INSTALLATION OF FTP SERVER ON KWIKBYTE KB9202

1   Introduction

This document describes steps to install an FTP server on the KwikByte KB9202 development board. Using the steps listed here, a complete FTP server can be setup in a matter of minutes. Please see the host site for detailed information (http://vsftpd.beasts.org/).

The terms 'KB9202' and 'KB9202B' are used to refer to the KB9202 development board and should be considered equivalent.

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1.1 Installation

Two methods of installing the files are available:

1) Download the source, unpack, build, and copy the files to the target (KB9202)
2) Download the pre-built executable and configuration file to the target

Option #2 is the simpler and faster method. Option #1 will be discussed briefly.

1.1.1 Building the Server from Source

These instructions list the steps required to build the server from source.

1) Download and extract vsftpd to host (tested with version 2.0.5)

```
/usr/local/arm #wget ftp://vsftpd.beasts.org/users/cevans/vsftpd-2.0.5.tar.gz
/usr/local/arm #tar -xzvf vsftpd-2.0.5.tar.gz
/usr/local/arm #rm -f vsftpd-2.0.5.tar.gz
/usr/local/arm #cd vsftpd-2.0.5
/usr/local/arm/vsftpd-2.0.5 #make CC=/buildroot/build_arm_nofpu/staging_dir/bin/arm-
    linux-gcc
```

The build fails adding host libraries in the link stage:

```
/buildroot/build_arm_nofpu/staging_dir/bin/arm-linux-gcc -o vsftpd main.o utility.o
    prelogin.o ftpcmdio.o postlogin.o privsock.o tunables.o ftpdataio.o secbuf.o ls.o
    postprivparent.o logging.o str.o netstr.o sysstr.o strlist.o banner.o filestr.o
    parseconf.o secutil.o ascii.o oneprocess.o twoprocess.o privops.o standalone.o
    hash.o tcpwrap.o ipaddrparse.o access.o features.o readwrite.o ssl.o sysutil.o
    sysdeputil.o -Wl,-s `./vsf_findlibs.sh`

/lib/libcap.so.1: could not read symbols: File in wrong format
collect2: ld returned 1 exit status
make: *** [vsftpd] Error 1
```

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2) Save the library search script and download a board-specific version

```
/usr/local/arm/vsftpd-2.0.5 #mv vsf_findlibs.sh vsf_findlibs.sh.save

/usr/local/arm/vsftpd-2.0.5 #wget ftp://www.kwikbyte.com/KB9202B/utils/ftpd/vsf_findlibs.sh
/usr/local/arm/vsftpd-2.0.5 #make CC=/buildroot/build_arm_nofpu/staging_dir/bin/arm-
    linux-gcc
```

3) On the target, mount the host directory from KB9202 (or transfer via USB key disk)

```
[root@KB9202B:/] mount -t nfs -o nolock 192.168.1.204:/usr/local/arm /mnt
[root@KB9202B:/] mkdir vsftpd
[root@KB9202B:/] cp -R mnt/vsftpd-2.0.5/* vsftpd/
[root@KB9202B:/] umount mnt
[root@KB9202B:/] cd vsftpd/
[root@KB9202B:/vsftpd] cp vsftpd /usr/sbin/
[root@KB9202B:/vsftpd] mv vsftpd.conf vsftpd.conf.save
[root@KB9202B:/vsftpd] cp EXAMPLE/INTERNET_SITE_NOINETD/vsftpd.conf .
```

4) Optional: edit the configuration file according to preference (add banner line, adjust transfer rate limits, etc.)

```
[root@KB9202B:/vsftpd] vi vsftpd.conf
```

5) Copy the configuration file to the default system location

```
[root@KB9202B:/vsftpd] cp vsftpd.conf /etc/
[root@KB9202B:/vsftpd] cd ..
```

6) Optional: remove installation directory

```
[root@KB9202B:/] rm -rf vsftpd/
```

1.1.2 Installing a Pre-Built Server

These instructions list the steps required to install a pre-built image in the default configuration.

1) Download and extract the image (on the KB9202)

```
[root@KB9202B:/] wget ftp://www.kwikbyte.com/KB9202B/utils/ftpd/kb9202ftpd.tar.gz
[root@KB9202B:/] tar -xzvf kb9202ftpd.tar.gz
[root@KB9202B:/] rm -f kb9202ftpd.tar.gz
```

2) Optional: edit the configuration file according to preference (add banner line, adjust transfer rate limits, etc.)

```
[root@KB9202B:/] vi etc/vsftpd.conf
```

1.2 System Configuration

These instructions list the steps required to prepare the system for server operation. These should only be executed once (on the KB9202).

```
[root@KB9202B:/] mkdir /var/ftp
[root@KB9202B:/] chown root.root /var/ftp
[root@KB9202B:/] chmod og-w /var/ftp
[root@KB9202B:/] adduser -h /var/ftp ftp
    ('Enter' twice for password and confirmation)
```

1.3 Test

The server is configured to run in stand-alone mode and is started with the following command:

```
[root@KB9202B:/] vsftpd &
```

Test by connecting from the host via 'ftp' or a web browser (ftp://target_ip).

Note, the server command can also be added to init scripts to enable execution at power-up.

1.4 Increase Server Storage (Optional)

Note: The KB9202C has 256MB NAND flash.
The KB9202B has 32MB NAND flash and 16 MB NOR flash. The file storage (at /var/ftp) can be increased by adding external removable storage such as USB key disk, SD/MMC cards, or USB external hard drive. In this way, the server storage is limited only by the capacity of the external device. Currently, low-cost devices are available with capacity on the order of 50GB+ and the cost will continue to decrease and the capacity will continue to increase. File updates can be performed remotely via the KB9202 or on another host machine.

Example using a USB key disk or USB hard drive:

1) Plug in the USB device. Notice the kernel messages on device detection.

```
[root@KB9202B:/] usb 1-1: new full speed USB device using at91_ohci and address 7
usb 1-1: configuration #1 chosen from 1 choice
scsi1 : SCSI emulation for USB Mass Storage devices

[root@KB9202B:/]   Vendor:           Model:                   Rev: 2.20
  Type:   Direct-Access                 ANSI SCSI revision: 02
SCSI device sda: 255484 512-byte hdwr sectors (131 MB)
sda: Write Protect is off
sda: assuming drive cache: write through
SCSI device sda: 255484 512-byte hdwr sectors (131 MB)
sda: Write Protect is off
sda: assuming drive cache: write through
 sda:<7>usb-storage: queuecommand called
 unknown partition table
sd 1:0:0:0: Attached scsi removable disk sda
sd 1:0:0:0: Attached scsi generic sg0 type 0
```

2) Mount the device at the server base directory. In this example, the key disk is formatted as MSDOS type.
```
[root@KB9202B:/] mount -t msdos /dev/sda /var/ftp
```

3) Start the FTP server.
```
[root@KB9202B:/] vsftpd &
```

 The server is now using the external USB storage as the source for the files!

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1.5 NOTES

Our default installation limits per-connection transfer rate (500K). Most users will want
to remove this restriction in the /etc/vsftpd.conf file.