

Win32 Window Handles - Creating a Handle Screenshot viewer

Starting with the Util - Windows Handles Viewer (Simple Gui).h2 script

```
//var topPanel = panel.add_Panel(true);
var topPanel = "Util - Windows Messages Handle Viewer (Simple GUI)".popupWindow(600,30);

var windowFinder = topPanel.newInThread<WindowFinder>().width(30).fill(false);
topPanel.add_Control(windowFinder);

var textBox_CurrentHandle = windowFinder.append_Label("Handle")
(10).append_TextBox("").width(75);
var textBox_CurrentWindow = textBox_CurrentHandle.append_Label("Window")
(10).append_TextBox("").width(75);
var textBox_CurrentHandleText = textBox_CurrentWindow.append_Label("HandleText (Editable)").top
(10).append_TextBox("").align_Right();

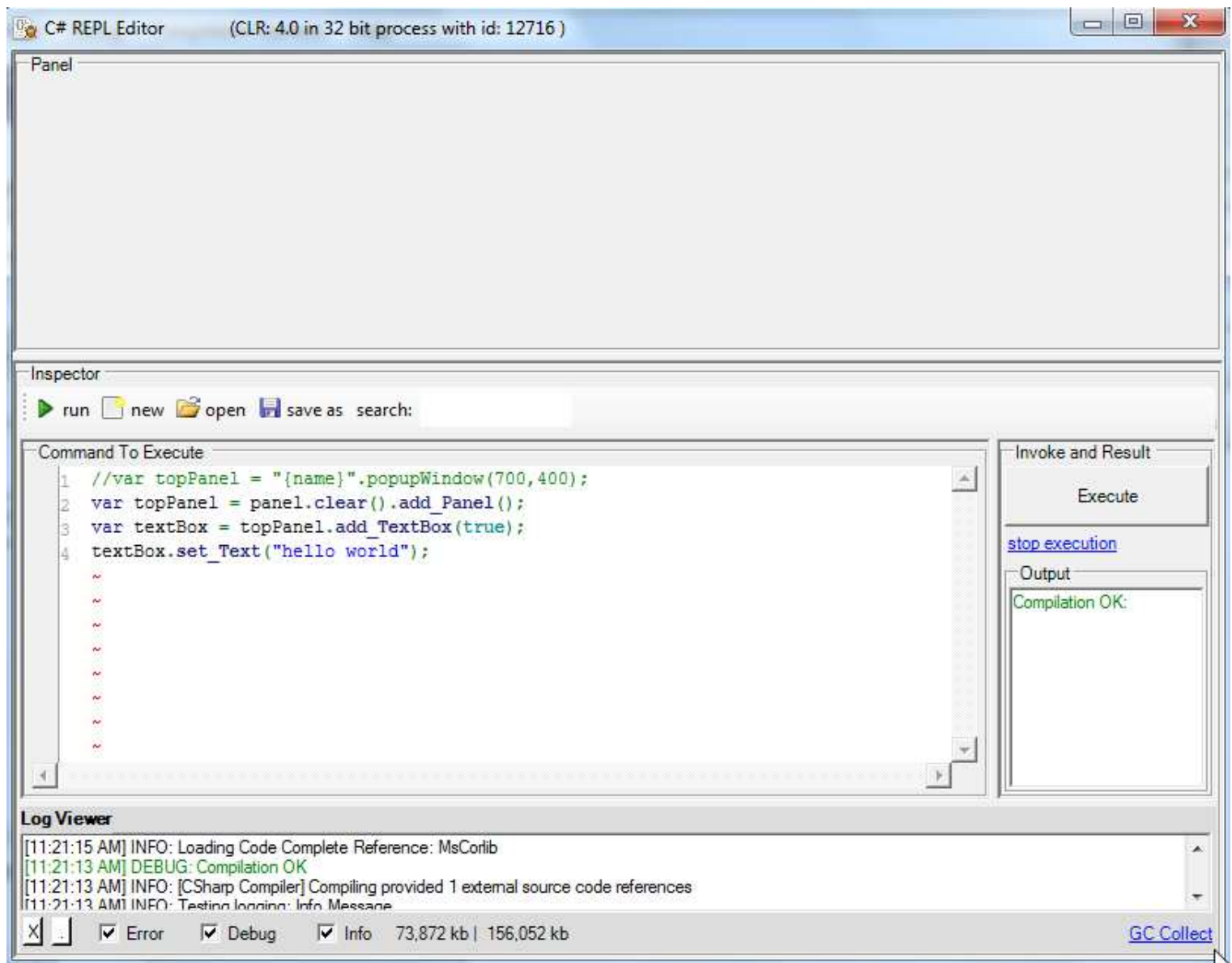
windowFinder.Handle_Changed =
    (handle)=>{
        textBox_CurrentHandle.set_Text(handle.str());
        textBox_CurrentHandleText.set_Text(handle.get_ControlText());
    };
windowFinder.Window_Changed =
    (handle)=>{
        textBox_CurrentWindow.set_Text(handle.str());
    };
textBox_CurrentHandleText.onTextChange(
    (text)=>{
        windowFinder.Last_Handle.set_ControlText(text);
        windowFinder.Last_Handle.window_Redraw();
        windowFinder.Last_Handle.window_Highlight();
    });

topPanel.parentForm().handle().window_AlwaysOnTop();
//O2File:WindowFinder.cs
//O2Embed:target.ico
```

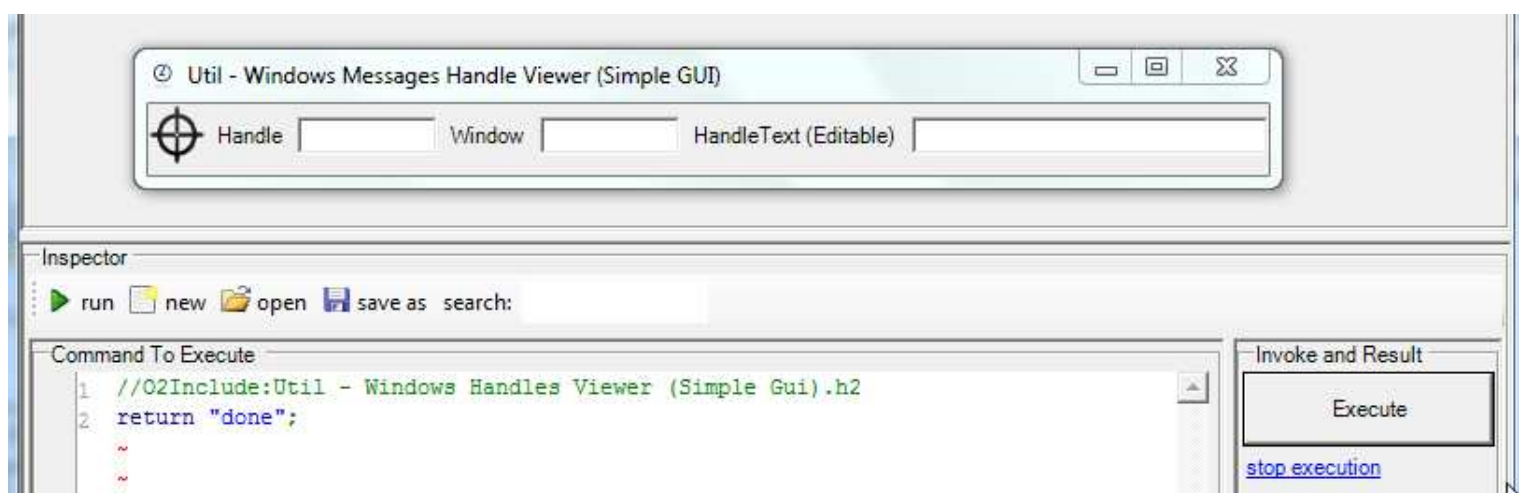
which when executed looks like this:



Open a REPL script editor:



And 'Include' the Util - Windows Handles Viewer (Simple Gui).h2 script



Since this is a Form vs UserControl, we can't add it to the REPL's panel control (the one able the Script editor).

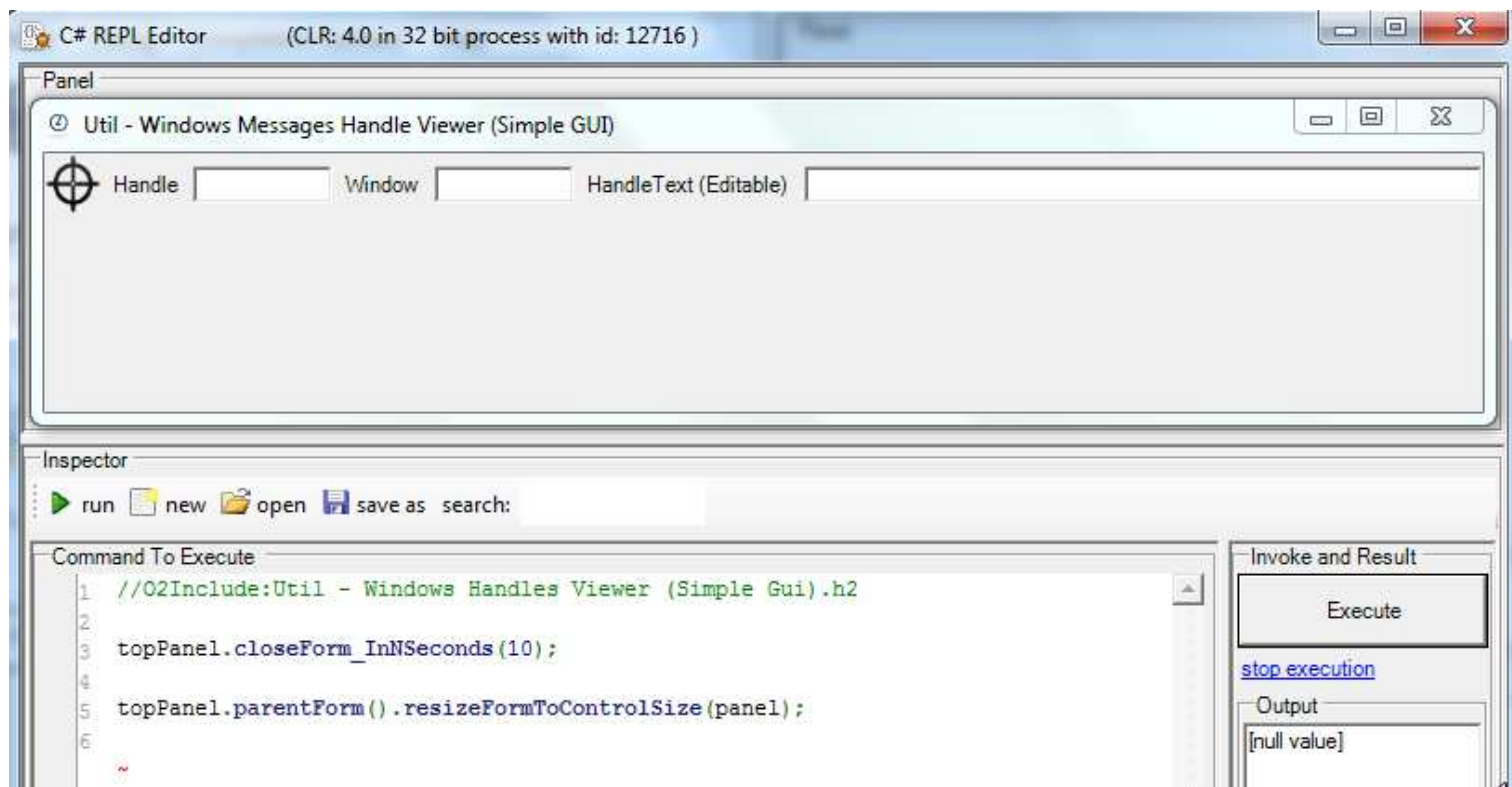
But there are a couple techniques we can use to make our development life easier:

Auto close the form after a couple seconds and resizing the Form window to fit the 'panel' control size

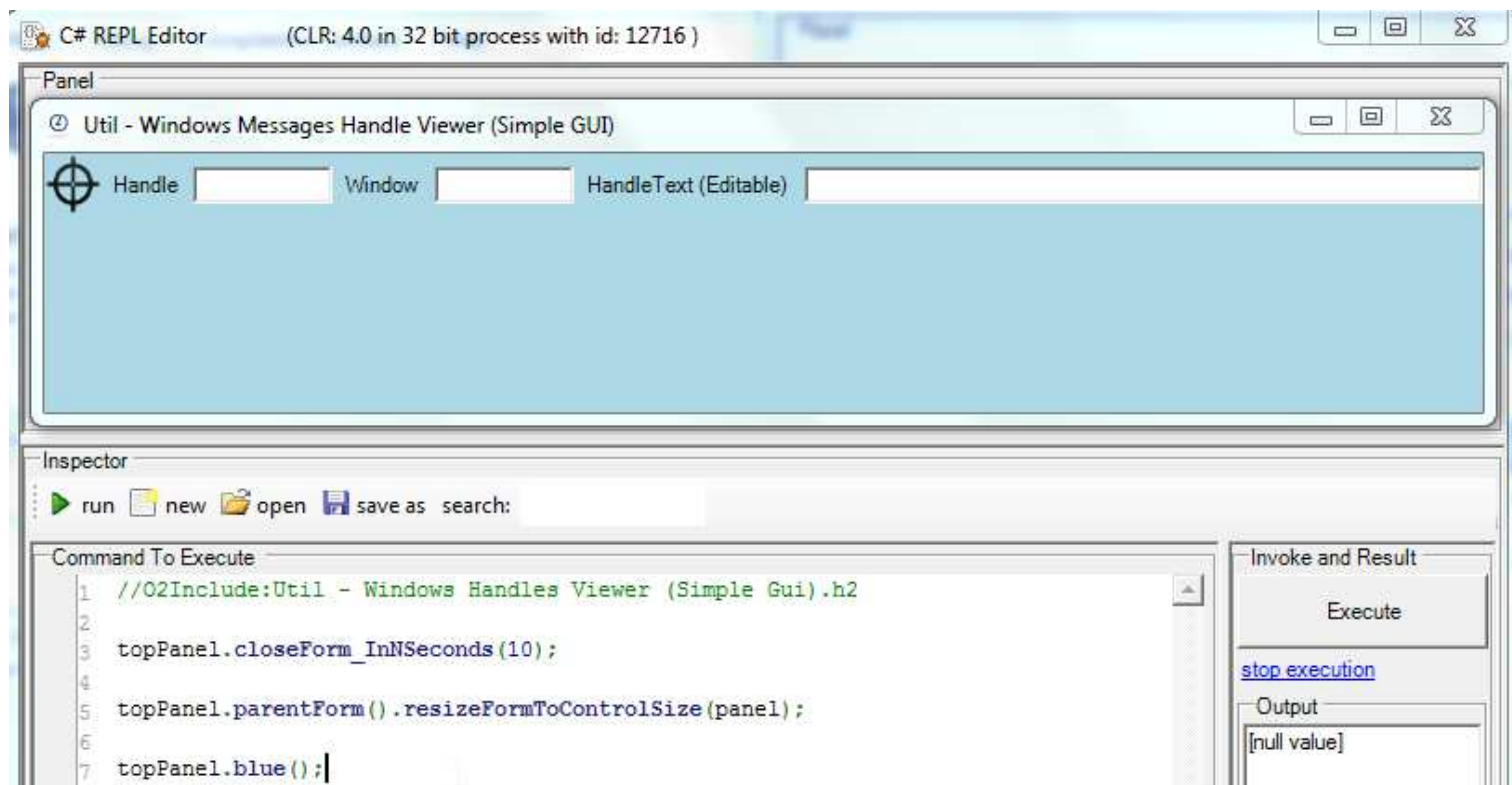
```
//O2Include:Util - Windows Handles Viewer (Simple Gui).h2
```

```
topPanel.closeForm_InNSeconds(10);
```

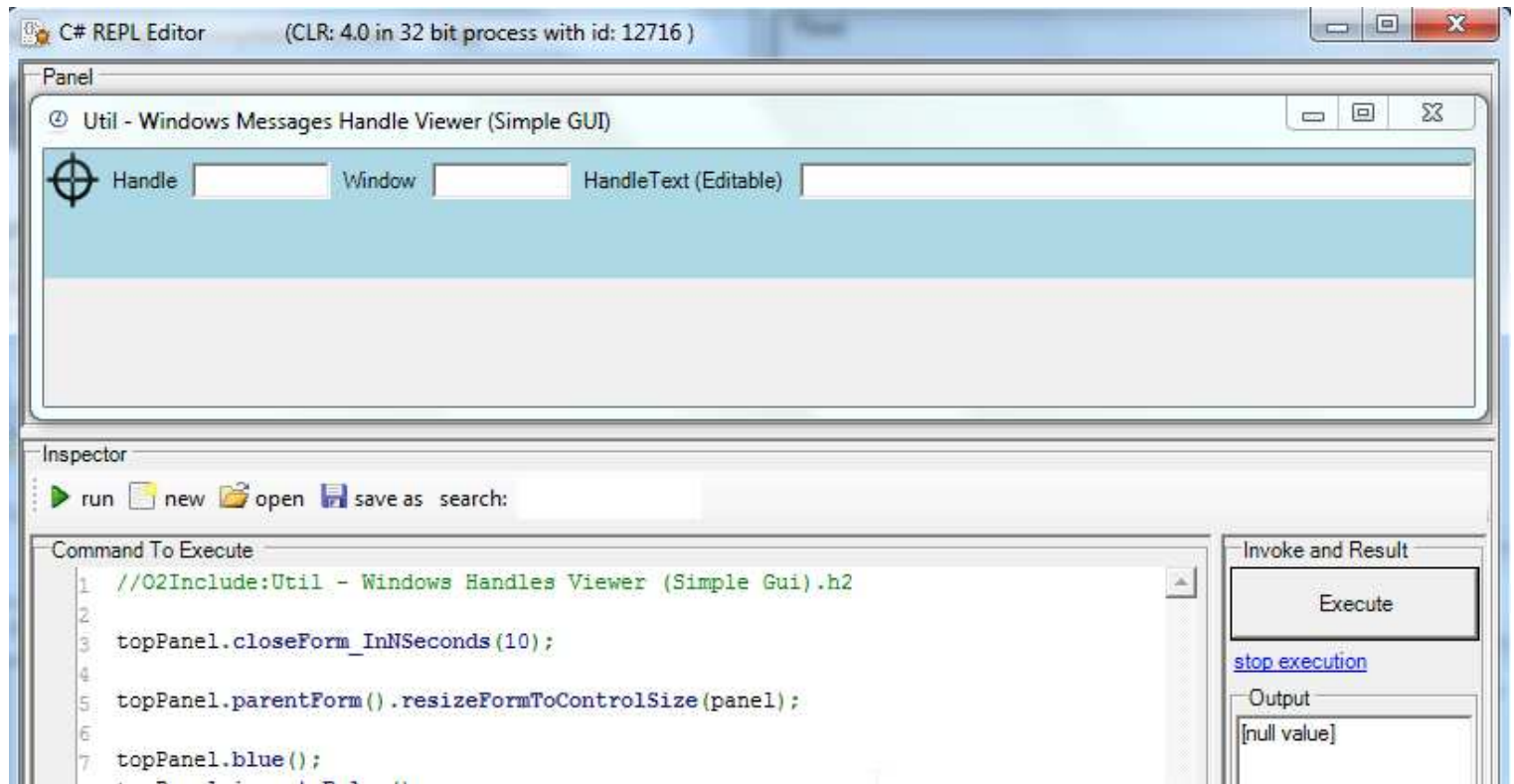
```
topPanel.parentForm().resizeFormToControlSize(panel);
```



Here is where currently the 'topPanel' control is (shown in blue):

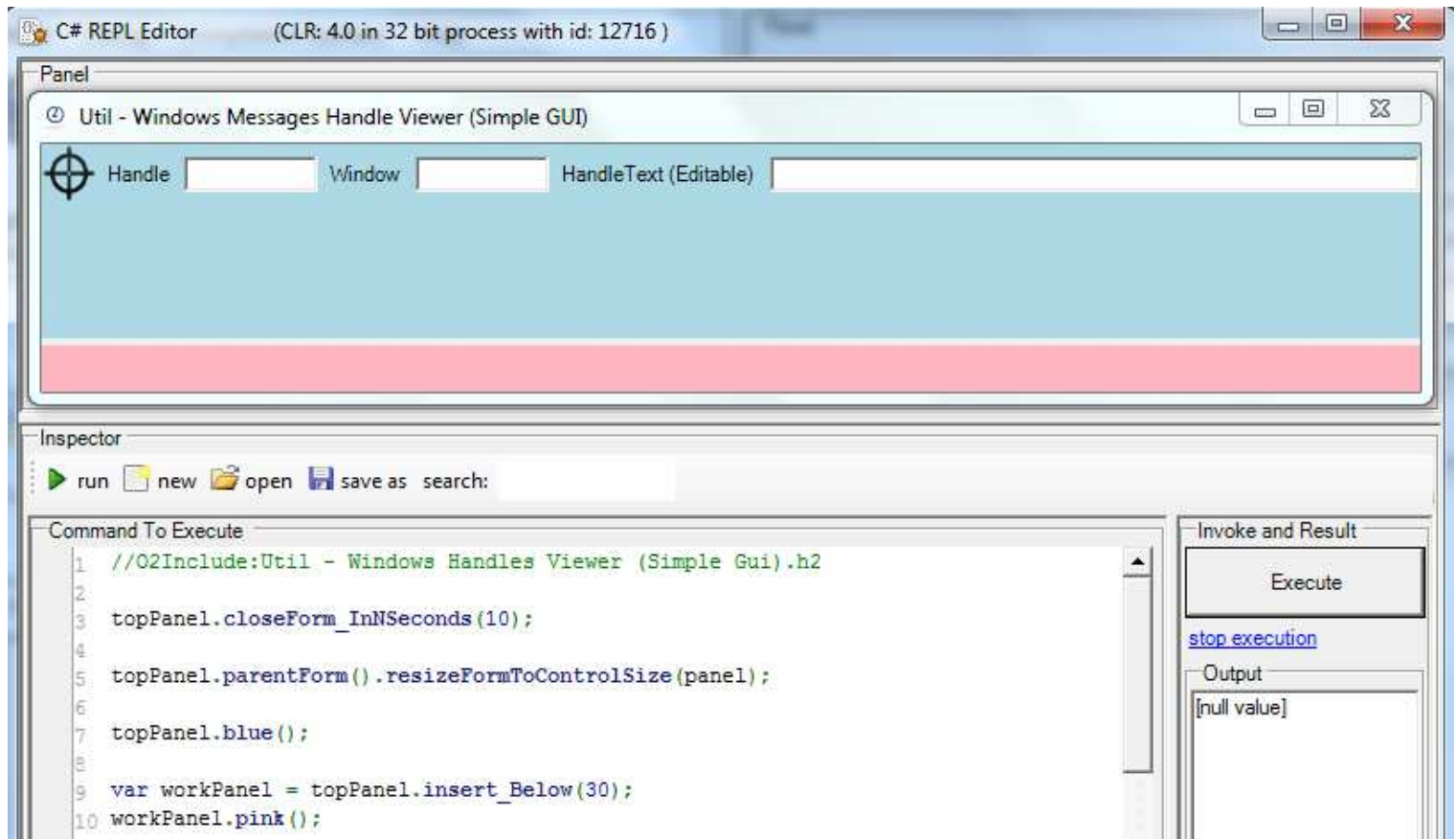


Inserting a panel below

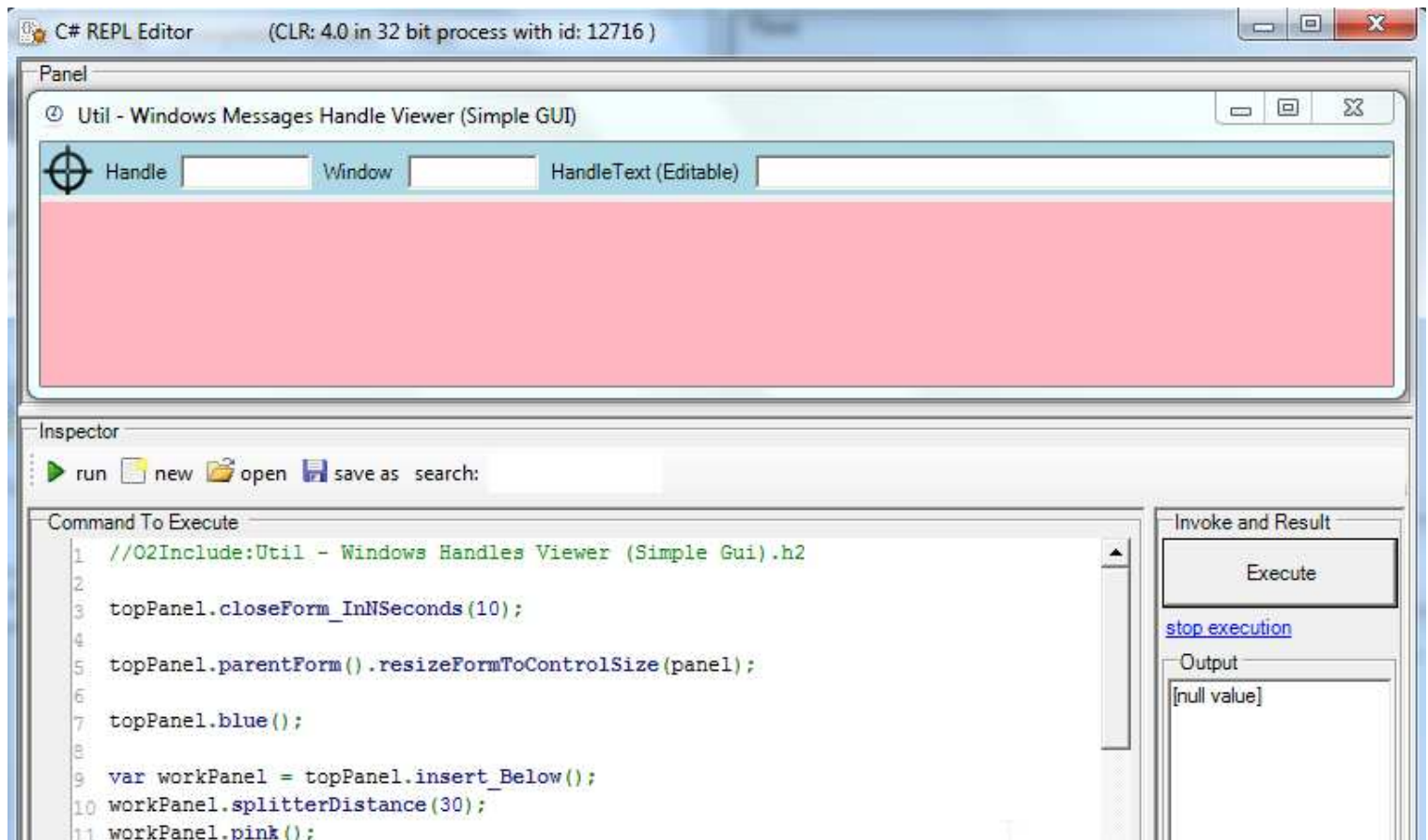


We can control the size of the 'inserted' panel:

```
//O2Include:Util - Windows Handles Viewer (Simple Gui).h2  
topPanel.closeForm_InNSeconds(10);  
  
topPanel.parentForm().resizeFormToControlSize(panel);  
  
topPanel.blue();  
  
var workPanel = topPanel.insert_Below(30);  
workPanel.pink();
```



using `SplitterDistance` to set the size of the top Panel:



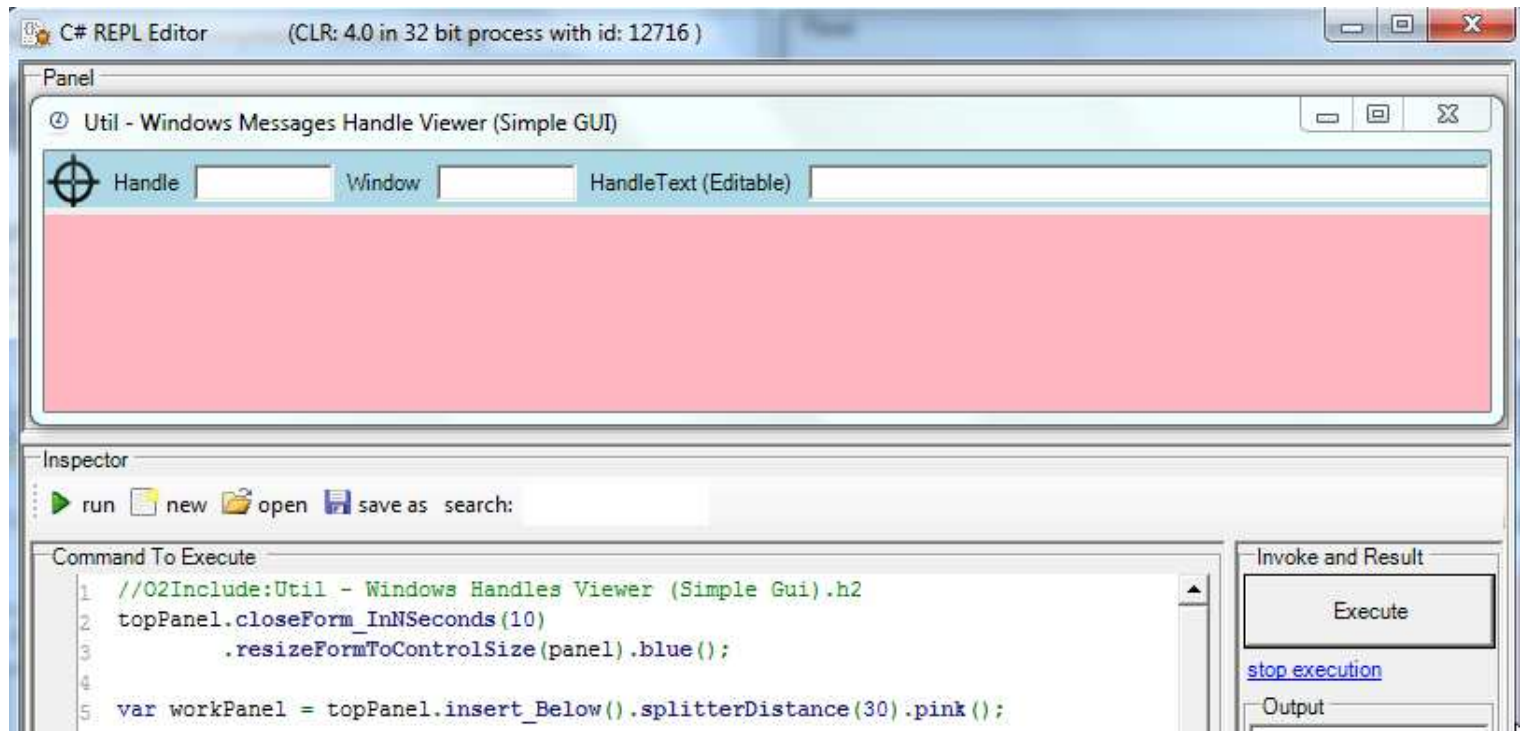
We can use the `FluentSharp` APIs to refactor the code (above) into 2 lines of code

```
//O2Include:Util - Windows Handles Viewer (Simple Gui).h2
```



```
topPanel.closeForm_InNSeconds(10).resizeFormToControlSize(panel).blue();

var workPanel = topPanel.insert_Below().splitterDistance(30).pink();
```

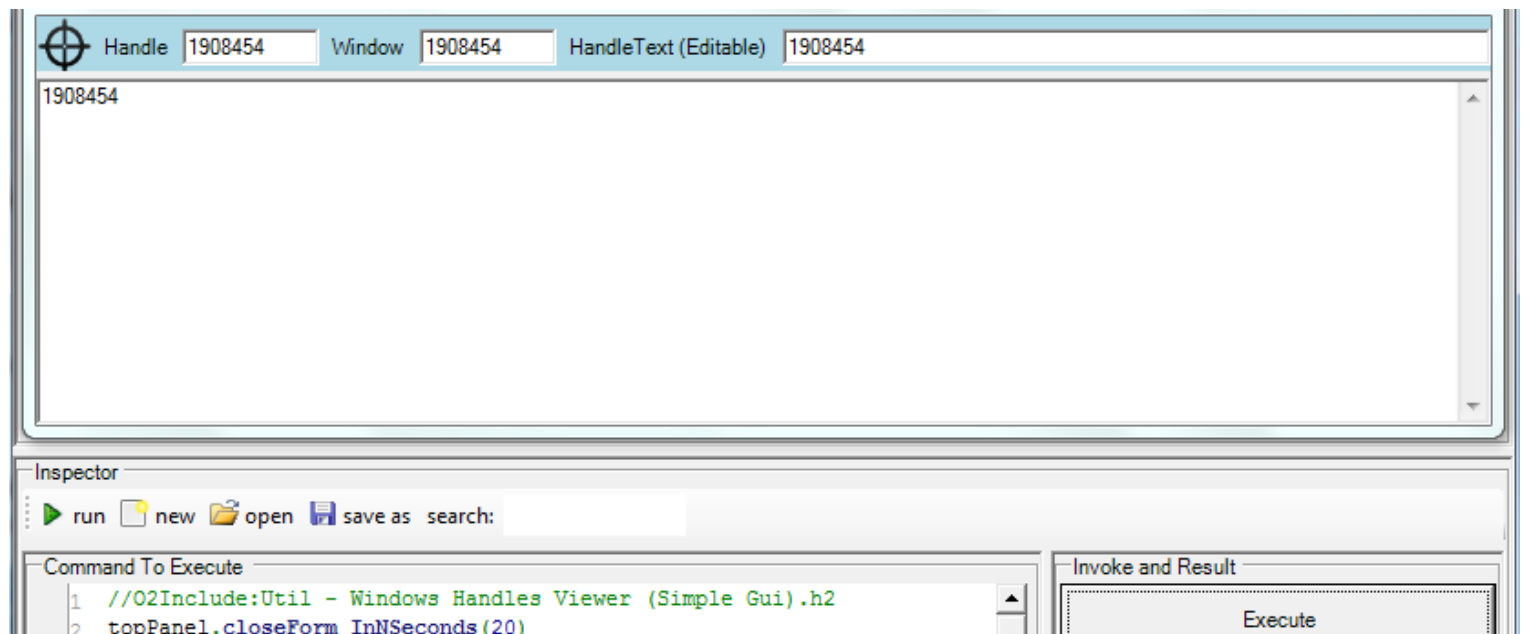


Adding an TextArea that shows the value of the current Handle (by subscribing to the onChange event of the 'included control' TextArea with the current Handle value)

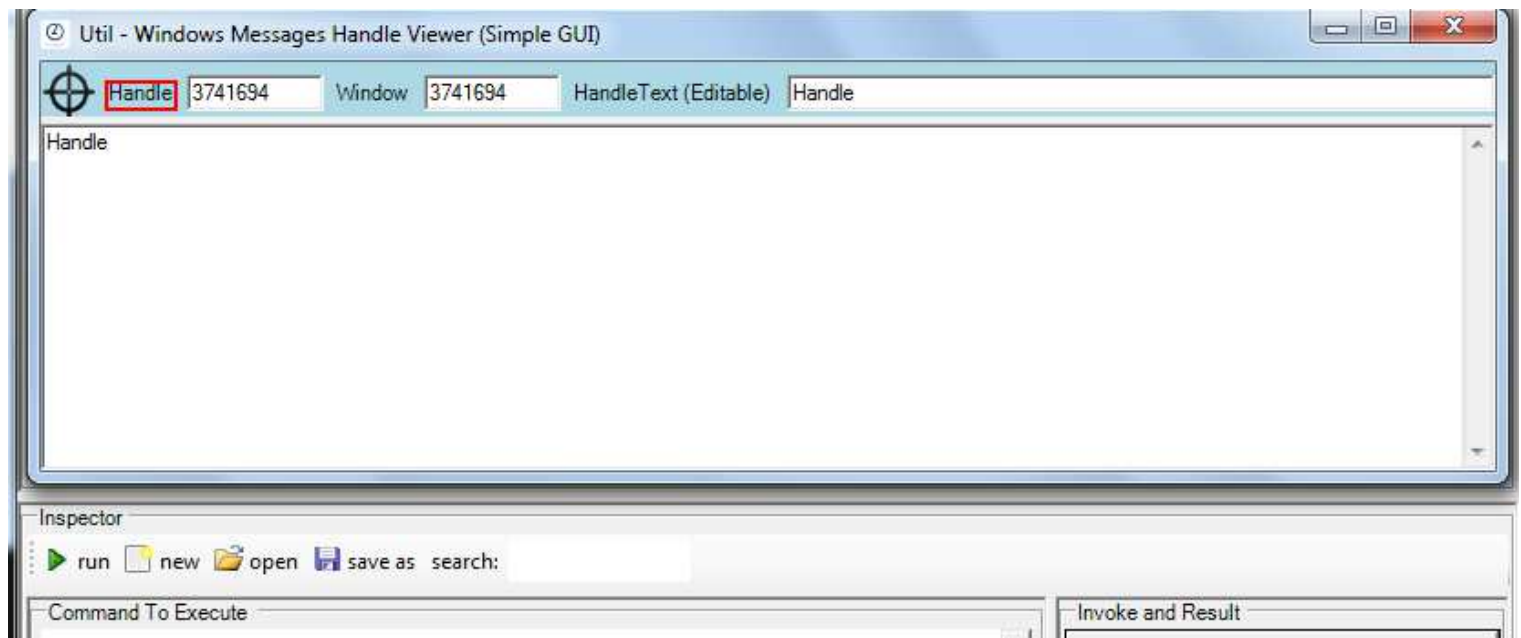
```
//O2Include:Util - Windows Handles Viewer (Simple Gui).h2
topPanel.closeForm_InNSeconds(10)
.resizeFormToControlSize(panel).blue();

var workPanel = topPanel.insert_Below().splitterDistance(30);

var textArea = workPanel.add_TextArea();
textBox_CurrentHandle.onChange((text)=> textArea.set_Text(text));
```



Showing the ControlText value of the selected handle:



Showing the screenshot of the selected handle:

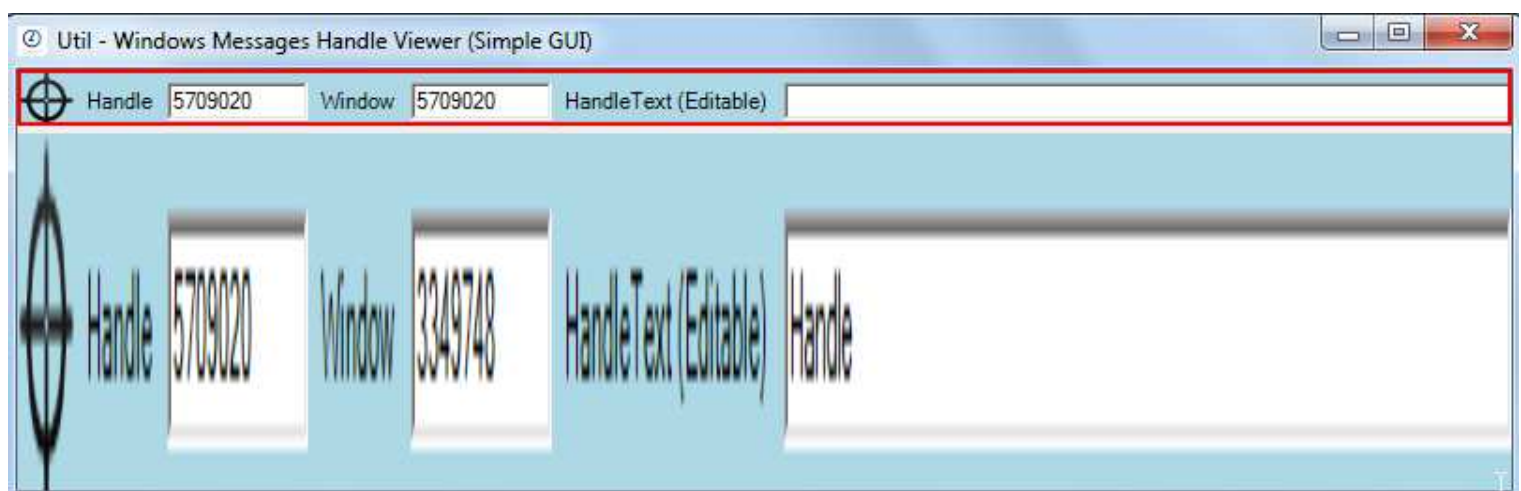
```
//O2Include:Util - Windows Handles Viewer (Simple Gui).h2
topPanel.closeForm_InNSeconds(60)
    .resizeFormToControlSize(panel).blue();

var workPanel = topPanel.insert_Below().splitterDistance(30);
var pictureBox = workPanel.add_PictureBox();

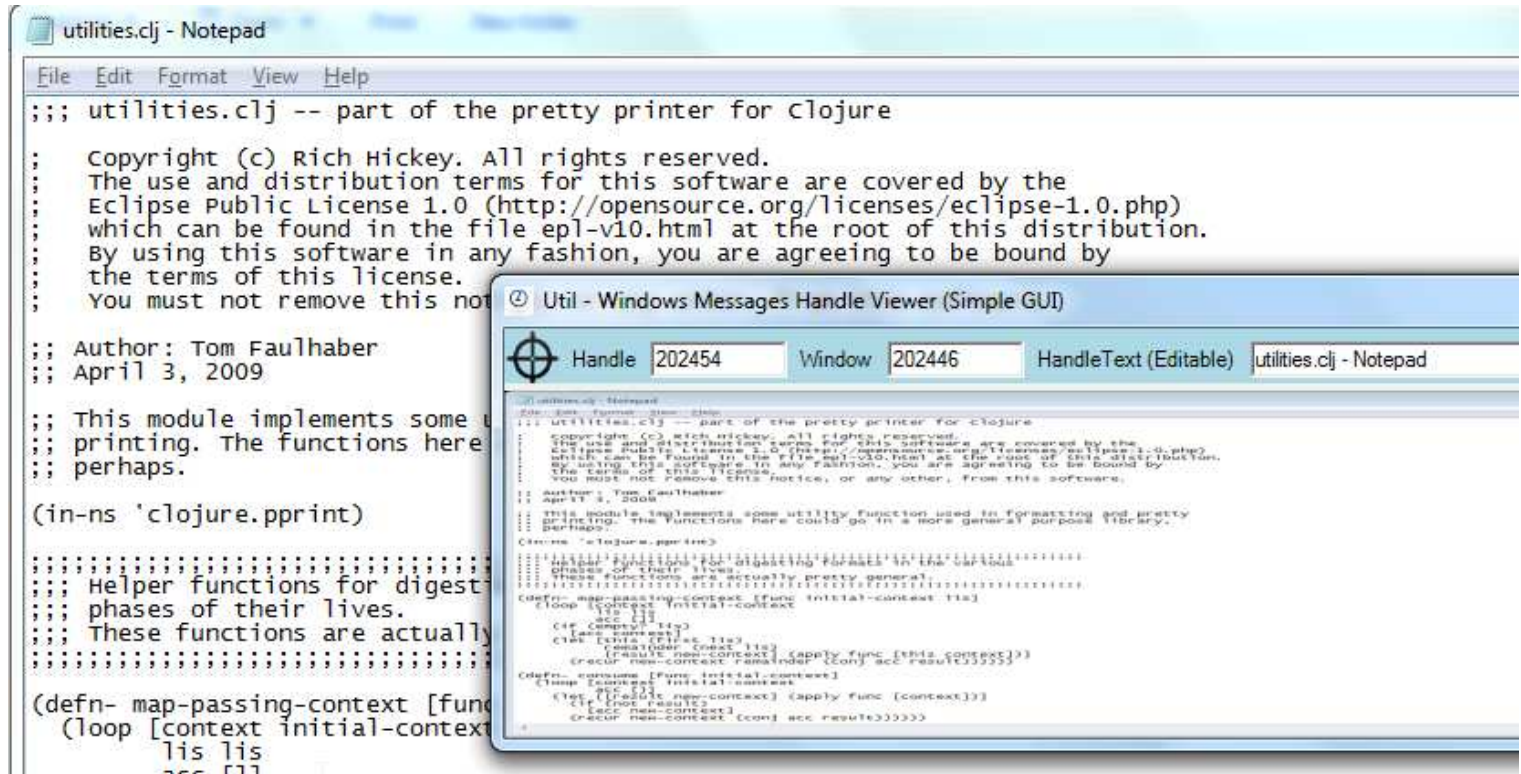
textBox_CurrentHandle.onTextChanged(
    (text)=>{
        var handle = text.toInt().intPtr();
        var screenShot = handle.window_ScreenShot();
        pictureBox.show(screenShot);
    });

//O2File:API_WinAPI_ExtensionMethods.cs
```

Screenshot of a panel (same process)



Screenshot of Notepad (separate process)



To make this into a stand alone tool, let remove the dependency on *Util - Windows Handles Viewer (Simple Gui).h2* and insert the parts that we need

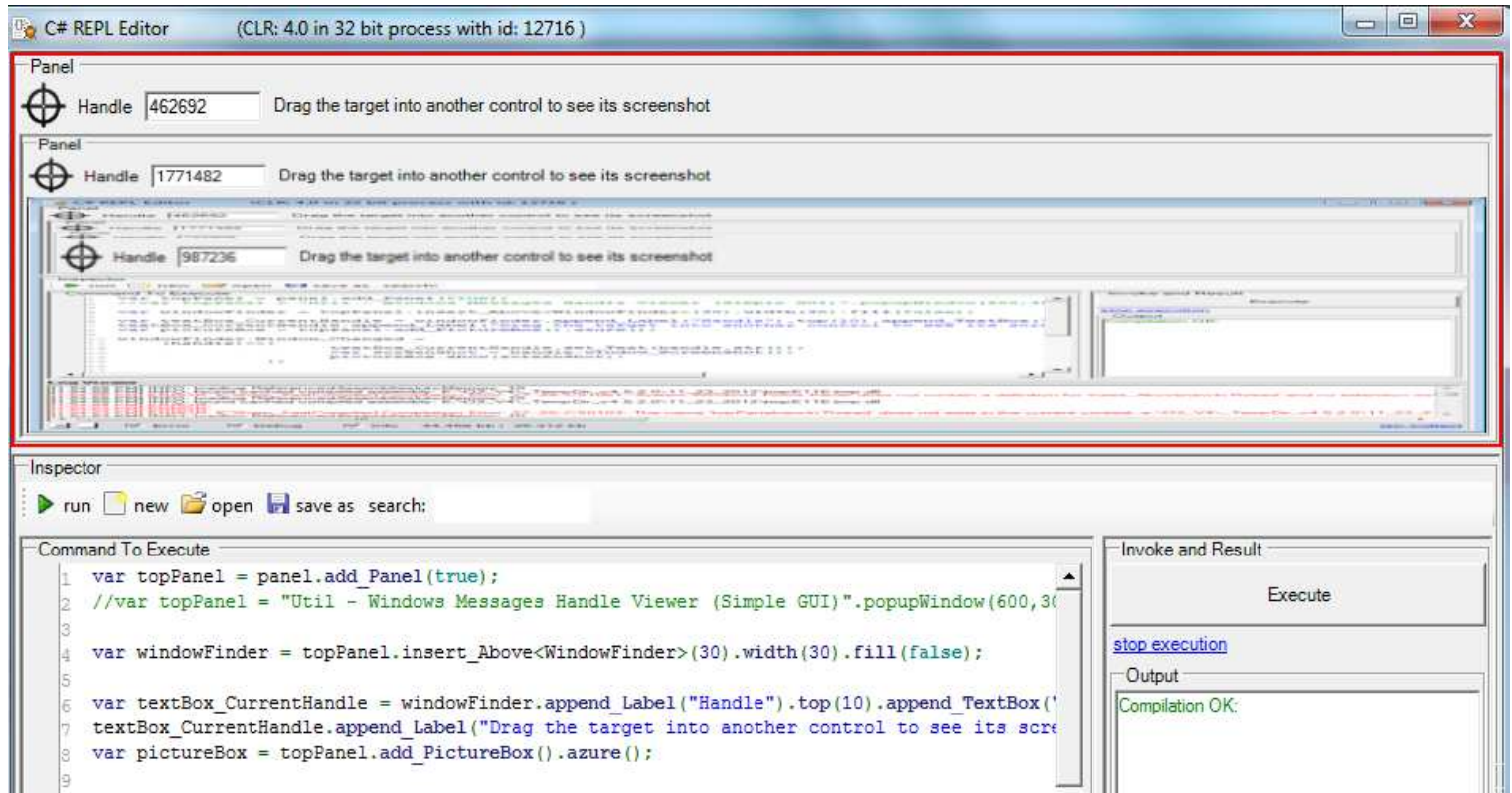
```
var topPanel = panel.add_Panel(true);
//var topPanel = "Util - Windows Messages Handle Viewer (Simple GUI)".popupWindow(600,30);

var windowFinder = topPanel.insert_Above<WindowFinder>(30).width(30).fill(false);

var textBox_CurrentHandle = windowFinder.append_Label("Handle").top(10).append_TextBox("").width(75);
textBox_CurrentHandle.append_Label("Drag the target into another control to see its screenshot").topAdd
(2);
var pictureBox = topPanel.add_PictureBox().azure();

windowFinder.Window_Changed =
    (handle)=>{
        textBox_CurrentHandle.set_Text(handle.str());
        var screenShot = handle.window_ScreenShot();
        pictureBox.show(screenShot);
    };

//O2File:WindowFinder.cs
```

The last code can be refactored to:

```
var topPanel = panel.add_Panel(true);
```

```
WindowFinder windowFinder = null;
TextBox textBox_CurrentHandle = null;
PictureBox pictureBox = null;
```

```
topPanel.insert_Above(30)
    .add_WindowFinder (ref windowFinder).width(30).fill(false)
    .append_Label ("Handle").top(10)
    .append_TextBox (ref textBox_CurrentHandle).width(75)
    .append_Label ("Drag the target into another control to see its screenshot").topAdd(2)
    .backTo(topPanel)
    .add_PictureBox (ref pictureBox).azure();
```

```
windowFinder.Window_Changed =
    (handle)=>{
        textBox_CurrentHandle.set_Text(handle.str());
        pictureBox.show(handle.window_ScreenShot());
    };
```

```
//O2File:WindowFinder.cs
```

Or into (note the Window_Changed was moved into an Action<IntPtr> lambda method)

```
var topPanel = panel.add_Panel(true);
```

```
WindowFinder windowFinder = null;
TextBox textBox_CurrentHandle = null;
PictureBox pictureBox = null;
```

```
Action<IntPtr> onHandleChange =
    (handle)=>{
        textBox_CurrentHandle.set_Text(handle.str());
        pictureBox.show(handle.window_ScreenShot());
    };
```

```
topPanel.insert_Above(30)
    .add_WindowFinder (onHandleChange, ref windowFinder).width(30).fill(false)
    .append_Label ("Handle").top(10)
    .append_TextBox (ref textBox_CurrentHandle).width(75)
    .append_Label ("Drag the target into another control to see its screenshot").topAdd(2)
    .backTo(topPanel)
    .add_PictureBox (ref pictureBox).azure();
```

```
//O2File:WindowFinder.cs
```

It is probably better not to stretch the Picture box. here is animation of all the PictureBox layout options:

```
var topPanel = panel.add_Panel(true);
//var topPanel = "Util - Windows Messages Handle Viewer (Simple GUI)".popupWindow(600,30);

WindowFinder windowFinder          = null;
TextBox        textBox_CurrentHandle = null;
PictureBox      pictureBox           = null;

Action<IntPtr> onHandleChange =
    (handle)=>{
        textBox_CurrentHandle.set_Text(handle.str());
        pictureBox.show(handle.window_Screenshot());

        O2Thread.mtaThread(
            ()=>{
                pictureBox.layout_Center().log_Info
                ("layout_Center").wait() // will wait 1 sec if no milisec value is provided
                .layout_Stretch().log_Info
                ("layout_None").wait()
                .layout_None().log_Info
                ("layout_None").wait()
                .layout_Tile().log_Info
                ("layout_Tile").wait()
                .layout_Zoom().log_Info
                ("layout_Zoom").wait();
            });
    };

topPanel.insert_Above(30)
    .add_WindowFinder(onHandleChange, ref windowFinder).width(30).fill(false)
    .append_Label("Handle").top(10)
    .append_TextBox(ref textBox_CurrentHandle).width(75)
    .append_Label("Drag the target into another control to see its screenshot").topAdd
(2)
    .backTo(topPanel)
    .add_PictureBox(ref pictureBox).white();

onHandleChange(windowFinder.Handle);
return pictureBox;
//O2File:WindowFinder.cs
```

Zoom seems to be the better option

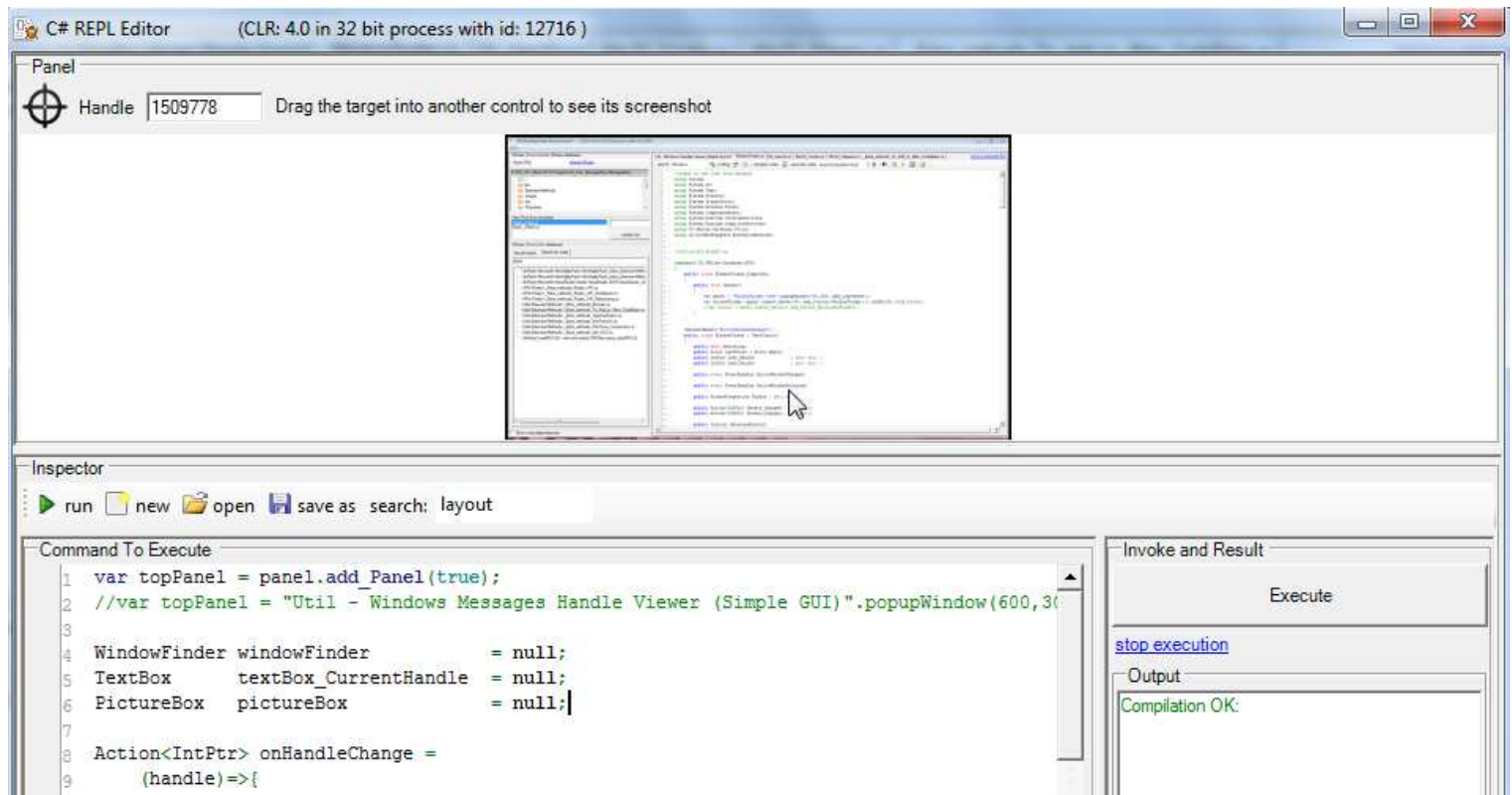
```
var topPanel = panel.add_Panel(true);
//var topPanel = "Util - Windows Messages Handle Viewer (Simple GUI)".popupWindow(600,30);

WindowFinder windowFinder          = null;
TextBox        textBox_CurrentHandle = null;
PictureBox      pictureBox           = null;

Action<IntPtr> onHandleChange =
    (handle)=>{
        textBox_CurrentHandle.set_Text(handle.str());
        pictureBox.show(handle.window_Screenshot());
    };

topPanel.insert_Above(30)
    .add_WindowFinder(onHandleChange, ref windowFinder).width(30).fill(false)
    .append_Label("Handle").top(10)
    .append_TextBox(ref textBox_CurrentHandle).width(75)
    .append_Label("Drag the target into another control to see its screenshot").topAdd
(2)
    .backTo(topPanel)
    .add_PictureBox(ref pictureBox).white().layout_Zoom();

return "ok";
//O2File:WindowFinder.cs
```



Final step is to change the topPanel variable to launch a new Form window:

```
//var topPanel = panel.add_Panel(true);
var topPanel = "Util - Windows Handles - View Handle Screenshot".popupWindow(450,350);

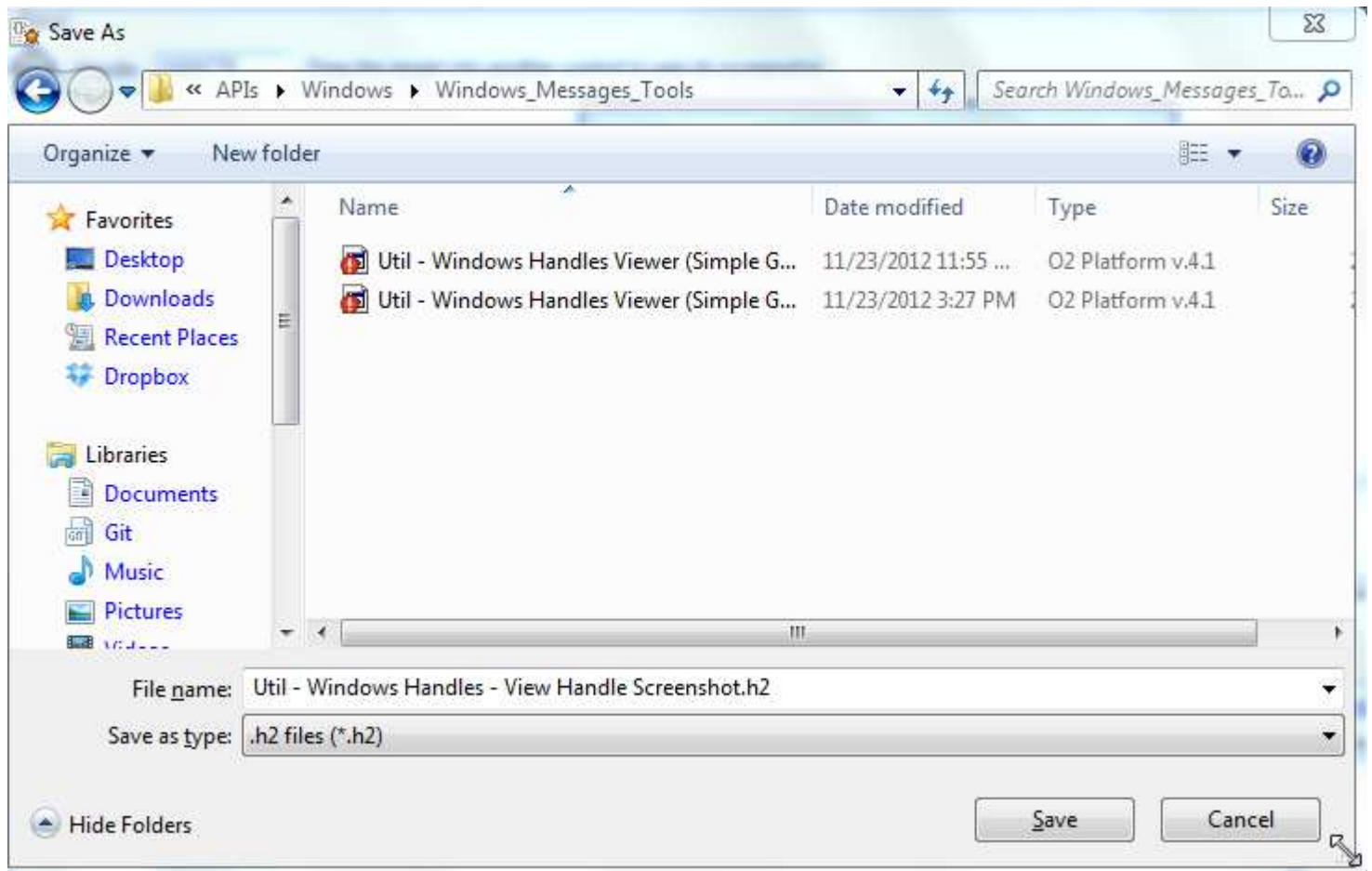
WindowFinder windowFinder          = null;
TextBox      textBox_CurrentHandle  = null;
PictureBox   pictureBox             = null;

Action<IntPtr> onHandleChange =
    (handle)=>{
        textBox_CurrentHandle.set_Text(handle.str());
        pictureBox.show(handle.window_Screenshot());
    };

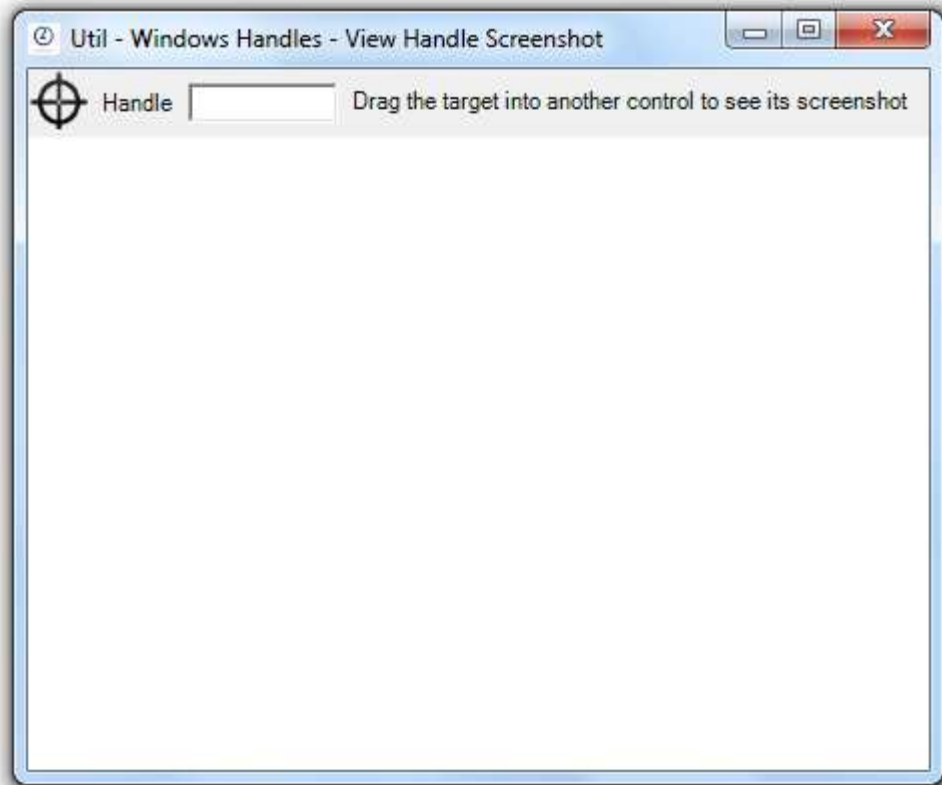
topPanel.insert_Above(30)
    .add_WindowFinder(onHandleChange, ref windowFinder).width(30).fill(false)
    .append_Label("Handle").top(10)
    .append_TextBox(ref textBox_CurrentHandle).width(75)
    .append_Label("Drag the target into another control to see its screenshot").topAdd
(2)
    .backTo(topPanel)
    .add_PictureBox(ref pictureBox).white().layout_Zoom();

return "ok";
//O2File:WindowFinder.cs
```

And Save it into the O2.Platform.Scripts library:



Here is what the final tool looks like:



and in action showing the screenshot of a particular handle:

pa	file	line #	match text	match line
E...	ascx_...	325	DllImport	[DllImport("user32.dll", CharSet=CharSet.Auto)]
E...	ascx_...	328	DllImport	[DllImport("user32.dll", EntryPoint="SetWindowLong
E...	API_C...	52	DllImport	[DllImport("mscorlib", EntryPoint="CLRCreateIn

Util - Windows Handles - View Handle Screenshot

Handle Drag the target into another control to see its screenshot

One last thing...

just added a couple more features:

- save image into temp file
- copy image to clipboard
- select the image layout from a menu

```
var topPanel = "Util - Windows Handles - View Handle Screenshot".popupWindow(450,350);
```

```
WindowFinder windowFinder = null;
TextBox textBox_CurrentHandle = null;
PictureBox pictureBox = null;
Bitmap lastScreenShot = null;
```

```
Action<IntPtr> onHandleChange =
    (handle)=>{
        textBox_CurrentHandle.set_Text(handle.str());
        lastScreenShot = handle.window_screenshot();
        pictureBox.show(lastScreenShot);
    };
```



```

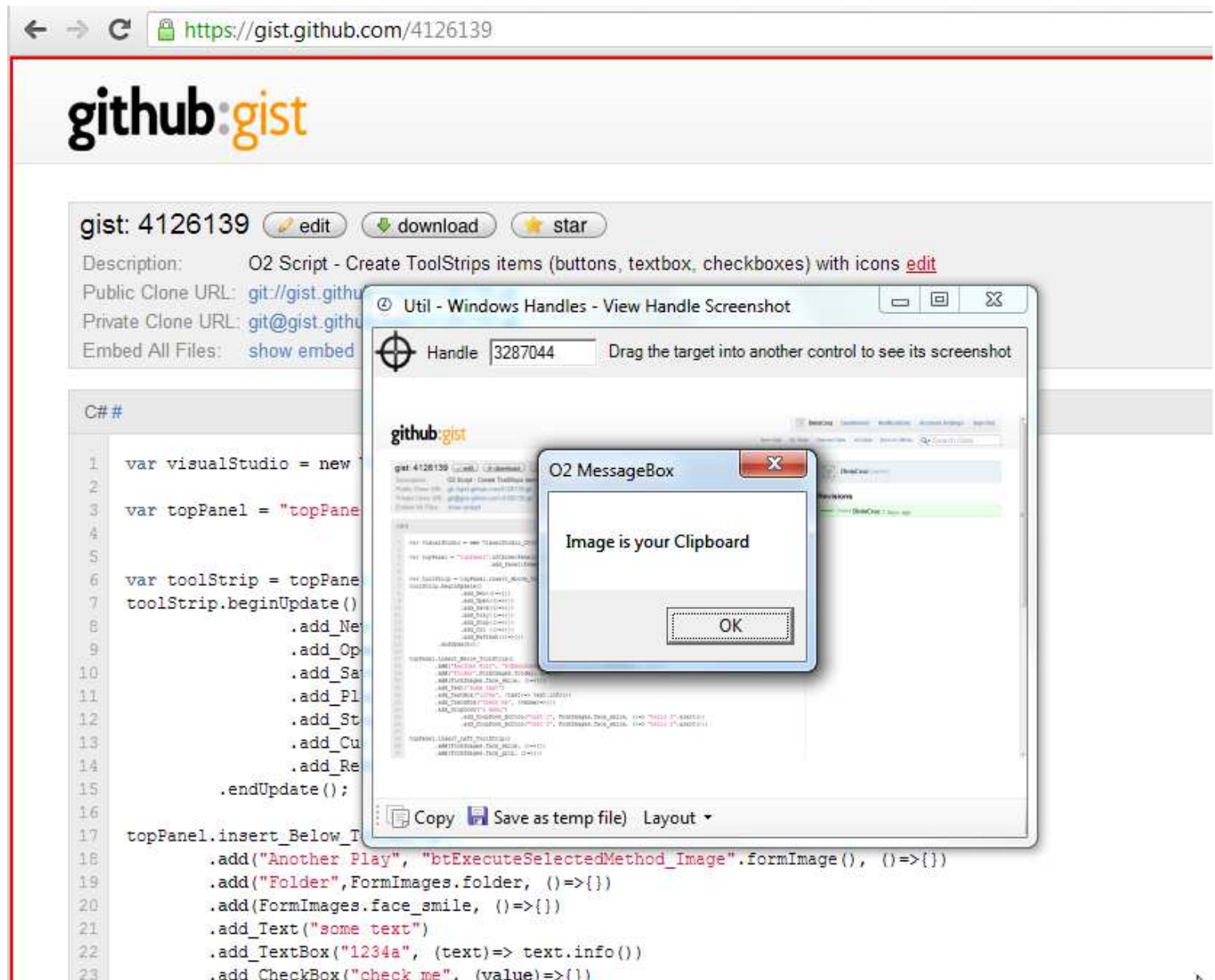
topPanel.insert_Above(30)
    .add_WindowFinder(onHandleChange, ref windowFinder).width(30).fill(false)
    .append_Label("Handle").top(10)
    .append_TextBox(ref textBox_CurrentHandle).width(75)
    .append_Label("Drag the target into another control to see its screenshot").topAdd
(2)
    .backTo(topPanel)
    .insert_Below_ToolStrip()
    .add_Copy(()=> { topPanel.putBitmapOnClipboard(lastScreenShot); "Image is your
Clipboard".alert();})
    .add_Save("Save as temp file", ()=> "File saved to: {0}".alert
(lastScreenShot.save().clipboardText_Set()))
    .add_DropDown("Layout")
        .add("None", ()=> pictureBox.layout_None())
        .add("Center", ()=> pictureBox.layout_Center())
        .add("Stretch", ()=> pictureBox.layout_Stretch())
        .add("Zoom", ()=> pictureBox.layout_Zoom())
    .backTo(topPanel)
    .add_PictureBox(ref pictureBox).white().layout_Zoom();

pictureBox.show("O2_Logo.gif".local());
return "ok";
//O2File:WindowFinder.cs


```

With this we can now take screenshots of other processe's windows

For example, here is the tool saving the screenshot of the Chorme window (taken via its handle)



Here is the image saved

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gist: 4126139 [edit](#) [download](#) [star](#)

Description: O2 Script - Create ToolStrip items (buttons, textbox, checkboxes) with icons [edit](#)

Public Clone URL: [git://gist.github.com/4126139.git](https://gist.github.com/4126139.git)


Private Clone URL: [git@gist.github.com:4126139.git](https://gist.github.com/4126139.git)

Embed All Files: [show embed](#)

C#

[embed](#) [raw](#)

```
1 var visualStudio = new VisualStudio_2010();
2
3 var topPanel = "topPanel".o2Cache<Panel>(false, ()=> visualStudio.open_Panel())
4     .add_Panel(true);
5
6 var toolStrip = topPanel.insert_Above_ToolStrip();
7 toolStrip.beginUpdate()
8     .add_New(()=>{})
9     .add_Open(()=>{})
10    .add_Save(()=>{})
11    .add_Play(()=>{})
12    .add_Stop(()=>{})
13    .add_Cut(()=>{})
14    .add_Refresh(()=>{})
15    .endUpdate();
16
17 topPanel.insert_Below_ToolStrip()
18    .add("Another Play", "btExecuteSelectedMethod_Image".formImage(), ()=>{})
19    .add("Folder", FormImages.folder, ()=>{})
20    .add(FormImages.face_smile, ()=>{})
21    .add_Text("some text")
22    .add_TextBox("1234a", (text)=> text.info())
23    .add_CheckBox("check me", (value)=>{})
24    .add_DropDown("a menu")
25        .add_DropDown_Button("test 1", FormImages.face_smile, ()=> "hello 2".alert())
26        .add_DropDown_Button("test 2", FormImages.face_smile, ()=> "hello 2".alert());
27
28 topPanel.insert_Left_ToolStrip()
29    .add(FormImages.face_smile, ()=>{})
30    .add(FormImages.face_grin, ()=>{});
```

 **DinisCruz** (owner)

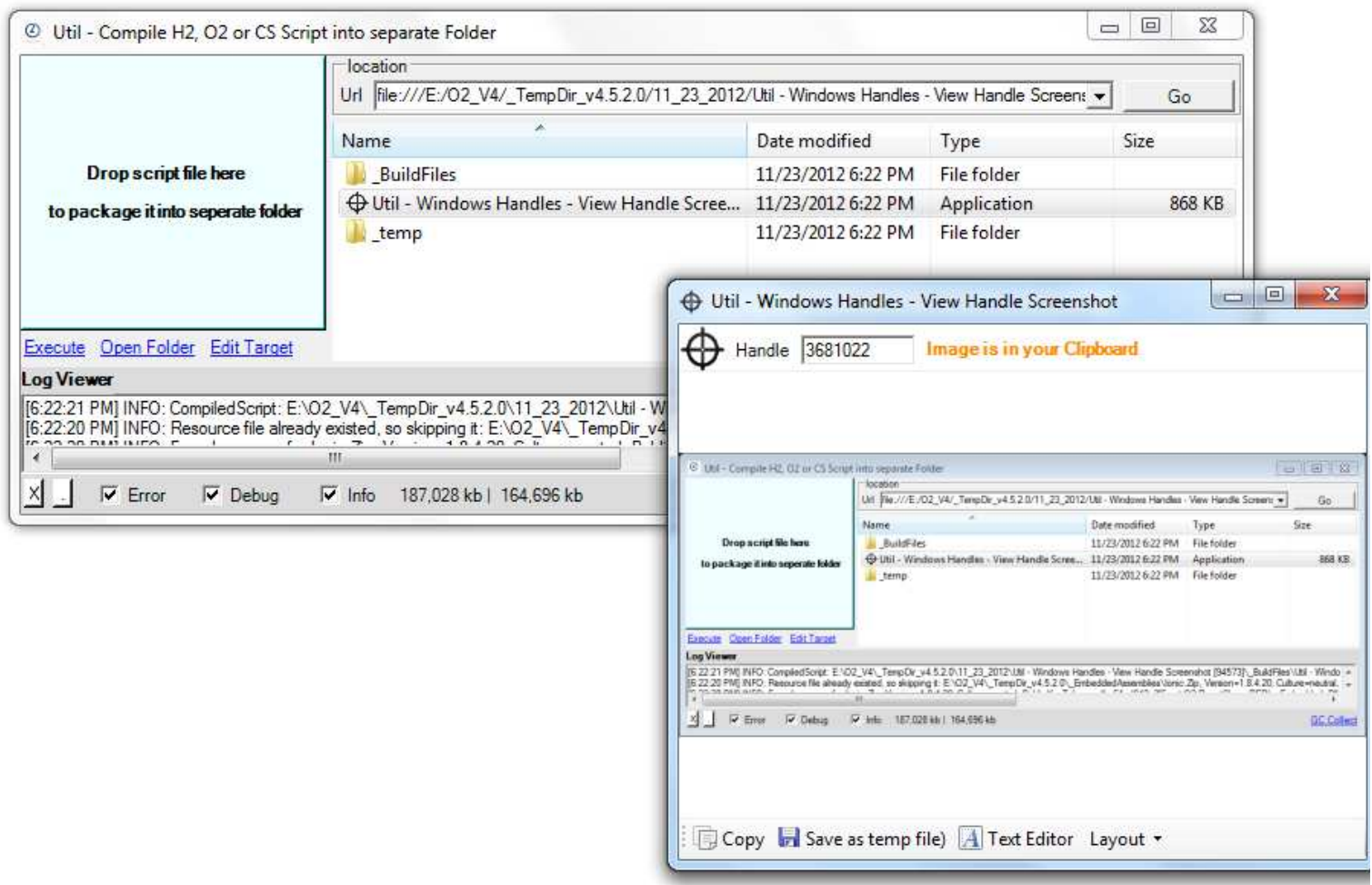
Revisions

7b2b99

DinisCruz

2 days ago

Update: after using it a couple times the popup message was a problem so I added a 'user messages' label to show that information (and an extra button to popup a simple RichTextBox editor):



here is the code that creates the version shown above

```
//var topPanel = panel.add_Panel(true);
var topPanel = "Util - Windows Handles - View Handle Screenshot".popupWindow(450,350);

WindowFinder windowFinder = null;
TextBox textBox_CurrentHandle = null;
PictureBox pictureBox = null;
Bitmap lastScreenShot = null;
Label userMessage = null;

Action<IntPtr> onHandleChange =
    (handle)=>{
        textBox_CurrentHandle.set_Text(handle.str());
        lastScreenShot = handle.window_Screenshot();
        if (lastScreenShot.notNull())
        {
            pictureBox.show(lastScreenShot);
            userMessage.set_Text("Created screenshot of handle: {0}".format
                (handle)).foreColor(Color.Green);
        }
        else
            userMessage.set_Text("Failed to create screenshot of handle:
{0}".format(handle)).foreColor(Color.Red);
    };

Action copyToClipboard =
    ()=>{
        topPanel.putBitmapOnClipboard(lastScreenShot);
        userMessage.set_Text("Image is in your Clipboard").foreColor(Color.DarkOrange);
    };

Action saveToDisk =
    ()=>{
        lastScreenShot.save().clipboardText_Set();
        userMessage.set_Text("File saved Path is on your clipboard").foreColor
            (Color.DarkOrange);
    };
}
```

```

topPanel.insert_Above(30).white()
    .add_WindowFinder(onHandleChange, ref windowFinder).width(30).fill(false)
    .append_Label("Handle").top(10)
    .append_TextBox(ref textBox_CurrentHandle).width(75)
    .append_Label("ready when you are...", ref userMessage).font_bold().topAdd(2)
.splitContainer().splitterWidth(1)
.backTo(topPanel)
    .insert_Below_ToolStrip()
    .add_Copy(copyToClipboard)
    .add_Save("Save as temp file", saveToDisk)
    .add("Text Editor", "font_x_generic".formImage(), ()=> "Simple Text
Editor".popupWindow().add_RichTextBox())
    .add_DropDown("Layout")
        .add("None", ()=> pictureBox.layout_None())
        .add("Center", ()=> pictureBox.layout_Center())
        .add("Stretch", ()=> pictureBox.layout_Stretch())
        .add("Zoom", ()=> pictureBox.layout_Zoom());

topPanel.white().add_Label("Drag the target (top-left) into another Window or Control to see its
screenshot").fill().text_Center().font_bold().size(20);
lastScreenShot = topPanel.handle().window_ScreenShot();

topPanel.clear().add_PictureBox(ref pictureBox).white().layout_Zoom()
    .show(lastScreenShot);

pictureBox.DoubleClick += (sender,e)=> copyToClipboard();

return "ok";
//O2File:WindowFinder.cs
//O2Embed:target.ico

```