

{carpenter\}
systems}(llc)

My Four Year Bug

The Beginning

I took over the project in 2008

- Windows Desktop Application
- Analyzes Interest Rate Risk
- Legacy Code, Large Arrays of Doubles, 1000 plus #defines, unused code paths
 - Lots of Goodness ☺
- VS 2005, RW 2006 - Great Grid Control

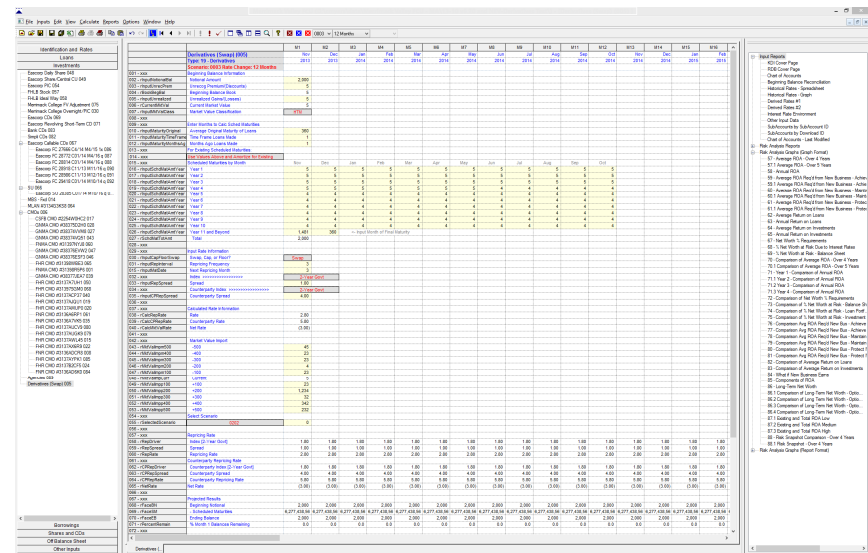
Understand stability but like early adoption.

- New tools better results, 64 bit.

Moved up to VS 2010 when it was released.

- Easy migration VS and RW

Life was Good.



The screenshot displays a complex financial model spreadsheet. The main area is a large grid of cells, many of which contain formulas, likely for calculating interest rate risk. The spreadsheet is organized into sections, with some cells highlighted in yellow. The interface includes a menu bar at the top, a toolbar, and a status bar at the bottom. The overall layout suggests a professional financial analysis tool.

VS 2012 Released

Latest Tools

- Static Analysis
- Cool Interface
- C++ 11
- Cool Interface
- Better TFS Integration
- Cool Interface

New Features – New Issues

```
int _tmain(int argc, _TCHAR* argv[])
{
    auto WTF = [=](NewFeatures nf, RogueWave rw) {
        NewRelease nr = nf + rw;
        Build(nr);
        if(Testers(nr) == "Hey the MRU is Broken!")
        {
            throw("Me: I didn't touch that part!");
        }
    };

    return 0;
}
```

MRU, wait you were using that?

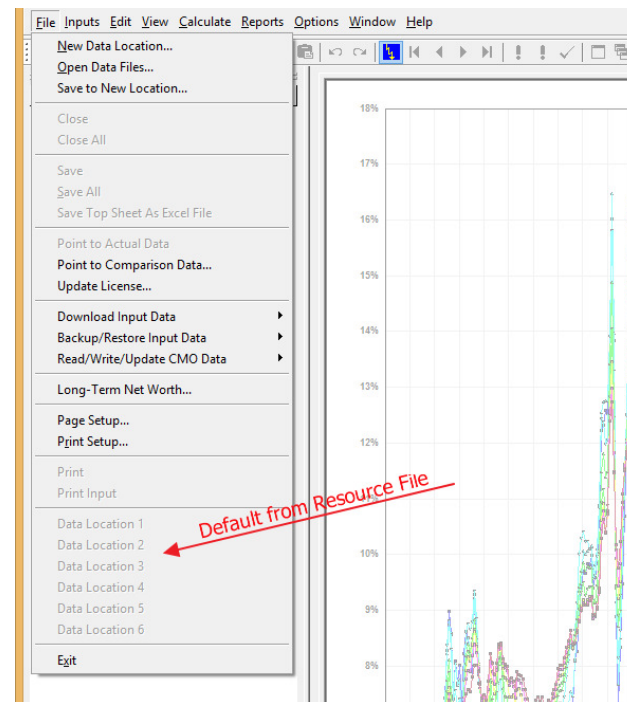
Quickly return to a previous document/simulation.

Remembers where you have been.

In particular for our software to compare previous simulations.

Testing MRU – No Issues

Release is late, what to do?



Worked around it of course!

Staying with VS 2010 isn't an option... 2012 has

- Static Analysis
- Cool Interface
- Some new C++ updates.
- Cool... well you get the idea.

Submitted issue to RW but no result.

- Found work around, didn't press

We code in 2012 but build release in 2010.

Life's Good Again

New Tools! VS 2013

Modern C++ Rocks

Build in a new feature making use of Cereal!

- Great serialization set of classes.
- Template based, works well with STL.
- Similar to Boost Format; without needing all of boost.
- Requires C++ 11.

Smashing the Bug

Know its has to do with changes from 2010 to 2012.

- Stepping through code revealed that the commands were called without error!
 - They just never made changes.
- Made test entries to see if any menu item could be changed.
 - Nope --- it's a issue with SetText in the CmdUI class.
- Asked people who knew a LOT more then me.
- Who next MS or RW?
 - We use a RW menu bar library.
 - Time to put maintenance agreement to use.

One of the hardest parts about debugging or fixing a bug?

Reproduction & Proof of Concept

Was not a simple app.

Had to make the same code break the same way between VS 2010 and VS2012/13

- Bad enough that I have a lot of legacy code.
- There were multiple ways to implement menu's.
 - Previous developer left multiple unused menu objects around.

Took coding frustration and special tools in the end.

Debugging Tool

Concrete backing works best.

9/11/2014



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Double Check Code!

```
25
26  IMPLEMENT_DYNAMIC(CMainFrame, SECWorkbook)
27
28  BEGIN_MESSAGE_MAP(CMainFrame, SECWorkbook)
29  |    ON_WM_CREATE()
30  |    ON_UPDATE_COMMAND_UI(ID_FILE_NEW, OnMenuFailUpdate)
31  END_MESSAGE_MAP()
32
33  // CMainFrame construction/destruction
34
35  void CMainFrame::OnMenuFailUpdate(CCmdUI* pCmdUI)
36  {
37  |    pCmdUI->SetText(_T("Bite Me"));
38  |}
39
```

From: Kevin Carpenter

Sent: Wednesday, July 30, 2014 1:44 PM

To: 'Rogue Wave Support'

Subject: RE: Stingray Support Case CAS-01575-X9H3K2 -- Issue with pCmdUI-SetText() updating menus

And attached here is a project who's only change is setting the paths for the VS 2010 libraries of 11.2 and it does work – changing the File->New menu item to “Bite Me” whereas the previous one I sent for VS 2013 does not. Pardon the words – again just my frustration with the problem, you do have excellent libraries.

It's been a bane for me for several versions of VS.

K.

In The End

IN VC10 (VS2010) THE CCMDUI::SETTEXT() FUNCTION IS IN

C:\PROGRAM FILES (X86)\MICROSOFT VISUAL STUDIO 10.0\VC\ATLMFC\SRC\MFC\CMDTARG.CPP

BEGINNING AT LINE 762:

```
void CCmdUI::SetText(LPCTSTR lpszText)
{
    ENSURE_ARG(lpszText != NULL);
    ASSERT(AfxIsValidString(lpszText));
    if (m_pMenu != NULL)
    {
        if (m_pSubMenu != NULL)
            return; // don't change popup menus indirectly
        // get current menu state so it doesn't change
        UINT nState = m_pMenu->GetMenuState(m_nIndex, MF_BYPOSITION);
        nState &= ~(MF_BITMAP|MF_OWNERDRAW|MF_SEPARATOR);
        // set menu text
        ENSURE(m_nIndex < m_nIndexMax);
        VERIFY(m_pMenu->ModifyMenu(m_nIndex, MF_BYPOSITION |
            MF_STRING | nState, m_nID, lpszText));
    }
    else
    {
        ENSURE(m_pOther != NULL);
        AfxSetWindowText(m_pOther->m_hWnd, lpszText);
    }
}
```

IN VC12 (VS2013) THE CCMDUI::SETTEXT() FUNCTION IS IN

C:\PROGRAM FILES (X86)\MICROSOFT VISUAL STUDIO 12.0\VC\ATLMFC\SRC\MFC\CMDTARG.CPP

BEGINNING AT LINE 722:

```
void CCmdUI::SetText(LPCTSTR lpszText)
{
    ENSURE_ARG(lpszText != NULL);
    ASSERT(AfxIsValidString(lpszText));
    if (m_pMenu != NULL)
    {
        if (m_pSubMenu != NULL)
            return; // don't change popup menus indirectly
        // set menu text
        ENSURE(m_nIndex < m_nIndexMax);
        MENUITEMINFO menuInfo;
        menuInfo.cbSize = sizeof(MENUITEMINFO);
        menuInfo.fMask = MIIM_STRING;
        menuInfo.dwTypeData = LPTSTR(lpszText);
        VERIFY(m_pMenu->SetMenuItemInfo(m_nIndex, &menuInfo, TRUE));
    }
    else
    {
        ENSURE(m_pOther != NULL);
        AfxSetWindowText(m_pOther->m_hWnd, lpszText);
    }
}
```

Many Thanks

Terry @ Rogue Wave
Kate @ Gregcon

kevin@carpentersystems.com

