Windows Subsystem Linux installation of the DISCUS/DIFFEV/KUPLOT/REFINE software
Version 5.99.19 and later

0.   Preparation:

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 "Ubuntu1804" (soon Ubuntu20004)
installed that offers the full options of a Linux system.

At the first time installation you will need to enable the Windows Subsystem for Linux.
Open the **powershell** as administrator. To do so type powershell in the search window, right click
on it and choose to run as administrator. Execute the following command in one line:

> `dism.exe /online /enable-feature /featurename:Microsoft-Windows-Subsystem-Linux /all /norestart`

You might want to check out the latest installation guides at:
        https://docs.microsoft.com/en-us/windows/wsl/install-win10
You should now reboot your computer.

1.   Installation:

Please make sure that you remove all old versions of the installation script, both from the
Downloads folder and Documents folder.
Download the installation scripts **bbb_install_suite_Windows10_WSL.ps1** from the DiffuseCode
download site at: **https://github.com/tproffen/DiffuseCode/releases/** and save this into your
Downloads folder.

During the installation the script will create a folder "**C:\Users\DISCUS_INSTALLATION**". This
has become necessary to avoid issues with unusual user names. To speed up later upgrades, please
do not remove this folder after the installation.

After reboot, open the **powershell** as administrator and run this script. As the script is (at the
moment) not digitally signed, you have to enable the powershell to run scripts in an unrestricted
form. If you do not want to do that or if your administrator does not let you do that, skip this section
and go to section **2.** for manual instructions.

In the powershell type the following command. (Note the leading dot in the third line):

> Set-executionPolicy Unrestricted
> cd $HOME\Downloads
> .\bbb_install_suite_Windows10_WSL.ps1

The installation script will download all required components and install these.

The first time installation is lengthy. Please be patient, later updates of the DISCUS_SUITE will be
much faster.

Currently the Installation script is not digitally signed. You will have to confirm to the powershell that you do want to run the script once.

The DISCUS installation script will download Ubuntu from the Microsoft store. As of Discus Version 6.03 the default system is Ubuntu2004. If you have installed DISCUS previously, you likely have Ubuntu1804. The installation script will encourage you to upgrade to Ubuntu2004. Both versions can be installed in parallel on your computer, though eventually you will need Ubuntu2004 only. Lease make sure to backup any valuable data that you might have stored within the home directory of Ubuntu1804.
At some point during the first installation, your new Ubuntu will ask something like:

> 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.

> Enter new UNIX password:
> Retype new UNIX password:

The password need not and probably should not coincide with your Windows password. I recommend a save password, as Ubuntu lets you run all sorts of scripts.
During the initial setup and later during the installation you will be prompted a few times for this Unix password:

> [sudo] password for <your UNIX user>:

Type the UNIX password.

At the very first installation, a lot of UNIX packages need to be updated. Again, please be patient and accept questions with a Yes
An installation screen **Configuring libssl1.1:amd64** will pop up with the **<No>** button highlighted. Hit the <ENTER> key to confirm.

A second installation screen **Configuring libssl1.1:amd64** will pop up with the cursor in the **ssh** line. Hit the tabulator key once to move the cursor to the **<Ok>** field and hit <ENTER> to confirm.

At the end 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, type a return in the powershell.

In the powershell you should set the execution policy back to the stringent values:

> Set-executionPolicy RemoteSigned

Finally the discus suite will be started. At this point your Windows Defender might tell you that it has blocked some parts of the programs 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.

For all future updates you can simply type "**update**" within the discus_suite program.

2.   Manual Installation:

In the powershell type the following command. With most(?) PDF viewers you should be able to copy and paste these lines from this document.

> mkdir -Force C:\Users\DISCUS_INSTALLATION
> cd C:\Users\DISCUS_INSTALLATION

If you have not yet installed the Ubuntu app, type within the powershell, (Note the leading dot in the second line):

> curl.exe -L -o ubuntu-1804.appx https://aka.ms/wsl-ubuntu-1804
> Add-AppxPackage   .\ubuntu-1804.appx

After the previous steps, or if Ubuntu had been installed previously type

> ubuntu1804.exe -c "sudo apt-get update; sudo apt-get upgrade; exit"

The first time Ubuntu is installed, the script will ask:

> 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.
> Enter new UNIX password:
> Retype new UNIX password:

The password need not and probably should not coincide with your Windows password.
During the initial setup and later during the installation you will be prompted a few times for this Unix password:

> [sudo] password for <your UNIX user>:

Type the UNIX password.
At the very first installation, a lot of UNIX packages need to be updated. Again, please be patient and accept questions with a Yes
An installation screen **Configuring libssl1.1:amd64** will pop up with the **<No>** button highlighted. Hit the <ENTER> key to confirm.

A second installation screen **Configuring libssl1.1:amd64** will pop up with the cursor in the **ssh** line. Hit the tabulator key once to move the cursor to the **<Ok>** field and hit <ENTER> to confirm. Continue to accept all upgrade messages until the prompt returns to the powershell.

At this point, use your favorite browser to download the discus installation script **bbb_install_script.sh** from **https://github.com/tproffen/DiffuseCode/releases/** and place this script into the folder **C:\Users\DISCUS_INSTALLATION**.

Type within the powershell (note, and type the "/" instead of the usual Windows "\"):

> ubuntu1804.exe -c "/mnt/c/DISCUS_INSTALLATION/bbb_install_script.sh"

Once the DISCUS installation is finished, you can either:

Use the WindowsExplorer in Administrator mode to copy the Folder "DiscusWSL" from the "**C:\Users\DISCUS_INSTALLATION"** folder into "C:\Program Files (x86)"
and create a link on your Desktop using the Iconfile "discus_suite_128.ico"
I suggest to name the link "DiscusSUITE_WSL". The link should point to the file "discus_suite.bat" within the folder "C:\Program Files (x86)\DiscusWSL\"

Alternatively, type within the powershell (Capitalization is important):

Copy-item -Recurse -Force DiscusWSL\ -Destination "C:\Program Files (x86)\"
$SourceFileLocation = "C:\Program Files (x86)\DiscusWSL\discus_suite.bat"
$ShortcutLocation = "C:\Users\" + $W_USER + "\Desktop\DiscusSUITE_WSL.lnk"
$WScriptShell = New-Object -ComObject Wscript.Shell
$Shortcut = $WScriptShell.CreateShortcut($ShortcutLocation)
$Shortcut.TargetPath = $SourceFileLocation
$Shortcut.IconLocation = "C:\Program Files (x86)\DiscusWSL\discus_suite_128.ico"
$Shortcut.Save()

Use your browser to download and install VcXsrv a "X-Window" launcher. Please install it into the default location. https://sourceforge.net/projects/vcxsrv/

Once the VcXsrv server is installed, you should be able to start the DISCUS_SUITE by double clicking the icon.