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Project: WinMerge
Change Number: 4
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<center>Add Swap Button to "Open Files" Dialog</center>

1. Change Request*:*

When opening a set of files, a dialog opens and the user can choose the two files to compare, there is a box for the left file and one for the right file. It would be convenient if the files could be swapped between the boxes. The swap button should be disabled until a file is chosen in each box.

2. Concept Location:

Table 1. The list of all the classes visited during concept location.

| #	File name	Tool used	Located?	Comments
1	Merge.rc	"Find in Files"	No	[CHANGED] Searched for "Select Files or Folders" as this was in the title bar of the popup window that the change request described. This led to Merge.rc where I found the appropriate dialog box code and the ID "IDD_OPEN." Will need to change this later to modify the UI.
2	Opendlg.cpp	"Find all references"	Yes	[CHANGED] Used "find all references" on IDD_OPEN which led to the Opendlg.h header file; from there, I went to Opendlg.cpp to see the implementation. Here the "hard" changes will need to occur.

3. Impact Analysis:

Table 2. The list of all the classes visited during impact analysis.

#	Class name	Tool used	Impacted?	Comments
1	COpenDlg	<Started here>	Yes	Needs a method added to receive events from a

				"swap" button.
2	Merge.rc	<Already open, knew it needed to be changed>	Yes	Need to modify the GUI to add a swap button.

No additional tools were required to make this search process faster.

4. Learning process
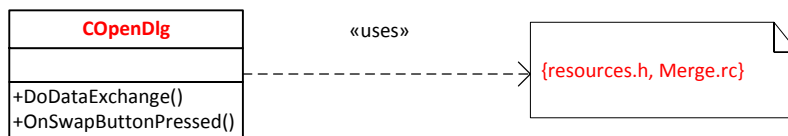
5. Description of the implementation:

The following changes need to be made. Changes are marked in green (unfortunately, so are comments, but these have been left in where they exist / where appropriate to help the reader understand what is going on in each code section).

<resource.h>
An ID for the swap button needs to be added:

```
#define IDC_OPEN_SWAP_BUTTON            8100
```

<OpenDlg.h>
COpenDlg's interface needs a public method added to handle the Swap Button's events:

```
afx_msg void OnLeftButton();
afx_msg void OnRightButton();
…
afx_msg void OnSwapButtonPressed();
afx_msg void OnTimer(UINT_PTR nIDEvent);
afx_msg void OnSelectUnpacker();
```

<OpenDlg.cpp>
The event handler added above needs to be mapped to the button click:

```
BEGIN_MESSAGE_MAP(COpenDlg, CDialog)
    …
    ON_BN_CLICKED(IDC_LEFT_BUTTON, OnLeftButton)
    ON_BN_CLICKED(IDC_RIGHT_BUTTON, OnRightButton)
    ON_BN_CLICKED(IDC_OPEN_SWAP_BUTTON, OnSwapButtonPressed)
    …
END_MESSAGE_MAP()
```

The event handler needs to be implemented (not highlighted in green for readability as the entire method is new):

```cpp
/**
 * @brief Called when the "Swap" button is pressed.
 */
void COpenDlg::OnSwapButtonPressed()
{
        UpdateData(TRUE);

        // Swap the contents of the two boxes.
        CString temp = m_strLeft;
        m_strLeft = m_strRight;
        m_strRight = temp;
        m_strLeftBrowsePath = m_strLeft;
        m_strRightBrowsePath = m_strRight;

        // Update the two boxes in the GUI.
        UpdateData(FALSE);
        UpdateButtonStates();
}
```

To ensure that the button is disabled / enabled when appropriate, the following code should be added to the end of UpdateButtonStates (this method is called whenever a field in the dialog box changes):

```cpp
        // If there is no file defined for either the left or right
        // window then disable the swap button.
        // Otherwise, enable it.
        const BOOL ENABLE = TRUE;
        const BOOL DISABLE = FALSE;
        if (m_strRight.IsEmpty() || m_strLeft.IsEmpty())
        {
                GetDlgItem(IDC_OPEN_SWAP_BUTTON)->EnableWindow(DISABLE);
        }
        else
        {
                GetDlgItem(IDC_OPEN_SWAP_BUTTON)->EnableWindow(ENABLE);
        }
```

6. **Sources:**
   - http://msdn.microsoft.com/en-us/library/aa314317%28v=vs.60%29.aspx
     - Described how to use CString.
   - http://www.codeguru.com/cpp/controls/buttonctrl/article.php/c5191/Enable-or-Disable-Controls.htm
     - Taught me how to disable / enable controls.