Chapter 5 -- MAP INFO OPERATIONS

There is a clever rumor circulating which suggests that the developers of LTPlus must have been children of the Age of Aquarius. This highly speculative rumor is based on the fact that there are so many LTPlus commands available for dealing with information. In fact, there are even commands which allow the user to create additional blocks of textual information, and some of those commands are actually devoted to tracking the history of a particular map or project. What will they think of next, these fiends?

In addition to the help and information operations discussed in *Chapter 4*, LTPlus offers seven commands which can direct, track and display information about the map processing environment. Please note that any upper case appearance of the commands in this manual is for notational purposes only. All commands should be entered in lower case (you are in the Land of UNIX now, Toto).

THE HEADER FILE

The **config** directory also contains a default **header** file which is automatically copied and stored with each newly-created map (as **/u[sr]/ltp/maps/(map name)/header**). The default **header** file may be modified at any time by executing the **default_header** command. The modifications are made to the file named **/u[sr]/ltp/config/header**. The modifications are made one element at a time. To make multiple changes to the default **header** file, use the **edit** command, described later in this chapter. Any modifications made to the default **header** file will exist until modified again.

Once a map has been created or acquired, it's **header** file may be modified with the **header** command. This command allows the user to modify one element at a time. To make multiple changes to a map's **header** file, use the **edit** command, described later in this chapter. Note that, once a map is created using the default **header** file, some of the map's **header** elements which may be modified will not truly affect any change to that map. For example, modifying the raster dimensions after the map has been created with the raster dimensions found in the default **header** file will have no affect upon the map's raster size. Those elements (**raster_ht, raster_wd**) must be correct before the map is created. Command usage for the **header** function may be found in the *Command Reference* section of this manual. The components of the **header** file include:

comments	General remarks
compress	Not currently used

The **contour_interval** value is used when digitizing a contour layer.

contour_interval	Value in feet

The **datum** value reflects the year of the geodetic map projection horizontal and vertical datum.

datum	[def=1927]

A **dictionary** is a file containing a user's definitions of specific attribute characters or strings of characters. The equivalency for this element should be the name of the data **dictionary** file, which is assumed to be a member of the dictionary directory (i.e., **/u[sr]/ltp/dictionary/[name]**).

dictionary	dictionary name

Edgematching is a very important process and LTPlus provides some excellent tools for both accomplishing it as well as tracking its progress. The **edgematch** element provides the user with a means of indicating when one or more adjacent maps have been edgematched. As the process is completed for an adjacent map, the user may enter the appropriate cardinal direction abbreviation (N S E W) into the equivalency field. The names of each of the four adjacent maps can also be entered as the **edge_** equivalencies. This permits LTPlus to automatically locate the appropriate map files for displaying during the **edgematch**ing process. The map names may be entered as full path names, or else will be assumed to be under the **/u[sr]/ltp/maps** directory.

edgematch	[N] [S] [E] [W]
edge_e	map name of map to east
edge_n	map name of map to north
edge_s	map name of map to south
edge_w	map name of map to west

Note: if fewer than 4 map names are entered, the unknown or unavailable **edge_x** entries should be given "false" name(s); i.e. **edge_w** = **dummy_map**

The **layer** name is a handy way to record a thematic description of the map objects.

layer	layer descriptor

The map height and width values are used during the geodetic registration process. A map that is rectangular with respect to latitude and longitude requires only one corner lat/lon entry by the user, if the **map_ht** and **map_wd** values are properly set in the header prior to registration. The remaining three corner coordinates are computed.

map_ht	map height, in decimal minutes
map_wd	map width, in decimal minutes

The **maptype** element establishes how the objects assembled from the raster data are evaluated.

maptype	point, line, poly, contour

The **menu_set** element determines which menuset will be displayed for use with the map. A different menuset may be selected at any time using the **menuset_get** command. The **menu_set** equivalency must be a valid name of a file found under the **/u[sr]/ltp/menus** directory.

menu_set	menu set file name

The **org** element is available for the user to identify the agency organization responsible for digitizing the map.

org	agency/organization descriptor

Since many of the map layers being digitized with LTPlus are registered overlays to a specific USGS or PBS quadrangle, this element allows the user to specify the quad map name.

quad_unit	quad name

Published maps undergo revisions over a period of years. The **revision_yr** element allows the user to record the revision date of the base map.

revision_yr	map revision date

One of the most important elements of information in the **header** file is the map scale value. All computations generated from the map's geodetic registration (i.e., state plane coordinates, UTM's) will be based on the user-input map scale value. This value is actually the map scale reciprocal (i.e., for a 1:24,000 scale map, the

scale value would be 24000). If you want everything to come out according to Hoyle, (can you say Hoyle boys and girls?) make sure that this value is correct in the header file.

scale	map scale reciprocal

The search radius value is used by a number of LTPlus functions as a default (unless otherwise specified during execution of the command). The value is in pixel units. This value represents the extent, or circular range of a searching action for such actions as snapping.

search_rad	search radius, in pixels

The source year is the date when the information being digitized (from the user's source documents) was actually compiled or collected.

source_yr	source data compilation

The **state** and **stplzn** elements are intrinsically (but not inexplicably) linked. The **stplzn** is a 4-digit value which identifies a set of constants for conversion of map data to state plane ground coordinates, in feet. The first two digits of the code identify the state. So.....if the **stplzn** value is entered in the **header** file, the 2-character state code is automatically determined and recorded (what a deal).

state	standard 2-char. state code
stplzn	standard 4-digit zone code

The LTPlus user may create and process a map with a user-defined registration scheme. The **udrn** value identifies the registration type.

udrn	user-defined registration type

UTM (Universal Transverse Mercator) coordinate values are computed within UTM zones which are 6-degree bands of longitude. Coordinates are usually computed for a given point based upon the UTM zone which is determined, by default, by the longitudinal value of the SW corner of the map. Because administrative and/or resource areas do not neatly adhere to longitudinal boundaries, it may be necessary, for areas which lie in two adjacent UTM zones, to force computation of UTM coordinate values into one or the other of the two zones (for consistency of data). LTPlus uses the SW corner unless the **utmln** and **utmlt** values exist in the **header** file. In that case, all computed values are transformed into the zone into which the utmln value falls.

utmln	a longitudinal value which falls within the desired UTM computational zone. This value should be entered as a UTM E. in decimal degrees.
utmlt	a latitudinal value which falls within the desired UTM computational zone. This value should be entered as a UTM N. in decimal degrees.

MAP STATUS

The **header** file is comprised of data about the map which is supplied by the user. In contrast, executing the **status** command will produce a summary of the internal status flags maintained by the LTPlus system. The **status** command accesses the **job_stats** file located under the map's directory. The elements of this file are:

Job_stats conditions

0. file version number (for file updates)
1. maximum raster column number (left col is 0)
2. maximum raster row number (bottom row is 0)
3. object file record # of first node

4. object file record # of first island node
5. object file record # of first segment
6. object file record # of first island seg.
7. object file record # of first polygon
8. maximum serial number used
9. format code for raster file:
    0 = Bit Map format
    1 = Run Length Encoded format
10. number of records in the objects file
11. number of records in the coord_list file.
12. number of records in the seg_list file.
13. number of records in the attribute file.
14. number of records in the errors file.
15. number of records in the index_list file.
16. number of records in the v_attributes file.
17. number of records in the v_objects file.
18. number of records in the v_coord_list file.
19. record number of last entry in history file.

/* the following are 0/1 (no/yes) flags */
20. type data has been imported.
21. type data has been imported.
22. type data has been imported.
23. type data has been imported.
24. type data has been imported.
25. type data has been imported.
26. type data has been imported.
27. type data has been imported.
28. type data has been imported.
29. type data has been imported.
30. type data has been imported.
31. type data has been imported.
32. type data has been imported.
33. type data has been imported.
34. type data has been imported.
35. type data has been imported.
36. type data has been imported.
37. type data has been imported.
38. type data has been imported.
39. type data has been imported.
40. raster data has been edited to some extent.
41. thinning has been done since last edit
42. assembly has been done since last edit
43. a crt plot has been done since last asmbly
44. a paper plot has been done since last asmbly
45. a report has been done since last asmbly
46.
47.
48.
49.
50. type data has been exported.
51. type data has been exported.
52. type data has been exported.
53. type data has been exported.

54. type data has been exported.
55. type data has been exported.
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64. type data has been exported.
65. type data has been exported.
66. type data has been exported.
67. type data has been exported.
68. type data has been exported
69. type data has been exported.

Thus, **status** provides the user with a detailed report on the current map's operational condition. Review the *Command Language Reference* section of this manual for details about usage.

PRINTING MAP FILES

There are 18 files associated with every map created by LTPlus. For the most part, those files are of little direct interest to the user. Various functions access and massage the data within those files and then present the raw data in a format which is palatable to the user. However, LTPlus allows display of 15 of those data files, for those brave enough to ask. Some of these files may also be modified by the user; read more about this in the section of this chapter entitled *EDITING MAP FILES*.

The **raw_print** command allows the user to view any file in its entirety or any specified portion of certain raw data files. The files, which may be viewed onthe screen or sent to the printer, include:

diary	**history**	**header**	**job_stats**	**objects**	**errors**
register	**seg_list**	**index_array**	**coord_list**	**index_list**	**attributes**
v_attributes	**v_objects**	**v_coordlist**			

Two special ascii text files associated with each map created in LTPlus may be printed. The map **diary** is an LTPlus file which offers the user an opportunity to record any type of information in a free text format. The map **diary** may be printed using the **diary_print** command.

A **dictionary** file may also be printed. This type of file contains a summary of any user-designated attribute characters or strings of characters with their corresponding meanings. The user must create a dictionary file, which is located under the **/u[sr]/ltp/dictionary** directory. Multiple dictionaries may exist. The **dictionary** to be associated with a specific map is named in that map's header file. To print a **dictionary** file, use the **dict_print** command. For more detailed information about the usage of both of these printing commands, refer to the *Command Language Reference* section of this manual.

EDITING MAP FILES

Several of the files associated with the LTPlus environment may be modified. A single intrinsic function, **edit**, may be used to invoke the system editor (defined in the **config** file) to make changes to the following file types:

config	**cursor_key**	**default_head**	**diary**	**dictionary**	**digmenu**
digitizer	**export**	**header**	**import**	**macro**	**map_list**
menu_set	**other**	**pen**	**tolerance**		

Once the user has specified the appropriate file type, LTPlus will ask for the file name (except for the file type other, no path designation will be required), as the program makes assumptions about where these file types are located. When a valid file name is entered, LTPlus invokes the designated system editor in a shell with the named file. The standard system editor commands should be used to view, modify, save and exit. The user will then be returned to the LTPlus environment. Some of these files may also be modified with other commands. For example, the **config** and **header** files can be modified one line at a time by executing the **config** and **header** commands from within the LTPlus environment. The value of the **edit** command is that it invokes the system editor with the named file, permitting multiple changes at one time. For more detailed information about the **edit** command usage, please refer to the *Command Language Reference* section of this manual.