

## Advantech AE Technical Share Document

Date	2019 / 12 / 31	Release Note	<input type="checkbox"/> Internal <input checked="" type="checkbox"/> External
Category	<input checked="" type="checkbox"/> FAQ <input type="checkbox"/> SOP	Related OS	Linux, CentOS 7.5
Abstract	FAQ_How to make all com ports work in Linux when there are more than 4 com ports in the system.		
Keyword	Serial port, Linux, CentOS 7, COM port		
Related Product	PPC-6120		

### ■ **Problem Description:**

When the system has more than 4 com ports, there only 4 ports tty0, tty1, tty2 and tty3 can work. Com port numbers after tty3 are not responding.

### ■ **Problem Analysis:**

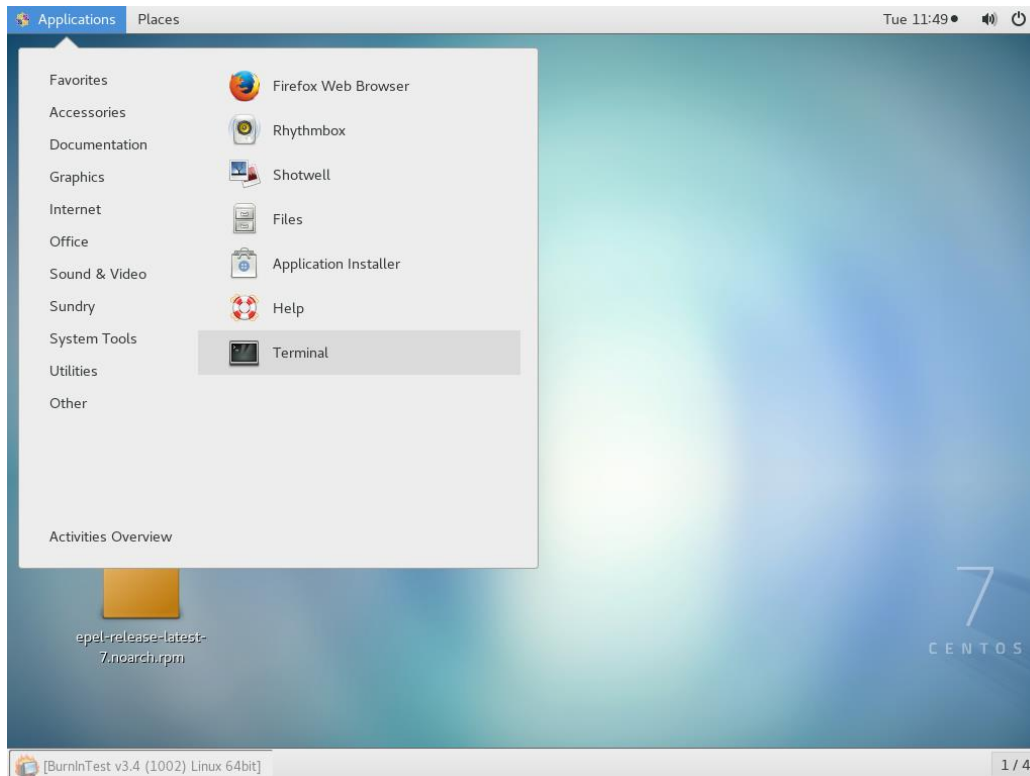
Because most of consumer computers do not have com port anymore, in some Linux distributions, the number of com port is limited to 4.

### ■ **Brief Solution:**

We take CentOS 7.5 as an example.

In our experience, you can also use this method on other Linux distributions.

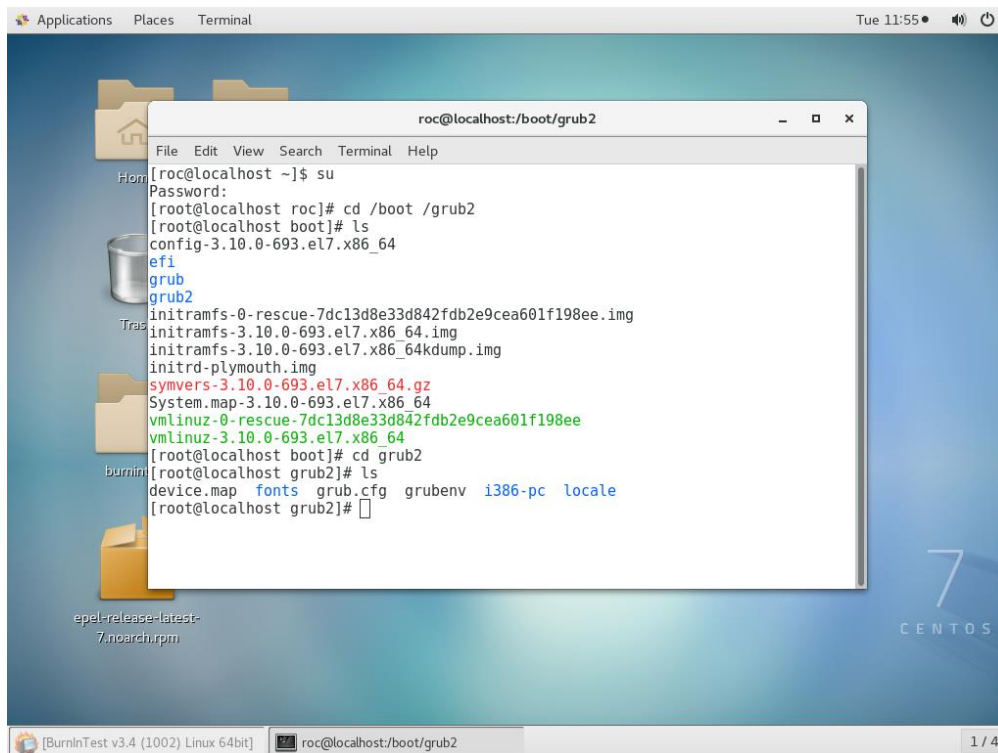
Open terminal



Enter following command:

**su**

**cd /boot /grub2**



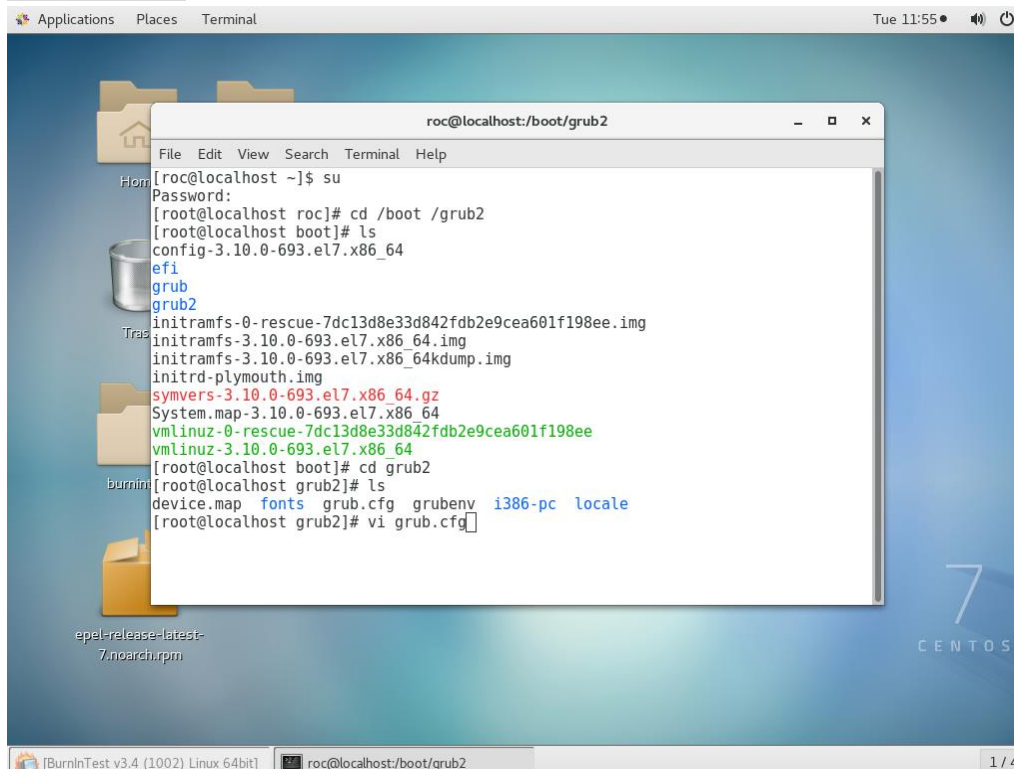
```

roc@localhost ~]$ su
Password:
[root@localhost roc]# cd /boot /grub2
[root@localhost boot]# ls
config-3.10.0-693.el7.x86_64
efi
grub
grub2
initramfs-0-rescue-7dc13d8e33d842fdb2e9cea601f198ee.img
initramfs-3.10.0-693.el7.x86_64.img
initramfs-3.10.0-693.el7.x86_64kdump.img
initrd-plymouth.img
symvers-3.10.0-693.el7.x86_64.gz
System.map-3.10.0-693.el7.x86_64
vmlinuz-0-rescue-7dc13d8e33d842fdb2e9cea601f198ee
vmlinuz-3.10.0-693.el7.x86_64
[root@localhost boot]# cd grub2
[root@localhost grub2]# ls
device.map fonts grub.cfg grubenv i386-pc locale
[root@localhost grub2]#
  
```

Find the grub.cfg file, use “gedit” to modify it.

(You cab also use “vi” to modify the document but I prefer gedit)

**gedit grub.cfg**



```

roc@localhost ~]$ su
Password:
[root@localhost roc]# cd /boot /grub2
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config-3.10.0-693.el7.x86_64
efi
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vmlinuz-0-rescue-7dc13d8e33d842fdb2e9cea601f198ee
vmlinuz-3.10.0-693.el7.x86_64
[root@localhost boot]# cd grub2
[root@localhost grub2]# ls
device.map fonts grub.cfg grubenv i386-pc locale
[root@localhost grub2]# vi grub.cfg
  
```

Find the kernel part, and add `8250.nr_uares = 16` in the last blank then save it.  
 "16" means the total number of COM ports to be opened.

```

roc@localhost:/boot/grub2
File Edit View Search Terminal Help
set root='hd0,msdos1'
if [ x$feature platform search hint = xy ]; then
    search --no-floppy --fs-uuid --set=root --hint-bios=hd0,msdos1 --hint-efi=hd0,msdos1 --hint-baremetal=ahci0,msdos1 --hint='hd0,msdos1' 3558648a-7d2d-46a0-923b-062946e5feff
else
    search --no-floppy --fs-uuid --set=root 3558648a-7d2d-46a0-923b-062946e5feff
fi
linux16 /vmlinuz-3.10.0-693.el7.x86_64 root=/dev/mapper/centos-root ro crashkernel=auto rd.lvm.lv=centos/root rd.lvm.lv=centos/swap rhgb quiet LANG=en_US.UTF-8 8250.nr_uares=16
initrd16 /initramfs-3.10.0-693.el7.x86_64.img
}
menuentry 'CentOS Linux (0-rescue-7dc13d8e33d842fdb2e9cea601f198ee) 7 (Core)' --class centos --class gnu-linux --class gnu --class os --unrestricted $menuentry_id_option 'gnulinux-0-rescue-7dc13d8e33d842fdb2e9cea601f198ee-advanced-09a7cba4-5ac4-4c25-af7c-1646e3283af1' {
    load_video
    insmod gzio
    insmod part_msdos
    insmod xfs
    set root='hd0,msdos1'
}
    
```

Enter the following command to check the com port again, you will find that multiple com ports have been added.

`dmesg | grep ttys*`

```

roc@localhost:/boot/grub2
File Edit View Search Terminal Help
grub
grub2
initramfs-0-rescue-7dc13d8e33d842fdb2e9cea601f198ee.img
initramfs-3.10.0-693.el7.x86_64.img
initramfs-3.10.0-693.el7.x86_64kdump.img
initrd-plymouth.img
symvers-3.10.0-693.el7.x86_64.gz
System.map-3.10.0-693.el7.x86_64
vmlinuz-0-rescue-7dc13d8e33d842fdb2e9cea601f198ee
vmlinuz-3.10.0-693.el7.x86_64
[root@localhost boot]# cd grub2
[root@localhost grub2]# ls
device.map fonts grub.cfg grubenv i386-pc locale
[root@localhost grub2]# vi grub.cfg
[root@localhost grub2]# dmesg | grep ttys*
[ 0.000000] console [tty0] enabled
[ 0.536839] 00:05: ttyS4 at I/O 0x2e0 (irq = 12) is a 16550A
[ 0.557367] 00:06: ttyS5 at I/O 0x2d0 (irq = 7) is a 16550A
[ 0.577887] 00:07: ttyS6 at I/O 0x2d8 (irq = 6) is a 16550A
[ 0.598412] 00:09: ttyS0 at I/O 0x3f8 (irq = 4) is a 16550A
[ 0.618938] 00:0a: ttyS1 at I/O 0x2f8 (irq = 3) is a 16550A
[ 0.639463] 00:0b: ttyS2 at I/O 0x3e8 (irq = 10) is a 16550A
[ 0.659990] 00:0c: ttyS3 at I/O 0x2e8 (irq = 5) is a 16550A
[root@localhost grub2]#
    
```