Installation of Sage in WSL in Windows

Previously there was a Sage installer for Windows available, which was based on Cygwin: https://github.com/sagemath/sage-windows/releases.

This is no longer maintained.

Here I provide detailed instructions how to install Sagemath in Windows using WSL (Windows subsystem for Linux). These instructions are based on the information found in the Sage documentation:

https://doc.sagemath.org/html/en/installation/

1 Installation of WSL (Windows Subsystem for Linux)

More detailed information can be found here: https://docs.microsoft.com/en-us/windows/wsl/install

The procedure which I present here differs slightly from the one described on the Microsoft webpage, because it uses the Microsoft store to install a specific Linux version.

We will install OpenSUSE Tumbleweed as the Linux distro here, because this is the distro that I am most familiar with. Any other distro will do as well.
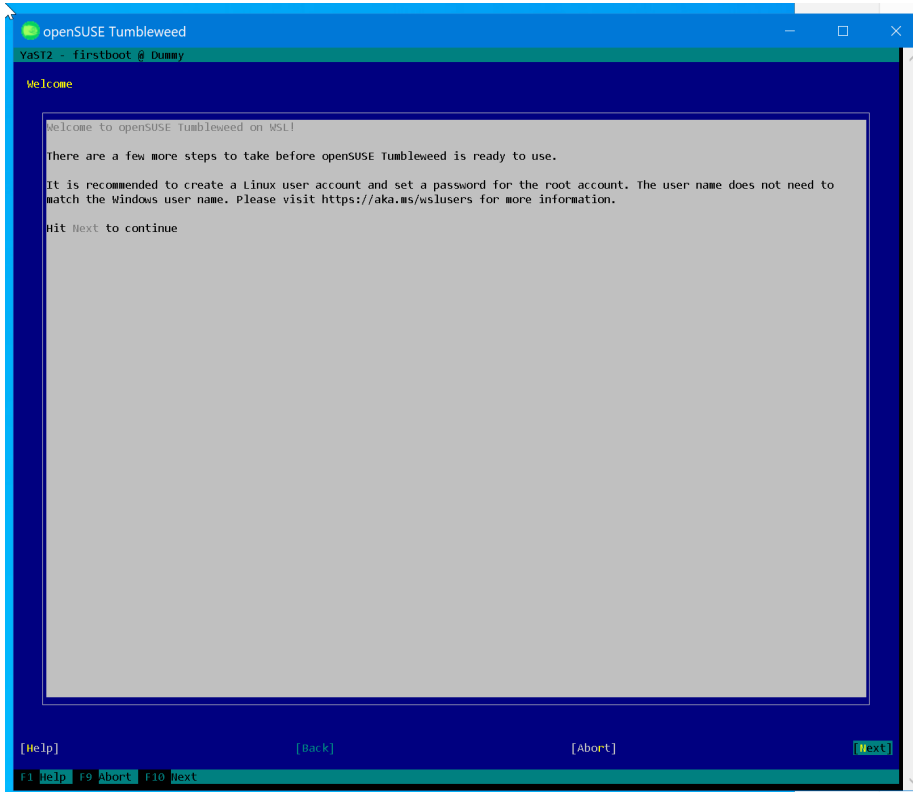
1. Open the Microsoft store and search for OpenSUSE.
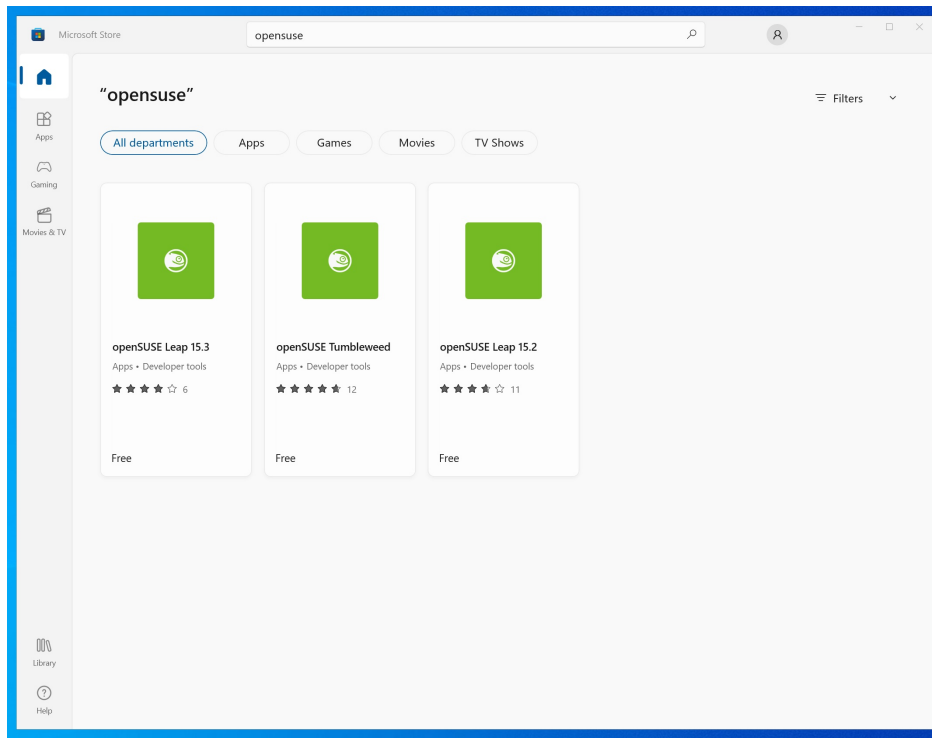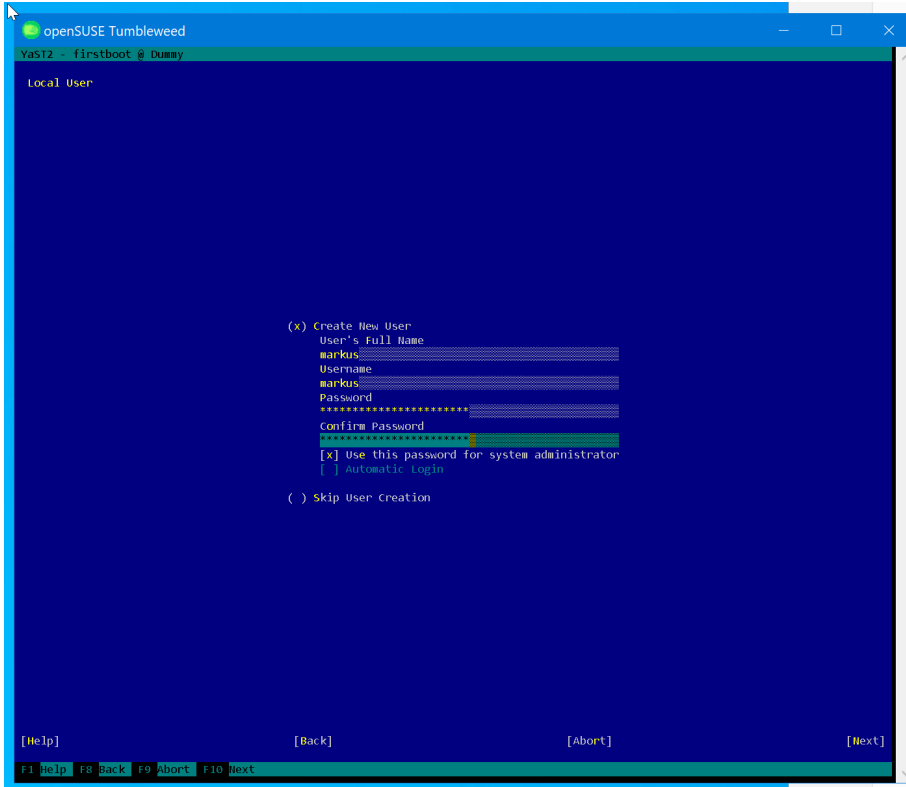

Select Tumbleweed and install it.
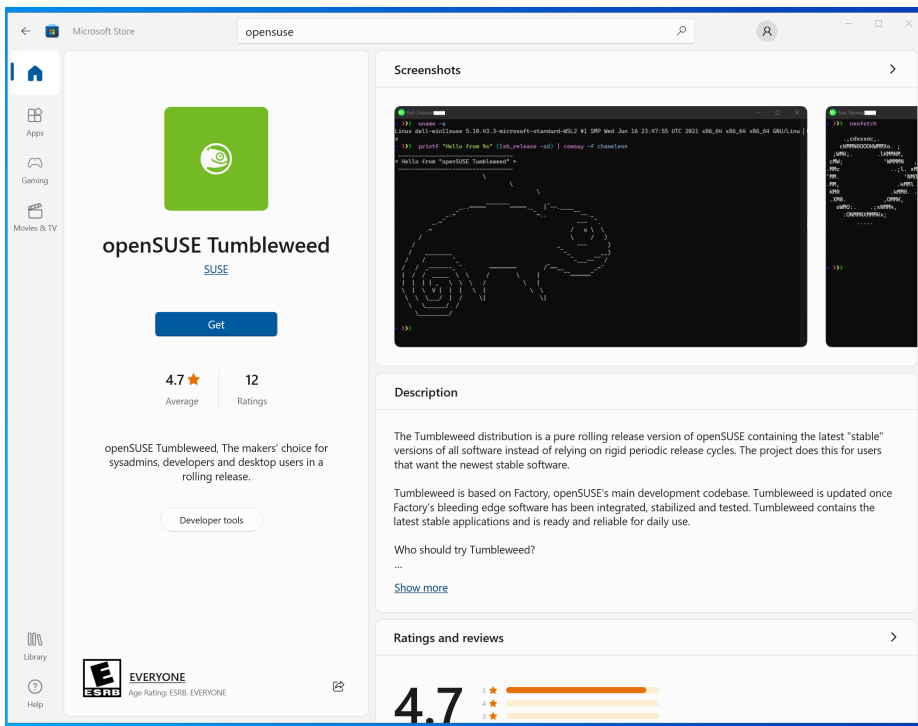
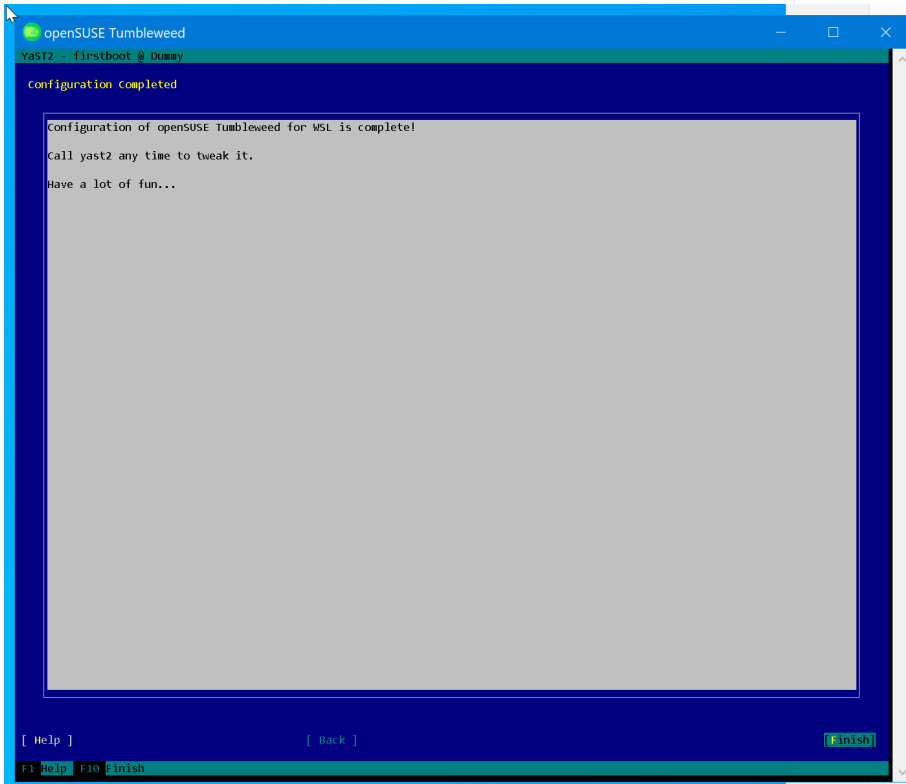Open it. You will see the following screen. Just answer the questions.

Select a user name and a password (can be different from your Windows username and password). You can use the tab key to move from one input field to the next.

(Of course, replace markus by your username of choice)

Click next.

That's it. Now you have a very basic Linux system. You can run it from the Start menu.

For convenience, we will install a simple text editor in Linux:

```
sudo zypper in nano
```

For using Sage this is enough.

2 Install Sage in WSL

One can use any of the methods described in the Sage documentation. Here I describe the method using conda, which I find most convenient.

Open the Linux system and change to your home folder in Linux (we want to install everything there):

```
cd ~/
```

Now install conda:

```
curl -L -O
https://github.com/conda-forge/miniforge/releases/latest/downloa
d/Mambaforge-$(uname)-$(uname -m).sh
```

(all of the above in one line)

```
sh Mambaforge-$(uname)-$(uname -m).sh
```

Answer the questions of the installer. You can accept the default settings.

When asked

```
Do you wish the installer to initialize Mambaforge
by running conda init? [yes|no]
```

answer yes.

Make sure that the changes in .bashrc are taken into account:

```
source ~/.bashrc
```

Now we have conda and can install sage:

```
mamba create -n sage sage python=3.8
```

Activate the sage environment:

```
mamba activate sage
```

I personally like the Jupyterlab notebook more than the Jupyter notebook, so we install it, too:

```
mamba install jupyterlab
```

2.1 Running Sage in WSL

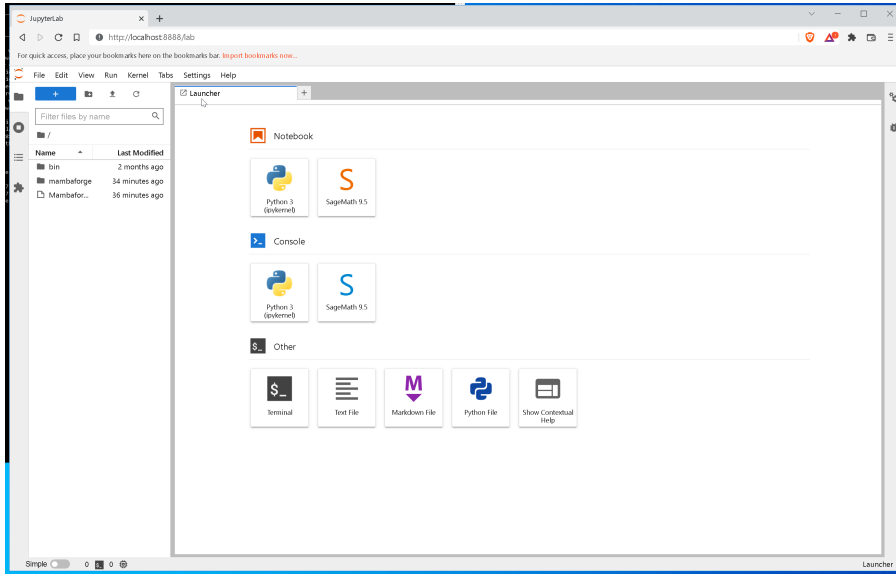Open the Linux environment.

Activate the sage environment:

```
mamba activate sage
```

Start sage with a jupyterlab notebook:

```
sage -n jupyterlab --no-browser
```

Now connect to the notebook opening one of the URLs shown in the console, using any web browser in Windows.

You should see something like this:

Click on the SageMath icon to open the Sage notebook and start playing around with Sage: