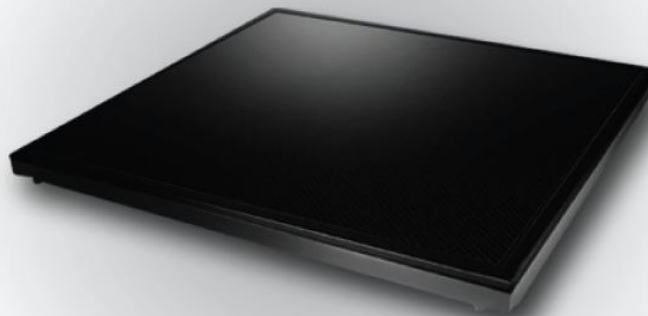


Xmaru1717

Service Manual

Leading the transition to Digital X-ray



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Attention

For improvement of product performance, supplementation, or follow-up of information; the contents of this manual are subject to change without separate prior notice.

Please note that our company has neither responsibility for any accidents nor obligation to do free repair service for any damage of the equipment due to user's mistake, which resulted from failure to follow the contents in this manual. Make sure to be familiar with the safety precautions and usage procedures. Also note that the product may slightly differ from the contents of this manual depending on specification.

The following marks are used for the effective use of the product in this manual.



Attention, consult accompanying documents.



NOTE

This is used to emphasize essential information. Be sure to read this information to avoid incorrect operation.



CAUTION

This indicates hazardous situation which, if not heeded, may result in minor or moderate injury to you or others, or may result in machine damage.



WARNING

This indicates a potentially hazardous situation which, if not heeded, could result in death or serious injury to you or others.

Federal Law restricts this device to sale by or the order of a radiologist or any other practitioners licensed by the law of the state in which that person practices to use or order the use of the device.

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Introduction

Overview

Xmaru1717 is an X-ray image acquisition device that is based on flat-panel. This device should be integrated with an operating PC and an X-ray generator. It can do to utilize as digitalizing X-ray images and transfer for radiography diagnostic.

Product features



Figure 1: Xmaru1717

The surface of housing is made of the metal and X-ray window area is covered with carbon. Inner circuit of detector uses lead to protect it from X-ray and has a structure protecting the inner circuit from X-ray dose under the limits

- Based on a-Si TFT active matrix
- Wide image
- 14-bit digital output
- Easy integration

Product specification

Parameter	Unit	Description
Application	-	General radiography
Pixel Size	μm	143
Active Pixel Array	pixels	3072 x 3072
Active area	mm	439.3 x 439.3
Spatial Resolution* ¹	lp/mm	3
Dynamic Range	dB	> 73
Energy Range	kVp	40 ~ 150
A/D	bit	14 bit, 16834 gray scale
Dimension (W*H*D)	mm	500 x 497 x 45
Weight	kg	13.4
Data Output	-	100 Mbps
Power	V	AC100-120V/200-240V (50 / 60Hz)
Environmental Condition		<p>Operation: Temperature: +10 ~ +40 °C Humidity: 20 ~ 75 % (no condensation) Press 70 ~ 106kPa</p> <p>Storage and transportation: Temperature: -25~ +55 °C Humidity: 10 ~ 95 % (no condensation) Press 70 ~ 106kPa</p>

*1: line pair resolution at over 10% MTF

Table 1: Product specification

IP Address Set-up

IP switching

Step 1

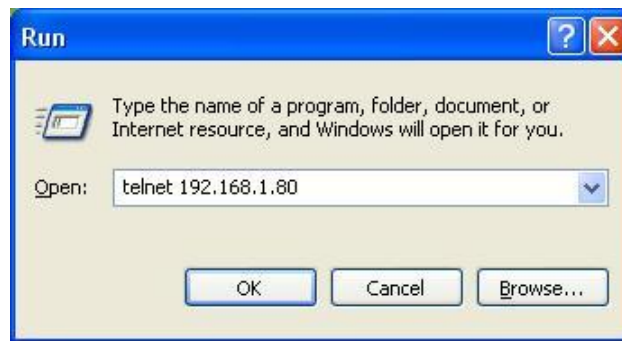


Figure 2 : Telnet connection

- Connect the detector with PC (Installation should be done)
- Click “START” and then “RUN”
- Input “telnet 192.168.1.80”

Step 2

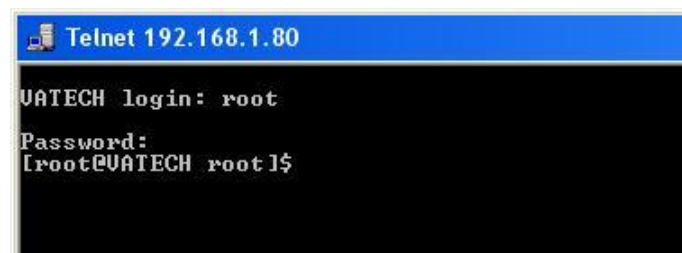


Figure 3 : Telnet login

- Input
 - ID: “root” and
 - Password: “depss”
 in Pop-up “telnet 192.168.1.80”
- VATECH login : root
- Password : depss (Password does not appear in window)

Step 3

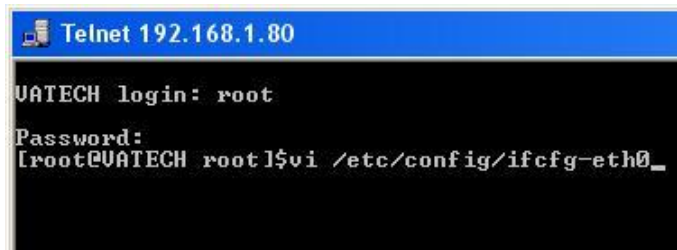


Figure 4 : Input message

- Detector is connected, when the message “ [root@VATECH root]\$ ” appears
- Input the message
“ vi/etc/config/ifcfg-eth0 ”, adjacent to “[root@VATECH root]\$ ”

Step 4

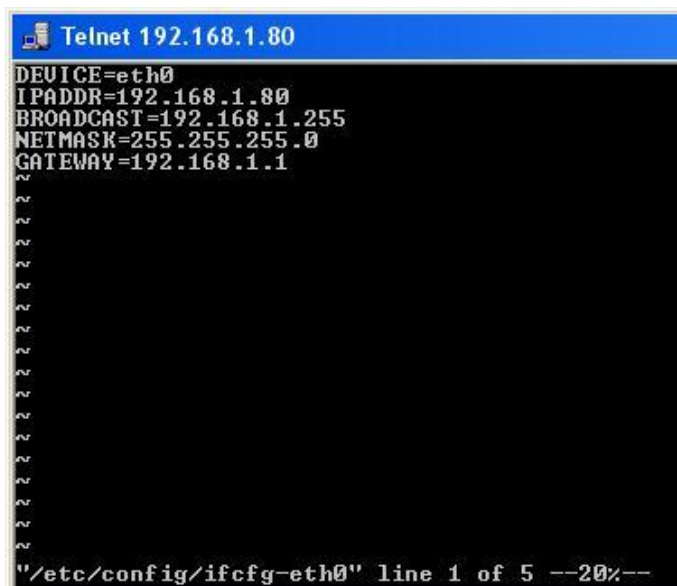


Figure 5 : IP address edit 1

- Move cursor at under “0” of “80”

Step 5



Figure 6 : IP address edit 2

- Input "a" and then "80_" appears. And then " - Insert - " appears.

Step 6

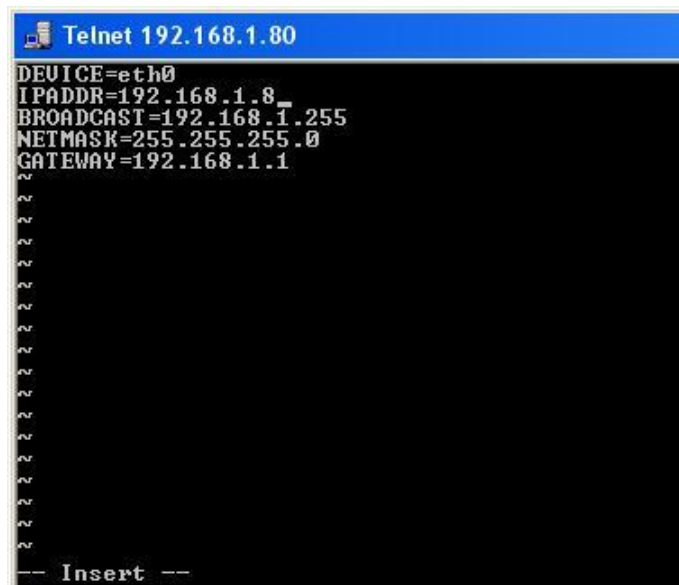


Figure 7 : IP address edit 3

- Push the "Delete" button, and then "8_" appear.

Step 7

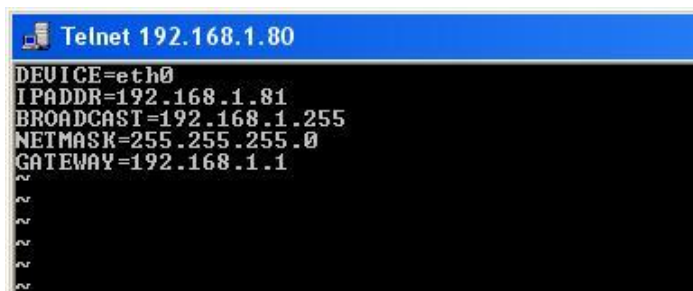


Figure 8 : IP address edit 4

- Input “1”
When inputting another IP address, it's possible to input another IP address using the “delete” button and inputting the number directly. And to launch dual detectors is possible, the number is variable among “0~255” but not be repeated.

Step8

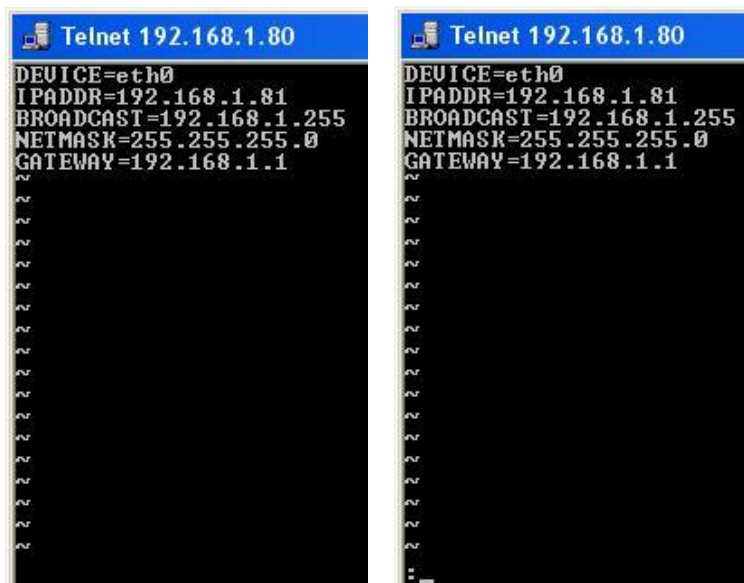


Figure 9 : IP address edit 5

- Push “ESC” button and input “:”.
Push “ESC” button and then the message “ – Insert –” disappears, and push “.” and then “.” appears..

Step 9

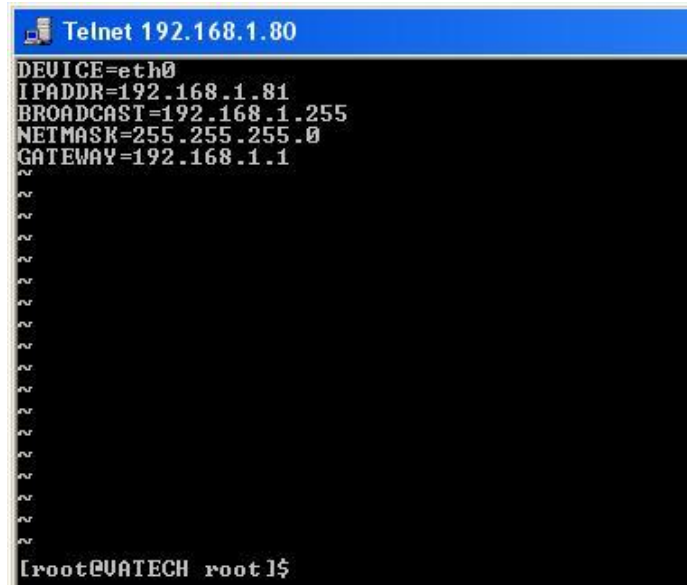


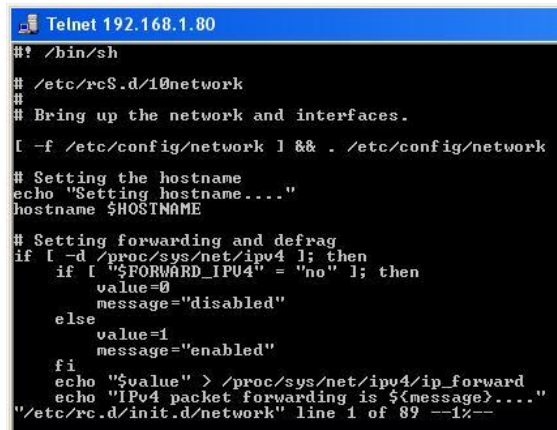
Figure 10 : IP address edit finish

- Push “wq!” and push “Enter” button and then IP address is set. If you don’t want to set IP address, input “q!” and repeat again from “step 3”.

Mac address set-up

After finishing the IP address setting, to distinguish Ethernet Mac address should be changed.

Step 1



```

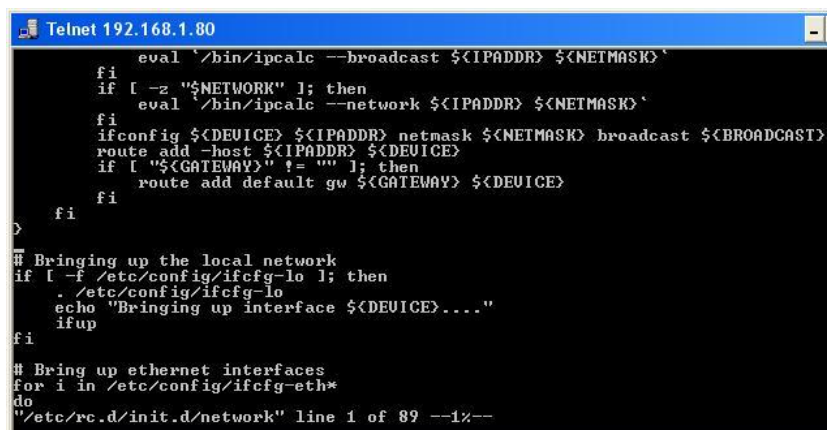
Telnet 192.168.1.80
## /bin/sh
# /etc/rcS.d/10network
#
# Bring up the network and interfaces.
[ -f /etc/config/network ] && . /etc/config/network
# Setting the hostname
echo "Setting hostname...."
hostname $HOSTNAME
# Setting forwarding and defrag
if [ -d /proc/sys/net/ipv4 ]; then
  if [ "$FORWARD_IPV4" = 'no' ]; then
    value=0
    message="disabled"
  else
    value=1
    message="enabled"
  fi
  echo "$value" > /proc/sys/net/ipv4/ip_forward
  echo "IPv4 packet forwarding is ${message}..."
"/etc/rc.d/init.d/network" line 1 of 89 --1%--

```

Figure 11 : Mac address edits 1

- Adjacent to the message “ [root@VATECH root]\$ ”,
input the message “vi /etc/rc.d/init.d/network”
and then it will appear as below.

Step 2



```

Telnet 192.168.1.80
    eval `/bin/ipcalc --broadcast ${IPADDR} ${NETMASK}`
    fi
    if [ -z "$NETWORK" ]; then
      eval `/bin/ipcalc --network ${IPADDR} ${NETMASK}`
    fi
    ifconfig ${DEVICE} ${IPADDR} netmask ${NETMASK} broadcast ${BROADCAST}
    route add -host ${IPADDR} ${DEVICE}
    if [ "$GATEWAY" != "" ]; then
      route add default gw ${GATEWAY} ${DEVICE}
    fi
  fi
fi
# Bringing up the local network
if [ -f /etc/config/ifcfg-lo ]; then
  . /etc/config/ifcfg-lo
  echo "Bringing up interface ${DEVICE}...."
  ifup
fi
# Bring up ethernet interfaces
for i in /etc/config/ifcfg-eth*
do
"/etc/rc.d/init.d/network" line 1 of 89 --1%--

```

Figure 12 : Mac address edits 2

- Move cursor to the message
“ # Bringing up the local network”

Step 3

```

Telnet 192.168.1.80
eval `/bin/ipcalc --broadcast ${IPADDR} ${NETMASK}`
fi
if [ -z "$NETWORK" ]; then
eval `/bin/ipcalc --network ${IPADDR} ${NETMASK}`
fi
ifconfig ${DEVICE} ${IPADDR} netmask ${NETMASK} broadcast ${BROADCAST}
route add -host ${IPADDR} ${DEVICE}
if [ "$GATEWAY" != "" ]; then
route add default gw ${GATEWAY} ${DEVICE}
fi
fi
>
ifconfig eth0 hw ether 00:64:67:69:73:61
# Bringing up the local network
if [ -f /etc/config/ifcfg-lo ]; then
. /etc/config/ifcfg-lo
echo "Bringing up interface ${DEVICE}...."
ifup
fi
# Bring up ethernet interfaces
for i in /etc/config/ifcfg-eth*
do
-- Insert --

```

Figure 13 : Mac address edits 3

- Input "I", then the message " - Insert - " appears and input will be possible.
- Input the message "ifconfig eth0 hw ether 00:64:67:69:73:6x". The value of X is available among "1~E"

EX) First Detector → 00:64:67:69:73:61

Second Detector → 00:64:67:69:73:62

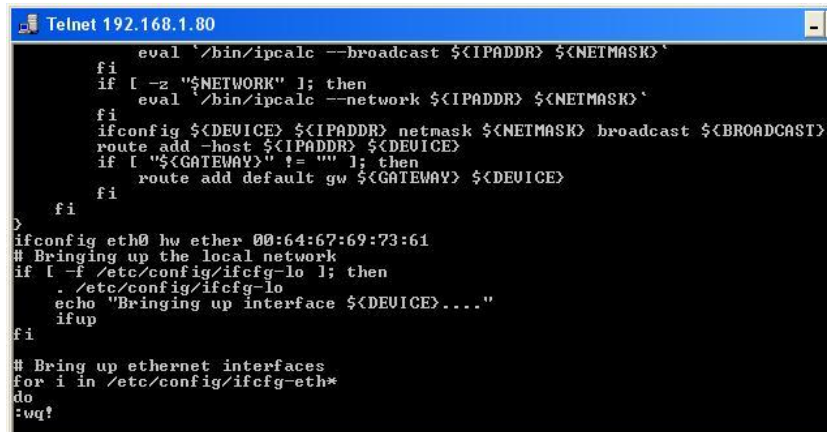
Step 4

```

Telnet 192.168.1.80
eval `/bin/ipcalc --broadcast ${IPADDR} ${NETMASK}`
fi
if [ -z "$NETWORK" ]; then
eval `/bin/ipcalc --network ${IPADDR} ${NETMASK}`
fi
ifconfig ${DEVICE} ${IPADDR} netmask ${NETMASK} broadcast
route add -host ${IPADDR} ${DEVICE}
if [ "$GATEWAY" != "" ]; then
route add default gw ${GATEWAY} ${DEVICE}
fi
fi
>
ifconfig eth0 hw ether 00:64:67:69:73:61
# Bringing up the local network
if [ -f /etc/config/ifcfg-lo ]; then
. /etc/config/ifcfg-lo
echo "Bringing up interface ${DEVICE}...."
ifup
fi
# Bring up ethernet interfaces
for i in /etc/config/ifcfg-eth*
do
:
:

```

Figure 14 : Mac address edits 4



```

Telnet 192.168.1.80
eval `/bin/ipcalc --broadcast ${IPADDR} ${NETMASK}`
fi
if [ -z "$NETWORK" ]; then
eval `/bin/ipcalc --network ${IPADDR} ${NETMASK}`
fi
ifconfig ${DEVICE} ${IPADDR} netmask ${NETMASK} broadcast ${BROADCAST}
route add -host ${IPADDR} ${DEVICE}
if [ "${GATEWAY}" != "" ]; then
route add default gw ${GATEWAY} ${DEVICE}
fi
fi
}
ifconfig eth0 hw ether 00:64:67:69:73:61
# Bringing up the local network
if [ -f /etc/config/ifcfg-lo ]; then
./etc/config/ifcfg-lo
echo "Bringing up interface ${DEVICE}..."
ifup
fi
# Bring up ethernet interfaces
for i in /etc/config/ifcfg-eth*
do
:wq!

```

Figure 15 : Mac address edits 5

- After inputting value is finished, set again with the steps from 3.a ~ 3.b
- Push “ESC” button, input “ : ”.
- After input “wq!”, push “Enter” button and then IP address is set. If setting is wrong, input “q!” and redo from the step 1.

Firmware Set-up

FTP set-up

Step 1 : Free FTP download

<http://filezilla-project.org/>

<http://sourceforge.net/projects/filezilla>



Figure 16 : Free FTP downloads URL

- Run “FileZilla_Server-N_N_NN.exe” file

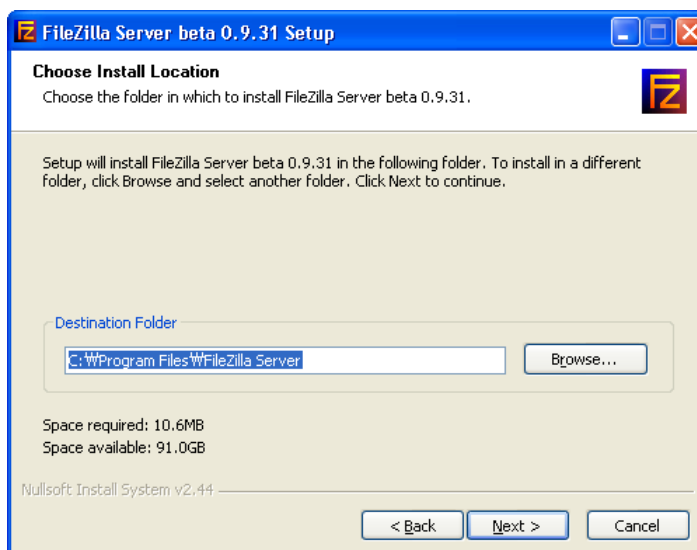
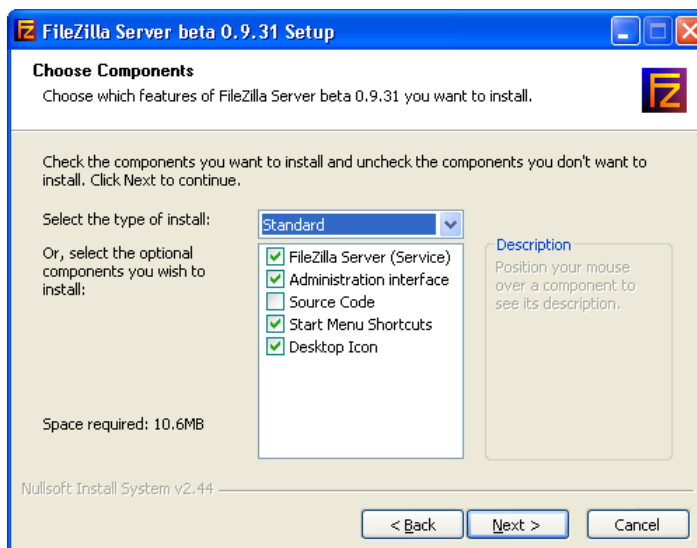
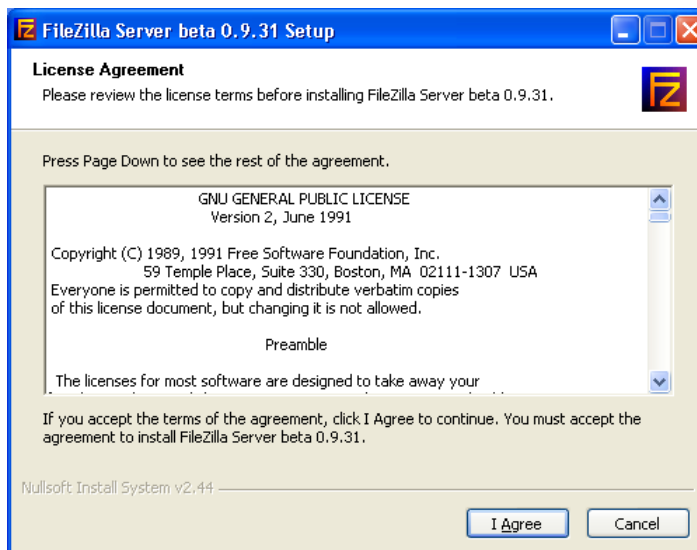


Figure 17 : FTP installation 1

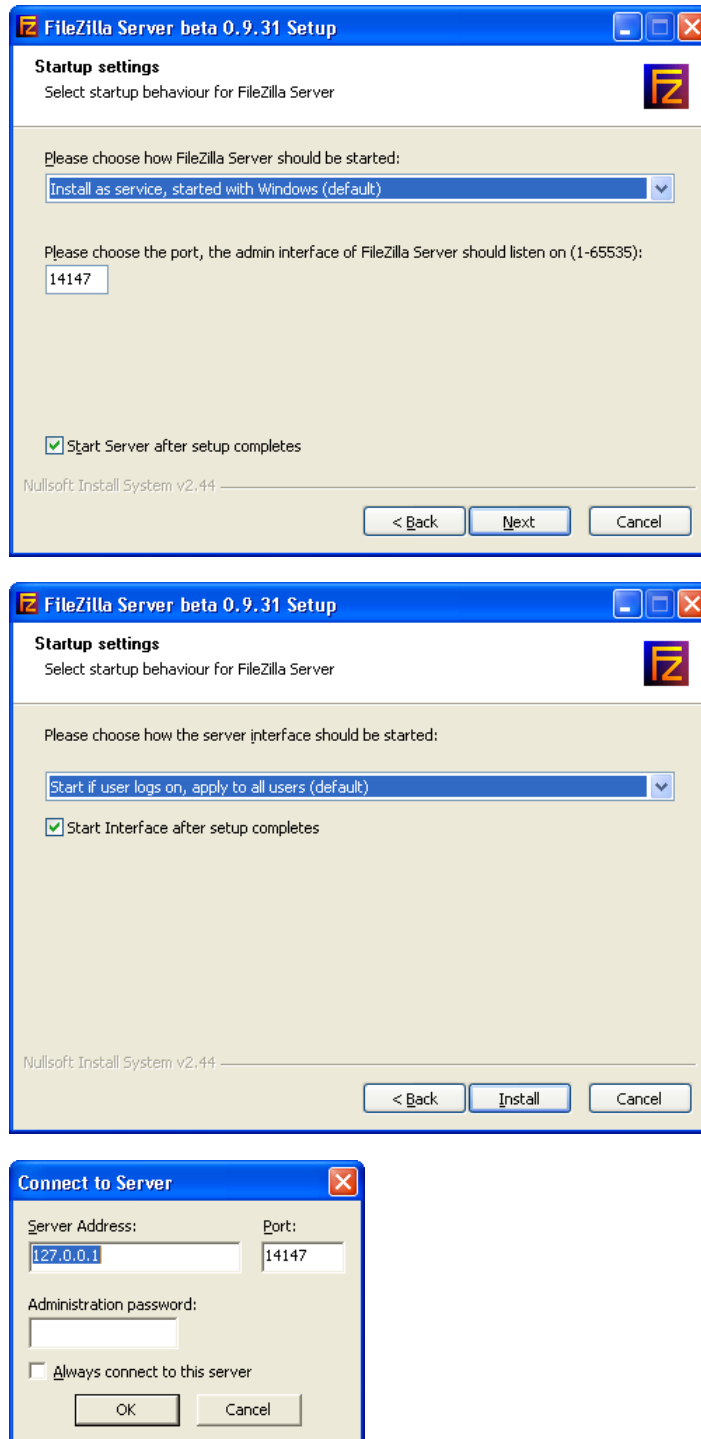


Figure 18 : FTP installation 2

Step 2 : FTP set-up step by step

A. Setting

[Menu Bar] → [Edit] → [Settings]

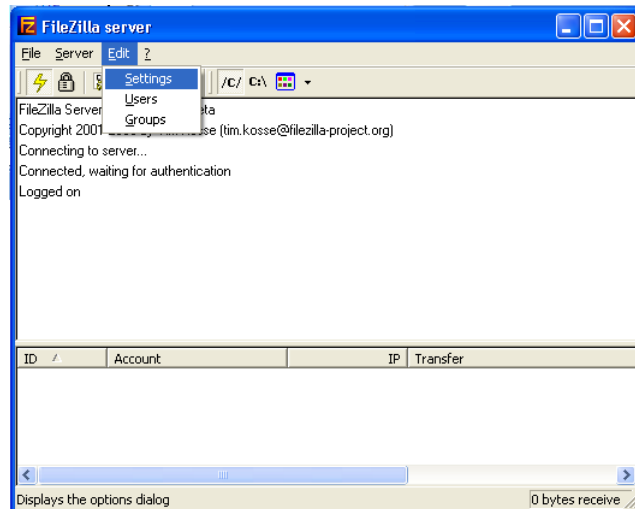


Figure 19 : FTP set up

- General settings

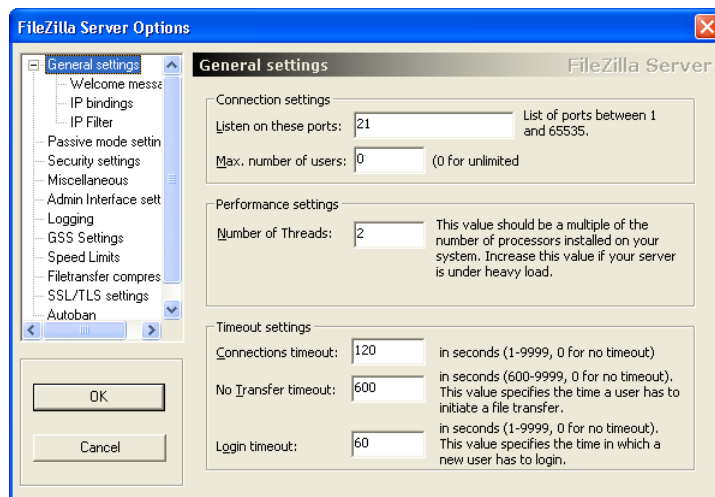


Figure 20 : General settings

- Passive mode settings

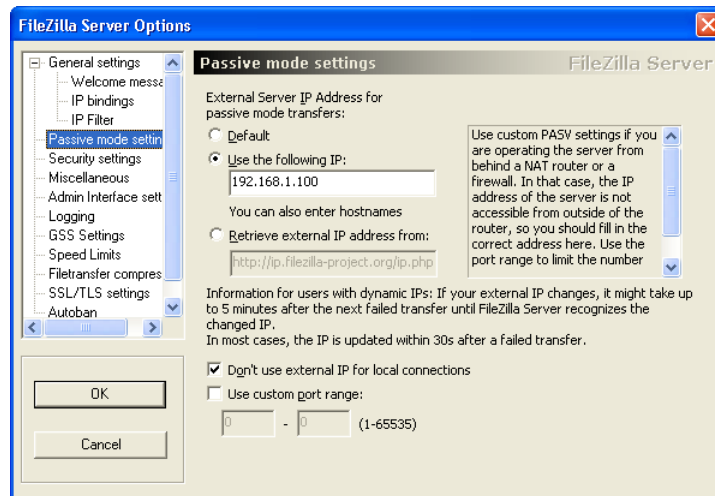


Figure 21 : Passive mode settings

B. Users

[Menu Bar] → [Edit] → [Users]

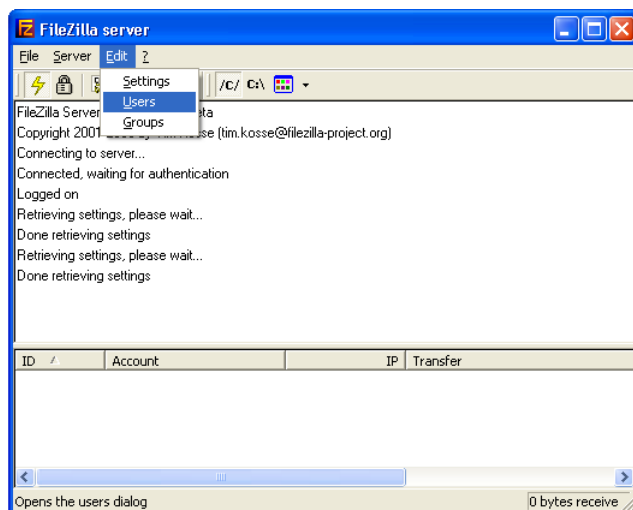


Figure 22 : Users settings

- General → Add

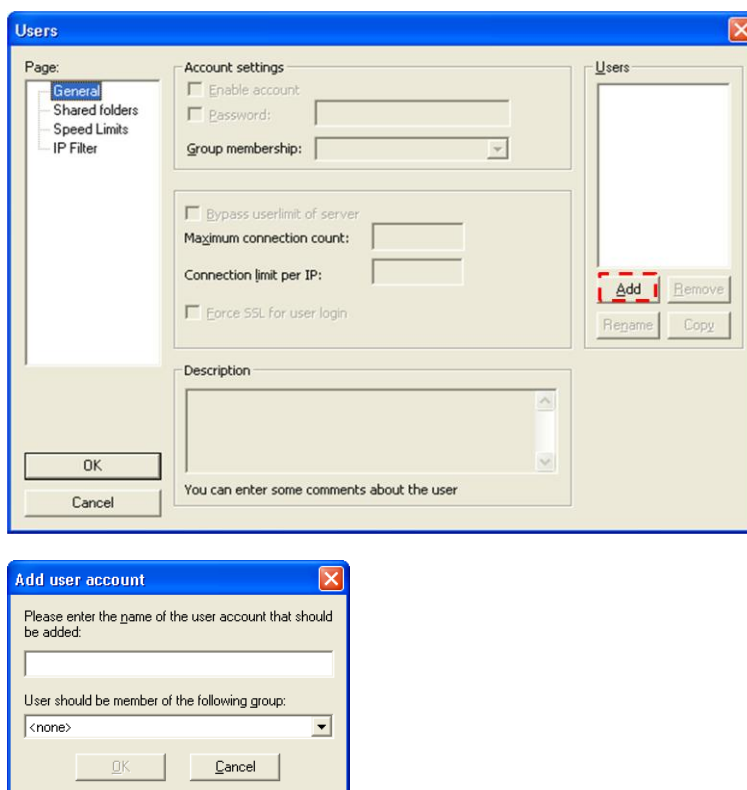


Figure 23 : User Add

- Shared folders → Add

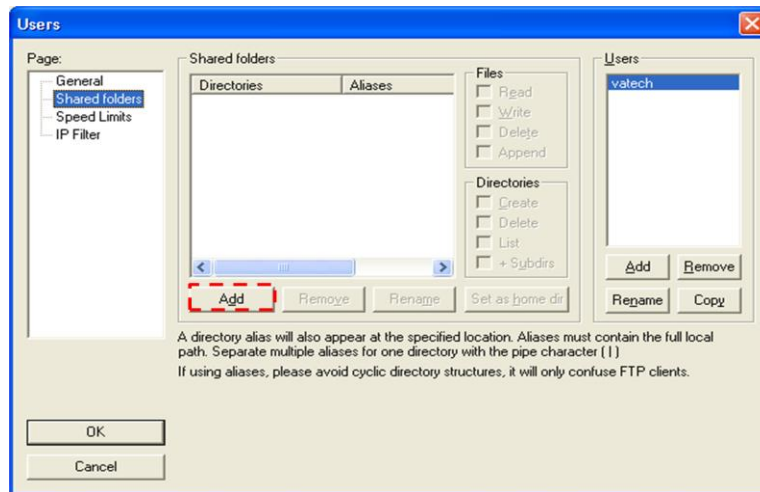


Figure 24 : Shared folders Add

Step 3 : Detector connection

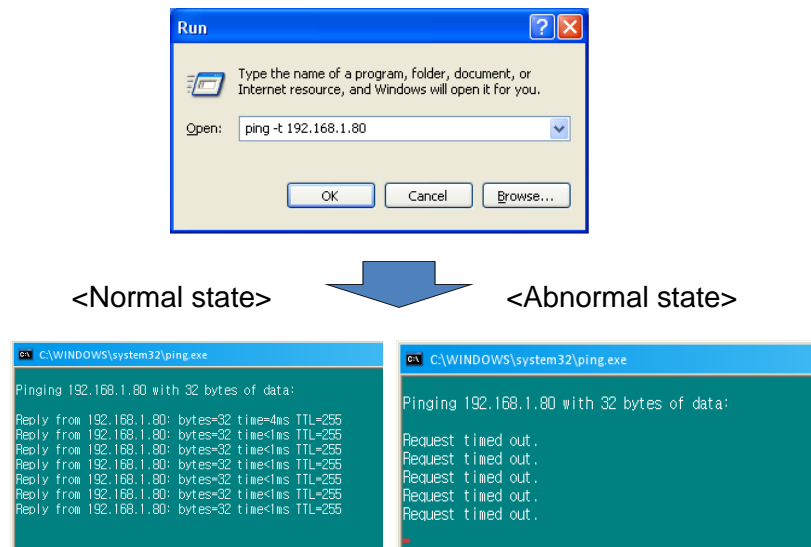
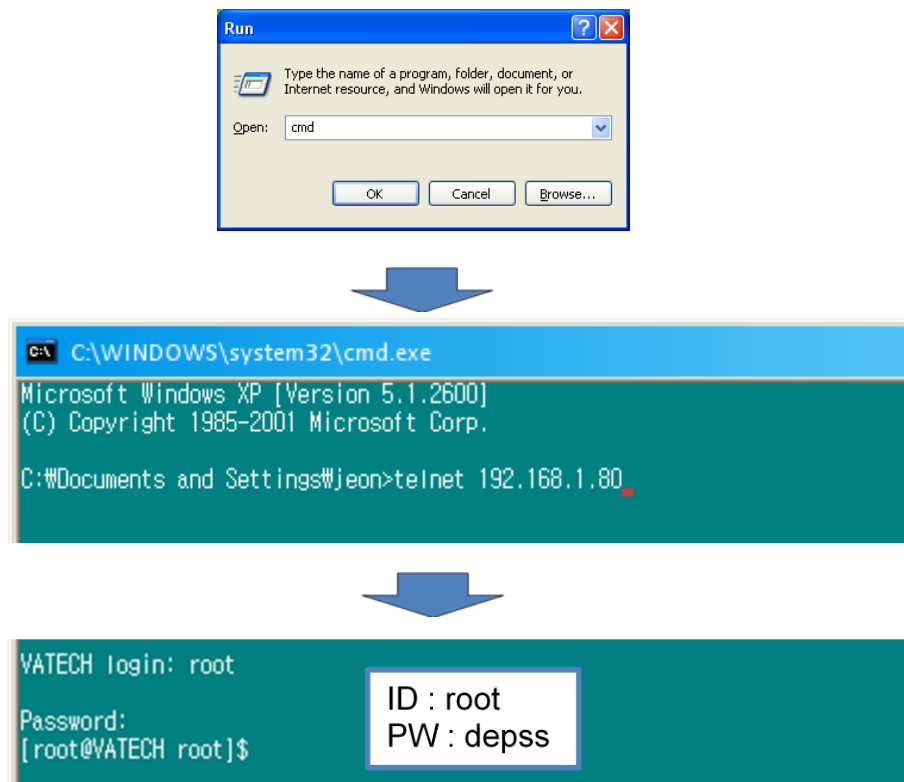


Figure 25 : Detector connection check

Step 4 : Telnet connection



```

Telnet 192.168.1.80
[root@VATECH home]$
[root@VATECH home]$
[root@VATECH home]$pwd
/home
[root@VATECH home]$
[root@VATECH home]$ls -al
drwxr-xr-x  2 root   root      0 Dec  4  2030 .
drwxr-xr-x 15 root   root      0 Jan  1  1970 ..
-rw-r----- 1 root   root     84 Jan  1  1970 .cfg
-rw-r----- 1 root   root      4 Dec  4  2030 .el_fid
-rw-r----- 1 root   root      4 Dec  4  2030 .el_org
-rwxr-xr-x  1 root   root    338199 Dec  4  2030 davinci
-rw-r--r--  1 root   root      41 Dec  4  2030 version.txt
[root@VATECH home]$
[root@VATECH home]$ps
  PID  Uid    VmSize  Stat  Command
    1  root      1072  S     init
    2  root          S     [keventd]
    3  root          S     [ksoftirqd_CPU0]
    4  root          S     [kswapd]
    5  root          S     [bdflush]
    6  root          S     [kupdated]
    7  root          S     [mtdblockd]
    8  root          S     [jffs2_gcd_mtd3]
   22  root      1120  S     devfsd /dev
   39  root      1840  S     /bin/bash /etc/rc.d/rc 5
   66  root      1340  S     inetd
   73  root      1116  S     initlog -c /etc/rc.d/rc5.d/S99local start
   74  root      1732  S     /bin/sh /etc/rc.d/rc5.d/S99local start
   77  root      1056  S     /bin/utelnetsd -d
   78  root      1732  S     /bin/sh /usr/bin/run
   79  root     21972  S     /home/davinci
   80  root     21972  S     /home/davinci
   81  root     21972  S     /home/davinci
   82  root     21972  S     /home/davinci
   85  root      1776  S     -sh
   95  root      1364  R     ps
[root@VATECH home]$
[root@VATECH home]$_

```

Figure 26 : Telnet connection

- “[root@VATECH home ~]# telnet 192.168.1.80” (connect detector)
- Vatech login : root
- Password : depss
- “[root@VATECH home ~]#cd home” (Move to home directory)
- “[root@VATECH home ~]#pwd” (Check current directory)
- “[root@VATECH root]\$ps” (Check current process information)

Step 5 : Firmware download

```

GV Telnet 192.168.1.80
[root@VATECH home]#
[root@VATECH home]#ls
version.txt
[root@VATECH home]#
[root@VATECH home]#ftp 192.168.1.100
Connected to 192.168.1.100.
220-FileZilla Server version 0.9.29 beta
220-written by Tim Kosse <Tim.Kosse@gnx.de>
220 Please visit http://sourceforge.net/projects/filezilla/
Name <192.168.1.100:root>: root

331 Password required for root
Password:
230 Logged on
Remote system type is UNIX.
ftp> ?Invalid command
ftp> ls

200 Port command successful
150 Opening data channel for directory list.
-rw-r--r-- 1 ftp ftp      1645568 Oct 07  2008 davinci_080617(2).tar
-rw-r--r-- 1 ftp ftp      157090 Sep 29  2008 davinci_080617.zip
-rw-r--r-- 1 ftp ftp      338199 Dec 05 17:03 davinci_D007-081205
226 Transfer OK
ftp> ftp> bin davinci_D007-081205

200 Type set to I
ftp> ftp> get davinci_D007-081205

200 Port command successful
150 Opening data channel for file transfer.
226 Transfer OK
338199 bytes received in 1.6 seconds (211465 bytes/s)
ftp> ftp>

```

Figure 27 : Firmware download

- “[root@VATECH home ~]\$ [ftp 192.168.1.100](#)” (connect FTP)
- “[root@VATECH home ~]\$ ftp user ID (Ex:root), PW(Ex:1234) (davinci_D007-081205, firmware will be uploaded)”
- “ftp> bin davinci_D007-081205” (convert “davinci_D007-081205” to binary file)
- “ftp> get davinci_D007-081205” (download “davinci_D007-081205” to detector)
- “ftp> bye” (end ftp)

Step 6 : Firmware set-up

```

C:\ Telnet 192.168.1.80
[root@VATECH home]#
[root@VATECH home]#ls
davinci_D007-081205  version.txt
[root@VATECH home]#
[root@VATECH home]#chmod 755 davinci_D007-081205
[root@VATECH home]#
[root@VATECH home]#ls -al
drwxr-xr-x  2 root  root           0 Dec  4 02:54 .
drwxr-xr-x 15 root  root           0 Jan  1 1970 ..
-rw-r----- 1 root  root        84 Jan  1 1970 .cfg
-rw-r----- 1 root  root         4 Dec  4 2030 .el_fld
-rw-r----- 1 root  root         4 Dec  4 2030 .el_org
-rwxr-xr-x  1 root  root    338199 Dec  4 02:54 davinci_D007-081205
-rw-r--r--  1 root  root         41 Dec  4 2030 version.txt
[root@VATECH home]#
[root@VATECH home]#

```

Figure 28 : Firmware set-up

- “[root@VATECH home ~]#chmod 755 davinci_D007-081205”
 (set authority: User :7 (read, write, execute)
 Group :5 (read, execute)
 Other 5 (read, execute))

```

CA Telnet 192.168.1.80
davinci_D007-081205 version.txt
[root@VATECH home]#
[root@VATECH home]# mv davinci_D007-081205 davinci
[root@VATECH home]#
[root@VATECH home]# ls -l
-rwxr-xr-x 1 root root 338199 Dec 4 1916 davinci
-rw-r--r-- 1 root root 41 Dec 4 2030 version.txt
[root@VATECH home]#
[root@VATECH home]#

```

Figure 299 : Convert file name

- “[root@VATECH home ~]# mv davinci_D007-081215 davinci”

(convert file name “Davinci_007-081215” to davinci)



```

CA Telnet 192.168.1.80

VATECH login: root
Password:
[root@VATECH root]# ps
  PID  Uid    VmSize  Stat  Command
    1  root      1072  S      init
    2  root         S      [keventd]
    3  root         S      [ksoftirqd_CPU0]
    4  root         S      [kswapd]
    5  root         S      [bdf flush]
    6  root         S      [kupdated]
    7  root         S      [ntdblockd]
    8  root         S      [jffs2_gcd_ntd3]
   22  root      1120  S      devfsd /dev
   39  root      1840  S      /bin/bash /etc/rc.d/rc 5
   66  root      1340  S      inetd
   73  root      1116  S      initlog -c /etc/rc.d/rc5.d/S99local start
   74  root      1732  S      /bin/sh /etc/rc.d/rc5.d/S99local start
   77  root      1056  S      /bin/utelnetsd -d
   78  root      1732  S      /bin/sh /usr/bin/run
   79  root     21972  S      /home/davinci
   80  root     21972  S      /home/davinci
   81  root     21972  S      /home/davinci
   82  root     21972  S      /home/davinci
   84  root      1772  S      -sh
   87  root     1364  R      ps
[root@VATECH root]#
[root@VATECH root]#

```

Figure 30 : Check “davinci” process updated

Check “davinci” process updated

Step 7 : Firmware set-up

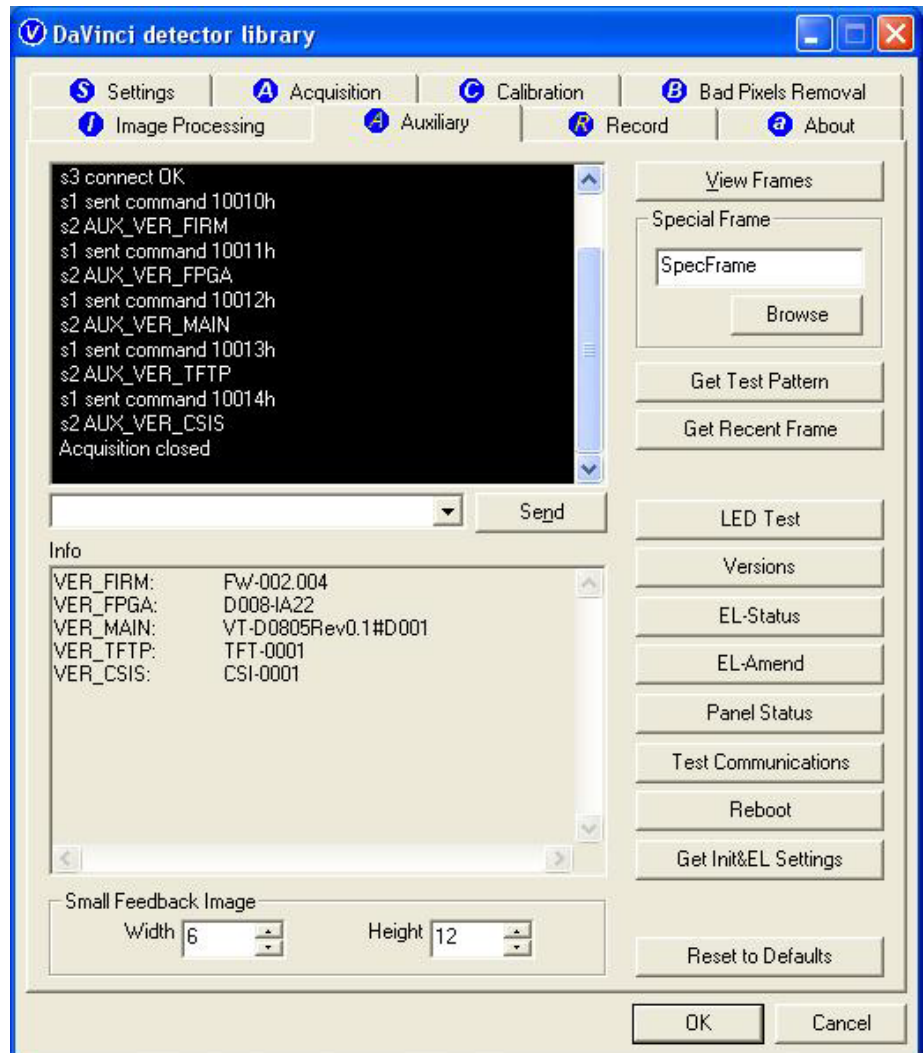


Figure 31 : Check firmware version

Xmaru1717

Service Manual

Leading the transition to Digital X-ray



VATECH Co., Ltd.

473-4, Bora-Dong, Giheung-Gu, Yongin-Si, Gyeonggi-Do, Korea 446-904
dr_service@vatech.co.kr www.vatechdr.com