



download software from [www.mindresearch.xyz](http://www.mindresearch.xyz)

## Installation Guide (release 5.0)

*Contents:*

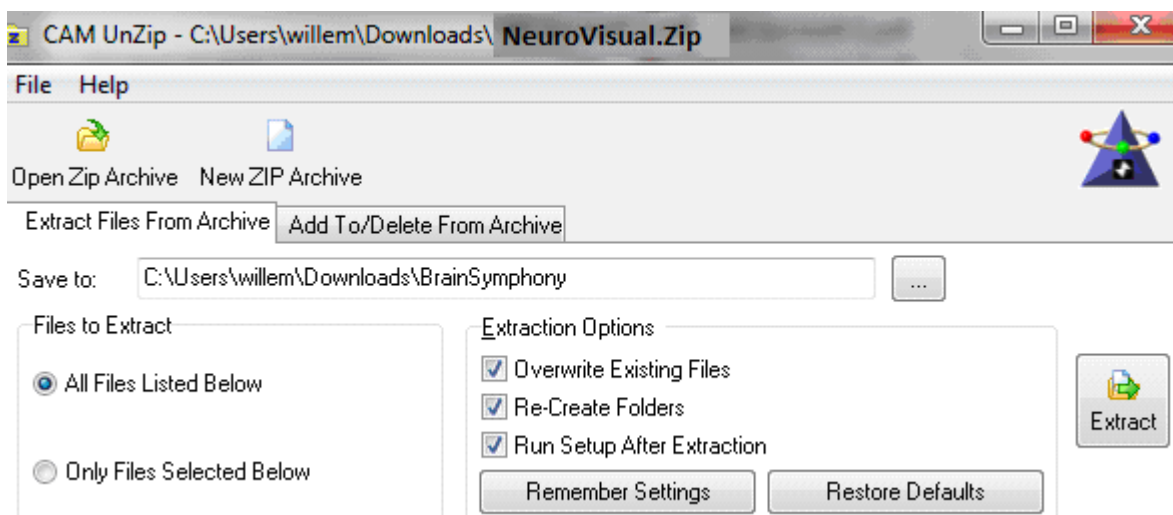
1. Download and Installation of NeuroVisual
2. Installing “Winsock Listener” on Port 5000
3. BlueTooth connection (needed with the MuseDirect App)
4. Streaming data with MuseMonitor App (smartphone)
5. Streaming data with MuseDirect App (Windows 10)
- 6) Converting CSV files from MuseMonitor
- 7) Sound-tracks and Movie files

### 1) Installation on Windows PC or Laptop

*Download the App*

Click the [download button](#) and [save](#) the Zip file in any folder you like.

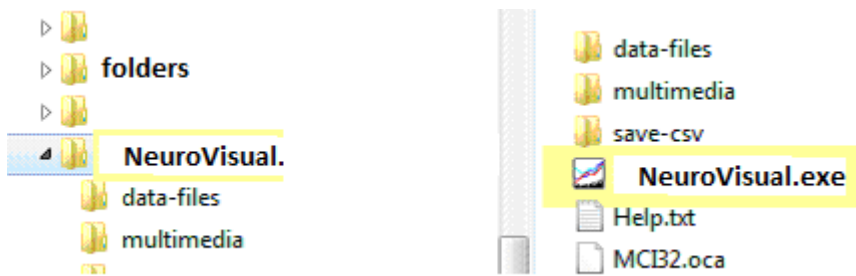
After download: use the right-mouse-button and choose to [un-zip](#) the file



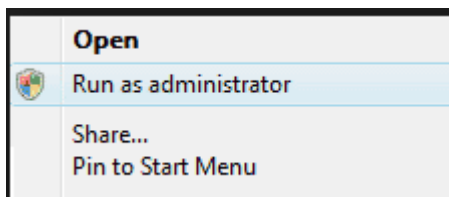
When un-zip is finished you will see a NeuroVisual\_V50 folder and beneath that a <NeuroVisual> folder.

Copy or Drag the <NeuroVisual> folder to a data-drive like D:\ or E:\ etc.  
You can copy the < NeuroVisual > folder to any place on your computer.

But please do **not** use **C:\** because this drive may refuse installation of the so called WinSocked component that is needed for connection to MuseMonitor or MuseDirect



The first time you start NeuroVisual use right-mouse-click and choose to [run as administrator](#)



## 2. Registration of OCX components semi automatically

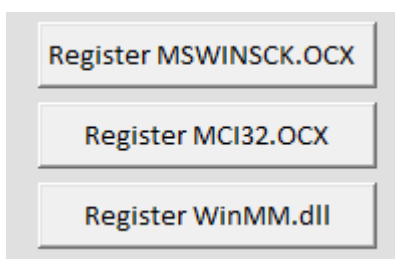
To listen to Port 5000 (where the streaming data comes in) the App needs a so called [WinSock.OCX](#) component. And to play sound and/or movie files for neurofeedback it needs a [MCI32.OCX](#) and a [WinMM.DLL](#) component.

You need to register two components which are usually not present in Windows. The MSWINSCK.OCX and OCI32.OCX are situated in the NeuroVisual folder

The registration has to be done only once. If you start the App without registration you will get a OCX Error message while using the App.

< How to do >

1. Start the App with administrator permissions (see above)



Click the <register MSWINSCK> button.

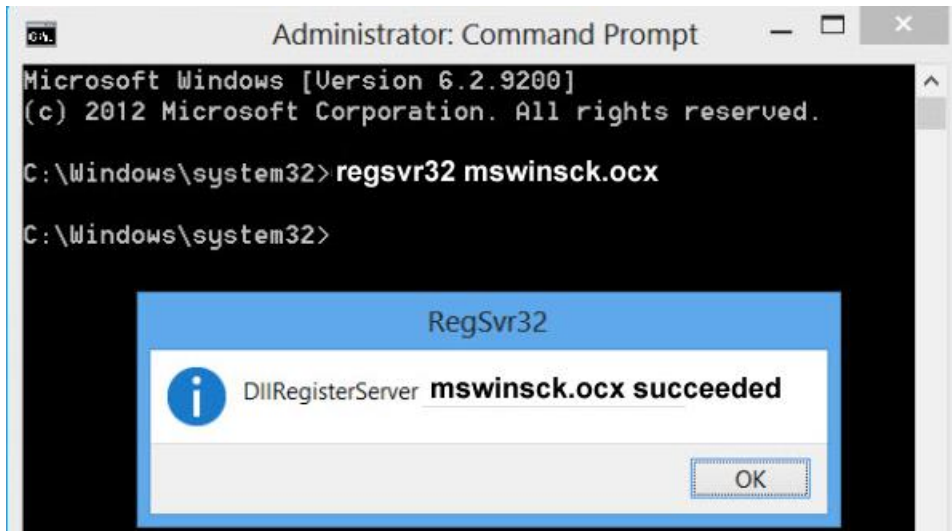
You should get the message : Registration OCX succeeded  
Do the same with OCI32.OCX button

If the above does not work and you did a installation on [drive C:\](#) then:  
Install the App on another drive like [D:\](#) or [E:\](#) and try again.

## Registration of OCX components manually

If it still does not work you have to register the OCX manually :

- \* Copy MSWINSCK.OCX and OCI32.OCX to C:\Windows\System32 folder
- \* Start the Command-Prompt (CMD.exe) as administrator !
- \* Type > cd c:/windows/system32 (this changes the directory you are in)
- \* Type > RegSvr32 MSWINSCK.OCX (you should get the message succeeded)



- \* Type > RegSvr32 OCI32.OCX (this is the sound/movie ocx)

If you get the message "OCX loaded but NOT correctly registered" that means that you are registering without <administrator> permission

## Install WinMM.DLL

WinMM.DLL is a windows-component that is also needed for video and sound feedback  
On most computers WinMM.DLL is already installed. So you just might just try sound feedback.

If the DLL is not on your computer you will get a DLL-Error. Then do the following:

- \* Copy WinMM.DLL (from NeuroVisual) to C:\Windows\System32 folder
- \* Re-start your computer and Windows will automatically register the DLL

If this does not work you have to register manually as shown above

The command is > [RegSvr32 WinMM.DLL](#)

When OCX and DLL are registered correctly you can start your first live-stream session!

## Skipping Start-Up screen

After OCX and DLL are registered and they work well you may want to skip the start-up screen.  
This can be done by adjusting the default-settings in the settings.txt file

### 3. BlueTooth connection (needed with the MuseDirect App)

There can be problems with the BlueTooth connection and sometimes they are complicated.

Here is how it worked for me:

On my Windows 10 PC there is a build-in BlueTooth connection but it did not work.

So I bought a ASUS-400 BlueTooth (15\$) and installed the software and drivers from the CD that came with it. That did not work either.

After hours I found out that the drivers from the Asus-CD are wrong, and Windows-10 has already the necessary drivers. So I removed the installed Asus BlueTooth software again.

When I start my PC and look at the Bluetooth configuration I see a device called bmc2046 and that has to be deleted. And when there is a "connected to 1D5C" message (the MuseHeadset) that also has to be deleted. Then - when I start MuseDirect - it tells : Do you like to connect to 1D5C" ? Yes ..

### 4. Streaming data with the MuseMonitor App



*Windows version 7 - 10*

A stream from MuseMonitor works on Windows7-10, MuseDirect is only available for Windows 10.

Make sure you have the new version of MuseMonitor App on your smartphone.

Because in the old version only ONE value was given for each wave (delta, beta etc)

In the new version a value for each wave on each electrode is transmitted.

If the MuseMonitor App is running go to settings (the little wheel)

To stream data from MuseMonitor I use these settings:

- \* Show values = activated
- \* Recording interval - while streaming the interval setting does not matter
- \* Recording format : average
- \* OSC Stream IP - the IP-adress of your PC/Laptop
- \* OSC Stream IP – default = 5000
- \* OSC stream brainwaves : All (not average)
- \* Graph type = plot absolute waves ...
- \* Brain-waves(absolute)
  - Activate : Delta - Theta – Alpha – Beta - Gamma
- \* Menu Wave-type (absolute)
  - Average values for ALL sensors TP9 AF7AF8 TP10)
- \* Advances settings
  - Check notch -> in USA = 60

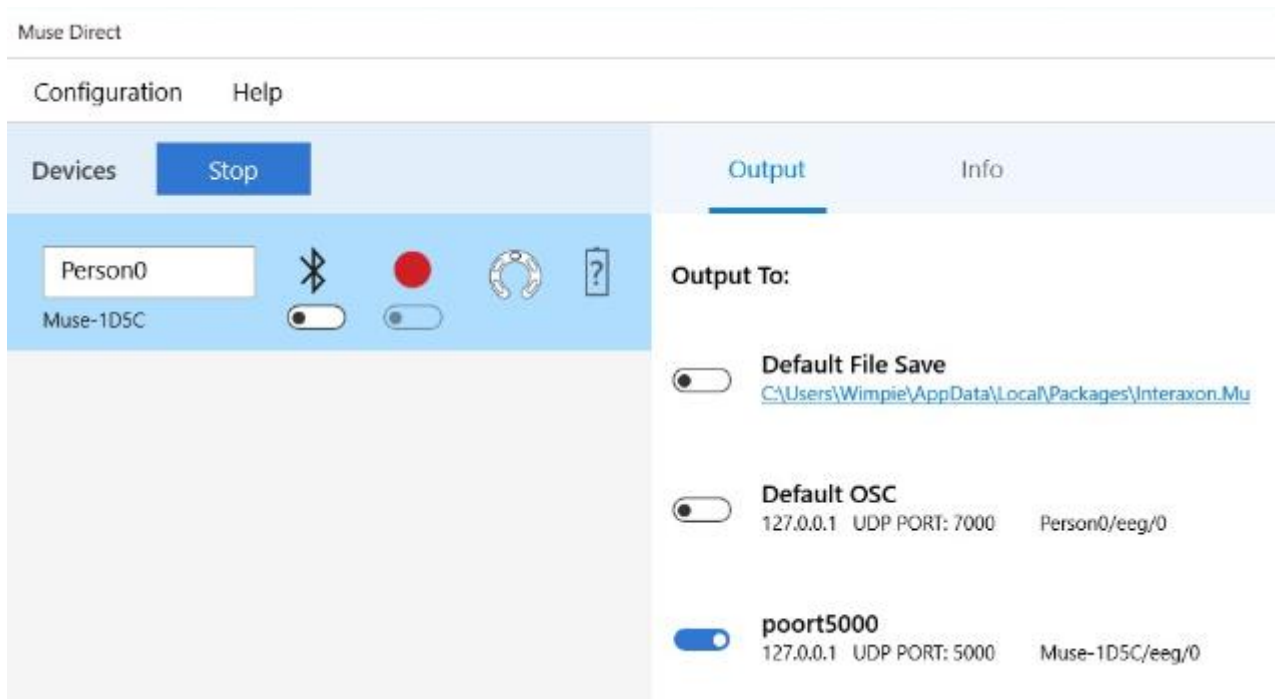
*Start streaming*

There is a button on MuseMonitor and the word "streaming" appears.

## 5. Streaming data with MuseDirect (on Windows 10)

The MuseDirect App is for free. It is the substitute for Muse-IO used on headband-I (2014). MuseDirect has a default OSC on port 7000. Please do **not** use this to connect to NeuroVisual !

### Add a new port.



### Settings of the new port 5000

- \* You can use any name you like and any portnr - if it is not used by another program.
- \* Activate **only** EEG and Absolute Band Power (Relative Band Power is calculated in NeuroVisual)
- \* NeuroVisual does not display Accelerometer and Gyroscope so there is no need to activate them.

The configuration dialog for a new port is shown. The port name is 'poort5000'. The protocol is 'OSC UDP'. The IP address is '127.0.0.1' and the port is '5000'. The prefix is set to 'Muse ID (e.g. Muse-1234)'. The output data options are 'EEG' (checked), 'Accelerometer' (unchecked), 'Gyroscope' (unchecked), and 'Battery' (unchecked). The output algorithm options are 'Absolute Band Powers' (checked), 'Relative Band Powers' (unchecked), 'Band Power Scores' (unchecked), and 'HSI Precision' (unchecked). An example path is shown as 'Example: Muse-1D5C/eeg/0'.

## 6) Converting CSV files from MuseMonitor

You can also playback CSV files that where recorded with MuseMonitor.

*How to convert them ?*

- \* Please put the CSV files from muse-monitor in the [NeuroVisual\data\](#) folder.
- \* Open NeuroVisual for playback modus and CSV files are shown in the [file-display](#)-box
- \* After you select the CSV file the App will do a file-conversion.
- \* After that it gets a TXT extension and the layout is changed.
- \* The original file it placed in the <save-csv> folder so you can always retrieve it.

## 7. Sound and Video files

Since the maximum upload size of a Zip on my website is only 10 MB the installation package contains only short examples of a mono-sound-track (15 seconds) and a stereo-track (15 seconds) and a movie of a flying eagle of 30 seconds.

- \* There is build-in repetition (start again) for the sound-tracks if they are finished.
- \* There is no repetition for Movie files – they stop if finished. You have to restart manually.
- \* You can add your own sound-tracks and movies.

Please read the guidelines in the help-menu on the feedbackscreen.

< end document >