



## **2L FIELD DEVELOPER v 11.X**

### **PROGRAM DESCRIPTION**

The software package **2L** consists of several modules. A development module called **2L Field Developer**, a field module called **2L Field** and a communication module called **2L Connect**. With these 3 modules you can design, develop, change, test and deploy a working system for digital registration on location.

**2L Field Developer** is a Windows based Rapid Application Developer tool, with which you can design, develop, test and deploy systems for digital registration on location in a very structured way, without knowledge of programming and independent from the mobile hardware. The package is available in different versions, The full version (**2L Professional**), the evaluation version (**2L Evaluation**) and the designer version (**2L Designer**). With the full version and the evaluation programs you can build forms and spreadsheets. The difference is that the applications you've built with **2L Evaluation** will not save any data during data collection. **2L Designer** can be used to quickly generate forms without any data-functionality. Forms created with **2L Designer** can be integrated in applications using the full version **2L Professional**.

This manual will focus on the development module **2L Field Developer**.

## 1. The screens

At the start of the program three windows will be displayed, two “empty screens” and the **2Lbar**:

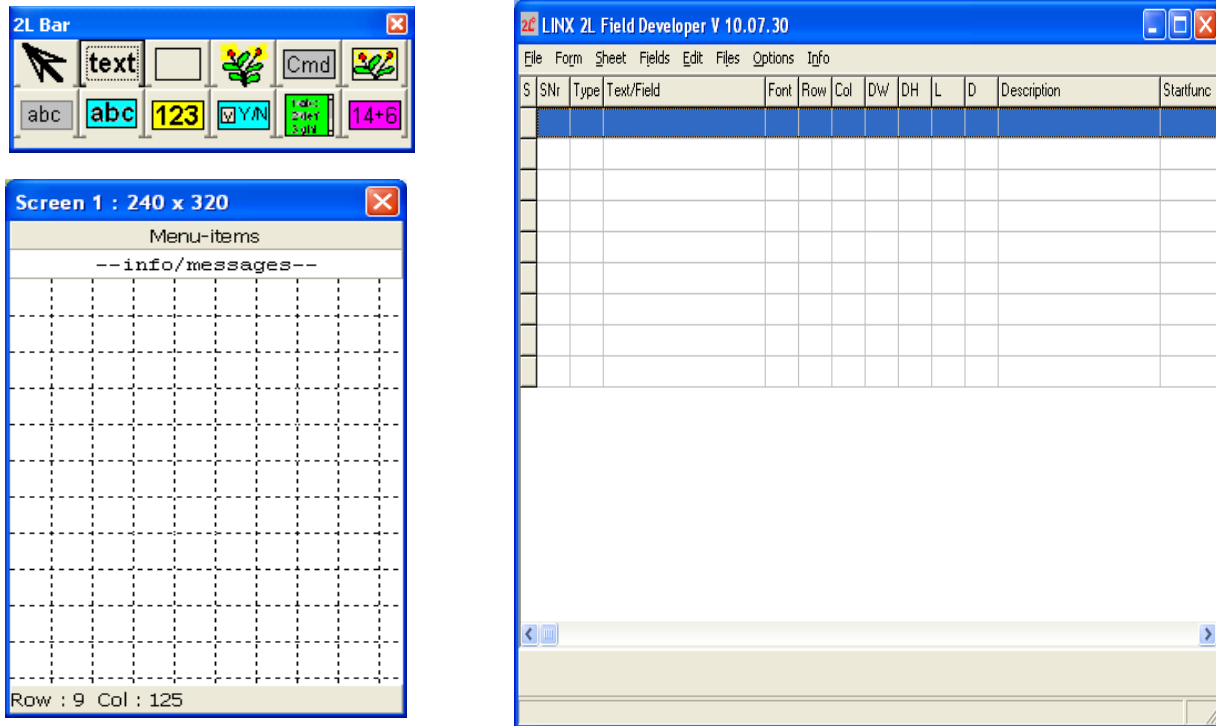


Fig. 1. 2L Bar, Painting screen and Form designer screen

### 1. The form designer screen

This is the main screen with the menu-bar, the field definitions grid, message panel and form-name-bar. Each row in the grid specifies an element in one of the screens. (See fig. 1, right side)

The name of the actual form, you are working on, is displayed in the form-name-bar at the bottom of this main screen.

In this document the menu of this screen will be called the main menu.

### 2. The form painting screen

The form painting screen has a title bar and a painting grid. This is the visual representation of the form with all the elements you have added. The bottom-bar will show the actual pixel-coordinates when you move the mouse over the screen. Together with the grid lines this is helpful to position the elements on the screen. (See fig. 1, left side)

The size of the painting screen is based on the size of the handheld screen you have chosen for the project you are working in (see Menu, Options, Form size). In the title bar the size of the screen is shown.

### 3. The **2L bar**

The **2Lbar** is a helpful tool to quickly and easily design your form. On the **2Lbar** you will find icons which represent the different basic elements you can add to your form. (See fig. 1, top



left)The use of the 2L bar is very simple. Just click on the icon which stands for the element you want to add. Then click on the area on your painting screen. The different elements will be discussed later.

Other standard screens which can be visible during design are:

\* Form settings screen

In this screen you can set the possibilities to:

- \* change data on the handheld
- \* append new data-records on the handheld,
- \* auto-scroll through the data-fields,
- \* adapt to the standard menu and taskbars of your preferred handheld
- \* have a numeric + cursor keypad permanently on your screen.

\* Integrated list editor

To create or change lists to be used in the data-collection process

\* Integrated command file editor

To create or change command files to be used in the data-collection process

\* Integrated test screen

To test the form during the development process

\* Set tab order screen

Change the focus-order of the input element in the form

\* Check design screen

Sometimes a form might not function as you would expect it to. To see what might be the cause of the problem you can check with the check design function all the possible conflicts that might occur in your design.

\* Form description screen

Here you can add additional information about the form for the handheld user.

\* Sheet designer screen

View and edit columns (order, widths etc) in spreadsheet-view

Standard screens are screens where you can view/change items without closing the screen to continue.

Other input/confirmation/edit screens must be closed before you can continue with the program.

## 2. The menus

The most important features of the program can be accessed using the Main menu in the form designer screen.

Furthermore context sensitive pop-up menus are available in the form designer screen, the form painting screen and the sheet designer screen.

The pop-up menu is activated by pressing the right mouse button

### **3. The main functions (in the form designer screen)**

#### **3.1 File functions**

##### ***3.1.1 Create a new form.***

Select File, New form, from the main menu.

Select the proper project (or create a new project) and fill in a new form name.

In the next screen you can specify a data-set (created for example in excel, see also documentation on Conversion of datasets) and/or existing form-layout to be used for automatic form generation of the new form.

##### ***3.1.2 Open an existing form.***

Select File, Open... from the main menu.

Select the proper form in the proper project and press OK

If the form contains more then one screen, all painting screens will be shown.

If you select a form in a different project, the screen size will be automatically adjusted to the size as was defined for this new project.

##### ***3.1.3. Save form and Save form as...***

Save form will save your present form.

Save form as, can be used to save the active form under a different name (and/or in a different project).

If you started working from scratch on a new form, the option save form will ask you for a form name.

Note the name of the form you are working on is displayed at the bottom of the form designer main screen.

##### ***3.1.4 Print active screen***

This will print the selected form painting screen

##### ***3.1.5 Print form...***

Using this menu function, you can specify which items of the selected form will be printed:

- \* Form info  
the information as specified in the form description screen.
- \* Field definitions list  
the list as shown in the grid on the main screen.
- \* Constraints list  
a separate field definitions list, only for those elements that have a constraint or a special condition, like Obligatory, minimum value, attached list etc.
- \* Commands list  
a list of elements (buttons, icons, input fields) where commands are specified.
- \* Dataset list  
a list of fields in the data-set specified with the form (if available).
- \* Screens

all the screens of the form.

### 3.1.5 Print setup

With the print setup function you can select your printer and you can change the printer settings.

### 3.1.6 Exit

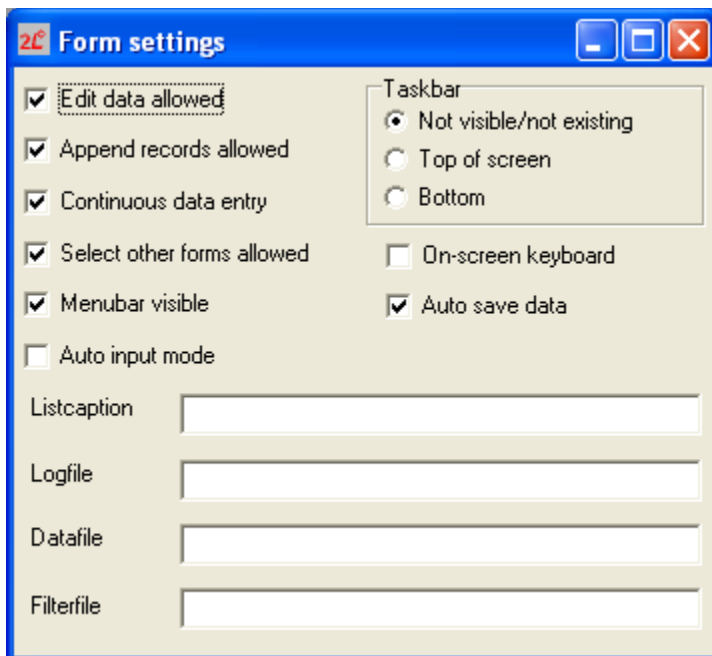
Stop the program. If you did not save your last changes, the program will prompt you to save the form before exiting.

## 3.2 Form functions

### 3.2.1 Form description

This will show you the form description screen used for additional information on the form. You can add info about the author of the form, date of last release, and information about the use and contents of the form.

### 3.2.2 Form settings (layout)

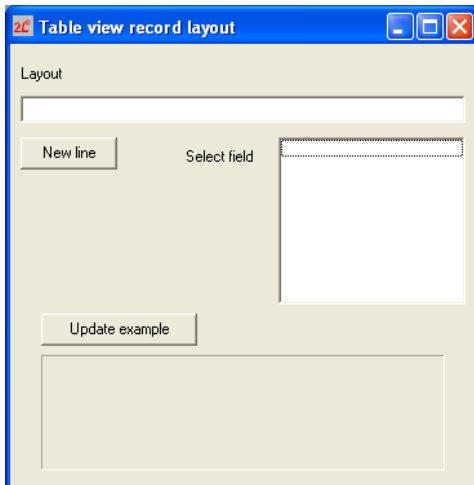


This function will enable you to change or view the form setting details:

- Edit data allowed means, the handheld user can edit/change input fields for this form.
- Append records allowed means, it is possible for the handheld user to add new records to the data-set
- Continuous data entry means, when the handheld user has entered the last input field in the form the handheld program will automatically save the data for this record (if all the input values are correct) and continue with the first input field on the next record.
- Select other forms allowed has no meaning in standard data collection.
- Menu-bar visible will place a menu-bar at the top of the form with standard functions for File-, Record- and Page- management.

- Auto input mode means, if you fill in an input-field to the maximum input length, the input will automatically jump to the next input field.
- On screen keyboard means, the lower part (about 1/3) of your screen will show an onscreen input panel with numeric keys, cursor keys, delete and Enter keys.
- Auto save data means, if you have changed something in a record, the whole data-set will automatically be saved to a file when this record is finished.
- Task-bar settings, does your handheld show an on-screen task-bar. If so, the effective screen size for your forms is smaller.
- Listcaption, has no meaning in standard data collection.
- Logfile, if specified all record changes will automatically be logged with date-and time-stamp in this log file
- Datafile, if specified use this datafile instead of the standard datafile  
Note if you specify a ? or an \* in this name, the form selection menu on the handheld and the integrated test mode on the PC will let you select a dataset
- Filterfile, if specified only those records matching the filter conditions in this file, will be shown.

### 3.2.3 Table view record layout



Create a “list view” for the records in the dataset This list view will be used during data-collection to select your start record

### 3.2.4 Show new screen

Show new screen is a function that adds a new painting screen to the set of screens already shown. This new screen will automatically be the active screen to insert new elements.

### 3.2.5 Rearrange fields and screens

This function will present you with a screen where you can resize all your fields in all the screens at once, you do not have to select the screens or fields. You can resize items (fields) widths and heights with a certain percentage and you can move items (fields) rows and columns with a certain percentage. Furthermore you can select the option to move fields, presently outside the visible screen area, to a new screen.

### 3.2.6 Update screens



With the function update screens you can update the form painting screens to show the last changes you have made.

Note: most changes will automatically update the form painting screens.

### ***3.2.7 Check design***

This sophisticated function will check for possible conflicts in your design:

- \* Are there any (partly) hidden fields on your screens.
- \* Is the display width of the input fields large enough to contain the maximum input values.
- \* Is there a possible conflict in the definition of the fields (e.g. as N-field on screen 1 and as A-field on screen 2).
- \* Are there any doubly defined Buttons or Icons with different start functions.
- \* Are there any input fields which are NOT defined in the data-set.
- \* Are there any fields in the dataset which are NOT referenced in the form.
- \* Is there a possible conflict between contents of the fields in the dataset and the field definitions in the form.

### ***3.2.8 Test form***

During any stage in your design you can test the form in the integrated test environment. Select Form, Test form from the main menu.

If you have made some changes to the form prior to testing, the program will prompt you to save the changes.

## **3.3 Sheet**

Start the sheet designer mode.

## **3.4 Fields**

### ***3.4.1 Insert field***

This function will pop-up a field definition screen. Here you can specify what kind of field you want to add with all its specifications.

### ***3.4.2 Add field***

This function will pop up a field definition screen. In this screen you can specify what kind of field you want to add with all its specifications.

### ***3.4.3 Delete field***

This will delete the field you selected in either the form painting screen or in the form designer screen. Before deleting the selected field, the program will prompt you for a confirmation.

### ***3.4.4 Edit field***

This function will pop-up the field definition screen for the selected field so you can view/change the details of this specific field.

### ***3.4.5 Tab order input field***

This function allows you to choose the order in which the fields must be filled in. You can choose for Automatic or Manual tab order. If you select Manual, the set tab order window will appear. Here you can change the order of the different input fields. Note: the fields on your field designer

screen will keep their own position but the rows in the form designer screen will be ordered according to the manual tab order you specified.

### 3.4.6 Show 2L bar

This function will make the 2L bar window visible.

## 3.5 Edit functions

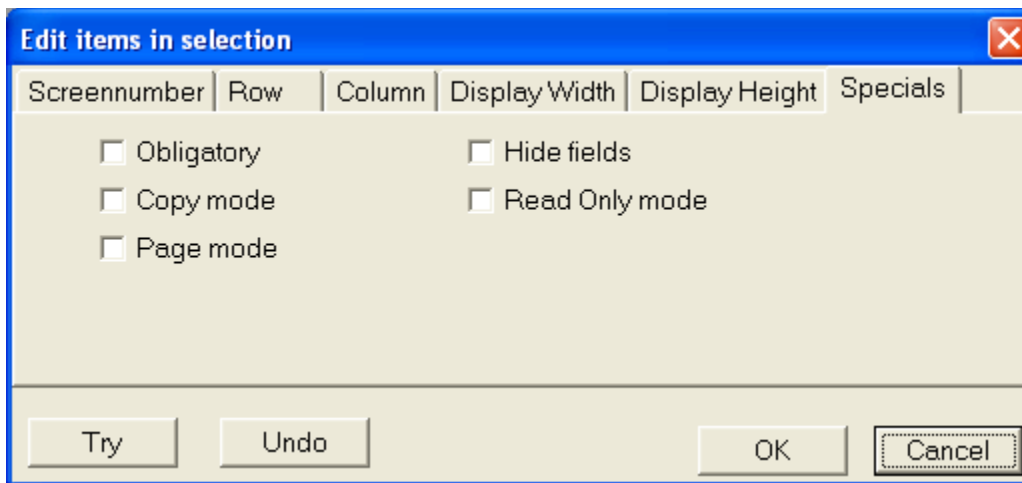
### 3.5.1 Edit mode

This is a toggle function between on and off.

If Edit-mode is off, you cannot select a single cell in the field definition grid. If Edit-mode is on, you can select each single cell in the field definitions grid, and change the values in the grid.

Note: in this case the screens will not be updated automatically. Use the update screen function to see the result of your changes.

### 3.5.2 Edit selection



With this function you can change a number of specifications for the selected elements:

\* Screennumber:

Move the selected elements to a different screen

\* Row

Change the row position of the selected elements

\* Column

Change the column position of the selected elements

\* Display Width

Change the display width of the selected elements

\* Display Height

Change the display height of the selected elements

\* Specials

Change the "special options for the selected elements

With the Try button you can see the results of the changes you propose.

If you're not satisfied, you can press the undo button, and try something different.

Press Ok to accept your changes, or press Cancel to reject your changes.

### ***3.5.3 Copy (selection) and Paste***

With this function you can copy an individual element and paste it in the same form or in another form. The field will be added to the field definition grid. The copied field has the same definition as the original one.

If you want to copy a field to another location or to another screen you must use copy + paste in the form painting screen.

With the selection mode Copy selection you can copy the selection of fields you made. You can (de)select each field by double click in the field definition grid.

Note: the copy/paste function in the form designer screen works separately from the copy/paste function in the form painting screens.

### ***3.5.3 Cut (selection)***

With this option you can cut a (selection of) field(s).

### ***3.5.4 Delete (selection)***

With this option you can delete a (selection of) field(s).  
The delete action must be confirmed.

### ***3.5.5 Undo last / Undo from..***

With this function you can erase your last action or the actions following the selected line from the undo stack.

## **3.6 Files functions**

### ***3.6.1 Create, edit and delete list files***

With these options you can create, edit and delete a list file. New list files, will automatically be saved in the project folder you are working in with the extension LST. List files can be used with A-, N- and S-type fields.

### ***3.6.2 Create, edit and delete command files***

With these options you can create, edit and delete a command file. New command files made, will automatically be saved in the project folder you are working in with extension CMD. Command files are useful for buttons that have to execute multiple commands at once.

### ***3.6.3 Create filter files***

There is no separate function for editing filter files. You can create a filter file using the create list file function, and save it with the proper name and extension (preferably .FLT) In this filter file you can specify one or multiple filter conditions Records can be checked on conditions like

<Value>

<Fieldname>=<Value>

<Fieldname><=<Value>

<Fieldname>>=<Value>

<Fieldname><><Value>

If no condition has been given, and only a value has been entered, the first data-field (the so-called index field) will be checked on this value. Each line in a filter file consists of one condition.



If one of the conditions specified in the filter file has been met, the record will be shown to the handheld user. If a filter-file has been attached to a form, the filter will automatically be set up, once the form has been activated. Special commands can be used to set the filter on or off or to use alternative filter conditions.

In spreadsheet mode a '(\*F\*)' indicates that the specific dataset is filtered. When the filter is turned off, the sign will disappear.

### 3.7 Options

In the options menu you can change the size of your form painting screens, to adapt to the screen size of your handheld. The selected screen size will be used for all new forms in this project. If you need to develop forms for different handhelds with different screen sizes, you need to develop the forms in different projects, each project tuned to the screen size of the handheld.

### 3.8 Info, registration

This will show you information about your license and registration of **2L Field Developer**.

## 4 The form painting screen options

### 4.1 Mouse options

Left mouse button:

- \* Click on a field with the left mouse button to select this field.
- \* Click and hold down the left mouse button on the selected field to drag the field to another position on the screen. When you release the mouse button the field will be dropped in the new position.
- \* Once you have selected a field you can resize it by dragging one of the black squares in the corners or sides with the left mouse button held down. When you are finished click once more outside the field, and your changes will be updated in the form painting screen.
- \* Double-click on an element will (de)select this element.

Right mouse button:

- \* By clicking the right mouse button in the form painting screen (outside any of the elements), a menu for adding fields or pasting a copied element will pop-up.
  - \* By clicking the right mouse button on a selected field a pop-up menu will appear to copy/cut/delete or edit the selected field.
- Once you have cut or copied a field with the menu option you can paste it somewhere else (on the same screen, on another screen, or in another form).

### 4.2 Pop-up menu functions

#### 4.2.1 Pop-up outside field

If you click with the right mouse button in the form painting screen outside the fields, a pop-up menu will appear. From this pop-up menu you can select the following options:

- \*Paste (See 4.2.2)
- \*New Datafield

- Display Data Field(D)
- Text Input Field(A)
- Numeric Input Field(N)
- Memo Field(M)
- Logical Field(L)
- Stack Field(S)
- Selection List(S)
- Calculated Field(C)
- \*New Text(T)
- \*New Frame(F)
- \*New Button(B)
- \*New Icon(I)
- \*New Picture(P)

Once you have selected the desired element, an Add new <element> screen will be shown. In this screen you can specify the most important characteristics for the field. If you would like to change other options for this field, click the field definition details and the full field definition details screen will appear. Each type of element has it's own specific Add new <element> screen.

#### ***4.2.2 Pop-up on field***

If you click with the right mouse button on a selected field a menu will pop-up. This menu contains the following items:

- \*Cut
- \*Copy
- \*(De)select
- \*Edit
- \*Delete

With the cut function you can cut the selected element and paste it on another location or on another screen by right clicking on the desired location. \* A pop-up menu will appear, (see 4.2.1) with the paste function enabled. Select Paste from this pop-up menu to paste the cut item.

With Copy you can copy a field to a new place on another location or to another screen. Again with the Paste function you can paste the copied field with the same field definitions to the new location.

The Deselect option deselects the selected field.

The Edit function will present you with the Field definition details screen of the selected field, where you can edit the specifications for the selected field.

The Delete function deletes the selected field after confirmation.

#### **4.3 Drag- and drop functions**

A selected field can easily be dragged and dropped from one location to another. First select the field with the left mouse button. Now hold down the left mouse button and drag to the desired location. A red crossed rectangle will move along with the mouse while dragging. Release the right mouse button at the new location and the field will be dropped on this new location.



### **5.2.2 Pop-up on spreadsheet column**

If you click with the right mouse button in the sheet designer screen, inside a column, a pop-up menu will appear. This menu contains the following items:

- \*Edit column
- \*Add column
- \*Insert column
- \*Delete column
- \*Smaller font
- \*Larger font
- \*Hide column
- \*Show column

The Edit column function will present you with the Field definition details screen of the selected field, where you can edit the specifications for the selected field.

The Add column function will also present you with the Field definition details screen. Here you can select the specifications for a new column. The new column will be added at the end of the sheet.

The Insert column function will also present you with the Field definition details screen. The new column will be inserted at the point you selected in the sheet.

The Delete column function deletes the selected field after confirmation.

The Smaller font function will make the font smaller. More columns and rows will fit in the spreadsheet.

The Larger font function will make the font larger. Less columns and rows will fit in the spreadsheet but the visibility of the content will increase.

The Hide column function hides a column in your spreadsheet. The column will not be erased.

The Show column function will show the hidden column.