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
                                      Remote IP   Total Ports
Adding Remote Server...              "10.1.0.13"   8
ttyVCOM0, ttyVCOM0
ttyVCOM1, ttyVCOM1
ttyVCOM2, ttyVCOM2
ttyVCOM3, ttyVCOM3    Mapping 8 remote serial ports to device
ttyVCOM4, ttyVCOM4    file interface "ttyVCOM0~ttyVCOM7"
ttyVCOM5, ttyVCOM5
ttyVCOM6, ttyVCOM6
ttyVCOM7, 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 (0.1.0)	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 show how to send and receive message from COM1.
		set_baud.c	The demo show how to change baudrate.
		vcom_set.c	The demo show how to send VxComm.exe command and receive reponse.

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

2.2 Demo code "set_baud.c"

This demo program is used to change the baud rate of COM1. Please refer to Figure 2-2.

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

Figure 2-2

2.3 Demo code "vcom_set.c"

This demo program is used to send and receive VxComm.exe command from the remote module. Please refer to Figure 2-3.

```
[root@localhost examples]# ./vcom_cmd
VxComm.exe Version : 1.32[Jul 14 2010]
Module's Name : 110PDS-782
Change Module's Baud : 10K
```

Figure 2-3