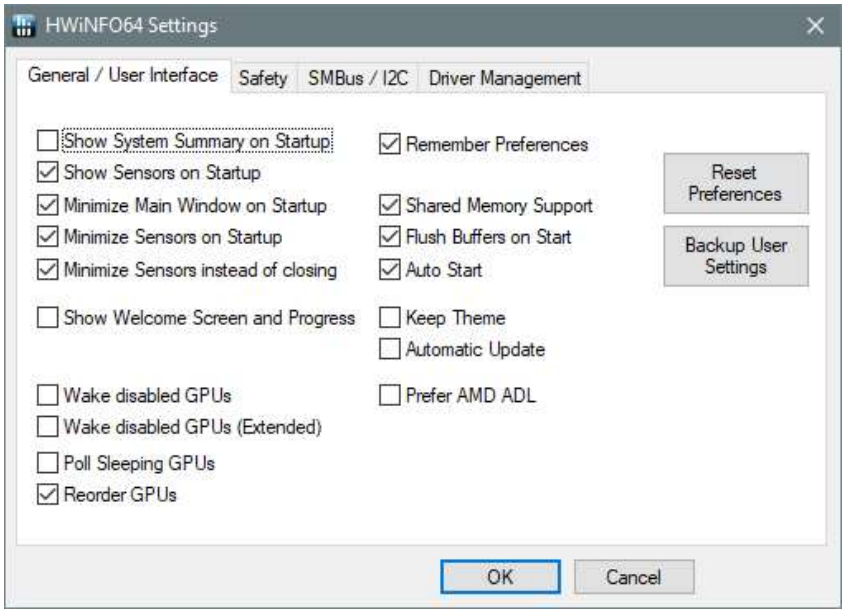
MultipoolMiner relies on the 3rd party tool HWiNFO64 to gather power usage information

The following document describes the necessary integration steps:

1. **Download and install HWiNFO64**
   https://www.hwinfo.com/download/
   Both variants (Installer & Portble) will do, just ensure you are using the x64 version.
   Accept the default installation directory (any other directory will be fine too).

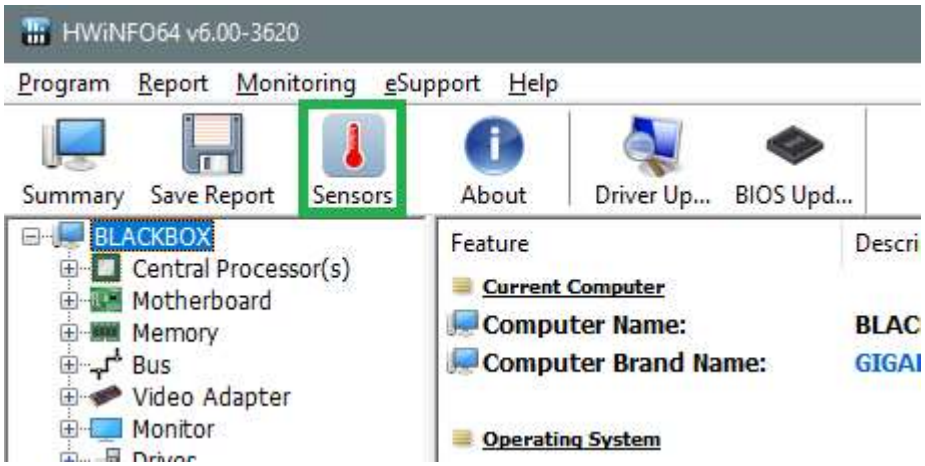
2. **Run HWiNFO64 and configure like this**



   This will autostart HWiNFO64 on each boot and will keep it running in the task bar.

   Important:
   HWiNFO64 needs to be left running while MPM is running, otherwise the power usage readout will fail.

3. **Configure the hardware sensors**



4. Identify the power usage relevant sensors

E.g. for a Nvidia GTX 1080ti

HWiNFO64 v6.00-3620 Sensor Status

Sensor	Current	Minimum	Maximum	Average
GPU [#0]: NVIDIA GeForce GTX 1080 Ti:				
GPU Temperature	79 °C	64 °C	85 °C	81 °C
GPU Core Voltage	0.981 V	0.650 V	1.031 V	0.854 V
GPU Fan	1,226 RPM	858 RPM	1,626 RPM	1,335 RPM
GPU Power (GTX 1080Ti)	166.840 W	18.933 W	312.814 W	203.845 W
GPU Clock (GTX 1080Ti)	1,911.0 MHz	139.0 MHz	1,961.5 MHz	1,663.4 MHz
GPU Memory Clock (GTX 1080Ti)	5,886.0 GHz	405.0 GHz	5,886.0 GHz	5,699.7 GHz
GPU Video Clock	1,620.0 MHz	544.0 MHz	1,657.5 MHz	1,422.5 MHz
GPU Core Load	81.0 %	0.0 %	100.0 %	94.6 %
GPU Memory Controller Load	2.0 %	0.0 %	100.0 %	55.2 %
GPU Video Engine Load	0.0 %	0.0 %	0.0 %	0.0 %
GPU Bus Load	1.0 %	0.0 %	50.0 %	9.7 %
GPU Memory Usage	6.4 %	2.6 %	99.8 %	31.0 %
GPU D3D Usage	2.5 %	0.3 %	58.9 %	4.4 %

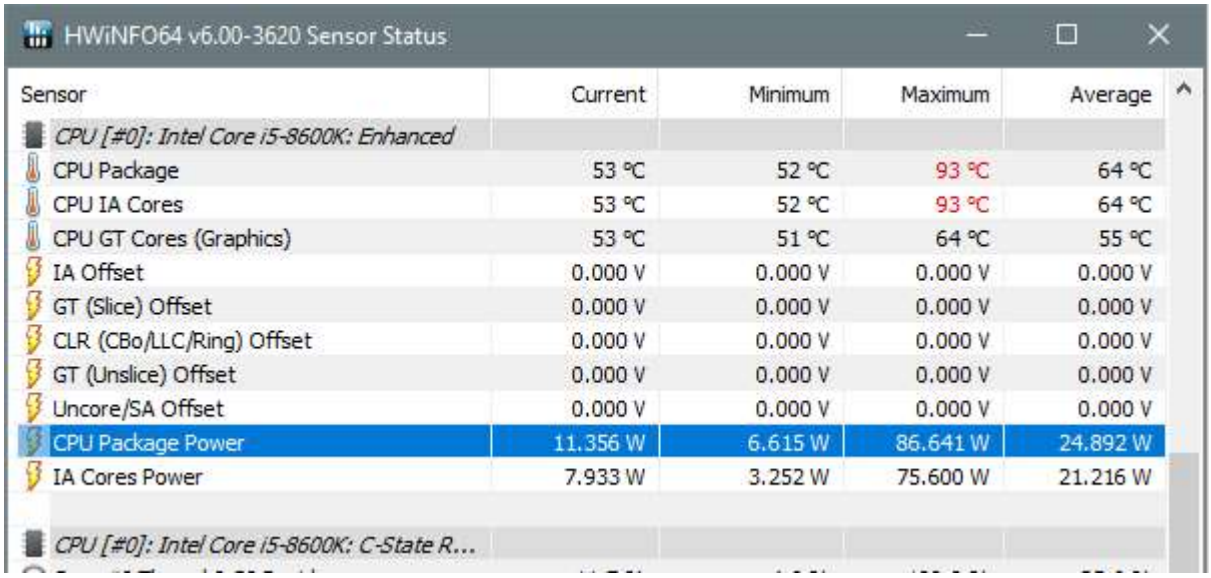
or for a AMD RX 580:

HWiNFO64 v6.04-3720 Sensor Status

Sensor	Current	Minimum	Maximum
GPU [#0]: AMD Radeon RX 580:			
GPU Thermal Diode	66 °C	26 °C	69 °C
GPU Core Voltage (VDDC)	0.938 V	0.794 V	1.344 V
GPU Fan	1,304 RPM	1,035 RPM	1,345 RPM
GPU Core Current	81.539 A	2.297 A	215.906 A
GPU Core Power	76.443 W	1.838 W	290.124 W
GPU Chip Power (RX 580)	147.293 W	6.691 W	177.434 W
GPU Clock (RX 580)	927.0 MHz	300.0 MHz	1,460.0 MHz
GPU Memory Clock (RX 580)	2,150.0 MHz	300.0 MHz	2,150.0 MHz
GPU Utilization	100.0 %	0.0 %	100.0 %
GPU D3D Usage	2.8 %	0.0 %	94.2 %
GPU Memory Controller Utilization	96.0 %	0.0 %	100.0 %
GPU I/O Utilization	0.0 %	0.0 %	0.0 %

Important: for AMD make sure you select 'GPU Chip Power' and NOT 'GPU Core Power'!

for your CPU:



HWiNFO64 v6.00-3620 Sensor Status

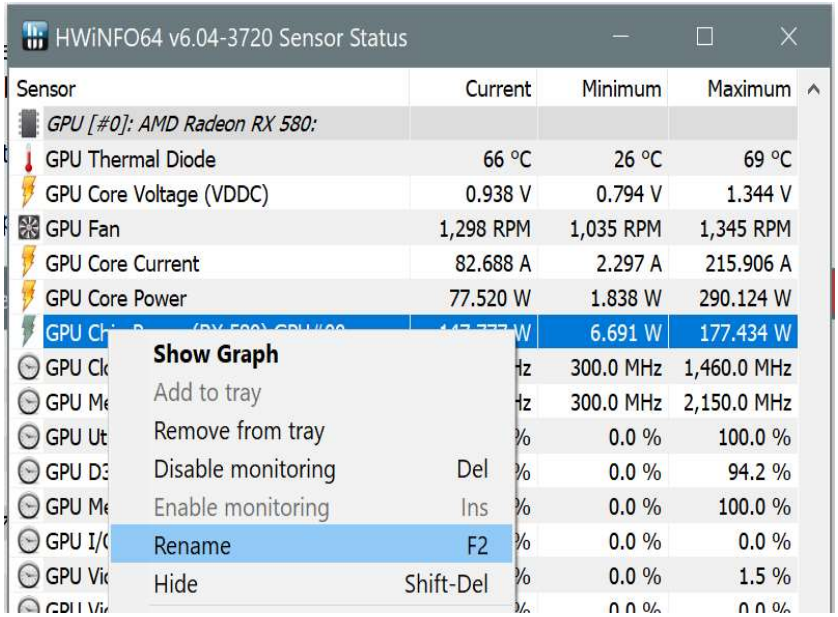
Sensor	Current	Minimum	Maximum	Average
CPU [#0]: Intel Core i5-8600K: Enhanced				
CPU Package	53 °C	52 °C	93 °C	64 °C
CPU IA Cores	53 °C	52 °C	93 °C	64 °C
CPU GT Cores (Graphics)	53 °C	51 °C	64 °C	55 °C
IA Offset	0.000 V	0.000 V	0.000 V	0.000 V
GT (Slice) Offset	0.000 V	0.000 V	0.000 V	0.000 V
CLR (CBo/LLC/Ring) Offset	0.000 V	0.000 V	0.000 V	0.000 V
GT (Unslice) Offset	0.000 V	0.000 V	0.000 V	0.000 V
Uncore/SA Offset	0.000 V	0.000 V	0.000 V	0.000 V
CPU Package Power	11.356 W	6.615 W	86.641 W	24.892 W
IA Cores Power	7.933 W	3.252 W	75.600 W	21.216 W
CPU [#0]: Intel Core i5-8600K: C-State R...				

5. **Rename the power sensor**

Important: Steps 5 and 6 must to be done for each enabled mining device.

Select the sensor, then right-click and select 'Rename F2':

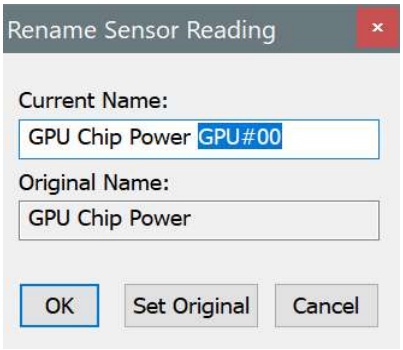
Then rename the sensor name to contain the devices name, e.g ‘GPU#00’ (as found in the web GUI, **separated by a space character**):



HWiNFO64 v6.04-3720 Sensor Status

Sensor	Current	Minimum	Maximum
GPU [#0]: AMD Radeon RX 580:			
GPU Thermal Diode	66 °C	26 °C	69 °C
GPU Core Voltage (VDDC)	0.938 V	0.794 V	1.344 V
GPU Fan	1,298 RPM	1,035 RPM	1,345 RPM
GPU Core Current	82.688 A	2.297 A	215.906 A
GPU Core Power	77.520 W	1.838 W	290.124 W
GPU Ch	W	6.691 W	177.434 W
GPU Cl	Hz	300.0 MHz	1,460.0 MHz
GPU Me	Hz	300.0 MHz	2,150.0 MHz
GPU Ut	%	0.0 %	100.0 %
GPU D3	%	0.0 %	94.2 %
GPU Me	%	0.0 %	100.0 %
GPU I/O	%	0.0 %	0.0 %
GPU Vi	%	0.0 %	1.5 %

Show Graph
Add to tray
Remove from tray
Disable monitoring Del
Enable monitoring Ins
Rename F2
Hide Shift-Del



Rename Sensor Reading

Current Name:
GPU Chip Power GPU#00

Original Name:
GPU Chip Power

OK Set Original Cancel

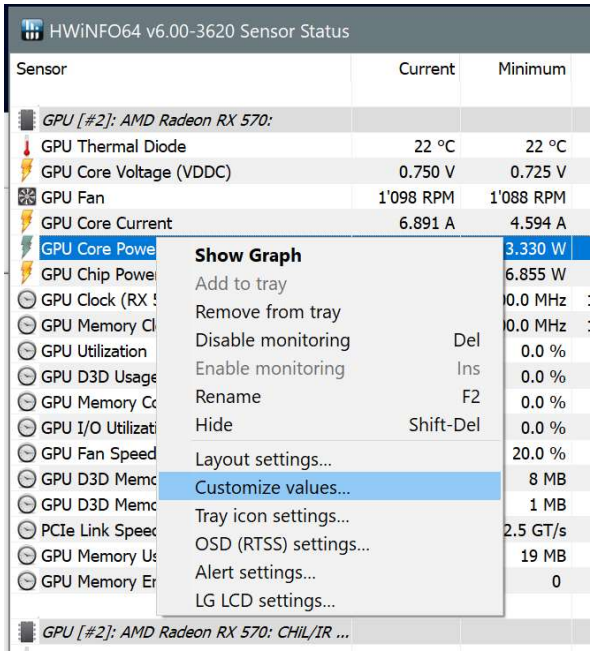
Note: You can also add other information, e.g. (RX580) to the sensor name. However **it is essential that the sensor name contains GPU#nn / CPU#nn as shown above**.

Important: Only ONE sensor name per device can contain the device name. This is the sensor MPM will use to get the power usage from.

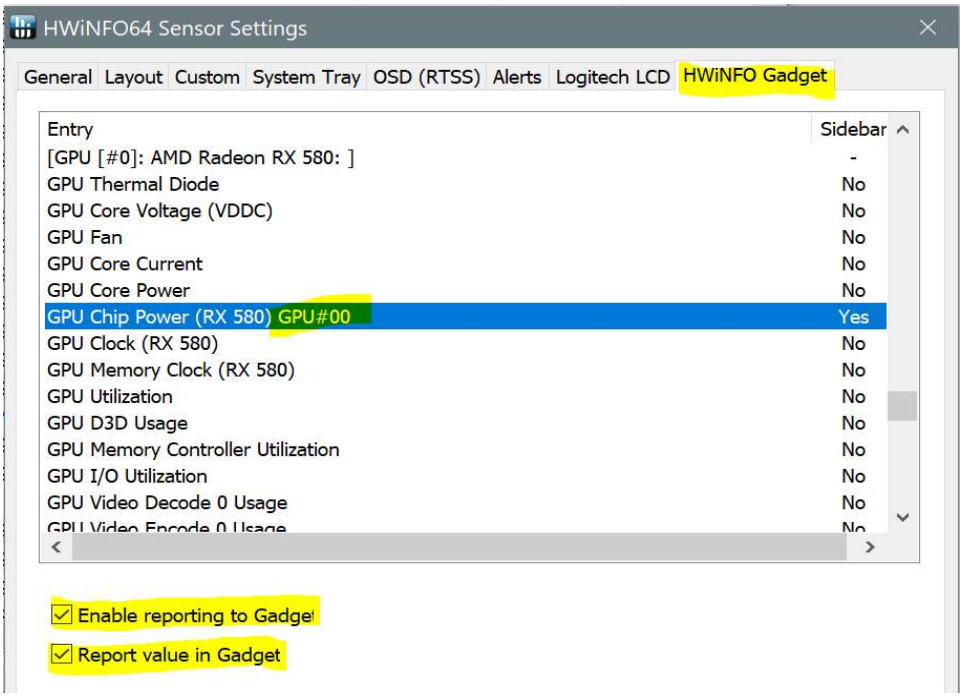
6. Configure each relevant power usage sensor

Important: This step needs to be done for each enabled mining device

Select the sensor, then right-click and select 'Customize values...':



then select the tab 'HWiNFO Gadget':



and **tick both checkboxes**:

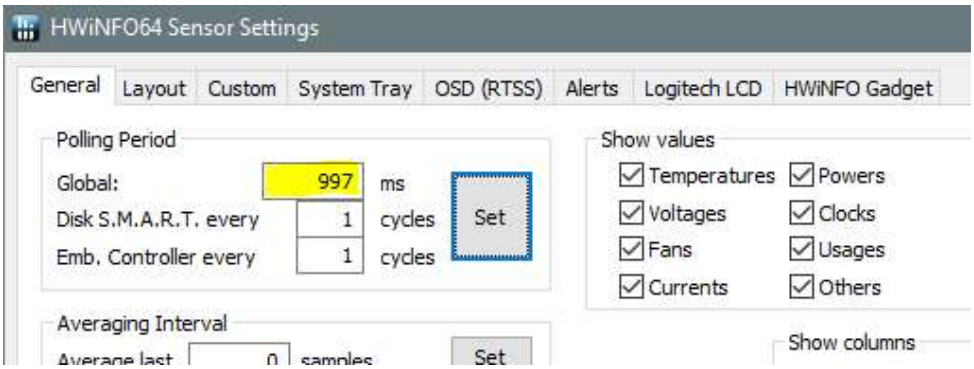
- Enable reporting to Gadget
- Report value in Gadget

This will tell HWiNFO64 to constantly update the sensor values to the following registry key
`Computer\HKEY_CURRENT_USER\Software\HWiNFO64\VSB`

7. **Configure the sensor polling interval**

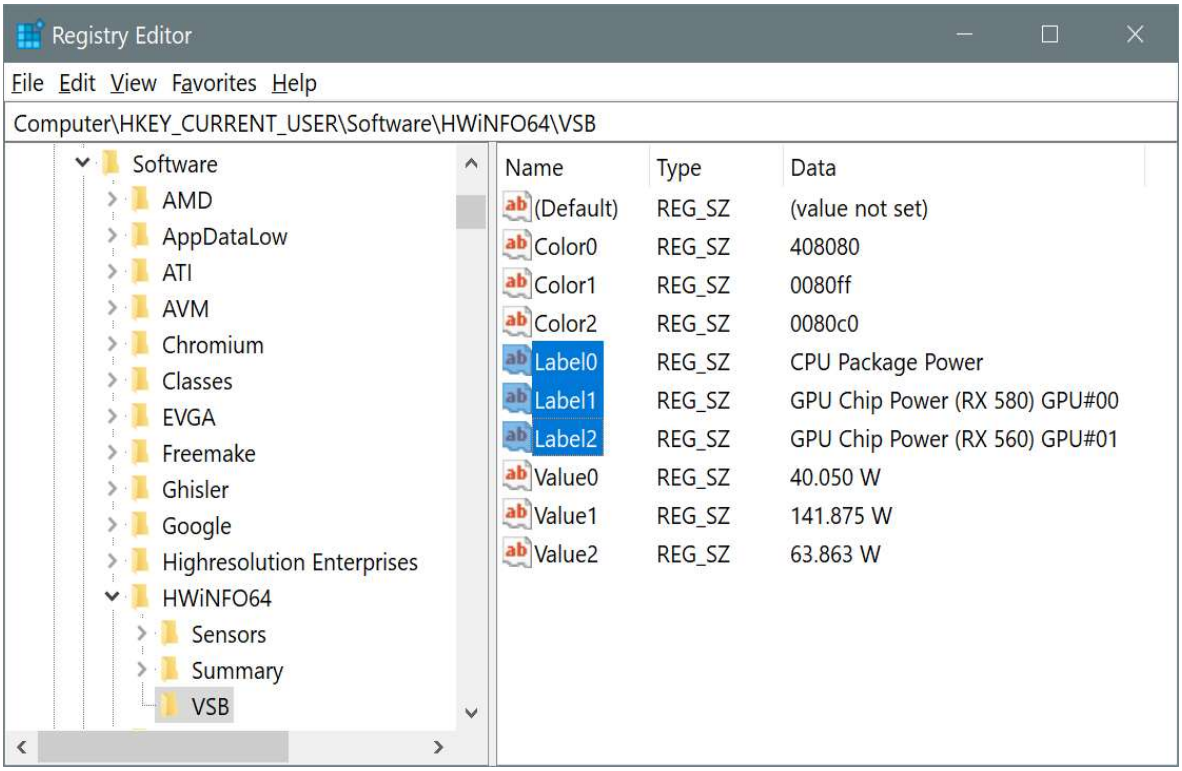
In the sonsors dialog click on

Then configure the polling period to something small like 997ms



Important: The polling period shoud be less than 2 seconds to ensure thar MPM will have access to current data

8. **Run Regedit.exe and verify that the sensor mapping information is available**



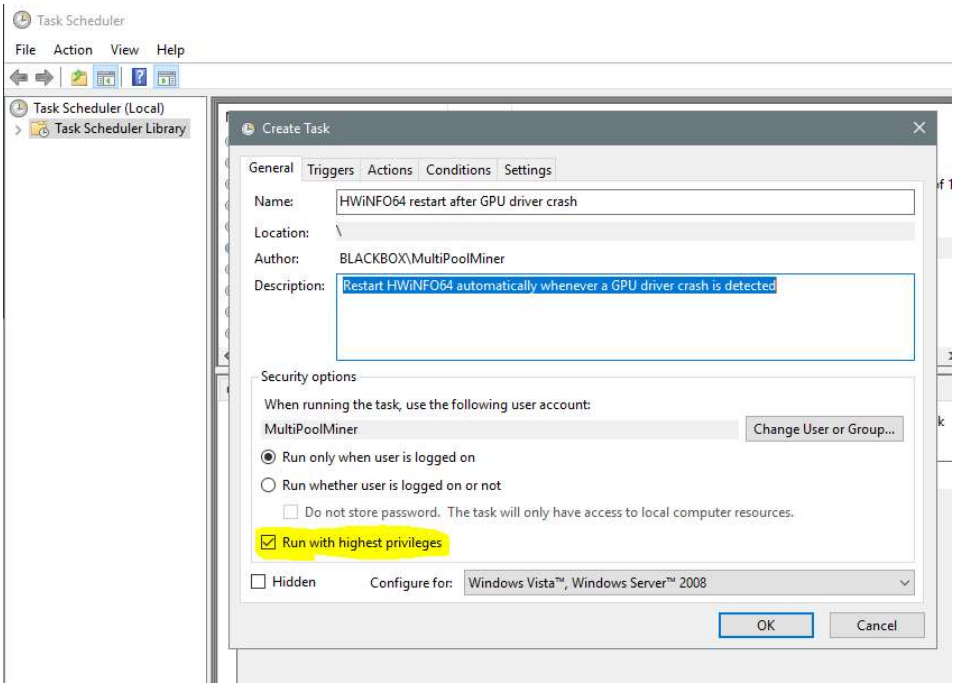
(press F5 repeatedly to verify that the values will get updated periodically)

9. Create scheduled task to restart HWiNFO64 after a driver crash (optional)

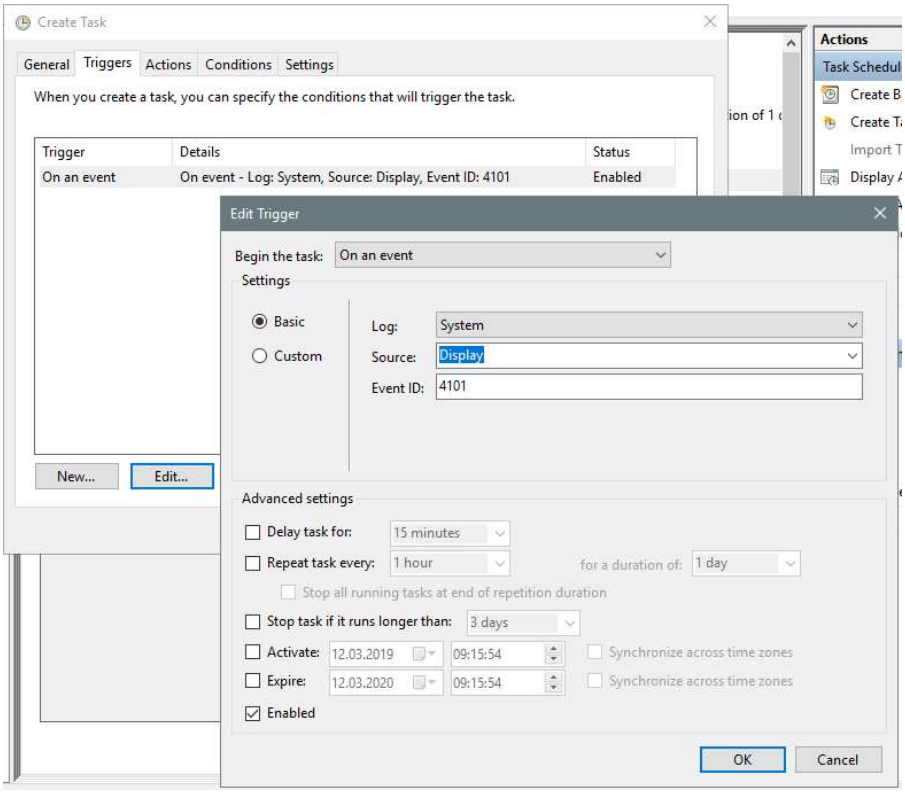
Under some circumstances HWiNFO64 needs to be restarted after a GPU driver crash. The following scheduled task takes care of this.

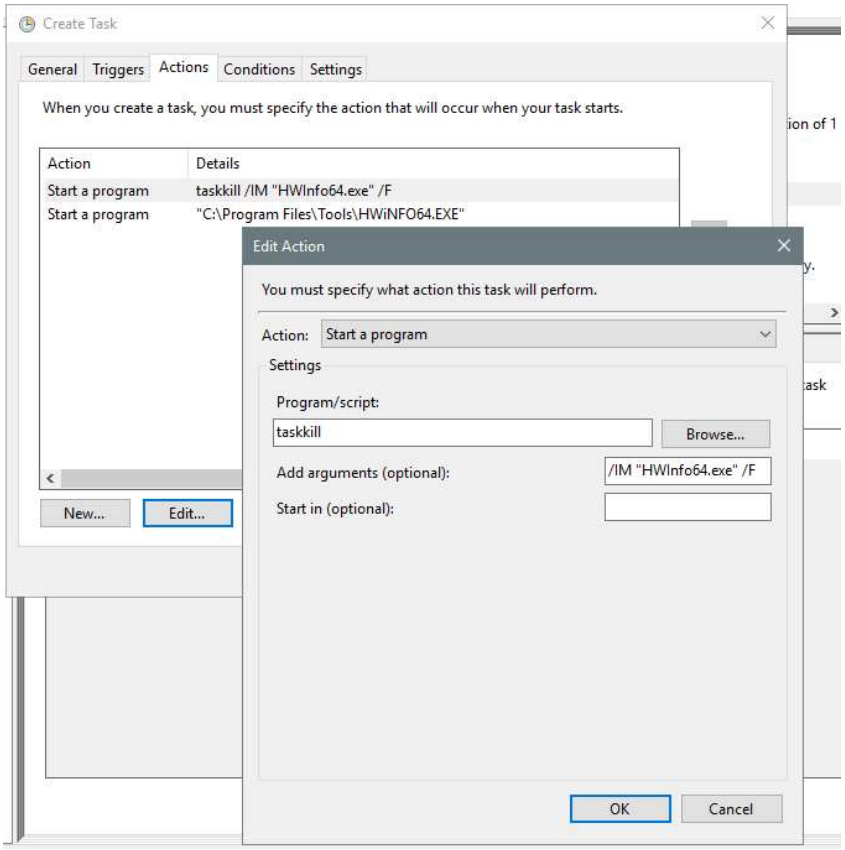
1. Open the scheduled task editor: CMD -> Schtasks.exe

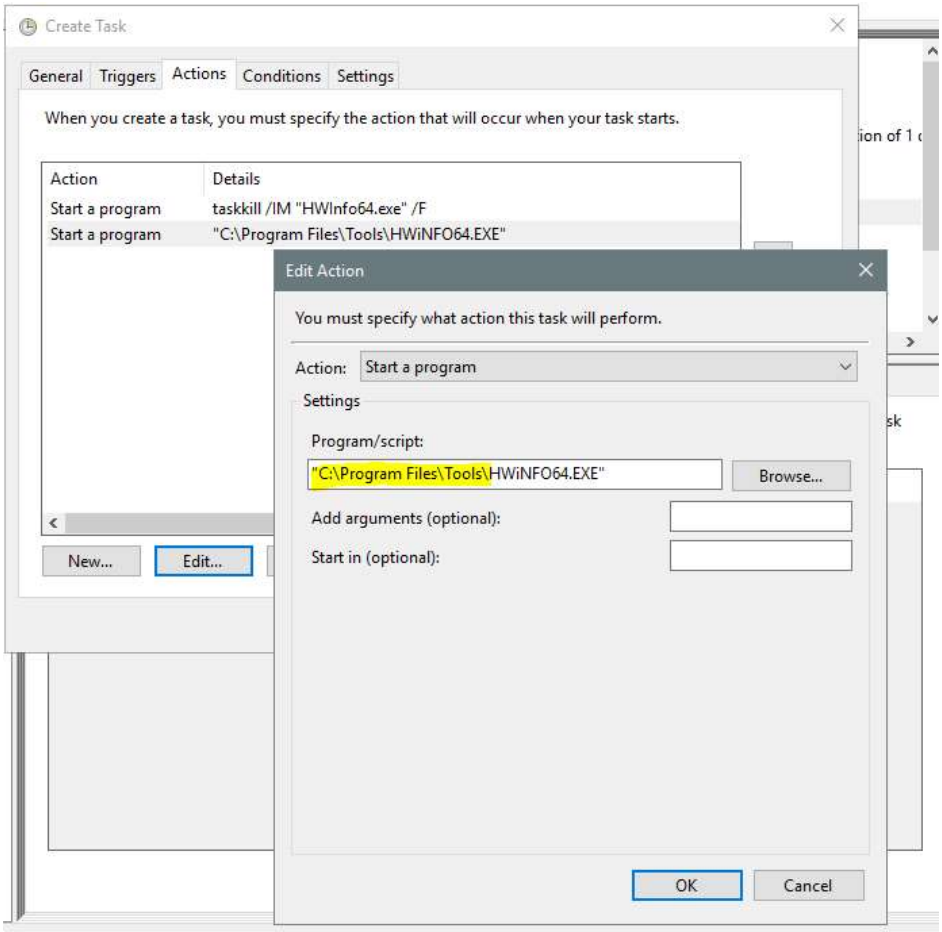
2. Create a new scheduled task as shown

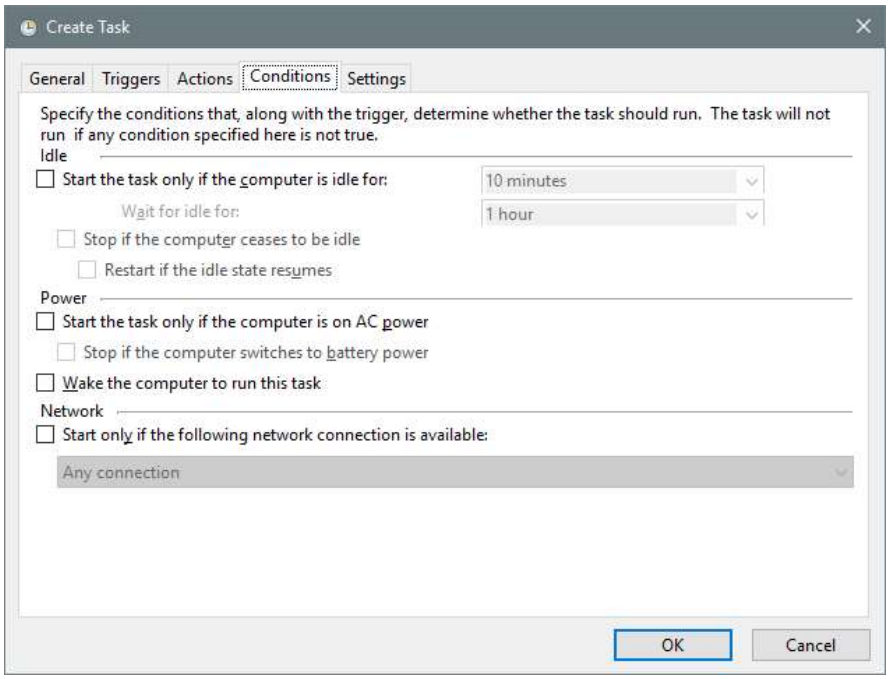


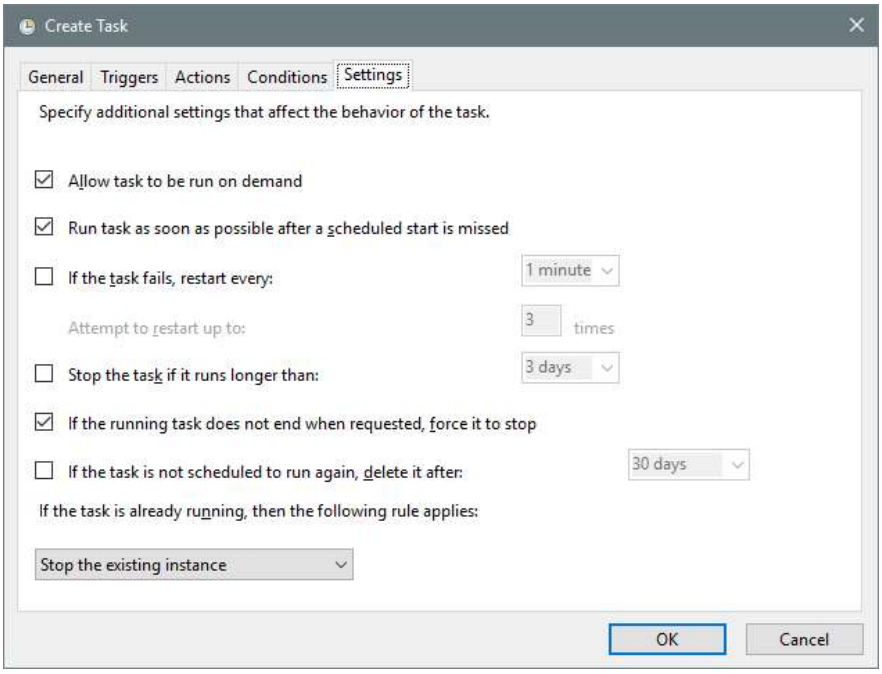
Make sure you tick 'Run with highest privileges'




Create Task
General
Triggers
Actions
Conditions
Settings
When you create a task, you must specify the action that will occur when your task starts.
Action
Details
Start a program
taskkill /IM "HWInfo64.exe" /F
Start a program
"C:\Program Files\Tools\HWiNFO64.EXE"
New...
Edit...
Edit Action
You must specify what action this task will perform.
Action:
Start a program
Settings
Program/script:
taskkill
Browse...
Add arguments (optional):
/IM "HWInfo64.exe" /F
Start in (optional):
OK
Cancel


Create Task
General
Triggers
Actions
Conditions
Settings
When you create a task, you must specify the action that will occur when your task starts.
Action
Details
Start a program
taskkill /IM "HWInfo64.exe" /F
Start a program
"C:\Program Files\Tools\HWiNFO64.EXE"
New...
Edit...
Edit Action
You must specify what action this task will perform.
Action:
Start a program
Settings
Program/script:
"C:\Program Files\Tools\HWiNFO64.EXE"
Browse...
Add arguments (optional):
Start in (optional):
OK
Cancel


Create Task
General
Triggers
Actions
Conditions
Settings
Specify the conditions that, along with the trigger, determine whether the task should run. The task will not run if any condition specified here is not true.
Idle
Start the task only if the computer is idle for:
10 minutes
Wait for idle for:
1 hour
Stop if the computer ceases to be idle
Restart if the idle state resumes
Power
Start the task only if the computer is on AC power
Stop if the computer switches to battery power
Wake the computer to run this task
Network
Start only if the following network connection is available:
Any connection
OK
Cancel


Create Task
General
Triggers
Actions
Conditions
Settings
Specify additional settings that affect the behavior of the task.
Allow task to be run on demand
Run task as soon as possible after a scheduled start is missed
If the task fails, restart every:
1 minute
Attempt to restart up to:
3
times
Stop the task if it runs longer than:
3 days
If the running task does not end when requested, force it to stop
If the task is not scheduled to run again, delete it after:
30 days
If the task is already running, then the following rule applies:
Stop the existing instance
OK
Cancel