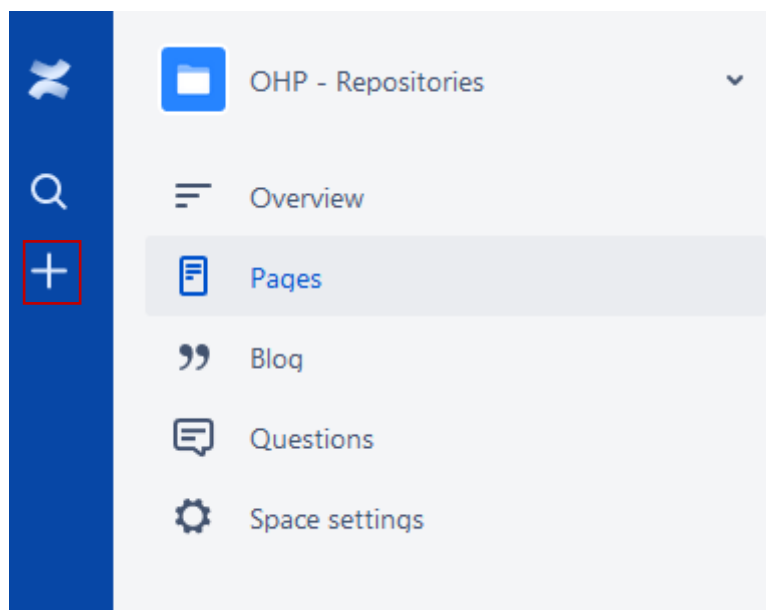
- A good step-by-step learning tool on how to use Bitbucket is available [here](#).
- If you are unfamiliar with Git you can do a tutorial "[Learn Git with Bitbucket Cloud](#)".

## OHP – Repository Overview Page / Confluence

All Bitbucket repositories will be indexed within the [OHP-Repositories space](#) in Confluence to give researchers a chance to easily search for topics etc. The OHP-repositories space overview page can be found [here](#). The individual Confluence pages for each repository can be found [here](#).

### Create a Confluence Page for your Data Repository

1. To create a Confluence page for a data repository visit the OHP-repositories pages (click [here](#)).
2. Click the '+' button in the top left corner within Confluence.





3. A pop-up will appear. Choose the 'OHP – Repositories Entry Template' and click 'Create'. The template was created for your convenience and to present each data repository in similar fashion.


Create Filter  Help

Select space OHP - Repositories

---

 **Blank page**  
Start with a blank page.

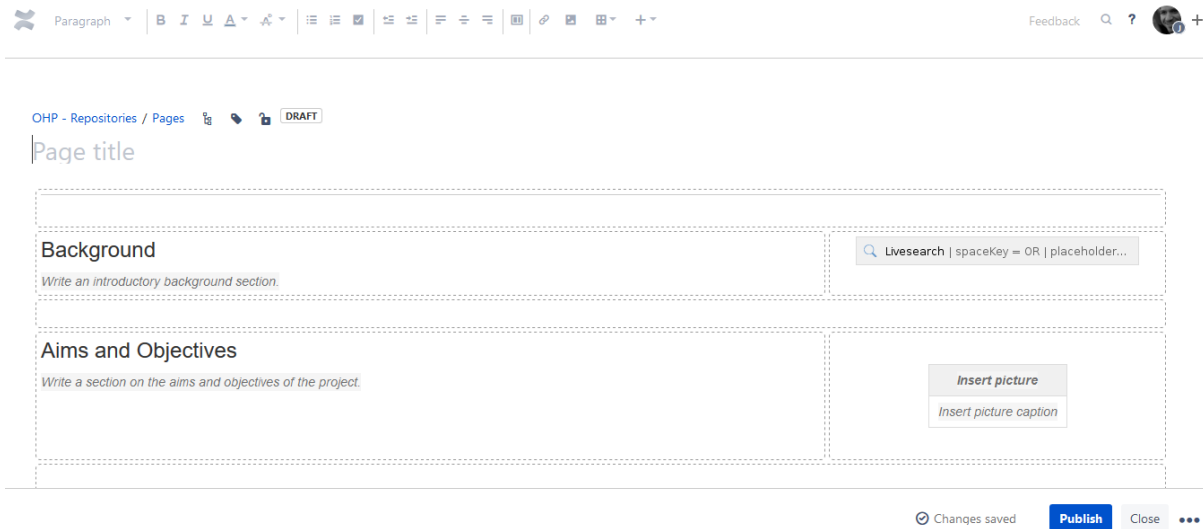
 **Blog post**  
Share news and announcements with your team.

 **OHP - Repositories Entry Template**

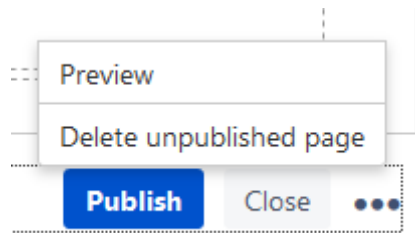
---

Add or customise templates for the selected space **Create** Close

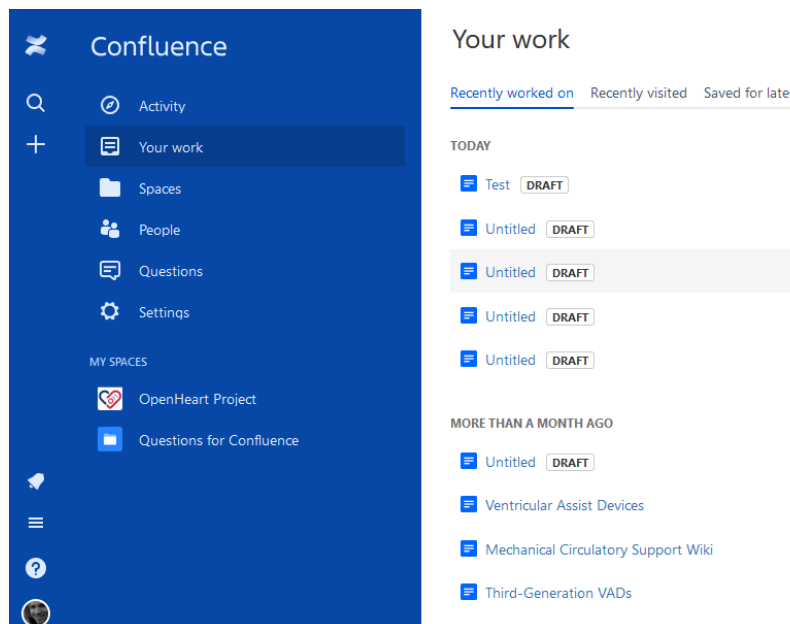
4. This will open a new page. Fill out the template with all necessary information.



5. During the editing process of any confluence page you have multiple options. If you are happy with the page, you can publish the page by clicking the 'Publish' button. By clicking the three dots '...' you can either choose to preview the page or delete the unpublished page. Finally, when you choose 'close' Confluence saves the page automatically as a draft version.



6. Draft pages can be found under 'Your Work' within confluence.



7. To publish a page simply click the 'Publish' button (e.g. in this example of the Confluence page "Test").

[OHP - Repositories / Pages / OHP - Repositories Home](#)

## Test

### Background

Search OHP Repositories

### Aims and Objectives



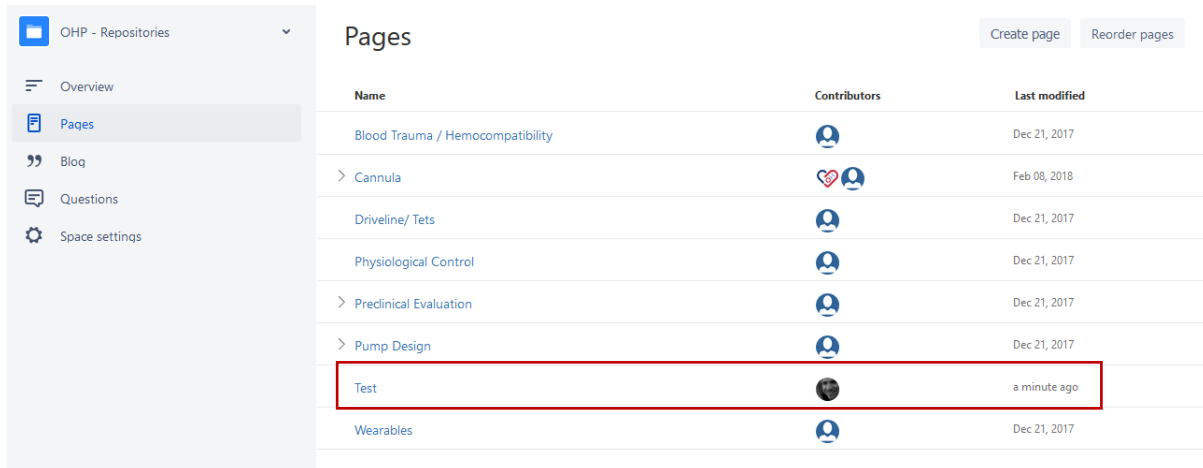
### Key Documents

### Repository

[Find the Bitbucket repository for this project here.](#)

Changes saved

8. The page will be automatically sorted within the Confluence pages.

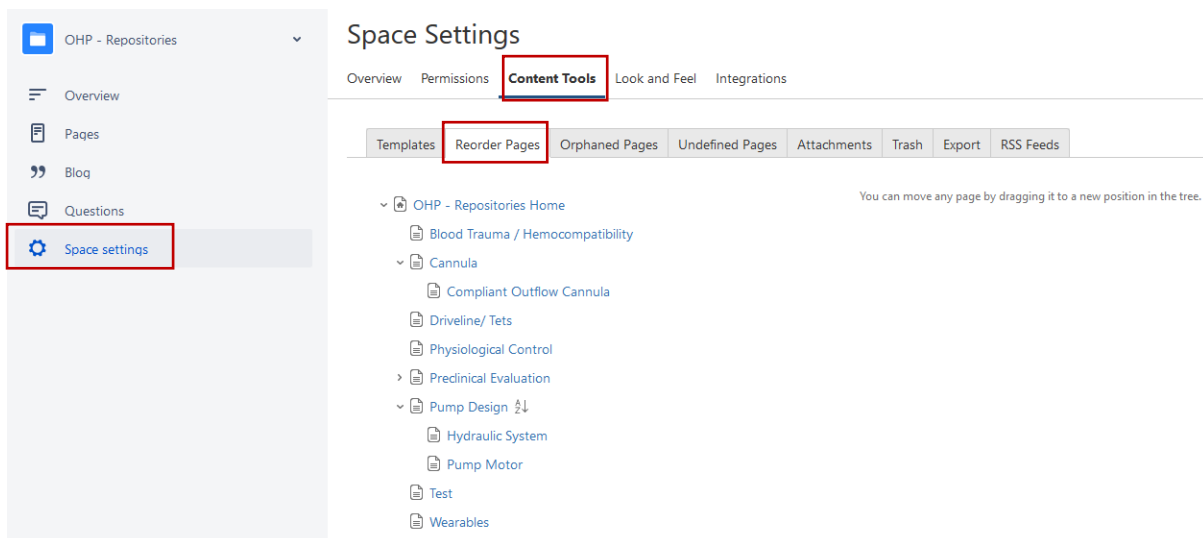


The screenshot shows the 'Pages' view in Confluence. A sidebar on the left contains navigation options: Overview, Pages (selected), Blog, Questions, and Space settings. The main area displays a table of pages:

Name	Contributors	Last modified
Blood Trauma / Hemocompatibility		Dec 21, 2017
> Cannula		Feb 08, 2018
Driveline/ Tets		Dec 21, 2017
Physiological Control		Dec 21, 2017
> Preclinical Evaluation		Dec 21, 2017
> Pump Design		Dec 21, 2017
Test		a minute ago
Wearables		Dec 21, 2017

The 'Test' page is highlighted with a red box. Buttons for 'Create page' and 'Reorder pages' are visible at the top right.

9. However, the page might not be located at the right position within the pages tree. To reorder pages click on 'Space Setting' -> Content Tools -> 'Reorder Pages'. To reorder the pages, simply drag the page to the right location.



The screenshot shows the 'Space Settings' page in Confluence. The sidebar on the left has 'Space settings' highlighted with a red box. The main area shows tabs for 'Overview', 'Permissions', 'Content Tools' (selected), 'Look and Feel', and 'Integrations'. Under 'Content Tools', the 'Reorder Pages' tab is highlighted with a red box. Below the tabs, a tree view shows the page hierarchy:

- OHP - Repositories Home
  - Blood Trauma / Hemocompatibility
  - Cannula
    - Compliant Outflow Cannula
    - Driveline/ Tets
    - Physiological Control
  - Preclinical Evaluation
  - Pump Design
    - Hydraulic System
    - Pump Motor
    - Test
  - Wearables

A note at the bottom states: "You can move any page by dragging it to a new position in the tree."

Additional information can be found here:

- [Atlassian / Confluence / Documentation / Pages and Blogs](#)
- [Create, edit and publish](#)
- [Add formatting to your page](#)

## MCS Wiki


The MCS Wiki has its own space within the OpenHeart Confluence entity and can be found [here](#). If you wish to contribute to the MCS Wiki pages follow the same steps as above. However, when creating a page within the Wiki you can choose the 'MCS Wiki Entry Template'.


Create Filter  Help


---

Select space Mechanical Circulatory Support Wiki Parent: Mechanical Circulatory Suppo...

---

 **Blank page**  
Start with a blank page.

 **Blog post**  
Share news and announcements with your team.

 **MCS Wiki Entry Template**

---

Add or customise templates for the selected space **Create** Close