Buildroot is a tool that simplifies and automates the process of building a complete Linux system for an embedded system, using cross-compilation.  
  
steps to create a bootable image using Buildroot:  
  
**step 1**: Download the Buildroot source code from official buildroot website:  
**$ wget** [**https://lnkd.in/gh3tRVAw**](https://lnkd.in/gh3tRVAw)  
**step 2:** untar it  
**$ tar -xvf buildroot-2022.11.1.tar.xz**  
step 3: after untar, go to buildroot-2022.11.1 directory  
**$ cd buildroot-2022.11.1**  
**step 4:** make the .config file for qemu (here I don't have a hardware, so preferred to use qemu)  
**$ make qemu\_x86\_64\_defconfig**  
**step 5**: compile the image (this will take approx. 30-40mins)  
**$ make**  
**step 6:** after compiling there will be a folder created called "output"  
**$ cd output/images**  
**step 7:** boot the created image using qemu  
**$ qemu-system-x86\_64 -M pc -kernel bzImage -drive file=rootfs.ext2,if=virtio,format=raw -append "rootwait root=/dev/vda console=tty1 console=ttyS0" -net nic,model=virtio -net user -nographic**  
  
Now we have successfully created a bootable embedded linux image using buildroot and able to boot it using qemu.

