Installing WorldVistA EHR 2.0 for GT.M and Linux

**Please email nanthracite@earthlink.net for errors in this document,
requests for help and suggested for improvements**

This is assuming you have a Debian derived version of Linux installed so that these commands will work. This is one of multiple ways that an installation of WorldVistA EHR can be handled.

1. **Add a user for VistA** at the Linux root command prompt (which is a # sign). Lets assume your users name will be vista. The command will likely be useradd instead of adduser for non-Debian Linux distributions. You will be asked to give the new user a password after the user is created. If you need to change the password, enter "passwd vista" or whatever your users name is and provide a good password. Dictionary words are not good passwords. You are inviting your system to be hacked if you do not provide a good password for Linux.

    > adduser vista

2. Get the following files from my server and put them in the home directory of the user vista. You can do this by changing to the home directory of the new user and running the wget commands below from the command line. If wget is not installed in you Linux instance, you can download and install it, either with apt-get or aptitude install   You can also do it using your browser with this link.   The font is small so the commands will fit on one line. So you might be able to copy and paste them. You may have to put them in a text editor first and then copy and paste them.

    http://opensourcevista.net:8888/NancysVistAServer/WVEHR-2.0-Install-GTM/

    > Files to get:
    > env2
    > WVEHR-gui
    > WVEHR-guiXINETD

    These wget commands will download them for you from the command line.

    wget http://opensourcevista.net:8888/NancysVistAServer/WVEHR-2.0-Install-GTM/env2
    wget http://opensourcevista.net:8888/NancysVistAServer/WVEHR-2.0-Install-GTM/WVEHR-gui
    wget http://opensourcevista.net:8888/NancysVistAServer/WVEHR-2.0-Install-GTM/WVEHR-guiXINETD

3. From the directory /home/vista or the home directory of your VistA user, download the globals and routines by using the following command on the command line.

    wget http://downloads.sourceforge.net/worldvista-ehr/WVEHR-2.0-Release-2.11-GTM.zip

4. When in the home directory of your new user, presumably vista, make a directory which I will call EHR and subdirectories g and o. An r directory will be added in the next step for the routines. This is not the only way to do this, but it is one option you can use

```
mkdir EHR
cd EHR
mkdir  g o
```

5. Copy WVEHR-3-09-Release-GTM.zip file into the home directory of your vista user, presumably /home/vista, if it is not there already unzip it. It should unzip into Globals-GTM-WVEHR-2-0-Release-2-11.zip and Routines-GTM-WVEHR-2.0-Release-2-11.zip.

```
 $ cd /home/vista
~$ unzip WVEHR-2.0-Release-2.11-GTM.zip
 Archive:  WVEHR-2.0-Release-2.11-GTM.zip
    extracting: Globals-GTM-WVEHR-2-0-Release-2-11.zip
    extracting: Routines-GTM-WVEHR-2.0-Release-2-11.zip
```

6. Move the env2 file and the WVEHR-gui file into the EHR directory and made the WVEHR-gui file executable. These commands work if you are in the /home/vista directory when you issue them. Copy the Routines-WVEHR-VOE1.0-Release6-08-GTM-Linux.zip into the EHR subdirectory of your user and unpack the routines file and that will create the r directory loaded with routines. (For the Linux administrators information, in the routines file, there are over 20,000 routines so when you compress them, you really need to do the directory with it or the argument list is too long, which is why it is done this way.)

```
~$ cd /home/vista
~$ cp env2 ./EHR/
~$ cp WVEHR-gui ./EHR/
~$ chmod 755 ./EHR/WVEHR-gui
~$ Routines-GTM-WVEHR-2.0-Release-2-11.zip ./EHR/
~$ cd EHR
~/EHR$ unzip Routines-GTM-WVEHR-2.0-Release-2-11.zip
Archive:  Routines-GTM-WVEHR-2.0-Release-2-11.zip
   creating: r/
  inflating: r/GMRAY18L.m
  inflating: r/SDOQMP2.m
  inflating: r/XU8P378B.m
  inflating: r/SROPCEU0.m ← this will continue for almost 27,000
routines
```

7. Copy Globals-GTM-WVEHR-2-0-Release-2-11.zip into the g directory and extract it. It decompresses into mumps.dat and mumps.gld. The mumps.dat is a large file so this may take some time do decompress.

If you are still in the /home/vista/EHR subdirectory

```
~/EHR$ unzip /home/vista/Globals-GTM-WVEHR-2-0-Release-2-11.zip -d
/home/vista/EHR/g/
   Archive:  /home/vista/Globals-GTM-WVEHR-2-0-Release-2-11.zip
   inflating: /home/vista/EHR/g/mumps.dat
   inflating: /home/vista/EHR/g/mumps.gld
```

Now that you have these in place, assuming you have named your user vista, you will need to change the owner and group of all of these files to vista, so go back to /home/vista and do that as follows. You will need to be root to perform this step.

cd /home/vista
chown -R vista: *

7. Now download and install the latest version of GT.M if you have not done it already. I am assuming that you will be getting GTM version 6.0000 so these instructions will be for that. Put this file in its own directory, unpack it and then run the ./configure script as root to install it. I recommend putting it in /usr/local/gtm_V60000-64 when you are asked where to put it.   Accept the defaults and run the script as root. Either click the link below, go to the http://Sourceforge.net, search for GT.M (note the dot in there) and find the file and download it or use the wget command below pasted into your terminal. Get the correct version or your Linux system. You can also download the GT. M Installer and use that. It can be downloaded from

http://sourceforge.net/projects/fis-gtm/files/?source=navbar

You can find out if you have a 32 bit or 64 bit command by using the command prints your system information:

uname -a

In this example, to download the 64 bit version of GT.M 6.0000 using a wget command from the command line:

```
wget http://sourceforge.net/projects/fis-gtm/files/GT.M-amd64-
Linux/V6.0-000/gtm_V60000_linux_x8664_pro.tar.gz
```

There is also a 32 bit version if you prefer. That can be downloaded from the command line using the wget command below:

```
wget http://sourceforge.net/projects/fis-gtm/files/GT.M-x86-Linux/V6.0-
000/gtm_V60000_linux_i686_pro.tar.gz
```

For example, you might do this as user vista or whatever user you are

cd <========== this puts you into the /home/[your user]
mkdir gtm-install
cp gtm_V60000_linux_x8664_pro.tar.gz ./gtm-install/
cd gtm-install
tar -xzvf gtm_V60000_linux_pro.tar.gz

You must be root starting here! You can use the command su or sudo su to become root.
. ./configure <======= this runs the script to install gtm   it is dot space dot at the beginning of the line

```
# ./configure
                    GT.M Configuration Script
Copyright 2009, 2012 Fidelity Information Services, Inc. Use of
this
software is restricted by the provisions of your license
agreement.

What user account should own the files? (bin) <==Press Enter Here
What group should own the files? (bin) <==Press Enter Here
Should execution of GT.M be restricted to this group? (y or n) n
In what directory should GT.M be installed?
/usr/local/gtm_V60000-64

Directory /usr/local/gtm_V60000-64 does not exist. Do you wish to
create it as part of
this installation? (y or n) y

Installing GT.M....

Should UTF-8 support be installed? (y or n) n   <==Important to be
n

All of the GT.M MUMPS routines are distributed with uppercase
names.
You can create lowercase copies of these routines if you wish,
but
to avoid problems with compatibility in the future, consider
keeping
only the uppercase versions of the files.

Do you want uppercase and lowercase versions of the MUMPS
routines? (y or n)n

Compiling all of the MUMPS routines. This may take a moment.
```

```
GTM>
%GDE-I-GDUSEDEFS, Using defaults for Global Directory
        /usr/local/gtm_V60000-64/gtmhelp.gld

GDE>
GDE>
GDE>
%GDE-I-VERIFY, Verification OK

%GDE-I-GDCREATE, Creating Global Directory file
        /usr/local/gtm_V60000-64/gtmhelp.gld

GTM>
%GDE-I-GDUSEDEFS, Using defaults for Global Directory
        /usr/local/gtm_V60000-64/gdehelp.gld

GDE>
GDE>
GDE>
%GDE-I-VERIFY, Verification OK

%GDE-I-GDCREATE, Creating Global Directory file
        /usr/local/gtm_V60000-64/gdehelp.gld

Object files of M routines placed in shared library
/usr/local/gtm_V60000-64/libgtmutil.so
Keep original .o object files (y or n)? y


Installation completed. Would you like all the temporary files
removed from this directory? (y or n) y
```

8. After you have done this, you need to get your "environment" set up. I have included some small files for you and you will need to edit them to fit your situation. Looking first at env2. (env2 to distinguish it from env which is a command instead of a file.) Here is the contents of the env2 included with this group of files. It includes a number of aliases for commands to make things easier.

The "aliases" in env2 are helpful because, if you start a new shell and log in as the VistA user, which maybe vista, you will be able to just type gtm or GTM and roll and scroll VistA using GT.M will start right up because gtm is an "alias" for the command "$gtm_dist/mumps -direct". (Within that command, the $gtm_dist tells the computer to substitute what ever directory gtm_dist is set to in the env2 file.)

The lines you will likely need to edit to match your installation I have put in **bold red type.** Change to the the appropriate user if you need o and change export gtm_dist="/usr/local/gtm" to whatever you chose when you installed GT.M.

Do this with a text editor. I use the command line text editor nano so I would enter "**nano env2**" at the command line and then edit the file using the arrow keys and backspace and delete

keys and then **save it with Ctrl-O (press the Ctrl key and o at the same time) and Exit using Ctrl-X**. There are many different text editors including GUI editiors. If you have a GUI installation, I would recommend using one of them if you are new to Linux.

```
#!/bin/sh
#put directory with r o and g in it and no trailing slash here
## for vista_home
export vista_home="/home/vista/EHR";
export gtm_dist="/usr/local/gtm_V60000-64"
export gtm_zinterrupt="I \$\$JOBEXAM^ZU(\$ZPOSITION)"
export gtmgbldir="$vista_home/g/mumps.gld"
export gtmroutines="$vista_home/o($vista_home/r) $gtm_dist"
export gtm_log="/var/log"
alias GTM="$gtm_dist/mumps -direct"
alias gtm="$gtm_dist/mumps -direct"
alias mupip="$gtm_dist/mupip"
alias gde="$gtm_dist/mumps -r ^GDE"
alias GDE="$gtm_dist/mumps -r ^GDE"
alias lke="$gtm_dist/lke"
alias dse="$gtm_dist/dse"
alias LKE="$gtm_dist/lke"
alias DSE="$gtm_dist/dse"
alias rundown="$gtm_dist/mupip rundown -r \"*\""
```

9. Whenever a user such as "vista" logs on to a system, a file called .bashrc is run to set some things up to run certain ways for that particular user. I usually edit the .bashrc file to include setting up some things for using VistA automatically every time the user logs in. To do the same thing from yourself, add the appropriate line to the .bashrc file.

The fact the name of the file begins with a period means that it is usually hidden when you list the contents of a directory with the usual command, "ls", but it is there and you can see it if you add the -a after the ls, i.e., "ls -a", when you list the contents of a directory.

So do do this, open file /home/[your users name]/.bashrc for the user, in this case vista in a text editor, perhaps with the command

nano /home/vista/.bashrc

 and add the line so if your user name is vista, the line is a **period followed by a space** and then /home/vista/EHR/env2"

. /home/vista/EHR/env2

or whatever is the appropriate path to this file and save it. I usually put it near the end of the file so I can find it again. Here is the end of MY .bashrc . Yours may differ.

```
//snip
# some more ls aliases
#alias ll='ls -l'
#alias la='ls -A'
#alias l='ls -CF'

. /home/vista/EHR/env2   <======= note the space after the .

# enable programmable completion features (you don't need to enable
# this, if it's already enabled in /etc/bash.bashrc and /etc/profile
# sources /etc/bash.bashrc).
if [ -f /etc/bash_completion ]; then
   . /etc/bash_completion
fi
```

10. As the VistA user, presumably vista, you will need to get your mumps.gld file pointing at the right file. You will need to be logged into Linux as the user to do this. A hint for the future, even though the mumps.gld file is largely unreadable, you can cat it and see the file it is pointing at in text, so you can figure out if things are working or not working because it is pointed at the wrong file. In this case, it will almost certainly be pointed at the wrong file. To get it pointed at the right file, do this. Type GDE should start up the global directory editor if you have the environment setup right and change the part after -file= to match your environment. If you don't do it in a sensible fashion, when you type exit, the GDE will tell you you goofed! Do not cut and paste this line in as you may end up with control characters that will cause things to not work later.

    This is what it looks like. Your entries are in red:

    ```
    vista@computer:~$ GDE
    %GDE-I-LOADGD, Loading Global Directory file
         /home/nancy/EHR/g/mumps.gld
    %GDE-I-VERIFY, Verification OK


    GDE> change -segment DEFAULT -file=/home/vista/EHR/g/mumps.dat
    GDE> exit
    %GDE-I-VERIFY, Verification OK
    ```

%GDE-I-GDUPDATE, Updating Global Directory file
/home/vista/EHR/g/mumps.gld

You can check to be sure it worked by entering

cat /home/vista/EHR/g/mumps.gld

and see if you see that file listed in there as just about the only think you can read.

It should look something like this when you started, and have the appropriate changes when you try it again. I made the type small so it would fit except for what you need to see.

cat /home/vista/EHR/g/mumps.gld (note the section in red)
GTCGBDUNX005Dð,ä4#)%ÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿDEFAULTÿðäddDEFAULT/home/vista/EHR/g/mumps.dat
NðI.DAT002BG00310000110031280010003100000001000264001000325600100002BG00310000410240000000003100007DYNAMIC004102
4002400010000002MM003100004102400000011003100007DYNAMIC00410240024000010000   owl:/home/vista#

11. If you haven't installed xinetd in your Linux distribution, do it now. (For Debian Linux, you can install it with the command apt-get install xinetd.)

To use xinetd. copy the file WVEHR-guiXINETD to the directory /etc/xinetd.d and then rename it to WVEHR-gui . You will have to be root to do this.

As root in the directory that has the file WVEHR-guiXINETD, this command will copy and rename the file

cp WVEHR-guiXINETD /etc/xinetd.d/WVEHR-gui

This is the contents of /etc/xinetd.d/WVEHR-gui

```
service WVEHR-gui
    {
    port = 9211
    socket_type = stream
    protocol = tcp
    user = vista
    server =  /home/vista/EHR/WVEHR-gui
    type = UNLISTED
    wait = no
    disable = no
    }
```

12. Now to fix up the file it is pointed at. I would recommend putting the file WVEHR-gui in the /home/vista/EHR directory. To change the owner of the file, presuming the user is vista, as root enter

> chown vista:vista /home/vista/EHR/WVEHR-gui

13. This is what the /home/vista/EHR/WVEHR-gui file probably looks like and you should edit it to match your system. The log file will be automatically generated when you first connect to your system with CPRS or when testing the connection with telnet, but the path to it should be corrected if it does not match your system.

> #!/bin/sh
> #WVEHR-gui: This is a file to run RPCBroker as a Linux service
> #
> #make sure of our directory
> cd /home/vista/EHR
> date>>/home/vista/EHR/WVEHR-gui.log
> #Get the GTM profile
> source /home/vista/EHR/env2
> #Run routine
> $gtm_dist/mumps -run GTMLNX^XWBTCPM 2>>/home/vista/EHR/WVEHR-gui.log
> #

14. Now assuming your user is vista, change to the /home/vista/EHR/o directory and as user vista, run this command which will compile all of the *.m routines that are in ~/EHR/r . You will see a lot of errors fly by because the routines are not all written for GT.M on Linux and some routines have pieces written for several operating systems in one routine. Just ignore them and wait until it finishes compiling the routines. If you didn't use a symbolic link /usr/local/gtm then fix that line /usr/local/gtm/mumps to be right. This command is tricky as there is a single space between {} and \; and if you don't get that right, you will be have a bad time! This may take a long time depending upon the speed of your processor, etc.

> cd /home/vista/EHR/o
> find ../r -iname "*.m" -exec /usr/local/gtm_V60000-64/mumps {} \;

15. If you have not left the shell of user "vista", log out and log back in to get the .bashrc to run so that the gtm command will work (as the .bashrc is run). Now start up gtm with the command, gtm . Note that the alias set up by the env2 script run from .bashrc should start up gtm just like it made the command GDE work. You will see a "GTM>" prompt if this works.

16. Set your DUZ=1 and edit your Taskman Site Parameters.   In this example, the BOX:VOLUME pair was set at EHR:owl **but you will need to reset it to match the name of your machine**. **BE CAREFUL to match the upper and lower case letters in your machine name exactly**. In this example, it was changed from owl to debian.   Setting your DUZ=1 gives you the privileges of the user with the internal entry number of 1 in file 200, which is the NEW PERSON file. (Eventually you will set yourself up with an Access and Verify code to use instead of the DUZ and to use with CPRS.) (As a general rule, setting your DUZ=1 in any installation of VistA will work, including this one, for this step.)

If after it says INPUT TO WHAT FILE: ******// you have something different than you see below, that is just the last file that was used is displayed where the ****** is, so put in Taskman after the // and hit enter. It will complete the entry and take you where you need to go.

Note that it is IMPORTANT to FIRST select the old BOX:VOLUME pair and then change it to the new BOX:VOLUME pair. The part that is red is what you type in. You only need to type in enough to uniquely identify a menu item and press [Enter] for the entry to be completed for you. The ^ is used to back out of a part of the chart when you enter it.

      vista@debian:~$ gtm

      GTM>S DUZ=1

      GTM>D Q^DI

      VA FileMan 22.0

      Select OPTION: 1 ENTER OR EDIT FILE ENTRIES

      INPUT TO WHAT FILE: DEVICE// TASKMAN SITE PARAMETERS
                   (1 entry) <=== Note that the "DEVICE//" might be something else here. It is the name of the last file edited, which, in this case, was DEVICE.

      EDIT WHICH FIELD: ALL// [Press Enter here]

      Select TASKMAN SITE PARAMETERS BOX-VOLUME PAIR: **? <==Type ?
                                        here**
       Answer with TASKMAN SITE PARAMETERS BOX-VOLUME PAIR:
       EHR:owl **<===THIS Location on the page IS WHAT IT IS set at AND YOU**

MUST SELECT IT

You may enter a new TASKMAN SITE PARAMETERS, if you wish
Answer must be 3-30 characters in length.

The value for the current account is **EHR:debian <== This is what you must change**
it to

Select TASKMAN SITE PARAMETERS BOX-VOLUME PAIR: EHR:owl **<==Select**
BOX-VOLUME PAIR: EHR:owl// EHR:debian **<===Change**

RESERVED: [Press Enter here]
LOG TASKS?: NO//[Press Enter here]
DEFAULT TASK PRIORITY: 7// [Press Enter here]
TASK PARTITION SIZE: 100// [Press Enter here]
SUBMANAGER RETENTION TIME: 20// [Press Enter here]
TASKMAN JOB LIMIT: 100// ^

17. After changing this, you will need to go in and get rid of the tasks still set to run on the wrong
BOX:VOLUME pair. **In this example instance**, I am going to get rid of those running on
EHR:owl that begin ^%ZTSCH("SUB","EHR:owl"   **DO this CAREFULLY**. You are doing
a direct global edit here and if you do it wrong, you may just want to give up and switch out that
mumps.dat with your backup copy. Use cut and paste to make the kill statements to minimize
your chance of goofing up. The statements the cut and paste were take from are bolded here.
What you see in your installation will not exactly match this, but look carefully for the entries
with "SUB" and the old box volume pair, which may be EHR:owl. In this instance, what is the
important part is bolded.

GTM>D ^%G

Output device: <terminal>: [Press Enter here]

List ^%ZTSCH
^%ZTSCH("ER")=""
^%ZTSCH("ER",60577,50636)="NEWSUB+2^%ZTM, Global variable undefined: ^
%ZTSCH(""S
UB"",150372994,-%GTM-E-GVUNDEF"
^%ZTSCH("ER",60577,50636,1)="Caused by the manager."
^%ZTSCH("IDLE")=5234137497
^%ZTSCH("MON","EHR:owl",60577)="0^^^^^^^^^^^^^^0^0^1^0^0^1^0^0^0^0^"
^
%ZTSCH("MON","EHR:owl",60578)="0^0^0^0^0^0^0^0^0^0^0^0^0^0^0^0^0^0^0

```
^0^0^0
^0^"
^%ZTSCH("STOP","MGR","EHR:owl")="60580,25521"
^%ZTSCH("STOP","MGR","EHR:debian")="60580,25521"
^%ZTSCH("STOP","SUB","EHR:owl")="60580,25524"
^%ZTSCH("STOP","SUB","EHR:debian")="60580,25524"
```
^%ZTSCH("SUB","EHR:owl")=0
^%ZTSCH("SUB","EHR:owl",0)=0
```
^%ZTSCH("SUB","EHR:debian")=0
^%ZTSCH("SUB","EHR:debian",0)=0
```


List ^[Press Enter here]

GTM>K ^%ZTSCH("SUB","EHR:owl")

GTM>K ^%ZTSCH("SUB","EHR:owl",0)

18. Now you can start Taskman. You enter what is in red and press enter. The program will automatically complete uniquely identified menu items with as little as a one letter entry.

vista@debian:~$ gtm

GTM>D ^XUP S DUZ=9

Setting up programmer environment
This is a TEST account.

Terminal Type set to: C-VT320

Select OPTION NAME: EVE

    1   EVE   Systems Manager Menu
    2   EVENT CAPTURE (ECS) EXTRACT AU ECX ECS SOURCE AUDIT   Event
Capture
(ECS) Extract Audit
    3   EVENT CAPTURE DATA ENTRY ECENTER   Event Capture Data Entry
    4   EVENT CAPTURE EXTRACT ECXEC   Event Capture Extract
    5   EVENT CAPTURE MANAGEMENT MENU ECMGR   Event Capture
Management Menu
Press <RETURN> to see more, '^' to exit this list, OR

CHOOSE 1-5: 1 EVE   Systems Manager Menu

WARNING -- TASK MANAGER DOESN'T SEEM TO BE RUNNING!!!!

Select Systems Manager Menu Option: taskman Management

WARNING -- TASK MANAGER DOESN'T SEEM TO BE RUNNING!!!!

Select Taskman Management Option: taskman Management Utilities

Select Taskman Management Utilities Option: restart Task Manager
ARE YOU SURE YOU WANT TO RESTART TASKMAN? NO//yes (YES)
Restarting...TaskMan restarted!

Select Taskman Management Utilities Option: monitor Task Manager

Checking Taskman.   Current $H=60580,26006 (Nov 11, 2006@07:13:26)
              RUN NODE=60580,25999 (Nov 11, 2006@07:13:19)
Taskman is current..
Checking the Status List:
 Node   weight status   time $J
 EHR:debian   RUN   T@07:13:19 4135   Main Loop

Checking the Schedule List:
    Taskman has no tasks scheduled.

Checking the IO Lists:
    There are no tasks waiting for devices.

Checking the Job List:
    There are no tasks waiting for partitions.

Checking the Task List:
    There are no tasks currently running.
    On node EHR:debian there is 1 free Sub-Manager(s). Status: Run

Enter monitor action: UPDATE// ^

If you see something like this, then you probably did not first select the old box:volume
pair and then change it in the earlier step. It may be easier to go back and unpack a new

mumps.tar.gz than it is to try to get help fixing this.

```
Checking Taskman.   Current $H=61007,7240  (Jan 12, 2008@02:00:40)
              RUN NODE=EHR:debianva is the wrong type in taskman site parameters.
(EHR:debian is the wrong type in taskman site parameters.)
Taskman is late by 5271012025 seconds. not running..
Checking the Status List:
  Node     weight  status     time      $J
```

Now you can jump to the manage Mailman menu by using an upcaret and requesting that menu because you entered it as a secondary menu and you have the key for it.

```
Select Taskman Management Utilities Option: ^MANAGE MAILMAN

Select Manage Mailman Option: ?

          Check MailMan Files for Errors
          Create a Mailbox for a user
          Disk Space Management ...
          Group/Distribution Management ...
          Local Delivery Management ...
          MailMan Site Parameters
          Network Management ...
          New Features for Managing MailMan
          Remote MailLink Directory Menu ...

Enter ?? for more options, ??? for brief descriptions, ?OPTION
for help text.

Select Manage Mailman Option: Local Delivery Management

Select Local Delivery Management Option: start background filer

<< Background Filers will start soon. >>

Select Local Delivery Management Option:
```

19. Now to set yourself up as the system manager with a lot of privileges to manage and program and use CPRS instead of stealing the identity of user 9. Follow along with these entries and make the entries that are in RED. For the Access and Verify Code, it is suggested you use all **upper case alphabetic characters** when you use characters because although CPRS has case sensitive Access and Verify codes, not all Applications for VistA do and if you try to log into

them, you will be rejected until all of the conversions to case sensitive codes are made.

```
GTM>S DUZ=1

GTM>D ^XUP

Setting up programmer environment
This is a TEST account.

Terminal Type set to: C-VT100

You have 40 new messages.
Select OPTION NAME:
GTM>D Q^DI


VA FileMan 22.0


Select OPTION: 1  ENTER OR EDIT FILE ENTRIES



INPUT TO WHAT FILE: DRUG// 200  NEW PERSON  (74 entries)
EDIT WHICH FIELD: ALL// KEYS
     1   KEYS    (multiple)
     2   KEYSTROKES FROM LM WP
CHOOSE 1-2: 1  KEYS  (multiple)
   EDIT WHICH KEYS SUB-FIELD: ALL// [Enter]
THEN EDIT FIELD: CPRS TAB    (multiple)
   EDIT WHICH CPRS TAB SUB-FIELD: ALL//
THEN EDIT FIELD: PRIMARY MENU OPTION
THEN EDIT FIELD: SECONDARY MENU OPTIONS    (multiple)
   EDIT WHICH SECONDARY MENU OPTIONS SUB-FIELD: ALL//
THEN EDIT FIELD: DISUSER
THEN EDIT FIELD: AUTHORIZED TO WRITE MED ORDERS
THEN EDIT FIELD: RESTRICT PATIENT SELECTION
THEN EDIT FIELD: ACCESS CODE  Want to edit ACCESS CODE (Y/N)
THEN EDIT FIELD: VERIFY
     1   VERIFY CODE  Want to edit VERIFY CODE (Y/N)
     2   VERIFY CODE never expires
CHOOSE 1-2: 1  Want to edit VERIFY CODE (Y/N)

THEN EDIT FIELD: PERSON CLASS (multiple)
EDIT WHICH PERSON CLASS SUB-FIELD: ALL//
THEN EDIT FIELD: ELECTRONIC SIGNATURE CODE

THEN EDIT FIELD: [Enter]

STORE THESE FIELDS IN TEMPLATE: [Enter]

Select NEW PERSON NAME: LastName, FirstName ⬅==your name here
   Are you adding 'LastName, FirstName' as a new NEW PERSON (the 75TH)?
No// yes
   (Yes)
Checking SOUNDEX for matches.
```

```
No matches found.
    NEW PERSON INITIAL: FL
    NEW PERSON MAIL CODE: [Enter]


Select KEY: ORES  ⬅===Physician Key
  REVIEW DATE: [Enter]
Select KEY: XUPROG
     1   XUPROG
     2   XUPROGMODE
CHOOSE 1-2: 1   XUPROG
    REVIEW DATE: [Enter]
Select KEY: XUPROGMODE
  REVIEW DATE: [Enter]
Select KEY: DG SENSITIVITY
  REVIEW DATE: [Enter]
Select KEY: XUMGR
  REVIEW DATE: [Enter]
Select KEY: XUMGR// XMMGR
  REVIEW DATE: [Enter]
Select KEY:
Select KEY: [Enter]
Select CPRS TAB: COR       CPRS GUI "core" tabs.
  Are you adding 'COR' as a new CPRS TAB (the 1ST for this NEW PERSON)?
No// yes
  (Yes)
  EFFECTIVE DATE: T  (JUL 16, 2008)
  EXPIRATION DATE: [Enter]
Select CPRS TAB: Select CPRS TAB:
PRIMARY MENU OPTION: EVE
     1   EVE        Systems Manager Menu
     2   EVENT CAPTURE (ECS) EXTRACT AU  ECX ECS SOURCE AUDIT      Event
Capture
(ECS) Extract Audit
     3   EVENT CAPTURE DATA ENTRY  ECENTER     Event Capture Data Entry
     4   EVENT CAPTURE EXTRACT  ECXEC     Event Capture Extract
     5   EVENT CAPTURE MANAGEMENT MENU  ECMGR     Event Capture
Management Menu
Press <RETURN> to see more, '^' to exit this list, OR
CHOOSE 1-5: 1  EVE     Systems Manager Menu
Select SECONDARY MENU OPTIONS: OR CPRS GUI CHART       CPRSChart
version 1.0.26.
76
  Are you adding 'OR CPRS GUI CHART' as
    a new SECONDARY MENU OPTIONS (the 1ST for this NEW PERSON)? No//
yes  (Yes)
  SYNONYM: [Enter]
Select SECONDARY MENU OPTIONS: OR CPRS GUI CHART// MANAGE MAILMAN
XMMGR      Man
age Mailman
  Are you adding 'XMMGR' as a new SECONDARY MENU OPTIONS (the 2ND for
this NEW P
ERSON)? No// yes  (Yes)
  SYNONYM:
Select SECONDARY MENU OPTIONS: [Enter]
DISUSER: NO  NO <== this disables a user if it is set to Yes
AUTHORIZED TO WRITE MED ORDERS: YES  YES
```

```
RESTRICT PATIENT SELECTION: NO  NO
Want to edit ACCESS CODE (Y/N): Y


Enter a new ACCESS CODE <Hidden>: **********
Please re-type the new code to show that I have it right: **********
OK, Access code has been changed!
The VERIFY CODE has been deleted as a security measure.
You will need to enter a new VERIFY code so the user can sign-on.

Want to edit VERIFY CODE (Y/N): Y

Enter a new VERIFY CODE: **********

Please re-type the new code to show that I have it right: **********

OK, Verify code has been changed!
```
Select Person Class: physicians
1   PHYSICIANS Allopathic and Osteopathic Physicians   390200000X
              Resident, Allopathic (includes Interns, Residents, Fellows)
    2 PHYSICIANS Allopathic and Osteopathic Physicians   390200000X
              Resident, Osteopathic (includes Interns, Residents, Fellows)
    3 PHYSICIANS Allopathic and Osteopathic Physicians   204C00000X
              Neuromusculoskeletal Medicine, Sports Medicine
    4 PHYSICIANS Allopathic and Osteopathic Physicians   204D00000X
              Neuromusculoskeletal Medicine and OMM
    5 PHYSICIANS Allopathic and Osteopathic Physicians   204E00000X
              Oral and Maxillofacial Surgery
Press <RETURN> to see more, '^' to exit this list, OR
CHOOSE 1-5: 1
Are you adding 'Allopathic and Osteopathic Physicians' as
   a new PERSON CLASS (the 1st for this NEW PERSON)? No// Yes
Effective Date:// T
Expiration Date: <=== just hit enter here
ELECTRONIC SIGNATURE CODE: <Hidden>// ******* <===it will not be hidden
when you type it the first time

20. Finally, put an up caret (often called and up arrow) until you get back to the OPTION prompt.
    At the option prompt, enter 5 for Inquire Into File Entry. At output from what file just hit enter
    because you are already in the New Person File. At the Select New Person Name, Enter your
    name. At Another One, Hit Enter and for Standard Caption output, enter Y and for Computed
    fields, put B for both. The response will be a page full of data showing the entries you have
    made and at the upper left hand corner will be a number called the DUZ, which is the internal
    entry number for that user. Back out to the EHR prompt and enter S DUZ= and then put the
    number you found in the steps above. The at the prompt type this CAREFULLY

                        S $P(^VA(200,DUZ,0),"^",4)="@"

Here is how it all looks for the user we just set up:

```
Select NEW PERSON NAME: ^




Select OPTION: 5  INQUIRE TO FILE ENTRIES




OUTPUT FROM WHAT FILE: NEW PERSON//
Select NEW PERSON NAME: LASTNAME,FIRSTNAME FL
ANOTHER ONE:
      STANDARD CAPTIONED OUTPUT? Yes//[Enter]    (Yes)
Include COMPUTED fields:  (N/Y/R/B): NO// BOTH Computed Fields and Record
Number
 (IEN)
      DISPLAY AUDIT TRAIL? No//[Enter]    NO

NUMBER: 74    ⇐===THIS IS THE LOCATION OF THE NUMBER YOU NEED
NAME: LASTNAME,FIRSTNAME
  INITIAL: LF                         ACCESS CODE: <Hidden>
  DISUSER: NO
  DATE VERIFY CODE LAST CHANGED: APR 10,2005
  VERIFY CODE: <Hidden>               DATE ENTERED: JUL 16, 2008
  CREATOR: WVEHR,PATCH INSTALLER      Entry Last Edit Date: JUL 16, 2008
  NAME COMPONENTS: 200
  SIGNATURE BLOCK PRINTED NAME: LASTNAME,FIRSTNAME
KEY: XUPROG                           GIVEN BY: WVEHR,PATCH INSTALLER
  DATE GIVEN: JUL 16, 2008
KEY: XUMGR                            GIVEN BY: WVEHR,PATCH INSTALLER
  DATE GIVEN: JUL 16, 2008
KEY: XUPROGMODE                       GIVEN BY: WVEHR,PATCH INSTALLER
  DATE GIVEN: JUL 16, 2008
KEY: ORES                             GIVEN BY: WVEHR,PATCH INSTALLER
  DATE GIVEN: JUL 16, 2008
KEY: DG SENSITIVITY                   GIVEN BY: WVEHR,PATCH INSTALLER
  DATE GIVEN: JUL 16, 2008
  PRIMARY MENU OPTION: EVE
SECONDARY MENU OPTIONS: OR CPRS GUI CHART
  TIMESTAMP: 61193,56544
Enter RETURN to continue or '^' to exit:
CPRS TAB: COR                         EFFECTIVE DATE: JUL 16, 2008
CPRS TAB: RPT                         EFFECTIVE DATE: JUL 16, 2008
  AUTHORIZED TO WRITE MED ORDERS: YES
  DATE ACCESS CODE LAST CHANGED (c): JUL 16,2008
  PROVIDER KEY (c): 0
Select NEW PERSON NAME:


Select OPTION:
GTM>S DUZ=74   <=== this needs to match the number above
GTM> S $P(^VA(200,DUZ,0),"^",4)="@"
GTM>h
```

21. Now restart xinetd with this command as you are almost ready to connect CPRS and you have made some changes that may affect xinetd from when you initially installed it.

> /etc/init.d/xinetd restart

> Then after restarting xinetd, check netstat to be sure there is a listener started

> netstat -a | grep 9211 <== grep is to find 9211 in the output of the command

> You should get this return
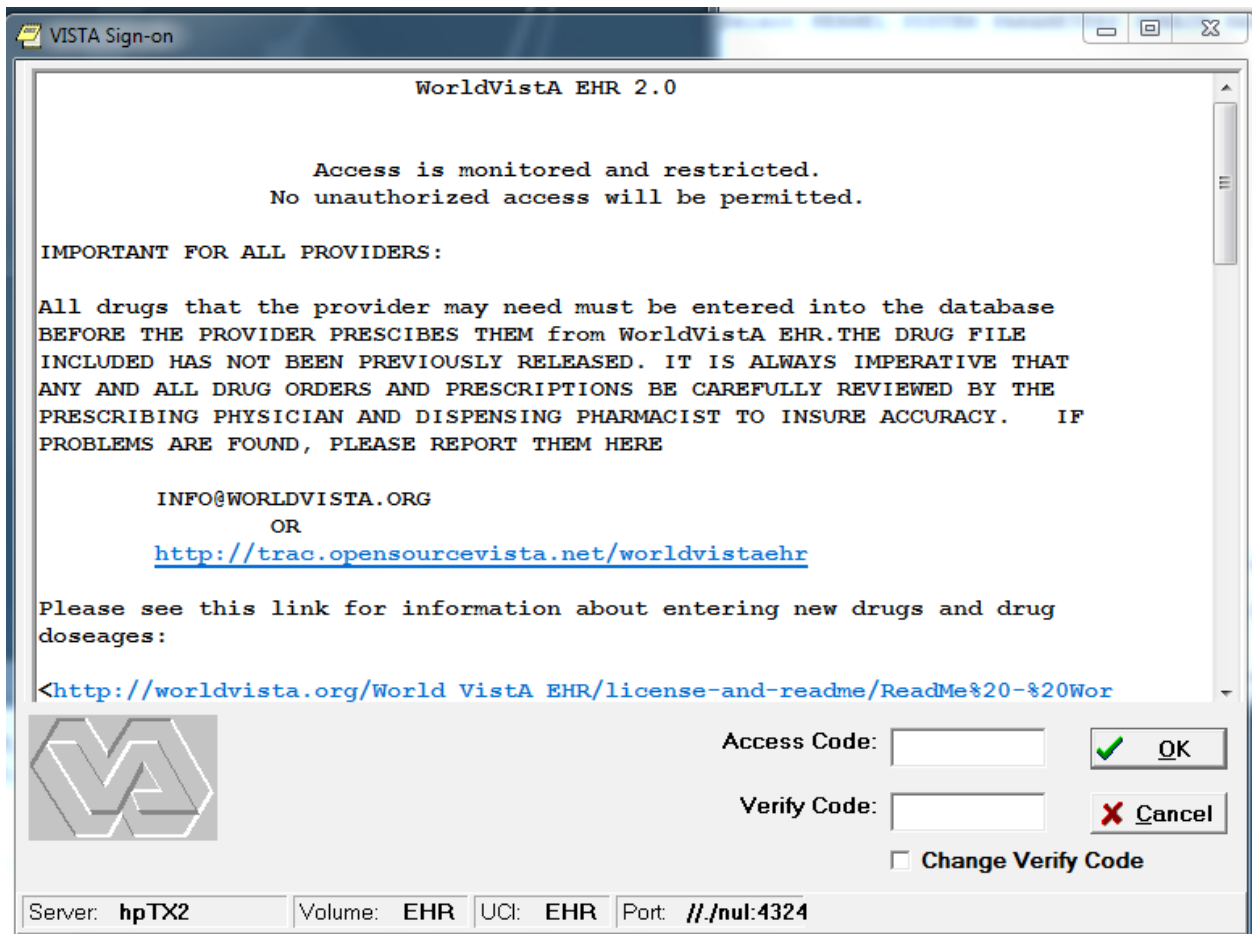
> tcp   0   0 *:9211   *:*   LISTEN

And if you don't see anything, try restarting xinetd one more time or stopping and starting xinetd with /etc/init.d/xinetd stop and then /etc/init.d/xinetd start.

24. Now is the time for what may be close to the greatest moment in your VistA experience, the first time you get CPRS to connect. Go to https://sourceforge.net/projects/worldvista-ehr/files/WorldVistA_EHR_2.0/ and download CPRSChart_27.90ForWVEHR-2.0-Ver10-12-Files.zip Unzip this CPRS specific for WorldVistA EHR 2.0 and place the files in C:\Program Files\ Create a shortcut to the CPRS*exe file and drag it to wherever you would like it to be. Edit the target line adding what you see below – i.e., S=127.0.0.1 P=9211 CCOW=Disable showrpcs. Click on Apply and OK.
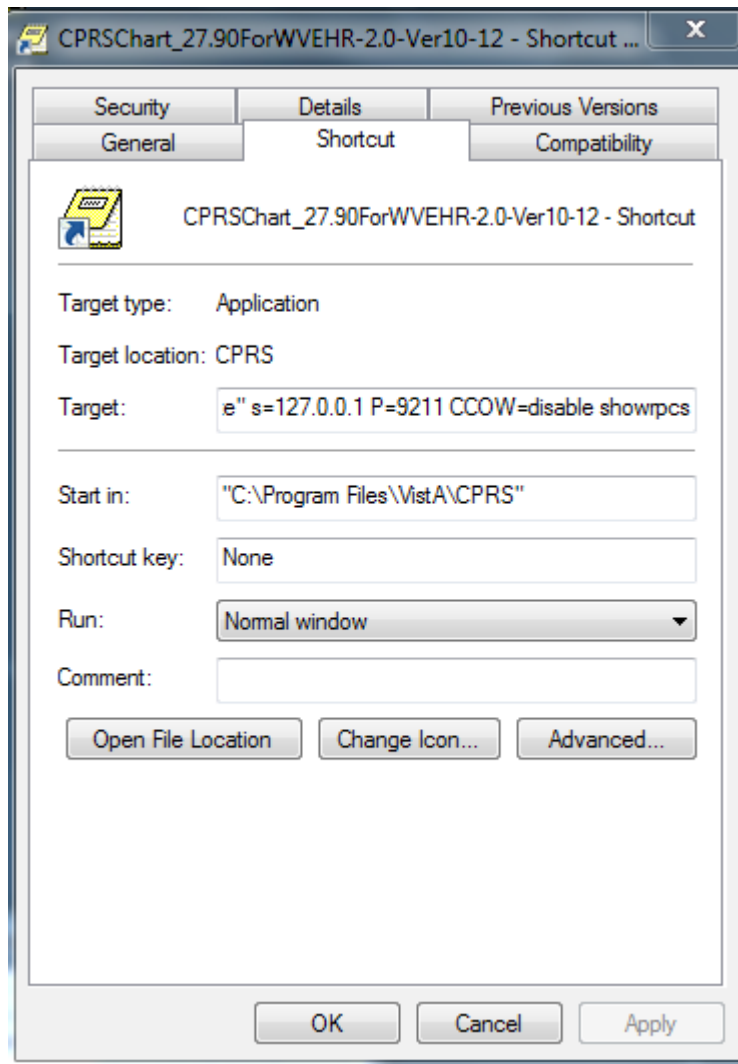
25. Now double click on the shortcut and enter the access and verify codes where indicated, all caps.

```
VISTA Sign-on                                                    [_] [□] [⊠]

                        WorldVistA EHR 2.0


                    Access is monitored and restricted.
                 No unauthorized access will be permitted.

    IMPORTANT FOR ALL PROVIDERS:

    All drugs that the provider may need must be entered into the database
    BEFORE THE PROVIDER PRESCIBES THEM from WorldVistA EHR.THE DRUG FILE
    INCLUDED HAS NOT BEEN PREVIOUSLY RELEASED. IT IS ALWAYS IMPERATIVE THAT
    ANY AND ALL DRUG ORDERS AND PRESCRIPTIONS BE CAREFULLY REVIEWED BY THE
    PRESCRIBING PHYSICIAN AND DISPENSING PHARMACIST TO INSURE ACCURACY.   IF
    PROBLEMS ARE FOUND, PLEASE REPORT THEM HERE

            INFO@WORLDVISTA.ORG
                 OR
            http://trac.opensourcevista.net/worldvistaehr

    Please see this link for information about entering new drugs and drug
    doseages:

    <http://worldvista.org/World VistA EHR/license-and-readme/ReadMe%20-%20Wor

                                          Access Code: [_____]   ✔ OK

                                          Verify Code:  [_____]   ✘ Cancel

                                              ☐ Change Verify Code

    Server:  hpTX2        Volume:  EHR  UCI:  EHR  Port:  //./nul:4324
```

26. I would like to briefly address journaling an replication of your database. If you wish to be sure that the work you do with this instance of VistA can be recovered in the event of a power failure or another problem with hardware, etc., you are going to want to use journaling and database replication. This can be accomplished using GT.M in a manner which will cause only the loss of transactions that are not completed when the failure occurs.

Journal files should be kept on a disk separate from the disk that VistA is kept on and replication should preferably be done to a machine very remote from the primary machine for maximum safety of your data.

Documentation for GT.M and how to accomplish journaling and replication can be found here:

http://www.fidelityinfoservices.com/fnfis/markets/nonfinancialindustries/healthcare/gtm/userdocumentation

You can also learn more from using the GT.M Acculturation Live CD that can be found on Sourceforge.net in the GT.M area here:

    http://sourceforge.net/projects/fis-gtm/files/GT.M%20Acculturation%20Workshop/0.6/

To get yourself started while you are learning to set up GT.M for journaling and replication, turn on journaling like this after shutting down Taskman and the background filers and logging everyone off the VistA database:

```
mupip set -journal ="enable,on,before" -file /home/vista/EHR/g/mumps.dat
```

and when you stop journaling

```
mupip set -file /home/vista/EHR/g/mumps.dat -journal=disable
```

and when you restart journaling after an abnormal or normal shutdown

```
mupip journal -recover -backward mumps.mjl
```

and to re-enalble journaling

Here is an example of what you will see when the journal file is created in /home/vista

nancy@owl:~$ mupip set -journal="enable,on,before,filename=/home/vista/EHR/journalfiles/nancy.mjl" -file /home/nancy/EHR/g/mumps.dat
%GTM-I-JNLCREATE, Journal file /home/vista/EHR/journal-files/nancy.mjl created for database file /home/nancy/EHR/g/mumps.dat with BEFORE_IMAGES
%GTM-I-JNLSTATE, Journaling state for database file /home/vista/EHR/g/mumps.dat is now ON

TO REPEAT, this journal file should be written to another machine. This can be done by mounting a remote directory locally under /home/vista/EHR/journal-files and writing to it or by various other means.

27. Once everything is working for you, if this is not a test system, you can disable any users you do not wish to have active by finding them and setting the DISUSER in the New Person File to YES except you do not want to do that for the WVEHR,PATCH INSTALLER, the POSTMASTER, and probably also for some of the application proxy users such as LRLAB,HL, LRLAB, POC, etc. You can use a Fileman Search to find them in the NEWPERSON file. This is just one of many things you will need to do to configure the system for clinical use. You could also change all of the access and verify codes as you changed them above when you created the new highly privileged user.