

Laptop setup and piranhaGUI install V.1

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ABSTRACT

This protocol provides step-by-step guidance on installing piranhaGUI and its dependency Docker Desktop.

OPEN  ACCESS



Protocol Citation: Aine.OToole
2024. Laptop setup and
piranhaGUI install. **protocols.io**
<https://protocols.io/view/laptop-setup-and-piranhangui-install-c8jrzum6>

MANUSCRIPT CITATION:

Automated detection and
classification of polioviruses from
nanopore sequencing reads
using piranha
Áine O'Toole, Rachel Colquhoun,
Corey Ansley, Catherine Troman,
Daniel Maloney, Zoe Vance, Joyce Akello, Erika Bujaki, Manasi Majumdar, Adnan Khurshid, Yasir Arshad, Muhammad Masroor Alam, Javier Martin, Alexander G Shaw, Nicholas C Grassly, Andrew Rambaut
bioRxiv 2023.09.05.556319; doi:
<https://doi.org/10.1101/2023.09.05.556319>

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Protocol status: Working
We use this protocol and it's working

Created: Feb 01, 2024

Last Modified: Feb 02, 2024

PROTOCOL integer ID: 94545

Funders Acknowledgement:

Bill & Melinda Gates Foundation
Wellcome Trust

Laptop requirements

1 Requirements:

1. Administrator access to the laptop
2. A high-performance laptop with a GPU

Setting up a Nanopore account & installing MinNOW

2 Register for an Oxford Nanopore Technologies Account at <https://nanoporetech.com/community> by clicking the "Register here" button. You will have to verify your email address and log in. If you already have an account, sign in.



... / Login or register to access content ▾

Login or register to access content

This page is only available to Nanopore Community members

[Sign in to your Nanopore account >](#)

Don't have an account yet?

Registration takes one minute. It enables you to download all software and connects you with nanopore users around the world. Discussion and collaboration helps drive your experimental success and you will have full access to documentation and learning content.

[Register here >](#)

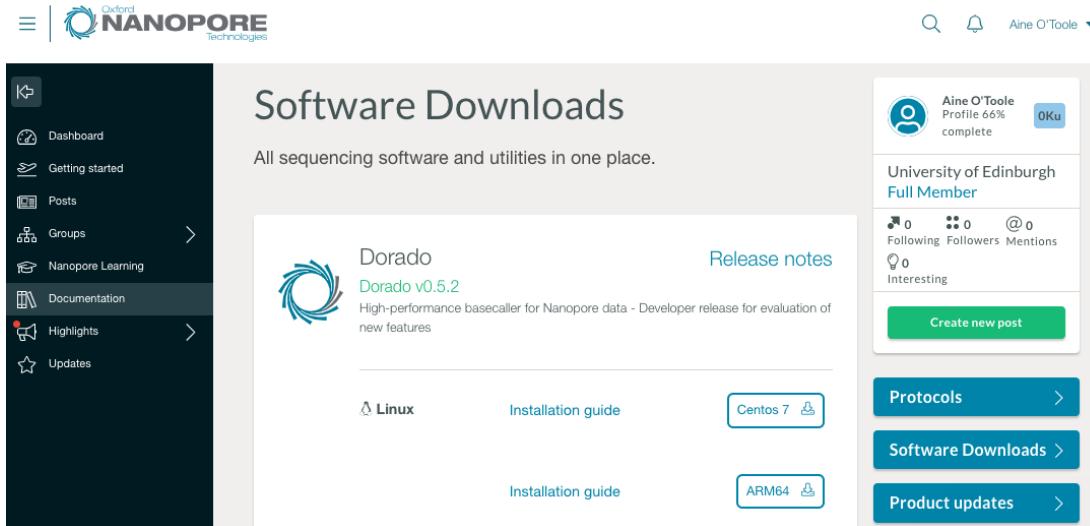


LIVE SUPPORT



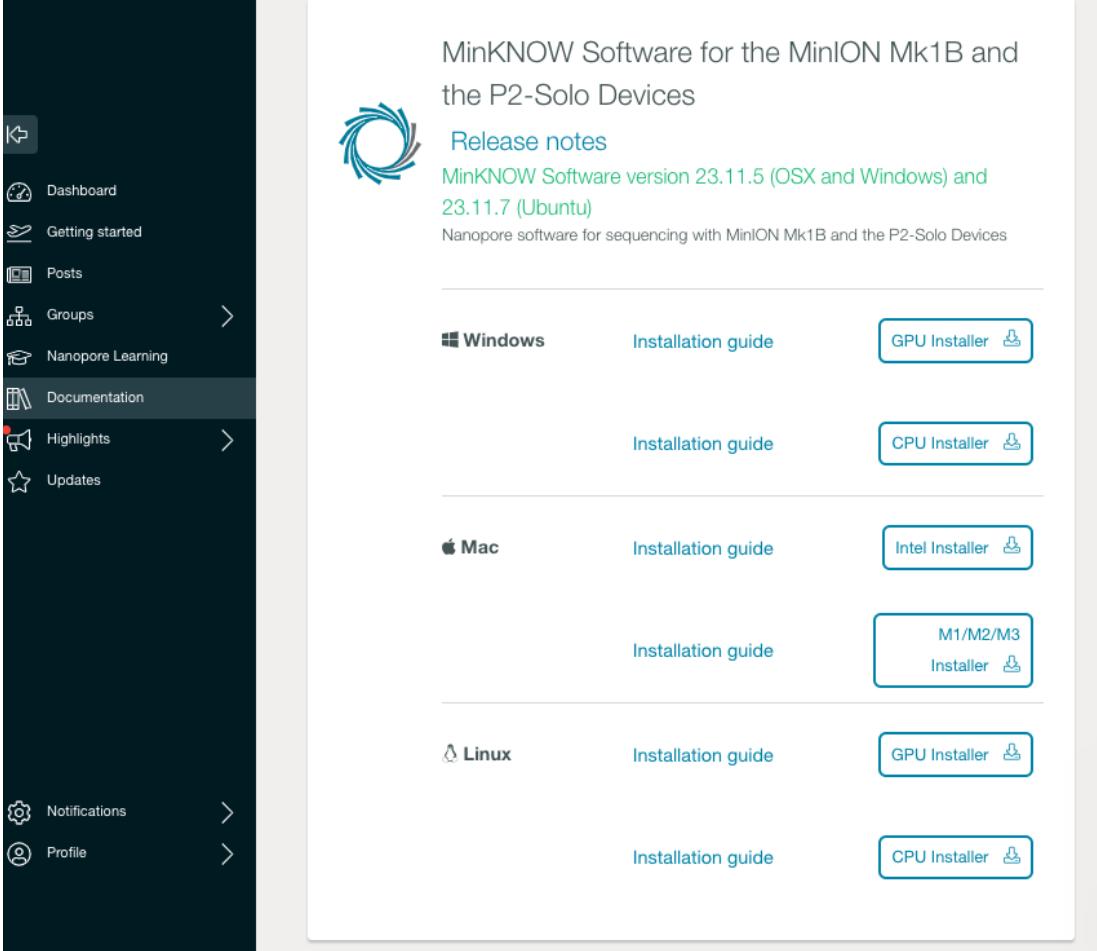
To access the useful software, you will need to associate your account with a full membership or else order a starter pack and become a full member.

- 3 Navigate in a web-browser to <https://community.nanoporetech.com/downloads>, you will need to log in to your Nanopore account to access this page.



The screenshot shows the Nanopore community website's Software Downloads page. The left sidebar includes links for Dashboard, Getting started, Posts, Groups, Nanopore Learning, Documentation (which is currently selected), Highlights, and Updates. The main content area features a section titled "Software Downloads" with the sub-headline "All sequencing software and utilities in one place." A card for the "Dorado" software is displayed, showing "Dorado v0.5.2" and a brief description: "High-performance basecaller for Nanopore data - Developer release for evaluation of new features." Below the card are links for "Linux" and "Installation guide". To the right of the card is a user profile for "Aine O'Toole" showing "Profile 66% complete", "0Ku", "University of Edinburgh Full Member", and activity metrics: "Following 0", "Followers 0", "Mentions 0", and "Interesting 0". Below the profile are buttons for "Create new post", "Protocols", "Software Downloads", and "Product updates".

Scroll down once you have reached this page to view the "MiKNOW download" and download the respective link depending on whether you are using a Windows, Mac or Linux machine.



MinKNOW Software for the MinION Mk1B and the P2-Solo Devices

Release notes

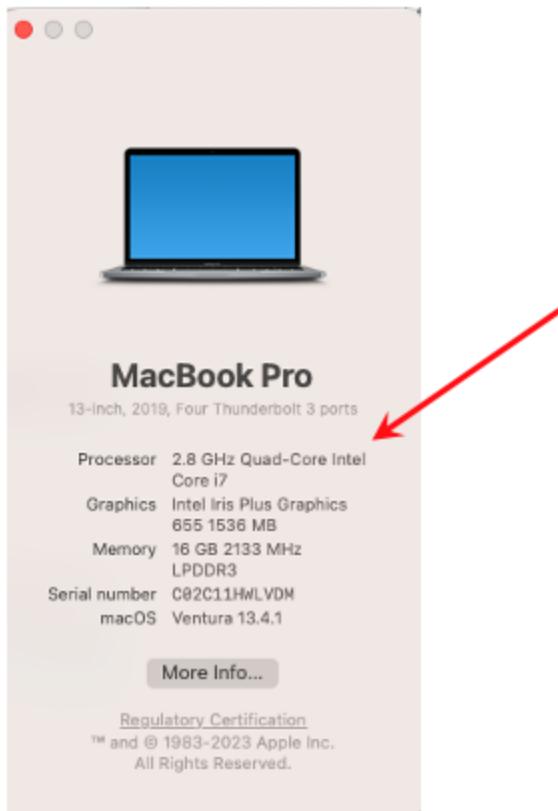
MiKONW Software version 23.11.5 (OSX and Windows) and 23.11.7 (Ubuntu)

Nanopore software for sequencing with MinION Mk1B and the P2-Solo Devices

Platform	Installation guide	Installer
Windows	Installation guide	GPU Installer
	Installation guide	CPU Installer
Mac	Installation guide	Intel Installer
	Installation guide	M1/M2/M3 Installer
Linux	Installation guide	GPU Installer
	Installation guide	CPU Installer

4 Mac Installation of MiKONW

If you have a Mac and are not sure whether you have an Apple or Intel chip, click the apple icon in the top left hand side of the screen, and navigate to "About this Mac". A window will pop up (like the one in the image) that describes various things about your computer, including "Processor". If your processor has Intel in it, you have an Intel chip, otherwise you have an Apple chip. Another clue would be how new your Mac is. If you've purchased a Mac in the last 3 years it's very likely to be an Apple chip.

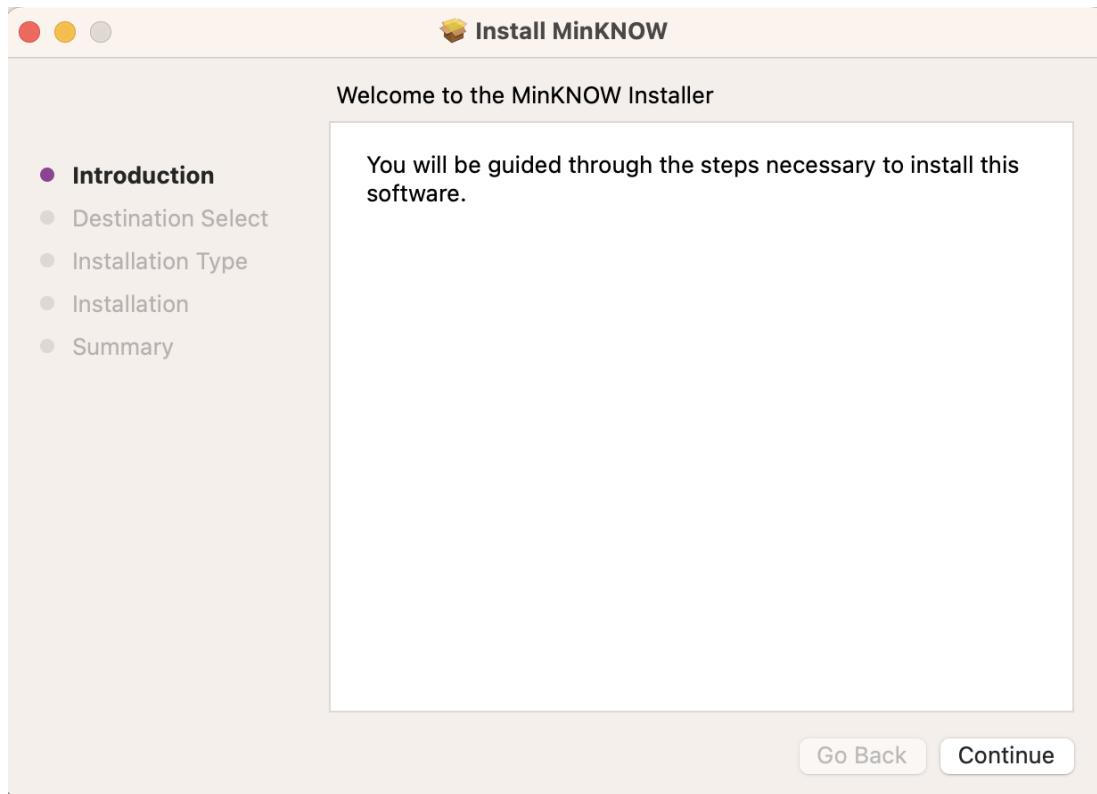


About this mac In this example the processor is an intel one, so the link to click on would be the Mac Intel installer.

Once you've downloaded the Mac dmg file, extract it and open the MinNOW.pkg file by double clicking on the icon.



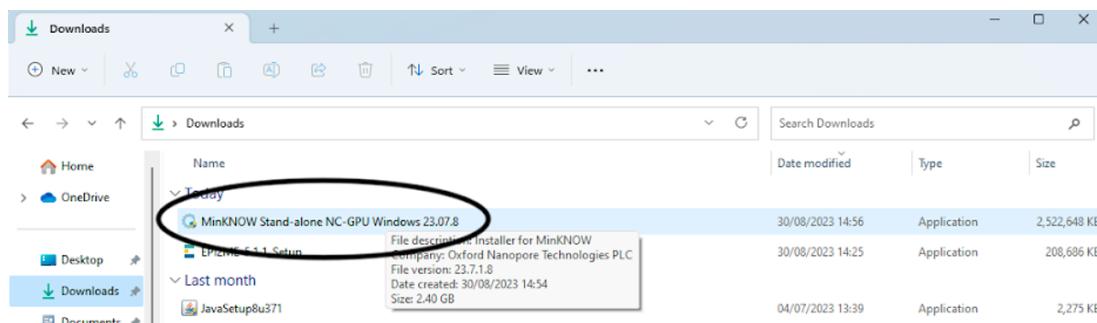
An installer window will open and you'll be guided through the installation steps:



5 Windows installation of MiKNOW

Download the windows installer, the machine you're using should have a GPU so click on the GPU installer link. If your machine does not have a GPU, running basecalling for a Nanopore run will take a very long time.

Run the installer by double clicking it in the directory it was downloaded to (likely your downloads folder).



When the installer pops up, follow the installation instructions to install MiKNOW.

6 You should now be ready to run MinKNOW when you go to perform a sequencing run.

Install piranha through piranhaGUI

7 PiranhaGUI can be installed on a Windows, MacOSX or Linux machine.

To install piranhaGUI, navigate to [piranhaGUI GitHub](#) on a web browser. You should see a page similar to the one below, which shows the latest releases of piranha GUI, along with some installation instructions.

The screenshot shows the GitHub releases page for the repository `polio-nanopore/piranhaGUI`. The page displays the latest release, **v1.5.3** (Latest), released on Nov 7, 2023. The release notes indicate it was packaged with piranha v1.2.1 and provide links for Mac, Linux, and Windows installations. It also includes a command-line install script for Linux and a note about Docker Desktop for Windows users.

v1.5.3 (Latest)

Packaged with piranha v1.2.1: <https://github.com/polio-nanopore/piranha/releases/tag/1.2.1>

Installation on Mac

For the Mac version, download the `PiranhaGUlv1.5.3.zip` file extract it and drag the `piranhaGUlv1.5.3.app` icon into your `Applications` folder.
The first time you run it, right-click or control-click on the icon and select `Open` - this will allow you to agree to run it.
After this, you just need to double-click the icon.
It also requires you to install Docker Desktop from <https://www.docker.com/products/docker-desktop/>
You may also need to select the `Allow the default Docker socket to be used` option from Docker Desktop settings (under `Advanced`).

Installation on Linux

To install on Linux download the Debian/Ubuntu compatible `.deb` package. It can be installed using Ubuntu's built-in application installer GUI, or by running:

```
sudo apt install /path/to/file/piranhaGUlv1.5.3.deb
```

Installation on Windows

Download the Windows installer and double click to run the installer.

Full Changelog: [v1.5.1...v1.5.3](#)

PiranhaGUI releases page. A release is like a checkpoint for software that pins everything at a specific version. There may be periodic updates of piranhaGUI (new releases) and also of the piranha software that piranhaGUI runs.

8 To download the latest release, click on the relevant link on this page under the "assets" category of the latest releases.

- If you're a Windows user, download the `PiranhaGUlvX.X.X_installer_windows.exe` installer and double click to run it
- If you are a MacOS user download the `PiranhaGUlvX.X.X.zip` file and extract it, then drag it to your Applications folder. The first time you run it, right-click or control-click on the icon and select Open - this will allow you to agree to run it. After this, you just need to double-click the icon.
- For Linux install the `piranhaGUI_X.X.X.deb` file.

▼ Assets 5			
 piranhaGUIv1.5.3.zip	901 MB	Nov 21, 2023	
 PiranhaGUIv1.5.3_installer_windows.exe	402 MB	Nov 20, 2023	
 piranhagui_1.5.3.deb	653 MB	Nov 21, 2023	
 Source code (zip)		Nov 7, 2023	
 Source code (tar.gz)		Nov 7, 2023	

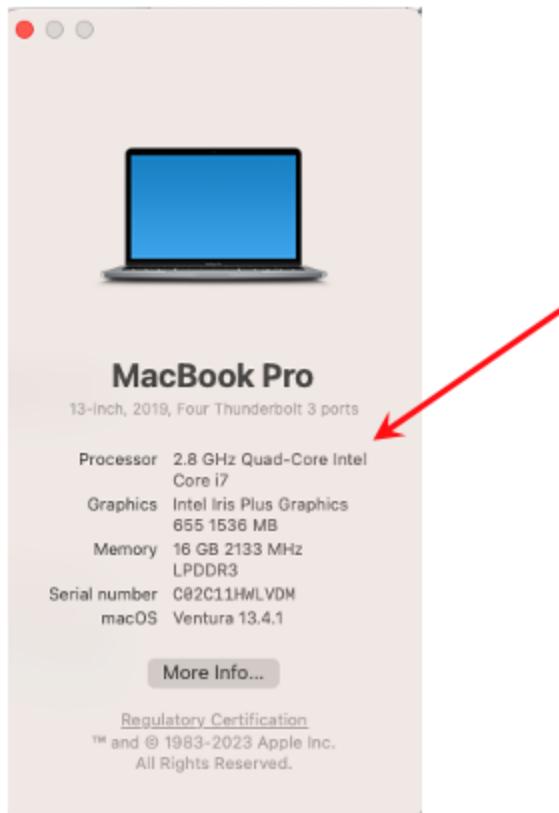
Download links for piranhaGUI

- 9 If you have never run Docker on your computer before, you will need to install Docker Desktop. Navigate to <https://www.docker.com/products/docker-desktop/> on a web browser and you should see a page like the one below. Click on the relevant download link (Mac- Apple Chip, Mac - Intel Chip, Windows or Linux). See the next step if you are not sure whether you have an Apple Chip or Intel Chip.



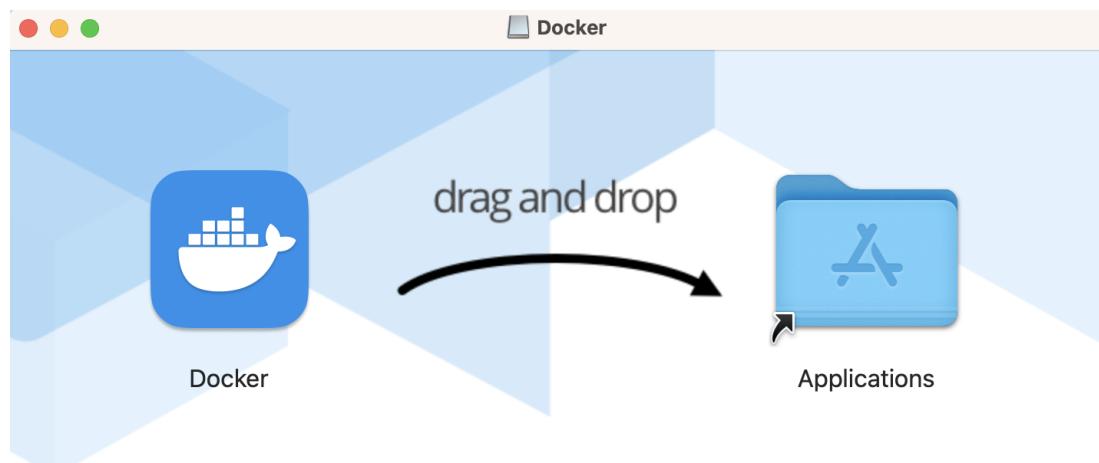
The screenshot shows the Docker Desktop homepage. At the top, there is a navigation bar with the Docker logo, a search icon, and buttons for "Sign In" and "Get Started". Below the navigation, the text "Docker Desktop" is displayed above a large, bold headline: "The #1 containerization software for developers and teams". Underneath the headline, it says "Your command center for innovative container development". On the right side of the page, there is a dark call-to-action button with the text "Download for Mac - Apple Chip" and a download icon. To the left of this button, there are smaller download links for "Mac - Intel Chip", "Windows", and "Linux", each with its own download icon.

- 10 Install on a Mac



About this mac In this example the processor is an intel one, so the link to click on would be the Mac Intel installer.

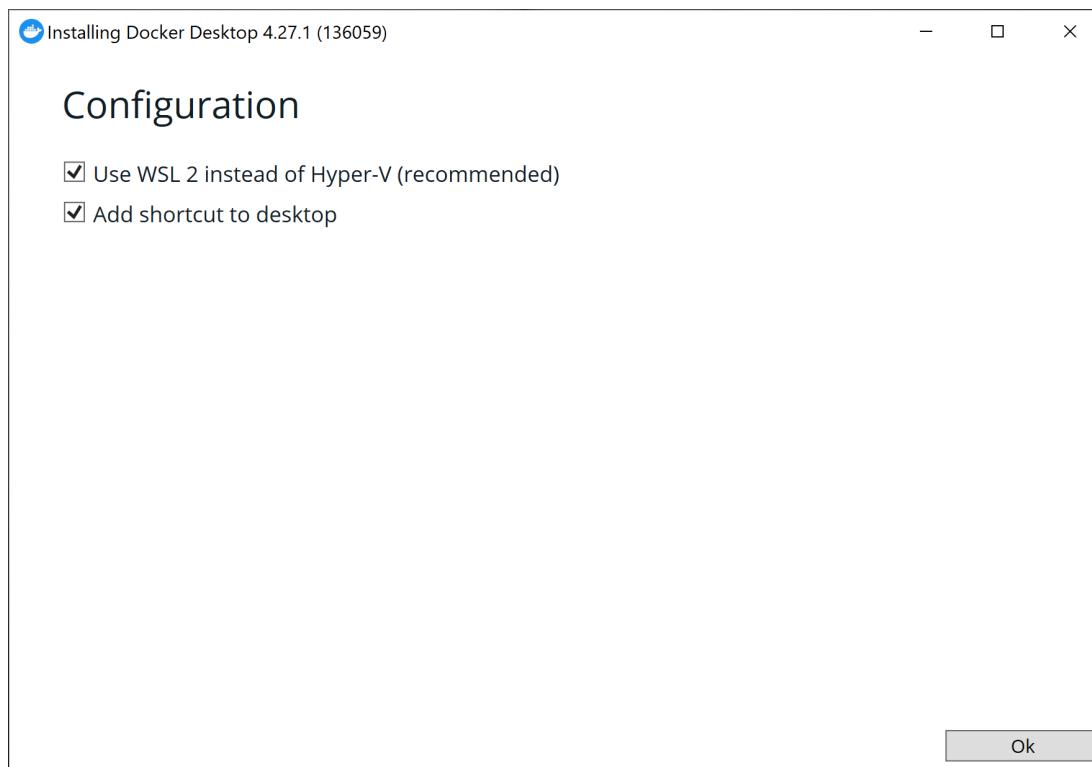
If you downloaded a Mac dmg file, click on it to open and a window should pop up prompting you to drag the Docker icon into the Applications folder. Drag the icon into Applications.



11

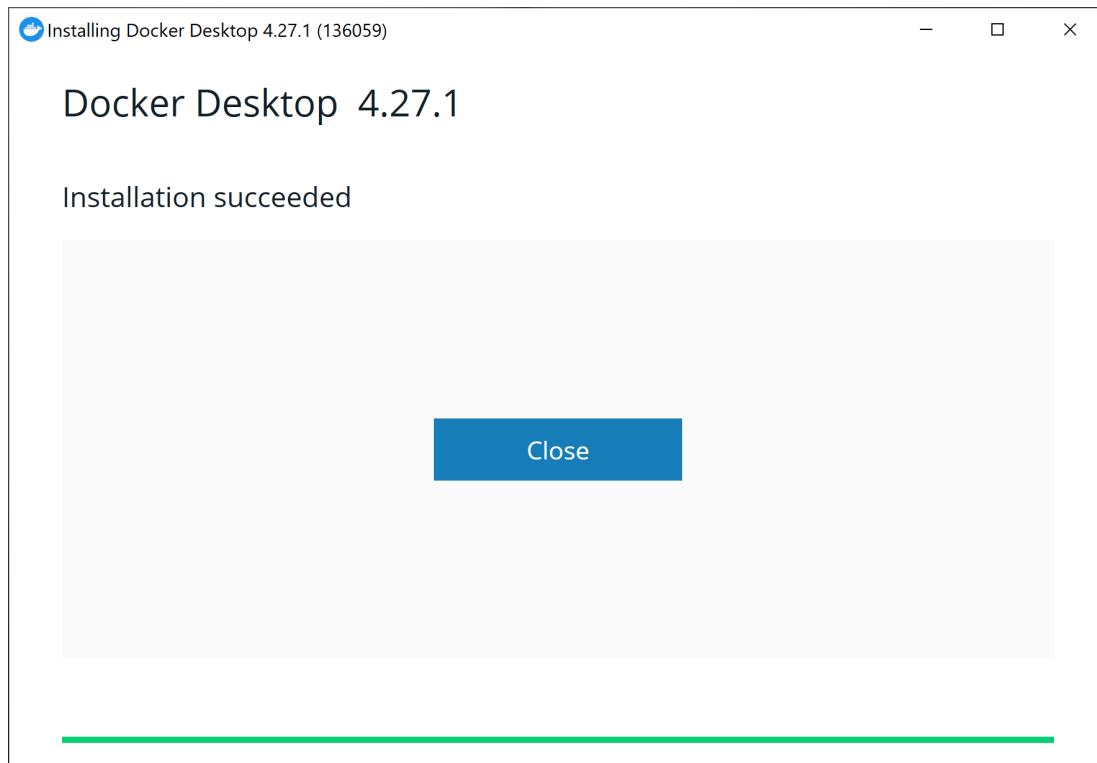
Install on a windows machine

If you downloaded a windows executable, double-click to open and follow the installation instructions on the window that pops up.



Tick use WSL2 instead of Hyper-V if possible

When you have clicked through and completed the instructions, you should see the following success screen:

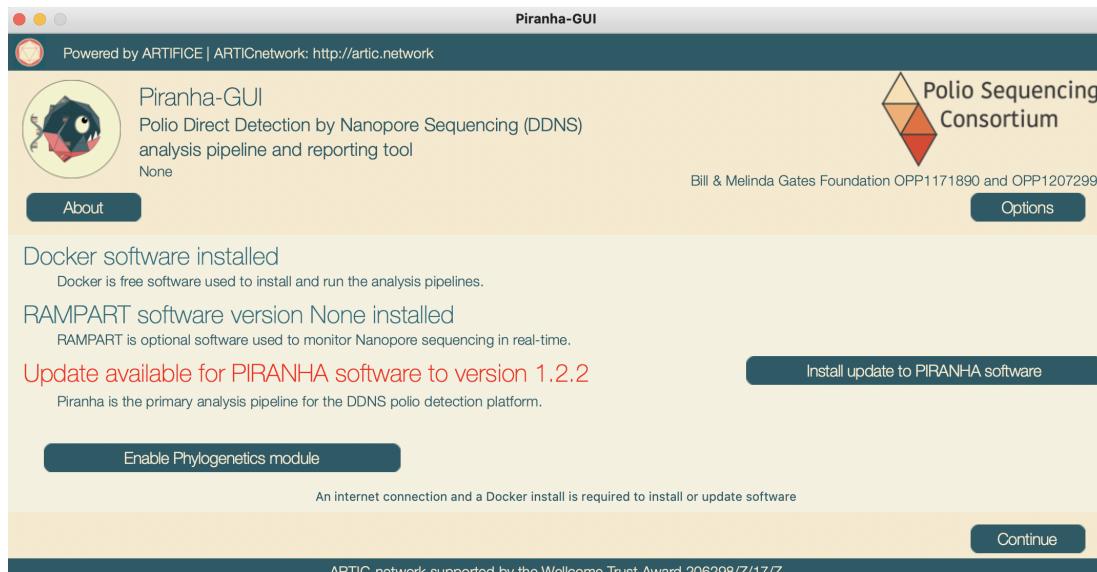


- 12 Open Docker Desktop by clicking on the icon in your file browser to check it has installed sucessfully.

PiranhaGUI setup

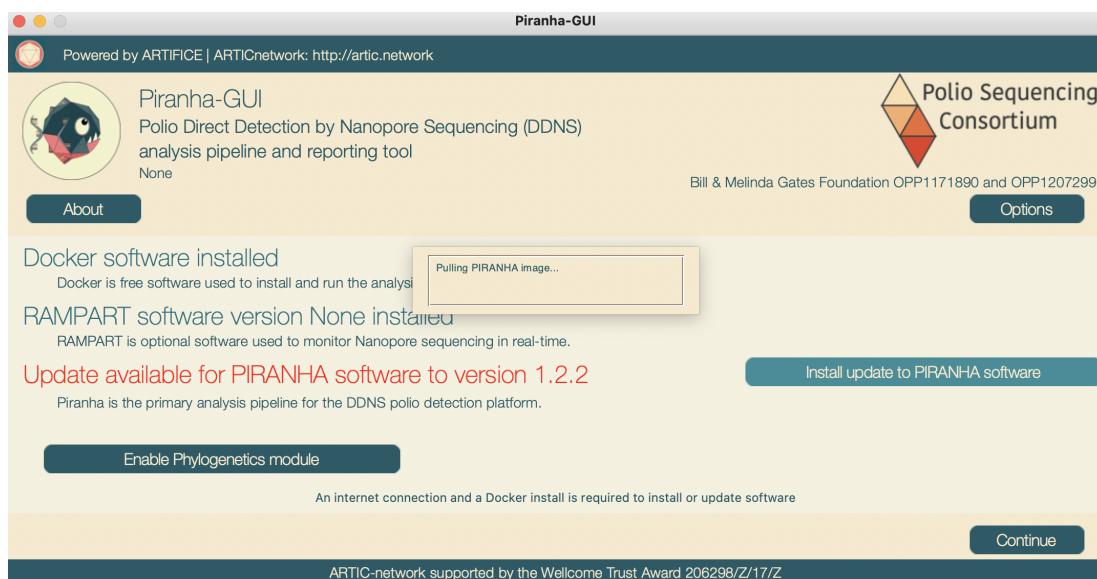
- 13 Double click on the piranhaGUI icon to open it. If you have a Mac and have not previously run piranhaGUI you should right-click or control-click on the icon and select 'Open', which will allow you to agree to run it.

When piranhaGUI has opened you should see a screen like the one below:



If the screen does not say Docker software installed, you may need to repeat the above Docker installation steps and ensure Docker installs correctly. Internet connectivity may be an issue for downloading Docker Desktop, but this only needs to be done once. Try to ensure a stable internet connection and download again if necessary. If the screen says "Docker software installed", you can move on to the next step.

- 14** You will want to make sure you have the latest version of piranha installed. If the message appears, as in the previous image, that an update is available for piranha, then click on the button to install the update to the piranha software. You should see the below message pop up that piranha GUI is pulling PIRANHA image:



This step requires an internet connection, when it is complete and piranha has been updated to the latest you should see the following screen:

Piranha-GUI
Powered by ARTIFICE | ARTICnetwork: <http://artic.network>

 Piranha-GUI
Polio Direct Detection by Nanopore Sequencing (DDNS)
analysis pipeline and reporting tool
None

 Polio Sequencing
Consortium
Bill & Melinda Gates Foundation OPP1171890 and OPP1207299

About Options

Docker software installed
Docker is free software used to install and run the analysis pipelines.

RAMPART software version None installed
RAMPART is optional software used to monitor Nanopore sequencing in real-time.

PIRANHA software installed
Piranha is the primary analysis pipeline for the DDNS polio detection platform.

Enable Phylogenetics module

An internet connection and a Docker install is required to install or update software

Continue

ARTIC-network supported by the Wellcome Trust Award 206298/Z/17/Z

All messages are in green, so you should be now ready to run piranha.

****If you are taking part in a training workshop and do not have a reliable internet connection, you may be able to install piranha with from a distributed thumb drive.****