

Linux Virtual COM

Linux Virtual COM User Manual

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1. Linux Virtual COM Installation

The purpose of this driver is to map ICP DAS remote serial ports (PDS-700/i-7188En series modules) to linux host “tty” ports. Using this driver, user can use serial port as local “tty” port. The virtual driver can be used in linux kernel 2.6.25 or above version. For Linux O.S, the recommended installation and uninstall steps are given in Sec 1.1 ~ 1.2

1.1 Linux IxVCOM Driver Features

- Dynamic major number.
- Dynamic device allocation.
- Use the GNU configure and build system.
- Give support to max 256 TTY ports.

1.2 Linux System Requirement

- Linux kernel 2.6.25 or above and the kernel source package
- gcc-4.4.2 or above
- libc.so-6 or above
- binutils-2.19.0 or above
- make-3.81 or above

1.3 Installing Linux IxVCOM Driver

Step 1: Download the linux driver “ixvcom-0.0.0.tar.gz” (or the later ixvcom package version) from ICP DAS website to the linux system.

Step 2: You must use the ‘root’ identity to compile and install linux ixvcom driver.

Step 3: Decompress the tarball “ixvcom.tar.gz”.

Step 4: Type 'cd' to the directory containing the package's source code and type './configure' to configure the package for linux system.

Step 5: Type 'make' to compile the package.

Step 6: User can type './ixvcom.inst' to install the ixvcom driver module and build the virtual COM device files "ttyVCOM*". Please refer to the Figure 1-1.

```
[root@localhost test]# tar zxf ixvcom.tar.gz
[root@localhost test]# cd ixvcom
[root@localhost ixvcom]# ./ixvcom.inst
IxVCOM Installer 0.0.0
Check kernel version... 2.6
Use proc-file /proc/ixvcom/ixvcom
Load module ixvcom.
Install Virtual COM Daemon and Configuration File.
[root@localhost ixvcom]#
```

Figure 1-1

1.4 Mapping TTY Port

Step 1: User must use the 'root' identity to map the remote serial ports to the linux host "tty" ports.

Step 2: User could execute "addserver" in the package directory "tools" to map "tty" ports automatically. Please refer to the Figure 1-2 (mapping PDS-782 serial ports to the linux "tty" ports).

```
[root@localhost tools]# ./addserver 10.1.0.13 8
Adding Remote Server...
Remote IP      Total Ports
"10.1.0.13"   8
ttyVCOM0, ttyVCOM0
ttyVCOM1, ttyVCOM1
ttyVCOM2, ttyVCOM2
ttyVCOM3, ttyVCOM3
ttyVCOM4, ttyVCOM4
ttyVCOM5, ttyVCOM5
ttyVCOM6, ttyVCOM6
ttyVCOM7, ttyVCOM7
```

Mapping 8 remote serial ports to device file interface "ttyVCOM0~ttyVCOM7"

Figure 1-2

Step 3: After adding the remote device, user could check the ixvcom configuration file “/usr/lib/ixvcom/ixvcomd.cf”. Please refer to the Figure 1-3.

```
[root@localhost tools]# cat /usr/lib/ixvcom/ixvcomd.cf
ttymajor=249
calloutmajor=249
#[Minor]      [ServerIP]      [data]  [cmd]  [FIFO]  [SSL]  [
0      10.1.0.13      10001  10000  1      0      ttyVCOM0
1      10.1.0.13      10002  10000  1      0      ttyVCOM1
2      10.1.0.13      10003  10000  1      0      ttyVCOM2
3      10.1.0.13      10004  10000  1      0      ttyVCOM3
4      10.1.0.13      10005  10000  1      0      ttyVCOM4
5      10.1.0.13      10006  10000  1      0      ttyVCOM5
6      10.1.0.13      10007  10000  1      0      ttyVCOM6
7      10.1.0.13      10008  10000  1      0      ttyVCOM7
```

Figure 1-3

1.5 Removing Mapped TTY Port

Step 1: User must use the ‘root’ identity to remove the mapped the “tty” ports.

Step 2: User could execute "delserver" in the package directory “tools” to remove the mapped “tty” ports automatically. Please refer to the Figure 1-4

```
[root@localhost tools]# ./delserver 10.1.0.13
Delete Remote Server ...
```

Figure 1-4

1.6 Removing Linux IxVCOM Driver

Step 1: Type **'cd'** to the directory containing the package's source code.

Step 2: Type **'./ixvcom.remove'** to remove the ixvcom driver module.

2. Linux Virtual COM Demo

All of demo programs will not work normally if ixvcom driver would not be installed correctly. During the installation process, the install-scripts “ixvcom.inst” will setup the correct IxVCOM driver. After driver (version 0.0.0 or the later driver version) compiled and installation, the related library, demo and header files for different development environments are presented as follows.

Table 2.1

Driver Name	Directory Path	File Name	Description
Ixvcom (0.0.0)	include	“i7k” library header file (msw.h, i7k.h and others)	The header files of “i7k” library.
	lib	libi7k.a	The “i7k” library (version 0.8.0 or later version) for ixvcom package.
	examples/	send_read.c	The demo that sending and receiving message from i-7188E1 COM1

2.1 Demo code “send_read.c”

This demo program is used to send and receive message “test” from the i-7188E1 COM1. Please refer to Figure 2-1.

```
[root@localhost examples]# ./send_read
Send String = test
Receive String = test
[root@localhost examples]#
```

Figure 2-1