

Installing Mapserver Software

This section details the required steps to install the mapserver software and all the related packages on a linux server running Ubuntu operating system software.

USCG ESU personnel initially installed the Ubuntu 10.04.2 64-bit operating system software on the mapit computer. The command

```
lsb_release -c
```

shows lucid as the code name, and the command

```
lsb_release -r
```

shows 10.04 as the release name. In order to install the required GIS software packages, the file `/etc/apt/sources.list` was modified to include the following lines:

```
deb http://ppa.launchpad.net/ubuntuugis/ppa/ubuntu lucid main
```

```
deb-src http://ppa.launchpad.net/ubuntuugis/ppa/ubuntu lucid main
```

These lines add the stable Ubuntu GIS repository to the system's software sources. Authenticate the repository just added by running the following command:

```
sudo apt-key adv --keyserver keyserver.ubuntu.com --recv-keys  
314DF160
```

where 314DF160 is the OpenPGP key of the Ubuntu GIS repository.

Update the system's package list by running the following command:

```
sudo apt-get update
```

The web page <http://wiki.ubuntu.com/UbuntuGIS> contains information on installing GIS on an Ubuntu linux server. The command

sudo apt-get install package-name

was used to install the various GIS software packages, where package-name includes the following list:

- libgd2-xpm
- libgd2-xpm-dev
- proj
- proj-bin
- proj-data
- libproj
- libproj-dev
- libgeotiff
- libgeotiff-dev
- libgeos
- libgeos-dev
- libgif-dev

The webmin interface can also be used for installing packages.

IMPORTANT: DO NOT install gdal and gdal-devel as system packages. These have to be compiled and installed separately for Mr. SID support. See below for more information.

The following packages were downloaded to the /usr/local/src directory:

- Unified_DSDK_8.0_linux.x86-64.gcc41.tar.gz from lizardtech.com
- gdal-1.8.1RC2.tar.gz from gdal.org
- mapserver-6.0.1.tar.gz from mapserver.org
- GMT4.5.7 from gmt.soest.hawaii.edu

Installing Unified_DSDK software used for viewing Mr.Sid imagery:

- 1) To download the package, register for a developer login at <https://www.lizardtech.com>
- 2) Login, go to <https://www.lizardtech.com/developer/> and select the Download SDKs tab to download the appropriate software.

- 3) In file Lidar_DSDK/include/lidar/Atomic.h change
#include <bits/atomicity.h>
to
#include <ext/atomicity.h>
- 4) Copy Raster_DSDK/lib/lib* to /usr/local/lib.
- 5) Copy Lidar_DSDK/lib/lib* to /usr/local/lib.

Installing gdal-1.8.1 software:

- 1) Configure command used for compiling the software:
./configure --prefix=/usr/local \
--with-mrsid=/usr/local/src/Unified_DSDK_8.0/Raster_DSDK \
--with-jp2mrsid=yes \
--with-mrsid_lidar=/usr/local/src/Unified_DSDK_8.0/Lidar_DSDK
- 2) make
- 3) sudo make install

This compiles the software with the Mr.Sid package included, so that mapserver can display Mr.Sid imagery.

/usr/local/bin needs to be included in the user's path and /usr/local/lib needs to be included in the user's LD_LIBRARY_PATH. Verify that Mr.Sid imagery has successfully been included in the gdal software, by running:

```
gdalinfo --formats | grep -i sid
```

The command should return output similar to this if the gdal software has compiled correctly:

```
MrSID (ro): Multi-resolution Seamless Image Database (MrSID)  
JP2MrSID (ro): MrSID JPEG2000  
MG4Lidar (ro): MrSID Generation 4 / Lidar (.sid)
```

Installing mapserver-6.0.1 software:

- 1) Configure command used for compiling the software:
./configure --prefix /usr/local/src/mapserver-6.0.1/ \
--with-png=/usr \
--with-freetype=/usr \

```
--with-gd=/usr \  
--with-zlib=/usr \  
--with-proj=/usr \  
--enable-point-z-m \  
--with-postgis \  
--with-curl-config=/usr \  
--with-ogr=/usr/local/bin/gdal-config \  
--with-gdal=/usr/local/bin/gdal-config \  
--with-jpeg \  
--with-geos=/usr/bin/geos-config \  
--with-xml2-config=/usr \  
--with-httpd=/usr/sbin/apache2 \  
--with-wmsclient \  
--with-wfsclient \  
--with-wfs \  
--enable-debug \  
--with-threads \  
--with-wcs \  
--with-sos
```

2) make

3) make install

4) A simple test is to try and run the created executable:

```
./mapserv
```

If the result of the command is the following, then everything compiled correctly.

This script can only be used to decode form results and should be initiated as a CGI process via a httpd server.

5) copy the mapserv executable to the mapserver cgi-bin directory (/mnt/mapserver/cgi-bin/polarstar).

Web page with more information on installing mapserver on a unix system: <http://mapserver.org/installation/unix.html>

Changing the apache server to use the mapserver libraries:

1) The libraries necessary for mapserver are now located in the directory /usr/local/lib. Edit the /etc/ld.so.conf.d/libc.conf file and add /usr/local/lib if it is not already included in the file.

2) Run the command ldconfig so the mapserv executable will be

able to find the appropriate libraries.

Installing other support packages:

- 1) PDFlib-Lite 7.0.5 was installed from source
- 2) netcdf 3.6.3 package was installed
- 3) gnuplot 4.2.6 package was installed
- 4) shapelib tools 1.2.10 package was installed
<http://shapelib.maptools.org/>

Installing additional perl modules:

- 1) sudo cpan App::cpanminus (Installs cpan)
- 2) sudo cpanm Astro::Coord::ECI
- 3) sudo cpanm DateTime
- 4) sudo cpanm DateTime::format::Strptime
- 5) sudo cpanm Date::Manip::DM6

Installing TeraScan Software

TeraScan software requires a computer with Red Hat Enterprise/CentOS version V4 i386 x86_64 or V5 i386 x86_64

USCG ESU personnel initially installed the CentOS version V5.5 i386 operating system software on the teramap computer.

Here are detailed instructions from SeaSpace on obtaining the TeraScan v4.0 software:

Dear Valued SeaSpace Customer,

SeaSpace is proud to announce the release of **TeraScan v4.0**. We are making this release available via two methods: (1) ftp download; and, (2) dual-layer DVD. If you are only acquiring and processing geostationary data, HRPT and RTD data, you may wish to download and install only the **terascan-4.0.1-2.56926.el5.i386.iso**. This file is approximately 548MB in size. If you plan to download any of the *.iso files, please download the related *.md5 sum file, as well, so you can confirm the download integrity of the applicable *.iso file.

If you are acquiring and/or processing HRPT/AHRPT (MetOp-2) data, you may wish to download and install the **aapp-1.0.0-7.00082.el5.i386.iso**, as well, as this file will install our AAPP post-processing package. Please peruse the **Release Notes** for more on AAPP. The aapp-1.0.0-7.iso file is approximately 128MB in size.

If you are a MODIS processing customer, you will need to install the terascan-4.0.0-1.56773.344.iso file and the **eos-3.1.0-5.00082.e15.i386.iso** file. This file is very large (4.6GB). You may wish to have a dual-layer DVD mailed to you if you are planning on installing the EOS Modis processing package.

The **terascan-eos-aapp-2.0.1-2.56926.e15.i386.iso** file contains all the above mentioned packages (TeraScan, AAPP, and EOS). It is very large (5.27GB). This is what is included when you receive the dual-layer DVD from us.

To reach our ftp site, please follow these instructions:

ftp <ftp.seaspace.com>

username: terascan40

password: tsuser2011

If you wish for us to mail you a DVD, please send us your **correct mailing address**.

Please take some time to peruse the **READMEs** and **Release Notes** prior to installing any of the packages. Our usual advice still applies: please backup /opt/terascan (or wherever your current \$TSCANROOT directory is) prior to any upgrade. You can either rename the /opt/terascan directory or simply move it out of the way. When you install TeraScan 4.0, it will create a new /opt/terascan or \$TSCANROOT directory. You will absolutely need to re-install some of your critical backup files, such as \$PASSDIR/config/system.config, \$REFDATA/config/bitsync.config (for acquisition systems), \$PASSDIR/last_location, */autosched (for acquisition systems), etc. Please read the **README** file for a more comprehensive list of critical files to re-install after upgrading.

Also, please be aware that you will need to re-license your system if you upgrade to TeraScan 4.0. Thus, you will want to send to support the outputs of "tscaninfo" and "tscaninfo licenses" prior to any upgrade process so that support can generate the new licenses and send them to you beforehand, thereby minimizing downtime. Otherwise, you may have to wait for the licenses to be mailed to you.

Lastly, please be aware that if you are currently under a software maintenance contract with SeaSpace, you will receive your permanent license keys promptly. If you are not under a current maintenance contract with us, I can send you temporary keys, but no permanent keys will be issued without a current contract in place. If you wish to renew support, please contact sales@seaspace.com for assistance in renewing support.

Please feel free to send any questions or concerns to support@seaspace.com.

Thank you for your business.

Since the TeraScan system only acquires/processes HRPT and RTD data, the terascan-eos-aapp... and eos-3.1... packages, referenced above, do not need to be installed. A license key for TeraScan needs to be installed on the teramap computer to allow the TeraScan software to be run.

Instructions for installing the license key:

Use the command "key_tscan" to install the new key. You must be root to do this:

```
csh (to enter c-shell environment)
source /opt/terascan/etc/tscan.login
key_tscan
```

After all the questions have been answered, reboot the system. When the system comes back up, make sure that

```
tsched is running:
ps -ef | grep tsched
```

The list of modules that need to be installed include the following:

```
terascan-apps
terascan-bin
terascan-bluemarble
terascan-coast
terascan-docs
terascan-extra
terascan-html
terascan-lib
terascan-pass
terascan-refdata
terascan-seawifs_color
terascan-topo
```

Next, use a recvhost on the main TeraScan receiving computer to set up the live streaming of data from the shipboard system to teramap computer:

Login to the main TeraScan receiving system as the Teradm user
(Must have admin privileges)

```
On the main TeraScan receiving system:
cd $PASSDIR/config (/opt/terascan/pass/config)
vi system.config
```

Edit the file to include the following lines:

```
[recvhost-2]
recvhost.name: 192.168.10.40
recvhost.active: yes
recvhost.assoc_chains: 1 2
```

```
recvhost.send_live: yes
```

Save these changes and then run:

```
zapsched  
signal: restart
```

This will force the tsched demon to re-read the config file and begin sending passes to the teramap computer when the passes start to come in.

Install the perl package perl-DateManip.noarch, which is a perl module that contains a wide variety of date manipulation routines.

The orbital elements will need to be updated. See http://www.seaspace.com/technical/protected/html/home_setup/orb_elements_update.html

To check the age of the orbital elements, run the command
lastoes

and check the list of satellites that are displayed. See the above web page for more information on this command. For all online help on the TeraScan system, see

<http://www.seaspace.com/technical/protected/html/>

The Terascan documentation can also be found by running
launchpad &
on the teramap computer. Under the Documentation tab select "Terascan Help". There is a section on adding the receiving host under Terascan Functions (On home page), "system.config". The chain numbers in the configuration should match the chain numbers defined in \$PASSDIR/config/passdisk.config.

To see when the next pass is scheduled, run:

TeraCaoCon (under Launchpad) on the main TeraScan system. When a pass is being sent to the teramap computer, watch it live using "Satellite TV" under Launchpad.