Geostru Stratigrapher

1 GeoStru Software

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Thanks to GeoStru Software you can now use the most effective tools for your own profession. The GeoStru software represents a complete, reliable (the computation algorithms are the most technologically advanced in the research field worldwide), regularly updated, easy to use tool with an intuitive user interface.
Attention to customer service and the development of software using modern technologies allowed us to become one of the strongest companies in the field on international markets. The software – currently translated into eight languages – is compatible with international computation rules / normatives and it is one of the most used in over 50 countries worldwide.
GeStru is always present at the main exhibitions in the field, both in Italy and abroad SAIE Bologna, MADEEXPO Milano, GeoFluid Piacenza, ExpoEdilizia Roma, Restructura Torino, SEEBE Belgrad, Construct EXPO Bucuresti, EcoBuild Londra, Construtec Madrid, The Big 5 Dubai etc.
Today working with GeoStru is more than just buying software – it means having beside you a team of professionals willing to share their knowledge and experience for excellent results.

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The family of GeoStru products is, in fact, divided into several categories:

- Structures
- Geotechnics and geology
- Geomechanics
- In situ soil tests
- Hydrology and Hydraulics
- Topography
- Energy
- Geophysics

- Office

For further information about our products please visit our website http://www.geostru.com

Among the many services offered by GeoStru Software you can use the free service GeoStru Online that includes software applications on the web that will help you solve many different problems.

ISO 9001:2008 certification
CVI Italia s.r.l. awarded GeoStru Software the UNI EN ISO 9001 company certification on 1st June 2009, certificate no. 7007, for software design and sale.

1.1 Autoupdate

The software comes with an integrated auto-update system.

A few seconds after opening the software, by moving the mouse pointer on the indication of version (shown in the bottom right side of the main window: Geostru _._._._), the user can check whether or not it is available an update of the software.
If a message will warn the user about the availability of an updated version, the user can automatically update the software by clicking on the icon of the message.
In the event that there are no updates available, the message shown will be ''No updates available.''

1.2 Copyright

The information contained herein is subject to change without notice.
Unless otherwise noted, any reference to companies, names, addresses and data used as examples are purely coincidental and is intended only to illustrate the use of the product.
Compliance with all applicable copyright laws is the responsibility of the user.

1.3 Customer technical support service

For any queries regarding a GeoStru product:

- Consult the documentation and other printed material
- Consult the Help OnLine section
- Consult the technical documentation used for software development (Web Site)
- Consult the FAQ area (Web Site)
- Consult the GeoStru support services (Web Site)

It is active the new ticket support service developed by GeoStru Software in order to respond to our users support requests.
This service, reserved to registered users and owners of valid licenses, allows you to get answers to your requests regarding different aspects of your programs directly from our specialists (Web Site).

Web Site: www.geostru.com

1.4 Contact

Skype ID: **geostru_support_it-eng-spa**

Web: www.geostru.com

E-mail: geostru@geostru.com

See the contact page on the website for more information about our contacts and offices' addresses in Italy and abroad.

2 Utility

2.1 Conversion Tables

Converting slope inclination into degrees and vice versa

Inclination (%)	Angle (°)	Inclination (%)	Angle (°)
1	0.5729	26	14.5742
2	1.1458	27	15.1096
3	1.7184	28	15.6422
4	2.2906	29	16.1722
5	2.8624	30	16.6992
6	3.4336	31	17.2234
7	4.0042	32	17.7447
8	4.5739	33	18.2629
9	5.1428	34	18.7780
10	5.7106	35	19.2900
11	6.2773	36	19.7989
12	6.8428	37	20.3045
13	7.4069	38	20.8068
14	7.9696	39	21.3058
15	8.5308	40	21.8014
16	9.0903	41	22.2936
17	9.6480	42	22.7824
18	10.2040	43	23.2677
19	10.7580	44	23.7495
20	11.3099	45	24.2277
21	11.8598	46	24.7024
22	12.4074	47	25.1735
23	12.9528	48	25.6410
24	13.4957	49	26.1049
25	14.0362	50	26.5651

Forces conversion

From	To	Operation	Factor
N	kg	Divide by	9.8
kN	kg	Multiply by	102
kN	Tone	Divide by	9.8
kg	N	Multiply by	9.8
kg	kN	Divide by	102
Tone	kN	Multiply by	9.8

1 Newton (N) = 1/9.81 Kg = 0.102 Kg ; 1 kN = 1000 N

Pressures conversion

From	To	Operation	Factor
$Tons/m^2$	kg/cm^2	Divide by	10
kg/m^2	kg/cm^2	Divide by	10000
Pa	kg/cm^2	Divide by	98000
kPa	kg/cm^2	Divide by	98
Mpa	kg/cm^2	Multiply by	10.2
kPa	kg/m^2	Multiply by	102
Mpa	kg/m^2	Multiply by	102000

1 Pascal (Pa) = 1 Newton/mq ; 1 kPa = 1000 Pa

2.2 Database of soil physical characteristics

Soil	Minimum value	Maximum value
Loose sand	0.48	1.60
Average compact sand	0.96	8.00
Compact sand	6.40	12.80
Average compact clayey sand	2.40	4.80
Average compact silty sand	2.40	4.80
Compact sand and gravel	10.00	30.00
Calyey soil with qu< 2 Kg/cm^2	1.20	2.40

Soil	Minimum value	Maximum value
Calyey soil with 2< qu< 4 Kg/cm^2	2.20	4.80
Calyey soil with qu> 2 Kg/cm^2	>4.80	

Approximate values of Winkler's constant K in Kg/cm^3

Soil	Minimum value	Maximum value
Dry gravel	1800	2000
Wet gravel	1900	2100
Compact dry sand	1700	2000
Compact wet sand	1900	2100
Loose dry sand	1500	1800
Loose wet sand	1600	1900
Sandy clay	1800	2200
Hard clay	2000	2100
Semisolid clay	1900	1950
Soft clay	1800	1850
Peat	1000	1100

Approximate values of the volume weight in Kg/cm^3

Soil	Minimum value	Maximum value
Compact gravel	35	35
Loose gravel	34	35
Compact sand	35	45
Loose sand	25	35
Sandy marl	22	29
Fat marl	16	22
Fat clay	0	30
Sandy clay	16	28
Silt	20	27

Approximate values of the friction angle j, in degrees, for soils

Soil	Value
Sandy clay	0.20
Soft clay	0.10
Plastic clay	0.25
Semisolid clay	0.50
Solid clay	1
Tenacious clay	2÷10

Soil	Value
Compact silt	0.10

Approximate values of cohesion in Kg/cm²

Soil	Maximum value of E	Minimum value of E
Very soft clay	153	20.4
Soft clay	255	51
Medium clay	510	153
Hard clay	1020	510
Sandy clay	2550	255
Loess	612	153
Silty sand	204	51
Loose sand	255	102
Compact sand	816	510
Clayey schist	51000	1530
Silt	204	20.4
Loose sand and gravel	1530	510
Compact sand and gravel	2040	1020

Approximate values of the elastic module, in Kg/cm², for soils

Soil	Maximum value of n	Minimum value of n
Saturated clay	0.5	0.4
Not saturated clay	0.3	0.1
Sandy clay	0.3	0.2
Silt	0.35	0.3
Sand	1.0	-0.1
Gravelly sand commonly used	0.4	0.3
Loess	0.3	0.1
Ice	0.36	
Concrete	0.15	

Approximate values of the Poisson's ratio for soils

Rock	Minimum value	Maximum value
Pumice	500	1100
Volcanic tuff	1100	1750
Tufaceous limestone	1120	2000
Coarse sand dry	1400	1500

Rock	Minimum value	Maximum value
Fine dry sand	1400	1600
Wet fine sand	1900	2000
Sandstone	1800	2700
Dry clay	2000	2250
Soft limestone	2000	2400
Travertine	2200	2500
Dolomite	2300	2850
Compact limestone	2400	2700
Trachyte	2400	2800
Porphyry	2450	2700
Gneiss	2500	2700
Serpentine	2500	2750
Granite	2550	2900
Marble	2700	2750
Syenite	2700	3000
Diorite	2750	3000
Basalt	2750	3100

Approximate values of specific weight for some rocks in Kg/m^3

Rock	Minimum value	Maximum value
Granite	45	60
Dolerite	55	60
Basalt	50	55
Sandstone	35	50
Calyey schist	15	30
Limestone	35	50
Quartzite	50	60
Marble	35	50

Approximate values of the friction angle j, in degrees, for rocks

Rock	E		n	
	Maximum value	Minimum value	Maximum value	Minimum value
Basalt	1071000	178500	0.32	0.27
Granite	856800	142800	0.30	0.26
Crystalline schist	856800	71400	0.22	0.18
Limestone	1071000	214200	0.45	0.24
Porous limestone	856800	35700	0.45	0.35
Sandstone	428400	35700	0.45	0.20
Calyey schist	214200	35700	0.45	0.25
Concrete	Variable		0.15	

Approximate values of the elastic module and Poisson's ratio for rocks

3 Introduction

Stratigrapher is a program for the graphic/textual documentary representation, in columnar form, of results of field survey combined as opportune with other data as to the composition of a terrain to the required depth.
As a related matter, also well construction characteristics may form the subject to be recorded.

The representative model may be designed by the user utilizing a built in Template editor, that yields templates for representation of either penetrometric investigation or well construction, much as a word processing document templates model document presentation. Default templates are provided for each type (Well/penetrometric) and based on these the user is enabled to design personalized versions. Each template thereafter dictates the information requirement of that type.

The columnar representation permits to represent the lithologic characteristics of the strata, documentation of samples and analysis (Pocket, Vane test, % Core depth, R.Q.D., Ground water table, Open tube or Casagrande piezometer etc.) against a user tailored depth scale.

Patterns and bitmaps to characterize the individual lithotypes may be applied directly from attached, user modifiable, libraries (*lithotypes*). Further, a set of vector textures or colors can be used to characterize lithotypes.
The resultant columnar documentation can be saved and updated as required and is available, upon completion, for import into the stratigraphy of other GeoStru software such as Slope Stability Analysis, LoadCap, MP, etc.
Insertion (*Recording soil layers*) of information consists in selection of the relevant tool from a list and dragging it to the required column at the desired elevation.

4 Home

4.1 Heading

This command in the *Home-Edit* menu opens a window in which, company data, logo and general data regarding the project may be entered.

The characteristics of the headers are determined by the template document (see editor 11) used for the project.

4.2 Scale

The parameters for the *Depth scale* may be set in the window that opens at this command.
The variables to be declared are:

- Scale -the representation scale . i.e. 1:xxx
- Step - the step interval (for marks on the depth scale)
- Initial elevation - elevation at which to start the depth scale (and origin of depth/thickness data)
- Decimals - number of decimals to display

4.3 Add worksheet

The command *"Add sheet"* offers the possibility to add new worksheet to the project.

4.4 Modify elements

Every column element inserted in the various columns (lithology, description, GWT level, piezometer etc.) may be modified. Select the command *Modify element* in the *Edit* menu. This activates the function. While the function is active the pointer alters to a pointing finger whenever it is over an element (in a column).

To actually alter the element, click on it. This will cause a dialog window to be opened, in which the desired modifications may be applied.
Modify elements command remains active until deactivated (by pressing *Esc* key on the keyboard)

To delete elements select *Delete elements* command and click on the element to be deleted.

4.5 Template editor

Stratigrapher provides the mean of recording, archiving, and reuse of borehole data collection. Documentation is envisaged to take the form of multiple column documents in which each column records a type of data against a common depth scale.
Template editor is a tool whereby the model of such columnar documentation sheets may be user tailored. As such it provides tools for the design of the document by specifying: spaces for company data, project headers, column headers, column body and note & signature area, and column dimensions, aspect, etc. These specifications are stored in template files (extension .stl) and may be selected at will by the user. With the program are supplied two basic templates, one for penetrometric investigations and another for well description. When first started the software asks the user to choose a template to be loaded (that can be changed at any time using the command *Change template).*

The editor is available from the *Format* menu. The editor operates by modifying the current template. The changed template should then be saved under its new name, to become the new one.
The Editor displays the template in edit, and shows in the pane on the left an hierarchical tree list of the items that may be used to form the new template. The top level items are:

- **Page aspect**
  Enables sheet background color or background image to be specified.

- **Page Format**
  Set up page size and orientation. Size may be A4 or A3

- **Boxes**
  The program envisages that the sheet is divided into rectangular boxes (with/without border) for such items as logos, company data, document header, column headers, column body, and free text. This item enables the placing, aspect, borders, and size of these rectangular box areas to be defined. The user is advised to set a border on each box during design phase. Such borders are highlighted (red) when they are

the object of edit operations. If not required on the finished document, they may be removed after design completion.

- **Fonts**

  Font name, size, color, and whether bold for the textual elements can be defined within this item. When the element text to which the font applies is selected, it is highlighted (red) on the form.

- **Labels**

  They are used to customize the data (*constants and variables*) that will be displayed and managed on the model. For these data, it is necessary to indicate the location that is expressed in coordinates relative to the box on the sheet format chosen (mm). For example, if you enter the 1st line company data, the coordinate of the position is relative to the location of the upper left corner of the box Company data. Given the objective difficulty in determining the exact location where you want to place a text you can use the command "***use mouse***" and pointing directly to the wanted location on the model.

- **Columns**

  Lists the characteristic columns that can be inserted in the model. Both penetrometric and well types are selectable. Their order corresponds to the display order and cannot be altered.
  Column title, whether title is to be inserted vertically, and column width (mm) can be specified. Columns abut to each other and changing the width of one will reposition the following ones.

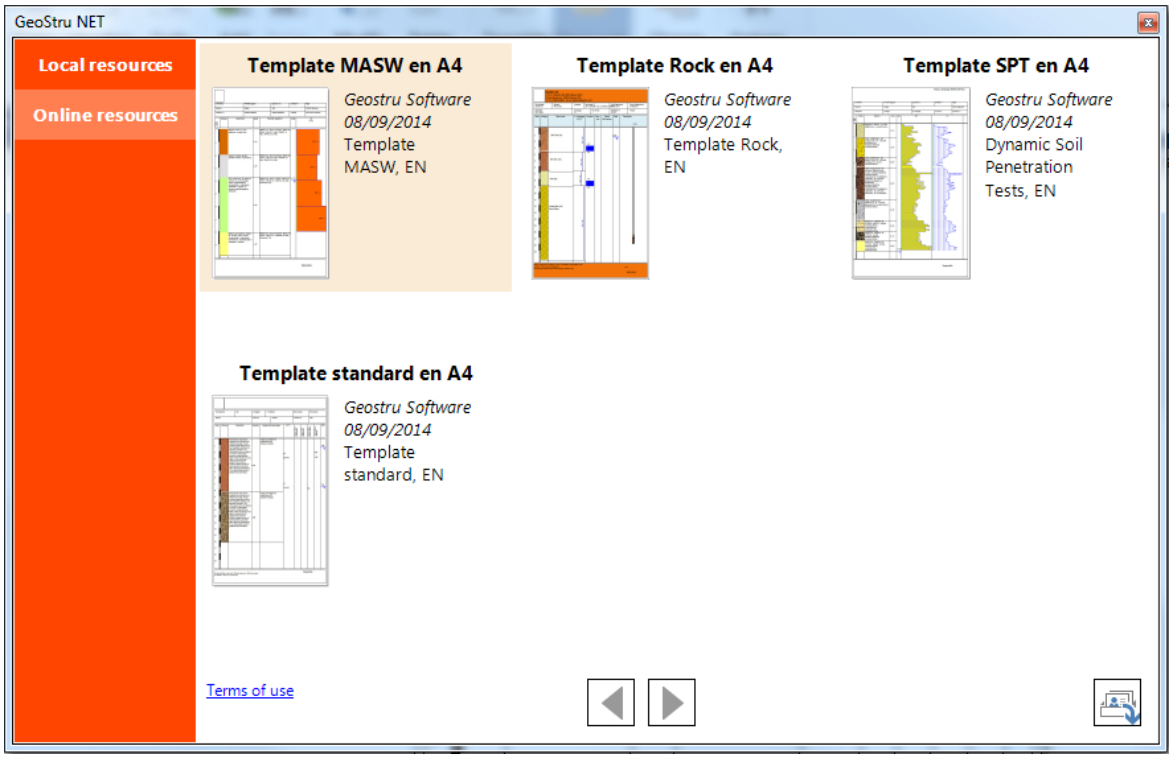
- **Dividing Lines**

  Dividing lines, up to a maximum of 20, may be inserted. A specific use is the division of the heading area into boxes for each item. When the element to which the font applies is selected, it is highlighted (red) on the form.
  The entries required are: Pairs of start and end vertices, line type and color. Lines are included or not by the use of the I checkbox. A mouse icon button enables the vertices to be selected with the mouse.

4.6 Open web template

On the Web there are different templates for different types of tests. If you have an Internet connection, click *Open web template* from the Home - Format menu, then select the desired model from those

available. This action will allow the program to launch the operations of downloading the chosen template and make it active for any customizations.



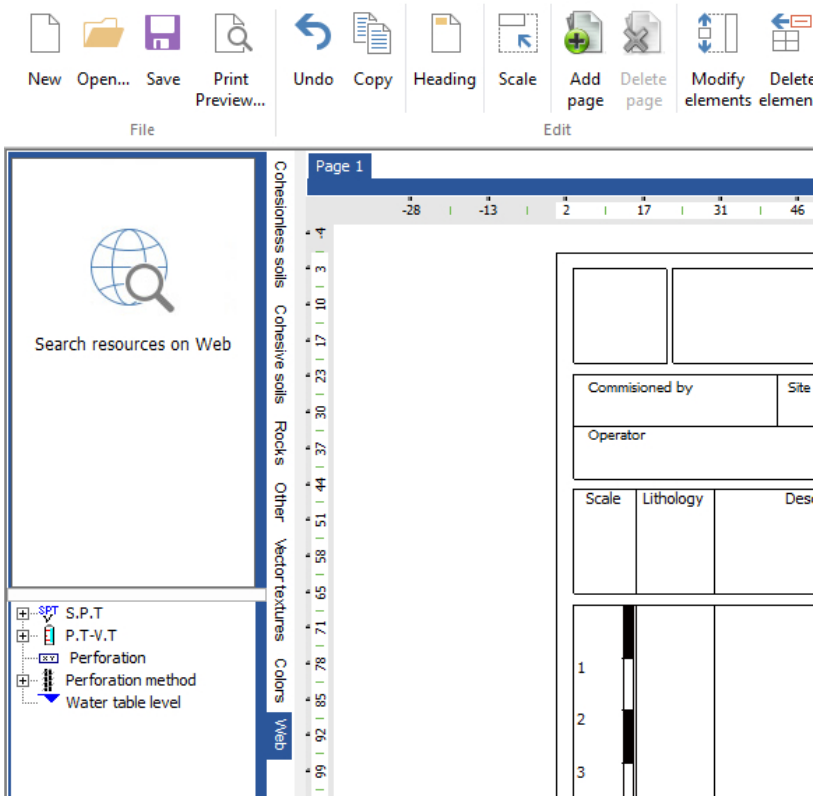
Some templates available online

4.7 Options

Textures path

In this pane, appear the paths to the folders that contain the images (textures), distributed in four folders for Cohesive, Cohesionless, Rocks, and Others, that may be used to symbolize various soil types.
When the program is installed these paths are initialized to the parent folder of the program (default: GeoStru). It is in this default folder that the textures provided by *GeoStru Software* are placed by default.
If the placing is other than default it will be necessary to update the paths so that they point to the effective textures folder.
The user may add personalized images or even photos as desired to the existing libraries.
Textures can also be downloaded from the web (see picture below). To start the download procedure click in the left side pane on "*Search resources on Web".* To add the texture on the stratigraphic column just

drag it with the mouse in the Lithilogy column of the template you are working on.



Search resources on web

Signed elev.

Select this check box to see the (-) sing on the model for the negative elevations.

Invisible legend

Select this option to hide the legend in the bottom of the stratigraphic model.

Lithologic layers options

Show elevation

Select this option to display the bottom elevation of an inserted layer.

Show thickness

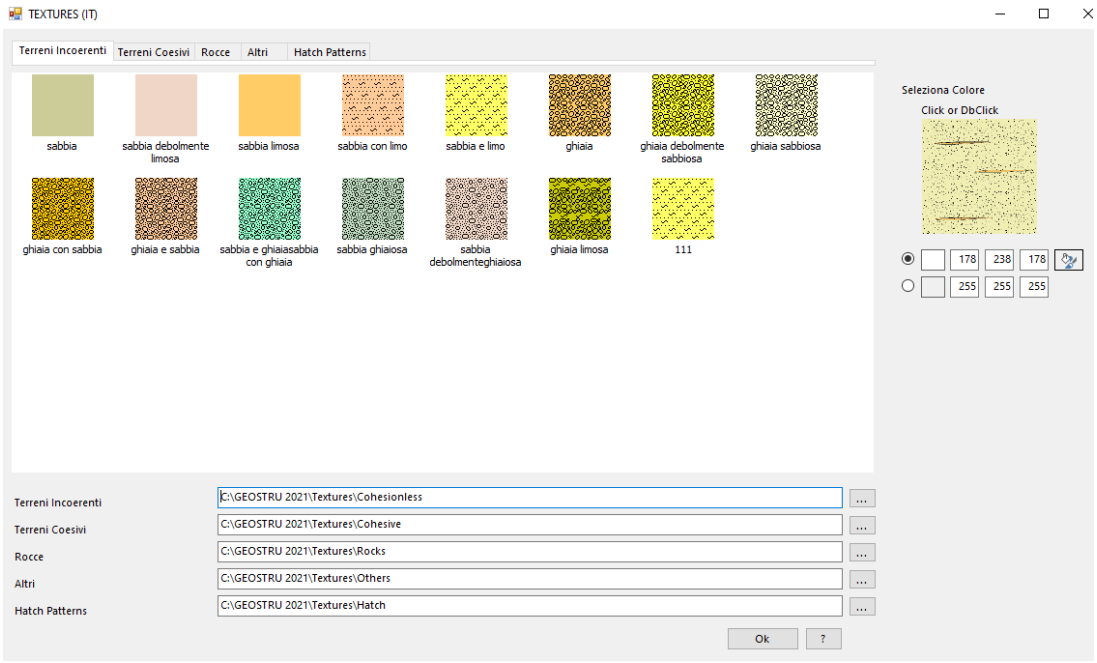
Select this option display the thickness of an inserted layer

Layer separation line

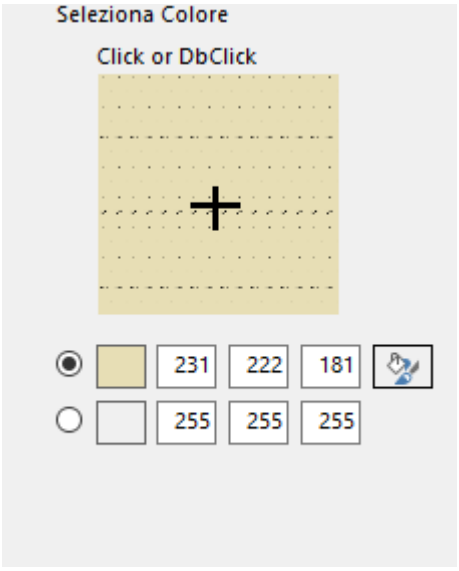
Select this option to display or not the separation lines between layers. The choice can be made between *Absent, Complete or Only on stratigraphic column.*

4.8 Changing the background color of textures

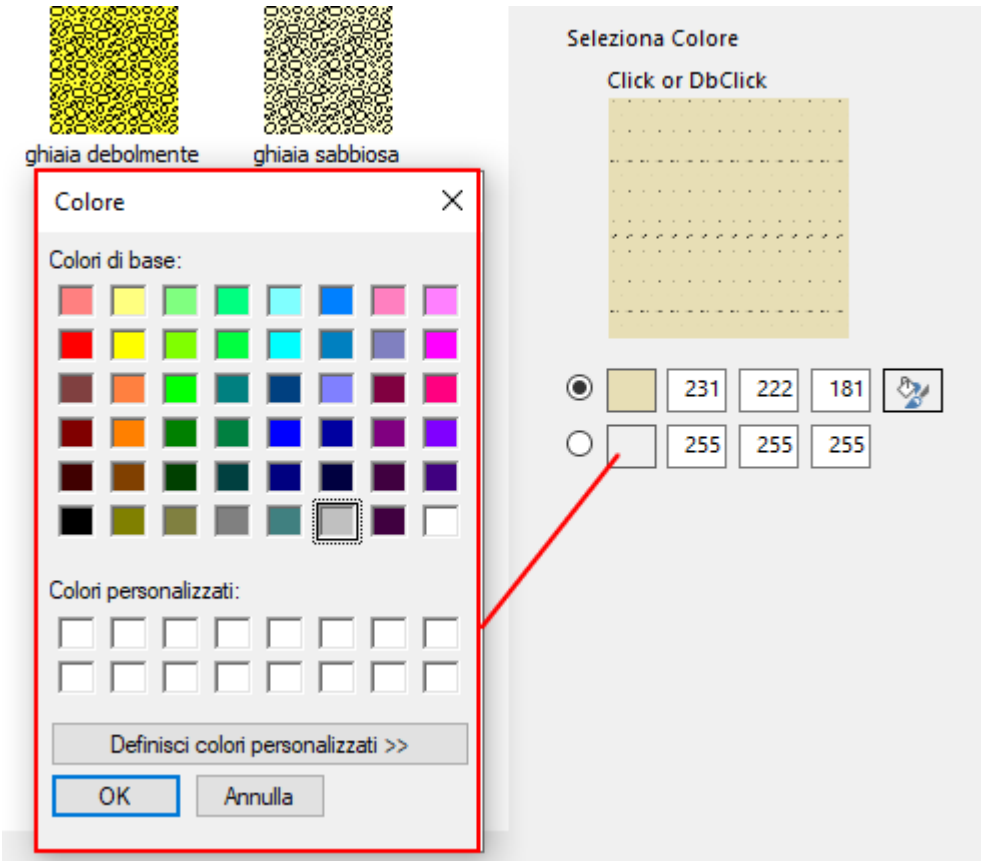
To change the background color of the textures, go to the texture installation file, and run the **TEXTURES.exe** executable.
The following window will appear on the screen, select the texture you want to change.



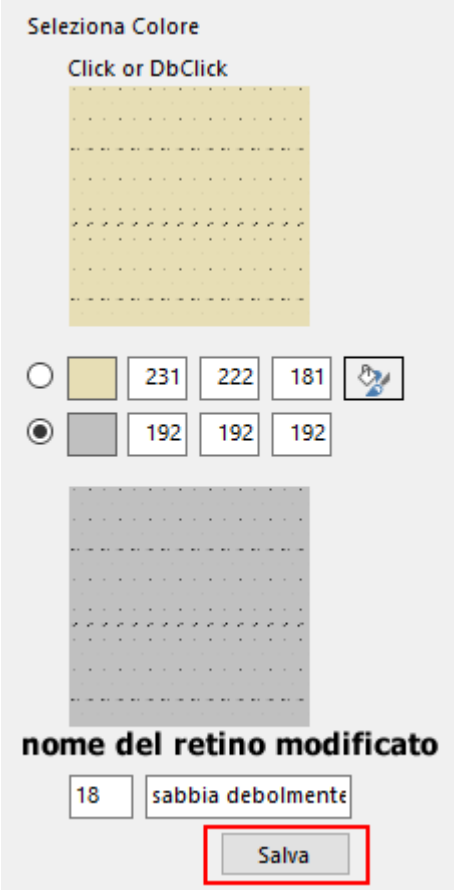
Hover your mouse over the texture and click on the colored background, as in the following image.



Select the new color you want to assign to the textures.



Choose a **name** and confirm the changes with the **save** button.



5 Graphic model

5.1 Depth scale

A depth ruler can be drawn on the graphic model to easier read the depths. The ruler may be scaled by selecting the command Scale 10 in the Tools menu or corresponding toolbar button.
The column can be customized using the command "*Modify elements".* Click, on the model, on the depth scale column.
In the resulting dialog window the desired scale (1:100; 1:200, etc.) may be entered. Step intervals in the depth figures, the number of decimals, and the origin elevation (or depth) of the column may also be specified here.

Notes: The origin at which the depth ruler should start may be set at the convenience of the user. Thus zero or a positive or negative figure may be set as most relevant to the study in question. In all cases the depth ruler will indicate levels that descend from this initial value, so that where

a positive figure is selected the figures will progress to zero and thereafter to negative ones.
When actual elevation is used (as opposed to layer thickness) the level of each lithologic boundary will necessarily be below the level of origin of the depth scale.

5.2 Lithology

The lithological textures that define the stratigraphy of the terrain are entered in this column. Use the mouse to select and drag the image that is to represent the layer material from those displayed on the left in the textures pane, onto this column. When the mouse button is released, a dialog window opens that contains entries for the following parameters:

- **Elevation**
  Depth of lower layer boundary (or layer thickness) . The upper edge being either the previous layer or field level. Whether depth or thickness are to be used is determined in the Options 13 command (*Preferences* menu).

- **Lithology**
  Type of representation of the layer, to be selected from drop down list. The options are: None, Bitmap, Vector, or colour.

- **Texture**
  The actual texture or color to be used if any.

- **Description**
  The description 19 text associated with the texture is placed in the description column. This may be expanded as required.

- **Margins**
  A box each for upper and lower text margins in mm. Allows text from adjacent descriptions to overlap 19 the depth boundaries.

- **Core and RQD %age**
  Values and color representation selection.

The lithological representation can be done using screens in Windows Bitmap format, filling with uniform color, patterns vector, image downloaded from the web. In the Elevation column may be given the absolute height or thickness of the layer depending on the setting in *Home - Options - Lithological layers options*.

The use of vector textures allowsto represent the lithology with elements that are scalable and customizable at the moment. Each vector element physically occupies 1x1 mm and the value "*Scale*" sets the desired display to fill the layer. The rotation changes orientation of the figure appears; colors, line and background, determine the color of the layer. To assign a texture vector, as for raster textures, select the item and drag in with the mouse on the model to the desired elevation.

5.3 Description

Text may be entered in the *Description column.*
Text originates in the terrain description of the texture file (or the name of the file if a text cannot be found. This can be edited when texture is applied and the Layer detail dialog window is displayed (see Lithology 18), or else using the Modify elements 10 command.
In cases where the text to be used overruns the space dictated by the elevation boundaries, the user may find it useful to alter the margin sizes (lower and upper) of this and adjoining layers to obtain more space. (i.e. increase the lower margin of the layer with excess text, to provide more space, and increase the upper margin of the next layer, thus dropping down its own description and making space for the excess from the layer above).

5.4 Elevation

The depths of the transition from one lithological layer to the next are recorded in this column. The values may be absolute or with signs. (See Depth scale 17).
All depth values in this column should of course be inferior to the starting value and will be negative if the origin value is zero or below.
If desired instead of entering a depth figure an interval (e.g. layer thickness) can be entered.
To switch between depth and thicknesses in this column, select the appropriate check box in the *Options* command (*Preference* menu).
The switch is dynamic so that the figures alter in response to the setting.

5.5 Core % R.Q.D.

Core recovery depth percentage or RQD values, for each layer are assigned in the Layer detail dialog window, which opens when textures are assigned to individual layers. At the same time the various values may each be characterized by a color.
In the *Modify elements* command item it is possible to alter the initial values.
The width and colors of the column can be set or altered in the Template Editor.

5.6 S.P.T.

SPT field results with hollow (P.A.) or solid (P.C.) drill bit at determined depths may be entered in this column.
To insert this information click on the SPT title the instruments list on the lower left part of the screen, and drag to the column area.
In the 'S.P.T.' dialog window that appears the depth level, type of bit, and results text can be entered.
The column is customized in Templates editor.

P.C.= Punta chiusa – Open tip;
P.A.= Punta aperta – Closed tip.

5.7 P.T. - V.T.

Into this column may be entered the results of the tests that are performed in the field: pocket and vane tests.
To insert this information click on the method in question (pocket or vane) from the Tools pane list on the lower left part of the screen, and drag to the column area. In the *'PT or VT Specification'* dialog window that appears the depth level and results text can be entered.
The column is customized in Templates editor.

5.8 Samples

This column is intended to carry information regarding the type of samples encountered.
From the Tools window list at the lower left side of the screen the sample and drag it to the column area.

The elevation boundaries and the selected method can then be entered in the *'Samples'* dialog window that opens thereby, as well as a color to indicate this sample type.
The column is customized in Templates editor.

5.9 Drilling method

Into this column may be entered the drilling method(s) used in sampling the terrain.
To insert this information click on the method in question from the Tools pane list on the lower left part of the screen, and drag to the column area.
A dialog window (Drilling methods) appears the method and depth level can be entered.
The column is customized in templates editor.

5.10 Stabilization method

This column is intended to carry information regarding the type of borehole stabilization employed (Bentonite slurry, or metal jacket, etc.).
From the Tools window list at the lower left side of the screen select stabilization and drag it to the column area.
The elevation and the selected method can then be entered in the "*Stabilization methods*" dialog window that opens thereby.
The column is customized in templates editor.

5.11 Sample box

Sample box specifications may be entered in this column.
To insert this information click on the Sample box title the instruments list on the lower left part of the screen, and drag to the column area.
In the '*Sample box*' dialog window that appears the depth level and box identifying text can be entered.
The column is customized in templates editor.

5.12 Well

By the use of appropriate templates, it is possible to generate Statigrapher sheets that document the construction specifications of

wells. One such template that may be used as a model for others is provided with the software.

The elements describing the well are:

- Plug
- Closed tube
- Filter

The first element we're going to enter, whatever it is, on the window that appears when you drag the mouse, we must indicate some basic parameters:

Diameter of drill hole

This value, graphically, will coincide with the width of the Well column and all the diameters of the elements will be compared on this measure. For example, if on an A4 sheet the column well measures 5 cm and we indicate 2000 mm as D.P., a closed tube of 1000 mm in will be drawn to 2.5 cm.

Filling

As filling is used a lithological texture, selectable as any bitmap.

Then are required the parameters of the specific component:

Diameter

Measures the diameter of the element.

Elevation

Lower level. The upper elevation is determined from the preceding element or from ground level if it is the first element.

Overlap

Indicates the extent of overlap with respect to the item that precedes it.

Note: *Remarks or description of the item*.

Observations:

When you specify a measure or diameter there is no reference to the unit of measurement used because is not decisive to the proper arrangement of the elements. In fact, all the horizontal dimensions (diameters) are calculated in relation to the diameter of the hole which always coincides with the total width of the column. To display the unit of measurement used it is necessary to describe it in the notes.

5.13 GWT level

This column permits the GWT depth reported during terrain investigation to be recorded.
Select the item *'Water table level'* from the Tools window list of found in the column on the lower left of the screen and drag to the column area. Releasing the mouse button opens a dialog window in which the depth can be entered.
The column is customized in templates editor.

5.14 User Columns

These columns are available to the user for whatever purpose may be found useful.
The size, header, and format of the columns are customized in the template editor.
To enter data, select the title assigned (above) from the tools pane, and drag to the column area.
A dialog window opens and allows the depth and a text to be entered.

5.15 Chart columns

In these columns can be drawn a series of experimental data defined by user. The graphic can be customized with a set of options.

5.16 Piezometers

Into this column may be recorded data on piezometers used in the borehole: *electric, open pipe and Casagrande.*
The open pipe piezometer is represented with a bollard, while that of Casagrande with a gray rectangle.
To insert one of these instruments click in the Tools pane, and drag it to this column. Parameters that can be entered in the dialog window that appears are: Inclinometer/Piezometer, depth, type, Casagrande depth where relevant.

The user can enter an unlimited number of piezometers. On the column header it shows the number of the element (1,2,3, ..) followed by the code P/I that identifies whether it is a piezometer or an inclinometer.
The column is customized in templates editor.

Open pipe piezometer

Casagrande piezometer

Electric piezometer

6 Geoapp

Geoapp: the largest web suite for online calculations

The applications present in Geostru Geoapp were created to support the worker for the solution of multiple professional cases.
Geoapp includes over 40 applications for: Engineering, Geology, Geophysics, Hydrology and Hydraulics.

Most of the applications are free, others require a monthly or annual subscription.

Having a subscription means:

- access to the apps from everywhere and every device;
- saving files in cloud and locally;
- reopening files for further elaborations;
- generating prints and graphics;
- notifications about new apps and their inclusion in your subscription;
- access to the newest versions and features;
- support service throught Tickets.

6.1 Geoapp Section

General and Engineering, Geotechnics and Geology

Among the applications present, a wide range can be used for **Stratigrapher**. For this purpose, the following applications are recommended:

- NSPT Form
- Horizontal reaction coefficient of foundation piles
- Load test on poles
- Liquefaction (Boulanger 2014)
- Reinforced earth
- Soil Classification
- Bearing capacity
- Lithostatic tensions

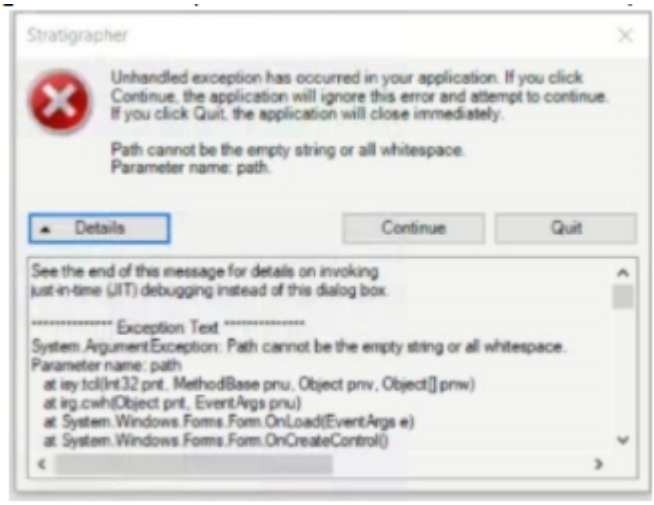
7 Import from other GeoStru programs

The data processed by the software Dynamic Probing and Static Probing

can be imported and displayed in Stratigrapher using an appropriate template. To import choose *Import* ... command from the *File* menu and select the *.edp file you want to import, the processed data will be represented on the model.

8 Exception not managed at startup

Exception not managed at startup of the program type "Argument Exception: Path cannot be the empty string or all whitespace."

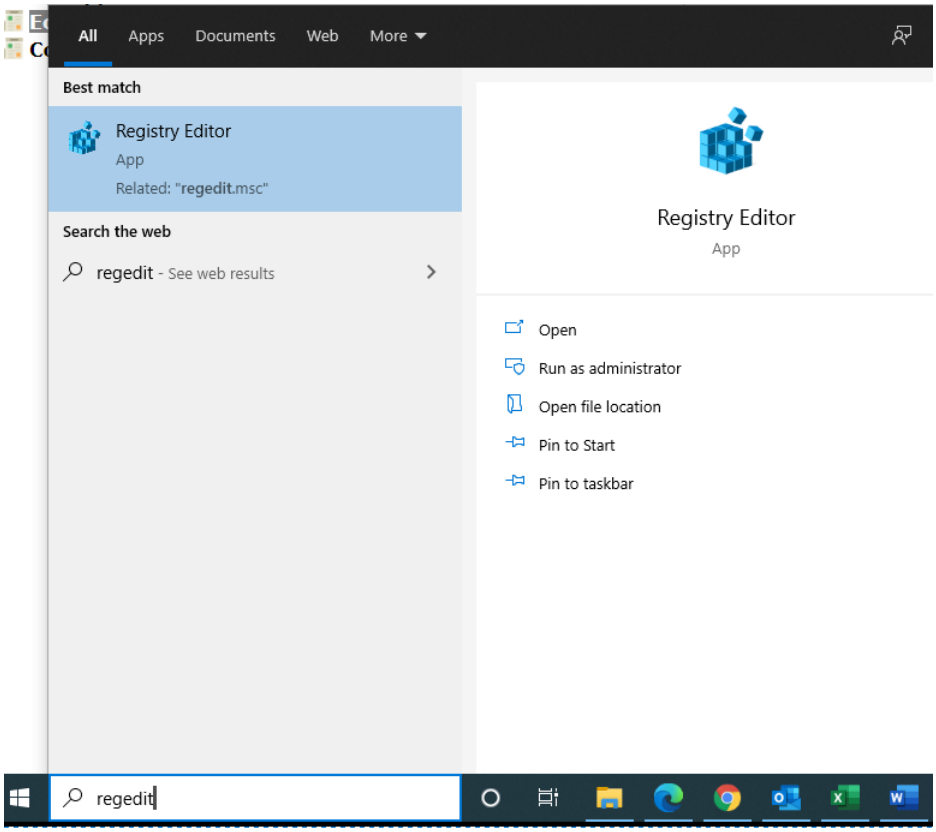


CAUSE

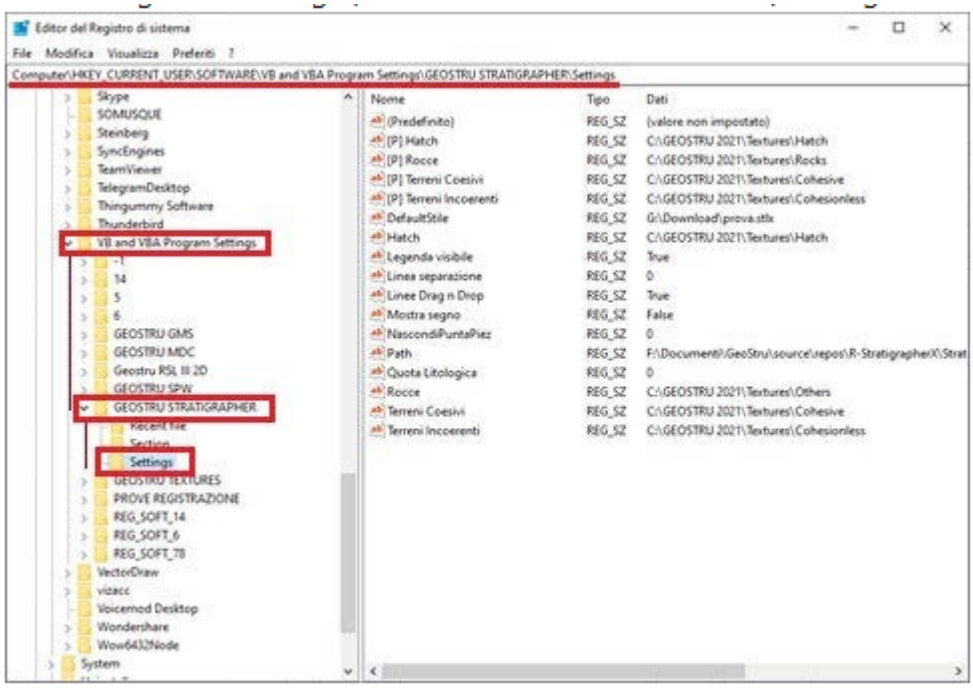
The error is due to the absence of valid textures paths during the first start of the program in the Registry keys of the System.

SOLUTION

1. Open the registry by typing in the windows search bar "regedit" and clicking on the first result.

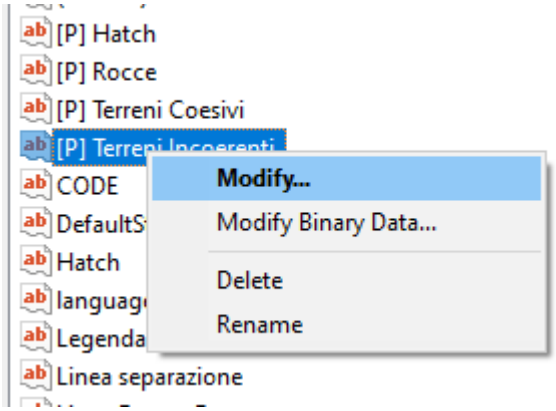


2. Using the side panel on the left of the window, navigate to the path: Computer\HKEY_CURRENT_USER\SOFTWARE\VB and VBA Program Settings\GEOSTRU STRATIGRAPHER\Settings

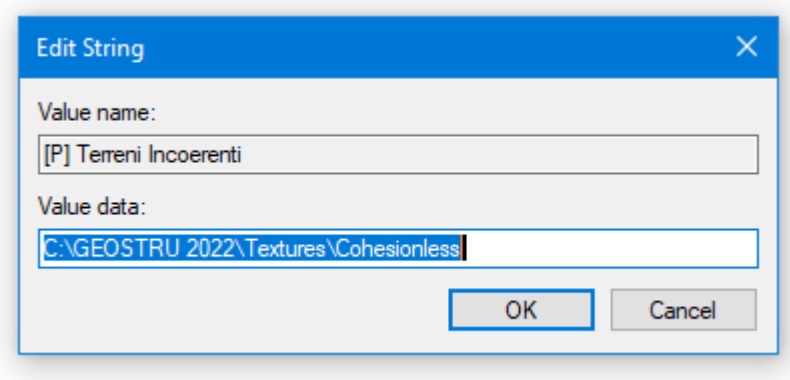


3. If the values for the rows " Rocce (Rocks)", " Terreni Coesivi (Cohesive Soils)", "Terreni incoerenti Inconsistent Soils" and "Hatch" (these names remain unchanged regardless of the language

selected for the software) on the third column ("Data") are empty, right click on the row individually and select "Modify":



4. At this point, enter in "Value data" the valid path of the various textures.



By starting Stratigrapher, you should no longer find the error.

9 Shortcut commands

The bar shown below can be used for a variety of functionalities:

1) With the shortcut letters of the menu followed by Enter you have quick access to commands.
   Ex: N + Enter to create a new file.

2) You can ask a question followed by ? + Enter. In this a case advanced research will be made in Help .
   Ex.: Seism+?+Enter for information on seismic analysis.

3) Opening a program in a quick way.
   Ex.: Slope+Enter to open GeoStru Slope software.

4) Quick access to GeoStru contacts.
   Ex.: Contact+?+Enter to access the contact list.

5) Quick acces to web features:
   Ex.: www.geostru.com+Enter or geostru@geostru.com. + Enter