Instructions for installing, configuring, running and uninstalling of Linux vsp

Ⅰ Audience

Application software development engineer, kernel development engineer, BSP engineer, driver engineer, system administrator, etc. in linux environment. Technical support staff (will use the basic functions of linux, such as package management, network configuration, etc.).

Ⅱ Using environment

System environment

`uname -r` is available for `ubuntu18.04 (kernel 5.0-5.4)` to view system version.

```
luo@luo:~$ uname -r
5.4.0-42-generic
luo@luo:~$
```

Software environment

The driver in the software needs to be compiled in the usage environment, so a software environment (software package) capable of compiling the driver is required. For example, `gcc/make/linux-headers/ flex/bison`. Which software packages are missing has a lot to do with the system used. After the system is connected to the Internet, execute the following commands to install the basic software environment.

```
sudo apt update -y && sudo apt upgrade -y && sudo apt install gcc g++ make
linux-headers-`uname -r` flex bison build-essential zlib* libffi-dev e2fsprogs
pkg-config perl bc openssl libssl-dev libelf-dev libc6-dev-amd64 binutils
binutils-dev libdwarf-dev u-boot-tools mtd-utils
```

Ⅲ Unzip and install

Execute the following command to complete the decompression and installation operation.

```
luo@luo:~$ cd ~
luo@luo:~$ mkdir vsp
luo@luo:~$ cd ~/vsp
luo@luo:~/vsp$ tar -xf ../linux-vsp_v1.0.0.tar.gz
luo@luo:~/vsp$ sudo ./install.sh
[sudo] password for luo:
make -C /lib/modules/`uname -r`/build/ M=/home/luo/vsp modules
make[1]: Entering directory '/usr/src/linux-headers-5.4.0-42-generic'
  CC [M]  /home/luo/vsp/vsp.o
  Building modules, stage 2.
  MODPOST 1 modules
  CC [M]  /home/luo/vsp/vsp.mod.o
  LD [M]  /home/luo/vsp/vsp.ko
make[1]: Leaving directory '/usr/src/linux-headers-5.4.0-42-generic'
gcc vspd.c -o vspd
build vsp ok
 clean for install
 driver1015
 install...
 vsp install ok
 please cd /usr/lib/vsp to set the vsp
 server!luo@luo:~/vsp$
```

During the installation process, if an error occurs, install the missing packages according to the prompts.

IV Configure and running

Before running the vsp service, engineer need to configure the `serverIP`, `dataPort`, `cmdPort` and `portCount`.

```
luo@luo:~/vsp$ sudo cd /usr/lib/vsp
luo@luo:/usr/lib/vsp$  ./set_server.sh
./set_server.sh serverIp dataPort cmdPort portCount
luo@luo:/usr/lib/vsp$
```

`serverIP`: The IP address of the serial server, the default IP is `192.168.1.254`.

`DataPort`: The data port of the first port that the VSP software communicates with the serial port server, the default is `33001`.

`cmdPort`: The command port of the first port that the VSP software communicates with the serial server, the default is `34001`.

`portCount`: The number of ports of the serial server, the default is `8`, the maximum is `32`.

Example is as follows:

```
luo@luo:/usr/lib/vsp$ sudo ./set_server.sh 192.168.1.254 33001 34001 8
set server ok
vsp service started
luo@luo:/usr/lib/vsp$ pidof vspd
11915
luo@luo:/usr/lib/vsp$ lsmod | grep vsp
vsp                   274432  8
luo@luo:/usr/lib/vsp$ ls /dev/ttyr*
/dev/ttyr0  /dev/ttyr1  /dev/ttyr2  /dev/ttyr3  /dev/ttyr4  /dev/ttyr5
/dev/ttyr6  /dev/ttyr7
```

As shown in the figure above, after the operation is successful, the pid of vspd can be obtained as 11915, and the reference count of the vsp driver is 8, and the serial port device node mapped by the serial port server is `/dev/ttyr*`.

After the operation is successful, run the local serial port software to operate the node `/dev/ttyr*`.

After the system is restarted, the vspd service will run automatically and does not need to be configured again.

V Uninstall

Execute the following command to completely uninstall vsp.

```
sudo  /usr/lib/vsp/uninstall.sh
```