

Windows Subsystem Linux installation of the DISCUS/DIFFEV/KUPLOT/REFINE software
Version 6.12.00 and later

0. Preparation:

As the DISCUS_SUITE Version 6 is based on the Windows Subsystem for Linux the complete installation must be run from within the user account that you will use to run DISCUS. Do not install WSL from a separate admin account. WSL is always unique to the individual user account!

The DISCUS_SUITE Version 6 is based on the Windows Subsystem for Linux environment. The installation will eventually create an icon on your desktop that can be used to start the DISCUS_SUITE. You will actually have an additional App “Ubuntu” installed that offers the full options of a Linux system.

During the installation, please ensure that you have internet access. Check you firewall settings. The settings need to be such that the firewall asks you for access rights for new software. If access rights are denied automatically, the installation script will fail and this error is not straightforward to detect. Check the settings of any Anti-Virus and malware checker. Sometimes these block Windows Subsystem for Linux!

Please download **BOTH** of the latest installation scripts:

[bbb_install_suite_Windows10_WSL.ps1](#) and
[bbb_install_suite_Windows10_WSL.bat](#)

from the DiffuseCode download site at:

<https://github.com/tproffen/DiffuseCode/releases/>

and save these into your **Downloads** folder on the **C** drive. See the hints on Admin rights and the execution policy for these scripts on page 2.

The installation requires two pieces of software that require admin privileges to install:

Windows Subsystem for Linux (WSL with Ubuntu as distribution)

VcSrv an X-Window server found at <https://sourceforge.net/projects/vcxsrv/>

(Windows 10 and/or WSL Version 1 only)

The installation script [bbb_install_suite_Windows10_WSL.bat](#) can install WSL and VcXsrv yet the many different flavors of Windows seem to make this error prone, especially with Windows10. Thus the easiest might be to open the “windows store app”. Within the search bar at the top of the app, type ubuntu. Select **Ubuntu** and follow the installation procedure. Please do not install Ubuntu 22.04 or any of the older versions, as this will prevent an upgrade in the future. Please read the section **0.1 Ubuntu Preparation** and follow steps therein. Carefully read the hints on the password, as the Ubuntu installation can really get messed up at this point!

The VcXsrv program is not needed if you have Windows 11 and wsl version 2:

To determine if you have WSL version 1 or 2 , please ensure that wsl is installed and then open a powershell or the Windows terminal with a powershell and type:

```
wsl -l -v
```

If you get something like:

NAME	STATE	VERSION
* Ubuntu	Running	2

Check if VERSION is 1 or 2

If you have Windows 10 and / or wsl version 1 , please go to the **VcXsrv** site at <https://sourceforge.net/projects/vcxsrv/> , download the installer package and run this. Please accept all defaults and install.

Generally I recommend to run DISCUS with wsl version 2, see section “0.1 Ubuntu Preparation” how to change to wsl version 2.

At the first time installation you will need to enable the Windows Subsystem for Linux.

If your account has no administrator rights:

Ask your admin to temporarily change your account into an admin account. Then the admin should run the following steps within your account. Once the initial preparation (wsl and VcXsrv installation) is done admin rights are no longer needed. Easiest might be to perform the installation according to the steps on page 1.

If your account has administrator rights:

Start the “Windows Terminal” or a powershell as administrator.

To do so type **terminal** in the search window, right click on the app icon and choose to run as administrator. Make sure the terminal runs the powershell, you should see “PowerShell” as name on the tab. Within the terminal window run the **BAT** script. Type the following and follow further instructions:

```
cd $HOME\Downloads  
.bbb_install_suite_Windows10_WSL.bat
```

To run this script you might have to enter the powershell command:

```
Set-ExecutionPolicy -ExecutionPolicy unrestricted
```

Once the installation is finished, please make sure you restore the setting to the original restricted settings with

```
Set-ExecutionPolicy -ExecutionPolicy RemoteSigned
```

The batch script will run the detailed installation, please allow the script to run once.

If you have Windows 10 and/or wsl version 1, this script will install the VcXsrv X-Window server program (see details at : <https://sourceforge.net/projects/vcxsrv/>) and install the Windows Subsystem for linux (wsl) with the latest Ubuntu distribution.

At the beginning of the installation, the installer for vcxsrv, an X-Window server, will pop up. Please accept all defaults and install. Once the VcXsrv installation is finished, hit the enter key within the powershell window.

0.1 Ubuntu Preparation:

While the initial Ubuntu Setup is running or after a restart of your computer, the Ubuntu window will be present and ask you:

Please create a default UNIX user account. The username does not need to match your Windows account.

For more information visit: <https://aka.ms/wslusers>

Enter new Unix username:

Choose any suitable name, which need not coincide with your Windows user name. Please make sure that the user name consists of letters, numbers and may be the underscore. Avoid any special characters, language specific characters and especially, by all means do NOT include a blank in the user name. I strongly recommend to use "**discus**" as user name, as the installation has been tested extensively using this name. Also, **please do provide a user name, as an empty return/enter will make "root" as the sole and default user.** A root user has many special administrator rights within Ubuntu and the Ubuntu system might accidentally be corrupted by typing a wrong command.

Enter new UNIX password:

Retype new UNIX password:

The password need not and probably should not coincide with your Windows password. I recommend a strong and save password, as Ubuntu lets you run all sorts of scripts. **As gentle reminder, please be aware that the password you type is not prompted at the screen.**

To close the Ubuntu window, please type

exit

within the activated window.

To determine if you have WSL version 1 or 2 , please ensure that wsl is installed and then open a powershell or the Windows terminal with a powershell and type:

wsl -l -v

If you get something like:

NAME	STATE	VERSION
* Ubuntu	Running	2

Check if VERSION is 1 or 2. Unless you have other program installed that require/use wsl, I recommend tu use wsl version 2. To switch to version 2 type within the powershell terminal:

wsl --set-default-version 2

wsl --set-version Ubuntu 2

Note that there are two minus-signs in form of "set-".

At this point admin rights are no longer needed. Please reboot your computer.

1. Installation:

Start the “Windows Terminal” or a powershell window as standard user.

To do so type **terminal** in the search window, click on the app icon and choose to run. Make sure the terminal runs the powershell, you should see “PowerShell” as name on the tab. Within the terminal window run the **BAT** script. Type the following and follow further instructions:

```
cd $HOME\Downloads  
.\bbb_install_suite_Windows10_WSL.bat
```

Finally the discus suite will be started. At this point your Windows Defender might tell you that it has blocked some parts of the VcXsrv program functionality. Please allow all parts of the program to execute on your computer. To finish this first discus_suite program type **exit** at the prompt. The program will ask you if you want to update the Ubuntu distribution. I encourage to do so to ensure that all (security relevant) packages are up to date.

For all future updates you can simply type “**update**” within the discus_suite program or equivalently run the installation bat shell again.

Enjoy!

2. Manual Installation:

With admin rights, please install the VcXsrv program, a X-Window server from :

<https://sourceforge.net/projects/vcxsrv/>

Please accept all default settings.

With admin rights do:

Start the “Windows Terminal” as administrator.

To do so type **terminal** in the search window, right click on the app icon and choose to run as administrator. Make sure the terminal runs the powershell, you should see “PowerShell” as name on the tab.

Check for the status of wsl:

```
wsl -l -v
```

If the WSL ist not yet installed you will get a length help text. If WSL has already been installed you should get as output something like

NAME	STATE	Version
Ubuntu-20.04	Stopped	2

The name of the Distribution will be the one you have installed.

If WSL ist not yet installed, please type in the powershell:

```
wsl --install -d Ubuntu
```

Note, there are two minus signs with no spaces between them before the “install” keyword.

You might want to check out the latest installation guides at:

<https://docs.microsoft.com/en-us/windows/wsl/install>

You should now reboot your computer.

Please verify that the Windows Subsystem for Linux is actually enabled. Some anti virus software does not allow you to enable WSL. This is known for McAfee. Check within the Threat Prevention settings. With Admin rights allow WSL to be enabled and repeat the step above. To verify that WSL has been enables, start the powershell and type

```
wsl -l -v
```

If WSL has been installed successfully you should get as output something like

NAME	STATE	Version
Ubuntu-20.04	Stopped	2

The name of the Distribution will be the one you have installed.

From now on admin rights are no longer needed.

Please download the installation script:

bbb_install_script.sh

from the DiffuseCode download site at:

<https://github.com/tproffen/DiffuseCode/releases/>

and save the file into your Downloads folder.

With the Windows File Explorer, create the following folders, where “your_name” should be replaced by your users folder name:

```
C:\Users\your_name\DISCUS_INSTALLATION
C:\Users\your_name\DISCUS_INSTALLATION\DiscusWSL
```

In the Windows Terminal type the following commands.

```
cd C:\Users\your_name\DISCUS_INSTALLATION
Start-Process ubuntu.exe
```

You are now within the Ubuntu program.

```
cp /mnt/c/Users/your_name/Downloads/bbb_install_script.sh .
chmod u+x ./bbb_install_script.sh
./bbb_install_script.sh started=powershell
```

This will install the required libraries and the discus program itself.

Once the DISCUS installation is finished, you can either:

Use the Windows Explorer in Administrator mode to create a link on your Desktop using the Iconfile

[C:\Users\your_name\DISCUS_INSTALLATION\DiscusWSL\discus_suite_128.ico](#)

I suggest to name the link “DiscusSUITE_WSL”. The link should point to the file “discus_suite_ps1.bat” within the folder

[C:\Users\your_name\DISCUS_INSTALLATION\DiscusWSL\discus_suite_ps1.bat](#)

Alternatively, type within the powershell (Capitalization is important) the commands on the next page:

Shortcut creation:

```
$ShortcutLocation=[Environment]::GetFolderPath('DesktopDirectory')+"DiscusSUITE_WSL.lnk"
$SourceFileLocation = "$DISCUS_INST_FOLDER" + "\DiscusWSL\discus_suite_ps1.bat"
$WScriptShell = New-Object -ComObject Wscript.Shell
$Shortcut = $WScriptShell.CreateShortcut($ShortcutLocation)
$Shortcut.TargetPath = $SourceFileLocation
$Shortcut.IconLocation = "$DISCUS_INST_FOLDER" + "\DiscusWSL\discus_suite_128.ico"
$Shortcut.Save()
```

You should now be able to start the DISCUS_SUITE by double clicking the icon.