

Landscape Explorer

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Viewing Maps

This View Module displays a view of a previously defined map. The map may be viewed from any direction using a variety of different drawing schemes ranging from the abstract, such as simple grid, to realistic such as summer or winter colours.

Many other parameters may be altered by the user to tailor the image to specific requirements. Examples include the light source position, magnification, perspective, background, and terrain colours. You will probably wish to try varying some or all of these features to obtain the best results for your purposes. View parameters are specified in the [View parameters dialog](#). See [Loading a map](#) for instruction on loading and viewing a map. Multiple copies of the Landscape Viewer module may be opened, subject to system resource constraints.

See also:

[Colour scheme options](#)

[Landscape Explorer maps](#)

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Creating a Map

Maps are created using the [Map Definition Module](#).

Before viewing a landscape you must define the shape and contents of the surface that you wish to examine. Landscape Explorer holds surface information in the form of a rectangular grid. The grid (sample) points hold the heights, whilst the grid (terrain) squares the type of terrain.

To create a map for a landscape surface each sample point must have its height set. There are two main ways of doing this: data may be imported directly from digital files, such as Ordnance Survey NTFs, or alternatively the information may be captured from a scanned image of a topographic map.

See also:

[Creating a map from a scanned image](#)

[Creating a map from imported data](#)

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The XYZ File Format

This format is designed for exchanging data between Landscape Explorer and other programs, such as commercial GIS systems like MapInfo and Arc/Info. It allows a complete map to be described including size, terrain, and heights information. This format was developed in conjunction with Integrated Mapping, who can supply an add-in module for exporting data in a suitable form from MapInfo

All records are comma delimited. Coordinate system uses the SW corner as origin. Attribute refers to the terrain square to the NE of coordinate. User defined terrain colours and descriptions import is included as this information is easily available from MapInfo and maintains consistency across applications. However, it is not obligatory.

RECORD 1

Header record. Measurement System (m|j|u),min x, min y, max x, max y, x spacing, y spacing, attributes included (attr|noattr)

RECORD 2

Description. Free format.

RECORD 3

Number of user-colours defined (nominally n, max 16, may be 0).

RECORDS 4 to 4+N

Terrain number,colour definition (RGB format - Red + 256 * Green + 65536 * Blue),terrain description (max 24 characters).

RECORDS 4+N+1 TO END OF FILE

Data. X coord, Y coord, Height, Terrain type.

Example

m,2262300,5617000,2267900,5628000,100,100,attr

Derived from TR_STYPE

3

1,0,BdU

2,255,BnH

3,65535,BnR

2266400,5617000,1531.74,9

2266300,5617100,1520.17,9

2266400,5617100,1519.89,9

Importing Data from XYZ Files

This format is designed for exchanging data between Landscape Explorer and other programs, such as commercial GIS systems like MapInfo and Arc/Info. It allows a complete map to be described including size, terrain, and heights information. This format was developed in conjunction with Integrated Mapping, who can supply an add-in module for exporting data in a suitable form from MapInfo.

The function presents a dialog box that allows the user to specify a set of parameters that control how the data from the import file will be mapped on a Landscape Explorer map. These are as follows:-

Sample Size

Specify X and Y offsets from the origin used by the imported data. For x,y,z files this is the south west corner (bottom left on the map display canvas). Hence if you specified an X,Y offset of 50,80 the point at 50,80 in the imported data is mapped onto the bottom left corner of the map display canvas (0,0). Similarly the point 60,100 from the import data would be mapped onto 10,20.

Sampling Frequency

Specifies the frequency at which points from the imported data will be mapped onto the map display canvas. A value of 1 implies all points will be mapped, 2 implies every second point etc.

User Terrain - Import Terrain Definitions

If checked any terrain definitions contained in the file header will be imported. This is equivalent to loading a colour schema using the colour settings dialog, and the imported map will be drawn on the map display canvas using the new colour settings.

Terrain Configuration - Use Schema

The default colour schema to be used by the map. This should be entered as a single word of up to 8 characters - for example 'standard' would be an acceptable schema name. You will probably wish to set up a number of standard schemes to cover sets of maps showing common types of data, for example you may have a set called 'glacial' to cover maps showing glacial soil types, 'alluvial' for alluvial soil types etc. Your schema name should correspond to that of a .CFG file set up using the Colour Settings dialog. For further details see the explanation about 'Saving and Using Colour Schemas' under the Colour Settings topic.

New Map/Load into Current Map

Choose between automatically creating a new map with the correct dimensions for the imported data, or importing into the current map.

Origin X/Y Coordinates

Only activated when the import into the current map option is selected, these two values set the position of the map origin that the import will use. This facility enables data from multiple import files to be tiled together, hence creating maps spanning the edges of import files.

Overwrite

Only activated when the import into the current map option is selected. When checked all existing values in the map will be overwritten by imported values or set to the default height.

Default Height

Some import files may not contain data for all points on the map definition canvas. You can therefore provide a default height, which may either be an absolute value or relative to the lowest height used from the import file.

See also:

[XYZ file format description](#)

Memory Issues

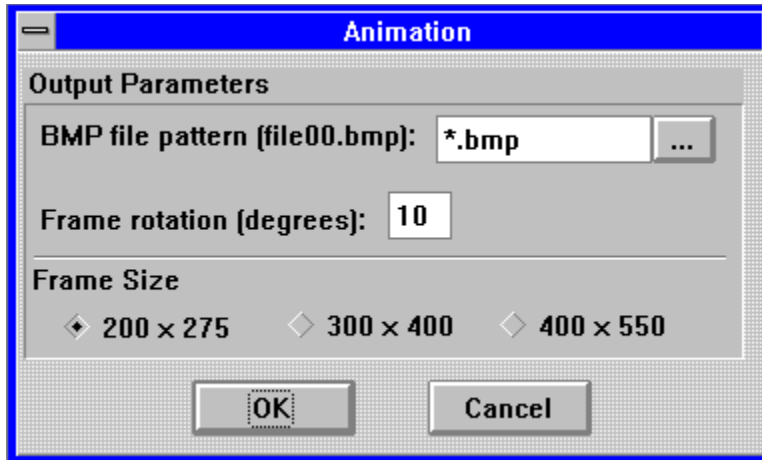
Although Landscape Explorer can be run successfully on a PC with 4Mb of RAM, a 8Mb system is recommended. If you have less than 8Mb of RAM you should have a windows swapfile installed. If you do not, and this is a good idea generally for all windows systems, you can add one using the virtual memory option in the control panel '386 enhanced' utility. Microsoft recommend using the 'permanent' option, and 8 - 12Mb seems to be optimal on most computers.

Even so, when allocating memory it must be available in RAM (possibly making space by swapping out data to disk) and in a continuous block. To facilitate this Landscape Explorer does a memory defrag before allocation, but it is still possible for a call to fail due to fragmentation of the internal Windows selector table. In practise you are unlikely to see this unless you are running in high resolution/high colour mode (say 1024x768 in true colour), and/or working with large maps. When Landscape Explorer may be looking for several 1Mb memory blocks. If you do experience problems consider closing other applications, removing any complex wallpaper, or running with lower resolution or number of colours.

Animation

This function is accessed from the View Map menu, and activated once a landscape view has been displayed with the Landscape Viewer Module. It is used to create a series of bmp files which can be later used to generate animation files such as FLC or AVI.

To create an animation first display a landscape view, selecting display values for colour scheme, light position, viewer altitude etc. as required (see View Parameters for details). Selecting the Animation item from the View Map menu displays the following dialog:



Using Imported Data

Import can be selected from the menu or the Map Definition Module tool bar. An 'open file' dialog box is presented with a drop-down list from which one of the following file types may be selected.

Importing ASCII text files

Importing USGS DEM files

Importing UK Ordnance Survey NTF files

Importing XYZ files

Import Data from USGS DEM Files

Imports a set of heights data from a US Geological Survey digital elevation model (DEM) file. Further information about DEM file formats is available under the Analyse DEM file function. Note that USGS DEMs are not in the same format as Vistapro DEMs. It is also common to find files that purport to be in USGS DEM format, but which contain invalidly formatted data, please see the section on File Loading Errors below for more details.

A typical DEM file will contain many more grid points than Landscape Explorer can handle directly. The function therefore presents a dialog box that allows the user to specify a set of parameters that control how the data from the import file will be mapped on a Landscape Explorer map. These are as follows:-

Sample Size

Specify X and Y offsets from the origin used by the imported data. For DEM files this is the south west corner (bottom left on the map display canvas). Hence if you specified an X,Y offset of 50,80 the point at 50,80 in the imported data is mapped onto the bottom left corner of the map display canvas (0,0). Similarly the point 60,100 from the import data would be mapped onto 10,20.

Note that 7.5-minute DEMs may have differing numbers of elevations per profile, particularly for the first and last few profiles. In this case it is advisable to apply offsets that will not import data from these profiles.

Sampling Frequency

Specifies the frequency at which points from the imported data will be mapped onto the map display canvas. A value of 1 implies all points will be mapped, 2 implies every second point etc.

Terrain Configuration - Use Schema

The default colour schema to be used by the map. This should be entered as a single word of up to 8 characters - for example 'standard' would be an acceptable schema name. You will probably wish to set up a number of standard schemes to cover sets of maps showing common types of data, for example you may have a set called 'glacial' to cover maps showing glacial soil types, 'alluvial' for alluvial soil types etc. Your schema name should correspond to that of a .CFG file set up using the Colour Settings dialog. For further details see the explanation about 'Saving and Using Colour Schemas' under the Colour Settings topic.

New Map/Load into Current Map

With DEM files only import into the current map is available.

Origin X/Y Coordinates

Only activated when the import into the current map option is selected, these two values set the position of the map origin that the import will use. This facility enables data from multiple import files to be tiled together, hence [creating maps](#) spanning the edges of import files.

Overwrite

Only activated when the import into the current map option is selected. When checked all existing values in the map will be overwritten by imported values or set to the default height.

Default Height

Some import files may not contain data for all points on the map definition canvas. You can

therefore provide a default height.

File Loading Errors

If an error is encountered while attempting to load the DEM file the process will abort and an error message is display. DEMs may fail to load for a variety of reasons, some of the more common ones are listed below.

Invalid Offsets: You have chosen import offsets such that the DEM contains no data for the area to be imported. Change the offsets and try again (an offset of X=0,Y=0 and a sampling factor of 1 will never produce an error from this cause).

Invalid DEM type: You are attempting to import a DEM file of a type not recognised by Landscape Explorer. This is most likely to be a 1 degree USGS DEM - which can be identified by their very large file size (typically about 10Mb), or a Vistapro DEM - which has a completely different format.

DEM file contains end-of-line markers: Some DEMs available on the internet were loaded incorrectly and contain random end-of-line markers. Landscape Explorer cannot process these correctly, and requires files delimited by either the DOS or unix EOL characters.

DEM file is corrupt. Again, some DEMs available on the internet are simply corrupt - for example containing null lines.

Importing Data from UK Ordnance Survey NTF Files

Support is currently limited to the Land-Form PANORAMA Digital Terrain Model Data (DTM) files produced from the Landranger series of maps. This data can be obtained from the UK Ordnance Survey (Tel. 01703 792773). A free sample can be obtained covering the Port Talbot area of Wales, and if you are a UK educational user Gower, Peak District, Lake District, Bristol and Glasgow are also available under the CHEST agreement.

The files cover a 20km x 20km area with height values at each intersection of a 50 metre horizontal grid.

A DTM file contains more data points than a Landscape Explorer map can handle, The function therefore presents a dialog box that allows the user to specify a set of parameters that control how the data from the import file will be mapped on a Landscape Explorer map. These are as follows:-

Sample Size

Specify X and Y offsets from the origin used by the imported data. For DTM files this is the south west corner (bottom left on the map display canvas). Hence if you specified an X,Y offset of 50,80 the point at 50,80 in the imported data is mapped onto the bottom left corner of the map display canvas (0,0). Similarly the point 60,100 from the import data would be mapped onto 10,20.

Sampling Frequency

Specifies the frequency at which points from the imported data will be mapped onto the map display canvas. A value of 1 implies all points will be mapped, 2 implies every second point etc. The default value of 4 will produce a low-resolution map of the whole file if the default option to create a new map is also chosen (see below).

Terrain Configuration - Use Schema

The default colour schema to be used by the map. This should be entered as a single word of up to 8 characters - for example 'standard' would be an acceptable schema name. You will probably wish to set up a number of standard schemes to cover sets of maps showing common types of data, for example you may have a set called 'glacial' to cover maps showing glacial soil types, 'alluvial' for alluvial soil types etc. Your schema name should correspond to that of a .CFG file set up using the Colour Settings dialog. For further details see the explanation about 'Saving and Using Colour Schemas' under the Colour Settings topic.

New Map/Load into Current Map

Choose between automatically creating a new map with the correct dimensions for the imported data, or importing into the current map.

Origin X/Y Coordinates

Only activated when the import into the current map option is selected, these two values set the position of the map origin that the import will use. This facility enables data from multiple import files to be tiled together, hence creating maps spanning the edges of import files.

Overwrite

Only activated when the import into the current map option is selected. When checked all existing values in the map will be overwritten by imported values or set to the default height.

Default Height

Some import files may not contain data for all points on the map definition canvas. You can therefore provide a default height.

Importing Data from ASCII Text Files

This function allows the user to import a set of heights data from a text file (for example data exported from a spreadsheet). The file should contain only ASCII/ANSI space delimited text - i.e. a text file which you can view using Notepad or Write (with no conversion) and consists of numbers separated by spaces or newlines. This type of file is, for instance, created by the Lotus 1-2-3 extract function. If you have a text file in comma and/or quotes delimited format this can easily be converted to space delimited format using a word processor with the find and replace function.

Data is imported in a linear fashion starting at the top left corner of the map progressing left to right within top to bottom through all points. The program will report an error if an incorrect number of heights is encountered.

Analyse USGS DEM File

This function may be used to analyse a USGS DEM data file prior to import to facilitate correct setting of map parameters.

Full details of DEM file formats can be obtained from the US Geological Survey, however they basically consist of a set of parallel profiles arranged south to north, each profile being a one-dimensional array of elevations arranged west to east, thus describing a quadrilateral area. DEM files can be obtained from USGS and various anonymous ftp sites - a good selection of 7.5-minute DEM's are available from spectrum.xerox.com. Note that USGS DEMs are not the same as Vistapro DEMs.

The following types of DEM file are understood by this function.

7.5-minute DEM

7.5-minute quadrangle. Horizontal coordinate system uses UTM on North American Datum of 1927 (NAD 27) or 1983 (NAD 83). Elevations are referenced in metres or feet to the National Geodetic Vertical Datum of 1929 (NGVD 29) in the continental US, and to local mean sea level in Hawaii and Puerto Rico. Spacing of elevations along and between each profile is 30 metres, and the profiles may not always have the same number of elevations because of the variable angle between true north and the grid north of the UTM coordinate system.

30-minute DEM

1- by 1-degree block. Horizontal coordinate system is Geographic (lat/long) on World Geodetic Survey (WGS) 72 or WGS 84. Elevations are referenced in metres in the continental US and Alaska, and to local mean sea level in Hawaii and Puerto Rico. Spacing of elevations along and each profile is 3 arc seconds. Spacing between profiles is 3 arc seconds south of 50 degrees north, and 6 or 9 arc seconds above this. DEMs north of 50 degrees are not handled correctly by [Landscape Explorer Pro](#).

7.5-minute and 15-minute Alaska DEM

These DEMs are not handled correctly by Landscape Explorer.

Auto Contour Trace

Allows a series of sample points along a line to be set to the same height. This tool is used to trace the contour lines on a bitmap loaded as background, and behaves in a similar manner to the Trace Contour tool. Your background bitmap must be black or colour detail on a white background.

The auto-contour tool works by following a selected line. It is colour-sensitive, and it will often work best if the image is 'cleaned-up' with a paint package before use, although setting a higher tolerance in the map status dialog may help. This is accessed from the canvas toolbar. On 'raw' scans the manual contour trace may give better results. To start tracing a contour press the left mouse button over a contour line. The program will now proceed to follow the line over the image, reversing the line colour as it does so. On completion a dialog box prompts for the height of the contour, which must be between 0 and 9999 metres/feet.

By default, the trace only follows pixels of the same colour, however the range of colours recognised as belonging to the same contour may be increased by setting a higher tolerance in the map status dialog.

Set Bitmap Magnification

Prompts for the bitmap magnification to be used in pixels per kilometres or pixels per mile. This defaults to a value such that the bitmap is displayed at normal size. The value to be used may be calculated, but as it depends on the precise characteristics of the original scan is probably best arrived at by trial and error.

Manual Contour Trace

Allows a series of sample points along a line to be set to the same height. Typically this tool would be used to trace the contour lines on a bitmap loaded as background.

The tool uses a combination of the left and right mouse buttons or clicks and double clicks. To start a contour press the left mouse button. You may now either move the mouse whilst holding down the button, or release the button and click again at another position. In both cases a red line highlights where the contour will be placed. Continue defining the contour using any combination of these actions until complete, then either double click the left button or click the right button. A dialog box prompts for the height of the contour, which must be between 0 and 9999 metres/feet.

You can also use the [Auto contour trace](#) tool if you have a suitably clear bitmap available.

Flood Area with Water

Flood fills any flat area of the map with water. After defining the shape of your landscape click on a suitable terrain square. If the four bounding sample points define a flat square (with non null) a dialog will prompt for confirmation that all contiguous flat terrain squares at the same height are to be set to water.

Set Heights in Area Level

Click and drag using the left mouse button to define a rectangular area. On release a dialog box prompts for a height between 0 and 9999 metres/feet to which all grid points within the area will be set.

Load Background Bitmap

This displays a bitmap, typically a scanned image of the original paper map, as background.

A .BMP file is prompted for by a standard 'open file' dialog.

The bitmap may be moved using the Move Bitmap tool, and its magnification altered by the Set Bitmap Magnification function.

All grid point heights and terrains are displayed (if enabled - see [Map Status](#)) superimposed on the background bitmap, which is typically used as a template for defining map information.

Zoom In/Out

These tools allows the user to zoom in and out of the map canvas. Clicking on the '+' button zooms in, and on the '-' zooms out. The program handles the canvas when magnified slightly differently to in it's normal state. The following changes will be seen:

Display

Heights are displayed as numerical values. Terrains are displayed as coloured squares.

Tools

A limited selection of tools are available when the canvas is magnified. These are...

Zoom In/Out

Map Status

Display Parameters

Set Spot Height

Set Default Spot Height

Set Default Terrain

Move Background Bitmap

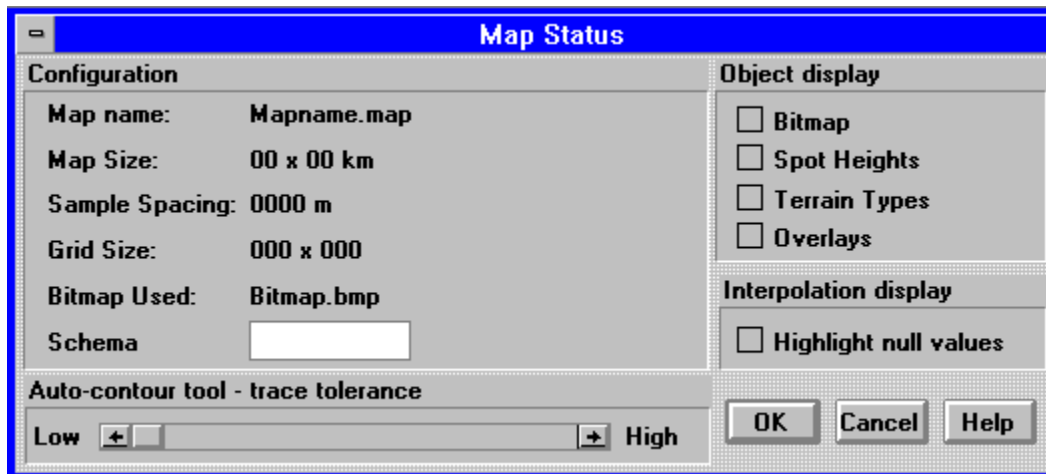
This allows a bitmap to be moved under the grid. Grab the bitmap using the left mouse button and release when positioned correctly.

Set Heights in Selected Area to Null

Click and drag using the left mouse button to define a rectangular area. On release a dialog box prompts for confirmation that sample points in the defined area are to be set to null.

Map Status

Displays various parameters used for drawing and manipulating the map canvas.



Save Background Bitmap to File

Saves the visible area of the background bitmap to a BMP file. This is useful for later use with the BMP overlay drawing scheme.

Set Spot Height

Prompts for the height of the sample point selected. Enter either null or a height between 0 and 9999 metres/feet.

Export Functions

Landscape Explorer can export the data constituting the map .LEM file in a number of different formats. All functions are accessed from the map definition module. Select the Export... item from the Define Map menu. A dialog box is displayed. Select the export file type required from drop down list box, and enter the file name in the usual way.

ASCII

Exports all heights in space delimited ASCII format. This is the same format as described in the Import ASCII function. No information about terrains is exported.

X,Y,Z,Attribute

Exports all the data in the map in x,y,z,attribute format (see xyz format for details). This is the only format which exports details of terrains in addition to heights.

See also

The xyz file format

Set Terrain in Selected Area

Click and drag using the left mouse button to define a rectangular area. On release the terrain in the selected area is set to the active terrain type, which can be set either using the Display Parameters dialog or clicking on the required terrain type in the Terrain Legend area.

Set Terrain Square

Allows terrain squares to be 'painted' to a particular terrain type by moving the mouse with the left button held down. Squares are set to the active terrain type, which can be set either using the Display Parameters dialog or clicking on the required terrain type in the Terrain Legend area.

Toolbar

All map definition tools are available from the toolbar. Select the item of interest from the toolbar or the following list.



[Zoom In/Out](#)

[Map Status](#)

[Display Parameters](#)

[Load Background Bitmap](#)

[Set Background Bitmap Magnification](#)

[Move Background Bitmap](#)

[Set Spot Height](#)

[Manual Contour Trace](#)

[Auto Contour Trace](#)

[Set Heights Level](#)

[Set Heights to Null](#)

[Interpolate Heights](#)

[Set Terrain by square](#)

[Set Terrain by area](#)

[Flood with Water](#)

Display Parameters

Displays a dialog box that allows the user to set the height range for colour display. This defaults to 0 - 1000 metres/feet.

This dialog also allows the user to set the default terrain type used by the terrain and close up tools. This can also be set directly by clicking on the chosen default terrain in the Parameter Display area of the window.

Interpolate Heights

This tool will interpolate the heights of undefined (null) sample points. After defining a representative sample of points - for example along contour lines, this facility enables heights to be derived for the remaining undefined points. See the [Interpolation Explained](#) topic for a full discussion.

Interpolation Explained

Interpolation is used when generating a map from a scanned image. After defining a representative sample of points - for example along contour lines, this facility enables heights to be derived for the remaining undefined points

Landscape Explorer offers two interpolation algorithms, an implementation of the Natural Neighbour algorithm (nnggridr), which should be used to interpolate the majority of missing heights, and a trend analysis/smoothing transform, which should be used for filling in the last few points once the majority of heights have been interpolated.

The Interpolation process

You should broadly follow the steps outlined below:



Define a representative set of points, for example using the contour line tools. See the item on interpolation considerations below for more information.



Select the interpolation tool from the button bar and click and drag to define an area to be interpolated. After the mouse button is released a dialog box will be displayed to prompt if interpolation is to be started. Fill in the appropriate parameters for nearest neighbour interpolation (see below, but these will be the defaults when using the interpolation tool for the first time), and press OK to commence. Whilst calculating a dialog box will be displayed showing progress and allowing cancellation of the calculation.



Continue selecting areas for interpolation until the majority of points have been defined. You should aim for 95-98% coverage. You will probably find that the best strategy is to restrict the nearest neighbour algorithm to interpolation only first, then use extrapolation to fill in remaining areas. However, you are likely to miss a few points, and the following step is used to ensure that all heights have been defined.



Finally click the mouse anywhere on the canvas to start interpolation again. However this time select the Trend Analysis/Smoothing radio button, then click on OK. This will fill in and remaining undefined points using trend analysis interpolation. Smoothing defaults to off, but you may find it useful to apply to correct any anomalous heights.

The Heights Interpolation Dialog

The following parameters may be set:

Use Nearest Neighbour/Trend Analysis

This pair of radio buttons determine which interpolation algorithm will be used. Controls not used by an algorithm will be disabled. Nearest Neighbour is selected by default.

Use calculated gradients

Used by Nearest Neighbour interpolation. Defaults to ON. Uses gradients to estimate the trends in the data when checked. For example, a rounded hilltop will be deduced if points are available around a hill, but not on top. If turned off gradients will not be used and a flat top will be deduced.

Optimize for speed

Used by Nearest Neighbour interpolation. Defaults to ON. Calculates faster by making more generous usage of memory. When turned off requires less memory but is significantly slower

Extrapolate

Used by Nearest Neighbour interpolation. Defaults to OFF. Enables extrapolation when checked. This is by its nature a tenuous proposition, and should be used with caution after the majority of the map heights have been defined directly or by interpolation. Note that it is advisable to define as many grid points as possible on the edges of the map, and particularly at the corners as this reduces the amount of extrapolation required.

Tautness Parameters #1 and #2

Used by Nearest Neighbour interpolation. These two parameters control the 'taughtness' of the generated surface around the points already defined. Increasing the value of parameter 1 increases the influence of the gradient, increasing the value of parameter 2 increases the area over which the influence of the gradient is felt. Reasonable ranges are 1 to 3 for parameter #1, and 5 - 12 for parameter #2.

Minimum Height

Used by Nearest Neighbour interpolation. The minimum height setting is available to help when defining sea coasts and other areas of water. For example, to define an island draw the appropriate contour lines and spot heights for the island, and an area of sea at zero height for two or more sample points around the coast before applying interpolation.

Trend Analysis

Used by Trend Analysis interpolation. Defaults to ON. Applies a trend analysis to the whole grid to fill in any undefined points.

Smoothing Transform

Used by Trend Analysis interpolation. Defaults to ON. Applies a smoothing algorithm to the whole grid to correct any anomalous points.

Interpolation Considerations

The proportion of defined to undefined sample points required depends on the kind of landscape being defined. For smooth, rounded hills or plains reasonable results may be obtained with 1 point in 30 or less. For more complex structures 1 in 10 or less is recommended. Interpolation is most accurate where the surface has few discontinuities - so for a valley with steep sides and a flat bottom placing two or three contour lines along the sides will be sufficient to derive the shape of the sides. However, in the absence of other information the interpolation function will assume a continuation of the sides to form an overdeepend vee, so you will need to block in some of the valley floor.

nngidr and Calculation Efficiency

Developed in this implementation by Dave Watson (contact PO Box 734 Claremont, WA 6010, [Australia](#)), this is probably one of the most effective algorithms of it's type available. However, although yielding excellent results, the time required to calculate interpolated values varies approximately with the square of the number of points. We found that in practise on a 486DX2-66 an area of up to about 8,000 points could be calculated without an unreasonable delay. Calculations on up to 20,000 points or more are certainly feasible if you are willing to allow for the time required Landscape Explorer will issue a warning if the calculation time required is likely to be excessive). However, it is faster to interpolate a large area by selecting smaller areas in a 'piece-meal' or 'patchwork' manner. You should do this initially with the extrapolate option turned off, returning to extrapolate any missing points before completion. Even so, you are likely to miss a few points and the trend analysis interpolation should be used to define these last few points.

Printing, Copying and Saving the View

Once you have produced an image you may wish to take a copy of the image for use elsewhere. Landscape Explorer provides the usual options of printing, copying to the clipboard, or saving as a .bmp file. These are accessed as follows.

File Menu

Print

Prints the current view of the map.

Printer Setup

Sets printer options for Landscape Explorer before printing. The available options depend on the printer you have selected.

Edit Menu

Copy (as bitmap)

Click and drag using the left mouse button to define a rectangular area of the landscape viewer window that will be copied to the clipboard.

The picture will be copied as a bitmap; better printing quality can usually be obtained using the Copy (as Metafile) function.

Copy (as metafile)

Copies the current view to the clipboard as a re-sizable metafile. You can paste this into any product that accepts a metafile format.

Unlike a bitmap image, a metafile contains the actual set of windows drawing instructions required to produce the final image. Metafiles are resolution-independent, so you will produce higher quality output using metafiles than using the copy (as bitmap) function.

View Map Menu

Save Picture

Saves the current image as a .lem Landscape Explorer map), .bmp (bitmap) or .wmf (metafile) file.

Save Picture As

Saves a new or existing picture as a .lem Landscape Explorer map), .bmp (bitmap) or .wmf (metafile) file.

Creating a Map from Imported Data

This is probably the easiest and most accurate method of generating a map although, with the exception of the xyz file import, only height data can be imported.

The procedure for importing data differs in detail according to the source file being used. However, in general the steps are:

- Start the [Map Definition module](#) by selecting Define Map from the Define Map menu.
- Select Import... from the Define Map menu. This displays a File Open dialog.
- Select the type of data source you wish to use from the File Type drop down list box.
- Select the import file.

Depending on the type of data source to be used an Import Parameters dialog box may be displayed. This is described in more detail in the sections on specific import source types below. Set any required parameters and click on OK. The data is then imported and displayed on the map canvas.

Once displayed imported data is handled in exactly the same way as directly enter data. You will probably want to add terrain information or possibly edit the imported heights data. The facilities available for doing this are described in the [Canvas toolbar](#) topic. In most cases you will let Landscape Explorer create a map of the correct size and grid point spacing using the data from the import file. Sometimes however it is necessary to import into a previously defined map (particularly with USGS DEM files).

See also:

[Analysing USGS DEM files](#)

[Importing ASCII text files](#)

[Importing USGS DEM files](#)

[Importing UK Ordnance Survey NTF files](#)

[Importing XYZ files](#)

Loading a Landscape Map

From the View Map menu select the View Projection item or press F2. A dialog box appears prompting for a *.lem file to open. Select a file and click on ok. A dialog box appears showing progress as the map is loaded.

The View Parameters dialog box appears. This is where the parameters which determine how the view will be drawn are set. In particular note the controls setting viewer and light source position, and the drop down list with available colour schemas. Make any alterations you require then press OK. A dialog box appears showing progress as the map is drawn. When complete a window is opened displaying the view. If you want to change any of the parameters used select the View Parameters... item from the View Map menu, or press Ctrl-F1.

The parameters available are described in more detail in the section detailing the View Parameters dialog box.

Landscape Explorer - An Overview

Landscape Explorer is an application for all those who want to understand the way the world's surface looks. It enables the user to create a three dimensional model of a landscape using data imported from digital data files or obtained directly from scanned map images.

Once created the model can be viewed from any position with a considerable degree of control over how it is presented. Drawings schemes available range from the realistic to the abstract, making Landscape Explorer applicable to a wide range of topographical problems. Landscape Explorer provides a considerable number of links to other applications such as graphics packages and GIS systems.

Landscape Explorer uses the MDI (Multiple Document Interface) model, and consists of two sub-applications, the Landscape Viewer module, which is used to examine a landscape surface, and the Map Definition module, used to define the characteristics of the surface to be explored.

Some Important Terms

Bitmap

A bitmap is an image made up of a rectangular array of pixels. Windows stores bitmaps as .bmp files.

Colour scheme

The method used to draw a landscape, for example Winter, Summer or Gradient schemes.

Colour settings schemas

A set of colours and names to be used for user-defined terrains, and the colours for standard terrains.

Drawing scheme

See Colour scheme.

Grid, Grid point

Landscape Explorer holds surface information in the form of a rectangular grid. The grid (sample) points hold the heights, whilst the grid (terrain) squares the type of terrain.

Map

The definition of a landscape understood by Landscape Explorer Maps are stored in .lem files and contain information about heights and terrains.

Map Definition Module

The screen used to define the shape and terrain of a landscape surface. Maps are subsequently viewed by the View Map Module.

Overlay Object

A vector object such as a line or circle that can be overlaid onto a drawing. See vector object.

Terrain, Terrain square

A terrain square is defined by the four enclosing grid points at each corner. The terrain in a terrain square may be labelled as being of a particular type, or left undefined.

View Map Module

The screen used to draw and view maps previously created by the Map Definition Module.

Viewing your First Landscape

From the View Map menu select the View Projection item or press F2. A dialog box appears prompting for a *.lem file to open. Select a file and click on ok. A dialog box appears showing progress as the map is loaded.

The View Parameters dialog box appears. This is where the parameters which determine how the view will be drawn are set. In particular note the controls setting viewer and light source position, and the drop down list with available colour schemas. For now however just press OK. A dialog box appears showing progress as the map is drawn.

When complete a window is opened displaying the view. If you want to change any of the parameters used select the View Parameters... item from the View Map menu, or press Ctrl-F1.

The parameters available are described in more detail in the section detailing the View Parameters dialog box.

Projection Viewpoint

This describes the viewer's position in terms of altitude and azimuth. Altitude may range from 0 to 90 degrees where 0 is horizontal with and 90 vertically above the map. Azimuth ranges from 0 to 359, corresponding to the compass bearing. The red lines in the feedback controls to the right of the slide bars indicate the viewer position.

Light Source Position

This describes the position of the light source in terms of altitude and azimuth in a similar manner to that described for the Projection Viewpoint above. The blue lines in the feedback controls to the right of the slide bars indicate the viewer position.

Colour Schemes

Landscape Explorer offers a variety of colour schemes for generating the landscape image. Unless specified otherwise all the following use 256 colour palettes, although Landscape Explorer will take advantage of the additional colours if you are using 64K or True Colour graphics.

Contour (gradual)

Draws the projection coloured according to altitude using a graduated colour scheme. Light source and terrain information are ignored.

Contour (stepped)

Draws the projection coloured according to altitude. The scheme used is the same as that in the Map Definition Module (which references the standard windows 16 colour palette). Light source and terrain information are ignored.

Desert

Draws the projection to give an impression of a hot desert landscape. Includes light source and terrain information.

GIS Framework

Draws the projection with grid squares coloured according to terrain type, but with no shading (e.g. light source information is ignored). Will be of particular interest to professional users who wish to show the distribution of geological features, soil types, etc. Usually a grid is displayed with this scheme.

Mono

Draws the landscape in greyscale. Useful if you wish to print the image on a mono printer.

Summer

Draws the projection to give an impression of a temperate climate landscape in summer. This and the following winter colour version are probably the best options for presentation-quality work where an overlay is not available, and give excellent results with colour printers. Includes light source and terrain information.

Summer (16 Colour)

The same as the Summer colour scheme described above, but uses the standard windows 16 colour palette only.

Winter

Draws the projection to give an impression of a temperate climate landscape in winter with snow covering the higher ground. Includes light source and terrain information. The snow covering can be adjusted by clicking on the schema details button.

Winter (16 Colour)

The same as the Winter colour scheme described above, but uses the standard windows 16 colour palette only.

Wireframe

Draws the grid squares as simple open quadrangles. Light source and terrain are ignored.

Background

Specifies the window background. Choice of a white, black or 'blue sky' background

Schema Details

Used to specify additional details for colour schemes. The button is activated with the BMP overlay and winter colour schemes.

Vertical Scaling

The default setting (1.00) draws the projection completely to scale. However with flat landscapes it may be useful to exaggerate changes in height. Moving the slider to the right increases the vertical scaling by a factor of up to five times. Similarly moving to the left decreases the scaling, down to a minimum of one fifth the true height.

Magnification

The default setting (1.00) sizes the projection to fit comfortably within the window. This can be changed to give a larger or smaller drawing by suitable positioning of the slider bar. A range of 20% to 100% of default size is available.

Perspective

Allows the user to exaggerate or relax the perspective. A value of 1.0 gives a 'Natural' looking perspective. Lower values exaggerate the perspective, higher values relax it.

Adding a Grid

Superimposes a grid on the landscape: select black, grey or white from the drop down box to include - this feature is particularly useful with the framework and BMP overlay schemes. Leave as the default (none) to omit the grid. Note that this is not effective with the Wireframe scheme, which always draws the grid in black. The grid draw corresponds to the map grid specified in the [Map Definition module](#).

Colour Settings

These radio buttons allow the user to choose between using the current default colour settings schema, or that previously associated with this map (if any).

Customise Terrain Colours

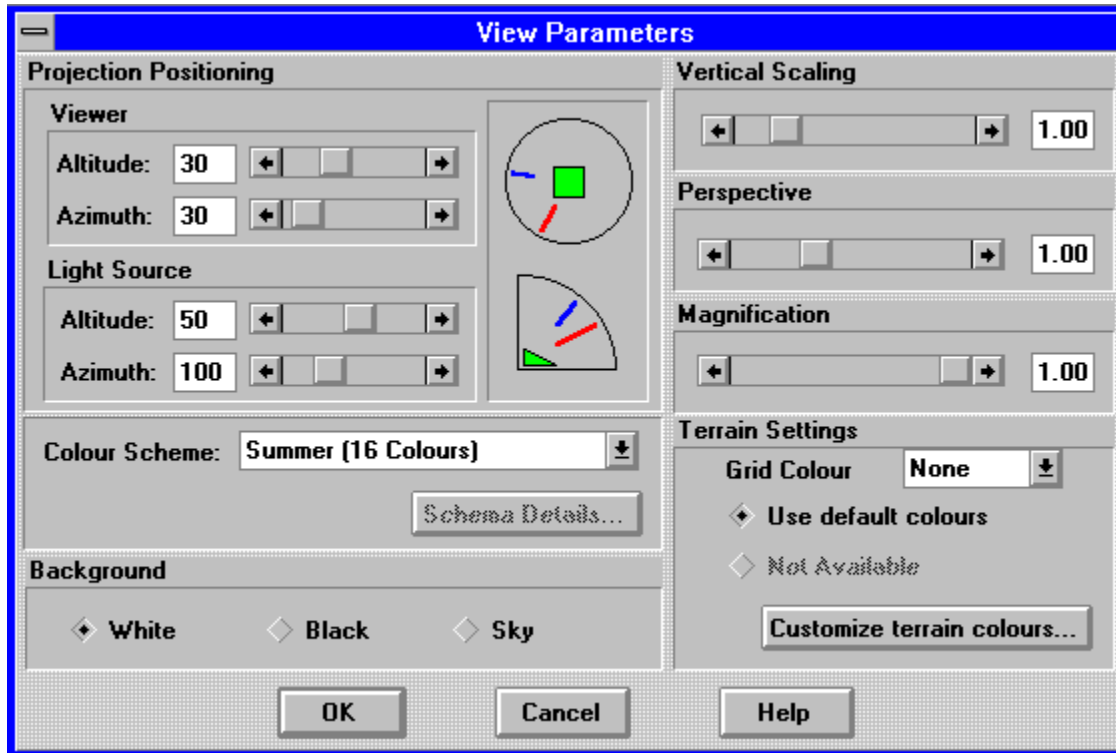
The button accesses the Colour Settings dialog, and may be used to modify terrain colours. Note that unless the GIS Framework scheme is selected, user-defined terrain colours are shown using a 16 colour dithered palette. With the exception of water, which is always rendered correctly, making major changes to standard terrain colours can give unpredictable results when using schemes other than GIS Framework and not working in 64K or True Colour graphics.

See also

[Using colour settings schemas](#)

View Parameters

Click on the area of the view parameters dialog you are interested in, or choose from the topic list below.



[Adding a grid](#)

[Changing the magnification](#)

[Changing the perspective](#)

[Changing the vertical scaling](#)

[Choosing a colour scheme](#)

[Choosing terrain colour settings](#)

[Customizing terrain colours](#)

[Setting the light source position](#)

[Setting the background colour](#)

[Setting the viewpoint](#)

[Specifying schema details](#)

The Map Definition Module

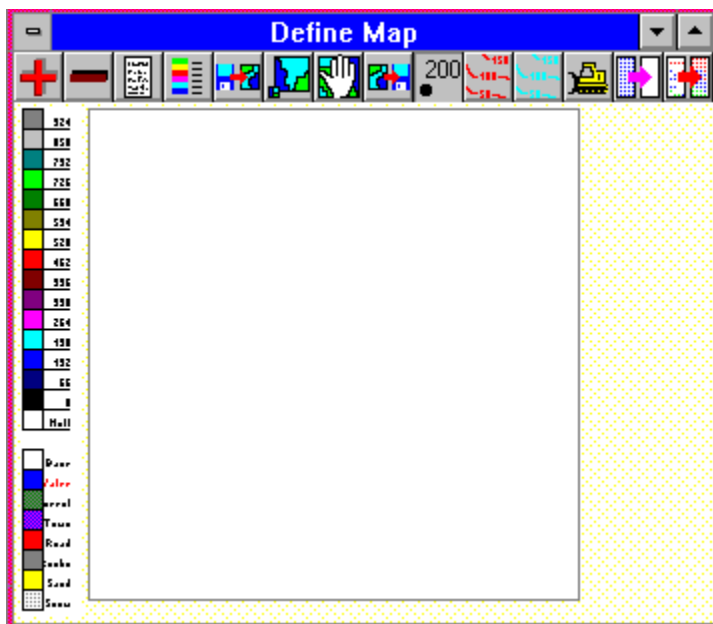
Before viewing a landscape you must define the shape and contents of the surface that you wish to examine. Landscape Explorer holds surface information in the form of a rectangular grid. The grid (sample) points hold the heights, whilst the grid (terrain) squares the type of terrain.

The grid dimensions may be defined in kilometres, miles, or metres, with grid point spacing in metres, feet, or tenths of a metre respectively. Maps must be defined with between 400 and 63,000 sample points. Realistic looking landscapes usually require 10,000 sample points or more. However, very large maps are slower to manipulate and draw, and for most purposes between 10,000 and 25,000 points is probably the best trade-off. Data is stored in *.lem files, usually referred to as maps.

To create a map for a landscape surface each sample point must have its height set. There are two main ways of doing this: data may be imported directly from digital files, such as Ordnance Survey NTFs, or alternatively the information may be captured from a scanned image of a topographic map.

The Module is activated by choosing Define Map from the Options menu. Only one copy of this window may be open at any one time.

The displayed window has three main parts: a Toolbar that gives access to the tools you will require to define the map; a Parameter Display area down the left hand side of the window which shows the current colour coding for heights and terrain types; and an initially blank area representing the 'Canvas' used to define the map. An example is shown below, click on each area for more details.



See also:

[Creating a map from a scanned image](#)

[Creating a map from imported data](#)

[Creating a new map](#)

[Exporting map data](#)

The Canvas

The Canvas can display four types of information: sample point heights, terrain types, overlay objects, and a background bitmap. It is possible to disable the display of any of these items using the Map Status dialog.

Sample Points

Sample or Grid points are displayed as small solid squares. The precise size of the square will vary depending on the display size of the map canvas area but should be optimised to display a large enough square for the colour to be apparent whilst remaining small enough so as not to obscure any background bitmap although this may not be possible with very large maps. No squares are shown for undefined heights (unless using the interpolation tool and the show null heights option has been set in the map status dialog) and sample points at sea level (zero metres or feet) are always shown as single points. Landscape Explorer uses a range of 15 solid colours to indicate into what range the height of a sample point falls. The current ranges and associated colours are shown in the Parameter Display area to the left of the map canvas. You may adjust the total displayed range using the Display Parameters tool. The scale self-adjusts when loading or importing data.

Terrains

These are displayed by outlining the squares of any particular terrain in the corresponding colour. There are eight different pre-defined types of terrain, default or base, water, wood, town, road, rock, sand and snow/ice. A further 16 terrains types are available for definition by the user.

Unless explicitly defined otherwise, all grid squares are assumed to have the default terrain (in most colour schemes used by the Landscape Viewer this corresponds to low level vegetation) which is not displayed on the canvas. Any group of grid squares that does not have the default terrain is shown outlined with the appropriate colour.

Overlay Objects

These are items such as lines and circles that will be drawn on top of the landscape surface. They are handled in a very similar manner to drawing objects in a CAD program.

Background Bitmap

A background bitmap is used when creating a map from a scanned image. A windows bitmap (.bmp) file is placed 'behind' the canvas and used as a guide for designating heights and terrains

The Parameter Display Area

The Parameter Display area, drawn to the left hand side of the canvas, shows the current colour coding for heights and terrain types.

The sequence of colours for heights is fixed but the effective range may be changed using the Set Parameters tool from the toolbar. [Landscape Explorer Pro](#) will automatically adjust the effective range when loading old maps, importing data, or after interpolating heights.

The eight standard terrains are displayed below the heights. The colours used for all of these apart from the base type may altered with the Colour Settings dialog, available from the Options menu. The description of the active terrain type is written in red. This may be altered by clicking on an alternative, or by using the Set Parameters tool. This second method also gives access to the user defined terrain types.

Creating a Map from a Scanned Image

One of the most powerful features of Landscape Explorer is its ability to create a three dimensional model using information obtained from a topographic map (i.e. one with contour lines).

Capturing sufficient information from a map to define how a landscape surface looks is obviously a considerably more difficult problem than simply importing data from a file. As all points in the map grid must be defined, creating a typical map involves defining the heights at over 10,000 grid points.

Fortunately Landscape Explorer has been designed to address and simplify this problem. The strategy used is to define a sub-set of heights, typically along a set of contour lines, then use a set of interpolation functions to calculate the undefined heights. Remarkably good results can be achieved using this approach.

To help define the original sub-set of heights Landscape Explorer allows the use of a scanned image as a template. The quality of this scan is of crucial importance in obtaining good results and you should attempt to produce the clearest image you can. If you intend to use the auto-contour trace tool, some time spent 'cleaning up' the image using a program such as paintbrush is recommended.

Typical steps to define a map

To define a new map the user would typically go through the following steps...



Enter the map definition module by choosing define map from the define map menu.



Create a new map of the appropriate size and grid spacing.



Use the display parameters tool to display a full range of colours for the variation in heights expected.



Import and size an image of the original paper map as a background bitmap using the load background bitmap and set background bitmap magnification tools. This would typically be created as a .bmp file using a scanner.



Define a sufficient set of heights to give a reasonable definition of the shape of the landscape surface - typically by using the manual contour trace, auto contour trace, set spot height and set heights level tools.



Use the interpolate heights tool to fill in undefined points.



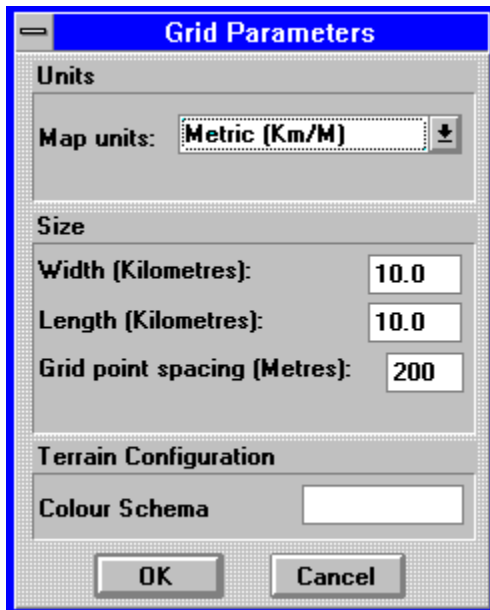
Define any areas that do not contain the default terrain type (low vegetation) using the set terrain by square and set terrain by area tools. You might also want to use the flood with water tool.



Save the map and view using the landscape viewer module.

Creating a New Map

You must be in the Map Definition Module. Select 'New Map' from the Define Map menu and select the appropriate parameters from the dialog box.



See also

[Creating a map from a scanned image](#)
[Creating a map from imported data](#)

Map Units

This drop-down list is used to select the measurement units that will be used. Once a map has been created these cannot be changed. The following are available:

Metric

Map side lengths in kilometres. Grid point spacing and heights in metres.

Imperial

Map side lengths in miles. Grid point spacing and heights in feet.

Setting the Map Size

Enter the required length and width of the map, and the distance between grid points. Note that integer values only are accepted.

Terrain Configuration

The colour settings edit box allows you to set a default colour settings to be used by the map. This should be entered as a single word of up to 8 characters - for example 'standard' would be an acceptable colour settings scheme name. You will probably wish to set up a number of standard schemes to cover sets of maps showing common types of data, for example you may have a set called 'glacial' to cover maps showing glacial soil types, 'alluvial' for alluvial soil types, etc. Your schema name should correspond to that of a .CFG file set up using the Colour Settings dialog. For further details see the explanation about 'Saving and Using Colour Settings Schemas' under the Colour Settings topic.

Landscape Explorer Maps

Maps are stored in .lem files and contain information about heights, terrains, overlay objects and any annotations added.

Maps are created using the [Map Definition module](#). They may be created either from digital data files, such as USGS DEMs, or directly from a scanned image of a topographic map.

Dimensions may be specified in metric or imperial units, and in sizes ranging from 1000 Kilometres down to 20 metres.

Landscape Explorer maps are defined as rectangular grids. Height information is specified for each grid (or sample) point, whilst terrain information is held for each grid square. A map may contain up to 116,300 grid points.

See also

[Creating a new map](#)

[Creating a map from a scanned image](#)

[Creating a map from imported data](#)

Using Colour Settings

Landscape Explorer offers considerable control over how terrains are displayed. The program uses two types of terrains, standard and user-defined. Both types are controlled by the Colour Settings dialog. If this dialog is accessed from the [View Parameters dialog](#) colour changes will only apply to the view being drawn. Alternately, if you access the dialog from the Options menu changes will be applied to the global program settings - thus affecting the [map definition module](#) and the defaults for any new views drawn.

Standard Terrains

There are 8 standard terrains, corresponding to pre-defined terrain types such as water and forest. You may alter the colours used for all but the base colour type, but the names are fixed.

User Terrains

Up to 16 user terrains may be defined, and unlike the standard terrains you may specify both the colour and names of these terrains. User terrains can be imported in .XYZ files - see import xyz for details.

Storing and Using Colour Setting Schemas

Colour Settings can be stored as schemas. You can store and use schemas at several different levels. Landscape Explorer loads a default set of colours at start-up, and you can save any set of colours as these defaults using the Save button in the Defaults group box. The Reset button in the same box restores the standard program defaults.

You can also save schemas in a .CFG file. Use the Save As button in the File group box to do this. You can load a previously saved schema using the Load button in the same group box. As described above, changes made in the Colour Settings dialog are applied globally if the dialog is accessed from the menu, but only locally to the current view if accessed from the [View Parameters dialog](#).

You can also associate a schema with a map file - this can either be done on creation using the New Map or one of the import dialogs, or for an existing map using the [map status](#) dialog. The schema name corresponds to that of a .CFG file, and the program looks for this file in either the current directory or that specified by the Directories dialog.

See also:

[Creating a new map](#)

[Map status](#) dialog

[Setting directory paths](#)

Setting Directory Paths

This displays a dialog prompting for the path to the directory containing the colour schema (.CFC) files. If this is left blank it will use the directory from which the program was run.

See also:

[Using colour settings schemas](#)

BMP File Pattern

A pattern for the set of bmp files to be created. Enter directly or click the ellipsis box to browse. You should enter the file in the format filexx.bmp, where the xx characters will be overwritten by a series of numbers starting at 00.

Thus entering testxx.bmp with a step of 90 degrees will result in four files - test00.bmp to test03.bmp.

Frame Rotation

The number of degrees to rotate the model between each frame. 10 degrees or less gives reasonably smooth animation, 20-30 degrees is acceptable first time testing.

Frame Size

A set of three radio buttons used to select the size of the frames written to the bmp files.

Schema

The colour schema edit box allows you to set a default colour schema to be used by the map. This should be entered as a single word of up to 8 characters - for example 'standard' would be an acceptable schema name. You will probably wish to set up a number of standard schemes to cover sets of maps showing common types of data, for example you may have a set called 'glacial' to cover maps showing glacial soil types, 'alluvial' for alluvial soil types etc. Your schema name should correspond to that of a .CFG file set up using the Colour Settings dialog. See [Using colour settings schemas](#) for details.

Object Display

A set of check boxes which allow the user to choose which of the background bitmap, height, terrain and object overlay data to display. However as the data type manipulated by the currently selected tool must be displayed, one of these check boxes may be disabled.

Interpolation Display

When checked undefined heights are displayed in orange when using the interpolation tool.
Leave unchecked to omit display of null heights.

Auto-contour Tolerance

Set the colour tolerance used by the auto contour trace tool. When set to low the contour will be traced only along pixels of exactly the same colour. Increasing the tolerance increases the range of colours that will be recognised as belonging to the same contour.

Set Default Spot Height

This tool is only available when the map is displayed zoomed. Holding the mouse button down and moving it over the canvas sets grid points to the last defined height.

Set Default Terrain

This tool is only available when the map is displayed zoomed. Holding the mouse button down and moving it over the canvas sets terrain squares to the current selected terrain.

American Registrations

Landscape Explorer can be registered with either of our two registration agents in America: [PsL](#) and [Pik A Program](#). Both agents offer payment by credit card and can handle both Landscape Explorer and [Landscape Explorer Pro](#). Click on the agents name for ordering details.

[Pik A Program](#) keep stocks of the programs themselves, and will fill your order directly. [Pik A Program](#) cannot take orders outside the USA and Canada.

Alternatively [PsL](#) will take your order then notify [WoolleySoft](#). We will then mail out the program directly from ourselves.

Australian Registrations

Landscape Explorer and Landscape Explorer Pro are available in Australia from

BUDGETWARE
PO BOX 496
NEWTOWN NSW 2042
AUSTRALIA

Phone (02)519-4233 Fax (02)516-4236

Payment by cheque, money order, Bankcard, Mastercard and Visacard.

Prices are:

Landscape Explorer: AU\$99

Landscape Explorer Pro: AU\$260

Shareware -> Pro upgrade: AU\$180

Prices include shipping and handling.

Registering via CompuServe

Use the Shareware Registration service (GO SWREG). You can register both Landscape Explorer and Landscape Explorer Pro and you may find the following information useful to locate the programs.

Landscape Explorer

Author: Kevin Woolley
CompuServe ID: 100332,2104
Program Title: LANDSCAPE EXPLORER
Registration ID: 2099

Registration is \$60 + \$5 if outside Europe.

Landscape Explorer Pro

Author: Kevin Woolley
CompuServe ID: 100332,2104
Program Title: LANDSCAPE EXPLORER PRO
Registration ID: 3882

Registration is \$180 + \$5 if outside Europe. Landscape Explorer Pro.

Belgium/Dutch Registration

Registered versions of Landscape Explorer and Landscape Explorer Pro are available in Belgium and the Netherlands from:

CopyCats
Postbus 1088
1700 BB Heerhugowaard
The Netherlands
Tel/Fax +31.2207.45993 (+31.72.5745993 after 10/10/95)
Postbank (NL) 43.28.577 Postcheque (B) 000-1656064-80

Prices are:

Landscape Explorer: Dfl 120.00 / 2200 Bf
Landscape Explorer_Pro: Dfl 290.00 / 5500 Bf
Shareware -> Pro upgrade: Dfl 215.00 / 4100 Bf

Registration with Pik A Program

You can get a printed copy this registration form by select PrintTopic from the File Menu.

You may mail, fax, or phone in your order. You will get faster service by sending this order form directly to Pik A Program, Inc., the American distributor for Landscape Explorer. USA and Canada orders only. Please note that Canadian orders must be paid in US\$.

Please send payment to Pik A Program, Inc. at:

Pik A Program (tm)
TOLL FREE (ORDERS ONLY)
1-800-TOREGISTER 1-800-867-3447
13 Saint Marks Place
NY, NY 10003
USA
Telephone (212) 598-4939
Fax (212) 228-5879

(Name)

(Company)

(Street1)

(Street2)

(Town)

(State)

(Zip)

(Telephone)

(Fax)

(Country if outside USA)

You will get a short printed manual, free product support via phone, mail, or email on CompuServe or the internet, and a disk containing the latest version of Landscape Explorer. The registration fee is \$60 plus \$4.00 for shipping.

We also have available Landscape Explorer Pro which sells for \$180.00. and offers additional features aimed at the professional user and is delivered on cdrom,

All disks will be sent on 3.5" high density (1.44 MByte) unless 5.25" disks are specifically requested. Landscape Explorer Pro is only available on cdrom.

QUANTITY	ITEM	PRICE	EACH (US \$)	TOTAL
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	Landscape Explorer	US\$	60.00	
	<u>Landscape Explorer Pro</u>	US\$	180.00	
	Shareware -> Pro upgrade	US\$	140.00	
	Shipping	US\$	4.00	

TOTAL

Registering via PsL

CREDIT CARD ORDERS ONLY

Prices are:

Landscape Explorer: \$60

Landscape Explorer Pro: \$180

Shipping: \$5

You can order with MC, Visa, Amex, or Discover from Public (software) Library by calling 800-2424-PsL or 713-524-6394 or by FAX to 713-524-6398 or by CIS Email to 71355,470. You can also mail credit card orders to PsL at P.O.Box 35705, Houston, TX 77235-5705.

THE ABOVE NUMBERS ARE FOR ORDERS ONLY.

Any questions about the status of the shipment of the order, refunds, registration options, product details, technical support, volume discounts, dealer pricing, site licenses, etc, must be directed to WoolleySoft at the address given for direct registration above.

To insure that you get the latest version, PsL will notify us the day of your order and we will ship the product directly to you.

The PsL reference number for both Landscape Explorer and Landscape Explorer Pro is 11239.

WoolleySoft

WoolleySoft is run by Kevin Woolley, a professional Information Technology specialist with over 10 years experience of computer systems and applications at all levels from programming to systems and business analysis. Particular areas of expertise include Windows development, graphics processing, GIS and database systems, and scientific applications. Kevin is an author member of the Association of Shareware Professionals (ASP) - please take a few seconds to view the ASP's Ombudsman statement
WoolleySoft is committed to developing stimulating and informative shareware applications. However we can also undertake custom software development and offer consultancy on many aspects of computer systems and business. If you are interested please contact WoolleySoft at

WoolleySoft,
Humblesknowe Cottage, Ramoyle,
Dunblane, Perthshire,
Scotland
Tel. 0786 825406

Kevin can also be reached by e-mail at 100332,2104 on CompuServe, or 100332.2104@compuserve.com from the internet.

When not working with computers Kevin's time is taken up looking after his young son and daughter and climbing all the mountains in Scotland. One day he hopes to move to the end of a ISDN line on the west coast and combine all three!

How To Register

This application is Shareware. If you find it useful you should register the product with WoolleySoft. Why register? Well, here are a few good reasons:

1. To bypass the sign-on and sign-off dialogs without a key press.
2. To get a short 'Getting Started with Landscape Explorer' printed manual.
3. To get rid of "reminder text" in the program title bar.
4. To get rid of "reminder text" on printouts, clipboard output, and output files.
5. To get additional drawing schemes - 256 Colours, Winter, Desert , Polar, Contour etc.
6. To get full technical support.
7. To get the latest version of the program, which may have new features that you need.
8. To get notice of program upgrades.
9. To get additional DEM and LEM files (optional).
10. To be able to convert existing maps if the map file format changes. The unregistered version of Landscape Explorer lacks the conversion routines required to read files created by earlier versions.
11. To influence they way Landscape Explorer develops.
12. It's the right thing to do.

Product support is available by e-mail on the internet and CompuServe as well as by telephone and standard mail. Please see the Product Support topic for full details of our Support Policy.

This program was developed by an author member of the Association of Shareware Professionals (ASP) - please take a few seconds to view the ASP's Ombudsman statement.

You can register directly with WoolleySoft, or if you are not in the UK you may prefer to use one of the agents in the countries listed below. If you have a CompuServe account you can register directly on-line using the SWREG facility.

Australia

Italy

The Netherlands/Belgium

USA/North America

Registering With WoolleySoft

Direct registration with WoolleySoft costs £40 or \$65 including shipping. Send your order to

Humblesknowe Cottage
Ramoyle, Dunblane
Perthshire. Scotland FK15 0BA.
Tel. 0786 825406.
E-Mail 100332.2104@compuserve.com

We cannot accept credit/debit cards (but our Australian and North American agents can). Non-British orders should prefably pay by a cheque drawn against a British bank in UK £ (foreign banks can easily arrange this). But cheque drawn against a US bank in US\$ or international money order are also acceptable. Cheques in other currencies are also accepted, but an additional charge is made. Please make your cheque etc. payable to WoolleySoft.

An order from is included with the distributed files. We can also provide consultancy and

other services - see [WoolleySoft Services](#) for details. You may also like to consider our professional version of the program - [Landscape Explorer Pro](#).

Modulo di registrazione per l'Italia.

Potete registrarvi a Landscape Explorer direttamente in Italia corrispondendo le tariffe riportate sotto tramite vaglia o busta chiusa raccomandata a:

Simone Bazzi
Via Nomentana 293
00161 Roma

Si consiglia anche di allegare il seguente modulo (o di spedirlo via FAX al numero 06-68.80.20.51) per sveltire le operazioni di registrazione. Ad accredito avvenuto vi verra` immediatamente spedita la copia del programma da voi richiesto. Inoltre, per ogni questione o supporto tecnico sui programmi, potete far riferimento al numero di FAX sopra menzionato.

Per registrarvi a questo programma, ed agli altri da noi supportati, e per avere un supporto continuo (gratuito) potete collegarvi via modem alla BBS di Roma Agora` Telematica, che risponde ai seguenti numeri di telefono:

06-69200112 (10 linee) 300 > 14.400 MNP5 N81 V42 V42bis
06-69920412 (10 linee) 300 > 14.400 MNP5 N81 V42 V42bis
06-6990532 (10 linee) 300 > 14.400 MNP5 N81 V42 V42bis

Io sottoscritto _____, residente in _____

Via/Piazza _____ n. _____ CAP _____

Telefono _____ FAX _____

E-mail _____

desidero ricevere le versioni registrate dei seguenti pacchetti Software (contrassegnare con una croce):

Landscape Explorer..... Lit. 120.000 (IVA inclusa)

Landscape Explorer Pro..... Lit. 295.000 (IVA inclusa)

Landscape Explorer Upgrade
(da versione normale a Pro)..... Lit. 225.000 (IVA inclusa)

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TOTALE..... _____

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Landscape Explorer Pro

To meet the demand for a version of Landscape Explorer tuned to the needs of serious users we are now producing Landscape Explorer Pro as a sister product to Landscape Explorer. Landscape Explorer Pro offers the following enhancements:

Full Manual

Full printed manual.

Overlays

Landscape Explorer Pro can handle two different kinds of overlay data. Firstly images such as satellite photographs or maps can be superimposed directly onto the surface. Secondly objects such as lines and circles can be defined which can be superimposed on both image overlays and the other drawing colour schemes.

Higher Resolution

Landscape Explorer is limited to a maximum of 16,300 grid points, which equates to a grid of approximately 125 x 125 points. Landscape Explorer Pro extends this to 68,000, or 258 x 258. Apart from general benefits, this also allows the program to handle VistaPro maps.

Faster

The program is optimised to use a maths-coprocessor. Drawing speeds are increased by at least 30%, and many times faster for some processes.

Export Vistapro DEMs

Map height data can be exported as VistaPro DEM files. This offers a simple way of defining realistic new DEMs for Vistapro.

Import Vistapro Data

Data files exported from Vistapro can be imported into Landscape Explorer Pro. In conjunction with the export function above this provides a method for Vistapro users to supplement the relatively poor editing facilities available in Vistapro.

Export DXF files

Map grid data can be exported in AutoCAD's DXF file format. This facility was developed in conjunction with AutoCAD release 12, where it gives very impressive results in conjunction with AutoCAD's rendering facilities.

Please note that whilst the DXF format used should be compatible with other CAD packages, no guarantee can be made.

Micro-Maps

Small scale maps are supported in Landscape Explorer Pro. These are defined with map side lengths in whole metres, and grid point spacing and height values in metres and tenths of metres. Particularly suitable for archaeological and other small scale applications.

Annotations

Single line annotations may be added to maps displayed by the Viewer Module.

How To Order

Landscape Explorer Pro costs £100 or US\$180 including shipping. Orders may be sent to [WoolleySoft](#) at

Humblesknowe Cottage
Ramoyle, Dunblane
Perthshire. Scotland FK15 0BA.
Tel. 0786 825406.
E-Mail 100332.2104@compuserve.com

We cannot accept credit/debit cards (but our Australian and North American agents can). Non-British orders should pay by a cheque drawn against a British bank (foreign banks can easily arrange this), international money order or equivalent, or travellers cheques. Please make your cheque etc. payable to WoolleySoft.

An order form is included with the distributed files. We can also provide consultancy and other services

Orders for Landscape Explorer Pro can also be taken by our registration agents in Australia, Italy, The Netherlands/Belgium, and USA/North America, or using the SWREG service on CompuServe.

