

# FAQ – List Forms in version 2004

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Technical Note 05-19

## Version 2004 introduces major improvements to the management of list forms

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Unlike previous versions, version 2004 harmonizes the different uses of output or list forms.

In previous versions you could use three different ways to display a list of records:

- Output form in User Mode (enterable in list)
- Output form used with the commands MODIFY SELECTION or DISPLAY SELECTION (non-enterable in list)
- Output form used as a subform (does not support the selection of multiple lines, as available in the User Mode)

Unfortunately, each of these methods implied a different setup and different implementation choices for each one of these methods.

Version 2004 harmonizes the behavior of list forms for all three methods described above. There are still minor differences for output forms used as subforms, but the basic core behavior is now the same.

If you already know the internal mechanism 4D uses to handle selections and records in relation to output forms, feel free to go directly to the actual FAQ section of this document.

In order to make the reading of this document easier to understand, we have to adopt a set of accurate terms which we will extensively use here.

### Terms used in this technical note

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The term '**included form**' designates forms that are used as subforms.

The reference to a form '**displayed as a list**' designates an output form displayed as a list in any of the following contexts:

- As an included form.
- As a main list form.

The term '**highlighted**' designates the form lines that the user selected manually or that the developer selected programmatically in a list form.

## Reminders

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### **Current selection:**

When performing operations on data, you select the group of records with which you want to work. This group of records is referred to as the current selection. The current selection can contain one, many, or all records in a table. Each table has its own current selection for a given process.

### **Current record:**

In most cases, when 4D establishes a current selection, it loads in memory the first record in the selection. This record is called the 'current record'.

In some peculiar cases, there may not be a current record or the current record may not even be in the current selection. In other cases, the current record is defined but not loaded, we refer to the reference to the current record as the pointer to the current record.

### **Highlighted line in list forms:**

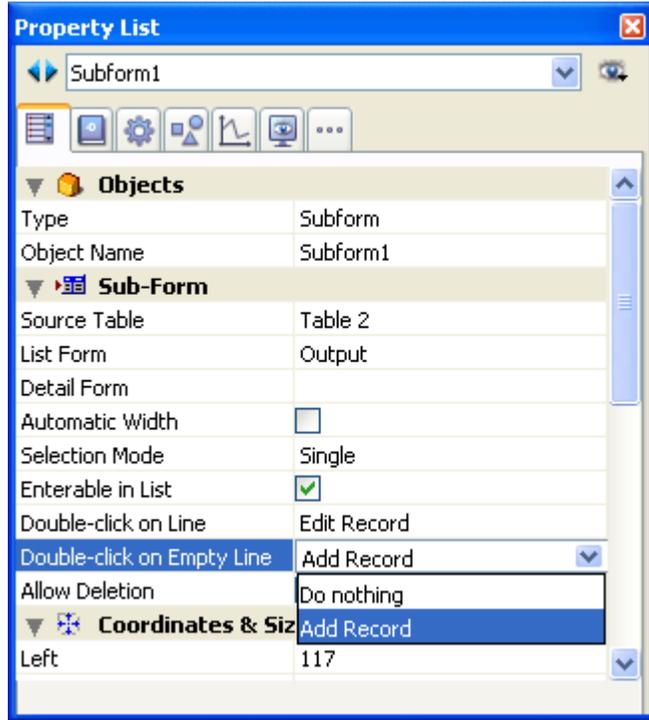
This line matches the current record when the selection mode is set to "Single". When the selection mode is "Multiple", the current record is not affected by the highlight, regardless of whether it is performed manually or programmatically.

## **Subform Properties in version 2004 and compatibility with earlier versions**

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With upgraded databases, 4D offers an additional property to maintain compatibility. The property is the option 'Double-click on Empty Line' . It is only displayed when the database was created with version 2003 or earlier.

Properties for a database upgraded to version 2004:



The table below describes the conversion of earlier subforms in regards to the new properties: the entry mode and the focusable attribute that appeared in version 2004.

Properties in previous versions		Properties in version 2004	
Enterable	Enterable and double-clickable	Focusable	yes
		Enterable in list	yes
		Selection Mode	none
	Enterable and non double-clickable	Double-click on line	Edit record
		Double-click on empty line	Add record
		Focusable	yes
Selectable	Selectable and double-clickable	Enterable in list	yes
		Selection Mode	none
		Double-click on line	does nothing
	Selectable and non double-clickable	Double-click on empty line	does nothing
		Focusable	non
		Enterable in list	non
Non-modifiable	Selectable and double-clickable	Line selection mode	single
		Double-click on line	display record
		Double-click on empty line	does nothing
	Selectable and non double-clickable	Focusable	non
		Enterable in list	non
		Line selection mode	single
Non-modifiable	Selectable and double-clickable	Double-click on line	does nothing
		Double-click on empty line	does nothing
	Selectable and non double-clickable	Focusable	no
		Enterable in list	no
Non-modifiable	Selectable and double-clickable	Selection Mode	none
		Double-click on line	does nothing
	Selectable and non double-clickable	Double-click on empty line	does nothing
		Focusable	no

It is however necessary to pay attention to the property 'Double-click on empty line' for upgraded databases. To offer more compliance to the OS GUIs, we do not recommend using this property.

## **Why is the current record no longer loaded in a list form if the Selection Mode is set to Single?**

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Any Redraw or refreshing by the OS of the window that contains a list form will trigger the unloading of the current record. However, the pointer to the current record will still point to that same record.

This new principle implies the use of the command LOAD RECORD, which will take care of the loading of the current record and allow you to access its contents. In many cases the command will have to be called with the On Load event in the main form.

## **Why does redrawing a window trigger the unloading of the current record in a list form?**

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The focus mechanism triggers the redrawing of the frontmost window which, in turn, triggers the unloading of the current record. This new mechanism will require the use of the LOAD RECORD command to access the current record's contents.

**Note:** Since changing focus causes a redraw, selecting a focusable object will unload the current record.

## **Why is there a record highlighted in a list form when that form is displayed for the first time?**

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This depends on the selection mode that was selected.

### **Single Selection mode**

4D automatically highlights the current record for the list form. The record is not loaded. However, you can use the statement GOTO SELECTED RECORD ([table] ;0), which will unload the current record and will clear the pointer to the current record. At this point, there will no longer be a highlighted record. For more information, please refer to the section "How can I programmatically manage the record highlighting in list forms?" Generally, the commands for controlling the highlight will be executed for the On load event of the form.

## Multiple selection mode

Using this selection mode, there is no highlight when the form is displayed the first time. The current record is not loaded and its data is not available for the On Clicked form event.

**Notes:** These new selection modes can be set in:

- The commands **MODIFY/DISPLAY SELECTION** using new parameters.
- The properties of the included forms.

## Why are there no longer empty lines at the bottom of a List form?

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In order to offer more compliance with the OS GUIs, the behavior of list forms has changed.

Version 2004 displays empty lines below actual record lines only if the number of records is less than the number of records that can be displayed in the window or list area.

When there are more records than what can be displayed, you will no longer be able to scroll down below the last record.

**Notes:**

- In version 2003, it was a blank area. In version 2004, this is handled as a succession of lines empty of any records. You can refer to the section "How can I go around the absence of double-click in the blank area in version 2004?" to learn ways to use this new behavior.
- From a GUI standpoint, applications that display record lists do not allow the use of the blank area below the records in the list.
- In previous versions of 4D, you could perform a double-click to create a record. For forms created with version 2004, this is no longer possible. However, for forms that were created in earlier versions, their original behavior is maintained until their properties are modified in version 2004.
- This new behavior no longer permits the creation of records by double-clicking the blank area below the last record at the bottom of the list if there are more records than can be displayed at once.

## **Why is it not recommended to use the property 'Double-click on empty line' for included forms that were converted to version 2004?**

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This property was added to version 2004 in order to assure compatibility with previous versions. This property is available only for forms that were converted and is not available to forms created in version 2004.

We do not recommend using this property since it does not comply with any OS GUIs, and is most likely to disappear in the future. Even if you use this property, you will not be able to scroll past the last record when there are more records than the list area can display.

## **How can I go around the absence of double-click in the blank area in version 2004?**

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### **Using a button and an automatic action (Add Subrecord)**

This mechanism already existed in previous versions. However, in version 2004 this automatic action can now be used in output forms called through the MODIFY SELECTION command and in output forms used as included forms.

### **Using a button and an object method:**

The object method will have to call the command ADD RECORD.

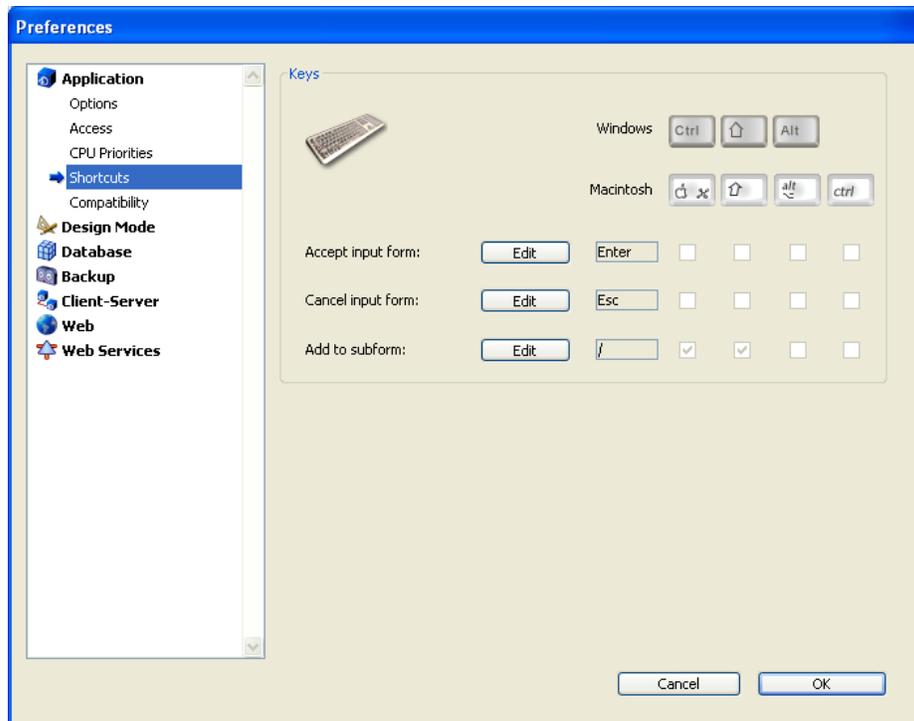
**Notes:** The location of the button will vary depending on how the form is used.

- Input form that contains a subform: the buttons can be located in the main form.
- Included form (new with 2004): the buttons can be located in the header or break areas.
- List form (not included): the buttons can be located in the header, footer or break areas.

### **Using a menu item and its associated project method.**

The method will have to use the CREATE RECORD command or any command capable of changing the selection of the included form.

### **Using a shortcut as defined in the preferences:**



**Note:** You can use the actions and commands below within the contexts indicated in this section:

- Delete Subrecord
- Modify Subrecord
- MODIFY RECORD
- DELETE RECORD

## What selection mode is used for list forms converted to version 2004?

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The table below describes the conversion rules for list forms.

Use in version 2003	Selection Mode
List form used as an included form, with the properties Enterable and Selectable selected	Single
List form used as an included form with Enterable property deselected	None
List form used with the following commands: - MODIFY SELECTION - DISPLAY SELECTION	Multiple
List form in user environment	Multiple

In version 2004, there are three selection modes that are available for list forms (including subforms):

- Single (only one line can be selected)

- Multiple (several lines can be selected)
- None (no line can be selected)

Using this new mechanism permits the following:

- With the Multiple selection mode, users can be allowed to select several isolated records or a succession of records using a combination of the arrow keys, the Shift key, and a mouse drag the mouse. With the Single selection mode, only one line can be selected at any given time. Last, the None selection mode will prevent the highlight of any record.
- Developers can now programmatically control those modes.

## **Why doesn't the On clicked event automatically load the current record?**

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The current record does not load automatically only when the form is used with the following settings:

- Multiple  
The On clicked event is used only to highlight or remove the highlight of a line; no loading of the record is triggered.
- None  
No action is allowed.

So, when you encounter this behavior, make sure you are using an adequate selection mode.

## **Why is the event On Display Detail executed for empty lines?**

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The On Display Detail event is now triggered for each line that is displayed in the window and therefore is triggered even for empty lines. These lines can also be records that were deleted through a different process or client. It is necessary to adjust your code to make sure the new execution cycles do not affect the display of the form.

### **Recommendation:**

In order to prevent your code from interacting with the display, you can use the following principle:

```
Case of
: (Form event = On_Display_Detail)
If (record loaded)
  `Code that matches lines with records
Else
  `Code for blank lines
End if
End case
```

In version 2004, 4D also displays empty lines to match the Windows and Macintosh GUIs.

## **Why does the blinking triangle no longer appear when a subform has the focus?**

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As with other user interface aspects of subforms and list forms, the triangle was removed to match the OS GUIs.

The focus is now indicated using the standard rules of the OS on which the 4D application is running. However, you can always simulate the old mechanism using a form object and the events On getting focus/On losing focus in the form method.

## **Why do some objects (fields or variables) no longer appear in list forms in version 2004?**

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The display mechanism for objects was optimized in version 2004. this optimization allows for a finer management of the objects but also brings a new set of constraints:

Any object that is in one of the form areas listed below must be completely contained by this area:

- Header area
- Detail area
- Break area

No overlap with the control lines is permitted (even if for a single pixel) or the display of the object will be adversely affected. When converting a database, it may be useful to check the position of the control lines.

## **Why do list forms look different in version 2004 ?**

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Any static object that overlaps between the header area and the break area is drawn in a single pass by extending its height.

## **Why does the entry in list seem to behave differently?**

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In order to increase the compliance with the OS GUIs, the handling of clicks in version 2004 was modified:

- A single click allows you to select the line to edit
- A second click allows you to edit that element. A short delay takes place between the second click and the display of the 'entry highlight', in order to make sure it was not a double-click.

If the time between the two clicks is short, the action is interpreted as a double-click.

## **How can I programmatically allow users to edit a field or variable in a list form?**

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In the 4D Language, you now can find the command EDIT ITEM. When used with list forms and subforms, the command EDIT ITEM 'switches to entry' the first item in the entry list of the selected line.

Using this command triggers the events On Selection Change and On Load Record.

## **How can I initialize variables of a line that is switching to 'entry' mode?**

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Since the behavior of the On Display Detail event was altered in version 2004, a new event was also created to detect the loading of a record: On Load Record.

### **The On Load Record event**

This event is activated if the form is enterable as a list.

In this case, it can be triggered by:

- A click in an entry area that consequently switches to entry mode.
- The execution of the EDIT ITEM command.

### **Code associated to the event On Load Record**

Using the On Load Record event, you can set variables that relate to the record so that they are initialized properly. The On Display Detail event updates the record currently being displayed and this may not match the record that is being edited. Editing a record in a list form requires the use of the On Load event.

## **How can I programmatically manage the record highlighting in list forms?**

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The language allows you to highlight one or several records depending on the selection mode that is assigned to the form. In included forms there should not be a relation between the highlight mechanism and the user set. In this specific case, the user set is not created.

The code you use will depend on the selection mode that was assigned to the form.

### **The Single Selection Mode**

Highlighting a record can be performed using the GOTO RECORD command or any command that allows you to define a new current record (through direct selection or by activating or propagating relations).

The new value accepted by GOTO SELECTION (table;0) (starting with version 2004.1) unloads the current record, clears the pointer to the current record and therefore removes the highlight.

### **The Multiple Selection Mode**

The highlight of one or several records can be performed using the command HIGHLIGHT RECORDS. This command automatically activates the highlight mechanism and unloads the current record without affecting its pointer.

#### **Note:**

The selection modes described above can be set:

- Through the commands MODIFY SELECTION and DISPLAY SELECTION using new dedicated options.
- In the subform properties in the form editor.

## **How can I programmatically detect if a user highlighted records?**

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The form event On Selection Change allows you to programmatically retrieve highlighted records. This event could be named 'On new user selection' and is actually executed each time a record is highlighted by the user.

The method to use to retrieve the records varies based on the selection mode.

### **Single selection Mode**

The command Selected record number allows you to retrieve the number of the highlighted record.

### **Multiple selection mode**

The command GET HIGHLIGHTED RECORDS (new in version 2004) allows you to retrieve the set of records that are currently highlighted. You cannot use this command in the Single selection mode.

### **None selection mode**

Users cannot select records. The event On Selection Change is disabled.

**Note:** The selection modes described above can be set:

- Through the commands MODIFY SELECTION and DISPLAY SELECTION using new dedicated parameters.
- In subform properties in the form editor.

### **What are the new 2004 form events that match the new features in the list forms?**

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In previous versions, the events On click and On double Clicked were primarily used to handle records in subforms.

In version 2004 you will primarily use the following events `On Selection Change` and `On Load Record`.