

OASES 3.1 - Installation Guide

This is a 'friendly' installation guide for the OASES 3.1 software made by the MIT using the Ubuntu App of the Microsoft Store.

Warning 1 - It should take around 30 minutes to complete the installation.

1.1 Installing Ubuntu from Microsoft Store

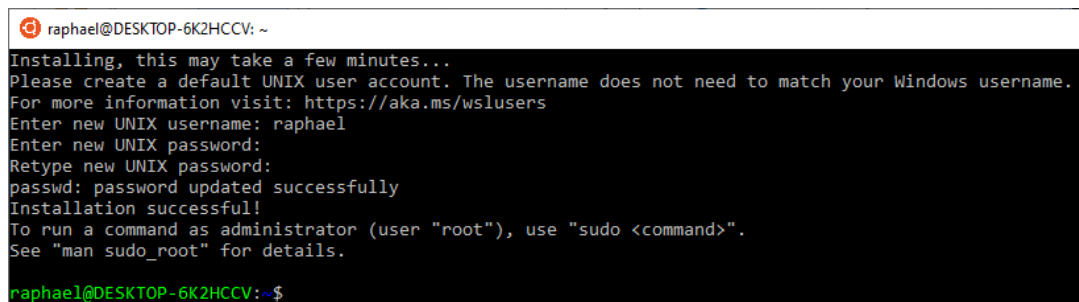
At first, it is needed to enable Windows 10 to support a linux subsystem to then install Ubuntu from the Microsoft Store.

1. Enter the Windows PowerShell as an administrator and copy / paste the following command

```
Enable-WindowsOptionalFeature -Online -FeatureName Microsoft-Windows-Subsystem-Linux
```

Warning 2 - The following step will make your computer reboot.

2. Type *Y* in the PowerShell to restart the computer (needed to complete the installation).
3. Download the Ubuntu 18.04 LTS application made by Canonical Group Limited from the Microsoft Store (should be around 230 MB)
4. Open the Ubuntu application from the taskbar, it will install automatically and then ask for a user name and a password.



```
raphael@DESKTOP-6K2HCCV: ~  
Installing, this may take a few minutes...  
Please create a default UNIX user account. The username does not need to match your Windows username.  
For more information visit: https://aka.ms/wslusers  
Enter new UNIX username: raphael  
Enter new UNIX password:  
Retype new UNIX password:  
passwd: password updated successfully  
Installation successful!  
To run a command as administrator (user "root"), use "sudo <command>".  
See "man sudo_root" for details.  
raphael@DESKTOP-6K2HCCV: ~$
```

Check 1 - Type **whoami** in the Ubuntu terminal to verify that the installation is done.

5. Enable the 'Show hidden files, folders, drives' on Windows 10.

The Ubuntu application is installed in

C:\Users\USERNAME\AppData\Local\Packages\CanonicalGroupLimited.UbuntuonWindows_VERSION,
where USERNAME and VERSION need to be replaced.

The Ubuntu home folder is found typically in

...\CanonicalGroupLimited.UbuntuonWindows_VERSION\LocalState\rootfs\home\UNIX_USERNAME
where VERSION and UNIX_USERNAME need to be replaced.

Check 2 - It is strongly recommended to create a shortcut of the UNIX_USERNAME folder wherever wanted (on the Windows Desktop for example) for an easy access.

6. Update the installed Ubuntu version.

```
sudo apt-get update
sudo apt-get upgrade
```

7. Go to the UNIX_USERNAME folder and open .bashrc file with a notepad. In order to permanently have all the required user privileges for all folders and files, copy and paste

```
chmod -R +rwx ~/
```

at the end of the file and save it.

Check 3 - Ubuntu is set up!

1.2 Installing OASES

8. In the Ubuntu Terminal, install many dependencies at once

```
sudo apt-get install cmake gfortran gcc python3-pip libx11-dev csh
pip3 install numpy matplotlib scipy tqdm
```

9. Download VcXsrv¹ and install it with the default values. Install plotmtv, the plotting module of OASES following <https://askubuntu.com/questions/679724/installing-plotmtv>.
10. Run Winrar (or winzip) *as an administrator* and unzip the oases-public folder of oases-public.tgz² into the UNIX_USERNAME folder.
11. Inside the oases-public/bin folder, there is a CMakeLists file. Open it with a notepad and completely remove rdoasp and rdoast from it. These two packages don't come attached with the public software of OASES and therefore make the installation fail.
12. In the Ubuntu terminal, type

```
ls ~/
```

you should now see the folder oases-public. Then, create a folder Oases

¹You can directly download it from <https://sourceforge.net/projects/vcxsrv/>

²You can directly download it from <http://lamss.mit.edu/lamss/tars/oases-public.tgz>

```
mkdir ~/Oases
```

It will contain all the binaries to run the OASES software.

Warning 3 - For the software to run properly, this folder should not in any case be deleted or tempered with.

13. Build the OASES software by typing

```
~/oases-public/build.sh ~/Oases
```

There will be a lot of warnings but as long as the software continues to install, it is normal.

14. Exactly like in step 7., go to the UNIX_USERNAME folder and open the .bashrc file with a notepad. In order to permanently have the environment variables set up³, copy and paste the following

```
export DISPLAY=localhost:0.0
export PATH=$PATH:~/Oases/bin
export OASES_SH=~/Oases/bin
export OASES_BIN=~/Oases/bin
export OASES_LIB=~/Oases/lib
export USRTERMTYPE=x
export MTV_COLORMAP=hot
export MTV_WRB_COLORMAP='ON'
export MTV_PRINTER_CMD='lpr'
export MTV_PSCOLOR='on'
export CON_BWCOL=COL
export CON_PACKGE=MTV
export CON_DEVICE=X11
```

at the end of the file and save it.

Warning 4 - To make sure the environment variables are defined correctly, restart the Ubuntu terminal.

15. Start Xlaunch previously installed in step 9. with all default values and copy / paste the file test.dat into the UNIX_USERNAME folder. Compute the transmission loss and plot the transmission loss contour respectively with

```
oast ~/test
cplot ~/test
```

Check 4 - OASES is set up!

³Following the OASES 3.1 User Guide.