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ClpMap Introduction

ClpMap is a World Map plotting program designed to produce a map of any portion of the world.   The map projection is chosen through the **Options...** dialog with choices including two cylindrical   projections and a satellite view.   Colors, line widths and resolutions can all be selected through the **Set Draw...** menu item.   Zoom is available for all selections under the **Draw**   menu.   ClpMap effectively marries the capabilities of currently available Windows applications with an excellent public domain   **database** allowing the user to create customized clip art of regions of the world, and transfer them to Windows applications through the Windows clipboard.

The clipboard is fully functional within ClpMap so that after the map segment has been plotted with options to the users satisfaction, it can be conveniently transferred to a drawing or presentation program to be included as a component of a slide presentation or other document.

The basic steps for including a map view in a presentation or drawing program are as follows:

1.   Open ClpMap and open the Choose Options dialog by selecting **Options...** from the main menu.   Use this dialog to select the Map projection desired.   Also if a specific drawing size will be set in Step 2 below, select **Show Dimensions** and choose the desired units (either pixels, inches, or millimeters).

2.   Size the drawing window to the desired map size by dragging the edges of the main window using a mouse.   If   Show Dimensions was selected in step 1, use the window dimensions appearing in the lower right corner as guide.

3.   Open the Select Map Parameters dialog by selecting **Set Draw...** from the main menu and choose desired map components, colors and other options.

4.   If a geographic region less that the whole earth is of interest and latitude and longitude boundaries for the desired region are known, set the Map Coordinates values within the Select Map Parameters dialog to define the region of interest.   Otherwise, initially display the whole earth and rely on the zoom feature to select the desired region.   Note that the Map Coordinates values have no effect if a Satellite View projection has been selected.

5.   Draw the map using the Draw Map command which appears both in the Select Map Parameters dialog and under **Draw** in the main menu.

6.   Use the **Options...** and **Set Draw...** main menu commands to open the respective dialogs and readjust the map parameters until satisfied.   If a smaller region is desired, drag the mouse to select the region of interest, select **Draw** from the main menu and select **Zoom In** to draw the zoomed map.   Then use the **Zoom In**, **Zoom Back**, **Zoom Out**, or **Redraw** commands as needed until the desired results are obtained.   Note that Redraw should be used instead of Draw Map in order to retain the zoomed view but to activate other changes such as line colors, window size, etc.   The Draw Map command will activate parameter changes and cancel the zoomed view reestablishing the map at full size.

7.   If desired, save the drawing by selecting **File** from the main menu then selecting **Save As...**.   By saving the drawing, it can be easily recalled for future modifications in case the final printed results need to be modified.

8.   Transfer the drawing to the clipboard by selecting **Edit** from the main menu and then selecting either **Cut** or **Copy**.

9.   Close ClpMap.   The map is now available on the clipboard to be pasted into a drawing or presentation program.

The **Print** command under **<u>File</u>** in the main menu can be used to preview the printed form of the final map prior to transferring it to another program.   This Print command is provided as a convenient way to preview the printed results since different printers and printer drivers will interpret colors differently so that printed results may differ significantly from those seen on the screen.   Note, however, that some commercial applications will translate the colors as well, and the final result still may not be as expected.   It is therefore recommended that the final map be saved so that if the final results as printed by the target application are not as expected, the map can be reopened and colors or other options easily changed.

The Escape key is active during drawing and can be used whenever needed to terminate a drawing that is not wanted and is taking too long to create.

File

Use this menu item to read data from an existing file, to save data to a new file, to configure the printer or to print a sample of the current map.   **Save As...** saves both the picture as a meta file and the map parameters including the window size in a ClpMap specific file format. **Open...** can then be used to recreate the previous picture, map parameters and window allowing parameters to be easily modified.   **New** can be used to clear the display in order to begin a new map.   **Print Setup...** can be used to change printer parameters and **Print** can be used to see how the map looks on the target printer prior to transferring it to another application.   Note that colors will translate differently depending on the target printer.   It is therefore recommended that the print function be used to find which colors give the best printed results on the users system.

Edit

Provides the standard Windows editing commands.   **Cut**, **Copy** and **Paste** will transfer data to or from the Windows clipboard.   **Clear All** clears the display.   **Undo** is provided in order to recover from an unintended execution of a command which erases a wanted map.

Draw

Includes commands to draw the map defined in the Choose Options and Select Map Parameters dialogs.   The map can be drawn as defined in these dialogs (select **Draw Map**) or zoomed to include a smaller or larger geographic region.   To zoom in and focus on a smaller region, drag the mouse to enclose the region of interest in a selection rectangle, then select **Zoom In**.   To return to the previous view, select **Zoom Back**.   To expand the field of view to approximately twice the current size, select **Zoom Out**.   To redraw the same selected region after changing other parameters or resizing the window, select **Redraw**.

Help

Provides access to this standard windows help system.

Choose Options dialog

The Choose Options dialog is opened by selecting **Options...** from the main menu.   This dialog allows the user to select a map projection and to choose to display a map scale at the bottom right corner of the main window.   Parameter choices include the following:

Equirectangular

Mercator Conformal

Satellite View

Show Dimensions

Equirectangular

The Equirectangular option produces a cylindrical map projection with latitude and longitude scaled linearly.   This is a convenient scale to allow the plot to include the entire earth including the north and south poles.   As with all cylindrical projections of the earth onto a flat plane, sizes are distorted being presented as unusually large near the poles.   With linear latitude and longitude scales, shapes and angles are also distorted.

Mercator Conformal

A Mercator Conformal projection is a cylindrical projection commonly used by map makers. This projection is especially useful to navigators because angles are preserved so that a line of constant direction appears on the Mercator projection as a straight line.   Shapes are also preserved in that small regions appear in approximately the correct shape.   Sizes, however, are greatly distorted near the poles, and the projection cannot be extended to latitudes near + or - 90 degrees.   Within ClpMap, latitude is limited to + or - 85 degrees for this option in order to avoid computational problems.

Satellite View

A Satellite View actually computes and plots the earth as seen by a satellite at any user selected **Latitude**, **Longitude**, **Altitude** and **Rotation** angle of the satellite relative to north.   When we view a globe what we see is equivalent to a satellite view.   This projection can therefore be used to produce a plot that looks like a three-dimensional globe.   When ClpMap is initially run, its default altitude is 19323 nautical miles which is the altitude above the earth of a synchronous satellite.   The plot obtained at that altitude is the view a synchronous satellite (such as the satellites commonly used to carry telephone and television signals around the world) has of the earth.   The same view, however, would be experienced by an observer of an 18 inch world globe from a distance of about 50 inches, just over 4 feet.

The zoom feature is fully active for all projections including the Satellite View.   By adjusting the satellite position and then using the zoom feature, an interesting three-dimensional landscape of a region of interest can result.   In order to bring the desired portion of the map to the top position, the rotation parameter can be used.   Experimenting with these parameters may be necessary in order to obtain the best result.

Show Dimensions

Turn on Show Dimensions and then select the desired units (pixels, inches or millimeters) in order to show the size of the drawing window in its lower right corner.   This feature is useful if a particular map size is to be created for transfer to a drawing or presentation program. The dimensions can also be used as a guide to assure that the window is square in order to create a properly proportioned satellite view.   Using the dimensions, the size of the map is controlled by sizing the window to the desired size by dragging its boundaries with the mouse.   The resulting map will exactly fill the window

Select Map Parameters dialog

Set Draw... opens the Select Map Parameters dialog box.   Parameter choices include the following:

Select Maps

Select Colors

Select Widths

Grid

Border

Grid, deg

Coordinates

Map Res

Set Default

Select Maps

The database is divided into six files (*coast.pnt*, *island.pnt*, *lake.pnt*, *river.pnt*, *country.pnt* and *state.pnt*).   Each of these database files includes the data points for coast lines, islands, etc.   Each of these databases can be included or excluded by selecting or deselecting the checkbox.

Select Colors

Each of these database files can be plotted in a color selected by the user.   The Select Colors controls open a Select Color dialog box from which any of the standard Windows colors may be selected.   The most basic Windows functions support a set of 20 colors. These are easily selected within the color dialog box.   Note that although these 20 colors are standard within Windows, some monitors may not support all colors, so that on some systems, some of the colors may appear redundant.

Some experimentation with colors may also be necessary depending on the drawing or presentation application intended to use the map, and on the printer installed on the system in order to get the desired result.   Some colors will look good on the screen, but will not produce the desired printed result.   It is recommended that after a set of colors are selected that produce the desired results on the users system, the parameters be saved as default by selecting the **Set Default** button.

Select Widths

Line widths in pixels can be selected for each map component in order to produce a desired effect.   Note that selection of a width other that one significantly slows down the plotting speed on many systems.

Grid

A latitude and longitude grid can be selected if desired.   This causes a dashed line to be drawn at latitude and longitude intervals selected by the Grid, deg control.   Colors and line widths can also be selected for the grid lines.   Note that if a line width other than one is selected, the grid lines revert to solid as opposed to dashed.

Border

A border can be included surrounding the map.   This option also includes lines at zero degrees latitude and longitude.   If a satellite view has been selected,   the border surrounds the earth's circumference, and also highlights the equator and prime meridian (zero degree latitude and longitude lines).   Colors and line widths can also be selected for the border.

Grid, deg

If a latitude and longitude grid has been selected, the Grid, deg option allows selection of the spacing.   Note that the original default spacing is 15 degrees.   This is commonly used on a whole earth map because 15 degrees longitude corresponds nominally to the one hour time zones over the earth.

Coordinates

This option is used for the two cylindrical projections and is ignored if a satellite view is selected.   If a selected region of the earth with known latitude and longitude boundaries is to be plotted,   set the coordinates to these boundaries.   If the boundaries are not known, it is probably easier to find the known region by using the zoom feature as described separately in this document.

Map Resolution

The Micro World Data Bank II database used by ClpMap is coded so that resolutions between 1 and 5 can be selected.   Resolution 1 is the highest, including all of the data points in the file and producing an extremely detailed map.   Resolutions above 1 skip points to produce a less detailed map, but one with faster plotting times and smaller memory requirements.

If a large area or whole earth map is to be plotted, smaller memory requirements and faster graphics may result without noticeable degradation for resolutions of 3 or greater.   If a highly zoomed area is to be plotted, noticeable improvement in quality may result by using resolution 1.

Set Default

Pressing this button causes all of the currently set parameters to be stored in a file named *clpmap.ini* in the users Windows directory.   These parameters then become the default parameters whenever ClpMap is started.   If it is desired at any time to revert back to the factory installed default parameters, simply delete the *clpmap.ini* file from the Windows directory.   It will be rewritten by ClpMap with the factory default parameters.

Details of the world database

ClpMap includes an extremely detailed world database called the "Micro World Data Bank II." This database was placed in the public domain by Fred Pospeschil and Antonio Riveria and was derived by them from a much larger database created by the CIA and distributed by the US Department of Commerce for a cost of $660. The database distributed with ClpMap is separated into six separate files including data for coast lines, islands, lakes, rivers, country boundaries and state boundaries (USA only). It is identical with that placed in the public domain except that an extraneous curve found in the states data file has been eliminated (the curve appeared to define an air route into Berlin), and several curves in the lakes database were actually islands in the extreme northern regions of Canada and were moved to the islands database file.

ClpMap Keys

ClpMap uses most of the standard Windows key commands.   Choose from the following list to review the keys used by ClpMap:

ClpMap Keys
Dialog Box Keys
Menu Keys
System Keys
Window Keys

ClpMap Keys

Key(s)	Function
ESC	Can be used during the command "Draw Map" to terminates a drawing.

Dialog Box Keys

Key(s)	Function
TAB	Moves from field to field (left to right and top to bottom).
SHIFT+TAB	Moves from field to field in reverse order.
ALT+letter	Moves to the option or group whose underlined letter matches the one you type.
DIRECTION key	Moves from option to option within a group of options.
ENTER	Executes a command button.
	Or, chooses the selected item in a list box and executes the command.
ESC	Closes a dialog box without completing the command. (Same as Cancel)
SPACEBAR	Selects or clears a check box.
SHIFT+ DIRECTION key	Extends selection in a text box.
SHIFT+ HOME	Extends selection to first character in a text box.
SHIFT+ END	Extends selection to last character in a text box

Menu Keys

Key(s)	Function
Alt	Selects the first menu on the menu bar.
Letter key	Chooses the menu, or menu item, whose underlined letter matches the one you type.
Alt+letter key	Pulls down the menu whose underlined letter matches the one you type.
LEFT or RIGHT ARROW	Moves among menus.
UP or DOWN ARROW	Moves among menu items.
Enter	Chooses the selected menu item.

System Keys

The following keys can be used from any window, regardless of the application you are using.

Key(s)	Function
Ctrl+Esc	Switches to the Task List.
Alt+Esc	Switches to the next application window or minimized icon, including full-screen programs.
Alt+TAB	Switches to the next application window, restoring applications that are running as icons.
Alt+PrtSc	Copies the entire screen to Clipboard.
Ctrl+F4	Closes the active window.
F1	Gets Help and displays the Help Index for the application.

Window Keys

Key(s)	Function
ALT+SPACEBAR	Opens the Control menu for an application window.
ALT+Hyphen	Opens the Control menu for a document window.
Alt+F4	Closes a window.
Alt+Esc	Switches to the next application window or minimized icon, including full-screen programs.
Alt+TAB	Switches to the next application window, restoring applications that are running as icons.
Alt+ENTER	Switches a non-Windows application between running in a window and running full screen.
DIRECTION key	Moves a window when you have chosen Move from the Control menu.
	Or, changes the size of a window when you have chosen Size from the Control menu.