Help Index

Keystone Software Calendar Control Help Index:

What is a Custom Control?
Who uses Custom Controls?
How do I use a Custom Control in my program?
How do I use the Calendar Control?
What changes to my program are necessary to use the Calendar Control?
How do I purchase the Calendar Control?
What is Keystone Software?

What is a Custom Control?

The disk or archive that you received contains a custom control tool for Microsoft Windows programmers. A "control" is one of the standard tools used to construct a Microsoft Windows program.   The basic controls in Windows include push buttons, scroll bars, list boxes, edit boxes, radio buttons, check boxes, and combo boxes. A "Custom" control is a new type of control, not provided by Microsoft, that can be used when constructing a program. One of the excellent features of Windows is that it can be extended so easily.

This custom   control looks and acts like a calendar. The current date is shown highlighted automatically. A click of the mouse changes the date in the control. The scroll bar allows you to change the month/year. The calendar is accurate from the year 1583 through ????.

Features:

*   Support for use with the Microsoft Dialog Editor, and Borland Resource Workshop is built into the DLL provided.

*   A generic application (source code too) is provided as an example of the use of the control. It doesn't take much explaining, just run the "generic.exe" program.

*   The user can select a date by a mouse click over the desired date. The scroll bar at the bottom of the calendar allows the user to change the month or year.

*   Any day of the week/month can be de-selected, it cannot then be selected by user input

*   The number of days from the current date, the day of the week, month, day, and year selected can be retrieved by sending a message to the control

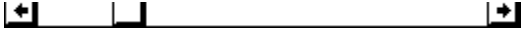A **mouse**, **You know! THIS THING!**: ⊔

A **radio button** looks like this:

If the circle on the left is filled with a dark dot, like it is here, then this option is turned "ON". If the circle is empty then the option is turned "OFF".

A **push button** looks like this: ⌐‗‗‗‗‗¬

The button may have any text on it.

A **scroll bar** looks like this: ◄▌   �   ▶▌

The scroll bar may be shown either vertically or horizontally.

A **calendar control** looks like this:

March 1993						
Su	Mo	Tu	We	Th	Fr	Sa
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

A **check box** looks like this:: ☒ <u>C</u>lose Window on Exit

A **combo box** looks like this::

A **list box** looks like this:: | glossary.hlp ▾ |

A **edit box** looks like this::

The Microsoft Dialog Editor is provided as part of the Software Development Kit. I believe it will be included in the new version 7.0 compiler as well.

Who uses a custom control?

Custom Controls are used by programmers to create Microsoft Windows programs. The control can be used with any software which supports loading of dynamic link libraries, or "DLL"s. This includes Microsoft C, Visual Basic, Borland C, Turbo C, Turbo Pascal, Whitewater "Actor", and many others.

How do I use a custom control in my program?

One of the excellent features of Windows is that it can be extended so easily. The Custom control is a good example.

If you are using the Microsoft Dialog Editor or the   Borland Resource Workshop you can use custom controls easily in your program development. These products both require that you tell the editor about the custom control before it can be used. The instructions provided with each product explain how to do this.

When you have installed the custom control DLL, choose "add a control", pick the custom control option, then choose "Calendar". The mouse is used to place the calendar into the dialog box you are creating. The mouse should be moved to the upper left corner of where you want the Calendar placed. A click of the mouse will place a calendar into your program.

The calendar will show the current date. The size and position of the calendar can be changed as desired. If the calendar is made too small it will become unreadable. This is not desirable, unless your users have better eyes than I do.

What changes to my program are necessary to use the calendar control?

Your application will need one extra variable in the winmain() routine. This is the DLL library handle. It should be retained as long as the DLL is being used. It can be declared like this:

winmain()
  {
  HANDLE   hLibrary;   /* DLL library handle */

The following code should be executed before your program uses a calendar control. This code tells Microsoft Windows to load the DLL into memory if it has not already done so. The code should be placed in the winmain() routine, after your application has been initialized, but before the message handling loop.

```
    hLibrary = LoadLibrary( "KeyCal.DLL" );
    if ( hLibrary < 32 )
      {
        MessageBox( NULL,
                  "Cannot Load KeyCal DLL",
                  NULL, MB_ICONEXCLAMATION
                   );
        return ( -1 );
      }

    /* your applications message handling loop goes here */
```

The following code should be executed after your program is done using all calendar controls. This code tells Microsoft Windows to unload the DLL from memory. This code shoud be placed in the winmain() routine, before your application exits (after the message handling loop).

```
    FreeLibrary( hLibrary );
}
```

The "Generic" application provided as a demo of the control makes a good example.

How do I use the calendar control?

How do I select a date?
How do I change the month?
How do I change the year?
Calendar messages Summary

How do I select a date?

Move the mouse cursor over the square in the calendar containing the day you want to select. Press the left mouse button once and the highlight will change to the date you have selected. If the date is not valid or has been locked out so it cannot be selected then the system beep will sound.

The screen would look like this if you wanted to select the first day of the month:
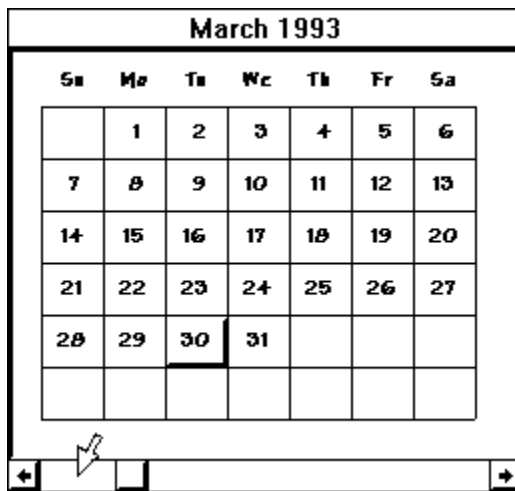
How do I select the Month?

To move to a previous month:

Move the mouse cursor just to the right of the left arrow on the left side of the scroll bar at the bottom of the calendar. Press the left mouse button and the month will change to the previous month. If the date currently selected is not valid or has been locked out the selected date will change to a valid day.

Position the cursor as shown below and press the left mouse button to select the previous month:
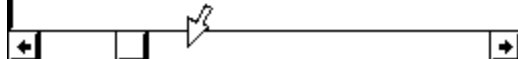
March 1993

Su	Mo	Tu	Wc	Th	Fr	Sa
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

To move to the next month:

Move the mouse cursor just to the left of the right arrow on the right side of the scroll bar at the bottom of the calendar. Press the left mouse button and the month will change to the next month. If the date currently selected is not valid or has been locked out the selected date will change to a valid day.

Position the cursor as shown below and press the left mouse button to select the next month:

March 1993

Su	Mo	Tu	Wc	Th	Fr	Sa
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

To select a specific month:

Move the mouse cursor to square in the scroll bar at the bottom of the calendar. Press the left mouse button and hold it down. Move the mouse to the far left side to select January of the current year, or to the far right side to select December of the current year. The month will change when you release the mouse button.

The position of the square selects the month of the year, January being at the left and December to the right. The square may be positioned just to the left of the center for June, etc.
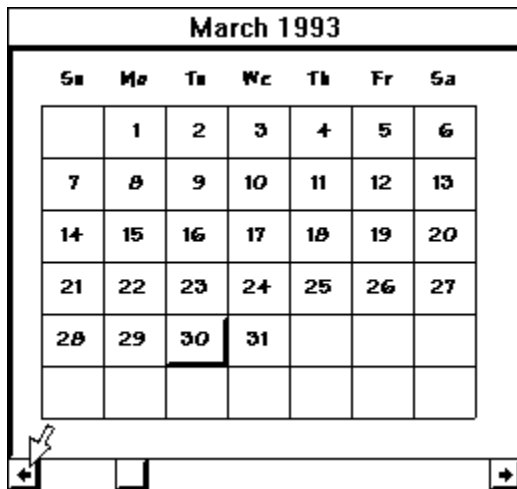
If the date currently selected is not valid (Such as the 30th of February) or has been locked out the selected date will change to a valid day.

How do I select the Year?

To move to a previous year:

Move the mouse cursor to left arrow on the left side of the scroll bar at the bottom of the calendar. Press the left mouse button and the year will change to the previous year.

Position the cursor as shown below and press the left mouse button to select the previous year:

March 1993						
Su	**Mo**	**Tu**	**We**	**Th**	**Fr**	**Sa**
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

To move to the next year:

Move the mouse cursor to right arrow on the right side of the scroll bar at the bottom of the calendar. Press the left mouse button and the year will change to the next year.

Position the cursor as shown below and press the left mouse button to select the next year:

March 1993

Su	Mo	Tu	Wc	Th	Fr	Sa
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

What messages can I send to the control?

Calendar Message Summary:

Control messages are pre-defined window messages that direct a control to carry out a specified task. Applications send control messages to a control by using the SendMessage function. The control carries out the specified task and returns a value that indicates the result.

DM_RESET	Set the date to today
DM_SET_DATE	Set date to _{Julian Date} number in "lParam"
DM_GET_DATE	Returns date as a _{Julian Date} number
DM_GET_MONTH	Returns Month selected
DM_GET_DAY	Returns day selected
DM_GET_YEAR	Returns year selected
DM_SELECT_ANY	Allow user to Select any day
DM_SELECT_DAY_MASK	Set which days of the week may be selected
DM_SELECT_DATE_MASK	Set which days of the month may be selected
DM_SELECT_MONTH_MASK	Set which monts of the year may be selected
DM_SELECT_MONTH	Turn on/off ability to change the month
DM_SELECT_YEAR	Turn on/off ability to change the year
DM_SELECT_COUNT	Set how many dates may be selected
DM_SELECT_RANGE	Set ranges of dates that may be selected
DM_GET_DAYS	Returns days between today and selected date

Notification Messages:

Controls use the WM_COMMAND message to notify the parent window of actions that occur within the control. The *wParam* parameter of the WM_COMMAND message contains the control ID; the low-order word of the *lParam* parameter contains the control-window handle; and the high-order word of *lParam* contains the control notification code.

DN_DATECHANGED	Date changed notification message

DM_RESET

This message sets the calendar control selected date to the current date. Any previous selections are lost.

Parameter	Description
wParam	Is not used.
lParam	Is not used.

Return Value   The return value is always TRUE.

Comments none.

DM_SET_DATE

This message sets the calendar control selected date to the Julian date passed in *lParam*. Any previous selections are lost.

Parameter	Description
wParam	Is not used.
lParam	The Julian Date to be selected.

Return Value   The return value is always TRUE.

Commentsnone.

DM_GET_DATE

This message returns the calendar control selected date (as a Julian date).

Parameter	Description
wParam	Is not used.
lParam	Is not used.

Return Value   The currently selected date as a Julian date number. Returns 0 if no date is selected, or more than one date is selected.

Commentsnone.

DM_GET_MONTH

This message returns the month number of calendar control selected date.

Parameter	Description
wParam	Is not used.
lParam	Is not used.

Return Value The currently selected date (1=January, 2=February, etc.). Returns 0 if no date is selected, or more than one date is selected.

Commentsnone.

DM_GET_DAY

This message returns the day of the month number of calendar control selected date.

Parameter	Description
wParam	Is not used.
lParam	Is not used.

Return Value   The currently selected day (1 through 31).   Returns 0 if no date is selected, or more than one date is selected.

Commentsnone.

DM_GET_YEAR

This message returns the year number of calendar control selected date.

Parameter	Description
wParam	Is not used.
lParam	Is not used.

Return Value   The currently selected year (1993, 1994, etc.). Returns 0 if no date is selected, or more than one date is selected.

Commentsnone.

DM_SELECT_ANY

This message instructs the control to allow any date to be selected.

Parameter	Description
wParam	Is not used.
lParam	Is not used.

Return Value   Always returns TRUE.

Commentsnone.

DM_SELECT_DAY_MASK

This message instructs the control to allow or disallow the selection of days of the week.

Parameter	Description
wParam	Is not used.
lParam	A bitmask used to specify which days may be selected. A '1' bit indicates the day may be selected, a '0' bit indicates that it may not. The first 7 bits are used, all others are ignored. The first bit is the indicator for Sunday, the second is for Monday, etc.

Return Value   Returns previous setting of selection mask.

Commentsfor example: To allow the user to select only work days use the bit mask '0111110'(0x3E).

DM_SELECT_DATE_MASK

This message instructs the control to allow or disallow the selection of days of the month.

Parameter	Description
wParam	Is not used.
lParam	A bitmask used to specify which days may be selected. A '1' bit indicates the day may be selected, a '0' bit indicates that it may not. The first 31 bits are used, all others are ignored. The first bit is the indicator for the first day of the month, the second bit for the second day, etc.

Return Value   Returns previous setting of selection mask.

Comments for example: To allow the user to select only from the first 7 days use the bit mask '1111111'(0x7F).

DM_SELECT_MONTH_MASK

This message instructs the control to allow or disallow the selection of months of the year.

Parameter	Description
wParam	Is not used.
lParam	A bitmask used to specify which months may be selected. A '1' bit indicates the month may be selected, a '0' bit indicates that it may not. The first 12 bits are used, all others are ignored. The first bit is the indicator for the first month, the second bit for the second month, etc.

Return Value   Returns previous setting of selection mask.

Comments for example: To allow the user to select any months except January use the bit mask '1111 1111 1110'(0xFFE).

DM_SELECT_MONTH

This message instructs the control to allow or disallow changing the month of the year.

Parameter	Description
wParam	Is not used.
lParam	A logical value used to specify if the month may be changed. A TRUE value indicates the month may be changed, a FALSE indicates that it may not.

Return Value   Returns previous setting of selection mask.

Comments If changing the year and the month are both disallowed then the control scroll bar will be hidden.

DM_SELECT_YEAR

This message instructs the control to allow or disallow changing the year.

Parameter	Description
wParam	Is not used.
lParam	A logical value used to specify if the year may be changed. A TRUE value indicates the year may be changed, a FALSE indicates that it may not.

Return Value   Returns previous setting of selection mask.

Comments If changing the year and the month are both disallowed then the control scroll bar will be hidden.

DM_SELECT_COUNT

This message instructs the control how many dates may be selected simultaneously.

Parameter	Description
wParam	Is not used.
lParam	A count of the number of dates that can be selected.

Return Value   Returns previous setting of selection count.

Comments A count of '0' would give a calendar that allows no selection to be made. If selections are disallowed then the control scroll bar will be hidden.

A number greater than zero would allow multiple dates to be selected.

DM_SELECT_RANGE

This message instructs the control the range of days which may be selected relative to the current date.

Parameter	Description
wParam	Is not used.
lParam	The high word of *lParam* indicates how far in the past dates can be selected. The low word of *lParam* indicates how far in the future dates can be selected. The range is given in numbers of days, relative to today's date.

Return Value   Returns previous setting of selection range.

Comments To allow selections from today through 7 days in the future the *lParam* should be: high word 0 (allow no selections in the past), and low word 7 (allow selections 7 days in the future), *lParam* = 0x07.

DM_GET_DAYS

This message returns the number of days between the currently selected date and the current date.

Parameter	Description
wParam	Is not used.
lParam	Is not used.

Return Value   Returns the number of days between the currently selected date and the current date.

CommentsIf multiple selections are made '0' is returned. The number of days is relative to the current date, a negative value indicates the selected date is in the past, a positive value indicates the selected date is in the future.

DN_DATECHANGED

This code specifies that the user has changed the selected date. The parent window receives the code through a WM_COMMAND message from a calendar control.

Parameter	Description
wParam	Specifies the control ID.
lParam	Contains a handle that identifies the button control in its low-order word and the BN_CLICKED notification code in its high-order word.

Comments Disabled buttons will not send a notification message to a parent window.

The "Julian Date" is a large number used to represent a date. This number starts at 0 for January 1 the year 1AD. The number increases by one for each day that follows.

Our calendar currently has 365.25 days per year if you include February 29th on leap years. The real year is somewhat smaller than this, so over time the inaccuracy builds up. In the year 1582 the calendar had become so inaccurate that it was several days wrong. A decision was made to just "not have" several days and just skip ahead to get the calendar back on track. It was also decided that the leap year would be skipped every 400 years to avoid this occurrence in the future. This decision is traced back to Julius Caesar and the "Julian Date" is named in his honor.

How do I purchase the calendar control?

This control is provided as is, and is Copyrighted by Keystone Software Development. If the control is used in a commercial product you must purchase a license for the use of the control.

The license to use the control in a commercial product is: **$ 40.00 U.S.**
The source code for the control is available for: **$300.00 U.S.**
German or French version license: **$ 50.00 U.S.**

The control liscense includes the rights to use the control in a single commercial product, printed documentation, and a Microsoft Word document which contains the source for the help file concerning the control. The help document is suitable for inclusion into your own product help.

For more information about this product write to:

Keystone Software Development
Attn.: Jay Sprenkle
1800 Avalon Lane
Olathe, KS   66062

Keystone Software

Keystone Software is a small consulting firm located in the Midwest.

Also available from Keystone Software:

* Thermometer custom control for Windows
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