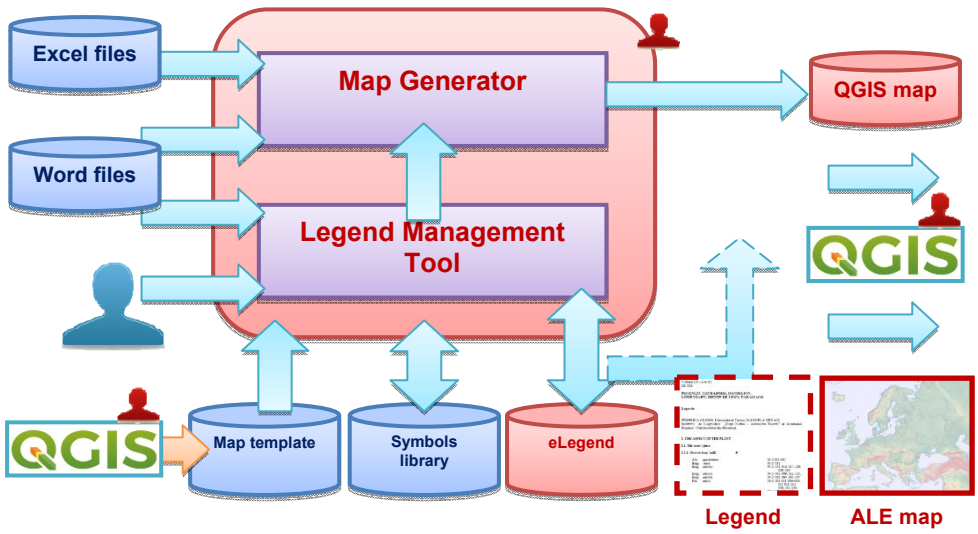
INFORMATION MANAGEMENT FRAMEWORK FOR THE *EUROPEAN LINGUISTIC ATLAS*

SILVIU-IOAN BEJINARIU

ALE INFORMATION MANAGEMENT FRAMEWORK

Ale_Legend application is the kernel of the ALE Information Management Framework. It contains two main components:

– **Legend management tool** and
– **Map generator**;



The main functions of the ***ALE_Legend*** application are:

– Manage the linguistic information included in **eLegend** – ALE maps legends;
– Manage the ALE **Symbols library** content;
– Generate ALE maps using the information included in eLegend; The maps are generated using the **Map Template** previously prepared using the QGIS software;
– Import data from the old ALE legends prepared in Word;

FD, XXXVIII, Bucureşti, 2018, p. 147–196

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– Generate maps from old legends prepared in Word and Excel;

– Generate printable ALE legends (not yet implemented).

The maps are automatically generated and can be printed using the QGIS free open-source application.

All these functions are described in the next sections of this document.

Required Applications

The following applications must be installed to can have the complete functionality of the ALE Information Management Framework:

– ***ALE_Legend*** application – provides most of the system's functionalities,

– **QGIS** application – required for maps visualization. It is a free and open source geographic information system and a minimal experience is required. QGIS is freely available at https://qgis.org/en/site/.

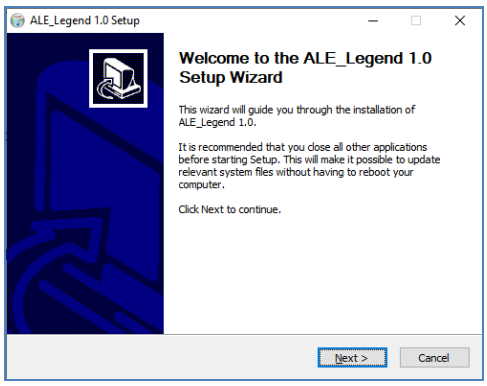
– **FontForge** application – optional, used generate new symbols for the Symbols library. It is a free and open source font editor and a minimal experience is required. Font forge is freely available at https://fontforge.github.io/en-US/.

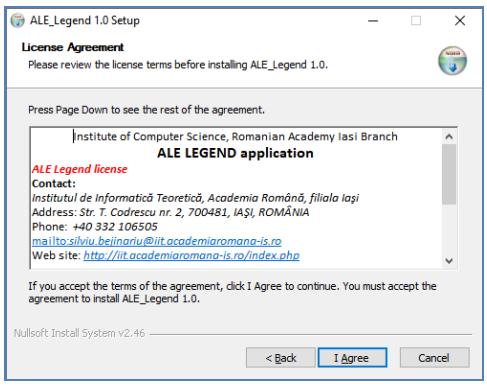
***ALE_Legend* installation manual**

The installation of the *ALE_Legend* application is contained in a single executable file named like:

Setup_ALE_Legend_1.0_<*date*>_<*time*>.exe

where <*date*> and <*time*> specify the moment when the installation kit was generated.





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The installation steps are:

– Run the setup application;

– The operating system shows a dialog box which asks if you to allow the setup application to make changes in the computer. You have to answer **<Yes>**.

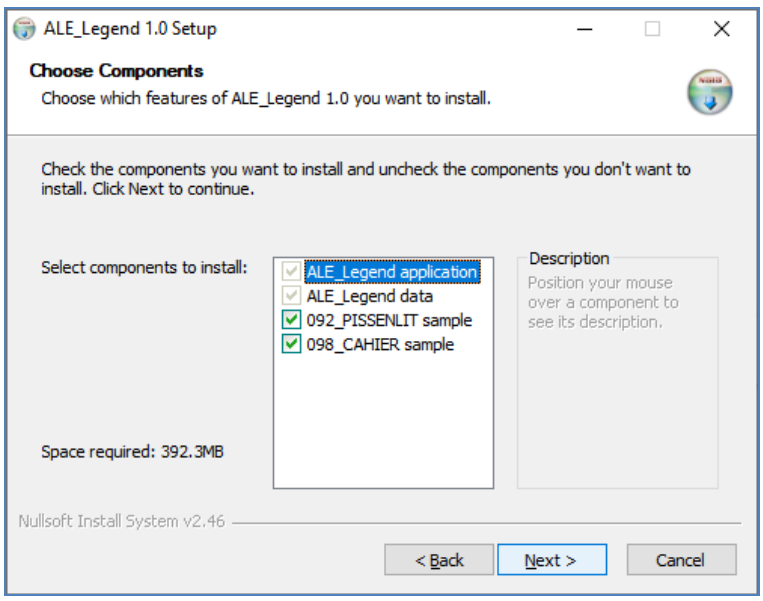
– The setup application shows the **Welcome** dialog box. You have to click **<Next>**.

– The setup application shows the **License agreement** dialog box. In fact it contains the contact information. You have to click **<I agree>**.

The setup application shows the **Choose components** dialog box. The following components are available:

- *ALE_Legend* application, checked by default,
- *ALE_Legend* data, checked by default. It refers to the map template, map layers, printed map layouts, symbols library,
- 092_PISSENLIT sample, all the legends and map files related to the 092 Pissenlit map.
- 098_CAHIER sample, all the legends and map files related to the 097 Cahier map.

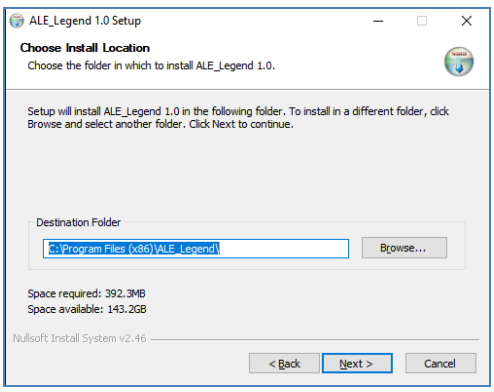
The required disk space is shown. You can check / uncheck the desired components and click **<Next>**.

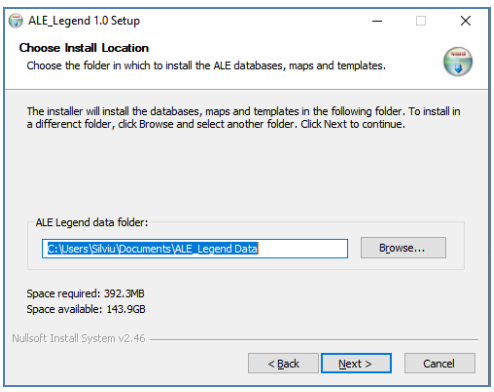


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– The setup application shows the **Choose Install location** dialog box in which you can choose the folder in which the *ALE_Legend* application will be installed. By default, it is installed in the "C:\Program Files (x86)\ALE_Legend\" and it is not recommended to change it. You have to click **<Next>**.
– The setup application shows the **Choose Install location** dialog box in which you can choose the folder in which the *ALE_Legend* data and samples files will be installed. By default, the data files are installed in the "C:\Users\<User_name>\Documents\ALE_Legend Data\". It is recommended to change it with a location which is more convenient for the user. You have to click **<Next>**.

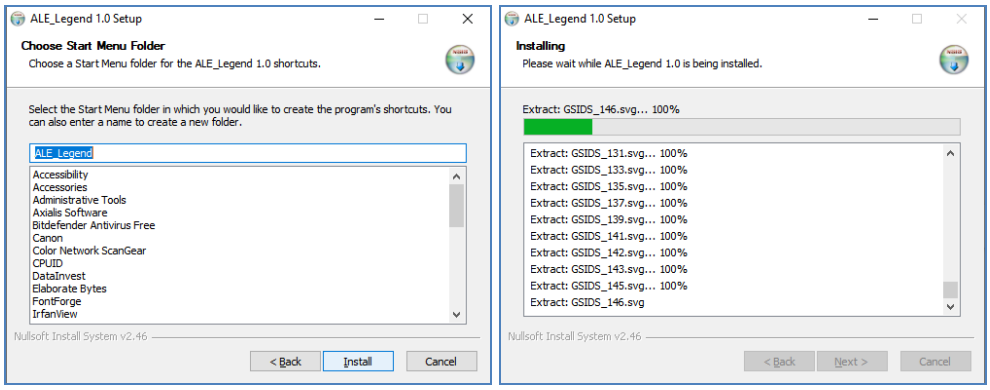
If this installation is not the first, the previous default data folder is proposed by the setup wizard.



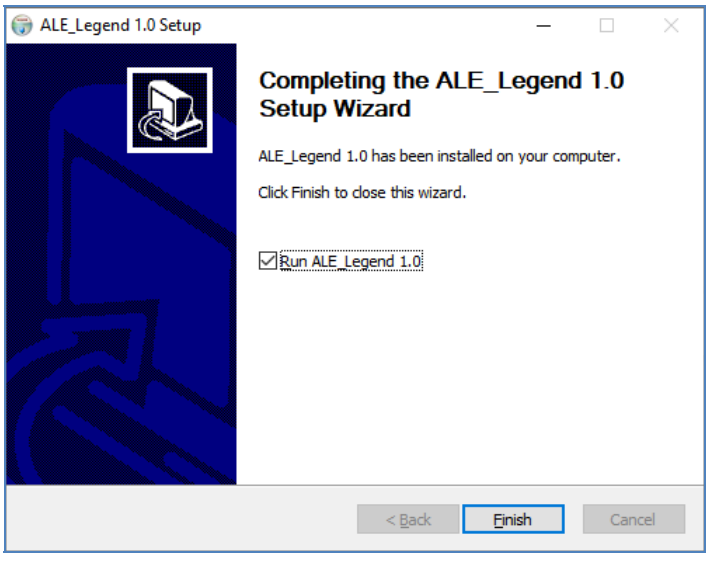


– The setup application shows the **Choose Start Menu folder** dialog box in which you can choose the location of the *ALE_Legend* menu items. You have to click **<Install>** to start the installation.
– The installation starts and the progress is shown in the **Installing** dialog box.

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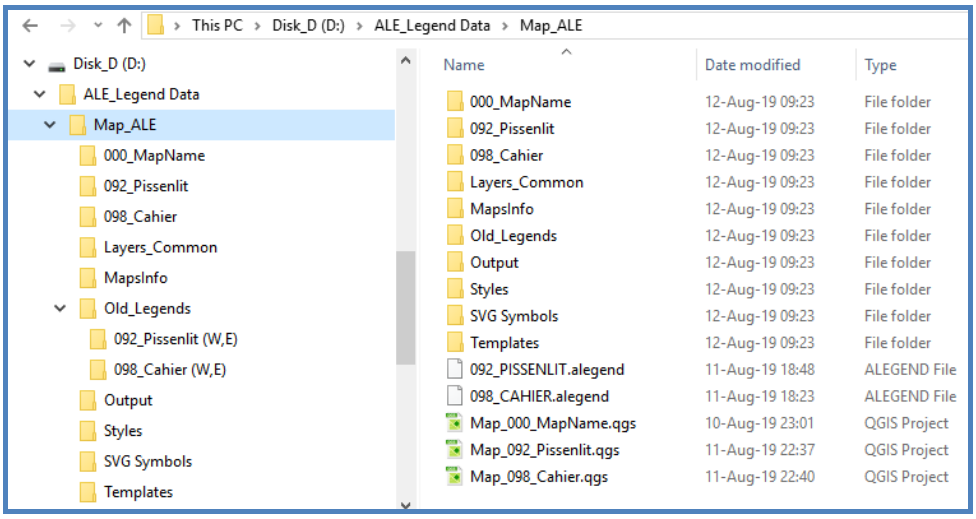
– When the installation finishes, the **Completing the ALE_Legend 1.0 Setup Wizard** dialog box is shown. You can choose to start the application after the dialog box is closed. You have to click **<Finish>** to finish the installation.



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***ALE_Legend* installed data files**

The *ALE_Legend* Data folder has the structure depicted in the figure below. There is single subfolder Map_Ale with more sub-sub-folders.



These folders contain:

000_MapName: the map template used to generate new ALE maps; the folder contains a GIS Layer which will be particularized when a new map is generated;

092_Pissenlit: the 092_Pissenlit layer which is included in the sample map with the same name; this layer is installed only in case the corresponding option was selected at installation time;

098_Cahier: the 098_Cahier layer which is included in the sample map with the same name; this layer is installed only in case the corresponding option was selected at installation time;

Layers_Common: the common layers for all the ALE maps,

MapsInfo: contains some HTML files, templates for the legends which are displayed in the top-left corner of the maps. It contains also the legend files for the already generated maps,

Old_Legends: contains some sample legends prepared in Word and Excel:

092_Pissenlit (W,E): the old Word and Excel legends for 092_Pissenlit map,

098_Cahier(W,E): the old Word and Excel legends for 098_Cahier map,

Output: contains some sample maps generated by QGIS application,

Styles: contains the styles used by QGIS to draw the ALE maps layers,

SVG Symbols: contains all the symbols which can be used in the ALE maps,

Templates: contains the layouts used by QGIS to generate the ALE maps in the A2 and A3 page formats.

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092_PISSENLIT.alegend: the 092_Pissenlit legend file; this file is installed only in case the corresponding option was selected at installation time;

098_CAHIER.alegend: the 098_Cahier legend file; this file is installed only in case the corresponding option was selected at installation time;

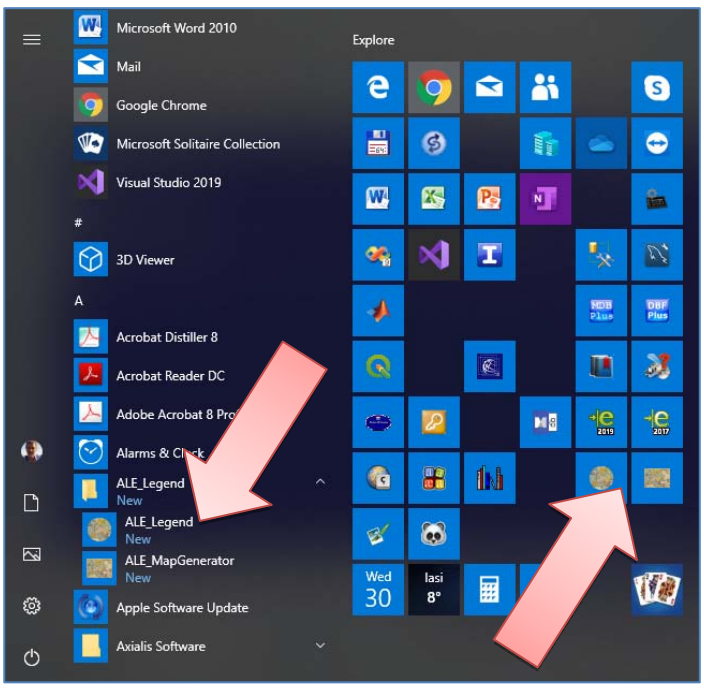
Map_000_MapName.qgs: template for the QGIS project; it is used to generate the new ALE maps;

Map_092_Pissenlit.qgs: 092_Pissenlit QGIS project; this file is installed only in case the corresponding option was selected at installation time;

Map_098_Cahier.qgs: the 098_Cahier QGIS project; this file is installed only in case the corresponding option was selected at installation time;

When the installation finishes, two menu entries are added in the Start menu: *ALE_Legend* and *ALE_MapGenerator*. The *ALE_Legend* icon is also available on the desktop.

The *ALE_MapGenerator* application is the first version of the application which can be used to generate ALE maps from old Word and Excel legends. This function is available in the *ALE_Library* application, and it is recommended to generate maps from this application.



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QGIS installation

QGIS is a free open-source GIS platform used by the framework to display and print the ALE maps. The current version of QGIS is 3.8.3 and it can be downloaded from https://qgis.org/en/site/. It is recommended to download and install the QGIS Standalone installer 64 bits excepting the case in which the computer is running the 32 bits version of the operating system, when the 32 bits version must be used.

The installation kit of version 3.8.3 is QGIS-OSGeo4W-3.8.3-1-Setup-x86_64.exe. Newer versions have a different version number in the name.

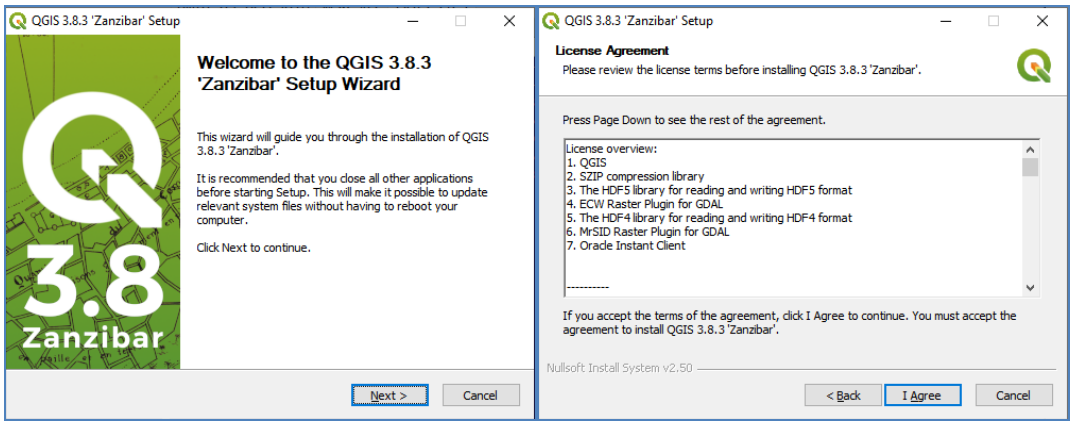
The installation steps are:

– Run the setup application;

– The operating system shows a dialog box which asks if you to allow the setup application to make changes in the computer. You have to answer **<Yes>**.

– The setup application shows the **Welcome** dialog box. You have to click **<Next>**.

– The setup application shows the **License agreement** dialog box. You have to click **<I agree>**.



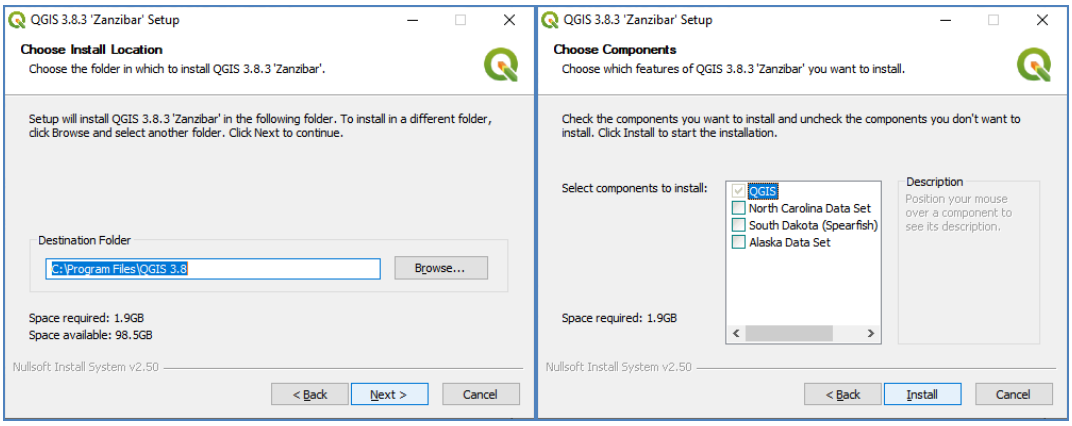
– The setup application shows the **Choose Install location** dialog box in which you can choose the folder in which the QGIS application will be installed. By default, it is installed in the "C:\Program Files (x86)\QGIS 3.8\" and it is not recommended to change it. You have to click **<Next>**.

– The setup application shows the **Choose components** dialog box. The following components are available:

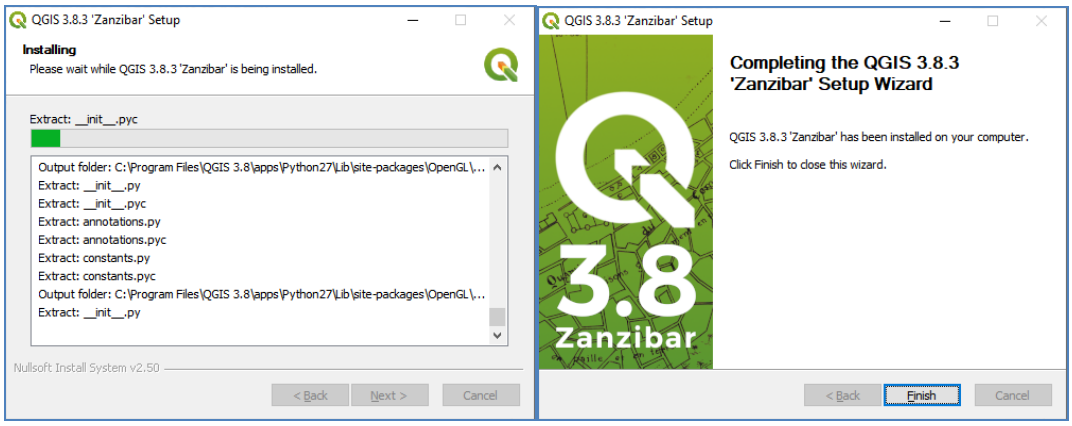
- QGIS application, checked by default,
- Three datasets which are not required and are not linked to the framework. It is recommended to leave them unchecked.

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The required disk space is shown (~1.9GB). To continue the installation, click **<Install>**.



– The installation starts, and the progress is shown in the **Installing** dialog box.
– When the installation finishes, the **Completing the QGIS Setup Wizard** dialog box is shown. You have to click **<Finish>** to finish the installation.



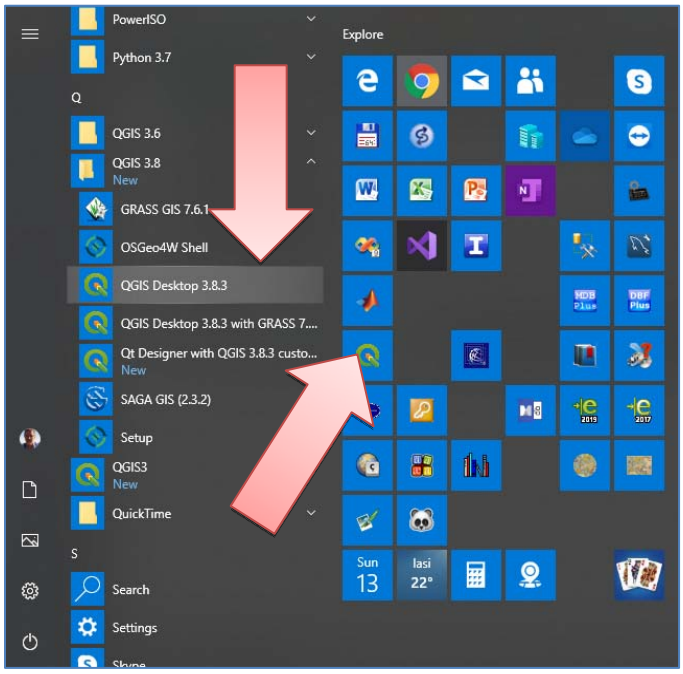
Preparing QGIS execution

The QGIS setup application adds a menu entry and an icon in the Start menu: **QGIS Desktop 3.8.3** (the version number can vary) which can be used to execute QGIS.

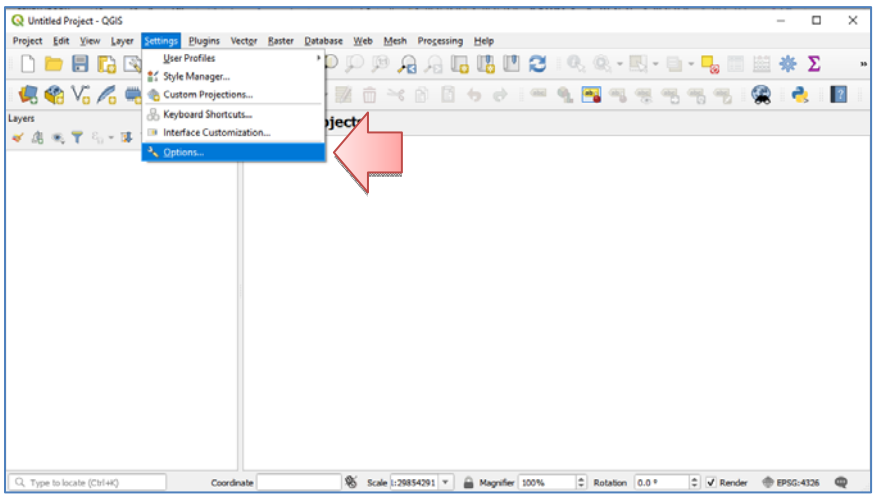
To make QGIS usable for the Framework, some additional settings must be made. The Symbols Library which was installed by the *ALE_Legend* setup had to be made known in QGIS. To do this the user must:

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– Start QGIS application,



– Select the *Settings / Options* menu entry,



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– The system shows the *Options* dialog box,

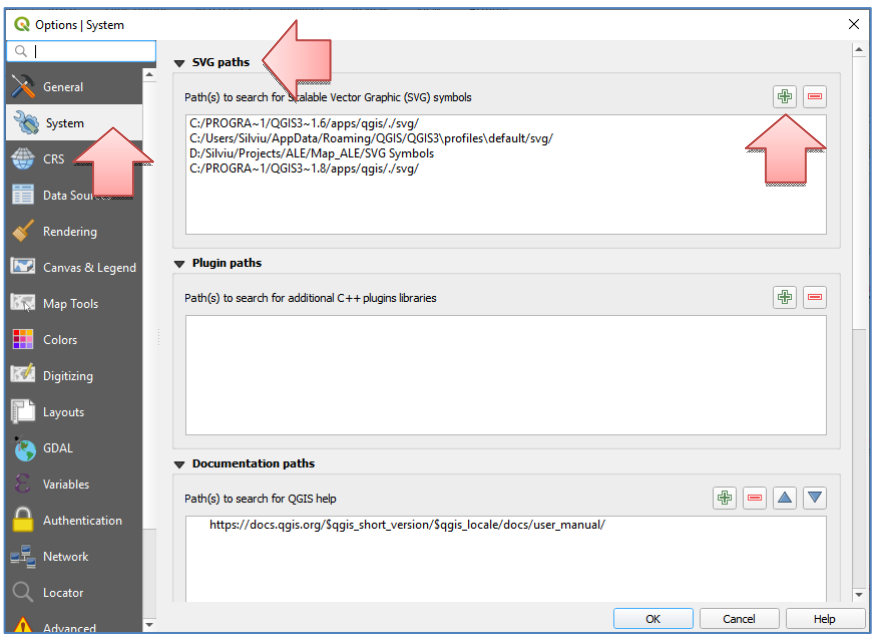
– Select the *System* pane in the rollup on the left side,

– In the *SVG paths* list, the full path of the SVG Symbols folder in the *ALE_Legend* installation has to be added:

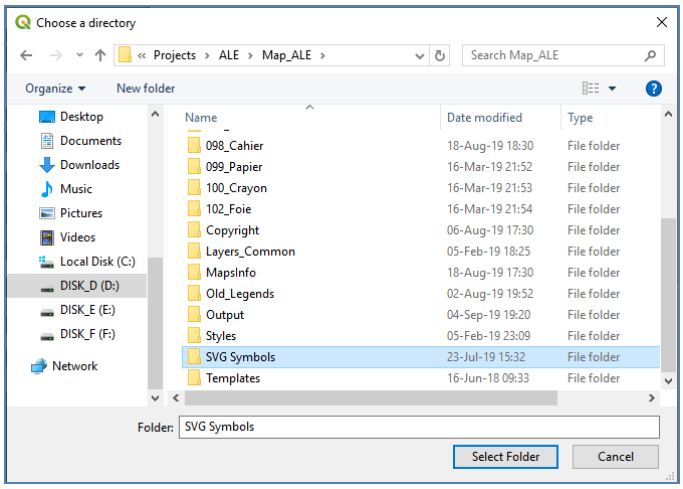
- Select the "+" sign in the top right corner of the dialog box,
- The system shows the "Choose a directory",
- You have to select the "SVG Symbols" subfolder of the *ALE_Legend* data folder.
- Click "Select folder",
- The selected folder will appear in the list,

– Click OK,

– It is recommended to close and restart the QGIS application. I noticed that if QGIS is not restarted, the path will not be known in the application.



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Font Forge installation

Font Forge application is optional. It can be used generate new symbols for the Symbols library. It is a free and open source font editor and a minimal experience is required. Font forge is freely available at https://fontforge.github.io/en-US/. **However, because adding new symbols in the library requires some changes in the QGIS project template, it is recommended to ask the programmer to make these changes.**

ALE_LEGEND APPLICATION

Ale_Legend is the main application of the ALE Information Management Framework which offers the complete functionality from data collection / import to final ALE map generation. To can see the maps the installation of QGIS package is required.

Main Window

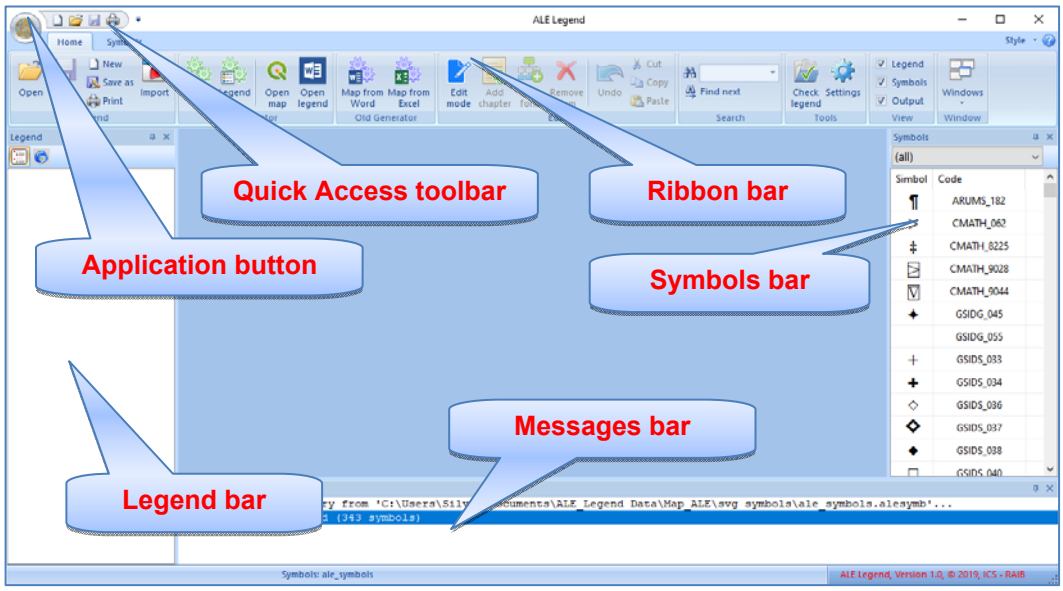
When *ALE_Legend* is started for the first time, the application's window looks like in the image below. It contains:

– Legend bar – it shows the legend tree; it is empty when the application is started for the first time,
– Symbols bar – it shows the list of symbols available for usage; it is already populated when the application is started for the first time,
– Messages bar – it shows information about the actions performed and also error and warning messages.
– Ribbon bar – contains all the available commands. For instance, not all commands are implemented, but the main functionality is available
– Quick Access toolbar – contains the most used commands,

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– Application button.

All these components are explained in the following sections.



If *ALE_Legend* is not started for the first time, and the corresponding option was chosen in the Settings dialog box, the application automatically opens the previously edited legend.

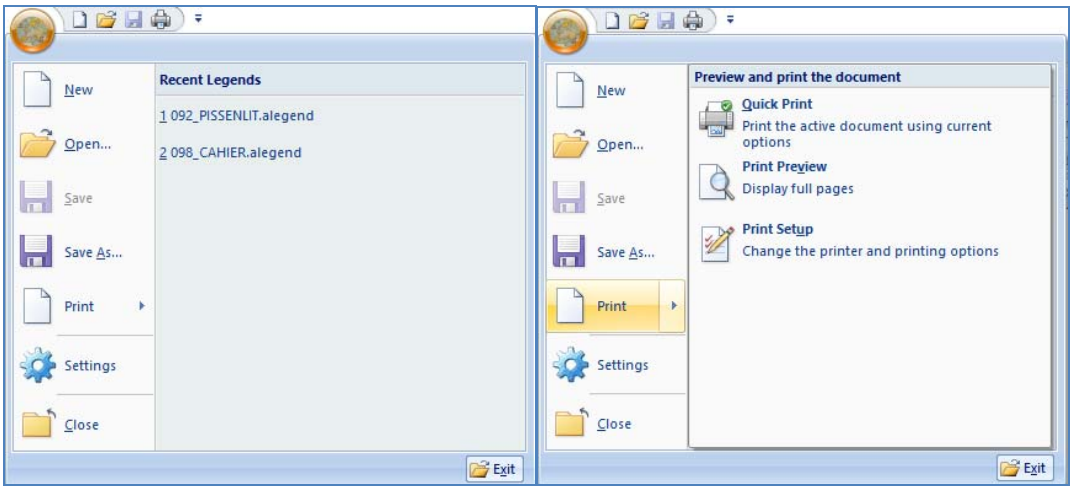
Application button

When it is clicked, the application shows the menu displayed in the next images. It contains the usual File operations:

– **New** – command used to create a new legend file,
– **Open** – command used to open an existing legend file,
– **Save** – command used to save the changes in the current opened legend file,
– **Save as** – command used to save the current legend with a different new name,
– **Print** – command used to print the content of the current document. **Not implemented**.
– **Print / Quick Print** – command used to print directly (without showing the Print dialog box) the content of the current document. **Not implemented**.
– **Print / Print Preview** – command used to show the print preview for the content of the current document. **Not implemented**.
– **Print / Print Setup** – command used to change printer settings.

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– **Settings** – command used to change the application settings. When selected, the application shows the Settings dialog box.
– **Close** – command used to close the current legend. If it was modified, the application automatically prompts the user to save the changes.
– **Recent legends** – the list of the most recent edited legends. The command can be used to open these legends.
– **Exit** – command used to close the application. If the current opened legend was modified, the application automatically prompts the user to save the changes.



Quick Access toolbar
The Quick Access toolbar contains the most used File commands:



– **New** – command used to create a new legend file,
– **Open** – command used to open an existing legend file,
– **Save** – command used to save the changes in the current opened legend file,
– **Quick Print** – command used to print directly (without showing the Print dialog box) the content of the current legend. **It is not implemented**.
– **Customize** – the user has the possibility to choose the commands displayed on the Quick Access toolbar. When selected, the application shows the Customize dialog box which allows the user to choose the desired command to be displayed.

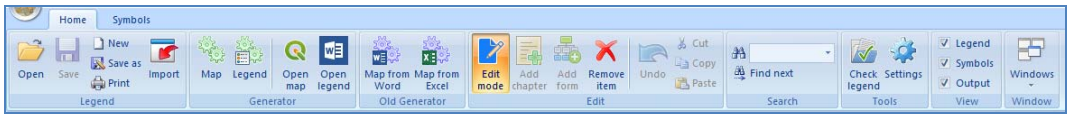
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Ribbon bar

The Ribbon bar shows all the commands available in the *ALR_Legend* application. It contains two categories: Home and Symbols.

Home category

The commands available in the Home category of the Ribbon bar are grouped in panes as follows:



– Legend

- **Open** – command used to open an existing legend file,
- **Save** – command used to save the changes in the current opened legend file,
- **New** – command used to create a new legend file,
- **Save as** – command used to save the current legend with a different new name,
- **Print** – command used to print the content of the current document. **Not implemented**.
- **Import** – command used to import old legends in docx format. These files have to be pre-processed as it will be described later in this document.

– Generator

- **Map** – command used to generate the ALE map using the content of the current opened legend,
- **Legend** – command used to generate the ALE legend in printable format using the content of the current opened legend, **Not implemented.**
- **Open map** – command used to open the already generated ALE map in QGIS application.
- **Open legend** – command used to open the already generated ALE legend (in printable format) in Microsoft Word application. **Not implemented.**

– Old generator

- **Map from Word** – command used to generate ALE maps from old legends prepared in Word.
- **Map from Excel** – command used to generate ALE maps from old legends prepared in Excel.

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– Edit

- **Edit mode** – command used to enable / disable the Edit mode. The Edit mode must be enabled before to can change the content of the legend.
- **Add chapter** – command used to add a chapter in the legend tree. The new chapter will be "child" of the current selected item in the legend tree.
- **Add form** – command used to add a form in the legend tree. The new form will be "child" of the current selected chapter in the legend tree.
- **Remove Item** – command used to remove the current selected item in the legend tree, including all its descendants.
- **Undo** – command used to undo the last command. For instance, this command is available only for text editing commands. It is not implemented to undo structure changes of the legend tree like Add chapter / form or Remove Item.
- **Cut** – command used to cut the current selection and put it on the clipboard. It is available only for text editing.
- **Copy** – command used to copy the current selection on the clipboard. It is available only for text editing.
- **Paste** – command used to insert the clipboard content at the current cursor position. It is available only for text editing.

– Search

- **Find** – command used to search text in the legend tree. The text must be specified in the edit box or can be selected from the combo box. To start the search, the <Enter> key must be pressed.
- **Find next** – command used to search for the next appearance of the previously searched text.

– Tools

- **Check legend** – command used to check the legend data consistency. Several possible errors like: points not assigned, multiple appearances of the same point, wrong point numbers, missing symbols, etc., can be highlighted. **Not implemented.**
- **Settings** – command used to modify the *ALE_Legend* application settings.

– View

- **Legend** – show / hide the Legend bar,
- **Symbols** – show / hide the Symbols bar,
- **Output** – show / hide the Messages bar.

– Window

- **Windows** – command used to change the active window.

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Symbols category

The Symbols category of the Ribbon bar contains commands related to the Symbols library which are organized in two panes: Library and Edit. The commands are described below:



– Library

- **Open** – command used to open an existing Symbols library file,
- **Save** – command used to save changes made in a Symbols library file,
- **New** – command used to create a new Symbols library file,
- **Save as** – command used to save changes made in a Symbols library file,
- **Print** – command used to print the content of the Symbols Library, **Not implemented**
- **Import** – command use to import the Symbols Library from a list of symbols previously prepared as Word document.

– Edit

- **Add** – command used to add a symbol in the Symbols library. **Not implemented.**
- **Edit** – command used to edit the currently selected symbol. **Not implemented.**
- **Remove** – command used to remove the currently selected symbol from the library. **Not implemented.**

Legend bar

The Legend bar is displayed by default on the left side of the application's window. The user can change its position in a more convenient one by dragging it in the new position.

After a legend file is opened, its content is automatically displayed as a tree structure in the Legend bar. If a new legend is created, the tree contains only the root item. It will be populated as soon as new chapters, subchapters or forms are added in the library.

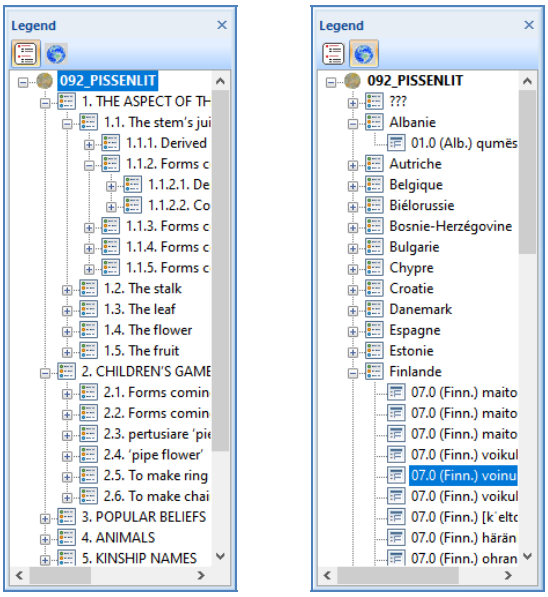
On the toolbar of the Legend bar there are two buttons:

– Group by chapters – if checked, the legend tree is organized on more levels: root, chapters / sub-chapters and finally forms;

– Group by countries – if checked, the forms are grouped by countries and the legend tree contains only three levels: root, countries and forms.

The two cases are presented in the images below.

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If the legend is in "*Group by chapters*" mode, when the user selects an item in the tree, the corresponding window (legend / chapter / form) is activated and the information related to the selected item is displayed. Next, the information can be edited if the *Edit mode* is active (*Home / Edit / Edit mode*). If the legend is in "*Group by countries*" mode, when the user selects the root item or a form item (level 2), the corresponding legend or form window is activated. Selecting an item on the first level of the tree (country) does not make any changes on the screen.

Symbols bar

The symbols bar is displayed by default on the right side of the application's window, but the user has the possibility change its position. The Symbols bar is organized as a list and it shows all the available symbols in the symbols library. When the application starts, the Symbols bar is populated only if there is a default Symbols library. Otherwise, the list is empty and the user has to open the symbols library using the command *Symbols / Library / Open.*

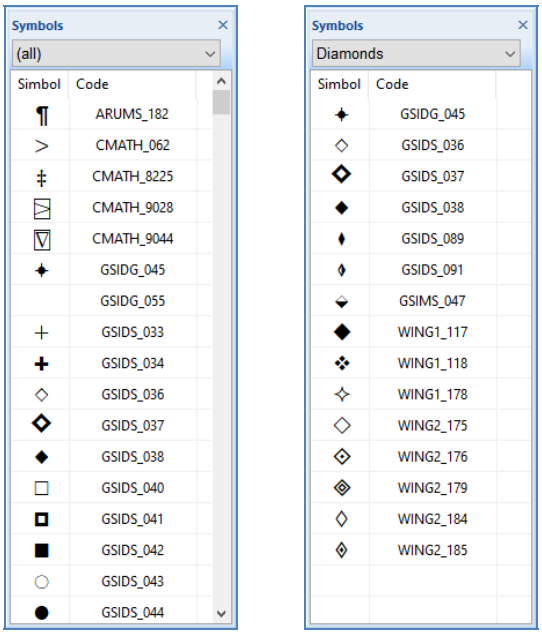
For each item in the list, the graphical symbol and its code are displayed. The symbol's code is a sequence of letters and digits which specify the font and the ASCII code. The list is sorted alphabetically by the symbols codes. The entire list of symbols is displayed, but the user has the possibility to filter the list by the categories (shapes) specified in the combo box above the list. The following categories are available: (all), Circles, Triangles, Squares, Diamonds, Crosses, Stars, Arrows, Math and Miscellaneous.

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For instance, the Symbols library contains 343 symbols. The Symbols library was created by importing the list from a Word document file by using the command *Symbols / Library / Import*. In future, the symbols library editing functions (Add, Remove, and Edit) will be available.

The structure of the Word file that specifies the list of symbols (which was imported) is described in the annexes of this document. However, it is not recommended for the user to modify the list of symbols because any changes must be available also in the future installations. **Thus, we recommend asking the programmer to modify the symbols library**.

The Symbols bar is displayed in the images below.



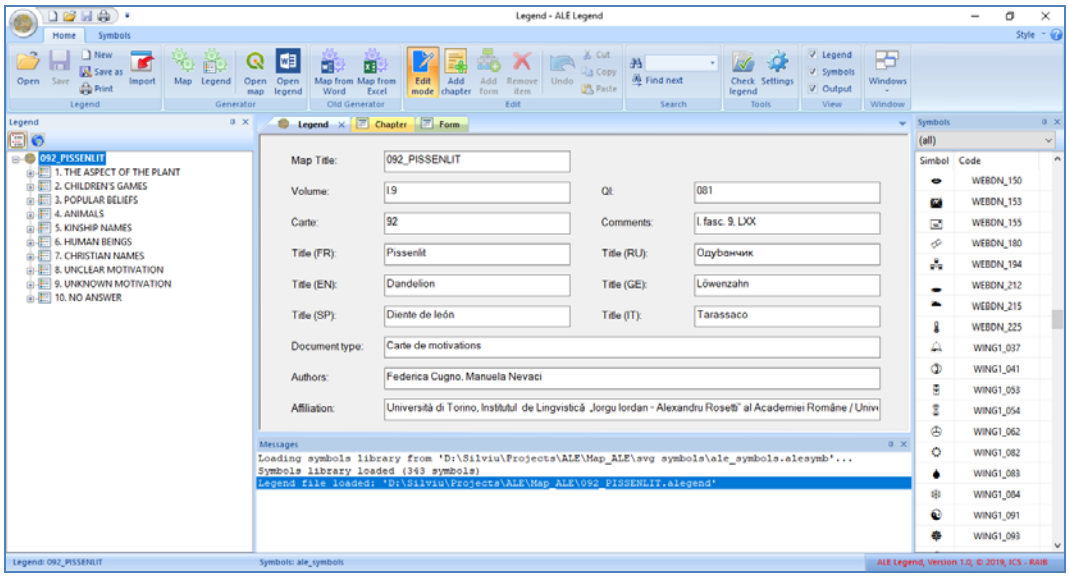
Legend window

The Legend window allows the user to consult and edit the general information about the legend: map title, map number, volume, authors(s), title in other languages, etc.

– The Legend window is automatically shown after the legend file is opened or a new one is created.
– The Legend window is automatically activated if the user selects (click on) the root item in the Legend tree,
– If the Legend item was closed, to open it again the user has to double-click the root item in the Legend tree.

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– By default, all the fields in the Legend window are read-only. To can edit the information the user has to enable the editing mode using the command *Home / Edit / Edit mode*,
– The Legend information is saved in the legend file and is used to automatically prepare the map information displayed in the top left corner of ALE maps.



Chapter window and Form Window

First of all, it must be mentioned that the *Chapter* and *Form* windows are similar because some information can be mentioned either at chapter level or at form level. The difference is that some controls are enabled only in the Chapter window and other controls are enabled only in the Form window.

For this reason, the two windows are described in the same time.

The following controls are available:

– **Belongs to** – is a read-only edit field in which the branch of the legend tree to which the current item belongs is displayed.
– **Chapter** – is the chapter number and it is active and can be edited only in the chapter window. In the Form window the control is read only and it shows the parent chapter number. It is recommended to use the multilevel

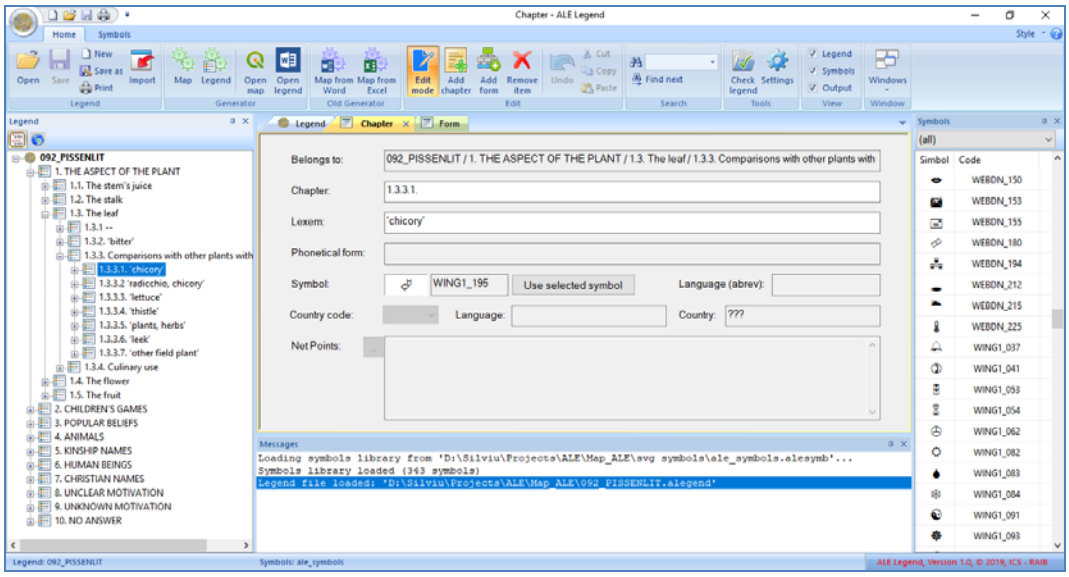
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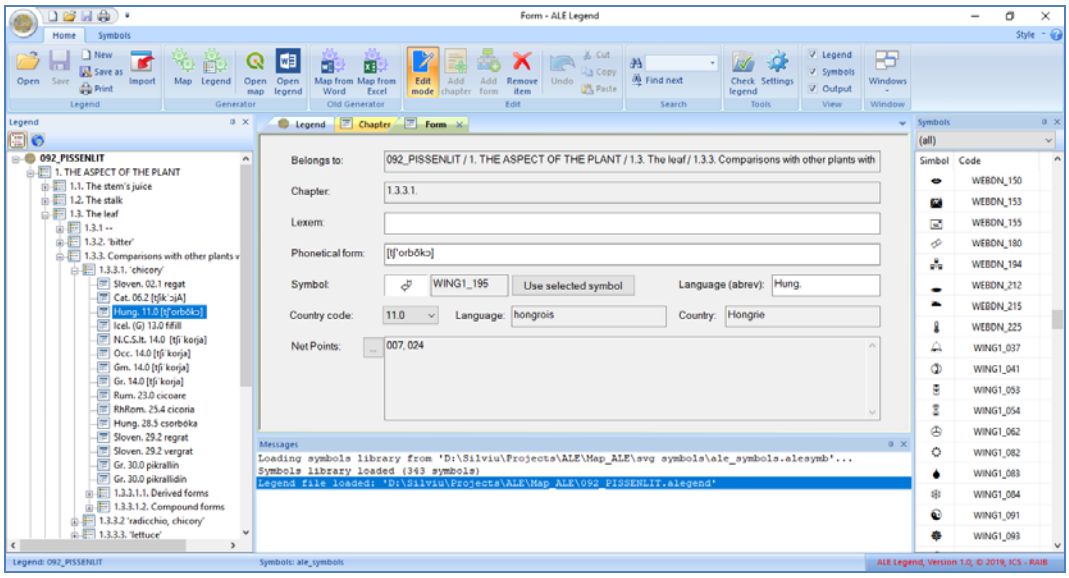
numbering style for chapters. For instance, the numbering correctness is not checked (because there are some errors in the old legends) but it should be.

– **Lexem** – is active in both Chapter and Form windows.
– **Phonetical Form** – is active only in the Form Window**. It can be edited using the ZrCola font and application**.
– **Symbol** – is a group of three controls which are active in both Chapter and Form windows. The *static image* and *symbol code* are not editable and they are empty if there is not an associated symbol. The button "Use selected symbol" can be used to associate the current selected symbol in the Symbols bar to the current chapter or form.
– **Important:** if there is a symbol selected in a chapter window then it will be used as default for all it descendants (sub-chapters or forms). It is not necessary to select the symbol for them. However, it is possible to choose a different symbol for a subtree of chapters and forms. The default will be used for all the other subtrees and their descendants.
– **Language (abrev)** – corresponds to the abbreviation included for all forms in the printed legends. This field is enabled only in the Form window.
– **Country code** – the country code for the current form. The combo box is enabled only in the Form window.
– **Language** – the language associated to the country code, this field is read only in both chapter and form window, because the value depends on the Country code.
– **Country** – the country associated to the country code, the field is read only in both chapter and form window because the value depends on the Country code,
– **NetPoints** – the list of points in which the current form is used. The field is not editable – to reduce the possibility of error. To edit the list of network points, the **Browse (**"…"**)** button placed on the left side of the field must be used.
– "…" (Net points Browse button) – when clicked, the application shows the Network points dialog box. It contains the list of points available for the currently selected Country code. The user has to check the points in which the form is used.

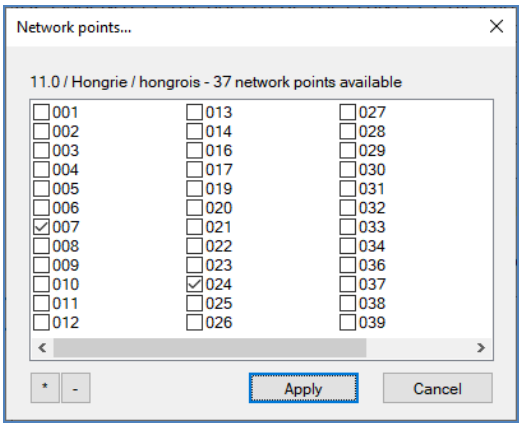
The Browse button is enabled only in the Form window. The image of the dialog box is presented below after the images of the Chapter and Form windows.

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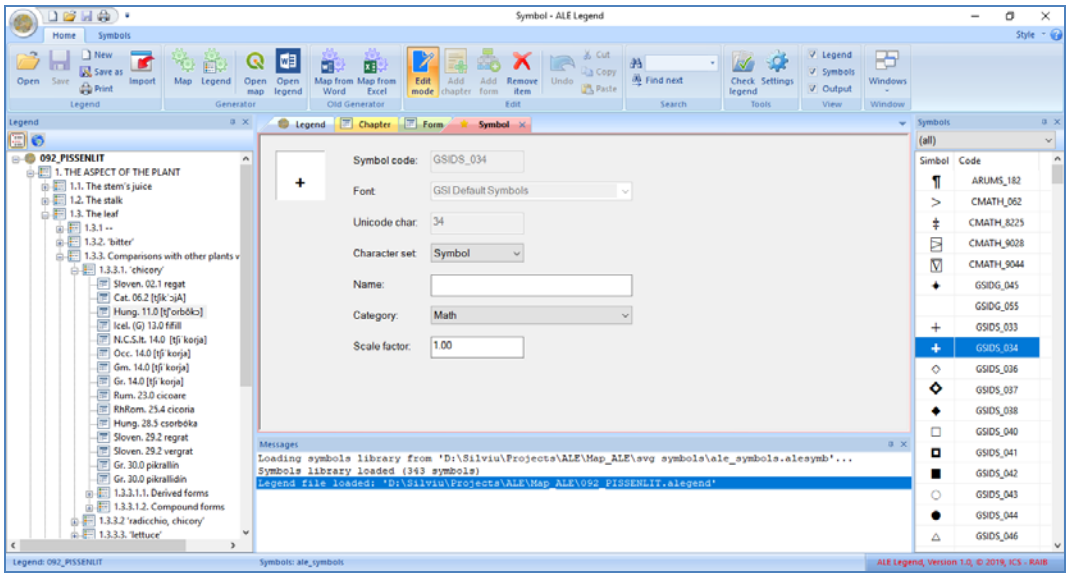


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Symbol window

The Symbol window allows some symbols propertied editing functions. It is displayed when the user double-click a symbol in the Symbols bar.



It shows the following controls:

– **Image** – the shape of the selected symbol; the field is read only.

– **Symbol code** – the code of the symbol. This code must be used in the legend. The field is read only.

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– **Font** – the font name from which the symbol is imported. The field is read only.
– **Unicode char** – Unicode character code. The field is read only.
– **Character set** – character set to which the symbol belongs. For the same Font and char code, the shape may be different depending on the selected character set. The proper character set must be chosen from the combo box to display the correct shape of the desired symbol.
– **Name** – the name of the character. It is optional and it can be used to easily identify the symbol.
– **Category** – specifies the category to which the symbol belongs. A set of predefined categories is available in the combo box. It is used to can filter the symbols in the Symbols bar.
– **Scale** – scaling factor used in Ale maps. Because the shapes of the symbols are smaller for some fonts (e.g. GSIGS - GSI GEOLOGIC SYMBOLS), a scaling factor has to be applied in the ALE maps.

The properties of the symbol are saved in the Symbols library which is described in the annexes of this document.

Settings dialog box

This dialog box allows the user to customize some general settings of the *Ale_Legend* application. In future, the settings will be completed with other required parameters.

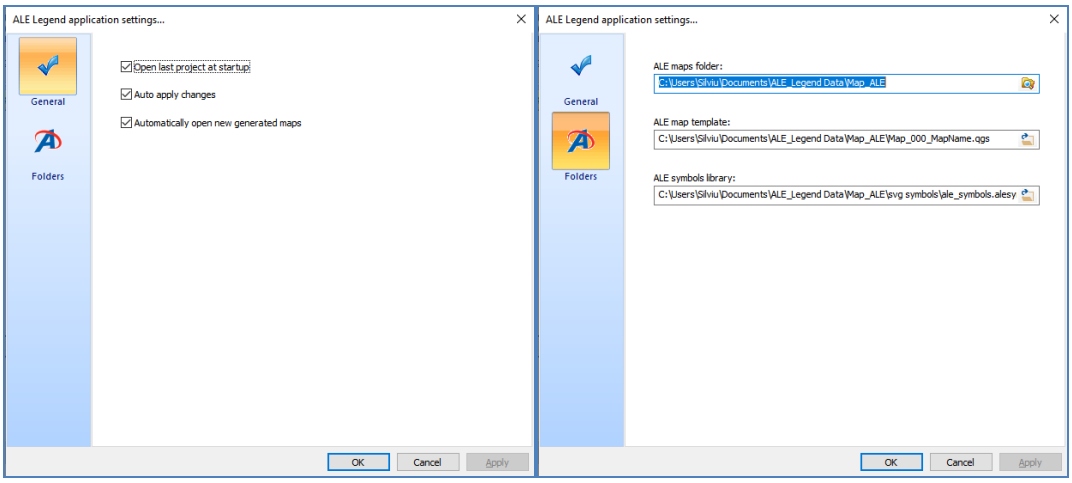
The settings dialog box contains 2 pages: *General settings* and *Folders settings*, described below:

– **General settings**:
  - **Open last project at startup** – if checked, when *ALE_Legend* starts, it opens by default the last edited project (the project edited in the last session).
  - **Auto-apply changes** – if checked, the changes made in the Legend / Chapter / Form / Symbols windows are committed immediately after the window is deactivated or the user selects another item in the Legend tree – which requires the content of the window to be changed. It is recommended to keep this control checked by default.
  - **Automatically open new generated maps** – if checked, the application automatically starts the QGIS application and opens the new generated maps.

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– **Folders settings**:
  - **ALE maps folder** – the user can choose / change the default folder in which the data files are stored. When *ALE_Legend* is installed, this folder is set to the path chosen during the installation process.
  - **ALE map template** – specifies the full path name of the map template which is located in the ALE maps folder,
  - **ALE symbols library** – specifies the full path name of the symbols library. It is located in a subfolder of the ALE maps folder.

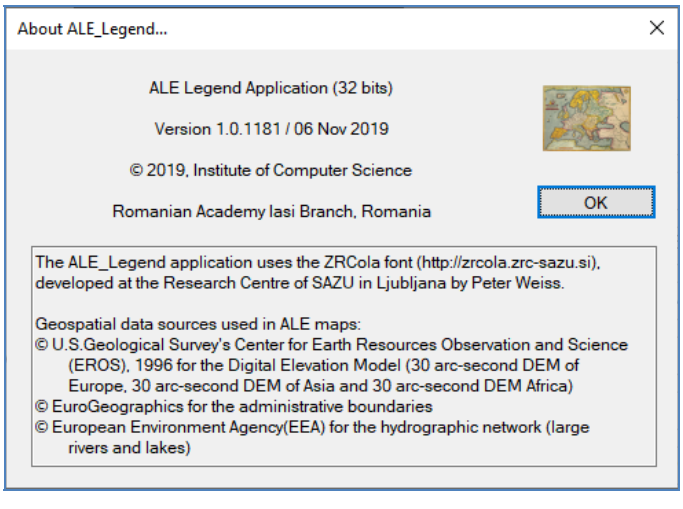
Important notes:
– Because the **ALE map template** and the **ALE Symbols library** are located in the **ALE maps folder**, these folders are automatically changed when the **ALE maps folder** is changed.
– It is not recommended to change the location of the **ALE map template** or **ALE Symbols library**.
– It is not recommended to change the structure of the **ALE maps folder** or to rename its subfolders or initially installed files because the *ALE_Legend* application uses their default names and relative paths.



About dialog box

The About dialog box presents the *ALE_Legend* version number, copyright information and the source of geospatial data used in the ALE maps.
Important: the version number contains the build number and the date of the build (1170 and 13 Oct 2019) in the image below. These are important to completely identify the version of the application – at least in this development stage.

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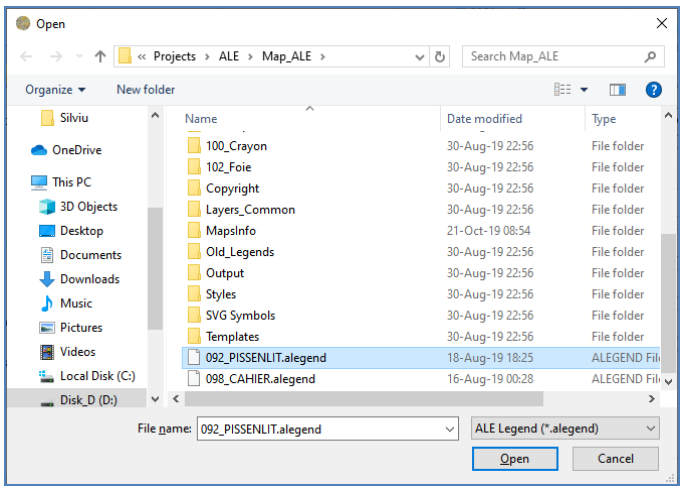


HOW TO GENERATE ALE MAPS

In the following sections the main functionalities and operating modes of the *ALE_Legend* application are described.

Open an existing legend

When the *ALE_Legend* is started, if the corresponding option is enabled, it automatically opens the last edited project. Otherwise, the user has to open a legend using the command *Home / Legend / Open* on the ribbon bar. When the command is selected, the File open dialog box is displayed.



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– The legend file (must) be located in the ALE maps folder and the extension is “alegend”.
– After the file is opened, the content of the Legend / Chapter / Form window is populated.
– By default, the installation contains two already prepared legends: 092_PISSENLIT and 098_CAHIER.
– The “alegend” files structure is presented in the annexes of this document.

Creating new ALE Legends

The *ALE_Legend* application allows to create new legends from scratch or to import the content of old legends prepared using Microsoft Word.

Creating new ALE Legends from scratch

To create a new legend the user has to select the *Home / Legend / New* command on the ribbon bar.

– First, the application will ask the user to save changes made in the current opened document, if is the case.
– Then, the content of the Legend tree, Legend, Chapter and Form windows is reset to the default or empty values.
– The Legend tree contains only the root item.
– To add new chapters and forms, the user has to enable the Edit mode using the command *Home / Edit / Edit mode* and then add new elements by using the *Home / Edit / Add chapter* and *Home / Edit / Add form* commands on the ribbon bar.
– The new elements are added as children of the currently selected item in the Legend tree.
– When a new chapter is added in the tree, a new form is also added in the new chapter.

Importing old ALE Legends

To import the content of an old legend edited in Microsoft Word, the user has to select the *Home / Legend / Import* command on the ribbon bar.

– First, the application will ask the user to save changes made in the current opened legend, if is the case.
– Then the application will show the File Open dialog box in which the Word (.doc or .docx) must be selected.
– After the document selection the content of the Legend tree, Legend, Chapter and Form windows is reset to the default or empty values.
– The application starts Microsoft Word in background (not visible) and parses the file.
– The progress of the work is displayed in the Messages window.
– At the end, the content of the Messages window looks like in the image below.
– After the “Legend tree loaded” is displayed, the content of the Legend tree is updated.

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– During the import operation some errors may be generated.
–It is recommended to close all the other running instances of Microsoft Word before to start an import operation.

```
Loading legend from 'D:\Silviu\Projects\ALE\ALE – Project\Maps 2019
Work\092_Pissenlit (W,E)\02 PISSENLIT_sb.docx'
Microsoft Word is working in background... 100% (978/978)
Loaded: 977 legend items
Microsoft Word closed.
Building Legend tree...
Loading Legend tree content...
Legend tree loaded.
```

To be imported, the old Word legend must be formatted as it is described below. Two examples of old legends already prepared for import are available in the *ALE_Legend* installation in folders

"…\Map_ALE\Old_Legends\092_Pissenlit (W,E)\02 PISSENLIT_sb.docx"
and
"…\Map_ALE\Old_Legends\098_Cahier (W,E)\08 CAHIER_sb.docx"

Volume [I.9], carte [92]
QI: [081]

[PISSENLIT], [ОДУВАНЧИК], [DANDELION], [LÖWENZAHN], [DIENTE DE LEÓN], [TARASSACO]

[Légende]

[FEDERICA CUGNO, MANUELA NEVACI],
[Università di Torino, Institutul de Lingvistică „Iorgu Iordan – Alexandru Rosetti" al Academiei Române / Universitatea din București]

[Chapter in the article]	Lexem	Phonetical form	Symbols	Symb_Code	Language	Country	Net-point
1.	**THE ASPECT OF THE PLANT**						
1.1.	**The stem's juice**						
1.1.1.	Derived from 'milk'		↑	WING1_233			
	qumështore				Alb.	01.0	001-010
	mleč				Bulg.	04.0	031
	mlečka				Bulg.	04.0	014, 016, 017, 020, 029, 030
	mlečok				Bulg.	04.0	003, 009, 012, 015,
	mlečăk				Bulg.	04.0	002, 004, 005, 007
	mlecz				Pol.	19.0	001-003, 006–009, 011-021, 023-028, 031,

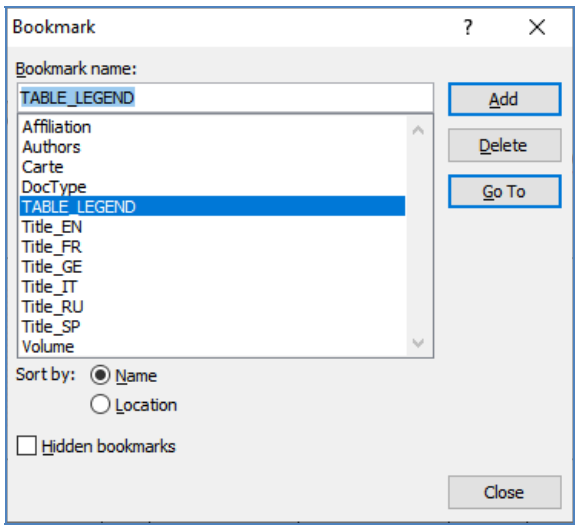
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The following formatting rules have to be respected:

– To can import all information about the legend a set of bookmarks must be defined in the document: Affiliation, Authors, Carte, DocType, Title_EN, Title_FR, Title_GE, Title_IT, Title_RU, Title_SP, Volume. For all these, the text marked by bookmarks will be imported as it is in the corresponding fields of the Legend window. The markers are visible in the image above as squared brackets.

– To can import the legend content, the information must be organized in a table and the whole table content must be bookmarked with the name "TABLE_LEGEND".

– To add a bookmark in Word, you have to:
  - Select the text to be marked,
  - Select the command *Insert / Link / Bookmark*,
  - The dialog box in the image below is displayed,
  - Type the name of the new bookmark and click Add,
  - Click close and repeat this sequence for all the required bookmarks.



– The table must have the 8 columns. The titles of the columns are not mandatory but the first row must exist. The columns are:
  - **Chapter**
  - **Lexem**
  - **Phonetical form**
  - **Symbols**
  - **Symbol code** – the code of the symbol in the Symbols library

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- **Language**
- **Country code**
- **Net points.**

Generating maps from ALE Legends

To generate the ALE map from the current open legend, the user has to select the command "*Home / Generator / Map*":

– The generation process starts in background and the progress is displayed in the Messages bar.
– If the process finishes without error, the content of the Messages bar looks like in the image below.
– At the end, if the map generation succeeded, the QGIS application is opened and the new map is displayed. This happens only if the corresponding option is enabled in the Settings dialog box.

```
Loading symbols library from 'C:\Users\Silviu\Documents\ALE_Legend
Data\Map_ALE\svg symbols\ale_symbols.alesymb'...
Symbols library loaded (343 symbols)
Legend file loaded: 'D:\Silviu\Projects\ALE\Map_ALE\092_PISSENLIT.alegend'
------------------------------------------------------------
Preparing legend...
------------------------------------------------------------
Loaded: 2365 legend items
------------------------------------------------------------
------------------------------------------------------------
Checking SVG symbols availability...
------------------------------------------------------------
------------------------------------------------------------
Copying ALE points files...
------------------------------------------------------------
------------------------------------------------------------
Updating ALE points database...
------------------------------------------------------------
------------------------------------------------------------
Creating new QGIS project...
------------------------------------------------------------
------------------------------------------------------------
Checking symbols in the map template...
------------------------------------------------------------
All used symbols are available in the map template
------------------------------------------------------------
  0 errors.          The list is saved in
```

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```
'D:\Silviu\Projects\ALE\Map_ALE\\092_PISSENLIT_Errors.txt'
 150 symbols used.    The list is saved in
'D:\Silviu\Projects\ALE\Map_ALE\\092_PISSENLIT_Symbols_used.txt'
   0 fonts missing.   The list is saved in
'D:\Silviu\Projects\ALE\Map_ALE\\092_PISSENLIT_Fonts_missing.txt'
   0 symbols missing. The list is saved in
'D:\Silviu\Projects\ALE\Map_ALE\\092_PISSENLIT_Symbols_missing.txt'
   0 symbols missing. The list is saved in
'D:\Silviu\Projects\ALE\Map_ALE\\092_PISSENLIT_Symbols_missing_in_map_t
emplate.txt'
------------------------------------------------------------
Cleaning data...
------------------------------------------------------------
Map generation succeeded: C:\Users\Silviu\Documents\ALE_Legend
Data\Map_ALE\Map_092_PISSENLIT.qgs
------------------------------------------------------------
```

– During the map generation process some errors can be displayed, most of them related to the symbols availability:
  - The SVG symbol file is missing,
  - The symbol is not in the library,
  - The symbol is not specified in the map template description.
– For instance, other errors like: net point not assigned or net point appears in more than one form are not reported.

Generating ALE maps from old Word Legends

The *ALE_Legend* application can generate directly from the Word legends, without importing the information in the new legend format. This option is recommended when the content of the word file is incomplete.

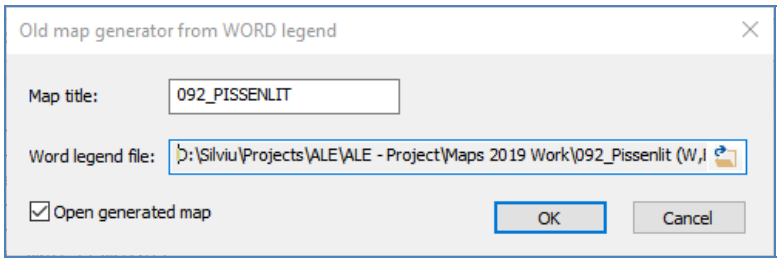
To can be used, the Word file must have the same structure as it was described in the previous section, with the difference that only the information in columns 5 (Symbol code), 7 (Country) and 8 (Net points) is used. So that, all the columns must exist but for the other columns is not required to have the information completed.

To generate a map:

– the user has to select the *Home / Old generator / Map from Word* command,
– the application displays the dialog box in the image below, in which must be specified:
  - the name of the new map,
  - the full path name of the Word file,

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- check or uncheck the option to automatically open the generated map in QGIS.



– the generation process starts in background and the progress is displayed in the Messages window.
– At the end, the content of the Messages bar will look like in the image below.
– During the map generation process some errors can be displayed, most of them related to the symbols availability, as in the previous section.
– For instance, other errors like: net point not assigned or net points which appear in more than one form, are not reported.

```
------------------------------------------------------------
Loading legend: D:\Silviu\Projects\ALE\ALE - Project\Maps 2019
Work\092_Pissenlit (W,E)\02 PISSENLIT_sb.docx
------------------------------------------------------------
Microsoft Word is working in background... 100% (978/978)
Loaded: 2365 legend items
------------------------------------------------------------
Microsoft Word closed
------------------------------------------------------------
Checking SVG symbols availability...
------------------------------------------------------------
------------------------------------------------------------
Copying ALE points files...
------------------------------------------------------------
------------------------------------------------------------
Updating ALE points database...
------------------------------------------------------------
------------------------------------------------------------
Creating new QGIS project...
```

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```
------------------------------------------------------------
------------------------------------------------------------
Checking symbols in the map template...
------------------------------------------------------------
All used symbols are available in the map template
------------------------------------------------------------
  0 errors.         The list is saved in 'D:\Silviu\Projects\ALE\ALE - Project\Maps
2019 Work\092_Pissenlit (W,E)\\092_PISSENLIT__Errors.txt'
 150 symbols used.    The list is saved in 'D:\Silviu\Projects\ALE\ALE -
Project\Maps 2019 Work\092_Pissenlit
(W,E)\\092_PISSENLIT__Symbols_used.txt'
  0 fonts missing.   The list is saved in 'D:\Silviu\Projects\ALE\ALE -
Project\Maps 2019 Work\092_Pissenlit
(W,E)\\092_PISSENLIT__Fonts_missing.txt'
  0 symbols missing. The list is saved in 'D:\Silviu\Projects\ALE\ALE -
Project\Maps 2019 Work\092_Pissenlit
(W,E)\\092_PISSENLIT__Symbols_missing.txt'
  0 symbols missing. The list is saved in 'D:\Silviu\Projects\ALE\ALE -
Project\Maps 2019 Work\092_Pissenlit
(W,E)\\092_PISSENLIT__Symbols_missing_in_map_template.txt'
------------------------------------------------------------
Cleaning data...
------------------------------------------------------------
Map generation succeeded: C:\Users\Silviu\Documents\ALE_Legend
Data\Map_ALE\Map_092_PISSENLIT_.qgs
------------------------------------------------------------
```

Generating maps from old Excel Legends

The *ALE_Legend* application can generate maps directly from the Excel legends which were used to generate the ALE maps using the Surf application. The Excel files format is the same. Because the way in which the symbols are specified is not the same for all the countries or maps, it is recommended to use the new symbols encoding proposed earlier in this manual. However, the old encoding is accepted but the correctness is not guaranteed.

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	A	B	C	D	E	F	G	H	I	J	K	L
1	Tara	Punct	x	y	Forma	SYMBL_167	GSIDS_088	GSIDS_143	TIMES_045	GSIDS_143	SYMBL_170	Forma7
7	Finlanda	1F	4706.36	5808.368647	1	1						
8	Finlanda	2F	4591.91	5377.10108	1	1						
9	Finlanda	3F	4696.59	5367.331561	1	1						
10	Finlanda	4F	4801.27	5504.108725	1	1						
11	Finlanda	5F	4954.79	5477.590832	1	1						
12	Finlanda	6F	4936.65	5269.633447	1	1						
13	Finlanda	7F	4557.02	5128.668581	2		1					
14	Finlanda	8F	4778.94	5141.229739	1	1						
15	Finlanda	9F	4854.3	5032.366044	1	1						
16	Finlanda	10F	5146	5148.208593	1	1						
17	Finlanda	11F	4423.04	4838.365393	3			1				
18	Finlanda	12F	4541.67	4852.322614	1	1						
19	Finlanda	13F	4598.89	4956.999095	1	1						
20	Finlanda	14F	4665.89	4832.782602	1	1						
21	Finlanda	15F	4749.63	5010.035366	1	1						
22	Finlanda	16F	4776.15	4855.113766	1	1						
23	Finlanda	17F	4827.79	4871.862139	1	1						
24	Finlanda	18F	4953.4	5011.430942	1	1						
25	Finlanda	19F	4537.48	4790.912399	1	1						
26	Finlanda	20F	4550.04	4728.106121	3			1				
27	Finlanda	21F	4579.35	4709.962172	3			1				
28	Finlanda	22F	4672.86	4736.480551	3			1				
29	Finlanda	23F	4898.97	4793.703551	1	1						
30	Finlanda	101F	4668.93	6027.349477	1	1						
31	Finlanda	102F	4616.9	5727.540113	1	1						

To can generate the ALE maps, the following 27 Excel files (one for each country or group of countries) must be available in the same folder:

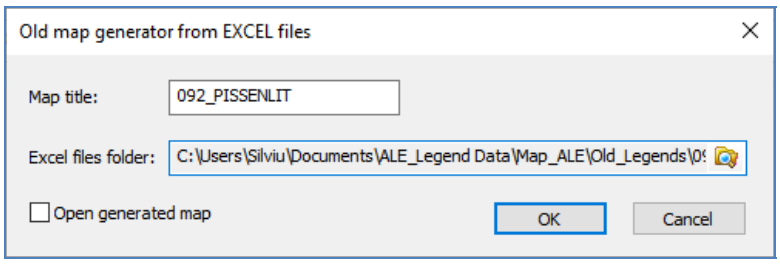
– Albania.xls
– Austria.xls
– Baltic.xls
– Belarus.xls
– BeNeLux.xls
– Bulgaria.xls
– Cehia_Slovacia.xls
– Danemarca.xls
– Elvetia.xls
– Finlanda.xls
– Franta.xls
– Germania.xls
– Grecia.xls
– Irlanda.xls
– Italia.xls
– Norvegia.xls
– Polonia.xls
– Portugalia.xls
– Regatul_Unit.xls
– Romania.xls
– Rusia.xls
– Spania.xls
– Suedia.xls
– Turcia.xls
– Ucraina.xls
– Ungaria.xls

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– Yugoslavia.xls

To generate a map:

– the user has to select the *Home / Old generator / Map from Excel* command,
– the application displays the dialog box in the image below, in which must be specified:
  - the name of the new map,
  - the folder in which the set of 27 Excel files are located,
  - check or uncheck the option to automatically open the generated map in QGIS.



– the generation process starts in background and the progress is displayed in the Messages window.
– At the end, the content of the Messages bar will look like in the images below.
– During the map generation process some errors can be displayed, most of them related to the symbols availability, as in the previous section.
– For instance, other errors like: net point not assigned or net points which appear in more than one form, are not reported.

```
-------------------------------------------------------------
Converting Excel files to CSV...
-------------------------------------------------------------
Microsoft Excel started in background
Converting 'C:\Users\Silviu\Documents\ALE_Legend
Data\Map_ALE\Old_Legends\092_Pissenlit (W,E)\Albania.xls'
Converting 'C:\Users\Silviu\Documents\ALE_Legend
Data\Map_ALE\Old_Legends\092_Pissenlit (W,E)\Austria.xls'
Converting 'C:\Users\Silviu\Documents\ALE_Legend
Data\Map_ALE\Old_Legends\092_Pissenlit (W,E)\Baltic.xls'
Converting 'C:\Users\Silviu\Documents\ALE_Legend
Data\Map_ALE\Old_Legends\092_Pissenlit (W,E)\Belarus.xls'
Converting 'C:\Users\Silviu\Documents\ALE_Legend
Data\Map_ALE\Old_Legends\092_Pissenlit (W,E)\BeNeLux.xls'
```

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```
Converting 'C:\Users\Silviu\Documents\ALE_Legend
Data\Map_ALE\Old_Legends\092_Pissenlit (W,E)\Bulgaria.xls'
Converting 'C:\Users\Silviu\Documents\ALE_Legend
Data\Map_ALE\Old_Legends\092_Pissenlit (W,E)\Cehia_Slovacia.xls'
Converting 'C:\Users\Silviu\Documents\ALE_Legend
Data\Map_ALE\Old_Legends\092_Pissenlit (W,E)\Danemarca.xls'
Converting 'C:\Users\Silviu\Documents\ALE_Legend
Data\Map_ALE\Old_Legends\092_Pissenlit (W,E)\Elvetia.xls'
Converting 'C:\Users\Silviu\Documents\ALE_Legend
Data\Map_ALE\Old_Legends\092_Pissenlit (W,E)\Finlanda.xls'
Converting 'C:\Users\Silviu\Documents\ALE_Legend
Data\Map_ALE\Old_Legends\092_Pissenlit (W,E)\Franta.xls'
Converting 'C:\Users\Silviu\Documents\ALE_Legend
Data\Map_ALE\Old_Legends\092_Pissenlit (W,E)\Germania.xls'
Converting 'C:\Users\Silviu\Documents\ALE_Legend
Data\Map_ALE\Old_Legends\092_Pissenlit (W,E)\Grecia.xls'
Converting 'C:\Users\Silviu\Documents\ALE_Legend
Data\Map_ALE\Old_Legends\092_Pissenlit (W,E)\Irlanda.xls'
Converting 'C:\Users\Silviu\Documents\ALE_Legend
Data\Map_ALE\Old_Legends\092_Pissenlit (W,E)\Italia.xls'
Converting 'C:\Users\Silviu\Documents\ALE_Legend
Data\Map_ALE\Old_Legends\092_Pissenlit (W,E)\Norvegia.xls'
Converting 'C:\Users\Silviu\Documents\ALE_Legend
Data\Map_ALE\Old_Legends\092_Pissenlit (W,E)\Polonia.xls'
Converting 'C:\Users\Silviu\Documents\ALE_Legend
Data\Map_ALE\Old_Legends\092_Pissenlit (W,E)\Portugalia.xls'
Converting 'C:\Users\Silviu\Documents\ALE_Legend
Data\Map_ALE\Old_Legends\092_Pissenlit (W,E)\Regatul_Unit.xls'
Converting 'C:\Users\Silviu\Documents\ALE_Legend
Data\Map_ALE\Old_Legends\092_Pissenlit (W,E)\Romania.xls'
Converting 'C:\Users\Silviu\Documents\ALE_Legend
Data\Map_ALE\Old_Legends\092_Pissenlit (W,E)\Rusia.xls'
Converting 'C:\Users\Silviu\Documents\ALE_Legend
Data\Map_ALE\Old_Legends\092_Pissenlit (W,E)\Spania.xls'
Converting 'C:\Users\Silviu\Documents\ALE_Legend
Data\Map_ALE\Old_Legends\092_Pissenlit (W,E)\Suedia.xls'
Converting 'C:\Users\Silviu\Documents\ALE_Legend
Data\Map_ALE\Old_Legends\092_Pissenlit (W,E)\Turcia.xls'
Converting 'C:\Users\Silviu\Documents\ALE_Legend
Data\Map_ALE\Old_Legends\092_Pissenlit (W,E)\Ucraina.xls'
Converting 'C:\Users\Silviu\Documents\ALE_Legend
Data\Map_ALE\Old_Legends\092_Pissenlit (W,E)\Ungaria.xls'
Converting 'C:\Users\Silviu\Documents\ALE_Legend
Data\Map_ALE\Old_Legends\092_Pissenlit (W,E)\Yugoslavia.xls'
```

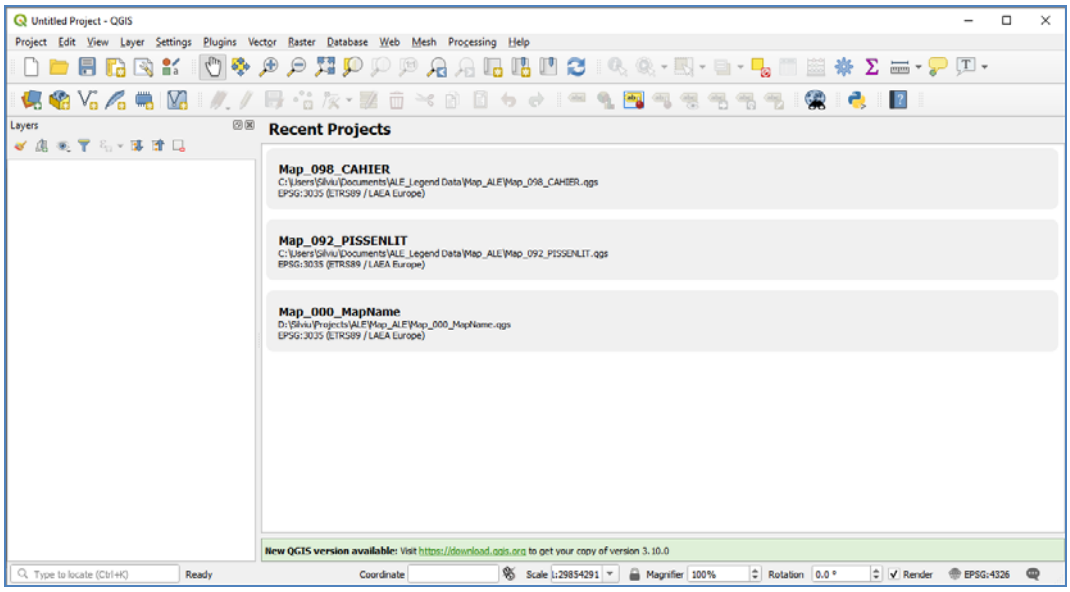
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```
Microsoft Excel stopped
-----------------------------------------------------------
Loading CSV files content...
-----------------------------------------------------------
-----------------------------------------------------------
Checking SVG symbols availability...
-----------------------------------------------------------
-----------------------------------------------------------
Copying ALE points files...
-----------------------------------------------------------
-----------------------------------------------------------
Updating ALE points database...
-----------------------------------------------------------
-----------------------------------------------------------
Creating new QGIS project...
-----------------------------------------------------------
-----------------------------------------------------------
Checking symbols in the map template...
-----------------------------------------------------------
All used symbols are available in the map template
-----------------------------------------------------------
   0 errors.          The list is saved in 'C:\Users\Silviu\Documents\ALE_Legend
Data\Map_ALE\Old_Legends\092_Pissenlit (W,E)\092_PISSENLIT_Errors.txt'
 128 symbols used.    The list is saved in 'C:\Users\Silviu\Documents\ALE_Legend
Data\Map_ALE\Old_Legends\092_Pissenlit
(W,E)\092_PISSENLIT_Symbols_used.txt'
   0 fonts missing.   The list is saved in 'C:\Users\Silviu\Documents\ALE_Legend
Data\Map_ALE\Old_Legends\092_Pissenlit
(W,E)\092_PISSENLIT_Fonts_missing.txt'
   0 symbols missing. The list is saved in 'C:\Users\Silviu\Documents\ALE_Legend
Data\Map_ALE\Old_Legends\092_Pissenlit
(W,E)\092_PISSENLIT_Symbols_missing.txt'
   0 symbols missing. The list is saved in 'C:\Users\Silviu\Documents\ALE_Legend
Data\Map_ALE\Old_Legends\092_Pissenlit
(W,E)\092_PISSENLIT_Symbols_missing_in_map_template.txt'
-----------------------------------------------------------
Removing CSV files...
Cleaning data...
-----------------------------------------------------------
Map generation succeeded: C:\Users\Silviu\Documents\ALE_Legend
Data\Map_ALE\Map_092_PISSENLIT.qgs
-----------------------------------------------------------
```

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PRINTING THE ALE MAPS

To print the ALE maps, the QGIS application must be used.
The ALE map can be opened in QGIS:
– After it is successfully generated in the *ALE_Legend* application, if the proper option was selected, *ALE_Legend* automatically starts QGIS and open the ALE map,
– By selecting the command *Home / Generator / Open map* on the ribbon bar, the ALE map previously generated from the current legend is automatically opened in QGIS,
– By starting the QGIS application from the Start menu of the operating system. The QGIS window is displayed:



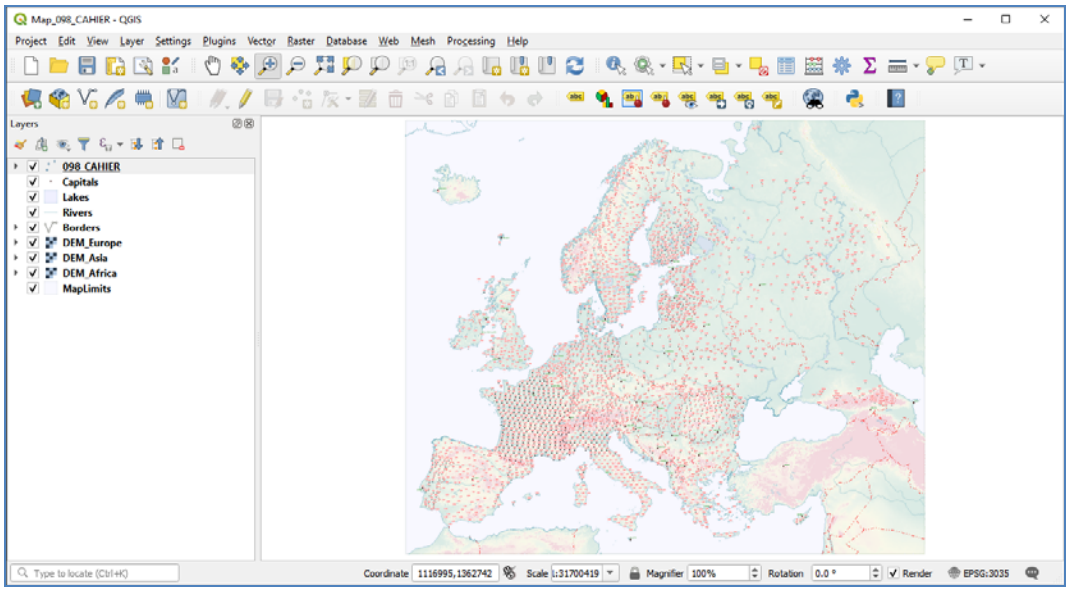
The list contains the most recently opened maps. The user can choose a map to open from this list or can use the *Project / Open* command to select it using the usual *File open* dialog box.

The maps are opened as QGIS projects and the files must have the extension ".qgs".

After QGIS opens the ALE map, the QGIS application window looks like in the image below. It shows only the map without any decorative elements.

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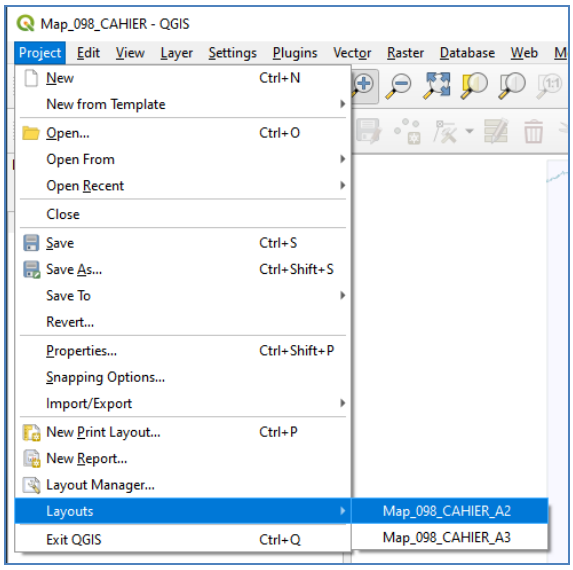
– On the left side of the window is displayed the Layers bar, where the user can hide or show the layers or can change the drawing properties or each layer.
– The following layers are included in the map: 098_Cahier (the name of the map, it contains the network points and all associated symbols), Capitals, Lakes, Rivers, Borders, DEM_Europe, DEM_Asia, DEM_Africa and MapLimits.
– **It is not recommended to modify the layers properties.**
– Some usual visualization commands, like: **Zoom in**, **Zoom out**, **Zoom to extent**, **Pan** are available on the toolbar and also in the application's menu. These commands can be used to examine the map content.



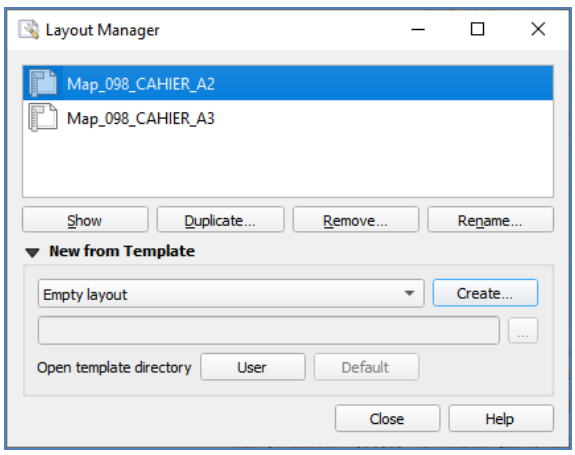
In the ALE maps two printing layouts are defined: A2 and A3. They depend on the size of the paper for which the map was prepared. These layouts can be used to print the maps on other sizes of papers, **but this is not recommended**. To achieve the best quality, the proper layout must be chosen.

The printing layouts can be selected by using the following commands: *File / Layout manager* and *File / Layouts / <LayoutName>*.

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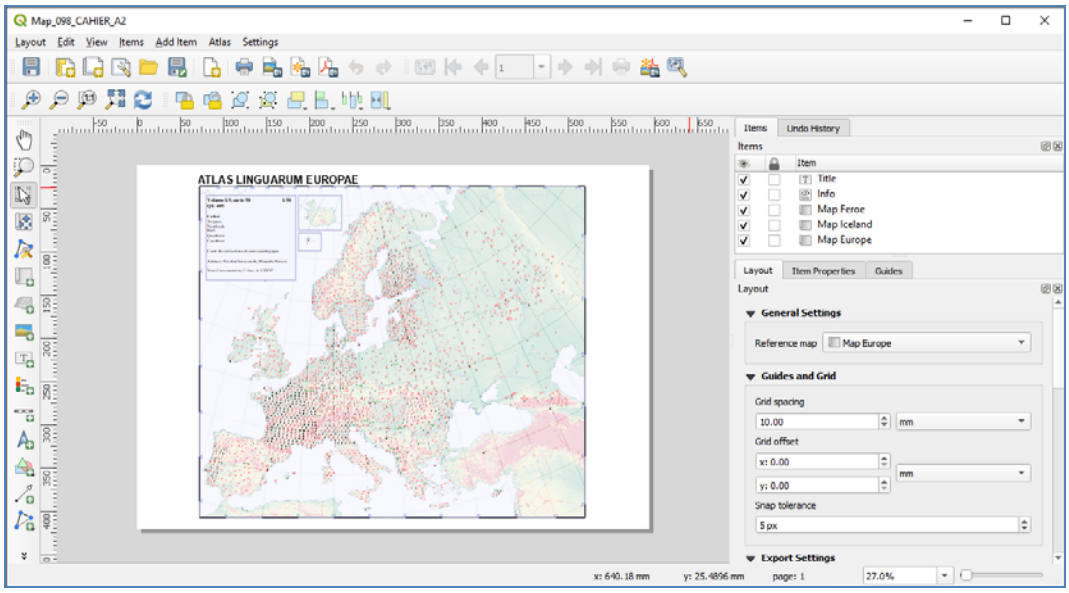


If the command *File / Layout manager* command was used, QGIS shows the dialog box presented in the image below. To open a layout, the user has to select it in the list and click the *Show* button.

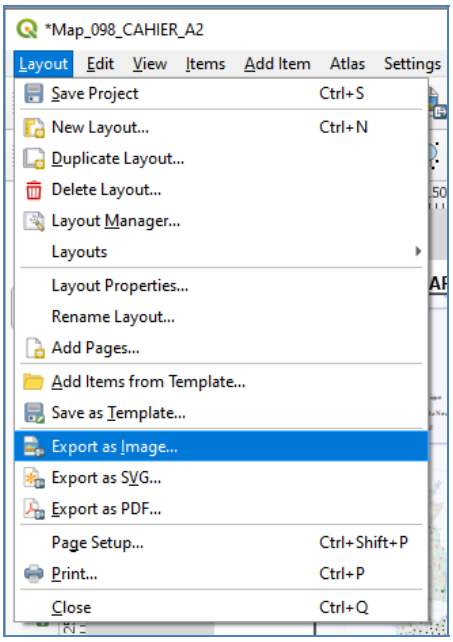


After the layout was selected, QGIS opens a new window in which the final printable map is displayed, as in the image below. In the layout window the user can choose to directly send the map to the printer or to save it as image or in PDF file format. **It is not recommended to use other commands that modify the layout**.

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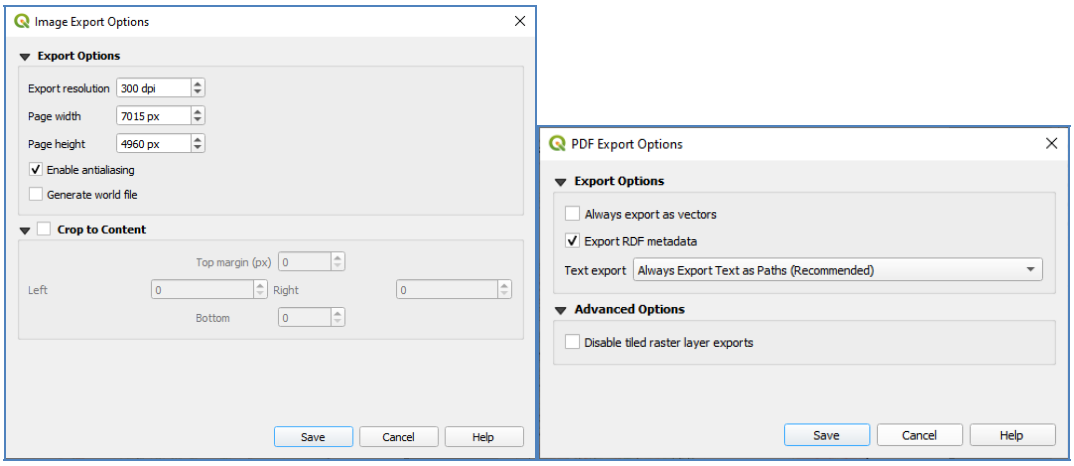


The three commands are available in the Layout menu.



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– **Print command** – the usual File Print dialog box is displayed and the user can print the map,
– **Export as image** – the map can be exported in various image file formats which can be chosen in the usual File Save dialog box. Then QGIS shows the Image Export Options dialog box in which the resolution, image size and other options can be selected. **We recommend not modifying these values**.
– **Export as PDF** – the map is exported in a PDF file. First, the usual File save dialog box is presented and then some additional options can be modified in the PDF Export Options dialog box. **We recommend not modifying these values**.



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ANNEX 1 – SYMBOLS LIBRARY

The QGIS platform can draw symbols on maps, with the notice that the symbols must be presented as SVG (Scalable Vector Graphics) files. To create SVG files (one for each available symbol), the FontForge application is used. The user has to open the True Type font in FontForge, select the desired character and save it in SVG file format. Then the SVG file must be copied in the *SVG Symbols* sub-folder of *ALE_Legend* data folder. Also, the symbol code has to be added in the ALE map template project file.

The symbols are encoded using names as <nnnnn_ccc>, where nnnnn (5 letters) is the font code which specifies the font from which the symbol is created, and ccc (3 digits) is the char code (ASCII code) of the corresponding character. There are some exceptions where the ASCII code is specified by more than three digits.

The font codes for all typefaces used, are presented in the following table:

Font code	**Typeface name**
GSIDS	GSI DEFAULT SYMBOLS
GSIDS	DEFAULT SYMBOLS
GSIGS	GSI GEOLOGIC SYMBOLS
GSIMS	GSI MAP SYMBOLS
GSIDG	GSI DIGER
WEBDN	Webdings
WING1	WINGDINGS
WING2	WINGDINGS 2
WING3	WINGDINGS 3
SYMBL	SYMBOL
CMATH	Cambria Math
TIMES	Times New Roman
ARUMS	Arial Unicode MS
MSRSS	Microsoft Reference Sans Serif
WDLAT	Wide Latin
SSYMB	Segoe UI Symbol
SMDL2	Segoe MDL2 Assets

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¶	ARUMS_182
>	CMATH_062
‡	CMATH_8225
	CMATH_9028
	CMATH_9044
✦	GSIDG_045
⚠	GSIDG_055
+	GSIDS_033
✚	GSIDS_034
◇	GSIDS_036
❖	GSIDS_037
◆	GSIDS_038
□	GSIDS_040
◘	GSIDS_041
■	GSIDS_042
○	GSIDS_043
●	GSIDS_044
△	GSIDS_046
▲	GSIDS_047
▵	GSIDS_049
▽	GSIDS_052
▼	GSIDS_053
▷	GSIDS_055
▶	GSIDS_056
◁	GSIDS_057
×	GSIDS_061
☆	GSIDS_063
☆	GSIDS_064
★	GSIDS_065
☼	GSIDS_066
✸	GSIDS_067
✡	GSIDS_068
✵	GSIDS_069
✶	GSIDS_070
✳	GSIDS_071
⊞	GSIDS_073
⊠	GSIDS_075
⊕	GSIDS_076
✠	GSIDS_078
✙	GSIDS_079
✣	GSIDS_080
✤	GSIDS_081

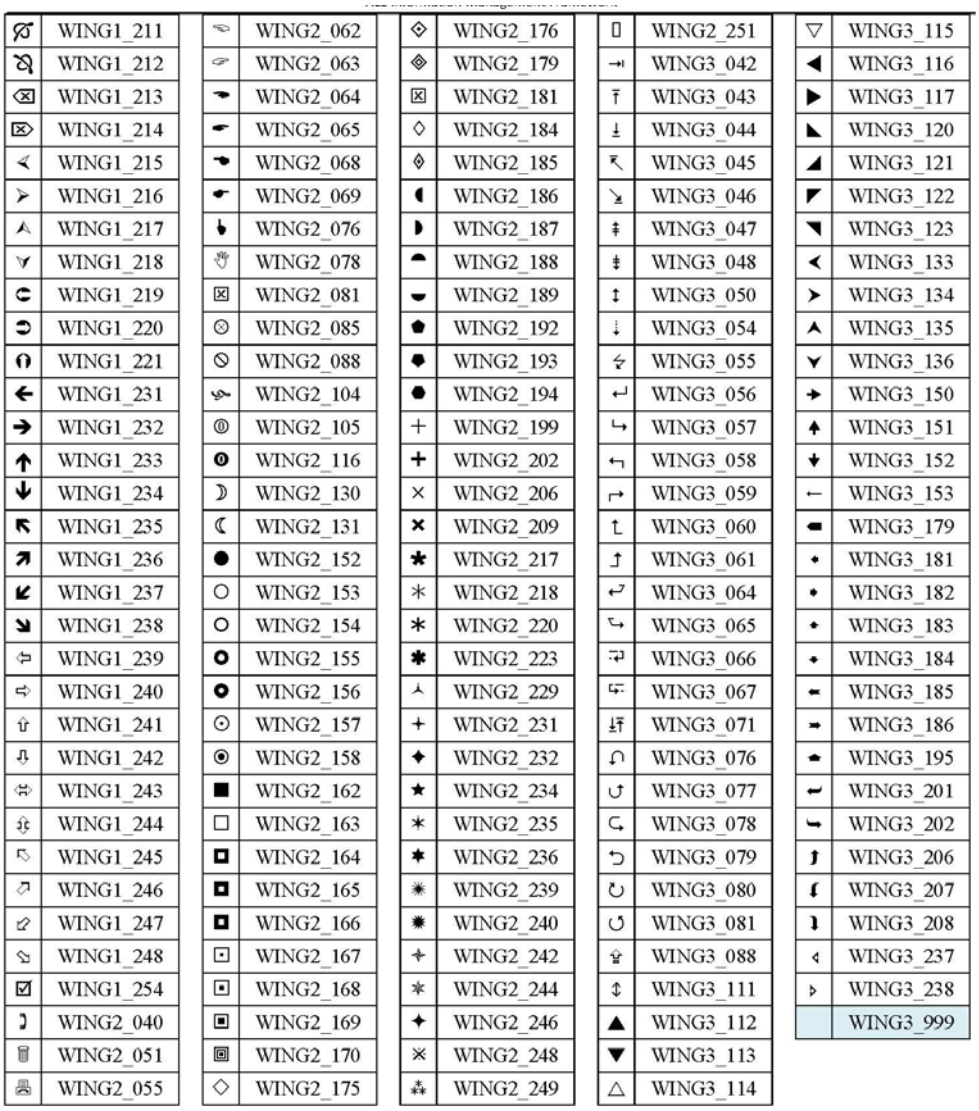
✤	GSIDS_082
◮	GSIDS_084
▽	GSIDS_086
◨	GSIDS_088
⧫	GSIDS_089
◊	GSIDS_091
!	GSIDS_105
◑	GSIDS_109
◐	GSIDS_110
◖	GSIDS_112
◗	GSIDS_113
✲	GSIDS_115
✧	GSIDS_119
◊	GSIDS_121
✲	GSIDS_125
✧	GSIDS_129
◒	GSIDS_131
✷	GSIDS_133
✦	GSIDS_135
✓	GSIDS_137
✓	GSIDS_139
◩	GSIDS_141
⏱	GSIDS_142
⏱	GSIDS_143
'	GSIDS_145
'	GSIDS_146
⫶	GSIGS_061
⊕	GSIGS_091
◐	GSIGS_114
▫	GSIGS_120
⊕	GSIGS_121
⧈	GSIGS_124
⧈	GSIGS_125
▵	GSIGS_127
+	GSIGS_168
+	GSIGS_169
⚕	GSIGS_171
⛉	GSIGS_181
▢	GSIMS_032
⛉	GSIMS_033
⛉	GSIMS_034
⛾	GSIMS_038

⚷	GSIMS_039
❀	GSIMS_041
◕	GSIMS_043
◕	GSIMS_044
⬙	GSIMS_047
⚹	GSIMS_053
⊜	GSIMS_055
⛀	GSIMS_058
⛾	GSIMS_070
◕	GSIMS_075
⚠	GSIOG_199
⚷	GSIWS_040
⚹	GSIWS_081
⚷	GSIWS_120
⚷	GSIWS_121
Ÿ	MSRSS_159
¥	MSRSS_165
Ÿ	MSRSS_221
□	SMDL2_62064
þ	SSYMB_254
ɔ	SYMBL_039
♣	SYMBL_167
♠	SYMBL_170
≈	SYMBL_187
⊗	SYMBL_196
⊕	SYMBL_197
∈	SYMBL_206
∉	SYMBL_207
⇔	SYMBL_219
#	TIMES_035
-	TIMES_045
§	TIMES_167
¶	TIMES_182
▒	TIMES_9618
▓	TIMES_9619
‡	WDLAT_135
⛤	WEBDN_034
▪▪	WEBDN_036
⛇	WEBDN_038
⛇	WEBDN_039
⛂	WEBDN_042
◢	WEBDN_044

⛇	WEBDN_045
◢	WEBDN_047
◀◀	WEBDN_055
▶▶	WEBDN_056
⏮	WEBDN_057
⏭	WEBDN_058
⛪	WEBDN_071
⛰	WEBDN_077
⛀	WEBDN_078
⛇	WEBDN_079
▶	WEBDN_087
◀	WEBDN_088
◣	WEBDN_092
✔	WEBDN_097
✈	WEBDN_107
⊖	WEBDN_121
▯	WEBDN_127
⛁	WEBDN_144
⛀	WEBDN_150
⛀	WEBDN_153
⛀	WEBDN_155
⛀	WEBDN_162
⛀	WEBDN_180
⛀	WEBDN_189
⛀	WEBDN_194
	WEBDN_198
	WEBDN_207
▬	WEBDN_212
▬	WEBDN_215
⛀	WEBDN_221
⛀	WEBDN_225
⛀	WING1_037
⛀	WING1_039
⛀	WING1_041
⛀	WING1_053
⛀	WING1_054
⛀	WING1_062
⛀	WING1_082
⛀	WING1_083
⛀	WING1_084
⛀	WING1_091
⛀	WING1_093

⛀	WING1_102
⛀	WING1_107
⛀	WING1_109
⛀	WING1_111
⛀	WING1_112
⛀	WING1_113
⛀	WING1_114
⛀	WING1_117
⛀	WING1_118
⛀	WING1_121
⛀	WING1_122
⛀	WING1_123
⛀	WING1_124
⛀	WING1_157
⛀	WING1_161
⛀	WING1_162
⛀	WING1_163
⛀	WING1_165
⛀	WING1_169
⛀	WING1_170
⛀	WING1_175
⛀	WING1_178
⛀	WING1_179
⛀	WING1_180
⛀	WING1_181
⛀	WING1_191
⛀	WING1_195
⛀	WING1_196
⛀	WING1_197
⛀	WING1_198
⛀	WING1_199
⛀	WING1_200
⛀	WING1_201
⛀	WING1_202
⛀	WING1_203
⛀	WING1_204
⛀	WING1_205
⛀	WING1_206
⛀	WING1_207
⛀	WING1_208
⛀	WING1_209
⛀	WING1_210

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	WING1_211		WING2_062		WING2_176		WING2_251		WING3_115
	WING1_212		WING2_063		WING2_179		WING3_042		WING3_116
	WING1_213		WING2_064		WING2_181		WING3_043		WING3_117
	WING1_214		WING2_065		WING2_184		WING3_044		WING3_120
	WING1_215		WING2_068		WING2_185		WING3_045		WING3_121
	WING1_216		WING2_069		WING2_186		WING3_046		WING3_122
	WING1_217		WING2_076		WING2_187		WING3_047		WING3_123
	WING1_218		WING2_078		WING2_188		WING3_048		WING3_133
	WING1_219		WING2_081		WING2_189		WING3_050		WING3_134
	WING1_220		WING2_085		WING2_192		WING3_054		WING3_135
	WING1_221		WING2_088		WING2_193		WING3_055		WING3_136
	WING1_231		WING2_104		WING2_194		WING3_056		WING3_150
	WING1_232		WING2_105		WING2_199		WING3_057		WING3_151
	WING1_233		WING2_116		WING2_202		WING3_058		WING3_152
	WING1_234		WING2_130		WING2_206		WING3_059		WING3_153
	WING1_235		WING2_131		WING2_209		WING3_060		WING3_179
	WING1_236		WING2_152		WING2_217		WING3_061		WING3_181
	WING1_237		WING2_153		WING2_218		WING3_064		WING3_182
	WING1_238		WING2_154		WING2_220		WING3_065		WING3_183
	WING1_239		WING2_155		WING2_223		WING3_066		WING3_184
	WING1_240		WING2_156		WING2_229		WING3_067		WING3_185
	WING1_241		WING2_157		WING2_231		WING3_071		WING3_186
	WING1_242		WING2_158		WING2_232		WING3_076		WING3_195
	WING1_243		WING2_162		WING2_234		WING3_077		WING3_201
	WING1_244		WING2_163		WING2_235		WING3_078		WING3_202
	WING1_245		WING2_164		WING2_236		WING3_079		WING3_206
	WING1_246		WING2_165		WING2_239		WING3_080		WING3_207
	WING1_247		WING2_166		WING2_240		WING3_081		WING3_208
	WING1_248		WING2_167		WING2_242		WING3_088		WING3_237
	WING1_254		WING2_168		WING2_244		WING3_111		WING3_238
	WING2_040		WING2_169		WING2_246		WING3_112		WING3_999
	WING2_051		WING2_170		WING2_248		WING3_113		
	WING2_055		WING2_175		WING2_249		WING3_114		

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ANNEX 2 – SYMBOLS LIBRARY FILE STRUCTURE

The Symbols library file contains the list of symbols and for each one are specified the following:

– Code – which must be used to specify the symbol,
– Font – font from which the symbol was generated,
– UnicodeChar – the ASCII code,
– Name – name of the symbol,
– Category – used to filter the symbols in the library,
– ScaleFactor – can be used to enlarge or reduce the size of the symbol on the ALE maps. The default value is 1 which means that no scaling is applied.

```
<?xml version="1.0" encoding="UTF-16"?>
<AleSymbolsLibrary>
    <Description Title="ale_symbols" Count="343">
        <SymbolsList>
            <Symbol Code="ARUMS_182" Font="Arial Unicode MS" UnicodeChar="182" CharSet="0" Name=""
Category="Miscelaneous"
                                ScaleFactor="1">
            </Symbol>
            <Symbol Code="CMATH_062" Font="Cambria Math" UnicodeChar="62" CharSet="0" Name=""
Category="Math"
                                ScaleFactor="1">
            </Symbol>
            <Symbol Code="CMATH_8225" Font="Cambria Math" UnicodeChar="8225" CharSet="0" Name=""
Category="Crosses"
                                ScaleFactor="1">
            </Symbol>
            <Symbol Code="CMATH_9028" Font="Cambria Math" UnicodeChar="9028" CharSet="0" Name=""
Category="Math"
                                ScaleFactor="1">
            </Symbol>
            <Symbol Code="CMATH_9044" Font="Cambria Math" UnicodeChar="9044" CharSet="0" Name=""
Category="Math"
                                ScaleFactor="1">
            </Symbol>

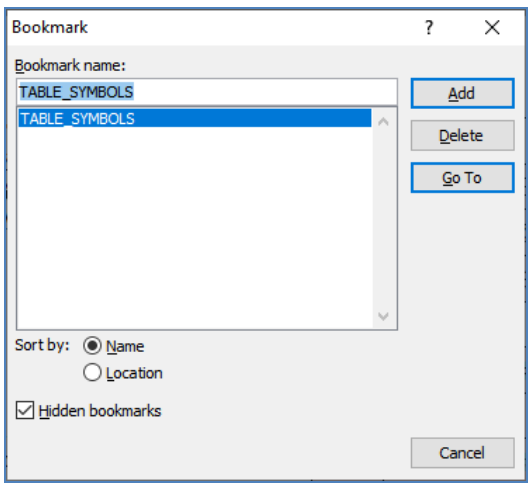
... ... ...

        </SymbolsList>
    </Description>
</AleSymbolsLibrary>
```

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ANNEX 3 – IMPORTING THE SYMBOLS LIBRARY

The Symbols library can be imported from a Word document file using the command *Symbols / Library / Import* on the ribbon bar. The list is organized as a table with five columns, which must be marked as bookmark with the name TABLE_SYMBOLS:



Only the last column is important because it contains the symbols codes. The other columns were used in the application development stage to establish the correspondences with the symbols codes specified in the old legends.

The SVG files which contain the symbols descriptions must be located in the same folder with the symbols list to be imported.

As it was already mentioned **it is not recommended to modify and import the symbols library because the changes must be available in all future installations, so that please contact the programmer to do this action**.

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	Program Symbols	S	Code	NEW_CODE
		¶		ARUMS_182
		>		CMATH_062
		‡		CMATH_8225
		?		CMATH_9028
		?		CMATH_9044
				GSIDG_045
30	GSID/55 # GSID/23		GSID/55	GSIDG_055
				GSIDS_033
				GSIDS_034
				GSIDS_036
52	DS/5 GD/37		GD/37	GSIDS_037
53	DS/6 GD/38		GD/38	GSIDS_038
				GSIDS_040
				GSIDS_041
38	DS/10 GD/42		GD/42	GSIDS_042
	...			...

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ANNEX 4 – LEGEND FILE STRUCTURE

```
<Description Volume="I.9" Carte="92" QI="081" Comments="I. fasc. 9, LXX" Title_FR="Pissenlit"
Title_RU="Одуванчик"
Title_EN="Dandelion" Title_GE="Löwenzahn" Title_SP="Diente de león" Title_IT="Tarassaco"
DocType="Carte de motivations" Authors="Federica Cugno, Manuela Nevaci"
Affiliation="Università di Torino, Institutul de Lingvistică „Iorgu Iordan – Alexandru
Rosetti" al Academiei Române / Universitatea din Bucureşti">
</Description>
<LegendRoot Type="Legend" Chapter="092_PISSENLIT" SubItemsCount="10">
<LegendItem Type="Chapter" Chapter="1." Lexem="THE ASPECT OF THE PLANT" CountryName="???"
SubItemsCount="5">
<LegendItem Type="Chapter" Chapter="1.1." Lexem="The stem's juice" CountryName="???" SubItemsCount="5">
<LegendItem Type="Chapter" Chapter="1.1.1." Lexem="Derived from 'milk'" SymbolCode="WING1_233"
CountryName="???" SubItemsCount="61">
<LegendItem Type="Form" Lexem="qumështore" LanguageAbrev="Alb." LanguageName="albanais"
CountryCode="01.0" CountryName="Albanie" NetPoints="001-010">
</LegendItem>
<LegendItem Type="Form" Lexem="mleč" LanguageAbrev="Bulg." LanguageName="bulgare"
CountryCode="04.0"
CountryName="Bulgarie" NetPoints="031">
</LegendItem>
                    <LegendItem Type="Form" Lexem="mlečka" LanguageAbrev="Bulg."
LanguageName="bulgare" CountryCode="04.0"
                        CountryName="Bulgarie" NetPoints="014, 016, 017, 020, 029, 030">
                    </LegendItem>
                    <LegendItem Type="Form" Lexem="mlečok" LanguageAbrev="Bulg."
LanguageName="bulgare" CountryCode="04.0"
                        CountryName="Bulgarie" NetPoints="003, 009, 012, 015,">
                    </LegendItem>
                    <LegendItem Type="Form" Lexem="mlečăk" LanguageAbrev="Bulg."
LanguageName="bulgare" CountryCode="04.0"
                        CountryName="Bulgarie" NetPoints="002, 004, 005, 007">
                    </LegendItem>

… … …

            </LegendItem>
        </LegendItem>
    </LegendRoot>
</ALEgend>
```

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REFERENCES

The ALE_Legend application uses:

– The ZRCola font *(http://zrcola.zrc-sazu.si), developed at the Research Centre of SAZU in Ljubljana (http://www.zrc-sazu.si) by Peter Weiss,*

– Geospatial data sources:

© *U.S.Geological Survey's Center for Earth Resources Observation and Science (EROS), 1996 for the Digital Elevation Model (30 arc-second DEM of Europe, 30 arc-second DEM of Asia and 30 arc-second DEM Africa)*, https://databasin.org/datasets/a286ca8a7fa492a9f95d58324ca918c

© *EuroGeographics for the administrative boundaries,* https://ec.europa.eu/eurostat/web/gisco/geodata/reference-data/administrative-units-statistical-units/countries

© *European Environment Agency (EEA) for the hydrographic network (large rivers and lakes)* https://www.eea.europa.eu/data-and-maps/data/wise-large-rivers-and-large-lakes.

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