

Updated QEMU Emulator installation instructions for Spring 2023 (Windows)

1. Check if you are running 32-bit or 64-bit windows
 - a. You can run the following command in a command prompt to check:

wmic OS get OSArchitecture
2. If your account is an administrator:
 - a. Download the QEMU installer here:

32-bit: <https://qemu.weilnetz.de/w32/2021/qemu-w32-setup-20211215.exe>

64-bit: <https://qemu.weilnetz.de/w64/2021/qemu-w64-setup-20211215.exe>
 - b. Run the installer with administrator privileges. Restart the computer if prompted
 - c. Download the zip folder located here:
<https://drive.google.com/file/d/1C12uSIH37IZQgV9X0am8pBpwsP1laumL/view>
 - d. Extract the installed zip folder
 - e. Navigate within the extracted folder to qemu-arm-img, then Windows Scripts
 - f. Continue at step 4
3. If your account is not an administrator:
 - a. Download the QEMU *binary* located here:

32-bit: <https://www.cise.ufl.edu/~utt.zachery/qemu-w32-setup-20211215.zip>

64-bit: <https://www.cise.ufl.edu/~utt.zachery/qemu-w64-setup-20211215.zip>
 - b. Extract the installed zip folder and note the path of the folder (as it will be used in step d/e)
 - c. Download the zip folder located here:
<https://drive.google.com/file/d/1C12uSIH37IZQgV9X0am8pBpwsP1laumL/view>
 - d. Extract this zip folder into the folder from step 3b, so that the __MACOSX and qemu-arm-img folders are in the same directory as the \$PLUGINS_DIR and SHARE directories. Your folder should look something like this:

Name	Date modified	Type	Size
\$PLUGINSDIR	1/11/2023 8:19 PM	File folder	
__MACOSX	1/11/2023 8:31 PM	File folder	
qemu-arm-img	1/11/2023 8:31 PM	File folder	
share	1/11/2023 8:31 PM	File folder	
brlapi-0.8.dll	1/11/2023 8:18 PM	Application exten...	94 KB
COPYING	1/11/2023 8:18 PM	File	18 KB
COPYING.LIB	1/11/2023 8:18 PM	VisualStudio.lib.24...	26 KB
iconv.dll	1/11/2023 8:18 PM	Application exten...	33 KB
libatk-1.0-0.dll	1/11/2023 8:18 PM	Application exten...	125 KB
libbz2-1.dll	1/11/2023 8:18 PM	Application exten...	70 KB
libcairo-2.dll	1/11/2023 8:18 PM	Application exten...	871 KB
libcairo-gobject-2.dll	1/11/2023 8:18 PM	Application exten...	33 KB
libcurl-4.dll	1/11/2023 8:18 PM	Application exten...	558 KB
libeay32.dll	1/11/2023 8:18 PM	Application exten...	2,197 KB
libepoxy-0.dll	1/11/2023 8:18 PM	Application exten...	1,438 KB
libexpat-1.dll	1/11/2023 8:18 PM	Application exten...	156 KB
libffi-6.dll	1/11/2023 8:18 PM	Application exten...	31 KB
libfontconfig-1.dll	1/11/2023 8:18 PM	Application exten...	270 KB
libfreetype-6.dll	1/11/2023 8:18 PM	Application exten...	627 KB
libgcc_s_seh-1.dll	1/11/2023 8:18 PM	Application exten...	609 KB
libgdk_pixbuf-2.0-0.dll	1/11/2023 8:18 PM	Application exten...	149 KB
libgdk-3-0.dll	1/11/2023 8:18 PM	Application exten...	1,159 KB

- e. Navigate into the qemu-arm-img folder, then into Windows Scripts
- f. Right click start.bat, and then click edit. If Windows Smart Screen presents a warning, select More info, and then Run Anyway
- g. Change the path in the call command so that the path to the qemu-system-aarch64.exe is the same. In case of the screenshot above, the new path would be “..\..\qemu-system-aarch64.exe”

start.bat before the changes

```
set NCPU=2
set MEM=1G

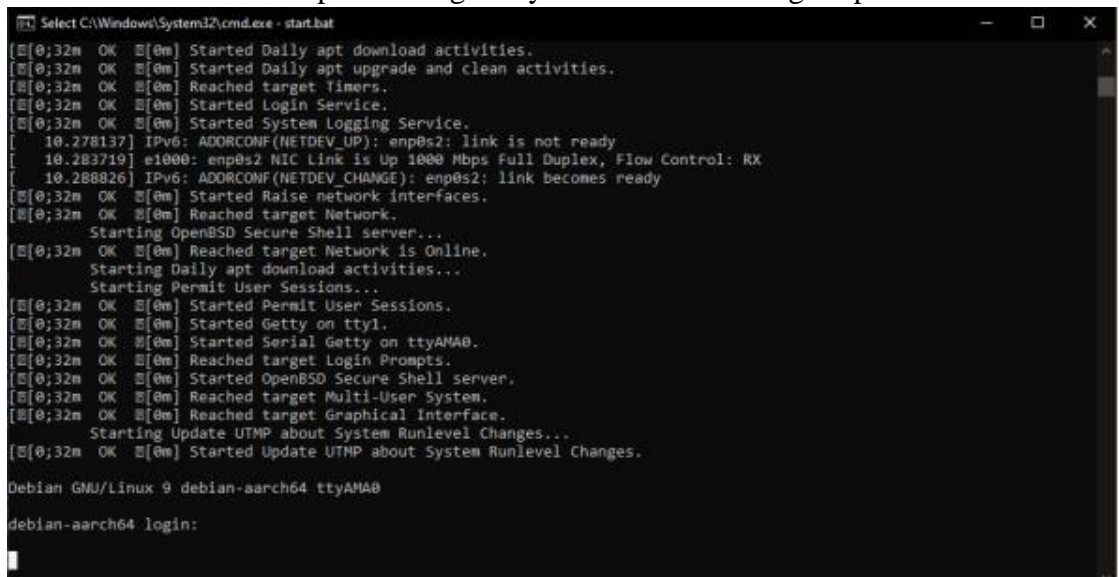
call "C:\Program Files\qemu\qemu-system-aarch64.exe" -smp %NCPU% -m %MEM% -M virt -cpu cortex-a5
^
-initrd ../initrd.img-4.9.0-4-arm64 ^
-kernel ../vmlinuz-4.9.0-4-arm64 -append "root=/dev/sda2 console=ttyAMA0" ^
-global virtio-blk-device.scsi=off ^
-device virtio-scsi-device,id=scsi ^
-drive file=../disk.qcow2,id=rootimg,cache=unsafe,if=none ^
-device scsi-hd,drive=rootimg ^
-device e1000,netdev=net0 ^
-netdev user,id=net0,hostfwd=tcp::3101-:22 ^
-nic user,model=virtio-net-pci ^
-nographic
```

start.bat after the changes

```
set NCPU=2
set MEM=1G
```

```
call "..\..\qemu-system-aarch64.exe" -smp %NCPU% -m %MEM% -M virt -cpu cortex-a57 ^
    -initrd ../initrd.img-4.9.0-4-arm64 ^
    -kernel ../vmlinuz-4.9.0-4-arm64 -append "root=/dev/sda2 console=ttyAMA0" ^
    -global virtio-blk-device.scsi=off ^
    -device virtio-scsi-device,id=scsi ^
    -drive file=../disk.qcow2,id=rootimg,cache=unsafe,if=none ^
    -device scsi-hd,drive=rootimg ^
    -device e1000,netdev=net0 ^
    -netdev user,id=net0,hostfwd=tcp::3101-:22 ^
    -nic user,model=virtio-net-pci ^
    -nographic
```

- h. Continue to step 4
4. Regardless of whether your account is an administrator:
 - a. To launch the emulator, run the start.bat file (by either clicking on it, or running the command “start start.bat” in a command prompt at the script’s location)
 - b. Wait until the screen stops scrolling and you see the following output



```
Select C:\Windows\System32\cmd.exe - start.bat
[0;32m OK [0m Started Daily apt download activities.
[0;32m OK [0m Started Daily apt upgrade and clean activities.
[0;32m OK [0m Reached target Timers.
[0;32m OK [0m Started Login Service.
[0;32m OK [0m Started System Logging Service.
[ 10.278137] IPv6: ADDRCONF(NETDEV_UP): enp0s2: link is not ready
[ 10.283719] e1000: enp0s2 NIC Link is Up 1000 Mbps Full Duplex, Flow Control: RX
[ 10.288826] IPv6: ADDRCONF(NETDEV_CHANGE): enp0s2: link becomes ready
[0;32m OK [0m Started Raise network interfaces.
[0;32m OK [0m Reached target Network.
Starting OpenBSD Secure Shell server...
[0;32m OK [0m Reached target Network is Online.
Starting Daily apt download activities...
Starting Permit User Sessions...
[0;32m OK [0m Started Permit User Sessions.
[0;32m OK [0m Started Getty on tty1.
[0;32m OK [0m Started Serial Getty on ttyAMA0.
[0;32m OK [0m Reached target Login Prompts.
[0;32m OK [0m Started OpenBSD Secure Shell server.
[0;32m OK [0m Reached target Multi-User System.
[0;32m OK [0m Reached target Graphical Interface.
Starting Update UTMP about System Runlevel Changes...
[0;32m OK [0m Started Update UTMP about System Runlevel Changes.

Debian GNU/Linux 9 debian-aarch64 ttyAMA0

debian-aarch64 login:
```

- c. Execute the “connect.bat” script the same way
 - d. Enter the password “root”
 5. View the tutorial “*How to use the Emulator*” for mounting, assembling and executing an assembly file.