SSWGDL Installation on Ubuntu 10.04 using VMWARE Player

1. Install ubuntu 10.04 on vmware
   a) ubuntu-10.04.1-desktop-i386.iso, 32 bit
   b) configure with 1-2 GB mem, 20-40 GB disk
   c) vmware tools -
   d) shared folders
   e) do not enable multiple processors even if your machines supports many
   f) pword yourpassword
   g) /home/yourname - that's the way I did it -
   h) login name is yourchoice
2. Configure Ubuntu
   a) do default system update via system update manager
   b) install vmware tools using easy install, run the perl scipt (.pl), let it compile and install
   c) use ubuntu software center
   d) cvs, plplot x11 driver, tcsh, wxidgets I grabbed wx2.8 dev and lib packages, see package-manager-installs.txt for details.
3. Download and install GDL with dependencies
   a) Download and unpack 0.90 release tar.gz into gdl-0.9 (use current release from gdl)
   b) Get dependencies using sudo apt-get build-dep gnudatalanguage
   c) cd to gdl-0.9
   d) Configure using "./configure --with-Magick=no --with-python=no --with-openmp=no –with-hdf=no"
   e) Does anyone know how to install numarray so we don't have to use python=no switch
   f) Here is the message of success after configure:

GDL - GNU Data Language

- ----- compilation options: ----------
- System: i686-pc-linux-gnu
- Installation prefix: /usr/local
- C++ compiler: g++ -g -O2
- OpenMP support: no
- Build type: standalone (other: Python module)
- ----- optional libraries (consult README/INSTALL): ---
- wxWidgets: yes
- Magick: no
- NetCDF: yes
- HDF4: no
- HDF5: yes
- FFTW: yes
- libproject: no (see also MAP_INSTALL)
- MPICH: no (needs explicit enabling)
- Python: no (see also PYTHON.txt)
- UDUNITS-2: no (needs explicit enabling)
- GRIB: no (needs explicit enabling)
- GSHHS: no (see also MAP_INSTALL)
- Xlib: yes
- ----- notes on auxiliary files: ----------

- - consult MAP_INSTALL for details concerning auxiliary
- files needed for mapping support
- - SAVE and RESTORE procedures require *.pro files from
- the CMSVLIB package (see README for details)
- ----------

g) *make* and then *sudo make install* sudo is needed to install binary in privileged location

4. Configure SSW
   a) Directories, I rooted my software starting from ~/Desktop
      - ~/Desktop/gdlpro – here's where I have all my exceptions in procedures before loading them back into real ssw directories is_gdl() to control the differences between running idl and gdl
      - ~/Desktop/ssw – I setenv $SSW to this location (setenv SSW $HOME/Desktop/ssw) and I install all my SSW directories here.
      - $SSWDB – I set it to ~/Desktop/sswdb
      - set up shared folders to my host os so I can get ssw, datafiles, and idl libs. I used /mnt/hgfs/ssw, /mnt/hgfs/sswdb, and /mnt/hgfs/IDL64 to allow me to read and write files to c:\ssw, c:\sswdb, and c:\Program Files\ITT\IDL64 on my Windows 7 host.
   b) Shell scripts, I like to run tcsh
   c) I create startssw in my $HOME directory and source it (source startssw) when I log in
      - #!/bin/csh -f
      -
      - #the following adds the idl procedures
      - #setenv IDL_PATH +/2p/morrison/soft:+/usr/local/lib/idl/lib
      - setenv GDLPRO ~/Desktop/gdlpro
      - setenv IDL_STARTUP $GDLPRO/idl_startup.pro
      -
      - setenv IDL_DIR "
      - setenv IDL_PATH ~/Desktop/gdlpro:+~/Desktop/ssw/gen/idl:+/mnt/hgfs/IDL64/lib:+~/Desktop/gdl-0.9:~/Desktop/gdlpro/cms
      -
      -
      - ## SSW Settings
      - ### set the location of your SSW installation and critical environment variables
      - ### prior to running general ssw setup
      - setenv SSW ~/Desktop/ssw
      - #
      - setenv SSW_INSTR "gen hessi spex xray"
      - setenv SOHO_DATA $HOME
      - setenv ys $HOME
      - setenv ydb $HOME
      - setenv SSWDB ~/Desktop/sswdb
      - ###setup the general ssw environment variables
      - source $SSW/gen/setup/setup.ssw /loud
      - #Finally, run the script that calls gdl with the ssw startup
      - #I made ssw_gdl by modifying ssw_idl from $SSW/gen/setup, maybe someone else
      - #can figure out how to use it directly by setting some aliases or links

- alias sswgdl '$GDLPRO/ssw_gdl'
- alias sswidl sswgdl

d) I copied ssw_idl from $SSW/gen/setup and clumsily modified to use gdl and not idl. Then I put it in $GDLPRO. It could be anywhere. I changed $IDL_DIR/bin/idl $command to gdl $command

e) Next, my IDL_STARTUP file which is in $GDLPRO/idl_startup.pro In this file I do a little customization to eliminate duplicated directories when the path is built by the ssw scripts on top of the path I set initially
   - !path = '/home/richard/Desktop/gdlpro:'+!path
   - p=str2arr(!path,':') &ord=uniqo(p) & p=p[ord] & !path=arr2str(p,':')

f) I'm running rhessi code so you see I have my SSW_INSTR set to hessi, spex, xray
   - to support that I have ~/setup.hessi_env with the contents:
     - setenv HSI_DATA_USER ~/Desktop/sswdb
     - setenv HSI_DATA_ARCHIVE /mnt/hgfs/sswdb/hessi
     - # EDIT the following line to true if you have the full RHESSI data archive
     - # mounted on your computer, and HSI_DATA_ARCHIVE points to it. If true,
     - # the expected directory in the archive will be searched for a file, but the
     - # entire archive will not be searched (the search is unnecessary, and is
     - # very time-consuming for the full archive).
     - setenv HSI_ARCHIVE_MOUNTED false

g) I'm running test scripts for rhessi(hessi) from 20-feb-2002 11:00-11:10 UT so I have the needed observing summary and level0 fits files in $HSI_DATA_ARCHIVE

h) After starting sswgdl, you can run the test scripts,
   - time_test3,/nofileio ;performance test
   - .run evtest ;makes a rhessi eventlist structure
   - .run sptest ;makes a rhessi count spectrum
   - .run imtest ;makes a rhessi back projection image
   - fyi, you can't have the comment in a .run command