.pvl.nc file format

When a volume data is imported using the importer utility, it is converted into unsigned char or unsigned short (depending on the selected choice) if necessary. The Drishti volume renderer uses this processed data for visualization. The importer provides tools to increase the contrast of the data. The information generated from importer is written to .pvl.nc file which is in xml format. This file saves the following information :

rawfile	name of the raw file from which the .pvl.nc file wass generated.
description	information regarding the data.
voxeltype	unsigned char, char, unsigned short, short, int, float
voxelunit	no unit, angstrom, nanometer, micron, millimeter, centimeter, meter, kilometer, parsec, kiloparsec
voxelsize	three floats
gridsize	three ints
slabsize	number of slices per volume data file .pvl.nc.001, .pvl.nc.002 and so on. Previously the number of slices per file was such that each file was no bigger then 1Gb. This allows handling of large data sets even on 32-bit systems. At present all the data is stored in a single file.
rawmap	list of raw values – this is the mapping from original data values to processed voxel values. The number of values in this list must match those in the **pvlmap**.
pvlmap	list of unsigned char values – this is the mapping to processed voxel values from original data values. The number of values in this list must match those in the **rawmap**.

Following is an example of a typical .pvl.nc file.

<!DOCTYPE Drishti_Header>
<PvlDotNcFileHeader>
<rawfile>test.raw</rawfile>
<voxeltype>unsigned char</voxeltype>
<gridsize>161 108 115</gridsize>
<voxelunit>micron</voxelunit>
<voxelsize>1 1 1</voxelsize>
<description>Information about volume</description>
<slabsize>115</slabsize>
<rawmap>703 5000 12242 </rawmap>
<pvlmap>0 128 255 </pvlmap>
</PvlDotNcFileHeader>

.pvl.nc.001 file format

The actual volume data is stored in file .pvl.nc.001 (this extension is a legacy extension). This file has a 13 byte header - first byte is 0 followed by three integers specifying number of slices in that file, width and height of slices. The volume data which follows has 1-byte or 2-bytes per voxel - i.e. the raw-to-uchar or raw-to-ushort mapped data.

The user is also asked whether to save .raw files while importing the data. If the .raw files are stored, then these files also have a similar 13 byte header. The raw data which follows is unchanged and is the same as the original data.

Users do not have to go through the importer to create .pvl.nc files. It is not necessary to have the .pvl.nc.001, .pvl.nc.002, ... files. The files can have any names. These names though have to be provided via the .pvl.nc file. In that case the following tag mays be present in the .pvl.nc file :

rawnames	names of raw files
rawheadersize	size of header (in bytes) in the raw file/s. Default is 13 bytes
pvlnames	names of .pvl.nc files
pvlheadersize	size of header (in bytes) in the pvl file/s. Default is 13 bytes

Following is an example of a .pvl.nc file which uses the same set of files as rawnames as well as pvlnames. Note that the headersize is 0 for both raw as well as pvl.:

<!DOCTYPE Drishti_Header>
<PvlDotNcFileHeader>
<rawfile></rawfile>
<rawnames>vg1_8mm_0001.raw
vg1_8mm_0002.raw
vg1_8mm_0003.raw </rawnames>
<pvlnames>vg1_8mm_0001.raw
vg1_8mm_0002.raw
vg1_8mm_0003.raw </pvlnames>
<pvlheadersize>0</pvlheadersize>
<rawheadersize>0</rawheadersize>
<voxeltype>unsigned char</voxeltype>
<gridsize>1420 2043 1760</gridsize>
<voxelunit>no units</voxelunit>
<voxelsize>1 1 1</voxelsize>
<description>Information about volume</description>
<slabsize>298</slabsize>
<rawmap>0 255 </rawmap>
<pvlmap>0 255 </pvlmap>
</PvlDotNcFileHeader>
