ICOM5007/CIIC4050
Operating Systems

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Laboratory: Virtual Memory in Minix (11/22/2019)

Read documentation on:
http://wiki.minix3.org/doku.php?id=developersguide:vminternals
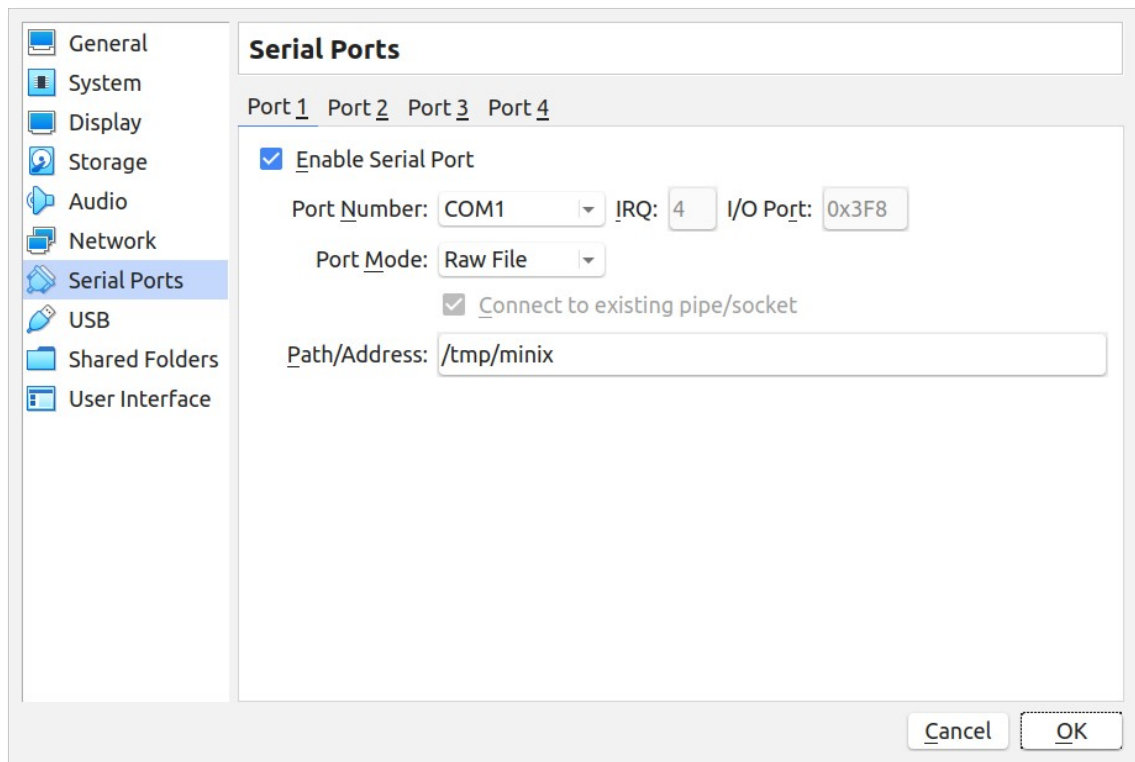
Serial Output Debugging

1. Turn off the Minix virtual machine (`sync; shutdown`).
2. On the virtual machine settings window on VirtualBox add a **Serial Port**:

Port 1> `Enable Serial Port`
Port Number: `COM1`
Port Mode: `Raw File`
Path/Address: `/tmp/minix`

3. Start the Minix virtual machine and **boot to option 4**
4. On the prompt **press enter** to display the boot parameters, to the line add
   cttyline=0 cttybaud=115200

5. Open a terminal on the host machine (Ubuntu) an run the tail command for the minix log
   ○ tail -f /tmp/minix

Troubleshooting

- The serial debugger needs to be setup on every boot for it to work
- If you cannot access the `/tmp` folder on the host machine use your home folder
- The Minix file defined in VirtualBox is a text file that can be opened by any editor
  - This file is erased every time the virtual machine is started even if the serial debugger is not enabled in Minix
- Do not print on the kernel unless **pages>2**
- Outputting the console to the Serial Port is a **blocking** instruction
  - The Kernel will be blocked until the print is complete, this slows down the VM
- You need to compile the Kernel for the changes on the Virtual Memory Server to be reflected
- Additional information: http://wiki.minix3.org/doku.php?id=developersguide:serialout