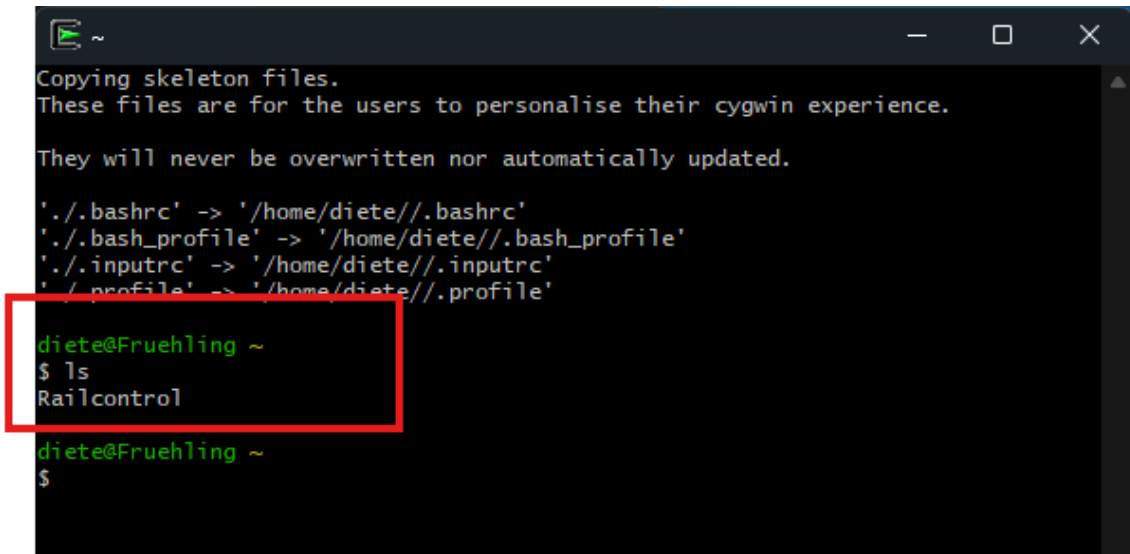


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allg. Angaben

Beschreibung wie es Teddy vorsieht

- alles spielt sich unter CYGWIN ab, es **funktioniert einwandfrei**.
- RailControl befindet sich danach unter CYGWIN, im USER-Verzeichnis.

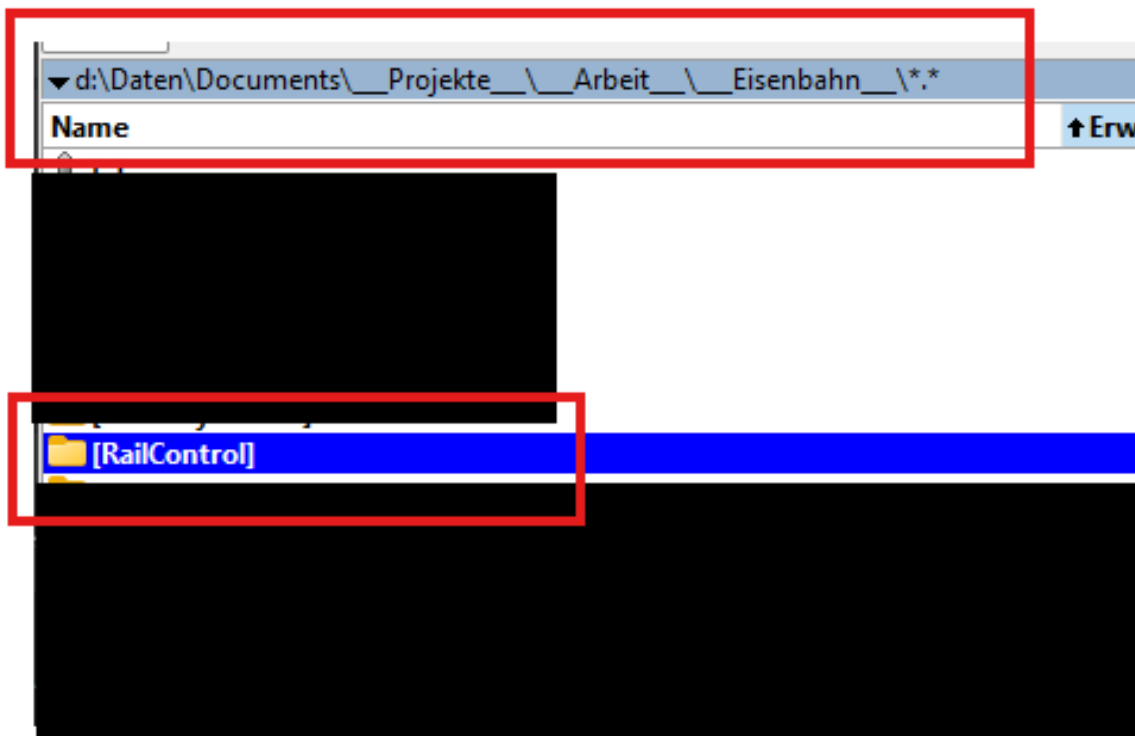


```
~  
Copying skeleton files.  
These files are for the users to personalise their cygwin experience.  
  
They will never be overwritten nor automatically updated.  
  
'./bashrc' -> '/home/diete//.bashrc'  
'./bash_profile' -> '/home/diete//.bash_profile'  
'./inputrc' -> '/home/diete//.inputrc'  
'./profile' -> '/home/diete//.profile'  
  
diete@Fruehling ~  
$ ls  
Railcontrol  
  
diete@Fruehling ~  
$
```

- **Installation unter CYGWIN**
 - C - Compiler
 - make
 - Git

So wie ich es benutze

- es wird nur das installiert, unter CYGWIN, was zum Kompilieren gebraucht wird, alles andere spielt sich unter Windows ab. Somit habe ich z.B. für meine Datensicherung alles in meinem Arbeitsverzeichnis, und brauche nichts zusätzliches beachten. Ich benutze den Compiler auch für andere kleine C - Spielereien.
- Ich habe auf Laufwerk C: nur das Betriebssystem, Compiler, VSCode usw., auf Laufwerk D: liegen meine Daten.



- Ich mache immer wieder kleine Versuche, anschließend kann ich mein Betriebssystem einfach zurück spielen, ohne das ich auf meine Daten achten muss.
- **Installation unter CYGWIN**
 - **C - Compiler**
 - **make**
- **alles andere unter Windows**

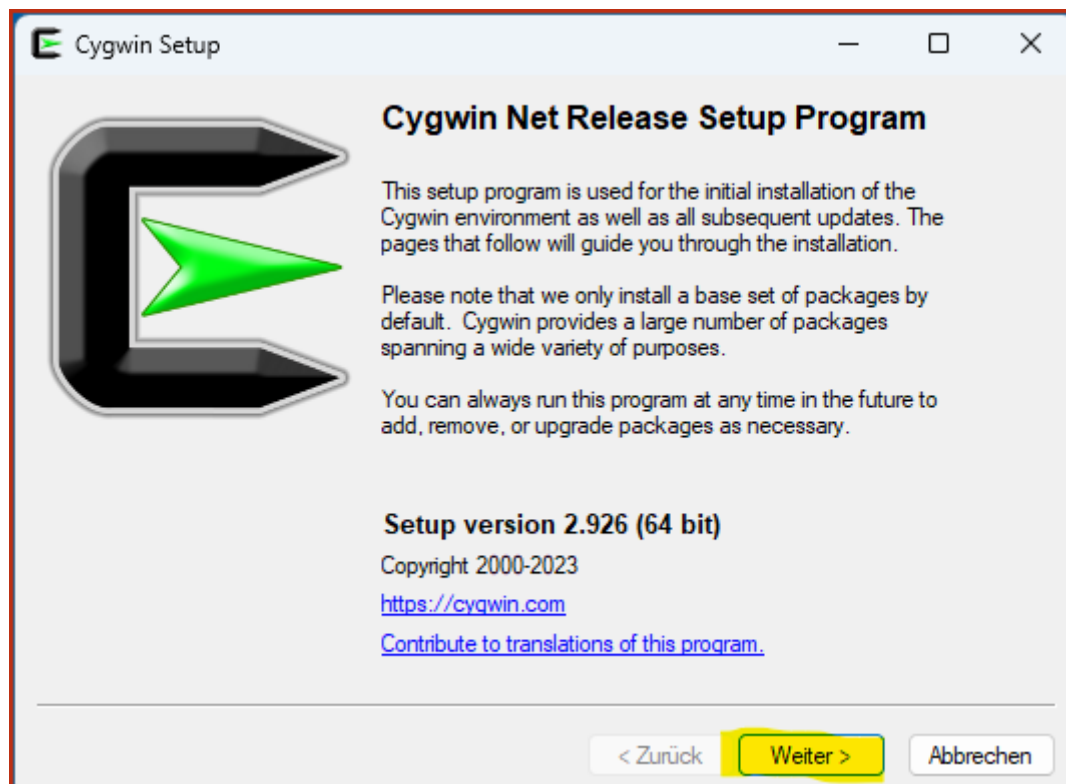
Beschreibung wie es Teddy vorsieht

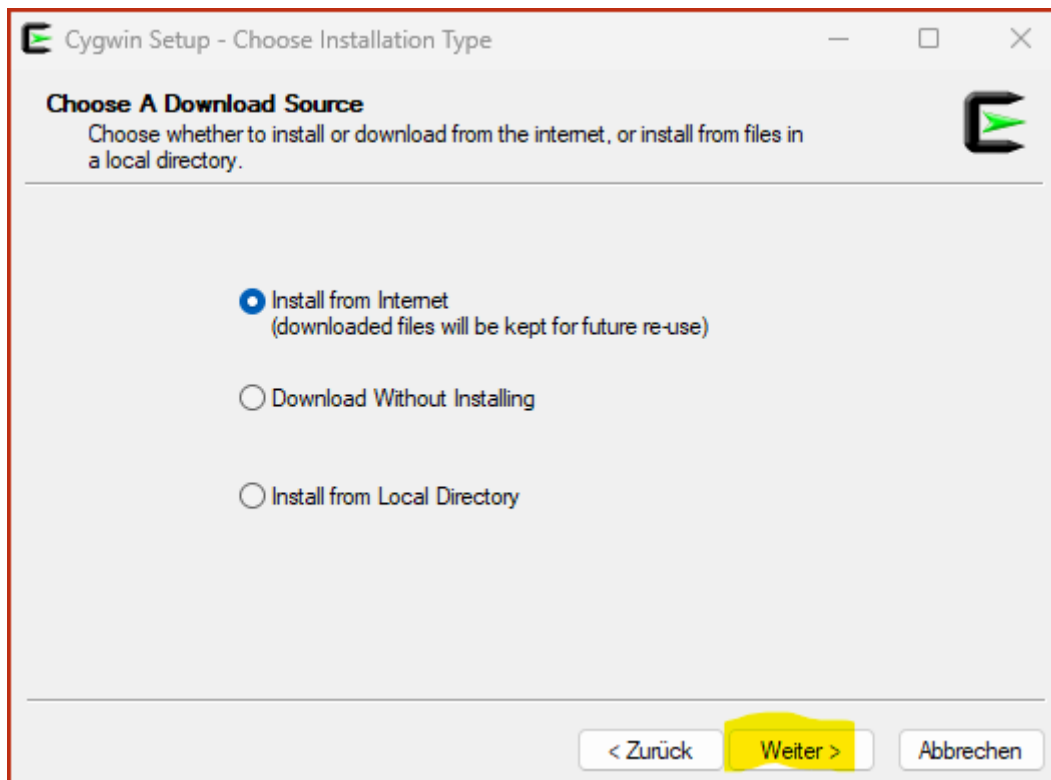
Cygwin laden

- [Cygwin Installation](https://cygwin.com/install.html)

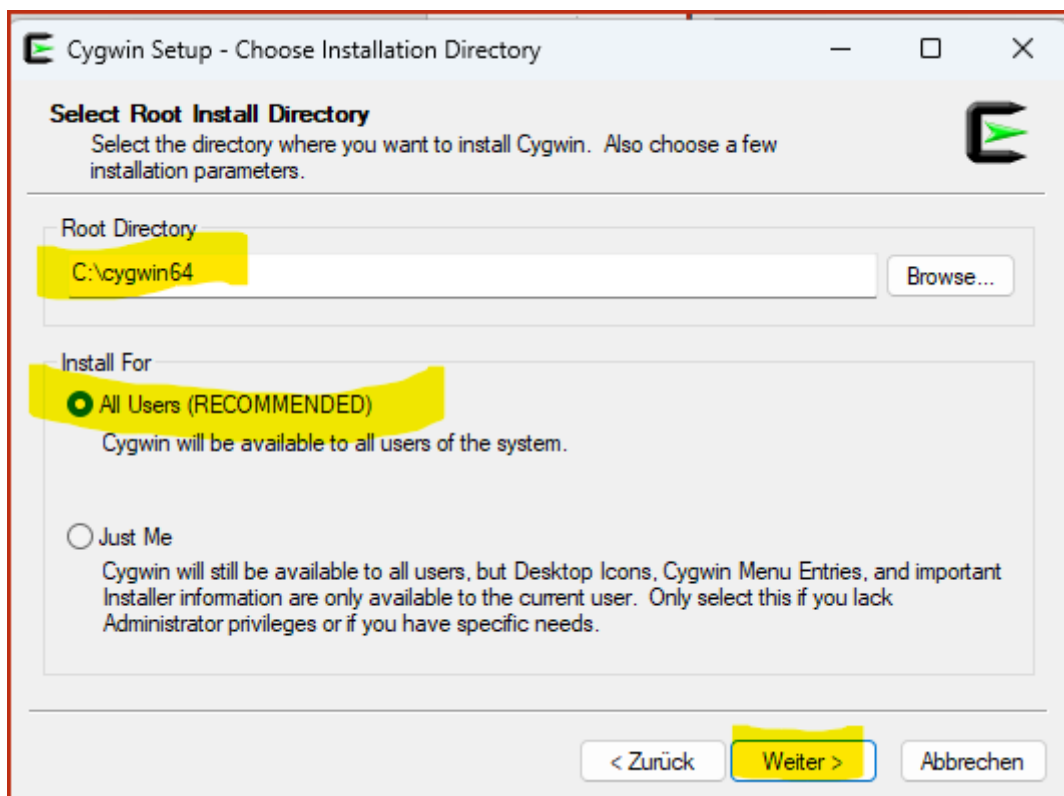


Cygwin installieren

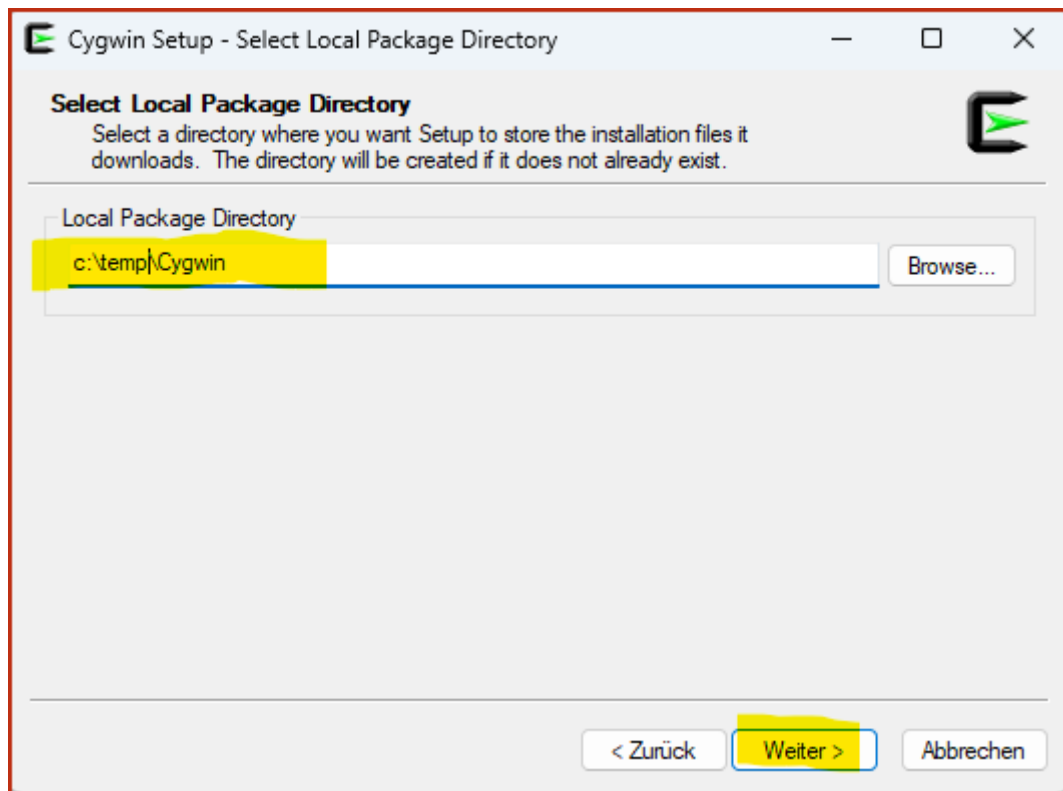




meine Einstellung



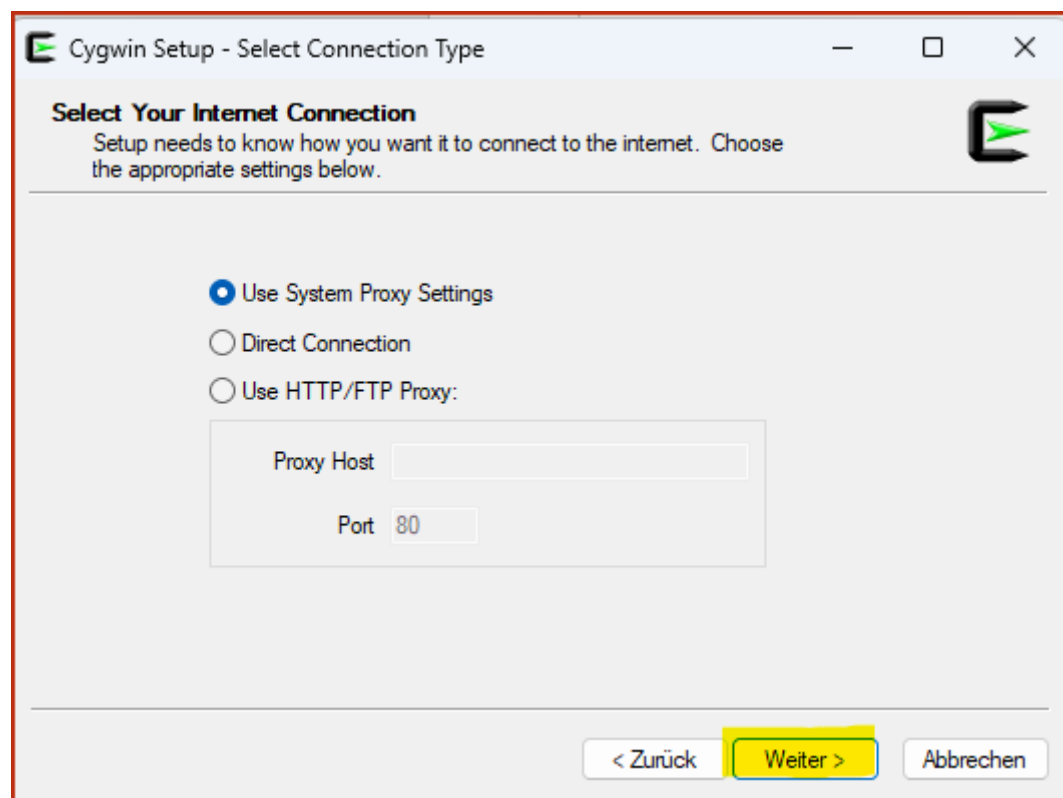
meine Einstellung



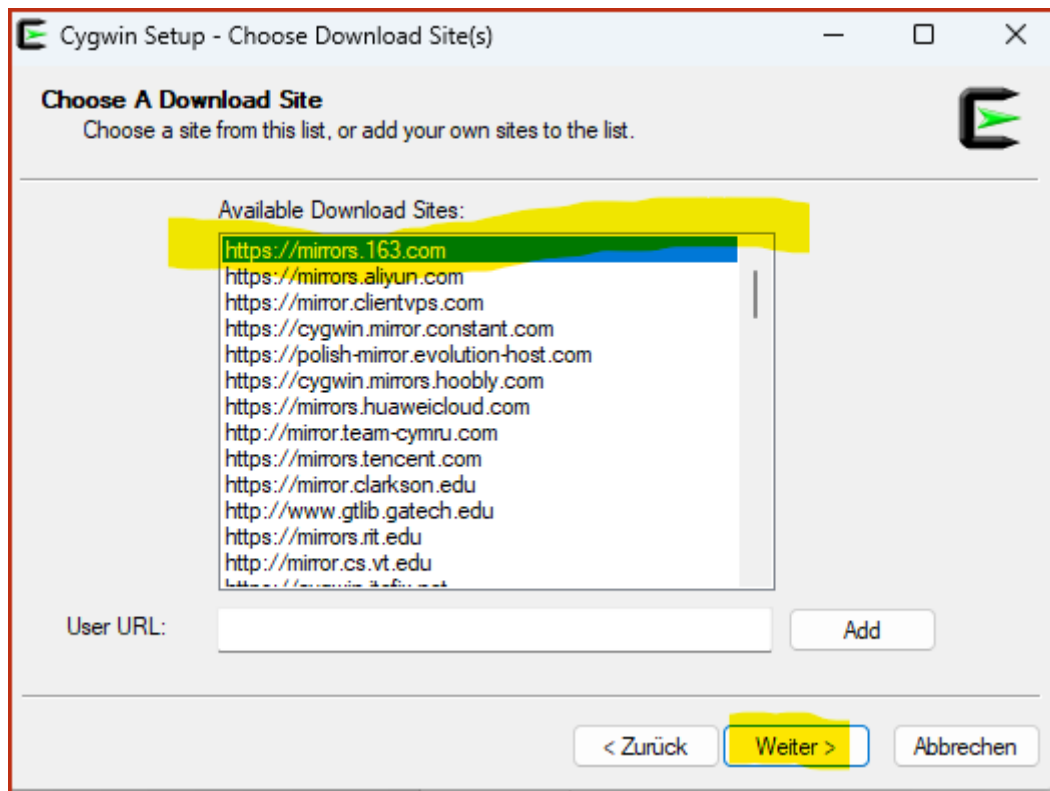
meine Einstellung

Diesen Ordner lösche ich hinterher.

Er kann auch erhalten werden, um von hier aus eine neue Installation durchzuführen.

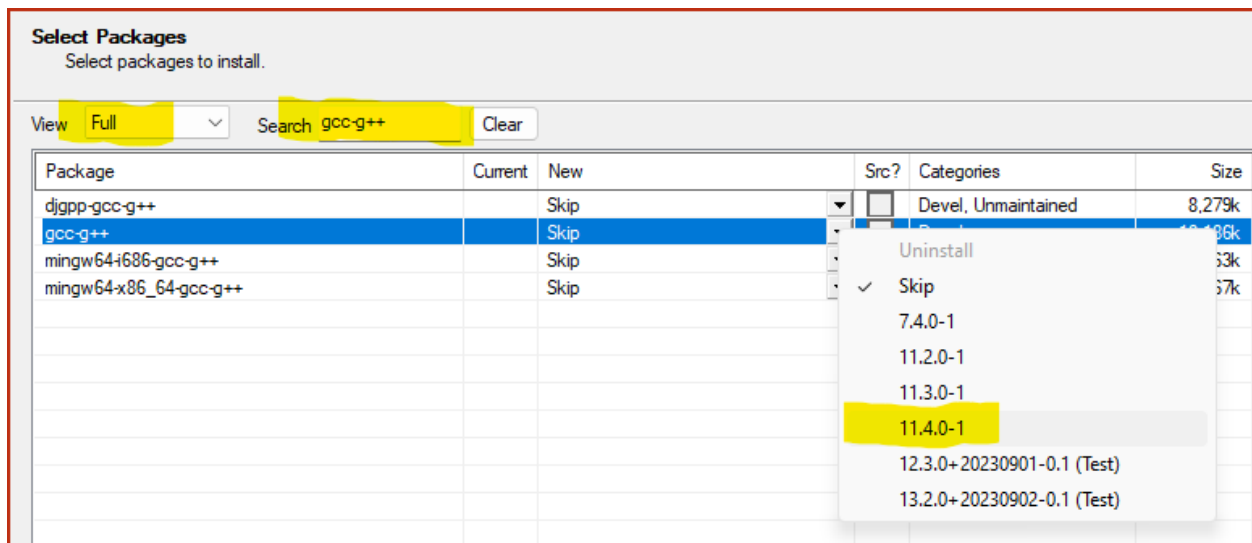


meine Einstellung

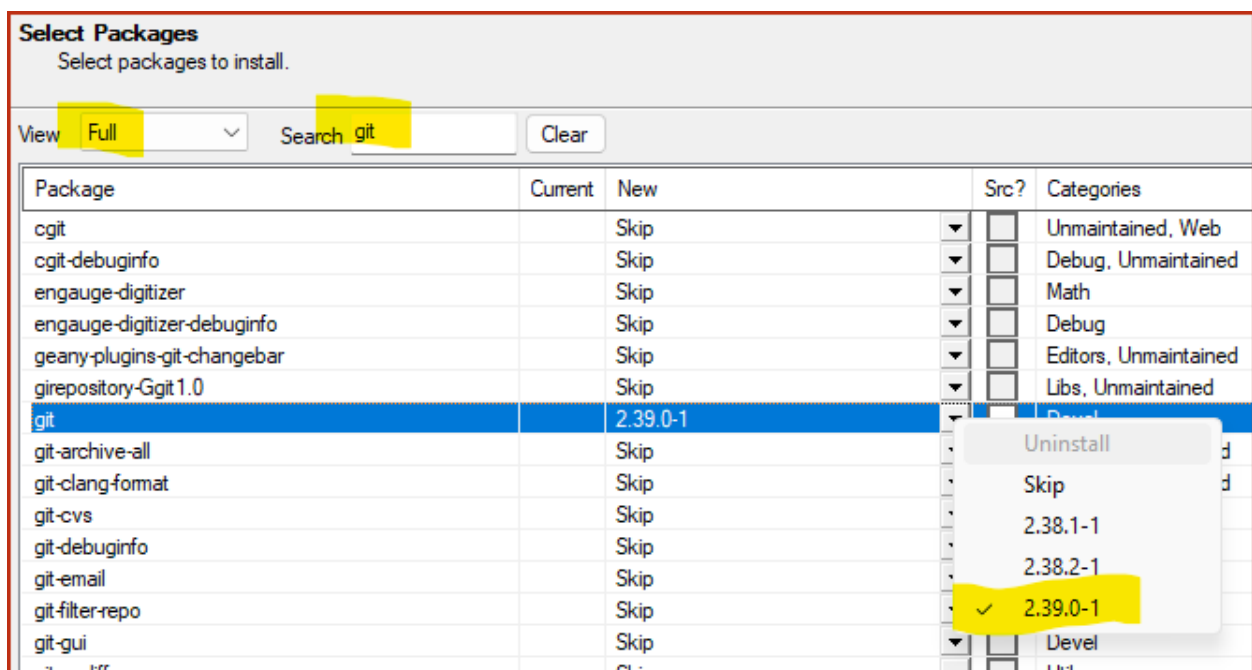


z.B. meine Einstellung

WICHTIG: Bei den nächsten Einstellungen nicht die Taste „WEITER“ betätigen. Erst nach dem alles eingestellt wurde.



gcc-g++



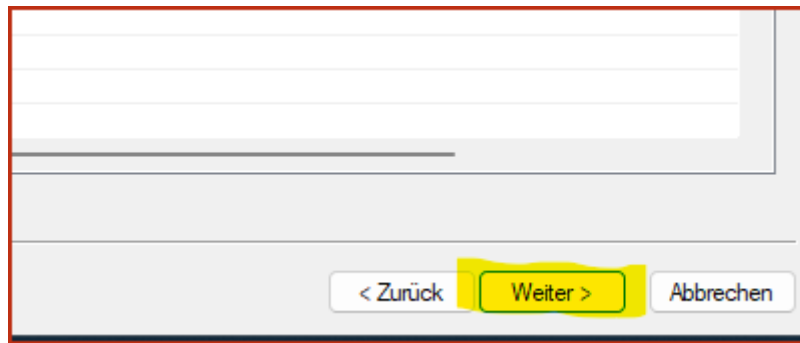
git

Select Packages
Select packages to install.

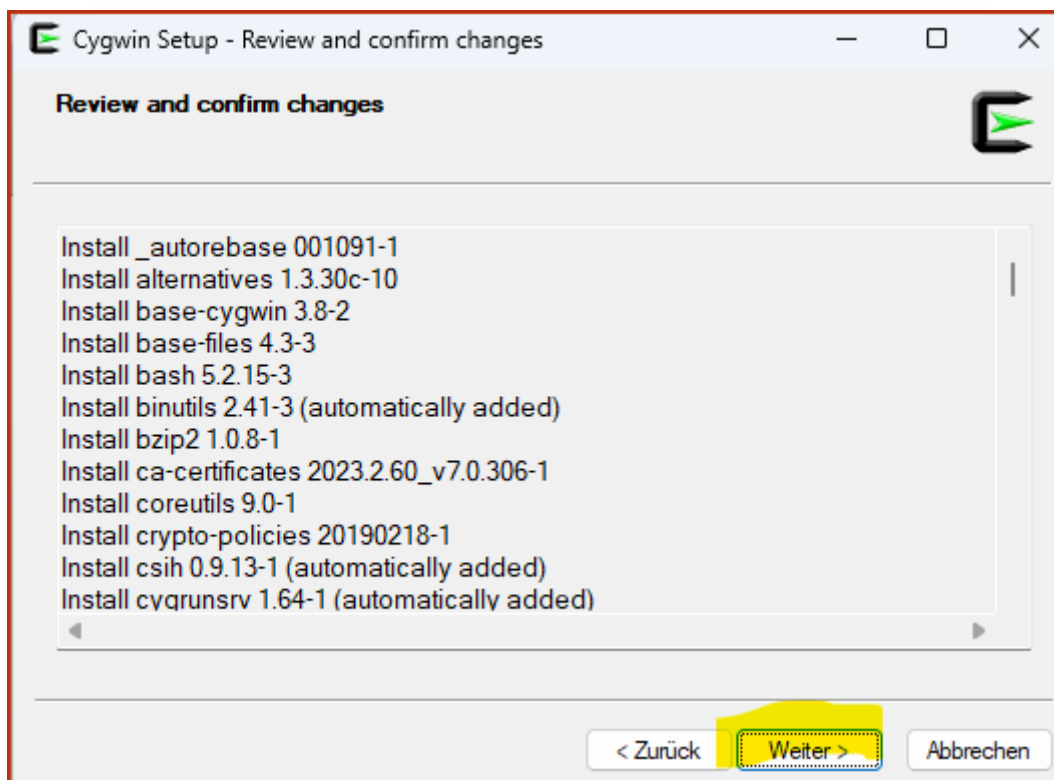
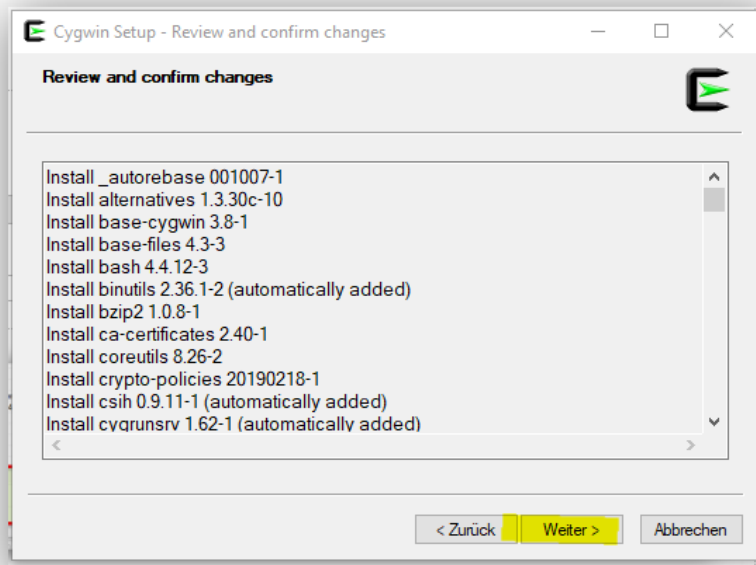
View Full Search make Clear

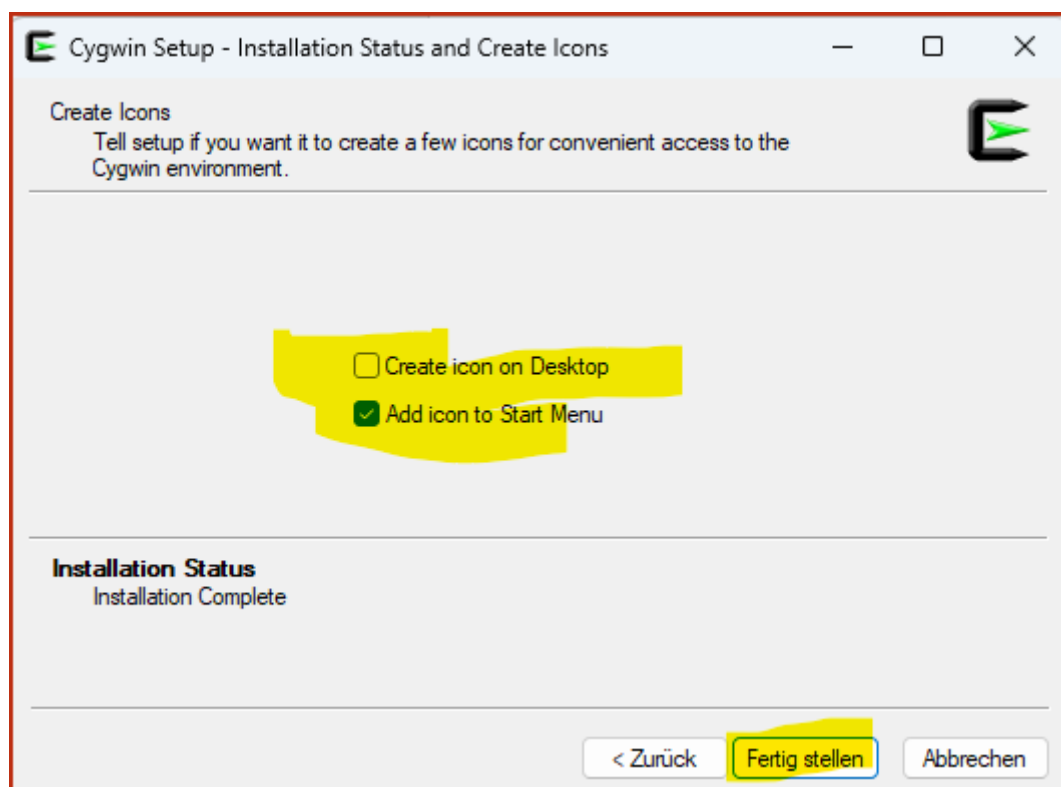
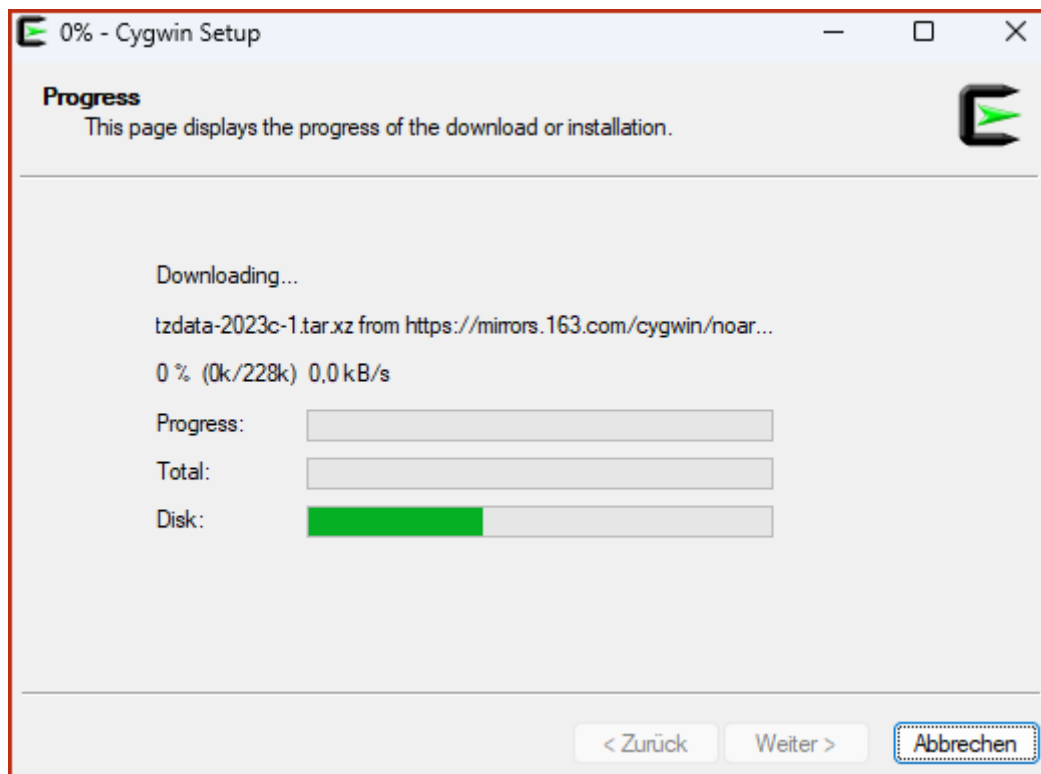
Package	Current	New	Src?	Categories
WindowMaker		Skip		Unmaintained, X
WindowMaker-debuginfo		Skip		Debug, Unmaint
automake		Skip		Devel
automake1.10		Skip		Devel
automake1.11		Skip		Devel
automake1.12		Skip		Devel
automake1.13		Skip		Devel
automake1.14		Skip		Devel
automake1.15		Skip		Devel
automake1.16		Skip		Devel
automake1.4		Skip		Devel
automake1.5		Skip		Devel
automake1.6		Skip		Devel
automake1.7		Skip		Devel
automake1.8		Skip		Devel
automake1.9		Skip		Devel
bash-completion-cmake		Skip		Shells
cmake		Skip		Devel
cmake-debuginfo		Skip		Debug
cmake-doc		Skip		Devel
cmake-gui		Skip		Devel
emacs-cmake		Skip		Editors
extra-cmake-modules		Skip		Devel
gcc-tools-epoch1-automake		Skip		Devel, Unmainta
gcc-tools-epoch2-automake		Skip		Devel, Unmainta
gccmakedep		Skip		Devel, Unmainta
imake		Skip		Devel
imake-debuginfo		Skip		Debug
libWMaker-devel		Skip		Libs, Unmaintain
libWMaker1		Skip		Libs, Unmaintain
libpagemaker-tools		Skip		Graphics, Unmai
libpagemaker0.0-debuginfo		Skip		Debug, Unmaint
libpagemaker0.0-devel		Skip		Libs, Unmaintain
libpagemaker0.0-doc		Skip		Libs, Unmaintain
libpagemaker0.0_0		Skip		Libs, Unmaintain
make		4.4.1-2		
make-debuginfo		Skip		Uninstall
makedepend		Skip		Skip
makedepend-debuginfo		Skip		4.4-1
makepasswd		Skip		4.4.1-1
makeself		Skip		4.4.1-2
mingw64-i686-libpagemaker0.0		Skip		
mingw64-i686-qt4-qmake		Skip		Devel, Unmainta

make

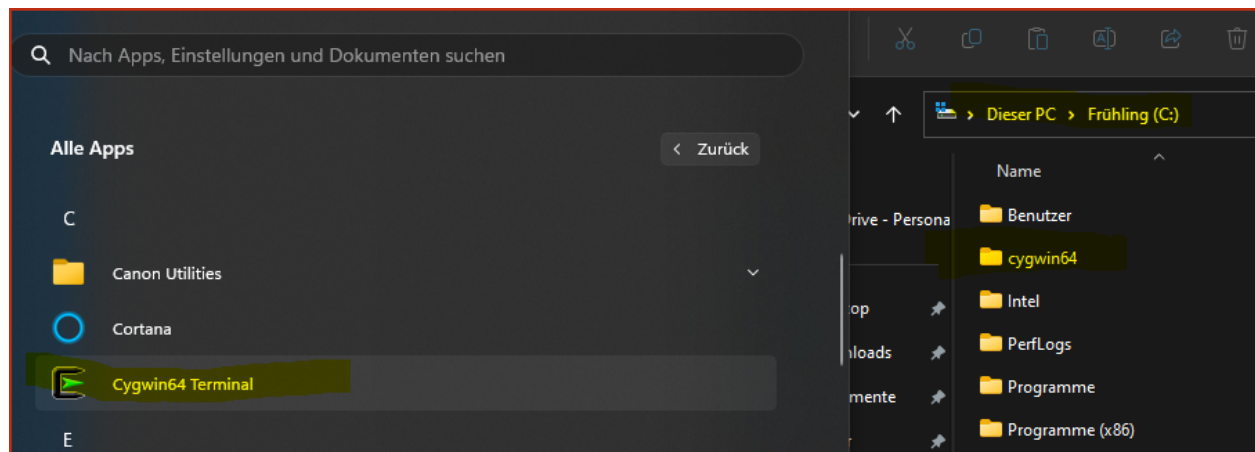


Jetzt erst mit „WEITER“ die Installation beginnen





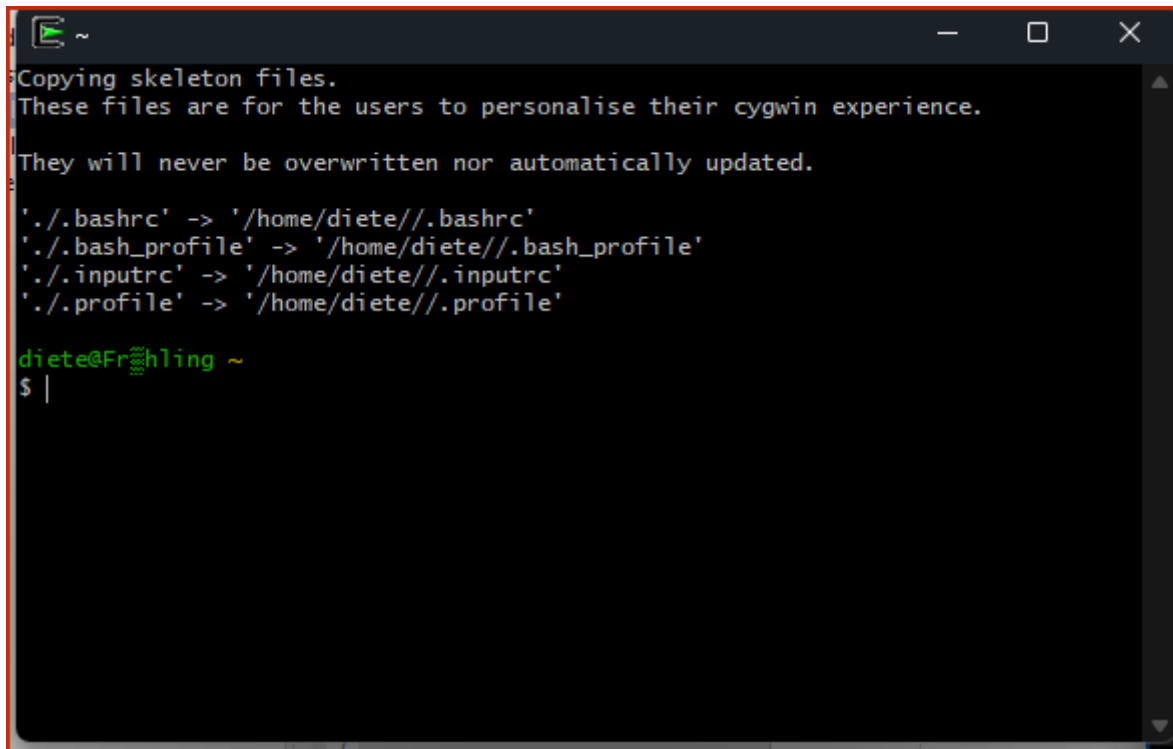
meine Einstellung



Ergebnis bei mir

RailControl installieren und kompilieren

- CYGWIN starten



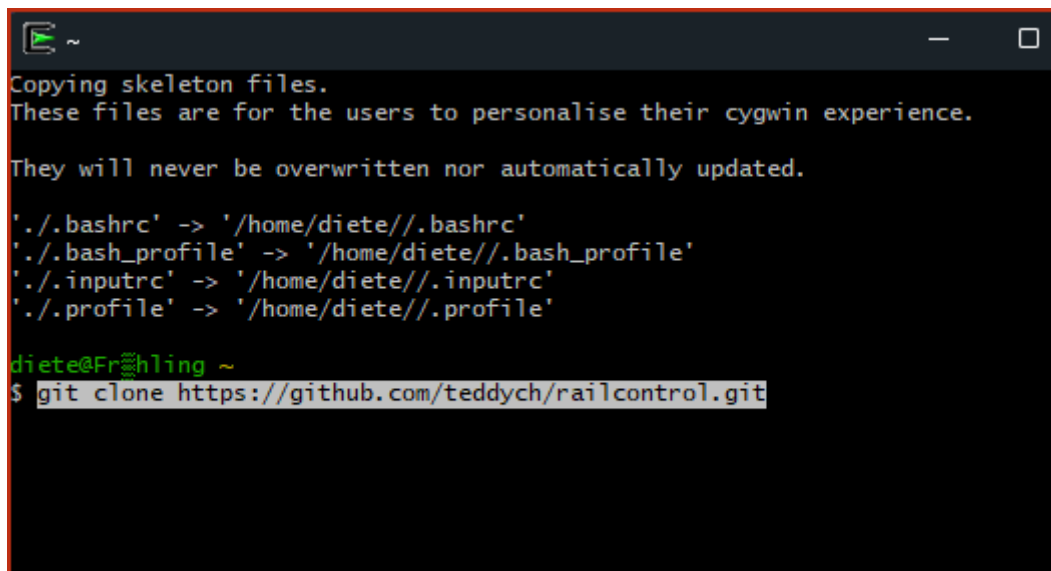
```
~
Copying skeleton files.
These files are for the users to personalise their cygwin experience.

They will never be overwritten nor automatically updated.

'./.bashrc' -> '/home/diete//.bashrc'
'./.bash_profile' -> '/home/diete//.bash_profile'
'./.inputrc' -> '/home/diete//.inputrc'
'./.profile' -> '/home/diete//.profile'

diete@Frühling ~
$ |
```

- `git clone` <https://github.com/teddych/railcontrol.git>



```
~
Copying skeleton files.
These files are for the users to personalise their cygwin experience.

They will never be overwritten nor automatically updated.

'./.bashrc' -> '/home/diete//.bashrc'
'./.bash_profile' -> '/home/diete//.bash_profile'
'./.inputrc' -> '/home/diete//.inputrc'
'./.profile' -> '/home/diete//.profile'

diete@Frühling ~
$ git clone https://github.com/teddych/railcontrol.git
```

```
~
They will never be overwritten nor automatically updated.

'./bashrc' -> '/home/diete//.bashrc'
'./bash_profile' -> '/home/diete//.bash_profile'
'./inputrc' -> '/home/diete//.inputrc'
'./profile' -> '/home/diete//.profile'

diete@Frühling ~
$ git clone https://github.com/teddych/railcontrol.git
Cloning into 'railcontrol'...
remote: Enumerating objects: 14584, done.
remote: Counting objects: 100% (3089/3089), done.
remote: Compressing objects: 100% (619/619), done.
remote: Total 14584 (delta 2548), reused 3008 (delta 2469), pack-reused 11495
Receiving objects: 100% (14584/14584), 15.15 MiB | 4.99 MiB/s, done.
Resolving deltas: 100% (11895/11895), done.

diete@Frühling ~
$ ls -l
total 8
drwxr-xr-x 1 diete diete 0 Sep 23 20:46 railcontrol

diete@Frühling ~
$ |
```

Ergebnis: der erzeugte „railcontrol“ Ordner

```
~/railcontrol
'./bash_profile' -> '/home/diete//.bash_profile'
'./inputrc' -> '/home/diete//.inputrc'
'./profile' -> '/home/diete//.profile'

diete@Frühling ~
$ git clone https://github.com/teddych/railcontrol.git
Cloning into 'railcontrol'...
remote: Enumerating objects: 14584, done.
remote: Counting objects: 100% (3089/3089), done.
remote: Compressing objects: 100% (619/619), done.
remote: Total 14584 (delta 2548), reused 3008 (delta 2469), pack-reused 11495
Receiving objects: 100% (14584/14584), 15.15 MiB | 4.99 MiB/s, done.
Resolving deltas: 100% (11895/11895), done.

diete@Frühling ~
$ ls -l
total 8
drwxr-xr-x 1 diete diete 0 Sep 23 20:46 railcontrol

diete@Frühling ~
$ cd railcontrol/

diete@Frühling ~/railcontrol
$
```

- `cd railcontrol`

```
~/railcontrol
diete@Frühling ~
$ git clone https://github.com/teddych/railcontrol.git
Cloning into 'railcontrol'...
remote: Enumerating objects: 14584, done.
remote: Counting objects: 100% (3089/3089), done.
remote: Compressing objects: 100% (619/619), done.
remote: Total 14584 (delta 2548), reused 3008 (delta 2469), pack-reused 11495
Receiving objects: 100% (14584/14584), 15.15 MiB | 4.99 MiB/s, done.
Resolving deltas: 100% (11895/11895), done.

diete@Frühling ~
$ ls -l
total 8
drwxr-xr-x 1 diete diete 0 Sep 23 20:46 railcontrol

diete@Frühling ~
$ cd railcontrol/

diete@Frühling ~/railcontrol
$ make
cc -g -O2 -DSQLITE_ENABLE_FTS4 -DSQLITE_ENABLE_JSON1 -DSQLITE_ENABLE_RTREE -DHAVE_USLEEP -c -o Storage/sqlite/sqlite3.o Storage/sqlite/sqlite3.c
```

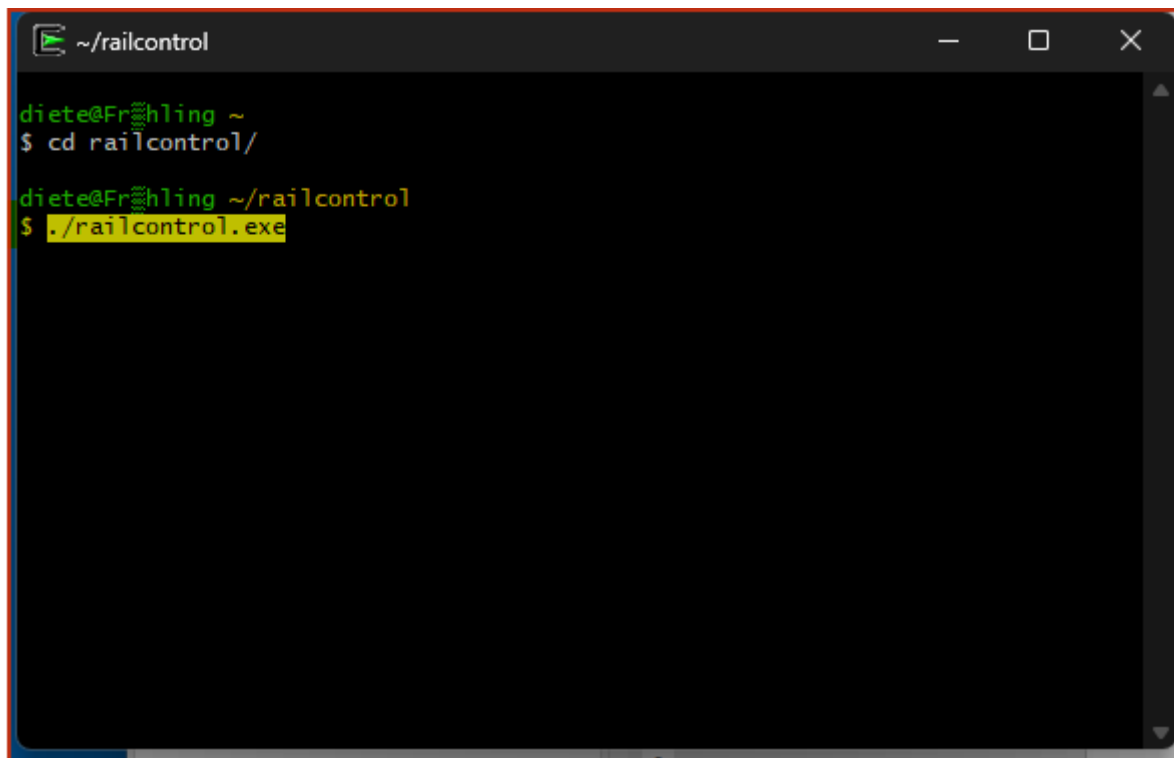
- **make**

Dieser Vorgang dauert einen Moment je nach Rechner.

```
~/railcontrol
r/Web/WebClientTrack.o Server/Web/WebServer.o Server/Z21/Z21Client.o Server/Z21/Z21Server.o DataModel/Accessory.o DataModel/AccessoryBase.o DataModel/Cluster.o DataModel/Feedback.o DataModel/HardwareHandle.o DataModel/LayoutItem.o DataModel/LockableItem.o DataModel/Loco.o DataModel/LocoBase.o DataModel/LocoFunctions.o DataModel/MultipleUnit.o DataModel/Object.o DataModel/ObjectIdentifier.o DataModel/Relation.o DataModel/Route.o DataModel/Serializable.o DataModel/Signal.o DataModel/Switch.o DataModel/Text.o DataModel/Track.o Hardware/AccessoryCache.o Hardware/CS2Tcp.o Hardware/CS2Udp.o Hardware/CcSchnitte.o Hardware/DccPpExSerial.o Hardware/DccPpExTcp.o Hardware/FeedbackCache.o Hardware/HardwareHandler.o Hardware/Hsi88.o Hardware/LocoCache.o Hardware/M6051.o Hardware/Virtual.o Hardware/ZLib.o Hardware/Protocols/DccPpEx.o Hardware/Protocols/EsuCAN.o Hardware/Protocols/LocoNet.o Hardware/Protocols/MaerklinCAN.o Hardware/Protocols/P50x.o Hardware/Protocols/Z21.o Logger/Logger.o Logger/LoggerServer.o Network/Serial.o Network/TcpClient.o Network/TcpConnection.o Network/TcpServer.o Network/UdpConnection.o Network/UdpServer.o Storage/Sqlite.o Storage/StorageHandler.o Storage/TransactionGuard.o Utils/Network.o Utils/Utils.o Hardware/zlib/adler32.o Hardware/zlib/compress.o Hardware/zlib/crc32.o Hardware/zlib/deflate.o Hardware/zlib/gzclose.o Hardware/zlib/gzlib.o Hardware/zlib/gzread.o Hardware/zlib/gzwrite.o Hardware/zlib/inflate.o Hardware/zlib/inffast.o Hardware/zlib/inflate.o Hardware/zlib/inftrees.o Hardware/zlib/trees.o Hardware/zlib/uncompress.o Hardware/zlib/zutil.o -o railcontrol -lpthread -ldl

diete@Frühling ~/railcontrol
$
```

ca. xx Minuten später liegt das Ergebnis vor.



```
~/railcontrol  
diete@Frühling ~  
$ cd railcontrol/  
diete@Frühling ~/railcontrol  
$ ./railcontrol.exe
```

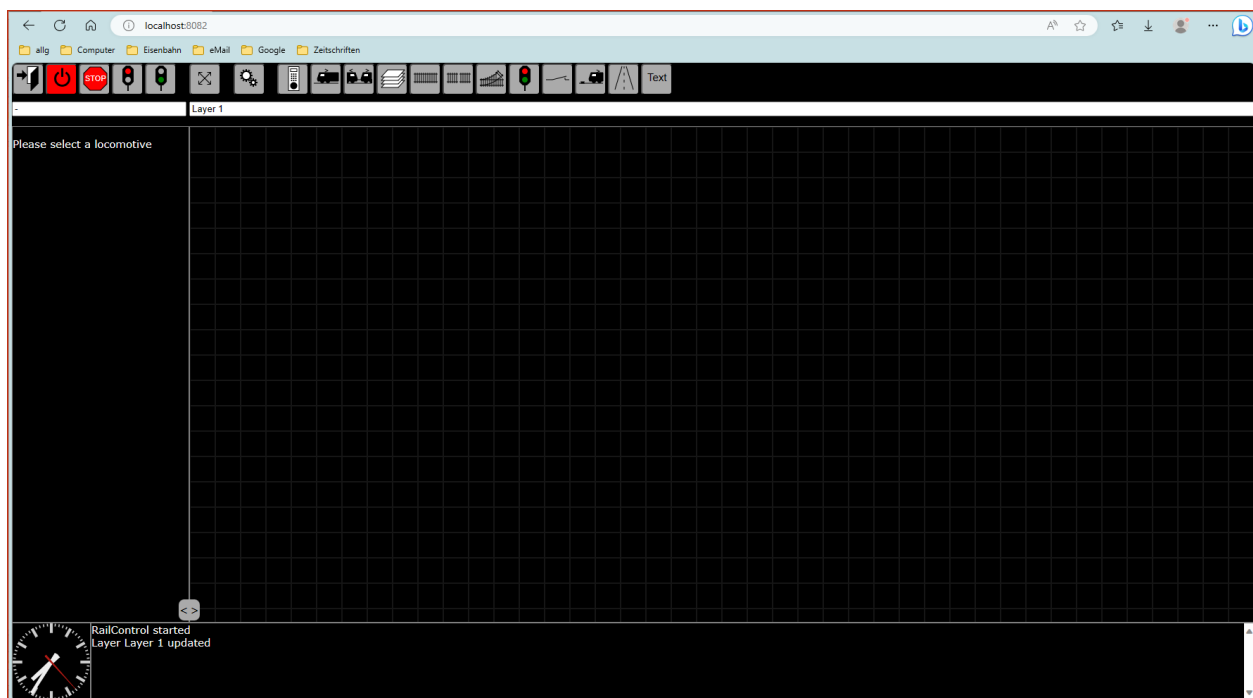
- **./railcontrol.exe**



Sicherheitshinweis


```
~/railcontrol
2023-09-24 17:30:44.574441: Info: Config: Parameter found in config file: webserveraddress = any
2023-09-24 17:30:44.574489: Info: Config: Parameter found in config file: webserverport = 8082
2023-09-24 17:30:44.574982: Info: SQLite: Opening SQLite database with filename railcontrol.sqlite
2023-09-24 17:30:44.575748: Info: SQLite: Creating table hardware
2023-09-24 17:30:44.586425: Info: SQLite: Creating table objects
2023-09-24 17:30:44.595523: Info: SQLite: Creating table relations
2023-09-24 17:30:44.603946: Info: SQLite: Creating table settings
2023-09-24 17:30:44.630684: Info: WebServer: Please type one of the following links in your browser to connect to RailControl:
  http://localhost:8082/
  http://192.168.178.83:8082/
  http://127.0.0.1:8082/
  http://[fe80::2c2a:a7d6:6d42:4cd5]:8082/
  http://[fe80::b980:1a03:d066:8fb3]:8082/
  http://[fe80::29b3:37b3:9c06:a343]:8082/
  http://[fe80::2d0c:1a8a:e6d1:d67e]:8082/
  http://[:1]:8082/
2023-09-24 17:30:55.726345: Info: Manager: Debounce thread started
2023-09-24 17:30:55.728775: Info: WebServer: Webserver started
2023-09-24 17:30:55.729946: Info: Z21Server: Z21 server started
```

Ergebnis: „railcontrol“ läuft



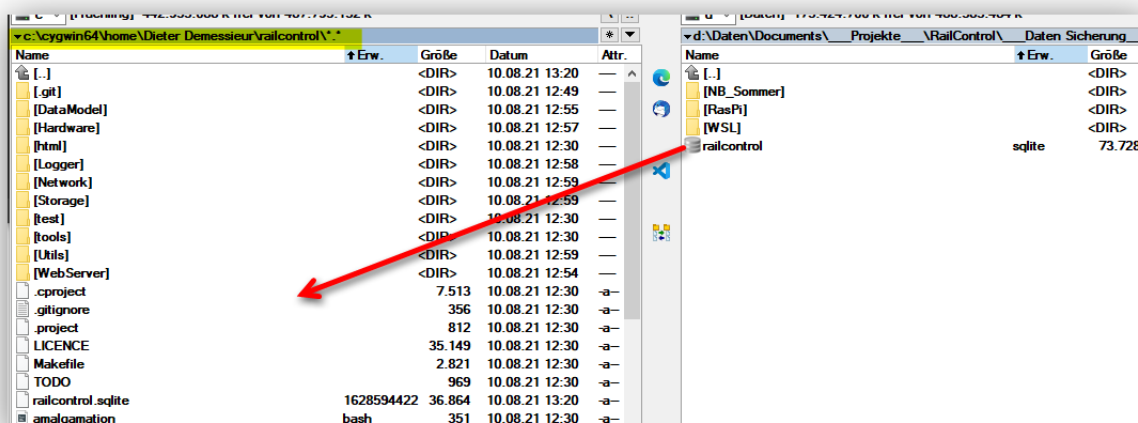
- **Browser starten**
- **z.B. localhost:8082**

RailControl aktualisieren

- Cygwin starten
- `cd railcontrol`
- `git pull`
- `make`

Datensicherung

Da „railcontrol“ die Daten in der Datei **railcontrol.sqlite** sichert, kann man eine vorhandene Datei ins **railcontrol Verzeichnis** kopieren.



- `railcontrol` stoppen
- Datei kopieren (`railcontrol.sqlite`)
- `railcontrol` starten

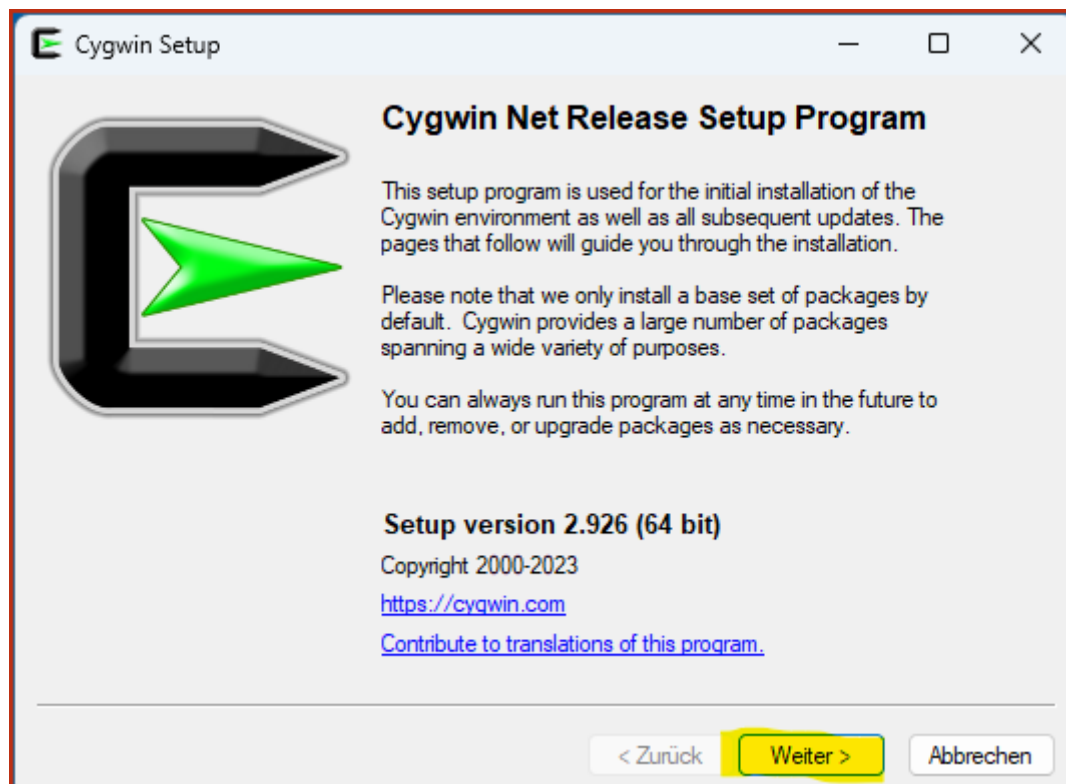
So wie ich es benutze

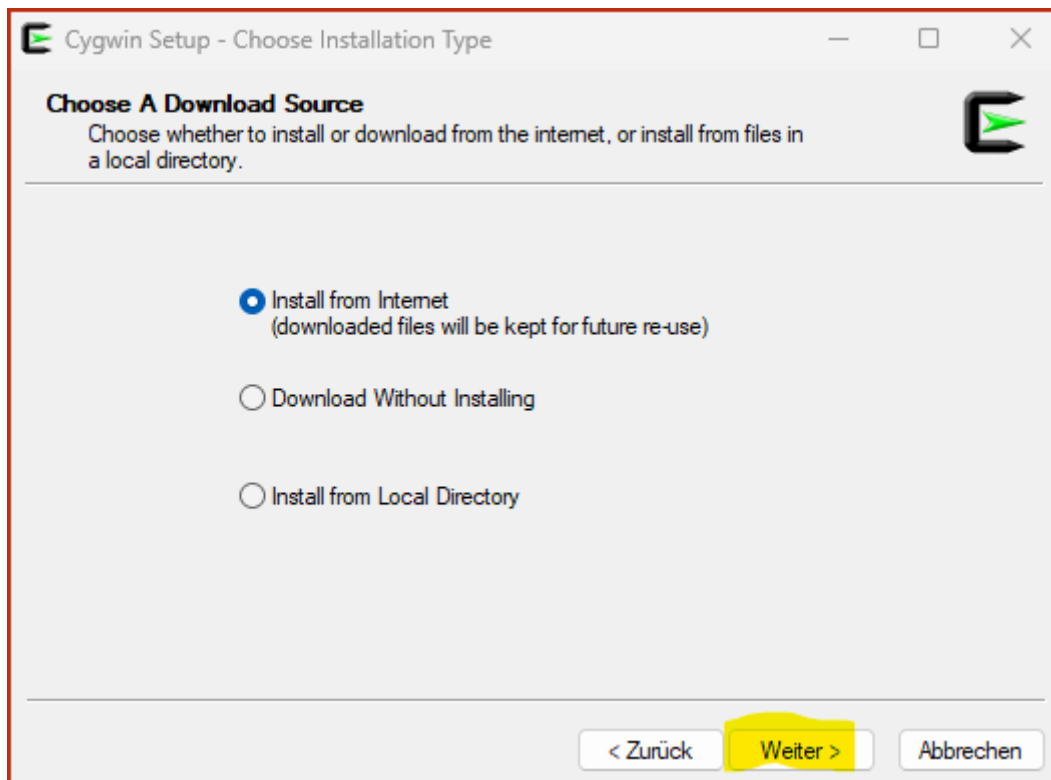
Cygwin laden

- [Cygwin Installation](https://cygwin.com/install.html)

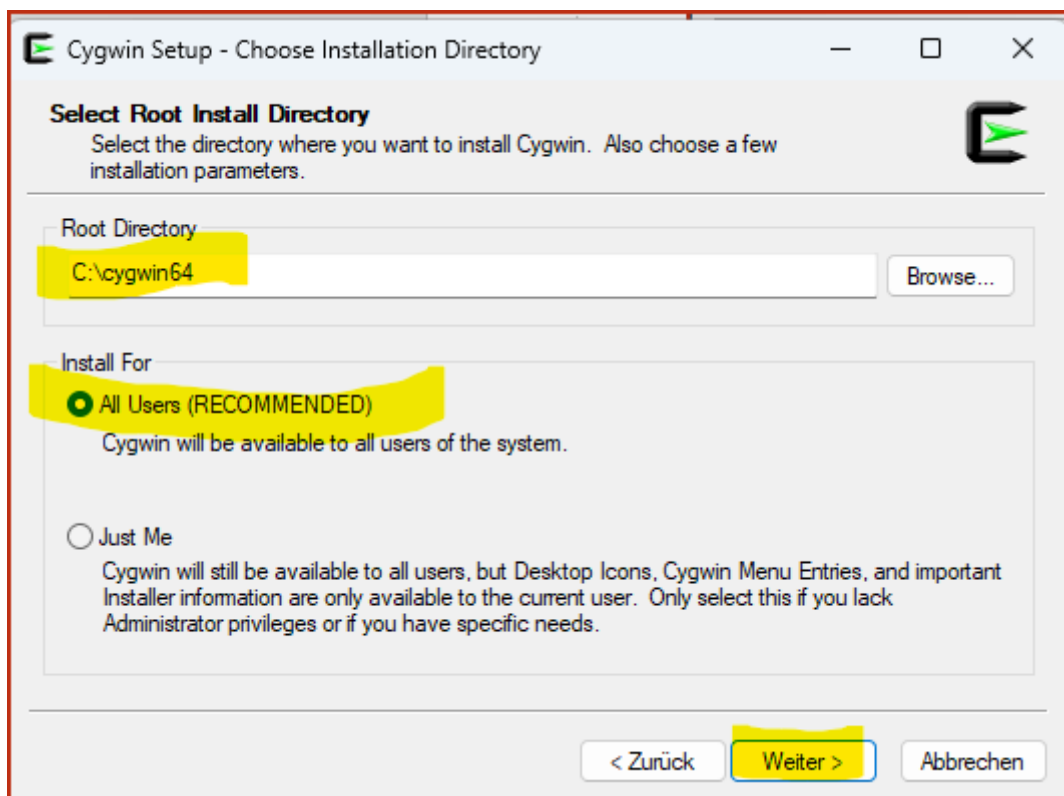


Cygwin installieren

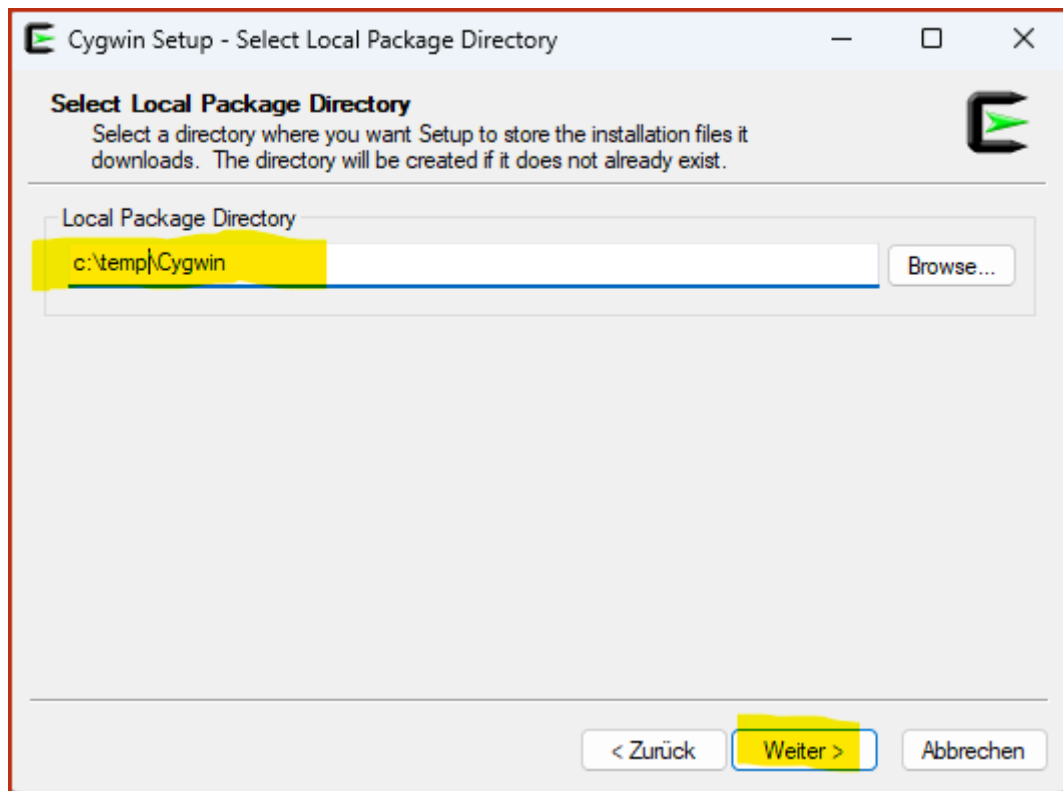




meine Einstellung



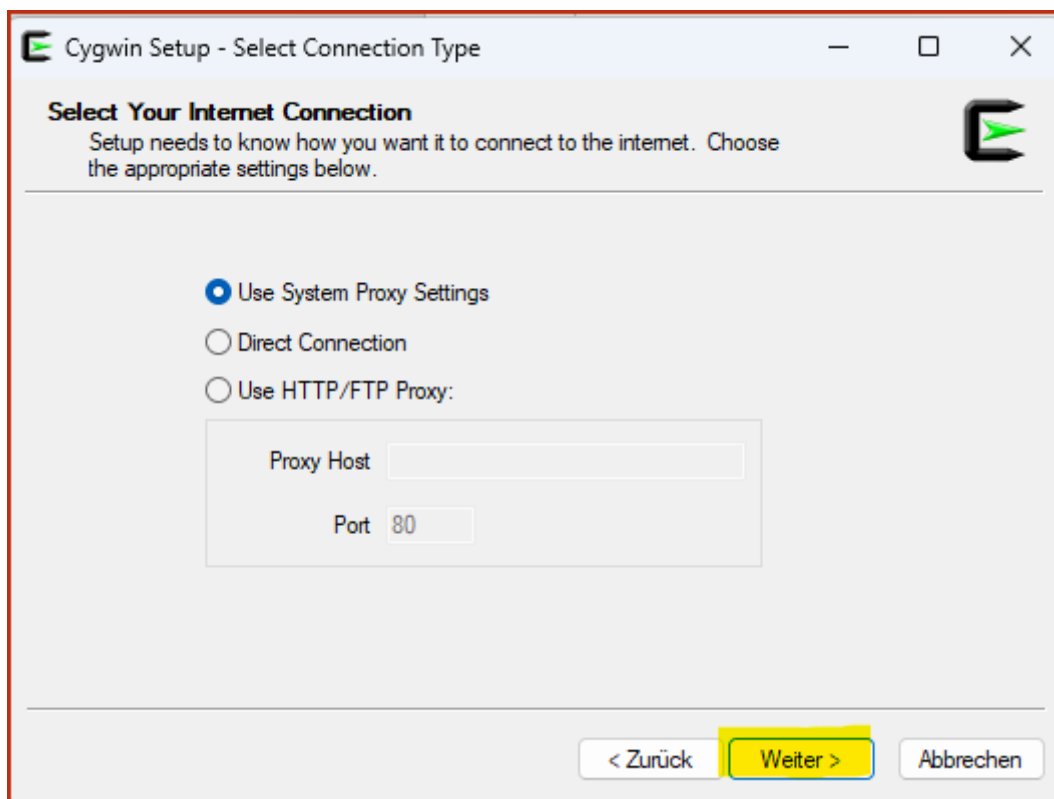
meine Einstellung



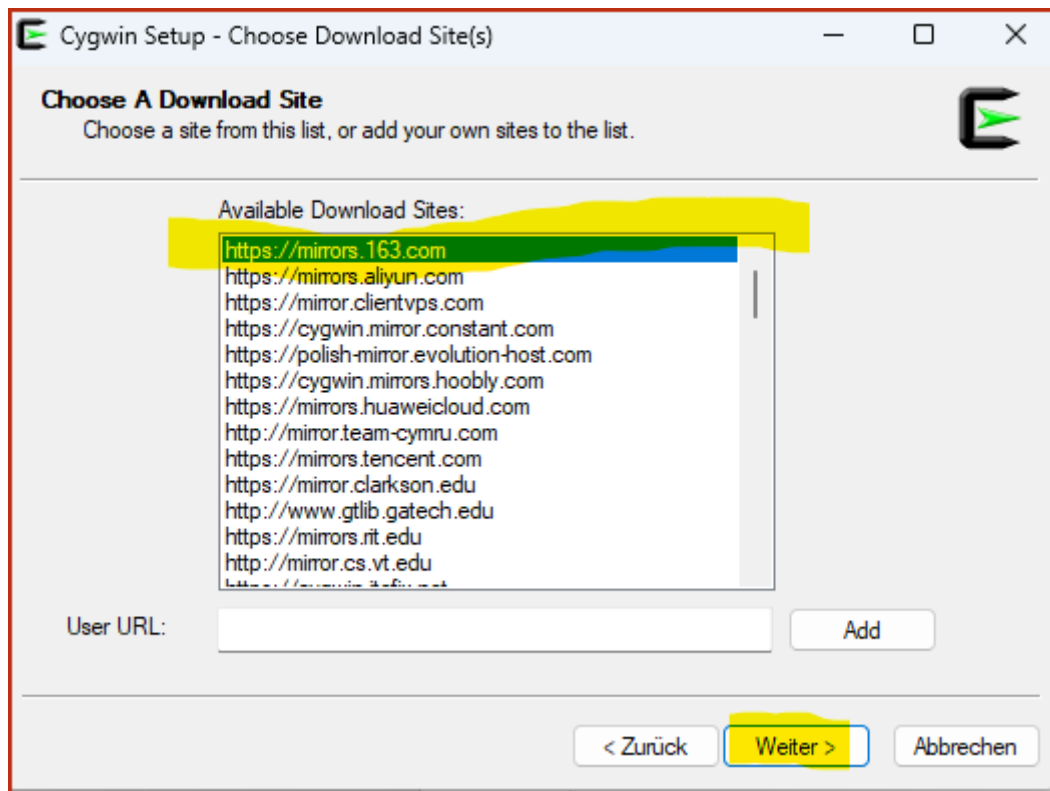
meine Einstellung

Diesen Ordner lösche ich hinterher.

Er kann auch erhalten werden, um von hier aus eine neue Installation durchzuführen.

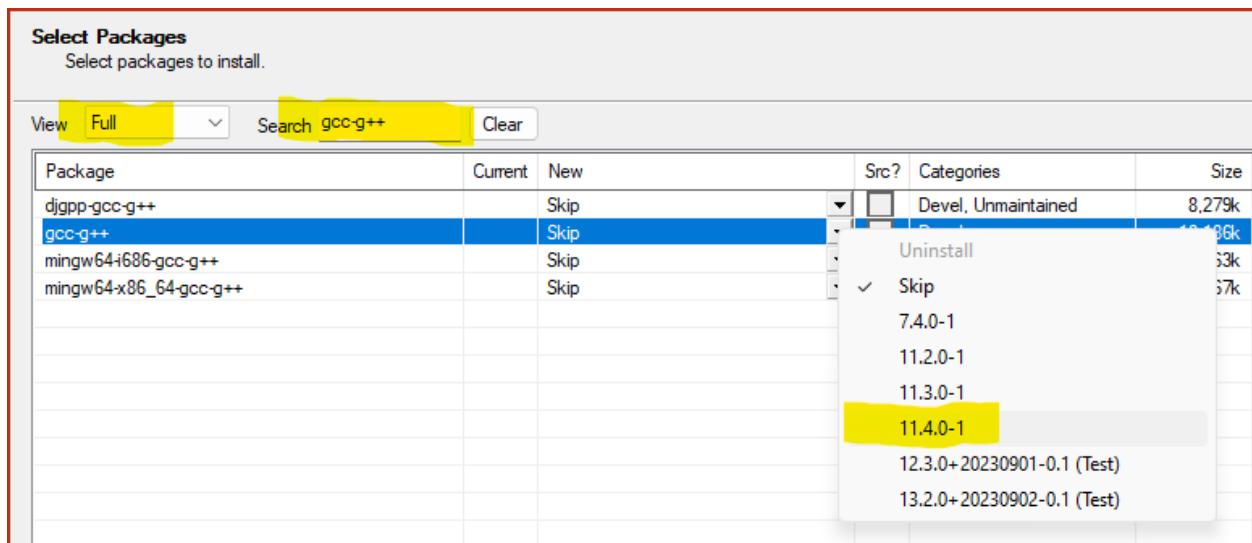


meine Einstellung



z.B. meine Einstellung

WICHTIG: Bei den nächsten Einstellungen nicht die Taste „WEITER“ betätigen. Erst nach dem alles eingestellt wurde.



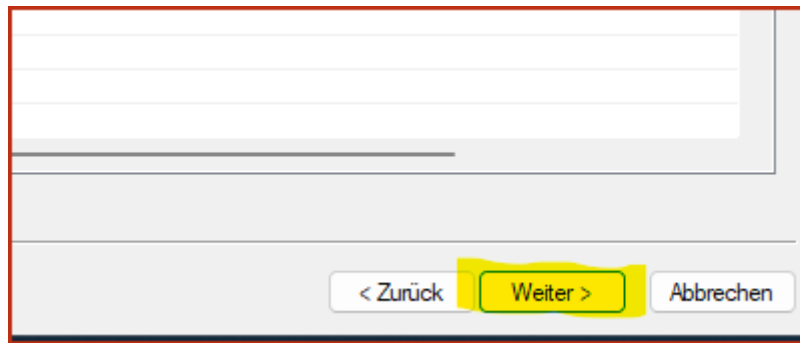
gcc-g++

Select Packages
Select packages to install.

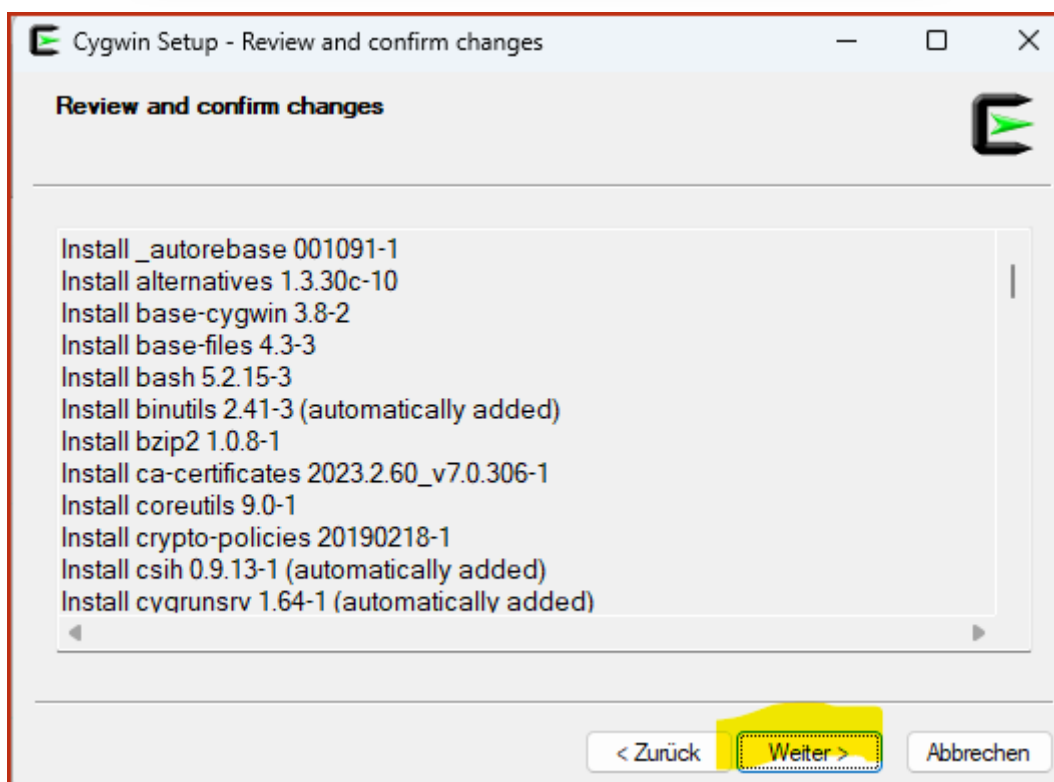
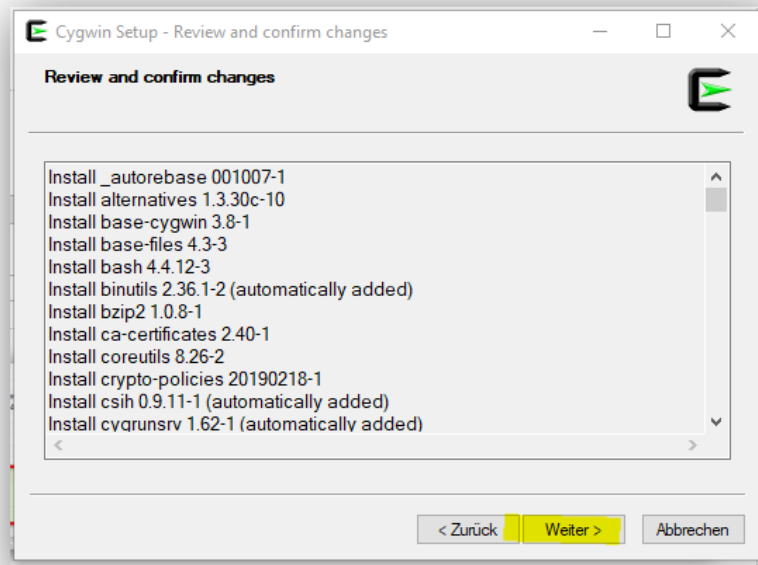
View Full Search make Clear

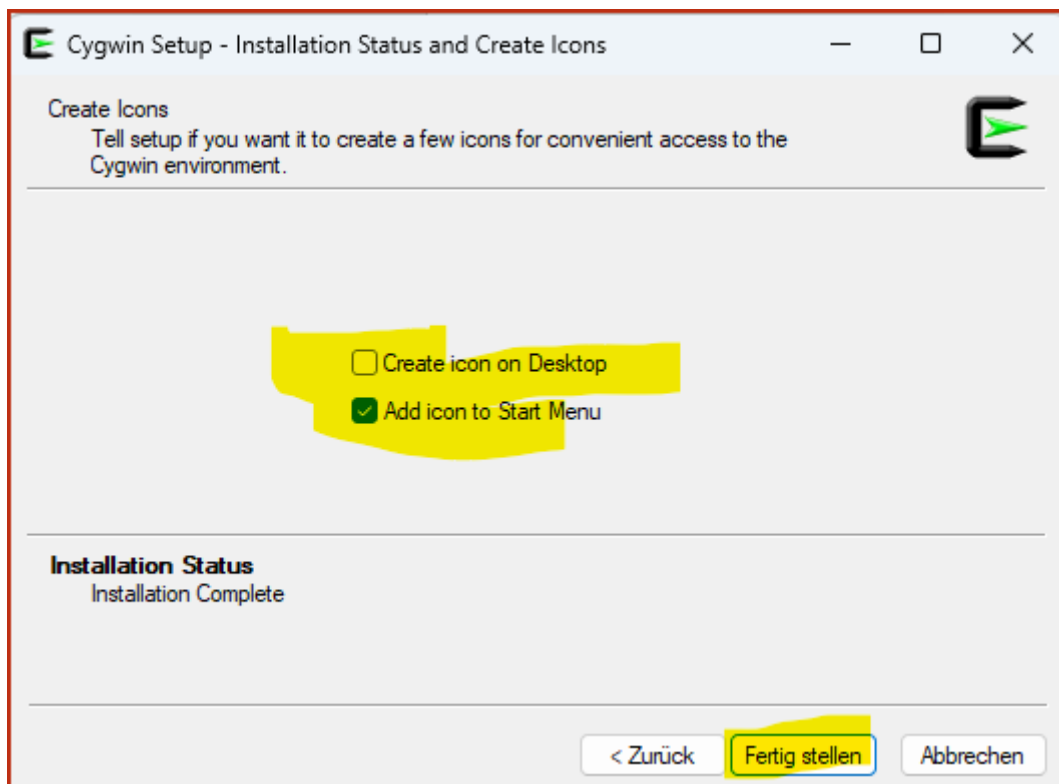
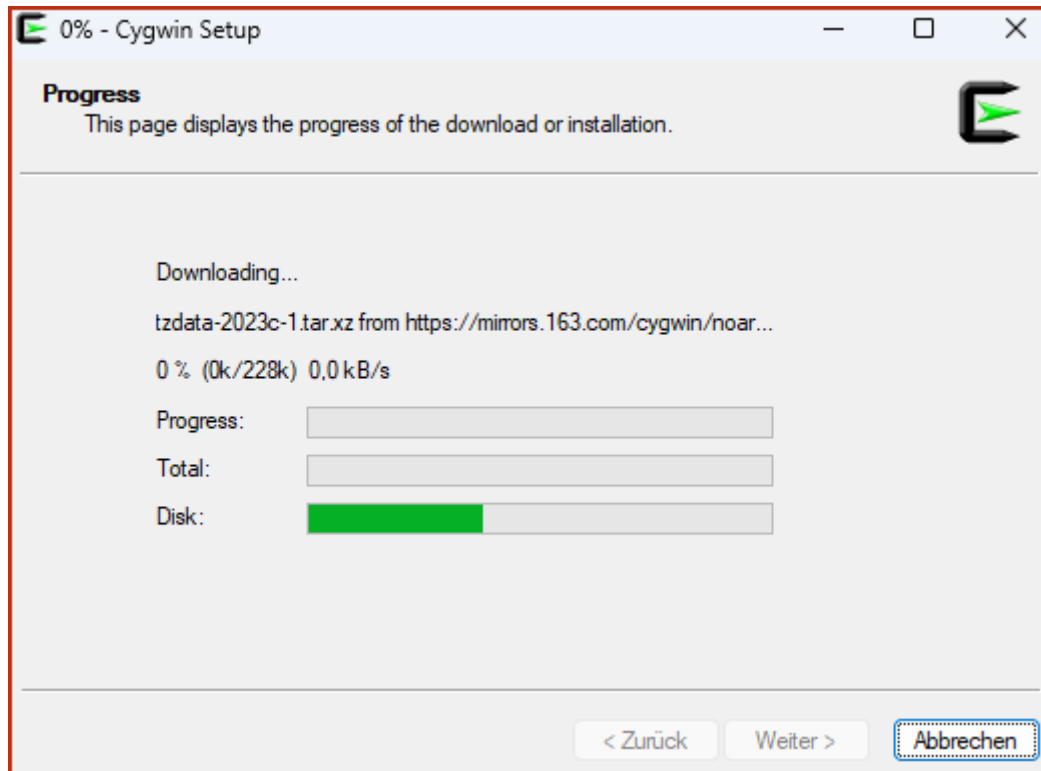
Package	Current	New	Src?	Categories
WindowMaker		Skip	<input type="checkbox"/>	Unmaintained, X
WindowMaker-debuginfo		Skip	<input type="checkbox"/>	Debug, Unmaint
automake		Skip	<input type="checkbox"/>	Devel
automake1.10		Skip	<input type="checkbox"/>	Devel
automake1.11		Skip	<input type="checkbox"/>	Devel
automake1.12		Skip	<input type="checkbox"/>	Devel
automake1.13		Skip	<input type="checkbox"/>	Devel
automake1.14		Skip	<input type="checkbox"/>	Devel
automake1.15		Skip	<input type="checkbox"/>	Devel
automake1.16		Skip	<input type="checkbox"/>	Devel
automake1.4		Skip	<input type="checkbox"/>	Devel
automake1.5		Skip	<input type="checkbox"/>	Devel
automake1.6		Skip	<input type="checkbox"/>	Devel
automake1.7		Skip	<input type="checkbox"/>	Devel
automake1.8		Skip	<input type="checkbox"/>	Devel
automake1.9		Skip	<input type="checkbox"/>	Devel
bash-completion-cmake		Skip	<input type="checkbox"/>	Shells
cmake		Skip	<input type="checkbox"/>	Devel
cmake-debuginfo		Skip	<input type="checkbox"/>	Debug
cmake-doc		Skip	<input type="checkbox"/>	Devel
cmake-gui		Skip	<input type="checkbox"/>	Devel
emacs-cmake		Skip	<input type="checkbox"/>	Editors
extra-cmake-modules		Skip	<input type="checkbox"/>	Devel
gcc-tools-epoch1-automake		Skip	<input type="checkbox"/>	Devel, Unmainta
gcc-tools-epoch2-automake		Skip	<input type="checkbox"/>	Devel, Unmainta
gccmakedep		Skip	<input type="checkbox"/>	Devel, Unmainta
imake		Skip	<input type="checkbox"/>	Devel
imake-debuginfo		Skip	<input type="checkbox"/>	Debug
libWMaker-devel		Skip	<input type="checkbox"/>	Libs, Unmaintain
libWMaker1		Skip	<input type="checkbox"/>	Libs, Unmaintain
libpagemaker-tools		Skip	<input type="checkbox"/>	Graphics, Unmai
libpagemaker0.0-debuginfo		Skip	<input type="checkbox"/>	Debug, Unmaint
libpagemaker0.0-devel		Skip	<input type="checkbox"/>	Libs, Unmaintain
libpagemaker0.0-doc		Skip	<input type="checkbox"/>	Libs, Unmaintain
libpagemaker0.0_0		Skip	<input type="checkbox"/>	Libs, Unmaintain
make		4.4.1-2	<input checked="" type="checkbox"/>	Uninstall
make-debuginfo		Skip	<input type="checkbox"/>	Skip
makedepend		Skip	<input type="checkbox"/>	4.4-1
makedepend-debuginfo		Skip	<input type="checkbox"/>	4.4.1-1
makepasswd		Skip	<input type="checkbox"/>	4.4.1-2
makeself		Skip	<input type="checkbox"/>	
mingw64-i686-libpagemaker0.0		Skip	<input type="checkbox"/>	Devel, Unmainta
mingw64-i686-qt4-qmake		Skip	<input type="checkbox"/>	Devel, Unmainta

make



Jetzt erst mit „WEITER“ die Installation starten

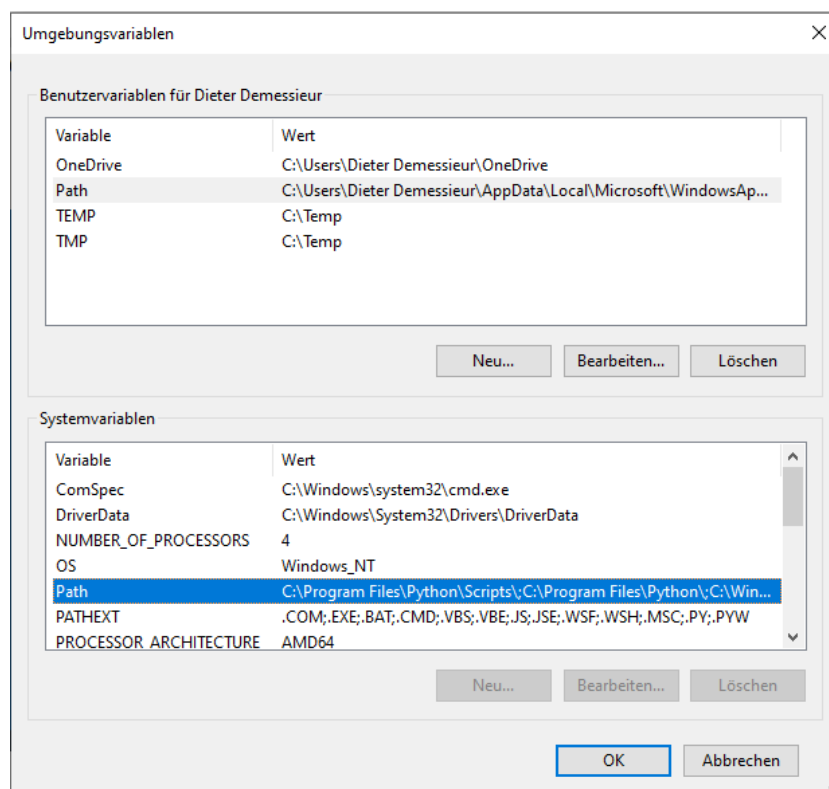
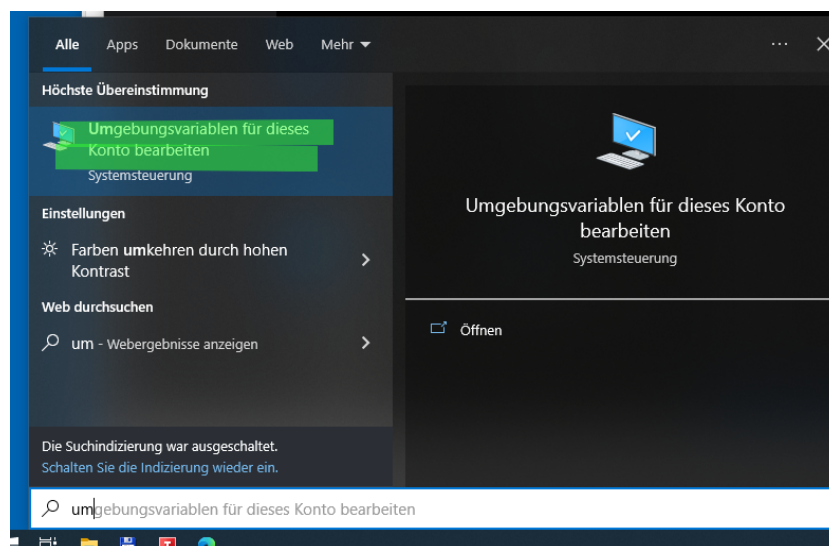


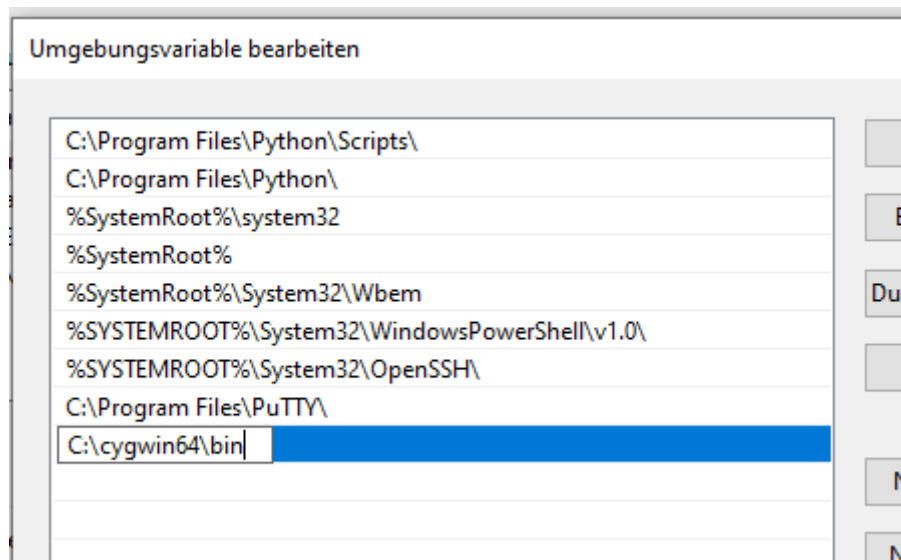


muss jeder selbst entscheiden

Cygwin - Path in die Umgebungsvariablen eintragen (bei mir)

1. Einmal auf das Windowssymbol klicken, meistens unten links. Oder in der Mitte bei Window 11.
2. Dann einfach anfangen zu tippen „**Umgebungsvariablen**“ meist ist es so das nach den ersten Buchstaben schon das Richtige angezeigt wird.
3. in die Umgebungsvariable „**Path**“ folgendes hinzufügen „**C:\cygwin64\bin**“, wenn Cygwin auf c:\ installiert wurde. Da ich den Rechner alleine benutze, trage ich das bei den Systemvariablen ein. Sonst bitte bei den Benutzervariablen.
4. danach starte ich meinen Rechner immer neu.





```
Windows PowerShell
Copyright (C) Microsoft Corporation. Alle Rechte vorbehalten.

Installieren Sie die neueste PowerShell für neue Funktionen und Verbesserungen! https://aka.ms/PSWindows

PS C:\Users\diete> gcc --version
gcc (GCC) 11.4.0
Copyright (C) 2021 Free Software Foundation, Inc.
This is free software; see the source for copying conditions. There is NO
warranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.

PS C:\Users\diete> make --version
GNU Make 4.4.1
Built for x86_64-pc-cygwin
Copyright (C) 1988-2023 Free Software Foundation, Inc.
License GPLv3+: GNU GPL version 3 or later <https://gnu.org/licenses/gpl.html>
This is free software: you are free to change and redistribute it.
There is NO WARRANTY, to the extent permitted by law.
PS C:\Users\diete> |
```

Test z.B. mit Powershell ob alles gefunden wird.

GIT - unter Windows installieren



The image shows the Git website homepage. At the top left is the Git logo (a red diamond with a white 'g') followed by the text 'git --local-branching-on-the-cheap'. To the right is a search bar with the placeholder text 'Search entire site...'. Below the header, there is a paragraph describing Git as a 'free and open source distributed version control system' designed for projects of all sizes. Another paragraph states that Git is 'easy to learn' and has a 'tiny footprint with lightning fast performance', outclassing other SCM tools like Subversion, CVS, Perforce, and ClearCase. To the right of the text is a diagram showing a branching model with stacks of code blocks connected by colored lines (red, blue, yellow). Below the main text are four sections: 'About' (advantages compared to other systems), 'Documentation' (command reference, Pro Git book, etc.), 'Downloads' (GUI clients, binary releases), and 'Community' (bug reporting, mailing list, etc.). On the right side, there is a monitor displaying the 'Latest source Release 2.36.1' with a 'Download for Windows' button.

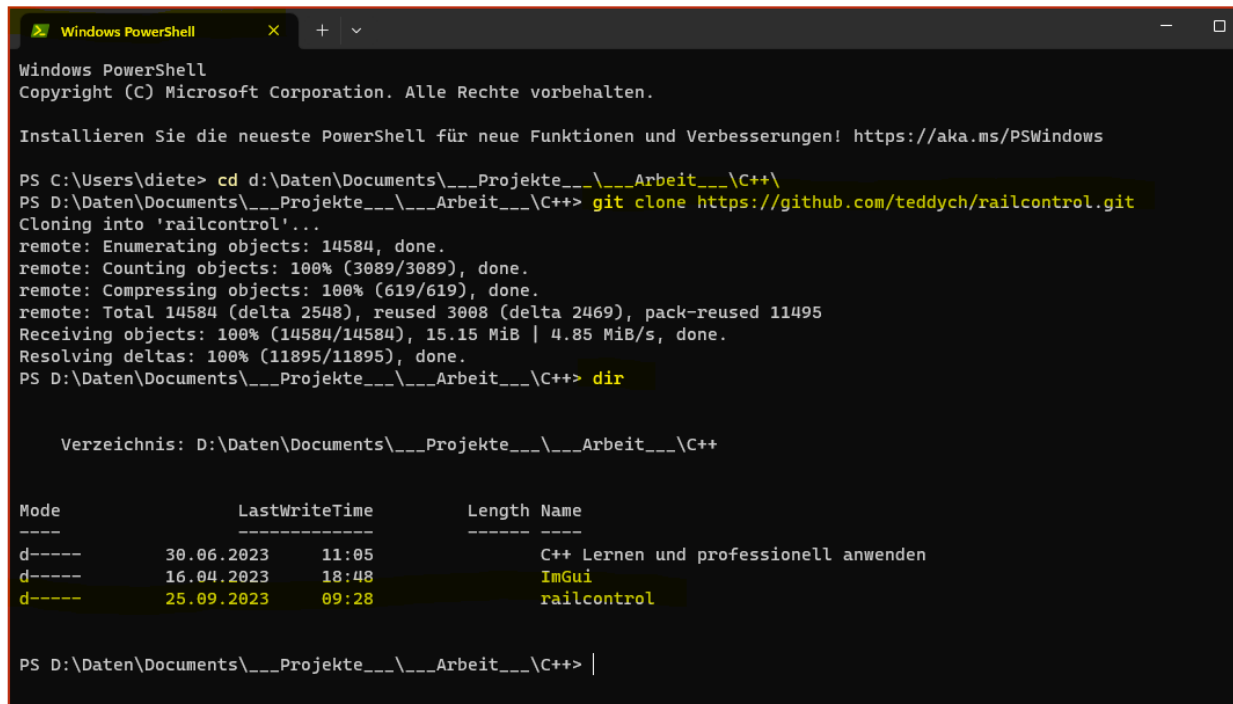
[Git \(git-scm.com\)](https://git-scm.com)

„GIT“ installieren, ich lasse bei mir alle vorgegebenen Angaben.

RailControl installieren und kompilieren (z.B mit Powershell)

Im Arbeitsverzeichnis wo RailControl installiert werden soll, geht es jetzt weiter:

- `git clone https://github.com/teddych/railcontrol.git`



```
Windows PowerShell
Copyright (C) Microsoft Corporation. Alle Rechte vorbehalten.

Installieren Sie die neueste PowerShell für neue Funktionen und Verbesserungen! https://aka.ms/PSWindows

PS C:\Users\diete> cd d:\Daten\Documents\___Projekte___\___Arbeit___\C++\
PS D:\Daten\Documents\___Projekte___\___Arbeit___\C++> git clone https://github.com/teddych/railcontrol.git
Cloning into 'railcontrol'...
remote: Enumerating objects: 14584, done.
remote: Counting objects: 100% (3089/3089), done.
remote: Compressing objects: 100% (619/619), done.
remote: Total 14584 (delta 2548), reused 3008 (delta 2469), pack-reused 11495
Receiving objects: 100% (14584/14584), 15.15 MiB | 4.85 MiB/s, done.
Resolving deltas: 100% (11895/11895), done.
PS D:\Daten\Documents\___Projekte___\___Arbeit___\C++> dir

Verzeichnis: D:\Daten\Documents\___Projekte___\___Arbeit___\C++

Mode                LastWriteTime         Length Name
----                -
d-----          30.06.2023      11:05          C++ Lernen und professionell anwenden
d-----          16.04.2023      18:48          ImGui
d-----          25.09.2023      09:28          railcontrol

PS D:\Daten\Documents\___Projekte___\___Arbeit___\C++> |
```

Ergebnis: der erzeugte „railcontrol“ Ordner

```

Windows PowerShell
Copyright (C) Microsoft Corporation. Alle Rechte vorbehalten.

Installieren Sie die neueste PowerShell für neue Funktionen und Verbesserungen.

PS C:\Users\diete> cd d:\Daten\Documents\___Projekte___\___Arbeit___\C++\
PS D:\Daten\Documents\___Projekte___\___Arbeit___\C++> git clone https://github.com/railcontrol/railcontrol
Cloning into 'railcontrol'...
remote: Enumerating objects: 14584, done.
remote: Counting objects: 100% (3089/3089), done.
remote: Compressing objects: 100% (619/619), done.
remote: Total 14584 (delta 2548), reused 3008 (delta 2469), pack-reused 11495
Receiving objects: 100% (14584/14584), 15.15 MiB | 4.85 MiB/s, done.
Resolving deltas: 100% (11895/11895), done.
PS D:\Daten\Documents\___Projekte___\___Arbeit___\C++> dir

Verzeichnis: D:\Daten\Documents\___Projekte___\___Arbeit___\C++

Mode                LastWriteTime         Length Name
----                -
d-----          30.06.2023      11:05          C++ Lernen und professionel
d-----          16.04.2023      18:48          ImGui
d-----          25.09.2023      09:28          railcontrol

PS D:\Daten\Documents\___Projekte___\___Arbeit___\C++> cd .\railcontrol\
PS D:\Daten\Documents\___Projekte___\___Arbeit___\C++\railcontrol> make

```

- Im erzeugten Railcontrol Ordner „make“ eingeben. Dieser Vorgang dauert einen Moment je nach Rechner.

```

/zlib/trees.o Hardware/zlib/trees.c
cc -g -O2 -Wno-implicit-function-declaration -Wno-#warnings -Wno-deprecated -Wno-deprecated-non-prototype -c -o Hardware
/zlib/uncompr.o Hardware/zlib/uncompr.c
cc -g -O2 -Wno-implicit-function-declaration -Wno-#warnings -Wno-deprecated -Wno-deprecated-non-prototype -c -o Hardware
/zlib/zutil.o Hardware/zlib/zutil.c
g++ -static Storage/sqlite/sqlite3.o ArgumentHandler.o Config.o Languages.o Manager.o RailControl.o Version.o Server/
Web/HtmlTag.o Server/Web/HtmlTagAccessory.o Server/Web/HtmlTagButton.o Server/Web/HtmlTagButtonCommand.o Server/Web/Html
TagButtonCommandFullScreen.o Server/Web/HtmlTagButtonCommandPressRelease.o Server/Web/HtmlTagButtonCommandToggle.o Serve
r/Web/HtmlTagButtonPopup.o Server/Web/HtmlTagFeedback.o Server/Web/HtmlTagInput.o Server/Web/HtmlTagInputInteger.o Serve
r/Web/HtmlTagInputSlider.o Server/Web/HtmlTagInputSliderLocoSpeed.o Server/Web/HtmlTagLayoutItem.o Server/Web/HtmlTagRou
te.o Server/Web/HtmlTagSelect.o Server/Web/HtmlTagSelectMultiple.o Server/Web/HtmlTagSelectMultipleWithLabel.o Server/We
b/HtmlTagSelectWithLabel.o Server/Web/HtmlTagSignal.o Server/Web/HtmlTagSwitch.o Server/Web/HtmlTagText.o Server/Web/Htm
lTagTrack.o Server/Web/Response.o Server/Web/ResponseCsv.o Server/Web/ResponseHtml.o Server/Web/ResponseHtmlFull.o Serve
r/Web/ResponseHtmlNotFound.o Server/Web/ResponseHtmlNotImplemented.o Server/Web/WebClient.o Server/Web/WebClientCluster.
o Server/Web/WebClientRoute.o Server/Web/WebClientSignal.o Server/Web/WebClientStatic.o Server/Web/WebClientText.o Serve
r/Web/WebClientTrack.o Server/Web/WebServer.o Server/Z21/Z21Client.o Server/Z21/Z21Server.o DataModel/Accessory.o DataMo
del/AccessoryBase.o DataModel/Cluster.o DataModel/Feedback.o DataModel/HardwareHandle.o DataModel/LayoutItem.o DataMo
del/LockableItem.o DataModel/Loco.o DataModel/LocoBase.o DataModel/LocoFunctions.o DataModel/MultipleUnit.o DataModel/Objec
t.o DataModel/ObjectIdentifier.o DataModel/Relation.o DataModel/Route.o DataModel/Serializable.o DataModel/Signal.o Data
Model/Switch.o DataModel/Text.o DataModel/Track.o Hardware/AccessoryCache.o Hardware/CS2Tcp.o Hardware/CS2Udp.o Hardware
/CcSchnitte.o Hardware/DccPpExSerial.o Hardware/DccPpExTcp.o Hardware/FeedbackCache.o Hardware/HardwareHandler.o Hardwar
e/Hsi88.o Hardware/LocoCache.o Hardware/M6051.o Hardware/Virtual.o Hardware/ZLib.o Hardware/Protocols/DccPpEx.o Hardware
/Protocols/EsuCAN.o Hardware/Protocols/LocoNet.o Hardware/Protocols/MaerklinCAN.o Hardware/Protocols/P50x.o Hardware/Pro
tocols/Z21.o Logger/Logger.o Logger/LoggerServer.o Network/Serial.o Network/SerialClient.o Network/TcpConnection.o Network/
TcpServer.o Network/UdpConnection.o Network/UdpServer.o Storage/Sqlite.o Storage/StorageHandler.o Storage/TransactionGua
rd.o Utils/Network.o Utils/Utils.o Hardware/zlib/adler32.o Hardware/zlib/compress.o Hardware/zlib/crc32.o Hardware/zlib/
deflate.o Hardware/zlib/gzclose.o Hardware/zlib/gzlib.o Hardware/zlib/gzread.o Hardware/zlib/gzwrite.o Hardware/zlib/inf
back.o Hardware/zlib/inffast.o Hardware/zlib/inflate.o Hardware/zlib/inftrees.o Hardware/zlib/trees.o Hardware/zlib/unco
mpr.o Hardware/zlib/zutil.o -o railcontrol -lpthread -ldl
PS D:\Daten\Documents\___Projekte___\___Arbeit___\C++\railcontrol>

```

ca. xx Minuten später liegt das Ergebnis vor.

```
o/gzclose.o Hardware/zlib/gzlib.o Hardware/zlib/gzread.o Hardware/zlib/gzwrite.o Hardware/zlib/inflate.o Hardware/zlib/inftrees.o Hardware/zlib/trees.o Hardware/zlib/zlib.o -o railcontrol -lpthread -ldl  
---Projekte---\---Arbeit---\C++\railcontrol> .\railcontrol.exe  
lib/uncompr.o Hardware/zlib/zutil.o
```

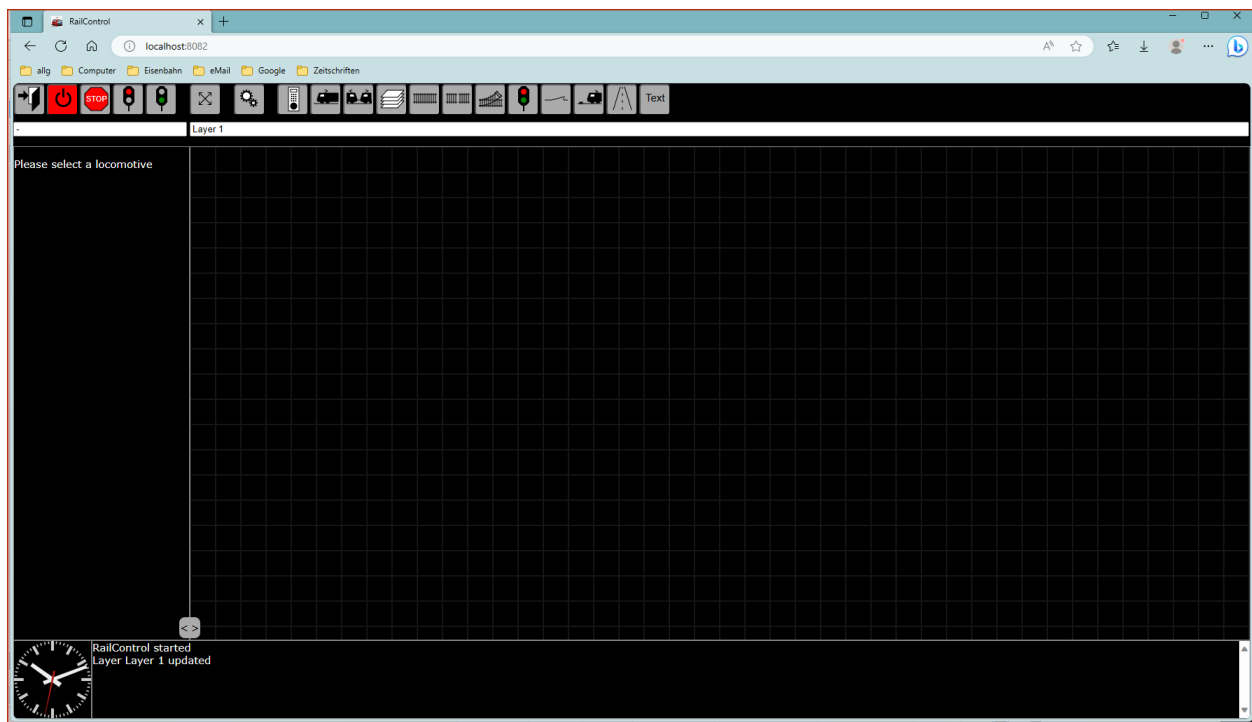
- **railcontrol.exe**



Sicherheitshinweis


```
Windows PowerShell
2023-09-25 08:09:36.158657: Info: Main: Start argument: /cygdrive/d/Daten/Documents/___Projekte___/___Arbeit___/C++/railcontrol/railcontrol
2023-09-25 08:09:36.159354: Warning: Main: Config file railcontrol.conf not found. Using default config file railcontrol.conf.
2023-09-25 08:09:36.160160: Info: Main: Copying from railcontrol.conf.dist to railcontrol.conf
2023-09-25 08:09:36.162434: Info: Config: Reading config file railcontrol.conf
2023-09-25 08:09:36.162969: Info: Config: Parameter found in config file: dbfilename = railcontrol.sqlite
2023-09-25 08:09:36.163344: Info: Config: Parameter found in config file: dbkeepbackups = 10
2023-09-25 08:09:36.163706: Info: Config: Parameter found in config file: logkeepbackups = 10;
2023-09-25 08:09:36.163979: Info: Config: Parameter found in config file: webserveraddress = any
2023-09-25 08:09:36.164415: Info: Config: Parameter found in config file: webserverport = 8082
2023-09-25 08:09:36.165182: Info: SQLite: Opening SQLite database with filename railcontrol.sqlite
2023-09-25 08:09:36.166074: Info: SQLite: Creating table hardware
2023-09-25 08:09:36.170742: Info: SQLite: Creating table objects
2023-09-25 08:09:36.175434: Info: SQLite: Creating table relations
2023-09-25 08:09:36.179921: Info: SQLite: Creating table settings
2023-09-25 08:09:36.199546: Info: WebServer: Please type one of the following links in your browser to connect to RailControl:
http://localhost:8082/
http://192.168.178.83:8082/
http://127.0.0.1:8082/
http://[fe80::2c2a:a7d6:6d42:4cd5]:8082/
http://[fe80::b980:1a03:d066:8fb3]:8082/
http://[fe80::29b3:37b3:9c06:a343]:8082/
http://[fe80::2d0c:1a8a:e6d1:d67e]:8082/
http://[:1]:8082/
2023-09-25 08:09:47.267439: Info: Manager: Debounce thread started
2023-09-25 08:09:47.270908: Info: WebServer: Webserver started
2023-09-25 08:09:47.271767: Info: Z21Server: Z21 server started
```

Ergebnis: „railcontrol“ läuft



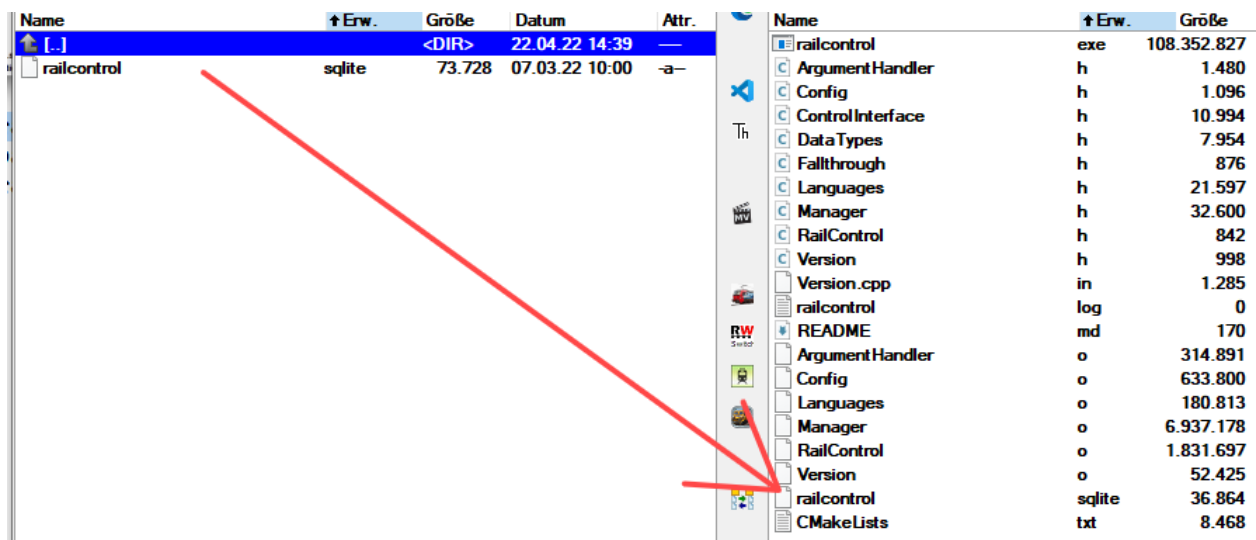
- **Browser starten**
- **z.B. localhost:8082**

RailControl aktualisieren

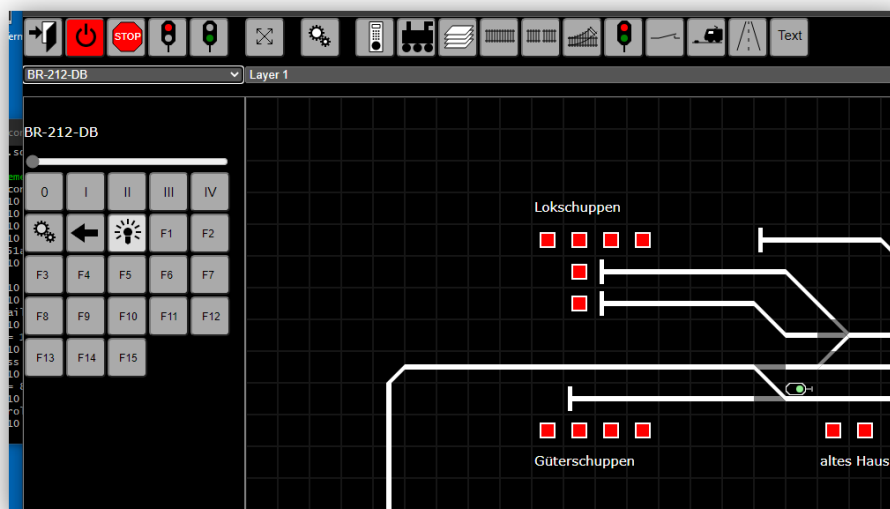
- in das „railcontrol“ Verzeichnis wechseln
- `git pull`
- `make`

Datensicherung

Da „railcontrol“ die Daten in der Datei **railcontrol.sqlite** sichert, kann man eine vorhandene Datei ins **railcontrol** Verzeichnis kopieren.



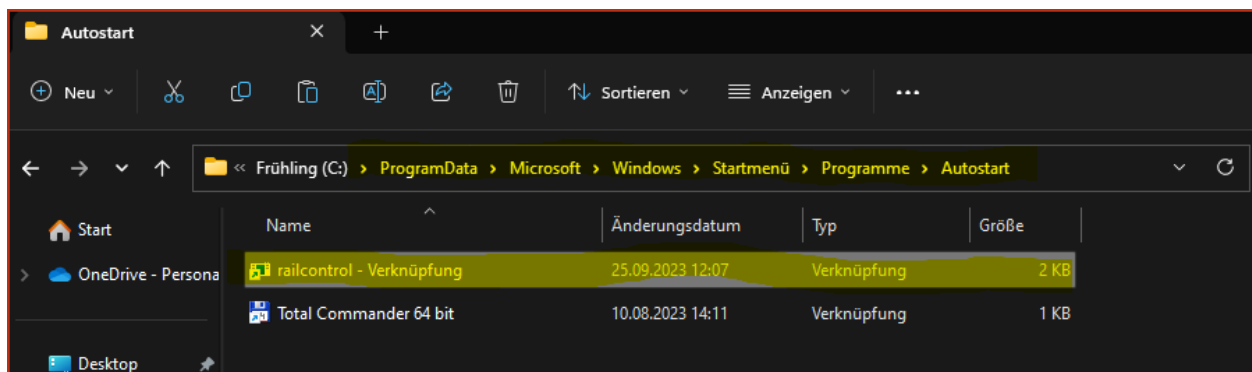
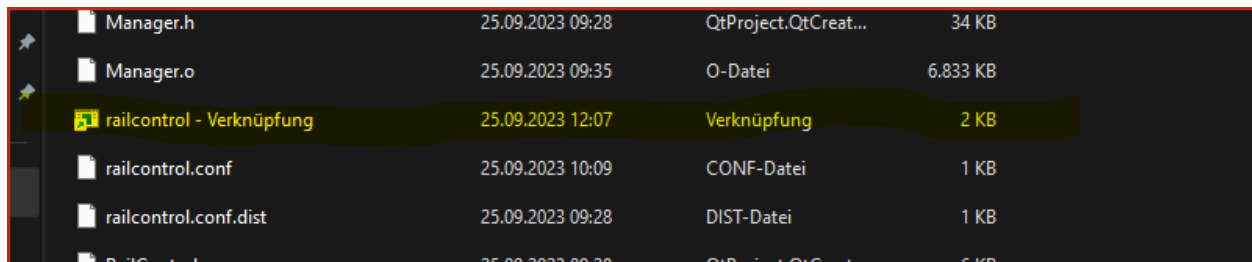
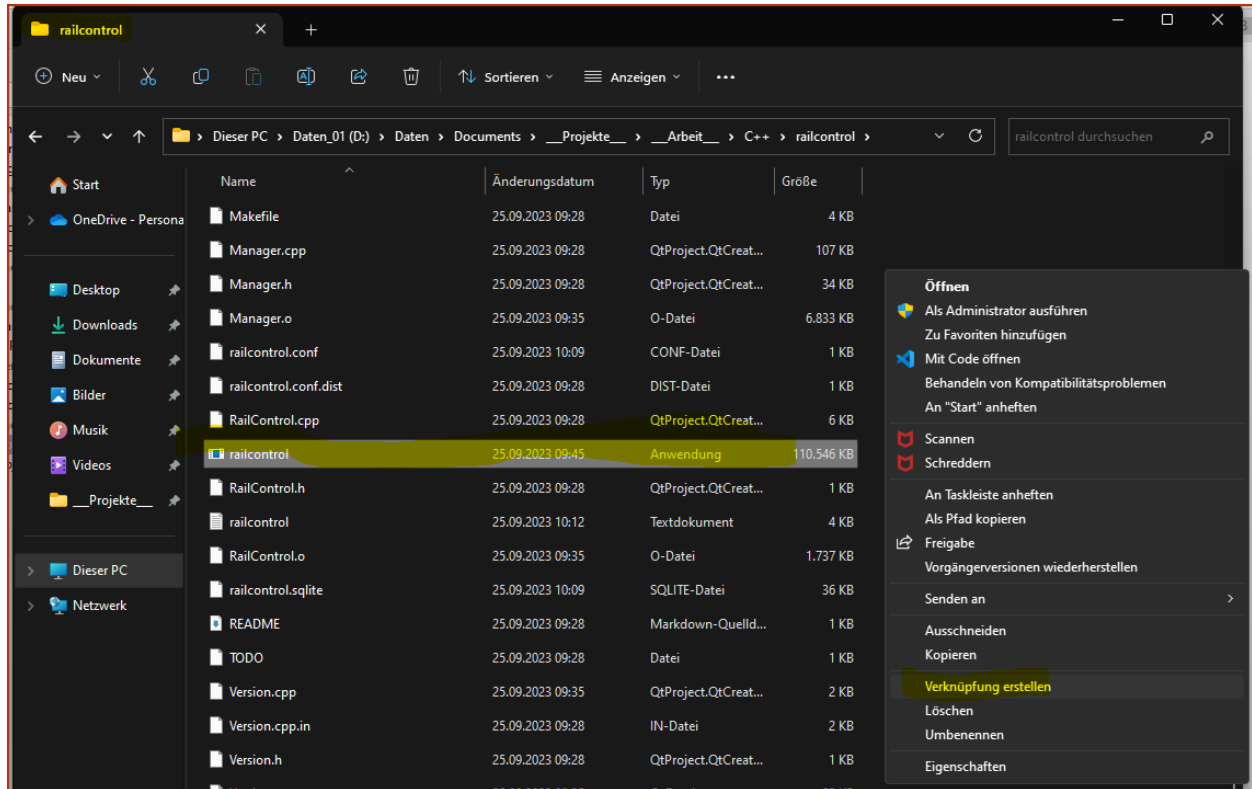
- `railcontrol` stoppen
- Datei kopieren (`railcontrol.sqlite`)
- `railcontrol` starten

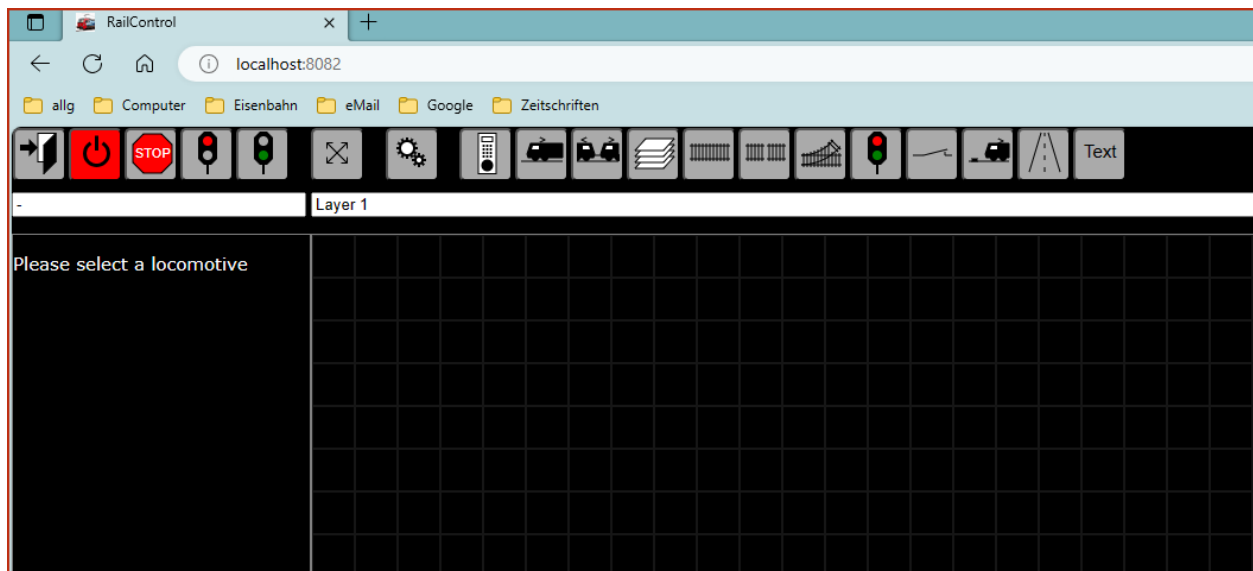


Ergebnis

Railcontrol automatisch starten

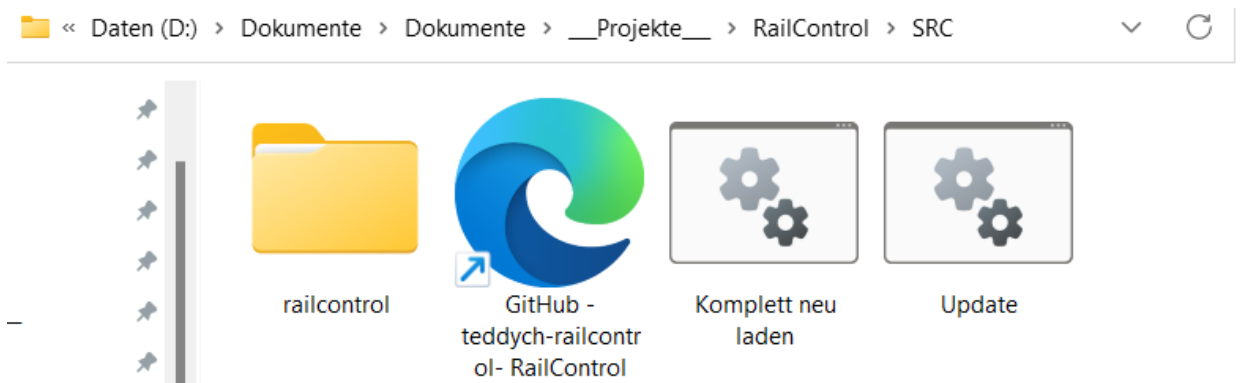
- in das „railcontrol“ Verzeichnis wechseln
- und eine Verknüpfung erzeugen
- und in den „Startup“ Ordner kopieren
(c:\ProgramData\microsoft\Windows\Start Menu\Programs\Startup\)





nach einem Neustart

meine Projektstruktur und .bat - Dateien



Inhalt der Datei: „Komplett neu laden.bat“

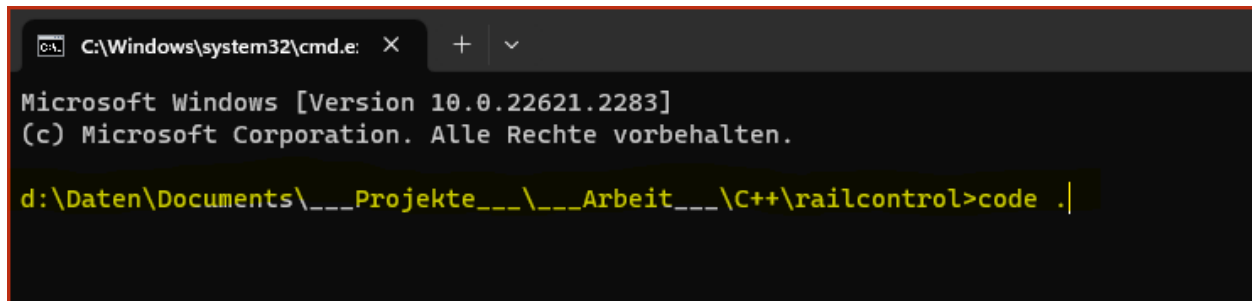
```
git clone https://github.com/teddych/railcontrol.git
pause
```

Inhalt der Datei: „Update.bat“

```
cd railcontrol
git pull
pause
```

Bearbeiten z.B. mit VSCode

Visual Studio Code - Code Editing. Redefined

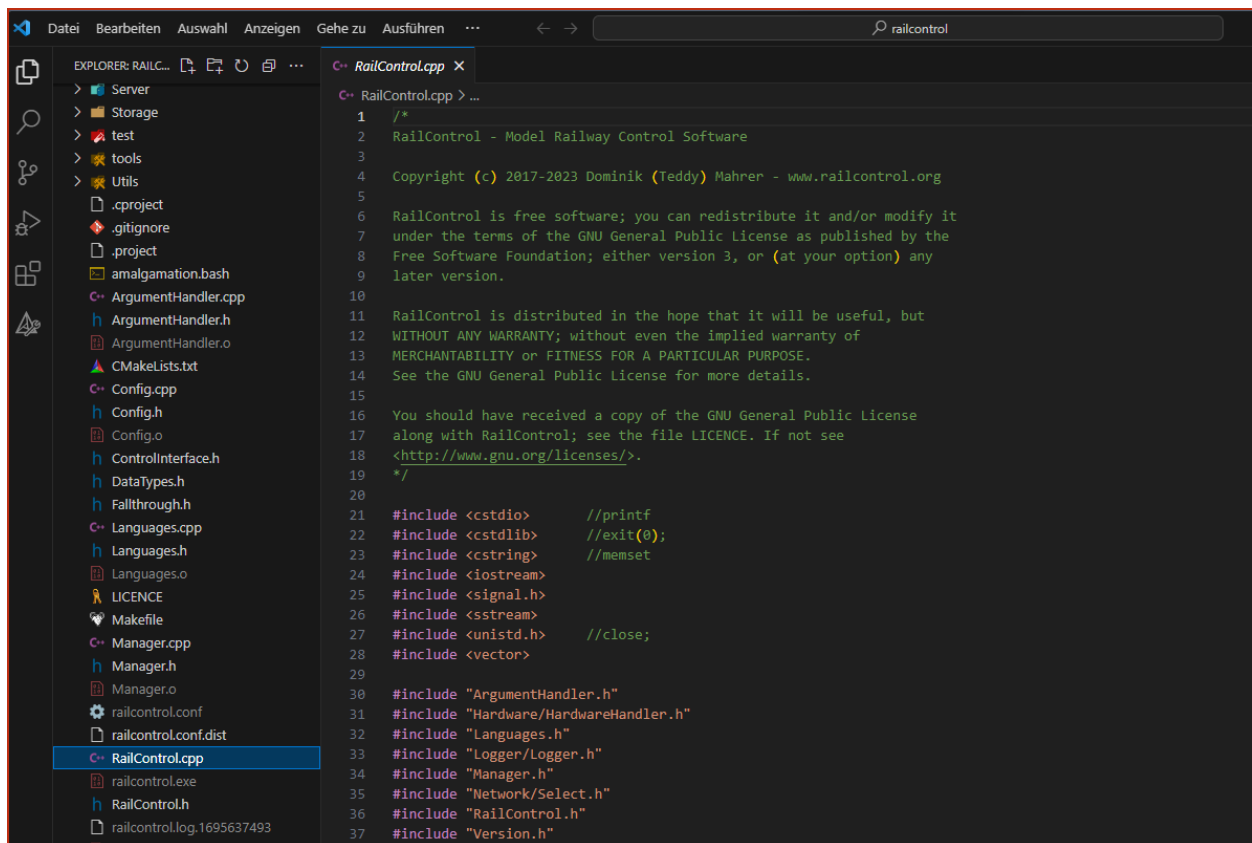


```
C:\Windows\system32\cmd.e: X + v

Microsoft Windows [Version 10.0.22621.2283]
(c) Microsoft Corporation. Alle Rechte vorbehalten.

d:\Daten\Documents\___Projekte___\___Arbeit___\C++\railcontrol>code .|
```

im **railcontrol** Verzeichnis VSCode starten mit: „code .“ (den Leerschritt und den Punkt nicht vergessen)



```
EXPLORER: RAILC...  RailControl.cpp X
C++ RailControl.cpp > ...
1  /*
2  RailControl - Model Railway Control Software
3
4  Copyright (c) 2017-2023 Dominik (Teddy) Mahner - www.railcontrol.org
5
6  RailControl is free software; you can redistribute it and/or modify it
7  under the terms of the GNU General Public License as published by the
8  Free Software Foundation; either version 3, or (at your option) any
9  later version.
10
11  RailControl is distributed in the hope that it will be useful, but
12  WITHOUT ANY WARRANTY; without even the implied warranty of
13  MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.
14  See the GNU General Public License for more details.
15
16  You should have received a copy of the GNU General Public License
17  along with RailControl; see the file LICENCE. If not see
18  <http://www.gnu.org/licenses/>.
19  */
20
21  #include <stdio>           //printf
22  #include <stdlib>          //exit(0);
23  #include <cstring>         //memset
24  #include <iostream>
25  #include <signal.h>
26  #include <sstream>
27  #include <unistd.h>        //close;
28  #include <vector>
29
30  #include "ArgumentHandler.h"
31  #include "Hardware/HardwareHandler.h"
32  #include "Languages.h"
33  #include "Logger/Logger.h"
34  #include "Manager.h"
35  #include "Network/Select.h"
36  #include "RailControl.h"
37  #include "Version.h"
```

```
18 #include <time.h>
19 /*
20
21 #include <stdio.h> //printf
22 #include <stdlib.h> //exit(0);
23 #include <string.h> //memset

```

PROBLEME AUSGABE DEBUGGING-KONSOLE TERMINAL PORTS

```
PS D:\Daten\Documents\_Projekte\_Arbeit\_C++\railcontrol> make
sed s/@GIT_TIMESTAMP@/ date +%s/ < Version.cpp.in \
| sed s/@GIT_HASH@/ git log -1 --format-%H/ \
| sed s/@GIT_TIMESTAMP@/ git log -1 --format-%at/ \
| sed "s/@GIT_DIRTY@/ git status -s | wc -l/" \
| sed s/@RAILCONTROL_VERSION@/22/ \
> Version.cpp
g++ -I. -g -O2 -Wall -Wextra -pedantic -Werror -Wno-missing-braces -std=c++11 -D_GNU_SOURCE -c -o Version.o Version.cpp
g++ -g -static Storage/sqlite3.o ArgumentHandler.o Config.o Languages.o Manager.o RailControl.o Version.o Server/Web/HtmlTag.o Server/Web/HtmlTagAccessory.o Server/Web/HtmlTagButton.o
Server/Web/HtmlTagButtonCommand.o Server/Web/HtmlTagButtonCommandFullScreen.o Server/Web/HtmlTagButtonCommandPressRelease.o Server/Web/HtmlTagButtonCommandToggle.o Server/Web/HtmlTagButto
nPopup.o Server/Web/HtmlTagFeedback.o Server/Web/HtmlTagInput.o Server/Web/HtmlTagInputInteger.o Server/Web/HtmlTagInputSlider.o Server/Web/HtmlTagInputSliderLocoSpeed.o Server/Web/HtmlTag
ayoutItem.o Server/Web/HtmlTagRoute.o Server/Web/HtmlTagSelect.o Server/Web/HtmlTagSelectMultiple.o Server/Web/HtmlTagSelectMultipleWithLabel.o Server/Web/HtmlTagSelectWithLabel.o Server/W
eb/WebClient.o Server/Web/WebClientCluster.o Server/Web/WebClientRoute.o Server/Web/WebClientSignal.o Server/Web/WebClientStatic.o Server/Web/WebClientText.o Server/Web/WebClientTrack.
o Server/Web/WebServer.o Server/Z21/Z21Client.o Server/Z21/Z21Server.o DataModel/Accessory.o DataModel/AccessoryBase.o DataModel/Cluster.o DataModel/Feedback.o DataModel/HardwareHandle.o Da
taModel/LayoutItem.o DataModel/LockableItem.o DataModel/Loco.o DataModel/LocoBase.o DataModel/LocoFunctions.o DataModel/MultipleUnit.o DataModel/Object.o DataModel/ObjectIdentifier.o DataMo
del/Relation.o DataModel/Route.o DataModel/Serializable.o DataModel/Signal.o DataModel/Switch.o DataModel/Text.o DataModel/Track.o Hardware/AccessoryCache.o Hardware/CCSchnitte.o Hardware/C
S2Tcp.o Hardware/CS2Udp.o Hardware/DCCPpEXSerial.o Hardware/DCCpEXTcp.o Hardware/FeedbackCache.o Hardware/HardwareHandler.o Hardware/Hs188.o Hardware/LocoCache.o Hardware/M6051.o Hardware/V
irtual.o Hardware/ZLib.o Hardware/Protocols/EsuCAN.o Hardware/Protocols/EsuCAN.o Hardware/Protocols/LocoNet.o Hardware/Protocols/MaerklinCAN.o Hardware/Protocols/P50x.o Hardware/Protocols
/Z21.o Logger/Logger.o Logger/LoggerServer.o Network/Serial.o Network/TcpClient.o Network/TcpConnection.o Network/TcpServer.o Network/UdpConnection.o Network/UdpServer.o Storage/SQLite.o St
orage/StorageHandler.o Storage/TransactionGuard.o Utils/Network.o Utils/Utils.o Hardware/zlib/adler32.o Hardware/zlib/compress.o Hardware/zlib/crc32.o Hardware/zlib/deflate.o Hardware/zlib/
gzclose.o Hardware/zlib/gzlib.o Hardware/zlib/gzread.o Hardware/zlib/gzwrite.o Hardware/zlib/inflate.o Hardware/zlib/inffast.o Hardware/zlib/inflate.o Hardware/zlib/inftrees.o Hardware/zlib
/trees.o Hardware/zlib/uncompress.o Hardware/zlib/zutil.o -o railcontrol -lpthread -ldl
PS D:\Daten\Documents\_Projekte\_Arbeit\_C++\railcontrol>
```

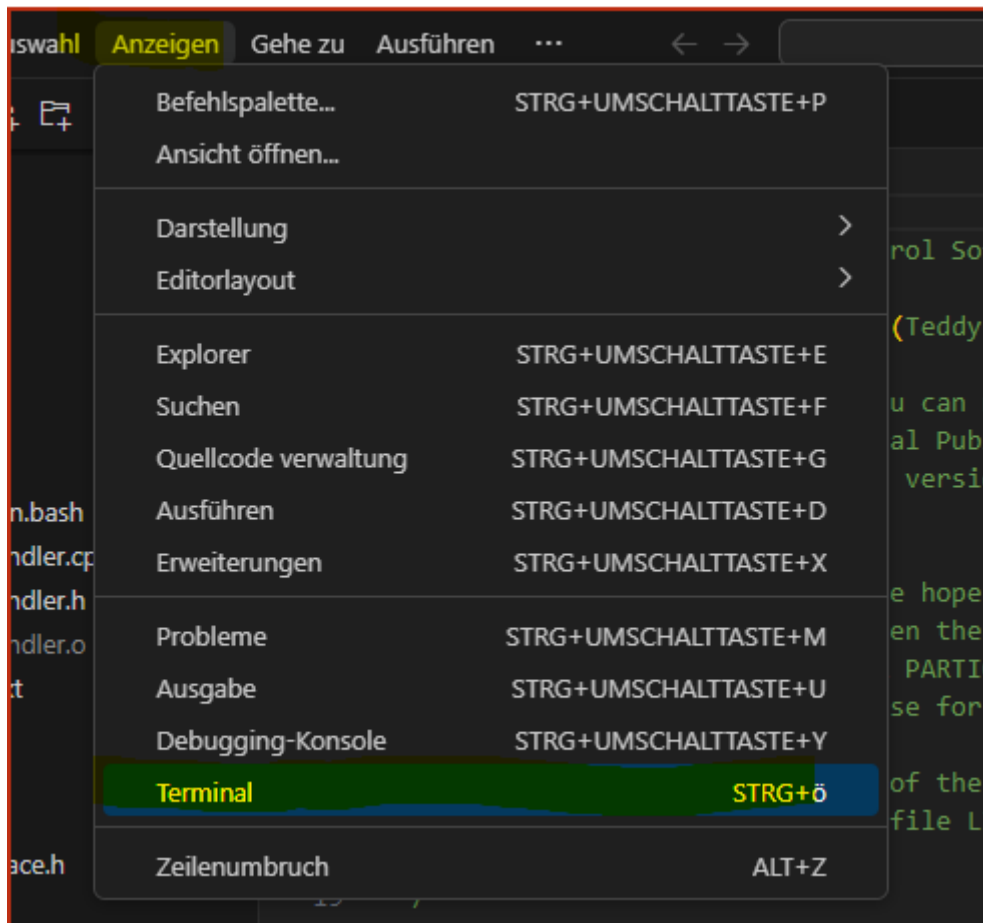
im Terminal kann man dann RailControl z.B. neu erstellen

```
C> Config.cpp
h Config.h
h Config.o
h ControlInterface.h
h DataTypes.h
h Fallthrough.h
C> Languages.cpp
h Languages.h
h Languages.o
h LICENCE
h Makefile
C> Manager.cpp
h Manager.h
h Manager.o
h railcontrol.conf
h railcontrol.confdist
C> RailControl.cpp
h railcontrol.exe
h RailControl.h
h railcontrol.log.1695637493

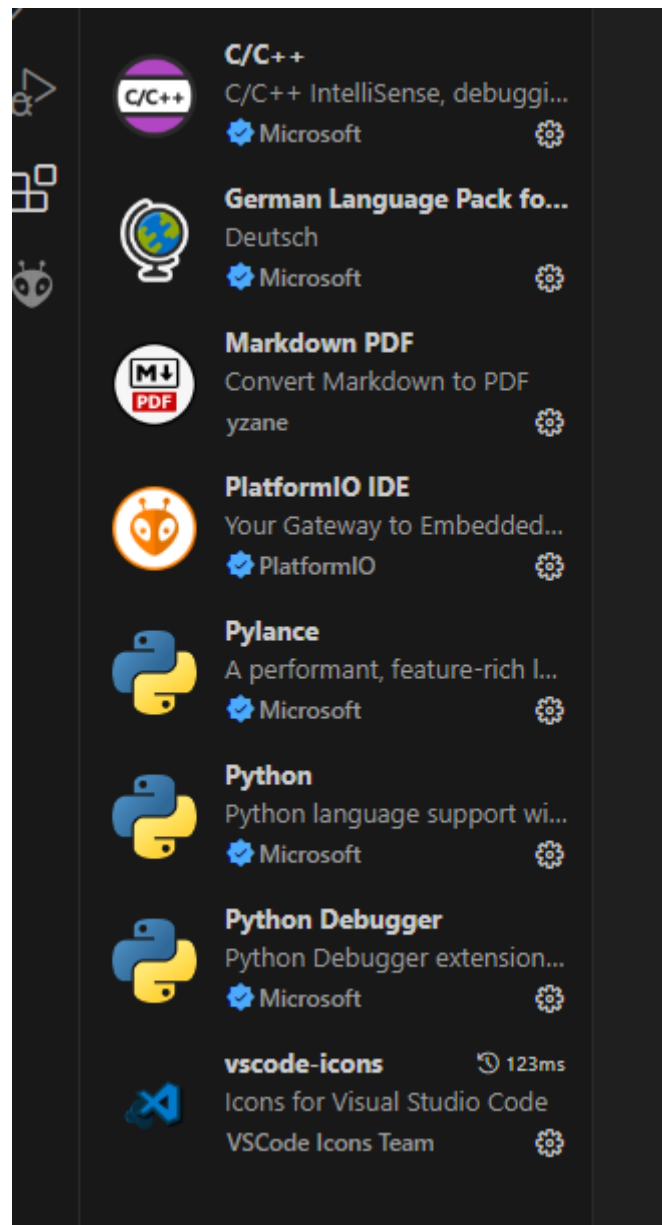
15
16 You should have received a copy of the GNU General Public License
17 along with RailControl; see the file LICENCE. If not see
18 <http://www.gnu.org/licenses/>.
19 */
20
21 #include <stdio> //printf
22 #include <stdlib> //exit(0);
23 #include <string> //memset

PROBLEME AUSGABE DEBUGGING-KONSOLE TERMINAL PORTS
ver/Web/WebClient.o Server/Web/WebClientCluster.o Server/Web/WebClientRoute.o Server/Web/WebClientSignal.o Server/Web/WebClientStatic.o Server/Web/WebClientText.o
Server/Web/WebServer.o Server/Z21/Z21Client.o Server/Z21/Z21Server.o DataModel/Accessory.o DataModel/AccessoryBase.o DataModel/Cluster.o DataModel/Feedback.o DataModel/LayoutItem.o DataModel/LockableItem.o DataModel/Loco.o DataModel/LocoBase.o DataModel/LocoFunctions.o DataModel/Locomotive.o DataModel/MultipleUnit.o DataModel/Object.o DataModel/Relation.o DataModel/Route.o DataModel/Serializable.o DataModel/Signal.o DataModel/Switch.o DataModel/Track.o DataModel/Track.o DataModel/AccessoryCache.o DataModel/CS2Upd.o DataModel/DCPpExSerial.o DataModel/DCPpExTcp.o DataModel/FeedbackCache.o DataModel/HardwareHandler.o DataModel/Hsi88.o DataModel/LocoCache.o DataModel/Virtual.o DataModel/Zlib.o DataModel/Protocols/DCPpEx.o DataModel/Protocols/ESuCAN.o DataModel/Protocols/LocoNet.o DataModel/Protocols/MaeKlinCAN.o DataModel/Protocols/Z21.o Logger/Logger.o Logger/LoggerServer.o Network/Serial.o Network/TcpClient.o Network/TcpConnection.o Network/TcpServer.o Network/UdpConnection.o Network/UdpOrangeStorageHandler.o Storage/TransactionGuard.o Utils/Network.o Utils/Utils.o Hardware/zlib/adler32.o Hardware/zlib/compress.o Hardware/zlib/crc32.o Hardware/zlib/gzclose.o Hardware/zlib/gzlib.o Hardware/zlib/gzread.o Hardware/zlib/gzwrite.o Hardware/zlib/infback.o Hardware/zlib/inffast.o Hardware/zlib/inflate.o Hardware/zlib/trees.o Hardware/zlib/uncompress.o Hardware/zlib/zutil.o -o railcontrol -lpthread -ldl
PS D:\Daten\Documents\_\Projekte\_Arbeits\_C++\railcontrol> .\railcontrol.exe
```

oder RailControl starten



so wird z.B. das Terminal aufgerufen



hier werden die dementsprechenden Erweiterungen installiert. (Python usw. benutze ich zusätzlich)