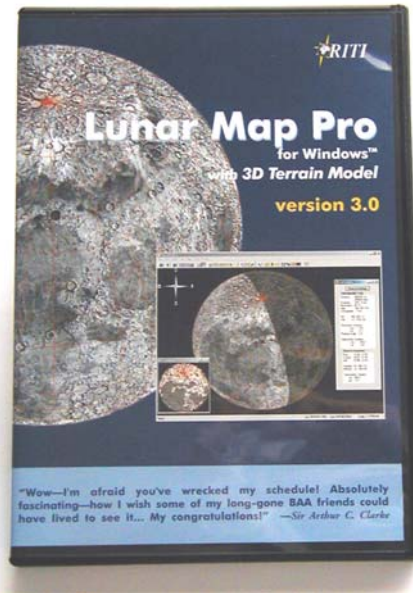


Lunar Map Pro version 3.0

Published by Reading Information Technology Inc.

www.riti.com

Software report by Peter Argenziano (August 2004) [click to email author](#)



Lunar Map Pro, now in its fourth release, is described by its publisher as “the most advanced, highest resolution lunar application ever developed for Windows.” Most users will, no doubt, agree with this assessment even though this description seems inadequate after using the program within the context of a lunar observing campaign.

The software ships on a single CD-ROM housed in a plastic case of the type used for DVD movies. No printed documentation is supplied; however a Quick Start Guide and a User’s Manual are contained on the disc. Both documents, in PDF format, are accessible from within the application. Adobe Acrobat Reader v5.05 is also furnished on the CD. Documentation is also available on the RITI website.

Recommended System Requirements
1 GHz CPU (1.5 GHz for 3D / high-resolution geology)
256 MB RAM (512 MB for high-resolution geology)
110 MB for compact installation – 370 MB for complete installation
1024 x 768 monitor resolution
16 MB video RAM
Microsoft Windows 2000 or XP
\$89.95 (\$39.95 upgrade from version 2.0 or \$49.95 upgrade from versions 1.0 or 1.5)

While Lunar Map Pro provides sophisticated features and functionality that will satisfy the most experienced lunar observers, it does not do so at the expense of those new to viewing our closest celestial neighbor.

The software installation is quick and easy. The user is prompted for the desired installation directory, the program group in which to locate the application's icons and the level of install - ranging from a compact 110 MB to a complete 370 MB. Given the cost of hard drive space these days and the nature of this application; I don't see any reason not to perform a complete install. A desktop shortcut is also created.

RITI employs copy protection that requires the user to insert the CD each time the application is launched. The disc can be removed once the program starts. RITI grants the user permission to install the software on as many PCs as desired. An optional procedure can be employed to obtain a license string that negates having to insert the CD, if so desired.

Once the installation is finished and the application is launched, the CD can be removed from the drive (if a complete install was performed). When the program opens, the user is greeted by a raster map of the lunar nearside (created from NASA Clementine data) with orange-colored overlaying latitude and longitude lines (zero latitude and longitude lines are blue). The grid can be toggled on or off, and it dynamically adjusts to the magnification level of the map. Also displayed on the initial screen is a smaller navigational window. The content of this window is a small vector map of the lunar disc, with an inset rectangle indicating the area being displayed on the main map – a very handy feature that can be dragged anywhere on the screen, minimized or closed. It is updated whenever the main map changes. Navigational tools can be used on either map.

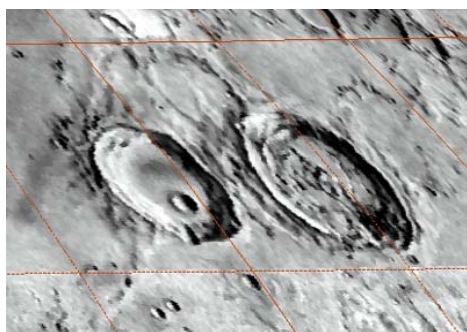
Like most astronomy software, Lunar Map Pro retains the general structure and appearance of any Windows application. There are menu headings horizontally placed above a toolbar at the top of the screen and a status bar along the bottom. Both the toolbar and status bar can be toggled on and off. The toolbar is pre-configured with what the publisher considers to be the most used features, but it is not customizable. The menu headings include: File, View, Zoom, Pan, Help, Tools and Lunar, with appropriate sub-menus below. The status bar displays the latitude and longitude relative to your cursor position on the map in addition to the scale of the map.

The program boasts an impressive database of 8,169 named features.

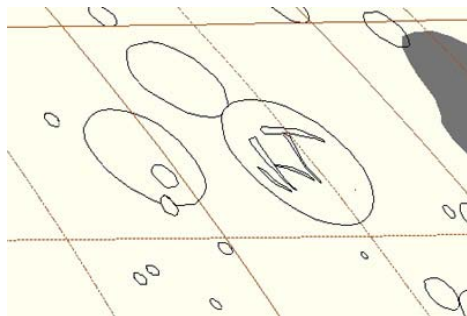
1,561 primary craters	34 mountain peaks
5,853 associated lettered craters	19 mountain ranges
26 large plains	11 capes
35 small plains	269 fissures
20 crater chains	9 scarps
158 domes or volcanic peaks	33 valleys
40 ridges	79 features named by Apollo astronauts

The main lunar map is corrected for libration, ensuring an accurate depiction of the Moon. The default display is *North Up*, matching naked-eye or binocular views. It is also configurable as *North Up Reversed* (SCT or MCT view), *South Up* (Newtonian) or *South Up Reversed* (southern hemisphere SCT) – ensuring every lunar observer is accommodated with a display matching that of their telescope.

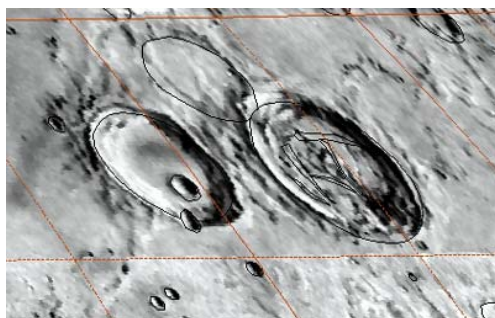
The map can be further configured to show vector feature outlines, with or without the raster image. This is especially useful in identifying difficult features both on-screen and on the printed charts. Mare can also be displayed using vector polygons. And if that wasn't enough, you can also display color-coded geological data classifying features by type, age and system. This flexibility is sure to provide a map appropriate to most any observational activity.



Raster map of Atlas & Hercules



Vector outline map of Atlas & Hercules

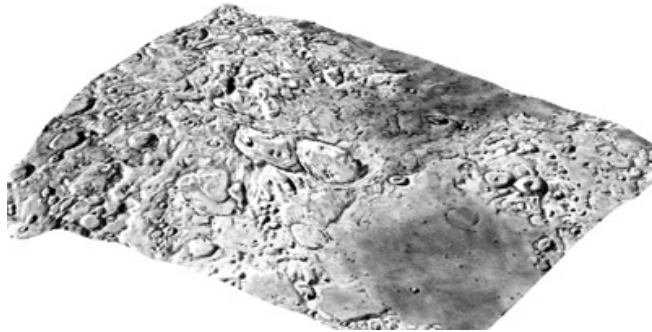


Combined raster and vector outline map

In addition to the searching tool, features can be identified by hovering over them with the cursor. Once identified a right-click provides biographical data.

The *File* menu provides the functionality to redraw the map on-screen, as well as to write the map to a file or send it straight to the printer.

In the *View* menu, the user can toggle the toolbar, status bar and compass. The compass is a very handy feature when working with magnified maps, allowing the user to keep their bearings. The new 3D feature is also activated from within this menu. This feature is based on lunar radar data combined with a GIS platform to render some very interesting views.



3D view of Theophilus and surrounding area

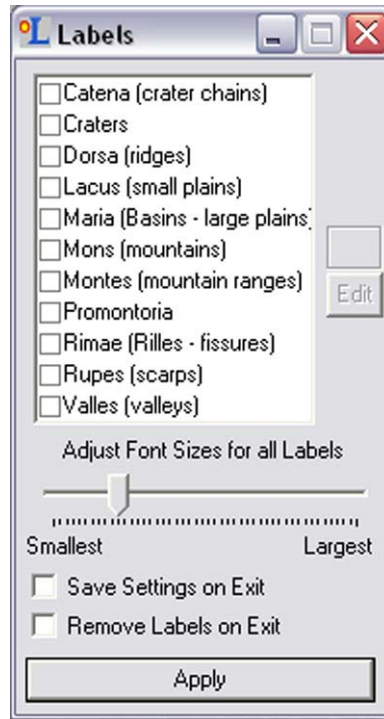
The user has control over point-of-view, magnification and orientation in 3D views. The *Zoom* menu provides control over map magnification. Personally, I find it easier to use the toolbar for this activity. From here you can zoom in or out in 50% increments and quickly return to the full lunar disc map. You can also enable zooming by way of a rectangle dragged across the map with your cursor – this being the most useful feature in the menu for my use. A scaling tool allows you to precisely scale your map, if your project calls for such precision.

The *Help* menu provides the expected functionality plus some unexpected features: a glossary, a list of label abbreviations, a lunar fact sheet, a legend for the color-coded geology markings, and a table for locating the objects in Charles Woods' Lunar 100 observing list.

The *Pan* menu is home to navigational commands such as stepping (in 25% increments) to the north, south, east or west. You can also enable the dragging of the map. The mouse can be used to center a clicked-on feature. And a feature can be centered by entering its coordinates.

Within the *Tool* menu the user can access the labeling feature. While this is quite extensive and customizable to a great degree, I would like to see additional flexibility allowing users to apply whatever level of labeling they require on maps or saved files. The labeling is executed by entire groups of features, which can't be edited. So, if you check the *Craters* box, all craters visible in your map will be labeled. This can be quite

useful, but there will also be projects which just require the ability to selectively label features. Font size and color can be adjusted to suit the intended use of the map.



The Labeling dialog box

The *Surveyor* tool is accessed from within this menu, and it allows the user to make accurate lunar measurements. While most data regarding individual features is readily available, this tool allows for measurements limited only by your imagination. The geographic information system (GIS) upon which Lunar Map Pro is built takes into consideration the difference between the flat, displayed image and the actual curvature of the Moon. The result is a surprisingly accurate measurement system. You can measure between any number of points, so curved or irregular shapes aren't excluded. The user guide indicates that an enhanced level of accuracy is obtained when using higher map magnifications. A useful tool that's fun to use too! I found that accuracy can be further increased by turning on the vector outlines in the map.

A *Night View* tool is available, but I don't find it to be particularly useful. It allows the user to dim the screen, while keeping the toolbar buttons at full brightness. Since dark adaptation isn't really necessary when observing Luna, at least not for me, I don't see a need for such a feature. If I want to dim the screen, I normally just use that functionality provided by my laptop. Maybe you will find it useful.

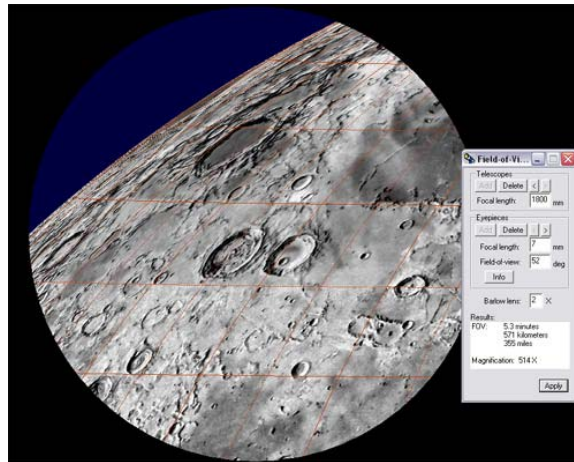
The *Resource Viewer* tool provides a link to tons of online lunar information, right from within the application. A very nice feature when you are using the program indoors, or if you are so lucky as to have an internet connection at the telescope.

The *Lunar* menu is home to some of the most useful features in the program. From here you can control the mapping properties, the time, phases, search for specific features, toggle the grid, adjust the field of view, create an ephemeris, display landing sites and change your point of view.

The *Time*, *Phases* and *Ephemeris* features all work together dynamically. The time can be either your local time or universal time. Within the *Phases* tool, the opacity of the portion of the lunar disc in darkness can be varied, thereby allowing the user to still discern features beyond the terminator. When the *Time* tool is open, the map is not updated automatically – the user must click a button labeled *Current* to update the map. The *Phase Manager* shows one lunation, and is an excellent tool to help the user understand the lunar cycle graphically. It can also be employed to manually adjust the map to lunar cycles other than the current lunation. This is very useful for planning purposes, or to review past observing sessions... so long as the dates are between January 1, 1970 and December 31, 2100.

Working with the *Ephemeris* tool requires that the user input the latitude and longitude of their observing site.

The *Field of View* tool is one of my favorite features of the entire program. This nifty tool allows for the creation of custom maps – displayed or printed – that correspond to the view through your telescope. Naturally, you have to first configure the application with the focal lengths of your telescopes, and with the focal lengths and apparent field of view for your oculars. A very powerful observational tool is at your fingers when this tool is combined with phase display and proper map orientation.



Atlas and Hercules in a FOV map specific to my Intes MK66 and Barlowed 7mm UO HD Orthoscopic

The *Point of View* tool is not about personal opinion... rather it allows you to change your view of the Moon by aligning yourself at different points in space. Another one of those features that is fun to play with.

The *Feature Finder* makes easy work of locating any feature in Lunar Map Pro's vast database. Once the feature is located you can employ other observational tools such as the sunrise and sunset gazetteer. A click of the mouse lets you know the dates and times for the next sunrise and sunset for that feature – what a useful planning feature that is! Another useful feature of this tool is the ability to link your own images, sketches and observing notes to any feature in the database. How cool is that?

And yet another useful feature of this tool is to selectively apply labels. Unlike the labeling feature discussed earlier, this is where you have almost complete labeling control. Almost? Yes, you are limited in where the application places the label. It seems that the label has to touch the feature, while it would be nice to be able to drag the label into just the right position.

The *3D Viewer* tool is new in this version of the software. It allows the user to create maps which depict the lunar topography. The adjustable parameters include point of view, magnification, orientation, relief exaggeration and visual appearance.

Two resolution levels can be employed, with the higher level using a display twice the size of the lower resolution, with twice the data. The *Point of View* is adjustable in 25% increments to the north, south, east or west. You can zoom in or out by a factor of two. Rotation is adjustable in 10° increments up, down, left or right. The *Relief Exaggeration* applies a multiplier to all surface elevations, and thereby makes it easier to see subtle features. The *Visual Appearance* can either be photo-realistic or in the form of a wire mesh. Alternating between the two allows the user to fully comprehend the topography of the feature under study.

I started using Lunar Map Pro with version 2.0, and just recently upgraded to version 3.0. I am constantly seeking to enhance my lunar observation skills, and this program has greatly facilitated that endeavor. I would unequivocally recommend this program to anyone with a serious interest in lunar studies, whether the studies involve visual observation, lunar photography, or just armchair observing.

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