

4.9. Group

The Group object is used for uniting a number of other objects into one and using it as a single object.

The purpose of groups is to provide:

- A library of commonly used images, i.e. a car, phones, page backgrounds, etc.
- A convenient level of manipulation for the author, above the level of graphic primitives (circles, lines, etc.).

An important feature of the group object is that a group can be animated, it can be moved linearly or as free-trace movements, rotated, re-scaled, mirrored, etc. Refer to the animation section for details.

To add a group to the page:

1. Specify the collection to be inserted as a group in the Collection dialog box that appears after clicking the Group button at the Object Type speedbar
2. After selecting the group, it is shown in the Demo field of the Collection dialog box. Click the OK button to add the group or the Cancel button to discard changes.
3. After choosing the OK button, the New Group dialog box appears on the screen:

Selecting the radio and check boxes, choose the kind of the animation to be used with the group (changing position, rotation or both), method of colour mixing and method of group

visualization.

- **Graphic only** - only graphic objects from the group are displayed
- **All** - all objects from the group are displayed
- **As whole image** - the group is transformed into a bitmap image and then displayed.

5. Define the position and size of the group.

To reposition the group as a whole, move the mouse pointer into the box, that bounds the group, press the mouse button and drag the box into the new position of the group, then release the button.

To re-scale the group move the mouse pointer onto one of the control points of the group, press the mouse button and reposition the control point. Note: If the Rotation option is used, the system will make the group square-shaped.

6. Save the inserted group or ignore it by clicking the corresponding button at the New Group dialog box.

4.10. Input

An important feature of HM-Card is the possibility of asking questions of the users, and having the system analyze the answers and control the flow of the collection execution. The Input objects provide the author with a powerful way of interacting with the user. They allow the users' answers to be entered and to associate each of them with a unique title.

The Input object is used for gathering some user reaction and performing further analysis. During the execution of the Input object, the page execution is stopped until the required information has been entered.

The Input may include one or several input fields, and optional buttons that must be pressed to confirm input information. This button is called

the OK button, but may have another name set. The OK button is the Input complete signal and is used in the following types of Input objects:

- Form
- Check buttons
- Radio buttons
- List box

For example:

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The author must define a name for each of the Input elements (field, button, or choice area) or for the whole object (like Keypress, Cursor Position or List box objects). The name is unique in the current page. Later the name will be used when other objects require this information, such as Analysis, Mailbox or Message. Unlike the names of the input fields, the names of the OK button do not have to be unique.

The names for the inputs of the button types (Radio button, Check button, and plain push buttons) are used as the titles for these buttons when shown on the screen. This is why it is important to choose the button's name according to its function. For example "Cancel" or "More Information", and not "X1" or "AB".

According to the Input type and data conversions (for Field and Multiple fields), each of the input elements corresponds to a certain data type:

- String For Field, Multiple field (without conversion) and for List box.
- Logical For all types of buttons and the Screen choice.
- Integer For Field and Multiple field, with conversion into

Integer.

- Character For Key Press.
- Direction For Cursor Position. Takes a value from the following set: Inside, Outside, Left, Right, Up, Down.

Using the Input object

The name of the created Input element can be used by the author in three related types of objects:

- Analysis (for performing a comparison).
- Message (for displaying the Input as text).
- Mailbox (for saving the Input for use in other pages).

The values of the chosen elements will be read and processed in these types of object.

A characteristic feature of using the Input elements while creating the analysis block, is that after selecting the element used, the list of possible comparison types is constructed according to the type of the data of the Input element. This list includes =, != (not equal), >, <, BETWEEN (for Integer values), and True, False, Exists, and Fails (for Logical values).

All Input objects are described in detail below.

The Input objects are used to associate some information, entered by the user, with the input title. The input titles are unique inside the current page. To pass the information from one page to another, the Mailbox feature must be used. Information put into the Mailbox is retained during the whole collection execution and may be changed by overwriting it with other information. The value in mailboxes may also be used in mathematical expressions.

To add an Input object:

1. Click the  button in the Object Type speedbar. It is replaced with the Input speedbar:

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2. To choose the desired Input type, press the corresponding button. All of the Input types are described in detail below.

- Single field

This option provides data input through the keyboard, allowing it to be typed in the input fields. Case conversions can be used to convert the data input in a specific case. There is also the possibility of type conversion to avoid wrong data types. Types may be converted into integer or floating point types.

Current version limitation: The current version of HM-Card does not support the floating point type.

There is also a method of entering the data "confidentially" by using the Password field option. When the Password field is switched 'ON', all of the symbols typed are displayed as asterisks in the input field.

When HM-Card encounters the Single field Input object, it displays the author-defined box on the screen and the information line at the bottom of the screen prompts the user to type a value in the box and press Enter.

After clicking the Single field button the New Input dialog box appears on the screen:

To add a Single field object:

1. Type the input title into the Input Title box.
2. In the Case Conversions and Type Conversions boxes select the desired types of data conversions by clicking the corresponding buttons.
3. To set the "confidential" option, use the Password field check box.
4. There are two methods of positioning the field on the page:
 - Type the start and end coordinates of the field in the corresponding boxes. These may be used for exact positioning of a set of fields.
 - Use the mouse for positioning the field. Move the mouse pointer into the editing area, click and drag out the boundary of the field. The vertical size of the input field is defined by the size of the font used by the HM-Card system and cannot be changed.
5. To add the field to the page, click the Save button, or click the Cancel button to discard it.

- Multiple fields

This kind of input is used for the same kinds of data as the Single field option, but several input fields are available for data input. For example, the Input object might be used to input name and family name combinations.

The user can toggle between the fields using the Tab key and Shift+Tab

or by using the mouse pointer. After typing the data into the fields, the user must click the OK button (defined by the author).

Adding a Multiple field object is similar to the addition of a Single field, with the only difference that there is a list of the fields that were introduced. The list may be used to modify previously constructed fields.

After clicking the Multiple fields button in the Input speedbar the New Input dialog box appears on the screen:

To define the multiple fields:

1. Type the input title into the Title box of the New Input dialog box.

2. Set the field position on screen, in the same way as for the Single field, then choose the Save button in the New Input dialog box. The dialog box will appear in the upper-right corner of the screen:
3. Select the conversions needed and the Password field option for the newly made field.
4. Repeat these steps as many times as fields are needed, then click the Stop button.
5. The system requires an OK button to be defined for each data input field. The message that appears on the button is entered as a title into the Title box.

The size and position of the OK button can be set in the same way as the common field, the only difference being that both the horizontal and vertical dimensions can be set.

6. After setting all of the fields, click the Save button in the New Input dialog box to add the item to the page or the Cancel button to discard changes.

- **Screen choice**

The Screen choice object is used for telling when a particular area of the screen has been clicked in. The author may define as many sensitive areas of the screen as desired. The sensitive areas are not visible, but when the mouse pointer is moved over them, it turns into a finger. When HM-Card encounters the Screen choice object, it waits for the user to click one of the sensitive areas with the mouse.

When a Screen choice Input object is executed, a line prompting the user to move the mouse pointer into a sensitive area and click, appears at the bottom of the screen.

After choosing the Screen choice button in the Input speedbar, the New Input dialog box appears on the screen:

To set the sensitive screen areas:

1. Type the input title into the Title box.
2. Select the area of the screen, either by typing its coordinates into the corresponding boxes, or by directly outlining the boundary on the screen using the mouse.
3. Choose the OK button to add the newly made area to the list.
4. Repeat these steps, for as many areas as needed in the object.
5. Click the Save button to add the object into the page or Cancel button to discard it.

- Radio buttons

This type of input is used when the user must choose between several options which are introduced by the author and displayed on the page in the form of radio buttons. Radio buttons offer the possibility of choosing one instance from a listed set. After choosing the button the user will have to click the OK button (also defined by the author) to continue.

When HM-Card encounters the Radio buttons Input object, a line prompting the user to select one of the corresponding radio buttons and click the OK button, appears at the bottom of the screen.

After clicking the Radio buttons button at the Input speedbar the New Input dialog box appears on the screen:

To define the buttons:

1. Type the new button title into the Title box of the New Input dialog box. Note that the titles used for the radio buttons are also used as their screen titles which are displayed next to each button.
2. There are two ways of placing the buttons onto the screen:
 - Use the keyboard to type the start and end coordinates of the button into the corresponding box. This may be used for exact button positioning.
 - Move the mouse pointer into the editing area. Click and drag the mouse to outline the boundary of the button.

Note: The flexible button box stretches only horizontally because the radio buttons have a fixed vertical size.

3. Click the OK button in the New Input dialog box to add the radio button.
4. Repeat these steps as many times as required, for each radio button to be added to the page.
5. Click the Stop button in the New Input dialog box to finish editing buttons. The system will then require the OK button to be defined, that will be used with the newly-made set of radio buttons. The title given in the Title box is used as the title for the OK button. The OK button is placed on the page in the same way as radio buttons, but may be sized both directions horizontally and vertically.

6. Click the Save button in the New Input dialog box to add the new Input object to the page or the Cancel button to discard it.

- **Check boxes**

Check boxes work much like the radio buttons, except the user can choose a number of options, available from the Input object.

After marking the desired boxes the user must click the OK button (also defined by the author) to continue.

When HM-Card encounters the Check boxes Input object, a line prompting the user to mark the check boxes and click the OK button, appears at the bottom of the screen.

Check boxes are added in the same way as radio buttons.

- Push buttons

The Push buttons object allows the author to accept input through clicking a button, defined by the author and appearing on the screen while the collection is executed.

The information on the pressed button is passed to the program directly and does not require any other action.

When HM-Card encounters the Push buttons Input object, a line prompting the user to click a corresponding button appears at the bottom of the screen.

The dialog box that appears on the screen after the Push buttons button is created is the same as for radio buttons and check boxes.

Note: The OK button is not needed in this case, because clicking the button itself confirms that the input is complete.

To add Push buttons to the page:

1. Type the title of the new button into the Title box. Note that the Input title is used as a button title, and is displayed on the screen.
2. Position the button on the screen in the two standard ways:
 - Type the required upper-left and lower-right coordinates of the button in the corresponding boxes.
 - Move the mouse pointer into the editing area, click and drag the mouse to designate the button's area.

3. Click the OK button in the New Input dialog box.
4. Repeat these steps as many times as buttons are required.
5. Click the Save button in the New Input dialog box to add the object to the page, or the Cancel button to cancel it.

- List box

List box is one of the most powerful input methods, providing a choice of multiple answers. It is useful when the author needs to make a large number of answer available that will not fit the screen, or are hard to input with other Input objects.

When executed, the List box appears as a window with a scroll bar (if needed) to scroll through the items.

The user must choose one of the items displayed in the list box and then press the OK button (defined by the author) to input their choice.

After clicking the List box button at the Input speedbar the New Input dialog box appears on the screen:

To define a list box:

1. Type the Input title into the Title box.
2. Place the List box onto the screen in one of the two standard ways:
 - Type the required upper-left and lower-right coordinates of the list box into the corresponding boxes.
 - Move the mouse pointer into the editing area, click and drag the mouse to outline the area of the button.
3. Click the OK button in the New Input dialog box to accept the position of the list box.
4. Type the title of the OK button into the Title box.
5. Position the OK button onto the screen in the same way as list box positioning.
6. Click the OK button in the New Input dialog box to accept the position of the OK button.
7. The insertion point will move into the Value box. Type the items to be used in the List box Input object, clicking the OK button after each item to add it to the list. Note that during execution, items are placed in the list box in alphabetical order.
8. Click the Save button in the New Input dialog box to add the newly-made Input object to the page or Cancel button to discard it.

- Cursor position

Cursor position is also a powerful tool for making HM-Card collections easy to work with. In some ways, it works similar to the Screen choice object, but it returns the cursor position relatively to the sensitive screen area. i.e. inside, above, etc. In some situations it is more convenient to use the Cursor position object rather than the Screen choice.

When HM-Card encounters the Cursor position object, a line prompts the user to move the mouse pointer into the required position and click. In contrast, the Screen choice allows the user to click anywhere on the page. It means that clicking in a set area is not required for completing the execution of this object. The result of this kind of Input is from the following set: Inside, Outside, Up, Down, Left, Right.

After clicking the Cursor position button in the Input speedbar, the New Input dialog box appears on the screen:

To add a Cursor position object:

1. Type the object name into the Title box.
2. Place the sensitive area onto the screen in one of the following ways:
 - Type the required upper-right and lower-right coordinates of the bounding area into the corresponding boxes.
 - Move the mouse pointer into the editing area, click and drag the cursor to define the area of the Cursor Position object.
3. Click either the Save button to add the object to the page or Cancel button to discard it.