Debugging with Microsoft Visual Studio

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How To

Step 1

Have debug statements in your code
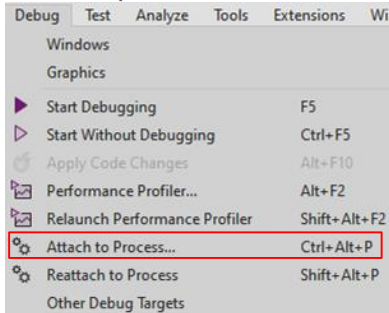(This Is optional)

```
extern "C" Q_DECL_EXPORT double charge(double Energy, int Zb, int Zt, int ZminusQ) {
    if (Zb <= 0 || Zt <= 0 || ZminusQ < 0 || ZminusQ >= Zb || Energy <= 0) return 0;
    check();
    Celement Ce(Zb);
    Compound Ct(Zt);
    charges(&Ce, Energy, &Ct, true);
    qDebug() << "Charge output:"<<Qtab_global[ZminusQ];
    return Qtab_global[ZminusQ];
}
```
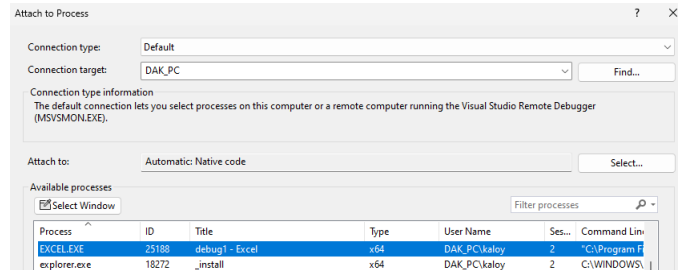
Step 2

2.1 Open Visual Studio
2.2 Start the program you wish to debug
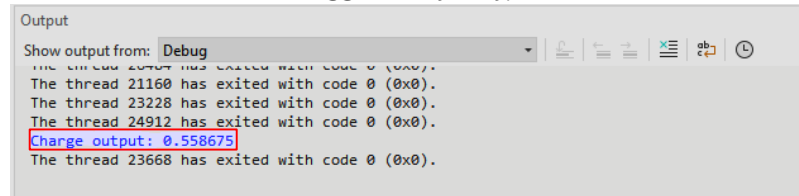2.3 Find attach to process in VS (Alternatively use Ctrl+Alt+P)

Debug	Test	Analyze	Tools	Extensions	Win
Windows					
Graphics					
▶ Start Debugging				F5	
▷ Start Without Debugging				Ctrl+F5	
Apply Code Changes				Alt+F10	
Performance Profiler...				Alt+F2	
Relaunch Performance Profiler				Shift+Alt+F2	
Attach to Process...				Ctrl+Alt+P	
Reattach to Process				Shift+Alt+P	
Other Debug Targets					

Step 3

Attach to the program you wish to debug
(In this case Excel.EXE)

Attach to Process

Connection type: Default
Connection target: DAK_PC   Find...

Connection type information
The default connection lets you select processes on this computer or a remote computer running the Visual Studio Remote Debugger (MSVSMON.EXE).

Attach to: Automatic: Native code   Select...

Available processes
☑ Select Window   Filter processes

Process	ID	Title	Type	User Name	Ses...	Command Lin
EXCEL.EXE	25188	debug1 - Excel	x64	DAK_PC\kaloy	2	"C:\Program F
explorer.exe	18272	_install	x64	DAK_PC\kaloy	2	C:\WINDOWS\

Step 4

Find the Output box in the bottom right and read the debug outputs
(In my case I have to use a macro to get the debug output, but triggers may vary)

Output
Show output from: Debug

```
The thread 20404 has exited with code 0 (0x0).
The thread 21160 has exited with code 0 (0x0).
The thread 23228 has exited with code 0 (0x0).
The thread 24912 has exited with code 0 (0x0).
Charge output: 0.558675
The thread 23668 has exited with code 0 (0x0).
```

Final Thoughts

Issues

- The program isn't closing
  - You have to either end the debugging or close out of Visual Studio
- I don't see the output window
  - At the bottom of Visual Studio there is a bar just click output

- The output window isn't showing anything
  - Make sure "show output from:" is set to debug and not the other 2 options

Misc

- I have only done this in a C++ project. I assume it doesn't matter what you use, but it is worth noting.