Overview

The List Box class enables you to create list boxes, which are scrollable lists of text items from which users can make selections.

Parent:
  sashelp.fsp.widget.class

Class:
  SASHELP.FSP.LISTBOX.CLASS

Using the List Box Class

When list box items are selected, the list box is assigned a value. The value of the list box is the identifier of an SCL list containing three sublists: TEXT, ID, and ALL:

- **TEXT** contains the text of the items selected from the list box in the order they were selected.
- **ID** contains the row numbers of the selected items.
- **ALL** contains all of the list box items, in the order they appear in the list box.

Generally, list boxes are populated after the INIT section runs unless a method that requires the list is called in the INIT section. Therefore, to manipulate lists in the INIT section of your program, you must call the _repopulate method to force the population in the INIT section before manipulating the lists.
Scrolling in a List Box

This example simulates scrolling in a list box. To scroll forward, issue the FORWARD command; to scroll backward, issue the BACKWARD command.

This example assumes you have entered the General Attributes window and selected Keys, Pmenu and commands from the Additional Attributes window and then selected Run main in Command Processing.

INIT:

```
scrollcnt=4;
/* Populate the list box */
call notify('listbox1','_repopulate_');
/* Get the list of items from ALL, the third SCL list */
lstid=getiteml(listbox1,3);
listlen=listlen(lstid);
return;
```

MAIN:

```
if upcase(word(1))='FORWARD' then do;
call notify('listbox1','_get_toprow_',
toprow);
/* LISTLEN is the number of items in the list box */
/* and SCROLLCNT is the number of items to scroll at once */
if (toprow+scrollcnt)>listlen then
_msg_='At bottom.';
else call notify('listbox1','_set_toprow_',
toprow+scrollcnt);
end;

if upcase(word(1))='BACKWARD' then do;
call notify('listbox1','_get_toprow_',toprow);
/* LISTLEN is the number of items in the list box */
/* and SCROLLCNT is the number of items to scroll at once */
if toprow=1 then
_msg_='At top.';
if (toprow-scrollcnt)<=0 then
toprow=1;
else
toprow=toprow-scrollcnt;
call notify('listbox1','_set_toprow_',toprow);
end;

call nextcmd();
return;
```

TERM:

```
return;
```
Retrieving Text and Row Numbers of Items in a List Box

This example uses the list box lists to retrieve the text and row numbers of items selected from the list box.

Assume the list box has been defined to allow multiple selections and that Maryland is in row 1 and North Carolina is in row 3.

```plaintext
/* Deselect all items in the list box */
call notify ('listbox1', '_unselect_all_');

/* Select North Carolina and Maryland from the list box entries */
call notify ('listbox1', '_select_text_', 'North Carolina');
call notify ('listbox1', '_select_text_', 'Maryland');

/* Get the list ids of the TEXT (list 1) and the ID (list 2) */
textlist=getiteml(listbox1,1);
numlist=getiteml(listbox1,2);

/* Determine how many entries are selected */
llen=listlen(textlist);
if llen<2 then
    _msg_="ERROR: a _selectText method failed";
else if llen>2 then
    _msg_="ERROR: the _unselectAll method failed";
else
    do;
        /* Get the selected text values from the TEXT list */
        item1=getitemc(textlist,1);
        item2=getitemc(textlist,2);
        put "The following should be ITEM1=North Carolina :" item1=;
        put "The following should be ITEM2=Maryland : " item2=;

        /* Get the selected row numbers from the ID list */
        nitem1=getitemn(numlist,1);
        nitem2=getitemn(numlist,2);
        put "The following should be NITEM1=3 : " nitem1=;
        put "The following should be NITEM2=1 : " nitem2=;
    end;
```
Methods

Methods specific to the List Box class are described here. Inherited methods are described in the Object class and the Widget class.

Dictionary

_add

Adds a new item to a list box

Syntax

CALL NOTIFY (list-box-name, '_add', item-text, row);

<table>
<thead>
<tr>
<th>Argument</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>item-text</td>
<td>C</td>
<td>specifies the text to insert in the list box</td>
</tr>
<tr>
<td>row</td>
<td>N</td>
<td>specifies the row to insert the text in. A value of -1 inserts the text at the bottom of the list box.</td>
</tr>
</tbody>
</table>

Details

The row argument specifies the actual row in the overall list, not its position in the displayed list. For example, the fifth item in the list might be displayed at the top of the list box. In this case, row would be 5.

_delete

Deletes one or more items from a list box

Syntax

CALL NOTIFY (list-box-name, '_delete', start-row, num-items);
List Box Class

Example

### _delete_ argument

`_delete` deletes the 3rd, 4th, and 5th items from LISTBOX1:

```plaintext
call notify('listbox1', '_delete_', 3, 3);
```

### _deleteAll_ argument

_Deprecated_ Deletes all items from a list box

**Syntax**

```plaintext
CALL NOTIFY (list-box-name, '_deleteAll');
```

### _deleteText_ argument

Deletes an item with a specified text string

**Syntax**

```plaintext
CALL NOTIFY (list-box-name, '_deleteText', item-text<, occurrence>);
```

<table>
<thead>
<tr>
<th>Argument</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>item-text</td>
<td>C</td>
<td>specifies the text of the item to delete. Item-text is case sensitive.</td>
</tr>
<tr>
<td>occurrence</td>
<td>N</td>
<td>specifies the number of the occurrence if more than one list item contains the specified text string. The default is 1.</td>
</tr>
</tbody>
</table>

**Example**

`_deleteText` deletes the first occurrence of the item containing the string

_North Carolina:_

```plaintext
```
call notify('listbox1', '_delete_text_', 
   'North Carolina', 1);

_getLastSel

Returns the row number and text of the most recently selected or deselected list box item

---

**Syntax**

CALL NOTIFY (list-box-name, '_getLastSel', row-number, is-selected, text);

**Argument Type Description**

<table>
<thead>
<tr>
<th>Argument</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>row-number</td>
<td>N</td>
<td>returns the row number of the most recently selected or deselected item, or 0 if no selections have occurred</td>
</tr>
<tr>
<td>is-selected</td>
<td>N</td>
<td>returns a value indicating whether the item is still selected:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt;0 the item is selected. (This value is the order in which the item was selected relative to the other items currently selected. For example, if the item was the second item selected, this value would be 2.)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0 the item is not selected</td>
</tr>
<tr>
<td>text</td>
<td>C</td>
<td>returns the text of the list box item</td>
</tr>
</tbody>
</table>

**Example**

_getLastSel returns the last item and row selected in LISTBOX1:

length text $ 24;
call notify('listbox1', '_get_last_sel_',
   row, issel, text);
if (row=0)
   _msg_="No selections have occurred’;
if issel ^= 0 then
   _msg_="The last selected item was :
      " || text || " at row : " || row;
else
   _msg_="The last deselected item was :
      " || text || " at row : " || row;

_getMaxrow

Returns the number of rows, or items, in a list box
**Syntax**

CALL NOTIFY (list-box-name, 'getRow', number-rows);

<table>
<thead>
<tr>
<th>Argument</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>number-rows</td>
<td>N</td>
<td>returns the number of items in the list box</td>
</tr>
</tbody>
</table>

---

**getRow**

Returns the row number for the item with a specified text string

---

**Syntax**

CALL NOTIFY (list-box-name, 'getMaxsel', number-rows);

<table>
<thead>
<tr>
<th>Argument</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>number-rows</td>
<td>N</td>
<td>returns the number of items in the list box</td>
</tr>
</tbody>
</table>

---

**getMaxsel**

Returns the maximum number of selections allowed in a list box

---

**Syntax**

CALL NOTIFY (list-box-name, 'getMaxsel', maximum);

<table>
<thead>
<tr>
<th>Argument</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>maximum</td>
<td>N</td>
<td>returns the number of items that can be selected</td>
</tr>
</tbody>
</table>

---

**getNselect**

Returns the number of items in a list box that are currently selected

---

**Syntax**

CALL NOTIFY (list-box-name, 'getNselect', selections);

<table>
<thead>
<tr>
<th>Argument</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>selections</td>
<td>N</td>
<td>returns the number of items that are currently selected</td>
</tr>
</tbody>
</table>

---

**getRow**

Returns the row number for the item with a specified text string
Syntax

CALL NOTIFY (list-box-name, '_getRow', item-text, row-number<, occurrence>);

<table>
<thead>
<tr>
<th>Argument</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>item-text</td>
<td>C</td>
<td>specifies the text of the item for which you want to find the row number; item-text is case sensitive.</td>
</tr>
<tr>
<td>row-number</td>
<td>N</td>
<td>returns the row number of the specified item, or 0 if the item is not found</td>
</tr>
<tr>
<td>occurrence</td>
<td>N</td>
<td>returns the number of the occurrence if the item occurs in the list box more than once. The default is 1.</td>
</tr>
</tbody>
</table>

Example

_getRow returns the row number for the second occurrence of Johnson and assigns it to the variable ROW:

call notify('listbox1', '_get_row_', 'Johnson', row, 2);
_msg_ = 'Row= ' || row;

_getText

Returns the text of the item in the specified row of a list box

Syntax

CALL NOTIFY (list-box-name, '_getText', row-number, item-text);

<table>
<thead>
<tr>
<th>Argument</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>row-number</td>
<td>N</td>
<td>specifies the row number for which to return the text</td>
</tr>
<tr>
<td>item-text</td>
<td>C</td>
<td>returns the text in the specified row</td>
</tr>
</tbody>
</table>

Example

_getText returns the text in row 3 of LISTBOX1 to the variable TEXT:

length text $ 24;
call notify('listbox1', '_get_text_', 3, text);
_msg_ = 'Text= ' || text;
### _getToprow

Returns the row number of the item displayed at the top of a list box

---

**Syntax**

CALL NOTIFY (list-box-name, '_getToprow', row-number);

<table>
<thead>
<tr>
<th>Argument</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>row-number</td>
<td>N</td>
<td>returns the row number of the item displayed at the top of the list box</td>
</tr>
</tbody>
</table>

**Example**

_getToprow returns the row number associated with the item that is currently at the top of LISTBOX1:

```plaintext
call notify('listbox1', '_get_toprow', row);
_msg_ = 'The top row of the list box is: ' || row;
```

### _getToptext

Returns the text of the item displayed in the top row of a list box

---

**Syntax**

CALL NOTIFY (list-box-name, '_getToptext', item-text);

<table>
<thead>
<tr>
<th>Argument</th>
<th>Type</th>
<th>Argument</th>
</tr>
</thead>
<tbody>
<tr>
<td>item-text</td>
<td>C</td>
<td>returns the text of the item in the top row of the list box</td>
</tr>
</tbody>
</table>

### _getValue

Returns the identifier of an SCL list containing information about items in the list box

Inherited from Widget
**Syntax**

CALL NOTIFY (list-box-name, '_getValue', list-id);

<table>
<thead>
<tr>
<th>Argument</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>list-id</td>
<td>N</td>
<td>returns the identifier of an SCL list that contains the identifiers of three additional lists containing descriptive information about the list box</td>
</tr>
</tbody>
</table>

**Details**

The three SCL lists referenced by list-id contain this information:

- the items currently selected in the list box
- the row numbers associated with the selected items
- all items in the list box.

**Example**

_getValue retrieves and displays the currently selected items in LISTBOX1:

```plaintext
call notify('listbox1','_get_value_,' value);
selid=getiteml(value,1);
call putlist(selid);
```

---

**_issel**

Reports whether a specified list box item is currently selected

---

**Syntax**

CALL NOTIFY (list-box-name, '_issel', row-number, status);

<table>
<thead>
<tr>
<th>Argument</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>row-number</td>
<td>N</td>
<td>specifies the row number of the item</td>
</tr>
<tr>
<td>status</td>
<td>N</td>
<td>returns a value indicating whether the item is currently selected:</td>
</tr>
</tbody>
</table>
List Box Class

_repopulate

Refills a list box with the current values of the source that populates the list box.

Syntax

CALL NOTIFY (list-box-name, '_repopulate');

Details

The list box is refilled based on the value of Fill type in the List Box Attributes window.

The _update method for list boxes works the same as the _repopulate method if the list boxes are not in an extended table. If a list box is in an extended table, the _update method works the same as the _refresh method.

Note: The _repopulate method performs some processing that must take place before a list box is repopulated. Therefore, if you write your own method to customize the processing, you must call the _repopulate method of the parent class as the first command in the method you write. Use the CALL SUPER routine to call the _repopulate method of the parent class: △

POPULATE:
  method;
    call super(_self_,'_repopulate_');
    /* SCL code to repopulate list box */
  endmethod;

For more information on writing your own methods and on the CALL SUPER routine, refer to SAS\AF Software FRAME Application Development Concepts.

---

**Argument Type Description**

<table>
<thead>
<tr>
<th>Argument</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;0 selected. (This value is the order in which the item was selected relative to the other items currently selected. For example, if the item was the second item selected, this value would be 2.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>not selected</td>
<td></td>
</tr>
</tbody>
</table>

**Example**

_issel reports whether item 3 in LISTBOX1 is currently selected:

call notify('listbox1','_issel_','3',issel);

if issel>0 then
  _msg_="The third item is currently selected."
else
  _msg_="The third item is NOT currently selected.";

---

**_repopulate**

Refills a list box with the current values of the source that populates the list box.
Example

This example shows how the _repopulate method uses the current values of the source to fill the list box. Assume that the Attributes Window specifies that LISTBOX1 is initially filled with an SCL array named ALPHA.

```scl
/* Create the array that fills the
   list box */
array alpha $ ('a' 'b' 'c');

/* Create a second array with the same values */
array base $ ('a' 'b' 'c');

/* Each time the list box is selected,
   increment the counter */
/* and append the counter value to the base values. */
/* Copy the new value into ALPHA. */
main:
  counter+1;
  do i = 1 to dim(alpha);
    alpha(i) = base(i) || compress(put(counter, 2.));
  end;

/* Refill LISTBOX1 with the current values of ALPHA */
call notify('listbox1', '_repopulate_');
return;
```

When the window opens, the values in the list box are \texttt{a}, \texttt{b}, \texttt{c}. After the user clicks on an item once, the MAIN section runs, the SCL array ALPHA is updated, and the list box is repopulated with the new values of ALPHA: \texttt{a1}, \texttt{b1}, \texttt{c1}. Old example _repopulate refills LISTBOX1.

```scl
call notify('listbox1', '_repopulate_');
```

__selectRow__

Selects or deselects the item in the specified row of a list box

Syntax

CALL NOTIFY (list-box-name, '_selectRow', row-number, <action>);
List Box Class

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<table>
<thead>
<tr>
<th>Argument</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>row-number</td>
<td>N</td>
<td>specifies the row to select or deselect</td>
</tr>
<tr>
<td>action</td>
<td>C</td>
<td>specifies an action to apply to the row:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>'OFF' deselects the row</td>
</tr>
<tr>
<td></td>
<td></td>
<td>'ON' selects the row (the default)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>'TOGGLE' deselects the row if it is selected, and selects the row if it is not selected</td>
</tr>
</tbody>
</table>

Details

If the list box allows only one selection, the specified row is selected and the previously selected row is deselected. If the list box allows multiple selections and the maximum number of allowable selections is exceeded, the program halts.

___selectText

Selects or deselects the list box item that has specified text

Syntax

CALL NOTIFY (list-box-name, '_selectText', item-text<, occurrence<, action>>);

<table>
<thead>
<tr>
<th>Argument</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>item-text</td>
<td>C</td>
<td>specifies the text to find; item-text is case sensitive</td>
</tr>
<tr>
<td>occurrence</td>
<td>N</td>
<td>specifies the number of the occurrence if the text occurs more than once. The default is 1.</td>
</tr>
<tr>
<td>action</td>
<td>C</td>
<td>specifies an action to apply to the row:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>'OFF' deselects the row</td>
</tr>
<tr>
<td></td>
<td></td>
<td>'ON' selects the row (the default)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>'TOGGLE' deselects the row if it is selected, and selects the row if it is not selected</td>
</tr>
</tbody>
</table>

Details

If the list box allows only one selection, the specified item is selected and the previously selected item is deselected. If the list box allows multiple selections and the maximum number of allowable selections is exceeded, the program halts.

Example

__selectText uses the default action, ON, to select the row containing North Carolina in LISTBOX1:
call notify('listbox1', '_select_text_', 'North Carolina');

__selected__

Returns the row number of the n-th selected list box item

Syntax

CALL NOTIFY (list-box-name, '_selected', nth-selection, row-number);

<table>
<thead>
<tr>
<th>Argument</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>nth-selection</td>
<td>N</td>
<td>specifies the n-th selected item</td>
</tr>
<tr>
<td>row-number</td>
<td>N</td>
<td>returns the row number of the selected item, or 0 if the number of items selected is less than nth-selection</td>
</tr>
</tbody>
</table>

__setColor__

Assigns a color to a list box's title and text

Restrictions  Some systems do not support changing the color of a list box.

Syntax

CALL NOTIFY (list-box-name, '_setColor', title-color, text-color);

<table>
<thead>
<tr>
<th>Argument</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>title-color</td>
<td>C</td>
<td>specifies the color of the list box title</td>
</tr>
<tr>
<td>text-color</td>
<td>C</td>
<td>specifies the color of the list box text</td>
</tr>
</tbody>
</table>

Details

A blank string defaults to the current color.

__setMaxsel__

Assigns the maximum number of list box items that can be selected
**Syntax**

CALL NOTIFY (list-box-name, '_setMaxsel', maximum<, allow-desel>);

<table>
<thead>
<tr>
<th>Argument</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>maximum</td>
<td>N</td>
<td>specifies the number of items that can be selected</td>
</tr>
</tbody>
</table>
| allow-desel| N    | if maximum is 1, specifies a value indicating whether list box items may be deselected:  
              |      | 1 may be deselected  
              |      | 0 may not be deselected  
              |      | if maximum is >1, specifies a value indicating the selection style:  
              |      | 1 extended selection  
              |      | 0 multiple selection    |

**Details**

The program halts if maximum is less than 0. If you change the maximum to less than the number of currently selected items, the most recently selected items are deselected.

**Example**

_setMaxsel sets the maximum number of selections in LISTBOX1 to 3:

```plaintext
    call notify('listbox1','_set_maxsel_','_set_maxsel_','listbox1',3);
    call notify('listbox1','_get_maxsel_','listbox1',maxsel);
    put "The following should be MAXSEL=3 :
        " maxsel=;
```

---

**setTitle**

Assigns a title to a list box

**Syntax**

CALL NOTIFY (list-box-name, '_setTitle', title-string);
<table>
<thead>
<tr>
<th>Argument</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>title-string</td>
<td>C</td>
<td>specifies the text of the title</td>
</tr>
</tbody>
</table>

### &_setToprow

Displays a specified row at the top of the list box

#### Syntax

CALL NOTIFY (list-box-name, '_setToprow', row-number);

<table>
<thead>
<tr>
<th>Argument</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>row-number</td>
<td>N</td>
<td>specifies the row to display at the top of the list box</td>
</tr>
</tbody>
</table>

#### Details

On some operating systems, this method causes the specified row to become visible in the list box but does not necessarily display the selected row at the top of the list box.

### &_setTopText

Displays the item that has a specified text string at the top of a list box

#### Syntax

CALL NOTIFY (list-box-name, '_setTopText', item-text<, occurrence>);

<table>
<thead>
<tr>
<th>Argument</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>item-text</td>
<td>C</td>
<td>specifies the text of the item to display at the top of the list box</td>
</tr>
<tr>
<td>occurrence</td>
<td>N</td>
<td>specifies the number of the text's occurrence if the text occurs more than once. The default is 1.</td>
</tr>
</tbody>
</table>

#### Details

On some operating systems, this method causes the specified row to become visible in the list box but does not necessarily display the selected row at the top of the list box.

#### Example

_&_setTopText displays the first occurrence of the item North Carolina at the top of the list box:
call notify('listbox1', '_set_top_text_', 'North Carolina', 1);

### _unselectAll_

Deselects all items in a list box

**Syntax**

CALL NOTIFY (list-box-name, '_unselectAll');

**Details**

If deselections are not allowed for the list box, the _unselectAll method causes a program halt.

### _unselectRow_

Deselects an item in a specified row of the list box

**Syntax**

CALL NOTIFY (list-box-name, '_unselectRow', row-number);

**Argument Type Description**

<table>
<thead>
<tr>
<th>Argument</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>row-number</td>
<td>N</td>
<td>specifies the row to deselect</td>
</tr>
</tbody>
</table>

**Details**

If deselections are not allowed for the list box, the _unselectRow method causes a program halt.

### _unselectText_

Deselects an item that has specified text

**Syntax**

CALL NOTIFY (list-box-name, '_unselectText', item-text<, occurrence>);
<table>
<thead>
<tr>
<th>Argument</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>item-text</td>
<td>C</td>
<td>specifies the text of the item to deselect</td>
</tr>
<tr>
<td>occurrence</td>
<td>N</td>
<td>specifies the number of the text’s occurrence if the text occurs more than once. The default is 1.</td>
</tr>
</tbody>
</table>

**Details**

If deselections are not allowed for the list box, the _unselectText method causes a program halt. In addition, if the value of occurrence is greater than the number of occurrences, the program halts.

**Example**

_unselectText deselects the first occurrence of the item North Carolina in LISTBOX1:

```javascript
    call notify('listbox1','_unselect_text_','North Carolina');
```