



#34: User Items in Dialogs

See also: *Inside Macintosh*, The Dialog Manager

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The Dialog Manager does not go into detail about how to manage user items in dialogs; this Technical Note describes the process.

Changes since March 1, 1988: Added MPW C 3.0 code, added a `_SetPort` call to the Pascal example, and noted the necessity and meaning of `enabled` items.

To use a `userItem` with the Dialog Manager, you must define a dialog, load the dialog and install your `userItem`, and respond to events which relate to your `userItem`. If your application wants to receive mouse clicks in the `userItem`, then you must set the item to `enabled`.

Defining a Dialog Box with a `userItem`

You should define the dialog box in your resource file as follows. Note that it is defined as invisible, since we have to play with the `userItem` before we can draw it.

```
resource 'DLOG' (1001) {                                /* type/ID for box */
    {100,100,300,400},                                  /* rectangle for window */
    dBoxProc, invisible, noGoAway, 0x0,                 /* note it is invisible */
    1001,
    "Test Dialog"
};

resource 'DITL' (1001) {                                /* matching item list */
    {
        {160, 190, 180, 280},                          /* rectangle for button */
        button { enabled, "OK" };                       /* an OK button */
        {104, 144, 120, 296},                          /* rectangle for item */
        userItem { enabled }                            /* a user item! */
    }
};
```

Loading and Preparing to Show the Dialog Box

Before we can actually show the dialog box to the user, we need two support routines. The Dialog Manager calls the first procedure whenever we need to draw our `userItem`. You should install it (as shown below) after calling `_GetNewDialog` but before calling `_ShowWindow`. This first procedure simply draws the `userItem`.

In MPW Pascal:

```
PROCEDURE MyDraw(theDialog: DialogPtr; theItem: INTEGER);

    VAR
        iType : INTEGER;           {returned item type}
        iBox   : Rect;             {returned bounds rect}
        iHdl   : Handle;           {returned item handle}

    BEGIN
        GetDItem(theDialog, theItem, iType, iHdl, iBox); {get the box}
        FillRect(iBox, ltGray);      {fill with light gray}
        FrameRect(iBox);             {frame it}
    END; {MyDraw}
```

In MPW C 3.0:

```
pascal void MyDraw(theDialog, theItem)
DialogPtr      theDialog;
short int      theItem;

{
    short int      iType;           /*returned item type*/
    Rect           iBox;            /*returned bounds rect*/
    Handle         iHdl;            /*returned item handle*/

    GetDItem(theDialog, theItem, &iType, &iHdl, &iBox); /*get the box*/
    FillRect(&iBox, qd.ltGray);      /*fill with light gray*/
    FrameRect(&iBox);                /*frame it*/
} /*MyDraw*/
```

The other necessary procedure is a filter procedure (`filterProc`) that the Dialog Manager calls whenever `_ModalDialog` receives an event (this only applies when calling `_ModalDialog`; modeless dialogs are covered below). The default `filterProc` looks for key-down and auto-key events and simulates pressing the OK button (or whatever else is item 1) if the user has pressed either the Return key or the Enter key. To support a `userItem`, the `filterProc` must handle events for any `userItem` items in the dialog in addition to performing the default `filterProc` tasks. The following short `filterProc` supports these types of items; when the user clicks in the `userItem`, the `filterProc` inverts it.

In MPW Pascal:

```
FUNCTION MyFilter(theDialog: DialogPtr; VAR theEvent: EventRecord;
    VAR itemHit: INTEGER): BOOLEAN;

    CONST
        enterKey    = 3;
        returnKey   = 13;
```

```

VAR
    mouseLoc : Point;           {we'll play w/ mouse}
    key      : SignedByte;      {for enter/return}
    iBox     : Rect;            {returned boundsrect}
    iHdl     : Handle;          {returned item handle}
    itemType, itemHit : INTEGER; {returned item and type}

BEGIN
    SetPort(theDialog);
    MyFilter := FALSE;          {assume not our event}
    CASE theEvent.what OF
        keyDown, autoKey: BEGIN {which event?}
            {he hit a key}
            key := SignedByte(event.message); {get keycode}
            IF (key = enterKey) OR (key = returnKey ) THEN BEGIN
                MyFilter := TRUE;           {we handled it}
                itemHit := 1;               {he hit the 1st item}
            END;                           {test CR or Enter}
        END;                               {keydown}
        mouseDown: BEGIN {he clicked}
            mouseLoc := theEvent.where;     {get the mouse pos'n}
            GlobalToLocal(mouseLoc);        {convert to local}
            GetDItem(theDialog,2,iType,iHdl,iBox); {get our box}
            IF PtInRect(mouseLoc,iBox) THEN BEGIN {he hit our item}
                InvertRect(iBox);
                MyFilter := TRUE;           {we handled it}
                itemHit := 2;               {he hit the userItem}
            END;                           {if he hit our userItem}
        END;                               {mousedown}
    END;                                   {event case}
END;                                     {MyFilter}

```

In MPW C 3.0:

```

pascal Boolean MyFilter(theDialog,theEvent,itemHit)
DialogPtr      theDialog;
EventRecord    *theEvent;
short int      *itemHit;

#define enterKey    3;           /*the enter key*/
#define returnKey   13;          /*the return key*/

{
    char      key;               /*for enter/return*/
    short int iType;             /*returned item type*/
    Rect      iBox;              /*returned boundsrect*/
    Handle    iHdl;              /*returned item handle*/
    Point     mouseLoc;          /*we'll play w/ mouse*/

    SetPort(theDialog);
    switch (theEvent->what)      /*which event?*/
    {

        case keyDown:
        case autoKey: /*he hit a key*/
            key = theEvent->message; /*get ascii code*/
            if ((key == enterKey) || (key == returnKey))
            {
                /*he hit CR or Enter*/
                *itemHit = 1; /*he hit the 1st item*/
                return(true); /*we handled it*/
            } /*he hit CR or enter*/
            break;               /* case keydown, case autoKey */
    }
}

```

```

case mouseDown:                /*he clicked*/
    mouseLoc = theEvent->where;  /*get the mouse pos'n*/
    GlobalToLocal(&mouseLoc);    /*convert to local*/
    GetDItem(theDialog,2,&iType,&iHdl,&iBox); /*get our box*/
    if (PtInRect(mouseLoc,&iBox))
    {
        /*he hit our item*/
        InvertRect(&iBox);
        *itemHit = 2; /*he hit the userItem*/
        return(true); /*we handled it*/
    } /*if he hit our userItem*/
    break; /*case mouseDown */
} /*event switch*/
return(false); /* we're still here, so return false
               (we didn't handle the event) */
} /*MyFilter*/

```

Invoking the Dialog Box

When we need this dialog box, we load it into memory as follows:

In MPW Pascal:

```

PROCEDURE DoOurDialog;

VAR
    myDialog : DialogPtr;           {the dialog pointer}
    iType, itemHit : INTEGER;       {returned item type}
    iBox      : Rect;              {returned boundsRect}
    iHdl      : Handle;            {returned item Handle}

BEGIN
    myDialog := GetNewDialog(1001,nil,POINTER(-1)); {get the box}
    GetDItem(myDialog,2,iType,iHdl,iBox); {2 is the item number}
    SetDItem(myDialog,2,iType,@myDraw,iBox); {install draw proc}
    ShowWindow(theDialog);                {make it visible}
    REPEAT
        ModalDialog(@MyFilter, itemHit ); {let dialog manager run it}
    UNTIL itemHit = 1;                     {until he hits ok.}
    DisposDialog(myDialog);                {throw it away}
END;                                       {DoOurDialog}

```

In MPW C 3.0:

```

void DoOurDialog()
{
    DialogPtr    myDialog;          /*the dialog pointer*/
    short int    iType;             /*returned item type*/
    short int    itemHit;           /*returned from ModalDialog*/
    Rect         iBox;              /*returned boundsRect*/
    Handle       iHdl;              /*returned item Handle*/

    myDialog = GetNewDialog(1001,nil,(WindowPtr)-1); /*get the box*/
    GetDItem(myDialog,2,&iType,&iHdl,&iBox); /*2 is the item number*/
    SetDItem(myDialog,2,iType,MyDraw,&iBox); /*install draw proc*/
    ShowWindow(myDialog);                /*make it visible*/

    while (itemHit != 1) ModalDialog(MyFilter, &itemHit);
    DisposDialog(myDialog);              /*throw it away*/
} /*DoOurDialog*/

```

Using userItem Items with Modeless Dialogs

If you are using `userItem` items in modeless dialog box, the Dialog Manager will call the draw procedure when `_DialogSelect` receives an update event for the dialog box. When the user clicks on your `userItem` and it is enabled, `_DialogSelect` will return `TRUE`. The `itemHit` will be equal to the item number of your `userItem`. Your code can then handle this like the mouse-down event case in the example above.