

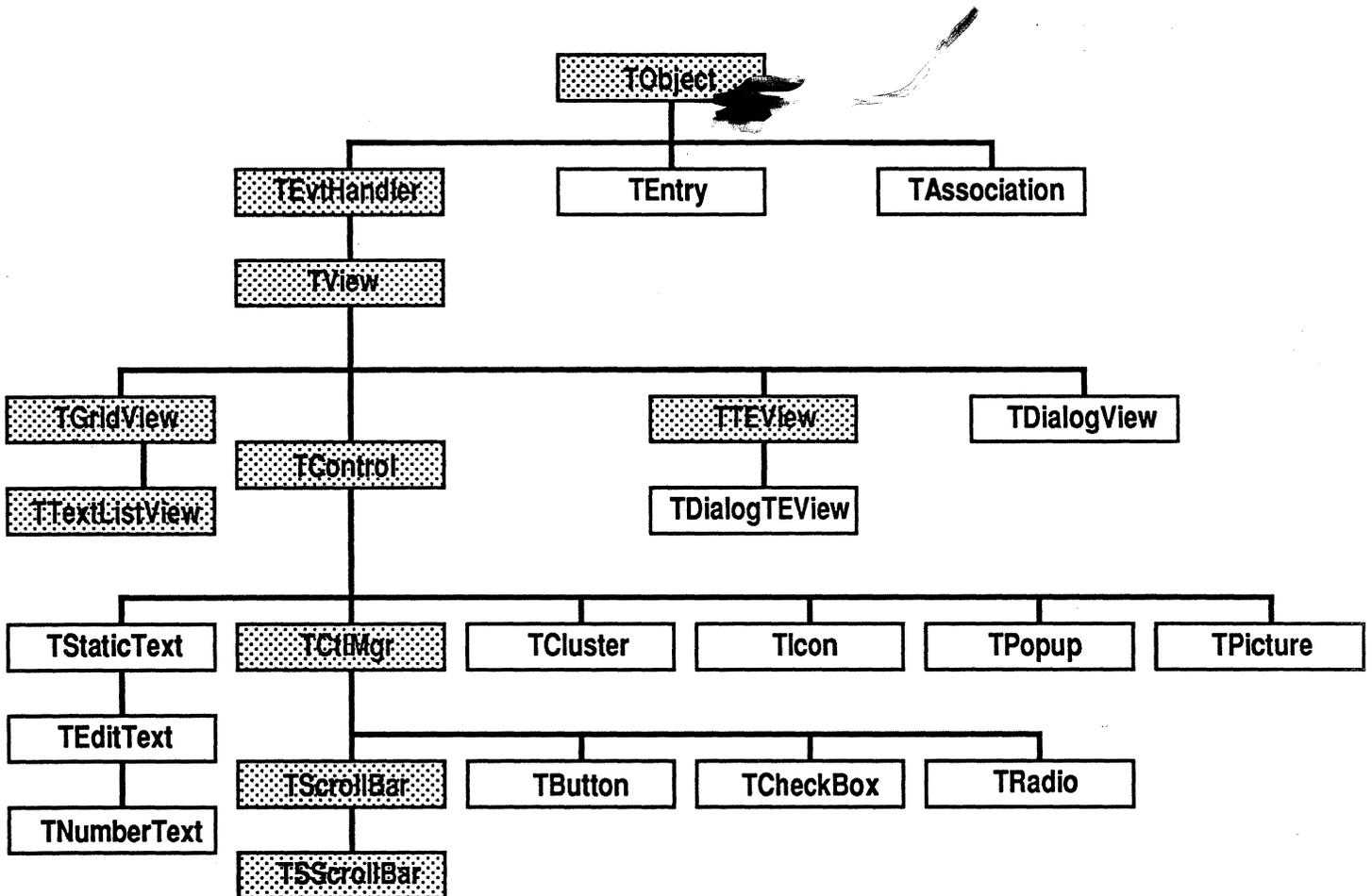
MacApp 2.0b5 UDialog Release Notes

Russ Wetmore

Overview

This document describes the classes that make up MacApp's "dialog" implementation. These classes primarily consist of a set of view classes that implement the kinds of views one often sees in Macintosh dialogs. (These views can be used in any MacApp window, regardless of whether you consider it a dialog.) The new classes can be created from resource templates.

This is the hierarchy of the classes involved. (Classes not described in this document are shown in gray.)



Global Constants

Choices

```
mOKHit           = 1;
mCancelHit       = 2;
mButtonHit       = 3;
mCheckBoxHit     = 4;
mClusterHit      = 5;
mEditTextHit     = 6;
mIconHit         = 7;
mListItemHit     = 8;
mListScrollBarHit = 9;
mPictureHit      = 10;
mPopupHit        = 11;
mRadioHit        = 12;
mStaticTextHit   = 13;
mHScrollBarHit   = 14;
mVScrollBarHit   = 15;
mEditTabKey      = 16;
mEditReturnKey   = 17;
mEditEnterKey    = 18;
mPatternHit      = 19;
mControlHit      = 20;
```

View Template Identifiers

```
kNoIdentifier    = '  ';
kNoTemplate      = -1;
kNoResource      = -1;
```

Miscellaneous

```
kYesButton       = 1;
kNoButton        = 3;
kPreferColor     = TRUE;
kControlOn       = TRUE;
kRedraw          = TRUE;
kDontRedraw      = FALSE;
kFrame           = [adnLineTop, adnLineLeft,
                    adnLineBottom, adnLineRight];
Chr00            = CHR(0);
Chr1F            = CHR($1F);
kMaxTEWidth      = $2B0;
```

Global Types

```
IDType          = ResType;

adornPieces = ( adnLineTop,          Draw a line at the top of the extent.
                adnLineLeft,        Draw a line on the left side of the extent.
                adnLineBottom,      Draw a line at the bottom of the extent.
                adnLineRight,       Draw a line on the right side of the extent.
                adnDummy,           Placeholder (replaces adnPatFill).
                adnOval,            Do a FrameOval using the extent.
                adnRRect,           Do a FrameRoundRect using the extent.
                adnShadow );        Draw drop-shadows against framed selections.

CntlAdornment  = SET OF adornPieces;

ControlCharSet = SET OF Chr00..Chr1F;  Used by TEditText for allowable control chars.
```

Global Routines

```
PROCEDURE InitUDialog;
```

This routine initializes the UDialog unit. It must be called before any of the view classes in this unit can be created from 'view' resources.

```
FUNCTION NewTemplateWindow (viewRsrcID: INTEGER;
                           itsDocument: TDocument): TWindow;
```

This routine creates a new TWindow (or descendant) from the 'view' template with the given resource ID.

```
PROCEDURE RegisterType (typeName: Str255; protoObj: TObject);
```

This routine registers the given object (which can be an instance of any descendant of TObject) for use by TEvtHandler and its descendants when creating views from a template.

The TEntry Class

This class is used by TAssociation to form a very basic and cheap text item dictionary mechanism whose main use will be substitution of text in dialog-type window items. This class will be instantiated for each key string and its replacement that is desired in a dialog. A list of these entries is kept by a TAssociation. It is a simple subclass of TObject. To duplicate the present function of ParamText, you'd use '^0', '^1', '^2', and '^3' for the first four key strings.

Fields

fKey:	StringHandle;	The handle to the target string.
fValue:	StringHandle;	The handle to the target's replacement string.

Initializing and Freeing Methods

```
PROCEDURE TEntry.IEntry (itsKey, itsValue: Str255);
```

This method creates strings using the Toolbox Utilities routine `NewString`.

```
PROCEDURE TEntry.Free; OVERRIDE;
```

This method frees associated data structures.

Debugging

```
PROCEDURE TEntry.Fields (PROCEDURE DoToField (fieldName: Str255;  
                                             fieldAddr: Ptr;  
                                             fieldType: INTEGER)); OVERRIDE;
```

This method provides debugging support for the inspector.

The TEntriesList Class

This class is used by `TAssociation` to form a sorted list of entries. It is a subclass of `TSortedList`.

Comparison Method

```
FUNCTION TEntriesList.Compare (item1, item2: TObject): INTEGER; OVERRIDE;
```

This method compares two items in the list of entries.

The TAssociation Class

`TAssociation` manages a list of `TEntry`s. It is a subclass of `TObject`.

Fields

fEntries: TEntriesList; The list of entries.

Initializing and Freeing Methods

PROCEDURE TAssociation.IAssociation;

This method initializes the fEntries list.

PROCEDURE TAssociation.Free; OVERRIDE;

This method frees the fEntries list.

Accessing Methods

FUNCTION TAssociation.ValueAt (keyStr: Str255; VAR valueStr: Str255): BOOLEAN;

This method returns the replacement string associated with the target string keyStr, or "" (the null string) if there is no entry for keyStr.

FUNCTION TAssociation.KeyAt (valueStr: Str255; VAR keyStr: Str255): BOOLEAN;

This method returns the target string associated with the replacement string valueStr, or "" (the null string) if there is no entry for valueStr.

FUNCTION TAssociation.EachEntryDo (PROCEDURE DoToEntry(theEntry: TEntry));

For each TEntry in fEntries, this method calls DoToEntry, passing the entry as an argument.

FUNCTION TAssociation.EntryWithKey (keyStr: Str255): TEntry;

This method returns the first TEntry with the given target string.

FUNCTION TAssociation.EntryWithValue (valueStr: Str255): TEntry;

This method returns the first TEntry with the given replacement string.

FUNCTION TAssociation.FirstEntryThat (FUNCTION TestEntry(theEntry: TEntry):
BOOLEAN): TEntry;

This method returns the first TEntry that satisfies the given test function.

Methods for Adding/Removing Entries

```
PROCEDURE TAssociation.InsertEntry (keyStr, valueStr: Str255);
```

If `keyStr` exists in any of `fEntries`' target strings, this method replaces the associated replacement string with `valueStr`. If `keyStr` does not exist, this method adds a new `TEntry` to the end of the `fEntries` list.

```
PROCEDURE TAssociation.RemoveValueAt (keyStr: Str255);
```

This method removes the entry with the given key string.

```
PROCEDURE TAssociation.RemoveKeyAt (valueStr: Str255);
```

This method removes the first entry found with the given replacement string.

Debugging

```
PROCEDURE TAssociation.Fields (PROCEDURE DoToField (fieldName: Str255;  
                                                    fieldAddr: Ptr;  
                                                    fieldType: INTEGER)); OVERRIDE;
```

This method provides debugging support for the inspector.

The TDialogView Class

`TDialogView` implements modal dialog behavior. It acts as the topmost view in a template-driven dialog, and it undertakes several tasks mirroring the Dialog Manager. It is a subclass of `TView`.

Fields

<code>fDefaultItem:</code>	<code>IDType;</code>	The identifier of the default item.
<code>fCancelItem:</code>	<code>IDType;</code>	The identifier of the 'cancel' item.
<code>fParamTxt:</code>	<code>TAssociation;</code>	The list of <code>TEntry</code> s for replacement.
<code>fCurrentEditText:</code>	<code>TEditText;</code>	The currently selected <code>TEditText</code> item.
<code>fTEView:</code>	<code>TDialogTEView;</code>	Used for actual editing in <code>TEditText</code> views.
<code>fDismissed:</code>	<code>BOOLEAN;</code>	Indicates whether dialog has been dismissed.
<code>fDismitter:</code>	<code>IDType;</code>	The identifier of the view that caused the dismissal.

Initializing and Freeing Methods

```
PROCEDURE TDialogView.IDialogView (itsDocument: TDocument; itsSuperView: TView;  
    itsLocation, itsSize: VPoint; itsHSizeDet, itsVSizeDet: SizeDeterminer;  
    itsDefItemID, itsCancelItemID: IDType);
```

This method initializes allocated fields.

```
PROCEDURE TDialogView.IRes (itsDocument: TDocument; itsSuperView: TView;  
    VAR itsParams: Ptr); OVERRIDE;
```

This method initializes the object from a 'view' resource.

```
PROCEDURE TDialogView.WRes (theResource: ViewRsrcHndl;  
    VAR itsParams: Ptr); OVERRIDE;
```

This method writes the object in its present state in 'view' resource format to the location pointed at by itsParams. This is the inverse of the IRes method and is included only for completeness. You will rarely need to call it yourself.

```
PROCEDURE TDialogView.WriteRes (theResource: ViewRsrcHndl;  
    VAR itsParams: Ptr); OVERRIDE;
```

This is a wrapper method for WRes. If you need to write out an object as part of a 'view' resource, this is the routine you would actually call. It sets up the signature and class name for the template, and then calls WRes. You would override this method to provide your own unique class name or signature.

```
PROCEDURE TDialogView.Free; OVERRIDE;
```

This method disposes of allocated fields.

Keyboard-Handling Methods

```
FUNCTION TDialogView.DoKeyCommand (ch: Char; aKeyCode: INTEGER;  
    VAR info: EventInfo): TCommand; OVERRIDE;
```

This method intercepts Tab and Return/Enter keystrokes, and handles them via the HandleTab and HandleCR methods.

```
FUNCTION TDialogView.HandleCR (callingView: TView;  
    VAR info: EventInfo): TCommand;
```

This method does whatever is associated with the Return and/or Enter keys. As a default, it calls

DismissDialog.

```
FUNCTION TDialogView.HandleTab (callingView: TView;  
VAR info: EventInfo): TCommand;
```

This method does whatever is associated with the Tab key. As a default, it finds the next TEditText view (or the previous view, if the Shift key is down) and makes it the target view by calling DoSelectEditText.

```
FUNCTION TDialogView.DoCommandKey (ch: Char; aKeyCode: INTEGER;  
VAR info: EventInfo): TCommand; OVERRIDE;
```

This method handles the command-'.' key sequence, which cancels the dialog.

Dialog Dismissal Methods

```
FUNCTION TDialogView.CanDismiss (dismissing: IDType): BOOLEAN;
```

This method does any validation required before dismissing the dialog. dismissing is the identifier of the view which would cause the dismissal. If the dialog cannot yet be dismissed, FALSE is returned.

```
PROCEDURE TDialogView.CantDeselect (theEditText: TEditText);
```

This method is called if a TEditText item can't be deselected (usually as a result of failing validation).

```
PROCEDURE TDialogView.Close; OVERRIDE;
```

This method calls CanDismiss to assure dialog can be dismissed, and then calls DismissDialog if everything is OK.

```
PROCEDURE TDialogView.DismissDialog (dismitter: IDType);
```

This method performs whatever actions are necessary when the dialog is dismissed.

Global control functions

```
FUNCTION TDialogView.DoChoice (origView: TView; itsChoice: INTEGER): TCommand;  
OVERRIDE;
```

This method handles the mEditTextHit message, which makes the selected TEditText object (represented by origView) the target view, and also handles messages from TControls which can dismiss dialogs.

FUNCTION TDialogView.PoseModally: IDType;

This method is a distant cousin to the Toolbox ModalDialog call. It calls the main event loop repeatedly until the dialog is dismissed (the fDismissed field becomes TRUE), at which point PoseModally returns the identifier of the view that dismissed the dialog. This method will be called to simulate the current handling by the Toolbox for most modal dialogs.

TEditText Management Methods

PROCEDURE TDialogView.DoSelectEditText (theEditText: TEditText;
selectChars: BOOLEAN);

This method attempts to make theEditText the selected edit text view. The StopEdit method for the current edit text view is called. Provided it returns true, theEditText is made the new current view. If selectChars is true then all of the characters in theEditText are selected.

PROCEDURE TDialogView.EachEditText (
PROCEDURE DoToEditText (theEditText: TEditText));

This method applies the DoToEditText procedure to each TEditText descendant.

FUNCTION TDialogView.MakeTEView: TDialogTEView;

This method creates the "floating" TEView, which is used to perform actual editing on a TEditText view (which is actually just a subclass of TStaticText).

PROCEDURE TDialogView.ParamTxt (keyStr, valueStr: Str255);

This method simply calls fParamTxt.AtPut.

PROCEDURE TDialogView.ReplaceText (theText: Handle);

This method calls fParamTxt.EachEntryDo using Munger to change all occurrences of target strings to their replacement values. Although this method can be called directly, it is usually only called by TStaticText views when their Draw methods are executed.

PROCEDURE TDialogView.SelectEditText (itsIdentifier: IDType;
selectChars: BOOLEAN);

This method makes the given TEditText view the current view.

```
PROCEDURE TDialogView.SurveyEditText (VAR first, last, next,  
previous: TEditText);
```

This method looks through all subviews and finds the first, last, next, and previous TEditText fields. Called by HandleTab to determine options for tabbing.

Miscellaneous Methods

```
PROCEDURE TDialogView.GetDialogView: TView; OVERRIDE;
```

This method returns SELF. The result must be typed as TDialogView manually. (This was done so that it could be implemented as a TView method, without having to "include the world" unless necessary.)

Debugging

```
PROCEDURE TDialogView.Fields (PROCEDURE DoToField (fieldName: Str255;  
fieldAddr: Ptr;  
fieldType: INTEGER)); OVERRIDE;
```

This method provides debugging support for the inspector.

The TButton Class

This class implements a simple Control Manager button. It is a subclass of TCtlMgr.

Initializing and Freeing Methods

```
PROCEDURE TButton.IButton (itsSuperview: TView; itsLocation, itsSize: VPoint;  
itsHSizeDet, itsVSizeDet: SizeDeterminer; itsLabel: Str255);
```

This method initializes the button and installs it in the given superview. fDefChoice is set to mButtonHit.

```
PROCEDURE TButton.IRes (itsDocument: TDocument; itsSuperview: TView;  
VAR itsParams: Ptr); OVERRIDE;
```

This method initializes the object from a 'view' resource.

```
PROCEDURE TButton.WRes (theResource: ViewRsrcHndl;  
VAR itsParams: Ptr); OVERRIDE;
```

This method writes the object in its present state in 'view' resource format to the location pointed at by itsParams. This is the inverse of the IRes method and is included only for completeness. You will rarely

need to call it yourself.

```
PROCEDURE TButton.WriteRes (theResource: ViewRsrcHndl;  
  VAR itsParams: Ptr); OVERRIDE;
```

This method is a wrapper method for `WRes`. If you need to write out an object as part of a 'view' resource, this is the routine you would actually call. It sets up the signature and class name for the template, and then calls `WRes`. You would override this method to provide your own unique class name or signature.

The TCheckBox Class

This class implements a simple Control Manager check box control. It is a subclass of `TCtlMgr`.

Initializing and Freeing Methods

```
PROCEDURE TCheckBox.ICheckBox (itsSuperView: TView;  
  itsLocation, itsSize: VPoint; itsHSizeDet, itsVSizeDet: SizeDeterminer;  
  itsLabel: Str255; isTurnedOn: BOOLEAN);
```

This method initializes a check box control and installs it in the given superview. `fDefChoice` is set to `mCheckBoxHit`. If `isTurnedOn` is `TRUE`, the control is initialized to be on.

```
PROCEDURE TCheckBox.IRes (itsDocument: TDocument; itsSuperView: TView;  
  VAR itsParams: Ptr); OVERRIDE;
```

This method initializes the object from a 'view' resource.

```
PROCEDURE TCheckBox.WRes (theResource: ViewRsrcHndl;  
  VAR itsParams: Ptr); OVERRIDE;
```

This method writes the object in its present state in 'view' resource format to the location pointed at by `itsParams`. This is the inverse of the `IRes` method and is included only for completeness. You will rarely need to call it yourself.

```
PROCEDURE TCheckBox.WriteRes (theResource: ViewRsrcHndl;  
  VAR itsParams: Ptr); OVERRIDE;
```

This method is a wrapper method for `WRes`. If you need to write out an object as part of a 'view' resource, this is the routine you would actually call. It sets up the signature and class name for the template, and then calls `WRes`. You would override this method to provide your own unique class name or signature.

Global Control Functions

```
PROCEDURE TCheckBox.DoChoice (origView: TView; itsChoice: INTEGER);
```

This method toggles the check box and sends the `mCheckBoxHit` message to its superview.

```
FUNCTION TCheckBox.IsOn: BOOLEAN;
```

This method returns `TRUE` if the check box is currently on.

```
PROCEDURE TCheckBox.SetState (state, redraw: BOOLEAN);
```

This method turns the check box on or off, depending on the value of `state`. It redraws the check box if `redraw` is `TRUE`.

```
PROCEDURE TCheckBox.Toggle (redraw: BOOLEAN);
```

This method toggles the check box on or off. It redraws the check box if `redraw` is `TRUE`.

```
PROCEDURE TCheckBox.ToggleIf (matchState, redraw: BOOLEAN);
```

This method toggles the check box if the current state matches `matchState`. It redraws the check box if `redraw` is `TRUE`.

The TRadio Class

This class implements a simple Control Manager radio button control. It is a subclass of `TCtlMgr`.

Initializing and Freeing Methods

```
PROCEDURE TRadio.IRadio (itsSuperview: TView; itsLocation, itsSize: VPoint;  
    itsHSizeDet, itsVSizeDet: SizeDeterminer; itsLabel: Str255;  
    isTurnedOn: BOOLEAN);
```

This method initializes a radio button control and installs it in the given superview. `fDefChoice` is set to `mRadioHit`. If `isTurnedOn` is `TRUE`, the control is initialized to be on.

```
PROCEDURE TRadio.IRes (itsDocument: TDocument; itsSuperView: TView;  
    VAR itsParams: Ptr); OVERRIDE;
```

This method initializes the object from a 'view' resource.

```
PROCEDURE TRadio.WRes (theResource: ViewRsrcHndl; VAR itsParams: Ptr); OVERRIDE;
```

This method writes the object in its present state in 'view' resource format to the location pointed at by itsParams. This is the inverse of the IRes method and is included only for completeness. You will rarely need to call it yourself.

```
PROCEDURE TRadio.WriteRes (theResource: ViewRsrcHndl;  
    VAR itsParams: Ptr); OVERRIDE;
```

This method is a wrapper method for WRes. If you need to write out an object as part of a 'view' resource, this is the routine you would actually call. It sets up the signature and class name for the template, and then calls WRes. You would override this method to provide your own unique class name or signature.

Global Control Functions

```
PROCEDURE TRadio.DoChoice (origView: TView; itsChoice: INTEGER);
```

This method toggles the radio button and sends the mRadioHit message to its superview.

```
FUNCTION TRadio.IsOn: BOOLEAN;
```

This method returns TRUE if the radio button is currently on.

```
PROCEDURE TRadio.SetState (state, redraw: BOOLEAN);
```

This method turns the radio button on or off, depending on the value of state. It redraws the check box if redraw is TRUE.

```
PROCEDURE TRadio.Toggle (redraw: BOOLEAN);
```

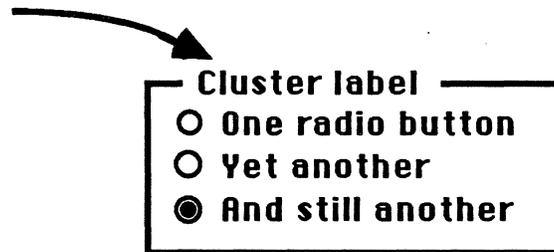
This method toggles the control on or off. It redraws the control if redraw is TRUE.

```
PROCEDURE TRadio.ToggleIf (matchState, redraw: BOOLEAN);
```

This method toggles the control if the current state matches matchState. It redraws the control if redraw is TRUE.

The TCluster Class

This class implements a *holding* view for radio buttons and/or other objects. It has two intrinsic functions: It understands an `mRadioHit` message from a subview, and can be used to contain other controls with a graphic label in the manner of Microsoft application dialogs, for example:



`TCluster` will usually be used to localize the handling of logically grouped controls. It is a simple subclass of `TControl`.

Fields

<code>fRsrcID:</code>	<code>INTEGER;</code>	The resource ID of the string list.
<code>fIndex:</code>	<code>INTEGER;</code>	The index of the label.
<code>fDataHandle:</code>	<code>StringHandle;</code>	The handle to the string data.

Initializing and Freeing Methods

```
PROCEDURE TCluster.ICluster (itsSuperView: TView; itsLocation, itsSize: VPoint;  
    itsHSizeDet, itsVSizeDet: SizeDeterminer; itsRsrcID, itsIndex: INTEGER);
```

This method initializes the cluster and installs it in the given superview. `fDefChoice` is set to `mClusterHit`.

```
PROCEDURE TCluster.IRes (itsDocument: TDocument; itsSuperView: TView;  
    VAR itsParams: Ptr); OVERRIDE;
```

This method initializes the object from a 'view' resource.

```
PROCEDURE TCluster.WRes (theResource: ViewRsrcHndl;  
    VAR itsParams: Ptr); OVERRIDE;
```

This method writes the object in its present state in 'view' resource format to the location pointed at by `itsParams`. This is the inverse of the `IRes` method and is included only for completeness. You will rarely need to call it yourself.

```
PROCEDURE TCluster.WriteRes (theResource: ViewRsrcHndl;  
  VAR itsParams: Ptr); OVERRIDE;
```

This method is a wrapper method for `WRes`. If you need to write out an object as part of a 'view' resource, this is the routine you would actually call. It sets up the signature and class name for the template, and then calls `WRes`. You would override this method to provide your own unique class name or signature.

```
PROCEDURE TCluster.Free; OVERRIDE;
```

This method disposes of the handle.

Drawing/Focusing/Sizing/Mouse-Handling Methods

```
PROCEDURE TCluster.Draw (area: Rect); OVERRIDE;
```

This method's default action is to call the parent `DialogView`'s `ReplaceText` method (to replace wildcard strings), `TextBox` (if there is a label), and `FrameRect` (if a frame is desired).

Local Message-Handling Methods

```
PROCEDURE TCluster.DoChoice (origView: TView; itsChoice: INTEGER); OVERRIDE;
```

If the message is `mRadioHit` and the radio button (`origView`) wasn't already selected, then this method turns the radio button on, and the remaining `TRadios` that are immediate descendants are turned off.

```
FUNCTION TCluster.ReportCurrent: IDType;
```

This method returns the identifier of the currently selected radio button in the cluster.

Utility Methods

```
PROCEDURE TCluster.GetLabel (VAR theLabel: Str255);
```

This method returns the cluster's current label.

```
PROCEDURE TCluster.ReleaseLabel;
```

This method disposes of the label string handle.

```
PROCEDURE TCluster.SetLabel (theLabel: Str255; redraw: BOOLEAN);
```

This method sets the cluster label to the given string, forcing a redraw if requested.

Debugging

```
PROCEDURE TCluster.Fields (PROCEDURE DoToField (fieldName: Str255;  
                                             fieldAddr: Ptr;  
                                             fieldType: INTEGER)); OVERRIDE;
```

This method provides debugging support for the inspector.

The TIcon Class

This class implements an icon item that can serve as a crude form of button if enabled. It is a simple subclass of TControl.

Fields

fPreferColor:	BOOLEAN;	TRUE if 'cicn' resources should be checked before 'ICON' resources.
fRsrcID:	INTEGER;	The resource ID of the icon.
fDataHandle:	Handle;	The handle to the icon data.

Initializing and Freeing Methods

```
PROCEDURE TIcon.IIcon (itsSuperview: TView; itsLocation, itsSize: VPoint;  
                      itsHSizeDet, itsVSizeDet: SizeDeterminer; itsRsrcID: INTEGER; preferColor:  
                      BOOLEAN);
```

This method initializes an icon item and installs it in the given superview. If preferColor is TRUE, then the icon will be fetched from a 'cicn' resource, instead of from an 'ICON' if preferColor is FALSE. fDefChoice is set to mIconHit.

```
PROCEDURE TIcon.IRes (itsDocument: TDocument; itsSuperview: TView;  
                    VAR itsParams: Ptr); OVERRIDE;
```

This method initializes the object from a 'view' resource.

```
PROCEDURE TIcon.WRes (theResource: ViewRsrcHndl; VAR itsParams: Ptr); OVERRIDE;
```

This method writes the object in its present state in 'view' resource format to the location pointed at by itsParams. This is the inverse of the IRes method, and is included for completeness. You will rarely need to call it yourself.

```
PROCEDURE TIcon.WriteRes (theResource: ViewRsrcHndl;  
    VAR itsParams: Ptr); OVERRIDE;
```

This method is a wrapper method for WRes. If you need to write out an object as part of a 'view' resource, this is the routine you would actually call. It sets up the signature and class name for the template, and then calls WRes. You would override this method to provide your own unique class name or signature.

```
PROCEDURE TIcon.Free; OVERRIDE;
```

This method disposes of the handle.

Drawing/Focusing/Sizing/Mouse-Handling

```
PROCEDURE TIcon.Draw (area: Rect); OVERRIDE;
```

This method's default action is to call PlotIcon or PlotCIcon.

Utility Methods

```
PROCEDURE TIcon.ReleaseIcon;
```

This method disposes of the icon data. (Actually, "forgets" about resource data location.)

```
PROCEDURE TIcon.SetIcon (theIcon: Handle; redraw: BOOLEAN);
```

This method sets the fDataHandle field to the given handle, forcing a redraw if requested.

Debugging

```
PROCEDURE TIcon.Fields (PROCEDURE DoToField (fieldName: Str255;  
    fieldAddr: Ptr;  
    fieldType: INTEGER)); OVERRIDE;
```

This method provides debugging support for the inspector.

The TPattern Class

This class implements a pattern item that can serve as a crude form of button if enabled. It is a subclass of TControl.

Fields

fPreferColor:	BOOLEAN;	TRUE if 'ppat' resources should be checked before 'PAT' resources.
fRsrcID:	INTEGER;	The resource ID of the pattern.
fDataHandle:	Handle;	The handle to the pattern data.

Initializing and Freeing Methods

```
PROCEDURE TPattern.IPattern (itsSuperView: TView; itsLocation, itsSize: VPoint;
    itsHSizeDet, itsVSizeDet: SizeDeterminer; itsRsrcID: INTEGER; preferColor:
    BOOLEAN);
```

This method initializes a pattern item and installs it in the given superview. If preferColor is TRUE, then the pattern will be fetched from a 'ppat' resource, instead of from a 'PAT' resource if preferColor is FALSE. fDefChoice is set to mPatternHit.

```
PROCEDURE TPattern.IRes (itsDocument: TDocument; itsSuperView: TView;
    VAR itsParams: Ptr); OVERRIDE;
```

This method initializes the object from a 'view' resource.

```
PROCEDURE TPattern.WRes (theResource: ViewRsrcHndl;
    VAR itsParams: Ptr); OVERRIDE;
```

This method writes the object in its present state in 'view' resource format to the location pointed at by itsParams. This is the inverse of the IRes method and is included only for completeness. You will rarely need to call it yourself.

```
PROCEDURE TPattern.WriteRes (theResource: ViewRsrcHndl;
    VAR itsParams: Ptr); OVERRIDE;
```

This method is a wrapper method for WRes. If you need to write out an object as part of a 'view' resource, this is the routine you would actually call. It sets up the signature and class name for the template, and then calls WRes. You would override this method to provide your own unique class name or signature.

```
PROCEDURE TPattern.Free; OVERRIDE;
```

This method disposes of the handle.

Drawing/Focusing/Sizing/Mouse-Handling

```
PROCEDURE TPattern.Draw (area: Rect); OVERRIDE;
```

This method's default action is to call `FillRect` or `FillCRect`.

Utility Methods

```
PROCEDURE TPattern.ReleasePattern;
```

This method disposes of the pattern data. (Actually, "forgets" about resource data location.)

```
PROCEDURE TPattern.SetPattern (thePattern: Handle; redraw: BOOLEAN);
```

This method sets the `fDataHandle` field to the given handle, forcing a redraw if requested.

Debugging

```
PROCEDURE TPattern.Fields (PROCEDURE DoToField (fieldName: Str255;  
                                                fieldAddr: Ptr;  
                                                fieldType: INTEGER)); OVERRIDE;
```

This method provides debugging support for the inspector.

The TPicture Class

This class implements a picture item that can serve as a crude form of button if enabled. It is a simple subclass of `TControl`.

Fields

<code>fRsrcID:</code>	<code>INTEGER;</code>	The resource ID of the picture.
<code>fDataHandle:</code>	<code>PicHandle;</code>	The handle to the picture data.

Initializing and Freeing Methods

```
PROCEDURE TPicture.IPicture (itsSuperview: TView; itsLocation, itsSize: VPoint;  
                             itsHSizeDet, itsVSizeDet: SizeDeterminer; itsRsrcID: INTEGER);
```

This method initializes a picture item and installs it in the given superview. `fDefChoice` is set to `mPictureHit`.

```
PROCEDURE TPicture.IRes (itsDocument: TDocument; itsSuperView: TView;
    VAR itsParams: Ptr); OVERRIDE;
```

This method initializes the object from a 'view' resource.

```
PROCEDURE TPicture.WRes (theResource: ViewRsrcHndl;
    VAR itsParams: Ptr); OVERRIDE;
```

This method writes the object in its present state in 'view' resource format to the location pointed at by itsParams. This is the inverse of the IRes method and is included for completeness. You will rarely need to call it yourself.

```
PROCEDURE TPicture.WriteRes (theResource: ViewRsrcHndl;
    VAR itsParams: Ptr); OVERRIDE;
```

This method is a wrapper method for WRes. If you need to write out an object as part of a 'view' resource, this is the routine you would actually call. It sets up the signature and class name for the template, and then calls WRes. You would override this method to provide your own unique class name or signature.

```
PROCEDURE TPicture.Free; OVERRIDE;
```

This method disposes of the handle.

Drawing/Focusing/Sizing/Mouse-Handling

```
PROCEDURE TPicture.Draw (area: Rect); OVERRIDE;
```

This method's default action is to call DrawPicture.

Utility Methods

```
PROCEDURE TPicture.ReleasePicture;
```

This method disposes of the picture data. (Actually, "forgets" about resource data location.)

```
PROCEDURE TPicture.SetPicture (thePicture: PicHandle; redraw: BOOLEAN);
```

This method sets the fDataHandle field to the given handle, redrawing if requested.

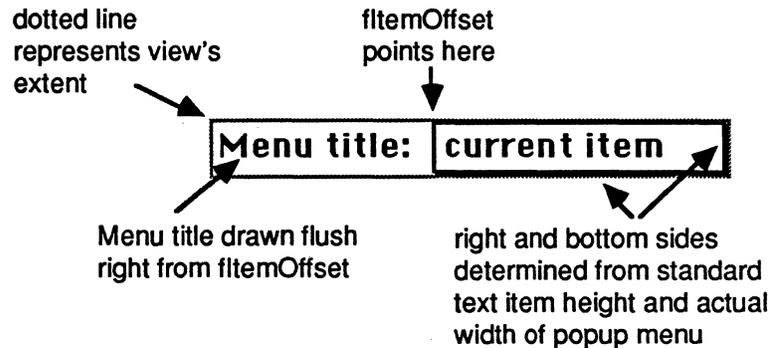
Debugging

```
PROCEDURE TPicture.Fields (PROCEDURE DoToField (fieldName: Str255;  
                                             fieldAddr: Ptr;  
                                             fieldType: INTEGER)); OVERRIDE;
```

This method provides debugging support for the inspector.

The TPopup Class

This class implements a simple pop-up menu selector, following the guidelines for pop-up menus laid down by the Apple Human Interface group. See Inside Macintosh Vol. V, pages V-241 and V-242, for an explanation.



TPopup is a simple subclass of TControl.

Fields

fRsrcID:	INTEGER;	The resource ID of the 'MENU' resource.
fMenuID:	INTEGER;	The menu ID of the popup menu.
fMenuHandle:	MenuHandle;	The menu handle.
fCurrentItem:	INTEGER;	The currently selected menu item.
fItemOffset:	INTEGER;	The offset from the left edge of the extent to the pop-up selector.

Initializing and Freeing Methods

```
PROCEDURE TPopup.IPopup (itsSuperView: TView; itsLocation, itsSize: VPoint;  
                        itsHSizeDet, itsVSizeDet: SizeDeterminer;  
                        itsRsrcID, itsCurrentItem, itsItemOffset: INTEGER);
```

This method initializes a pop-up menu selector and installs it in the given superview. The title is drawn flush right starting at fItemOffset. The pop-up selector is drawn to the right of fItemOffset, the width and height being determined from the dimensions of the pop-up menu. fDefChoice is set to mPopupHit.

```
PROCEDURE TPopup.IRes (itsDocument: TDocument; itsSuperView: TView;  
  VAR itsParams: Ptr); OVERRIDE;
```

This method initializes the object from a 'view' resource.

```
PROCEDURE TPopup.WRes (theResource: ViewRsrcHndl; VAR itsParams: Ptr); OVERRIDE;
```

This method writes the object in its present state in 'view' resource format to the location pointed at by itsParams. This is the inverse of the IRes method and is included for completeness. You will rarely need to call it yourself.

```
PROCEDURE TPopup.WriteRes (theResource: ViewRsrcHndl;  
  VAR itsParams: Ptr); OVERRIDE;
```

This is a wrapper method for WRes. If you need to write out an object as part of a 'view' resource, this is the routine you would actually call. It sets up the signature and class name for the template, and then calls WRes. You would override this method to provide your own unique class name or signature.

```
PROCEDURE TPopup.Free; OVERRIDE;
```

This method disposes of the handle.

Drawing/Focusing/Sizing/Mouse-Handling Methods

```
PROCEDURE TPopup.AdjustBotRight;
```

This is a utility method to determine the bottom and right sides of the view, based on the menu information.

```
PROCEDURE TPopup.CalcLabelRect (VAR theRect: Rect);
```

This method calculates the rectangle for the pop-up menu label.

```
PROCEDURE TPopup.CalcMenuRect (VAR theRect: Rect);
```

This method calculates the rectangle for the pop-up menu itself (that is, the menu minus the title string.)

```
PROCEDURE TPopup.Draw (area: Rect); OVERRIDE;
```

This method's default action is to draw the menu title, frame a rectangle to its immediate right, shadow it, and call TextBox to draw the menu selector's text.

PROCEDURE TPopup.DrawLabel (area: Rect);

This method draws the popup menu's label.

PROCEDURE TPopup.DrawPopup (area: Rect);

This method draws the popup menu itself (minus the label).

PROCEDURE TPopup.DoMouseCommand (VAR theMouse: Point; VAR info: EventInfo;
VAR hysteresis: Point): TCommand; OVERRIDE;

This method's default action is to invert the menu title, call PopUpMenuSelect, and set fCurrentItem to the result.

Utility Methods

FUNCTION TPopup.GetCurrentItem: INTEGER;

This method returns the number of the currently selected menu item.

PROCEDURE TPopup.GetItemText (item: INTEGER; VAR theText: Str255);

This method returns the text of the given item in the menu.

PROCEDURE TPopup.ReleasePopup;

This method disposes of the menu data.

PROCEDURE TPopup.SetCurrentItem (item: INTEGER; redraw: BOOLEAN);

This method sets the number of the currently selected menu item, redrawing if requested.

PROCEDURE TPopup.SetPopup (theMenu: MenuHandle; theRsrcID, currentItem: INTEGER;
redraw: BOOLEAN);

This method sets the fMenuHandle field to the given handle, sets the currently selected item, and redraws if requested.

Debugging

```
PROCEDURE TPopup.Fields (PROCEDURE DoToField (fieldName: Str255;  
                                         fieldAddr: Ptr;  
                                         fieldType: INTEGER)); OVERRIDE;
```

This method provides debugging support for the inspector.

The TStaticText Class

This class implements a static text item that can serve as a crude form of button if enabled. The text cannot be edited. It is a simple subclass of TControl.

Fields

fRsrcID:	INTEGER;	The resource ID of the string list.
fIndex:	INTEGER;	The index of the string.
fJust: INTEGER;	The string's justification.	
fDataHandle:	Handle;	The handle to the string data.

Initializing and Freeing Methods

```
PROCEDURE TStaticText.IStaticText (itsSuperview: TView;  
    itsLocation, itsSize: VPoint; itsHSizeDet, itsVSizeDet: SizeDeterminer;  
    itsRsrcID, itsIndex: INTEGER);
```

This method initializes a static text item and installs it in the given superview. fDefChoice is set to mStaticTextHit.

```
PROCEDURE TStaticText.IRes (itsDocument: TDocument; itsSuperview: TView;  
    VAR itsParams: Ptr); OVERRIDE;
```

This method initializes the object from a 'view' resource.

```
PROCEDURE TStaticText.WRes (theResource: ViewRsrcHndl;  
    VAR itsParams: Ptr); OVERRIDE;
```

This method writes the object in its present state in 'view' resource format to the location pointed at by itsParams. This is the inverse of the IRes method and is included only for completeness. You will rarely need to call it yourself.

```
PROCEDURE TStaticText.WriteRes (theResource: ViewRsrcHndl;  
    VAR itsParams: Ptr); OVERRIDE;
```

This method is a wrapper method for WRes. If you need to write out an object as part of a 'view' resource, this is the routine you would actually call. It sets up the signature and class name for the template, and then calls WRes. You would override this method to provide your own unique class name or signature.

```
PROCEDURE TStaticText.Free; OVERRIDE;
```

This method disposes of the handle.

Drawing/Focusing/Sizing/Mouse-Handling

```
PROCEDURE TStaticText.Draw (area: Rect); OVERRIDE;
```

This method's default action is to call TextBox.

```
FUNCTION TStaticText.DoSubstitution (VAR realText: Handle): BOOLEAN;
```

Performs text substitutions on the view's text each time the view is drawn. Returns true if no error occurs.

```
PROCEDURE TStaticText.ImageText (text: ptr; length: LONGINT; box: Rect;  
    just: INTEGER): BOOLEAN;
```

Called from the Draw method to actually draw the text. Used the TextEdit routine TextBox to draw the text.

Utility Methods

```
PROCEDURE TStaticText.GetText (VAR theText: Str255);
```

This method fetches the current text, truncating to 255 characters if necessary.

```
PROCEDURE TStaticText.ReleaseText;
```

This method disposes of the string data. (Actually, "forgets" about resource data location.)

```
PROCEDURE TStaticText.SetJustification (theJust: INTEGER; redraw: BOOLEAN);
```

This method sets the text's justification, forcing a redraw if requested.

```
PROCEDURE TStaticText.SetText (theText: Str255; redraw: BOOLEAN);
```

This method sets the text to the given string, forcing a redraw if requested.

Debugging

```
PROCEDURE TStaticText.Fields (PROCEDURE DoToField (fieldName: Str255;  
fieldAddr: Ptr;  
fieldType: INTEGER)); OVERRIDE;
```

This method implements debugging support for the inspector.

The TDialogTEView Class

This class is a subclass of TEView that DialogView uses to perform actual editing on TEditText views.

Fields

fEditText: TEditText; The associated TEditText object.

Drawing/Focusing/Sizing/Mouse-Handling

```
PROCEDURE TDialogTEView.DrawContents; OVERRIDE;
```

This method is overridden to do nothing. (It relies on the TEditText view to draw the actual item.)

TEditText Management Methods

```
PROCEDURE TDialogTEView.InstallEditText (theEditText: TEditText;  
selectChars: BOOLEAN);
```

This method initializes the object based on the given TEditText view.

```
PROCEDURE TDialogTEView.InstallSelection (wasActive, beActive: BOOLEAN);  
OVERRIDE;
```

This method is overridden to clean up auto-scrolling.

```
PROCEDURE TDialogTEView.RecalcText; OVERRIDE;
```

This method is overridden to optimize recalculation of the text record.

```
PROCEDURE TDialogTEView.ScrollSelectionIntoView; OVERRIDE;
```

This method is overridden to optimize scrolling of the record.

Debugging

```
PROCEDURE TDialogTEView.Fields (PROCEDURE DoToField (fieldName: Str255;  
    fieldAddr: Ptr; fieldType: INTEGER)); OVERRIDE;
```

This method implements debugging support for the inspector.

The TEditText Class

This class implements a simple editable text item. TEditText is implemented as a subclass of TStaticText. When the item needs to be edited, the parent DialogView places a “floating” TEView on top of the view.

Fields

fControlChars:	ControlCharSet;	Control characters that are allowed and not passed on.
fMaxChars:	INTEGER;	Maximum number of characters to accept.
fTEView:	TTEView;	The associated TTEView object.

Initializing and Freeing Methods

```
PROCEDURE TEditText.IEditText (itsSuperView: TView;  
    itsLocation, itsSize: VPoint; itsMaxChars: INTEGER);
```

This method initializes an editable text item and installs it in the given superview. The record is created without styles, auto-wrap is turned on, and the view defaults to sizeFixed for its horizontal determiner and sizeVariable for its vertical determiner. The viewable area of the text record is inset by a few pixels.

```
PROCEDURE TEditText.IRes (itsDocument: TDocument; itsSuperView: TView;  
    VAR itsParams: Ptr); OVERRIDE;
```

This method initializes the object from a 'view' resource.

```
PROCEDURE TEditText.WRes (theResource: ViewRsrcHndl;  
    VAR itsParams: Ptr); OVERRIDE;
```

This method writes the object in its present state in 'view' resource format to the location pointed at by itsParams. This is the inverse of the IRes method and is included for completeness. You will rarely need to call it yourself.

```
PROCEDURE TEditText.WriteRes (theResource: ViewRsrcHndl;  
    VAR itsParams: Ptr); OVERRIDE;
```

This method is a wrapper method for `WRes`. If you need to write out an object as part of a 'view' resource, this is the routine you would actually call. It sets up the signature and class name for the template, and then calls `WRes`. You would override this method to provide your own unique class name or signature.

Drawing/Focusing/Sizing/Mouse-Handling Methods

```
PROCEDURE TEditText.DoIdle (phase: IdlePhase); OVERRIDE;
```

This method handles caret blinking.

```
FUNCTION TEditText.DoKeyCommand (ch: Char; aKeyCode: INTEGER;  
    VAR info: EventInfo): TCommand; OVERRIDE;
```

This method acts on Tab and Return/Enter keystrokes based on the state of `fCRAccept` and `fTabAccept`.

```
FUNCTION TEditText.DoMouseCommand (VAR theMouse: Point; VAR info: EventInfo;  
    VAR hysteresis: Point): TCommand; OVERRIDE;
```

This method either selects the `TEditText` item if it wasn't active, or passes its click along to the floating `TTEView`.

```
FUNCTION TEditText.DoMenuCommand (aCmdNumber: INTEGER): TCommand; OVERRIDE;
```

This method handles menu commands if the edit text is currently selected by calling the `TEView`'s `DoMenuCommand` method.

```
FUNCTION TEditText.DoSetupMenus; OVERRIDE;
```

This method sets menu items as appropriate for editable text.

```
PROCEDURE TEditText.Draw (area: Rect); OVERRIDE;
```

If the text item is presently being edited, this method calls the `TEView`'s `Draw` method, otherwise calls `INHERITED Draw`, which draws the view using `TextBox`.

```
FUNCTION TEditText.DoSubstitution (VAR realText: Handle): BOOLEAN; OVERRIDE;
```

Overridden to avoid performing substitutions on the view's text.

```
PROCEDURE TEditText.ImageText (text: ptr; length: LONGINT; box: Rect;
    just: INTEGER): BOOLEAN;
```

Called from the Draw method to actually draw the text.

```
PROCEDURE TEditText.Locate (h, v: VCoordinate; invalidate: BOOLEAN); OVERRIDE;
```

This method locates the TEditText object, and then forces the TDialogTEView to locate over it.

```
PROCEDURE TEditText.Resize (width, height: VCoordinate;
    invalidate: BOOLEAN); OVERRIDE;
```

This method resizes the TEditText object and the associated TDialogTEView.

Utility Functions

```
PROCEDURE TEditText.GetText (VAR theText: Str255); OVERRIDE;
```

This method returns the current text, fetching it from the floating TEView if appropriate.

```
PROCEDURE TEditText.InstallSelection (wasActive, beActive: BOOLEAN); OVERRIDE;
```

This method calls TDialogTEView's InstallSelection method if appropriate.

```
PROCEDURE TEditText.RestartEdit;
```

This method focuses and selects the entire TEView record.

```
PROCEDURE TEditText.SetSelection (selStart, selEnd: INTEGER;
    redraw: BOOLEAN); OVERRIDE;
```

This method sets the selection range in the item.

```
PROCEDURE TEditText.SetText (theText: Str255; redraw: BOOLEAN); OVERRIDE;
```

This method is a convenience method for setting the control's text by directly passing a string, as opposed to having to create a StringHandle.

```
PROCEDURE TEditText.SetJustification (theJust: INTEGER; redraw: BOOLEAN);  
    OVERRIDE;
```

This method sets the justification of the view's text.

```
PROCEDURE TEditText.StartEdit (selectChars: BOOLEAN; theTEView: TDialogTEView);
```

This method installs the present text into the floating TEView.

```
FUNCTION TEditText.StopEdit: BOOLEAN;
```

This method fetches the text from the floating TEView and validates its text, returning the result.

```
FUNCTION TEditText.Validate: BOOLEAN; OVERRIDE;
```

This method returns TRUE if the text is valid. It returns TRUE as a default.

Debugging

```
PROCEDURE TEditText.Fields (PROCEDURE DoToField (fieldName: Str255;  
                                                fieldAddr: Ptr;  
                                                fieldType: INTEGER)); OVERRIDE;
```

This method provides debugging support for the inspector.

The TNumberText Class

This class implements a simple editable text item that only accepts long integer numbers within a given range. TNumberText is a simple subclass of TEditText.

Fields

fMinimum:	LONGINT;	Minimum value, used to validate the view.
fMaximum:	LONGINT;	Maximum value, used to validate the view.

Initializing and Freeing Methods

```
PROCEDURE TNumberText.INumberText (itsSuperView: TView;  
    itsLocation, itsSize: VPoint; itsValue, itsMinimum, itsMaximum: INTEGER);
```

This method initializes the object to the given values.

```
PROCEDURE TNumberText.IRes (itsDocument: TDocument; itsSuperView: TView;  
    VAR itsParams: Ptr); OVERRIDE;
```

This method initializes the object from a 'view' resource.

```
PROCEDURE TNumberText.WRes (theResource: ViewRsrcHndl;  
    VAR itsParams: Ptr); OVERRIDE;
```

This method writes the object in its present state in 'view' resource format to the location pointed at by itsParams. This is the inverse of the IRes method, and is included for completeness. You will rarely need to call it yourself.

```
PROCEDURE TNumberText.WriteRes (theResource: ViewRsrcHndl;  
    VAR itsParams: Ptr); OVERRIDE;
```

This method is a wrapper method for WRes. If you need to write out an object as part of a 'view' resource, this is the routine you would actually call. It sets up the signature and class name for the template, and then calls WRes. You would override this method to provide your own unique class name or signature.

Utility Functions

```
FUNCTION TNumberText.GetValue: LONGINT;
```

This method returns the value of the text.

```
PROCEDURE TNumberText.SetValue (newValue: LONGINT; redraw: BOOLEAN);
```

This method sets the text to the given value, redrawing if requested.

```
FUNCTION TNumberText.Validate: BOOLEAN; OVERRIDE;
```

This method returns TRUE if the number is within the range fMinimum to fMaximum, inclusive.

Debugging

```
PROCEDURE TNumberText.Fields (PROCEDURE DoToField (fieldName: Str255; fieldAddr:  
    Ptr; fieldType: INTEGER)); OVERRIDE;
```

This method provides debugging support for the inspector.

Format of the 'view' resource

View components are listed hierarchically, with ancestral objects' parameters listed first. For the sake of clarity, the resource description is given in pseudo-Pascal format which is more descriptive than informative. The file `ViewTypes.r` in the folder 'MacApp Resource Files:' contains the actual resource description of 'view' resources.

Font names, when required, can default to null strings (' ') for the system font, and to a single character A ('A') for the application font.

```
ViewResource = RECORD
    numViews: INTEGER;           Number of subviews
    theViews: ARRAY [1..numViews] OF ViewInfo;  View descriptions
END;

ViewTemplate = PACKED RECORD
    itsParentID: IDType;         Identifier of superview
    thisViewID: IDType;         This view's identifier
    itsLocation: VPoint;        Location inside parent view
    itsSize: VPoint;            Size of this view
    itsVSizeDet: sizeSuperView..sizeFixed;  Vertical size determiner
    itsHSizeDet : sizeSuperView..sizeFixed;  Horizontal size determiner
    isShown: BOOLEAN;          Whether this view is shown
    isEnabled: BOOLEAN;        Whether this view is enabled
    (filler: 0..255; )
    itsSignature: IDType;       Template signature
    itsType: Str255;           Class name (actually variable size)
    itsData: ARRAY [0..0] OF INTEGER;  Extra view-specific data (detailed below)
END;

WindowTemplate = PACKED RECORD
    procID: INTEGER;           Window procID
    hasGoAway: BOOLEAN;        Whether window has go-away box
    resizable: BOOLEAN;        Whether window is resizable
    isModal: BOOLEAN;         Whether window is modal
    doFirstClick: BOOLEAN;    Whether first click in window should be handled
    freeOnClosing: BOOLEAN;    Whether window object is freed on closing
    disposeOnFree: BOOLEAN;    Whether window is disposed of on closing
    closesDocument: BOOLEAN;  Whether closing window closes document
    openInitially: BOOLEAN;    Whether window is opened at document creation
    mustAdaptToScreen: BOOLEAN;  Whether window is adapted to fit screen
    stagger: BOOLEAN;         Whether window is staggered
    mustForceOnScreen: BOOLEAN;  Whether window should be forced on screen
    vertCenter: BOOLEAN;      Whether window is vertically centered
    horzCenter: BOOLEAN;      Whether window is horizontally centered
    (filler: 0..7; )
    targetID: IDType;         Identifier of fTarget'ed view
    title: Str255;           Window title (actually variable size)
END;
```

```

ScrollbarTemplate = RECORD
    wantVBar:      BOOLEAN;      Whether vertical scroll bar wanted
    wantHBar:      BOOLEAN;      Whether horizontal scroll bar wanted
    vertMax:       LONGINT;      Maximum vertical value
    horzMax:       LONGINT;      Maximum horizontal value
    vScrollUnits:  INTEGER;      Number of units to scroll vertically
    hScrollUnits:  INTEGER;      Number of units to scroll horizontally
    vConstrain:    BOOLEAN;      Whether vertical scroll bar is constrained
    hConstrain:    BOOLEAN;      Whether horizontal scroll bar is constrained
    sBarOffsets:   Rect;         Offsets for scroll bars during resizing
END;

DialogViewTemplate = RECORD
    defaultID:     IDType;       Identifier of default item
    cancelID:      IDType;       Identifier of 'cancel' item
END;

ControlTemplate = PACKED RECORD
    itsAdornment:  CntlAdornment; Adornment flags
    (filler1:      0..255;)
    itsPenSize:    Point;         Pen size
    isSizable:     BOOLEAN;       Whether control is sizable (regardless of view)
    isDimmed:      BOOLEAN;       Whether control is dimmed
    isHilited:     BOOLEAN;       Whether control is hilited
    canDismiss:    BOOLEAN;       Whether control can dismiss dialog
    (filler2:      0..4095;)
    itsInset:      Rect;         Control's inset from edges of view
    itsTextFace:   Style;         Control's text face
    itsTextSize:   INTEGER;       Control's text size
    itsTextColor:  RGBColor;     Control's color
    itsFontName:   Str255;       Name of font (actually variable size)
END;

ButtonTemplate = PACKED RECORD
    itsLabel:      Str255;       Button's label (actually variable size)
END;

CheckBoxTemplate = RECORD
    isOn:          BOOLEAN;       Whether check box is initially "on"
    itsLabel:      Str255;       Check box's label (actually variable size)
END;

RadioTemplate = RECORD
    isOn:          BOOLEAN;       Whether radio button is initially "on"
    itsLabel:      Str255;       Radio button's label (actually variable size)
END;

```

ScrollBarTemplate = RECORD		
cntlData:	TControlData;	TControl initialization
direction:	VHSelect;	Scroll bar's direction
itsValue:	LONGINT;	Initial value
itsMinimum:	LONGINT;	Minimum value
itsMaximum:	LONGINT;	Maximum value
END;		
ClusterTemplate = RECORD		
itsLabel:	Str255;	Cluster's label (actually variable size)
END;		
IconTemplate = RECORD		
preferColor:BOOLEAN;	Whether color icon is preferred	
rsrcID:	INTEGER;	Resource ID of 'cicn' or 'ICON' resource
END;		
PatternTemplate = RECORD		
preferColor:BOOLEAN;	Whether color pattern is preferred	
rsrcID:	INTEGER;	Resource ID of 'ppat' or 'PAT' resource
END;		
PictureTemplate = RECORD		
rsrcID:	INTEGER;	Resource ID of 'PICT' resource
END;		
PopupTemplate = RECORD		
rsrcID:	INTEGER;	Resource ID of 'MENU' resource
currentItem:	INTEGER;	Initially selected item number
itemOffset:	INTEGER;	Offset from left of view to pop-up control
END;		
StaticTextTemplate = RECORD		
just:	INTEGER;	Justification for text
data:	Str255;	Initial text (actually variable size)
END;		
EditTextTemplate = RECORD		
maxChars:	INTEGER;	Maximum number of characters accepted
controlChars:	ControlCharSet;	Valid control characters
END;		
NumberTextTemplate = RECORD		
itsValue:	LONGINT;	Initial value
itsMinimum:	LONGINT;	Minimum value
itsMaximum:	LONGINT;	Maximum value
END;		

```

TEViewTemplate = RECORD
  hasStyle:      BOOLEAN;           Whether record is styled
  autoWraps:     BOOLEAN;           Whether record auto-wraps characters
  acceptsChanges: BOOLEAN;           Whether record accepts changes
  freesText:     BOOLEAN;           Whether object automatically frees text
  (filler:       0..4095;)
  keyCmdNumber:  INTEGER;           Command number for typing characters
  maxChars:      INTEGER;           Maximum number of characters allowed
  scrollerID:    IDType;            ID of scroller
  inset:         Rect;              Insets of viewRect from edges of view
  just:          INTEGER;           Record justification
  itsTextFace:   Style;             Record's text face
  itsTextSize:   INTEGER;           Record's text size
  itsTextColor:  RGBColor;          Record's color
  itsFontName:   Str255;            Name of font (actually variable size)
END;

```

