REFERENCE POSTER

NI TestStand™ User Interface Controls

The NI TestStand User Interface (UI) Controls are a set of ActiveX controls that implement the common functionality for applications to display, execute, edit, save, and debug test sequences. These ActiveX controls greatly reduce the amount of source code a user interface application requires.

The TestStand UI Controls are divided into two categories: manager controls and visible controls. This poster describes the manager controls as well as the visible controls—text display, selector, command, and view.

National Instruments strongly recommends using the TestStand UI Controls to develop user interface applications. Refer to the *NI TestStand Help* for more information about developing applications with the TestStand UI Controls.

You can call the TestStand API on objects you create or obtain from the TestStand UI Controls properties, methods, or events. Refer to the *NI TestStand Help* for guidelines for calling the TestStand API in a user interface that uses the TestStand UI Controls and for a complete description of the classes, properties, methods, and events listed on this poster.

Note Some properties and methods from previous versions of TestStand are obsolete and not listed on this poster.

LabVIEW, National Instruments, NI, ni.com, NI TestStand, the National Instruments corporate logo, and the Eagle logo are trademarks of National Instruments Corporation. Refer to the *Trademark Information* at ni.com/trademarks for other National Instruments trademarks. Windows is a registered trademark of Microsoft Corporation in the United States and other countries. Other product and company names mentioned herein are trademarks or trade names of their respective companies. For patents covering National Instruments products/technology, refer to the appropriate location: **Help>Patents** in your software, the patents.txt file on your media, or the *National Instruments Patent Notice* at ni.com/patents. You can find information about end-user license agreements (EULAs) and third-party legal notices in the NI TestStand 2012 Readme. Refer to the *Export Compliance Information* at ni.com/legal/export-compliance for the National Instruments global trade compliance policy and how to obtain relevant HTS codes, ECCNs, and other import/export data.

© 2003–2012 National Instruments. All rights reserved. Printed in Ireland.

374423D-01 Aug12

Legend

♦ Control A visible or invisible ActiveX component you can use on user interface windows.

Object A programmable software component that represents an instance of a class. You interact with the object using the methods, properties, and events the class defines.

Property A value that stores and maintains a setting or attribute of an object.

(Read Only) Properties you can read but not change.

Method Performs an operation or function on an object.

Event Method an object invokes to inform a client application of a status or state change.

Collection An object that contains zero or more objects of the same class.

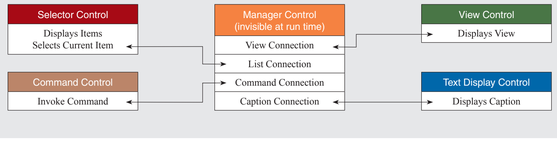
Collection Class Denotes a class that has a corresponding collection class. The top (lighter) text represents the collection. The lower (darker) text represents the type of object the collection contains. Collection class properties and methods are not listed on this poster.

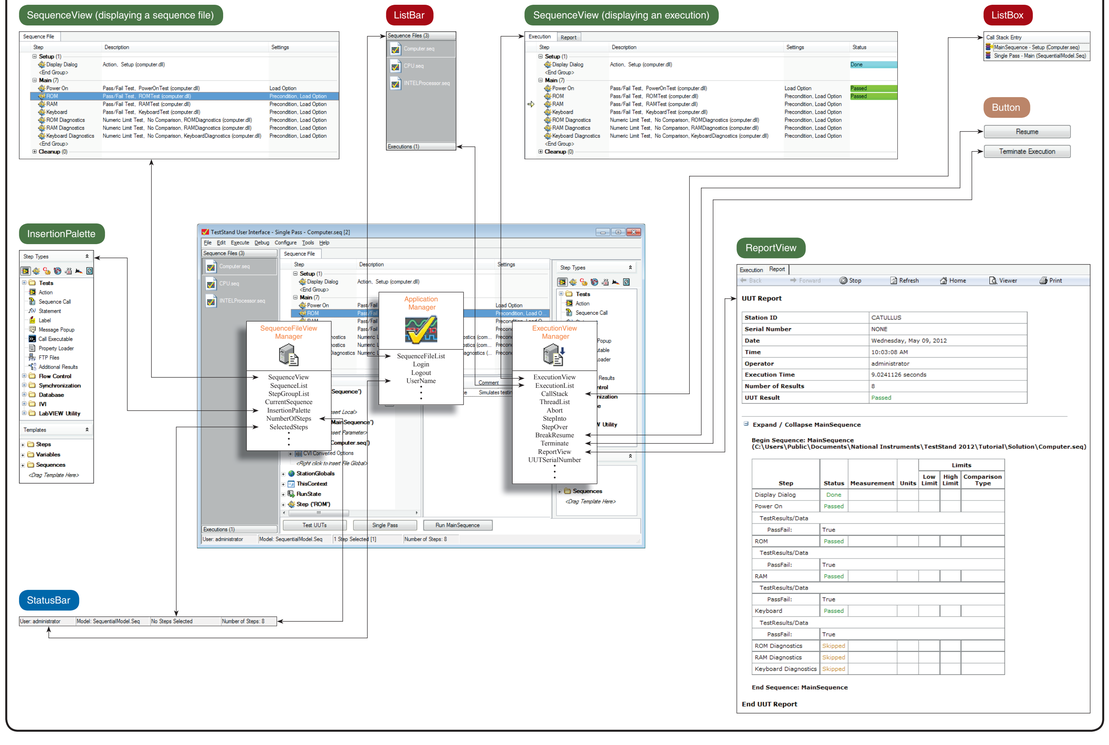
Denotes a connection between a manager control and another control. Information is shared between the two controls. For example, a Button control instructs a manager control to execute a command, whereas the manager control determines when the Button control is dimmed.

Connection Types

Connect a manager control to a visible control to display sequences or reports, present a list of items to users, invoke an application command, or display information about the current state of the application. When you connect controls, you do not need to write the majority of the source code usually required for the application to update the user interface and respond to user input.

Connections from manager controls to visible controls are many-to-one. Therefore, you can make the same connection from a manager control to multiple visible controls. The type of manager control and visible control you are connecting determine the specific connections you can make, as shown on the right. Specific examples of these connections are illustrated below.





Manager Controls

Manager controls call the TestStand API to perform tasks such as loading files, launching executions, and retrieving sequence and execution information. Manager controls also notify you when application events occur, such as when a user logs in, an execution reaches a breakpoint, or a user changes the file or sequence they are viewing. Manager controls are visible at design time and invisible at run time.

The Application Manager control performs basic operations necessary to use the TestStand Engine in an application. An application must have a single Application Manager control that exists for the duration of the application.

The SequenceFileView Manager control performs tasks that manage how other visible TestStand UI Controls view and interact with a selected sequence file. The ExecutionView Manager control performs tasks that manage how other visible TestStand UI Controls view and interact with a selected TestStand execution. An application must have one SequenceFileView Manager and one ExecutionView Manager control for each location, such as a window, form, or panel, in which you display a sequence file or let users select a sequence file.

♦ApplicationMgr

Properties
ApplicationWillExitOnStart (Read Only)
AutomaticallyReloadModifiedFiles
BreakOnFirstStep
BreakOnSequenceFailure
BreakOnStepFailure
CommandLineArguments (Read Only)
CommandLineChangedEditMode
ConfigFile (Read Only)
ConfigFilePath
ConfigurationEntryPoints (Read Only)
Connections (Read Only)
CreateEmptySequenceFileOnStart
CurrentUIMessage (Read Only)
EditModeShortcutKey
EditModeShortcutModifier
EditReadOnlyFiles
Executing (Read Only)
ExecutionEntryPoints (Read Only)
Executions (Read Only)
ExitCode
IsEditor
IsShuttingDown (Read Only)
IsStarted (Read Only)
LoginLogoutRunning (Read Only)
LoginOnStart
LoginRunning (Read Only)
LogoutClosesSeqFilesAndExecs
LogoutRunning (Read Only)
MakeStepNamesUnique
MRUFiles (Read Only)
ProcessCommandLine
PromptForOverwrite
ReloadModifiedFilesInterval
ReloadSequenceFilesOnStart
SaveOnClose
SequenceFiles (Read Only)
UndoStack
UserData
UseStepFunctionConfigurations

Methods
AddCommandLineArgumentsHelp
BeginEdit
CanEdit
CloseAllExecutions
CloseAllSequenceFiles
CloseExecution
CloseSequenceFile
ConnectAdapterList
ConnectCaption
ConnectCommand
EndEdit
GetAutoCloseExecution
GetCaptionText
GetCommand
GetEngine
GetExecutionViewMgr
GetImageName
GetModelFile
GetRunState
GetSequenceFileViewMgr
GetTerminationState
GetVisible
LocalizeAllControls
Login
Logout
NewCommands
OpenSequenceFile
OpenSequenceFilesDialog
RaiseError
Refresh
RefreshAllViewMgrs
RefreshFile
ReloadConfigFile
ReloadFile
ReloadModifiedSequenceFilesEx
SetAutoCloseExecution
SetVisible
ShutDown
Start

Events
AfterUIMessageEvent
BeginEdit
Break
BreakOnRunTimeError
CanEdit
DisplayExecution
DisplayReport
DisplaySequenceFile
DropFile
EditModeChanged
EndEdit
EndExecution
ConnectImage
ExitApplication
PostCommandExecute
PreCommandExecute
ProcessUserCommandLineArguments
QueryCloseExecution
QueryCloseSequenceFile
QueryReloadSequenceFile
QueryShutdown
RefreshWindows
ReportError
SequenceFileClosing
SequenceFileOpened
ShutDownCancelled
ShutDownCompleted
StartExecution
UIMessageEvent
UserChanged
UserMessage
Wait

♦ExecutionViewMgr

Properties
ApplicationMgr (Read Only)
ConfigurationEntryPoints (Read Only)
Connections (Read Only)
Execution
ExecutionEntryPoints (Read Only)
ReplaceExecutionOnClose
RunState (Read Only)
SelectedPropertyObjects (Read Only)
SelectedSteps (Read Only)
SequenceContext
StepGroupMode
TerminationState (Read Only)
Thread
UserData

Methods
AbortExecution
BreakExecution
BuildEditArgs
BuildInteractiveArgs
ConnectCallStack
ConnectCaption
ConnectCommand
ConnectExecutionList
ConnectIExecutionView
ConnectImage
ConnectNumeric
ConnectReportView
ConnectThreadList
ConnectVariables
GetCaptionText
GetCommand
GetImageName
GetNumericValue
LoopOnSelectedSteps
NewEditContext
Refresh
RefreshStep
RefreshStepEx
RestartExecution
ResumeExecution
RunSelectedSteps
TerminateExecution

Events
Break
ContextChanged
DisplayReport
EndExecution
ExecutionChanged
PropertyObjectSelectionChanged
RefreshWindow
RunStateChanged
SelectionChanged
TerminationStateChanged
ThreadChanged
Trace
UserMessage

SequenceFiles

NOTE: The SequenceFiles object is a collection that contains SequenceFile objects. Refer to the *NI TestStand API Reference Poster* for a description of the SequenceFile object.

Properties
Count (Read Only)
Item (Read Only)

Methods
This object has no methods.

Events
This object has no events.

♦SequenceFileViewMgr

Properties
ApplicationMgr (Read Only)
ConfigurationEntryPoints (Read Only)
Connections (Read Only)
ExecutionEntryPoints (Read Only)
ReplaceSequenceFileOnClose
SelectedPropertyObjects (Read Only)
SelectedSequences (Read Only)
SelectedSteps (Read Only)
Sequence
SequenceFile
StepGroup
StepGroupMode
UndoStack (Read Only)
UserData

Methods
BuildEditArgs
BuildInteractiveArgs
ConnectCaption
ConnectCommand
ConnectImage
ConnectInsertionPalette
ConnectSequenceFileList
ConnectSequenceList
ConnectSequenceView
ConnectStepGroupList
ConnectVariables
GetCaptionText
GetCommand
GetImageName
LoopOnSelectedSteps
NewEditContext
Refresh
RefreshStep
RefreshStepEx
Run
RunSelectedSteps
SetSequenceAndGroup

Events
PropertyObjectSelectionChanged
RefreshWindow
SelectionChanged
SequenceChanged
SequenceFileChanged
SequenceSelectionChanged
StepGroupChanged

♦Executions

NOTE: The Executions object is a collection that contains Execution objects. Refer to the *NI TestStand API Reference Poster* for a description of the Execution object.

Properties
Count (Read Only)
Item (Read Only)
NumIncomplete (Read Only)
NumPaused (Read Only)
NumRunning (Read Only)

Method
ResumeAll

Events
This object has no events.

Continued, next column

Selector Controls

Connect a SequenceFileView Manager or an ExecutionView Manager control to a ComboBox or ListBox control so users can view or select from a list of sequence files, sequences, step groups, steps, executions, threads, or stack frames. Connect an Application Manager control to a ComboBox or ListBox control so users can view or select the default adapter of the Engine.

Use a ListBar control to display multiple pages, where each page contains a list of items users can view or select. Connect a SequenceFileView Manager or an ExecutionView Manager control to a ListBar page so users can view and select from a list, such as the active sequence file or execution.

♦CheckBox

Properties
BackColor
Caption
Checked
Enabled
Font
FontSource
ForeColor
hWnd (Read Only)
Image
ImageAlign
MaskColor
ScaleWithDPI
Style
TextAlign
UseMaskColor

Method
Localize

Events
Click
ConnectionActivity
KeyDown
KeyPress
KeyUp
MouseDown
MouseMove
MouseUp

♦ComboBox

Properties
Count (Read Only)
Enabled
Font
FontSource
HeightWithDropDown
hWnd (Read Only)
IconSize
ItemIndex
ReadOnly
ScaleWithDPI
ShowImages
Style
ToolTipVisible

Method
GetItemText

Events
Change
Click
ConnectionActivity
DropDown
KeyDown
KeyPress
KeyUp

♦ListBar

Properties
BackColor
Borders (Read Only)
ButtonFont
ButtonFontSource
ButtonStyle
ButtonTextColor
CurrentPage
hWnd (Read Only)
IconSize
PageFont
PageFontSource
Pages (Read Only)
PageStyle
PageTextColor
ScaleWithDPI
ShowItemCount
ShowItemTipStrips
ShowScrollBar

Methods
HitTest
Localize

Events
BorderDragged
ConnectionActivity
CreateContextMenu
CurPageChanged
CursorMoved
DblClick
KeyDown
MouseDown
MouseMove
MouseUp

♦ListBarPages
ListBarPage

Properties
Caption
Cursor
Enabled
Index (Read Only)
Items (Read Only)
Name

Methods
This object has no methods.

Events
This object has no events.

♦ListBarPageItems
ListBarPageItem

Properties
Caption
IconName
Index (Read Only)
ToolTipText

Methods
This object has no methods.

Events
This object has no events.

♦ListBox

Properties
AutosizeColumns
BackColor
Borders (Read Only)
CanEditLabel (Read Only)
ColumnSet (Read Only)
Count (Read Only)
EditingFlags
Enabled
Font
FontSource
ForeColor
hWnd (Read Only)
ItemIndex
ScaleWithDPI
ShowHeaders
ToolTipVisible

Methods
EditLabel
GetItemText
HitTest

Events
BorderDragged
Click
ColumnsResized
ConnectionActivity
CreateContextMenu
DblClick
KeyDown
KeyPress
KeyUp
MouseDown
MouseMove
MouseUp

♦ListBoxColumns
ListBoxColumn

Properties
AutoSizing
Caption (Read Only)
Index (Read Only)
Width

Methods
This object has no methods.

Events
This object has no events.

View Controls

Connect a SequenceFileView Manager control or an ExecutionView Manager control to a SequenceView control to display the steps of a sequence from a sequence file or execution. Connect an ExecutionView Manager control to a ReportView control to display the report for the selected execution.

Connect a SequenceFileView Manager control to an InsertionPalette control so users can insert steps and template items into a sequence file by dragging or double-clicking.

Connect a SequenceFileView Manager control or an ExecutionView Manager control to a VariablesView control to display the sequence context for the sequence file or execution.

♦InsertionPalette

Properties
AllowEditing
Borders (Read Only)
Enabled
hWnd (Read Only)
Pages (Read Only)
PaletteLayout
ScaleWithDPI

Methods
This object has no methods.

Events
BorderDragged
ConnectionActivity
KeyDown
MouseDown
MouseMove
MouseUp

InsertionPalettePages
InsertionPalettePage

Properties
Expanded
Index (Read Only)
SplitterRatio
Visible

Methods
This object has no methods.

Events
This object has no events.

♦ReportView

Properties
Borders (Read Only)
ButtonsVisible
LargeIcons
ScaleWithDPI
TextReportBackColor
TextReportColor
TextReportFont
TextReportFontSource
ToolBarTextStyle
ToolBarVisible

Methods
GetHTMLCtrl
GetRichEditCtrl
PrintReport
UpdateFromExecution
UpdateFromFile

Events
BorderDragged
ConnectionActivity

♦SequenceView

Properties
AutoSizeColumns
BackColor
BlockDisplayOptions
Borders (Read Only)
CanEditLabel (Read Only)
Columns (Read Only)
CommentsColor
CommentsFont
CommentsResource
CommentsOffset
Cursor
EditingFlags
FocusIndex
HeaderFont
HeaderFontSource
HorizLines
hWnd (Read Only)
IconSize
ItemBackColorExpression
ItemTextColorExpression
LinesColor
MaxCommentsHeight
RoundItemRects
ScaleWithDPI
ShadeAlternateColumns
ShowComments
ShowCommentsBars
ShowItemTipStrips
StepIconsEnabled
TextColor
TextFont
TextFontSource
VertLines
MouseDown
MouseMove
MouseUp

SeqViewColumns
SeqViewColumn

Properties
AutoSizing
BackColorExpression
Caption
Expression
Index (Read Only)
Name
TextColorExpression
Type
Visible
Width

Methods
This object has no methods.

Events
This object has no events.

♦VariablesView

Properties
Borders (Read Only)
Enabled
hWnd (Read Only)
ScaleWithDPI

Methods
This object has no methods.

Events
BorderDragged
ConnectionActivity
KeyDown
MouseDown
MouseMove
MouseUp

Miscellaneous

A Borders object specifies the frame and draggable borders that surround a control. When the application handles the `BorderDragged` event for the control, users can drag the borders to resize or move the control. Refer to the *NI TestStand Help* for information about additional user interface support classes, properties, methods, and events.

Borders

Properties
BorderDraggedEventEnabled
BorderEdgeStyle
BorderWidth
FrameEdgeStyle
FrameInsideBorders
FrameVisible
VisibleBorders

Method
GetFrameThickness

Events
This object has no events.

Text Display Controls

Use an ExpressionEdit control so users can edit a TestStand expression with syntax coloring, popup help, and statement completion. Although you typically do not need to edit expressions in a user interface application, you can connect a manager control to a read-only ExpressionEdit control to display text information about the application state, such as the pathname of the selected sequence file or the name of the current user.

Connect a manager control to panes of a StatusBar control to display text, image, or progress information about the application state. Connect a manager control to a Label control to display text information about the application state in the label, such as the name of the current user or the status of the current unit under test.

♦ExpressionEdit

Properties
AllowEmpty
AutoCompletionHwnd (Read Only)
AutomaticallyPrefixVariables
BackColor
Borders (Read Only)
BrowseExprDialogOptions
BrowseExprDialogTitle
Buttons (Read Only)
ComboBoxItems (Read Only)
Context
DisplayFormattedValue
DisplayText
DropDownListHwnd (Read Only)
Enabled
Engine
ErrorCheck
Font
FontSource
FunctionTipHwnd (Read Only)
HideSelection
hWnd (Read Only)
MaxLength
Multiline
NumericFormat
ReadOnly
ScaleWithDPI
ScrollBars
SelLength
SelStart
SelText
ShowDisplayNameWhenInactive
Style
Text
TextLength (Read Only)
TextType
WantReturn
WordWrap

Methods
CheckExpression
DisplayBrowseExprDialog
DisplayError
Evaluate
GetAdditionalEvaluationConstants
GetValidEvaluationTypes
Localize
SelectAll
SetAdditionalEvaluationConstants
SetValidEvaluationTypes

Events
BorderDragged
BrowseExprDialogClosed
BrowseExprDialogOpened
ButtonClick
Change
CheckExpression
Click
ConnectionActivity
ContextChanged
ContextMenuItemClick
CreateContextMenu
DblClick
DropDown
InsertComboBoxItem
KeyDown
KeyPress
KeyUp
MouseDown
MouseMove
MouseUp
SelChange

ExpressionEditButtons
ExpressionEditButton

Properties
BackColor
ContextMenuItemCaption
Enabled
hWnd (Read Only)
Icon
Kind
ShortcutKey
ShortcutModifier
Style
ToolTipText
Visible

Method
DoClick

Events
This object has no events.

ExpressionEditComboBoxItems
ExpressionEditComboBoxItem

Properties
DisplayName
Icon
Value

Methods
This object has no methods.

Events
This object has no events.

♦Label

Properties
Alignment
AutoSize
BackColor
BorderStyle
Caption
Enabled
Font
FontSource
ForeColor
hWnd (Read Only)
Image
ImageAlignment
MaskColor
ScaleWithDPI
ShowImage
ShowText
Style
TextAlignment
TextImageRelation
ToolTipText
UseMaskColor
UseMnemonic
Value

Methods
DoClick
Localize

Events
Change
Click
ConnectionActivity
KeyDown
KeyPress
KeyUp
MouseDown
MouseMove
MouseUp

Commands
Command

Properties
Enabled
EntryPoint (Read Only)
EntryPointIndex (Read Only)
ExecutionViewMgr
IconName
IsSeparator
IsToggle
Kind (Read Only)
LVShortcutKey
LVShortcutModifier
SequenceFileViewMgr
ShortcutKey
ShortcutModifier
SubsidiaryCommands
ToggleState
UserData
UserObject
Visible

♦StatusBar

Properties
AutoSize
Font
FontSource
hWnd (Read Only)
IconSize
Panes (Read Only)
ScaleWithDPI
ShowResizingGrip
ShowTopDivider

Methods
HitTest
Localize
ShowPanes

Events
ConnectionActivity
DblClick
MouseDown
MouseMove
MouseUp
Resized

StatusBarPanes
StatusBarPane

Properties
Caption
IconName
Index (Read Only)
Name
ProcessPercent
Style
TextAlignment
ToolTipText
UseAvailableSpace
Visible
Width

Methods
This object has no methods.

Events
This object has no events.

Command Controls

Connect a manager control to a Button control to specify that the button performs a common user interface command, such as "Open Sequence File."

Use Command objects in applications to implement a user interface element that performs a standard action, such as opening a sequence file or executing a set of selected steps in a sequence.

An EntryPoint object represents an Execution or Configuration entry point. Each entry point is a sequence in the process model file that invokes a test sequence file. You can retrieve an EntryPoints object that is a collection of entry points from the SequenceFileView Manager or ExecutionView Manager control, and you can execute the entry point using the EntryPoint object.

Refer to the *NI TestStand Help* for information about creating menu items that perform common user interface commands.

♦Button

Properties
ActionStyle
AutoSizing
BackColor
Caption
Enabled
Font
FontSource
ForeColor
hWnd (Read Only)
Image
ImageAlignment
MaskColor
ScaleWithDPI
ShowImage
ShowText
Style
TextAlignment
TextImageRelation
ToolTipText
UseMaskColor
UseMnemonic
Value

Methods
DoClick
Localize

Events
Click
ConnectionActivity
KeyDown
KeyPress
KeyUp
MouseDown
MouseMove
MouseUp

Commands
Command

Properties
Enabled
EntryPoint (Read Only)
EntryPointIndex (Read Only)
ExecutionViewMgr
IconName
IsSeparator
IsToggle
Kind (Read Only)
LVShortcutKey
LVShortcutModifier
SequenceFileViewMgr
ShortcutKey
ShortcutModifier
SubsidiaryCommands
ToggleState
UserData
UserObject
Visible

Methods
Execute
GetDisplayName
SetDisplayName

Events
This object has no events.

EntryPoints
EntryPoint

Properties
Enabled (Read Only)
InteractiveExecutionAllowed (Read Only)
Name (Read Only)
Sequence (Read Only)

Methods
LoopOnSelectedSteps
Run
RunSelectedSteps

Events
This object has no events.