Stopwatch Testing Guide

For Validation Framework

Carleton University
COMP 4905

Andrew Wylie
Jean-Pierre Corriveau, Associate Professor, School of Computer Science
17/4/2012

This guide is meant as a basic walkthrough of the testing to be done on the stopwatch implementation using the Validation Framework (VF). Note that in accordance with the findings from the case study, the VF project is to be located in a folder on the desktop. During this walkthrough, we will be using VF version 1.3.0.2 Beta 2 (Feb 26, 2012).

We will begin by starting up VF. Once the Validation Framework has been started, open up the project. From the 'File' menu, navigate to 'Open', and click on 'Project/Solution…'. This process is shown in FIGURE 1 below.

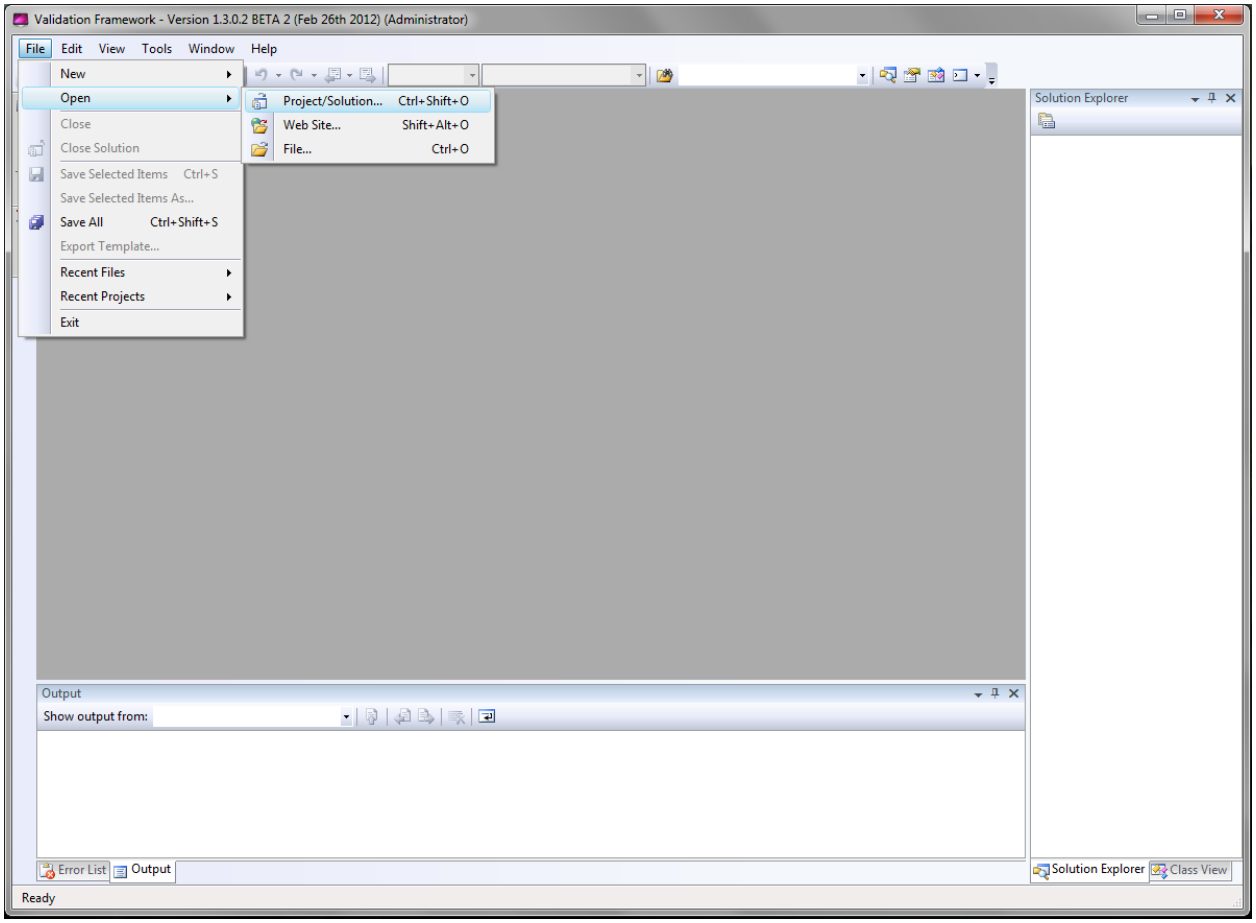

FIGURE 1: VF started, time to open the project.

After clicking on 'Project/Solution...', the 'Open Project' dialog will appear. Navigate to the project directory to select the VF project 'stopwatchVF.sln', then click 'Open' to load the project. This process is shown in FIGURE 2 below.

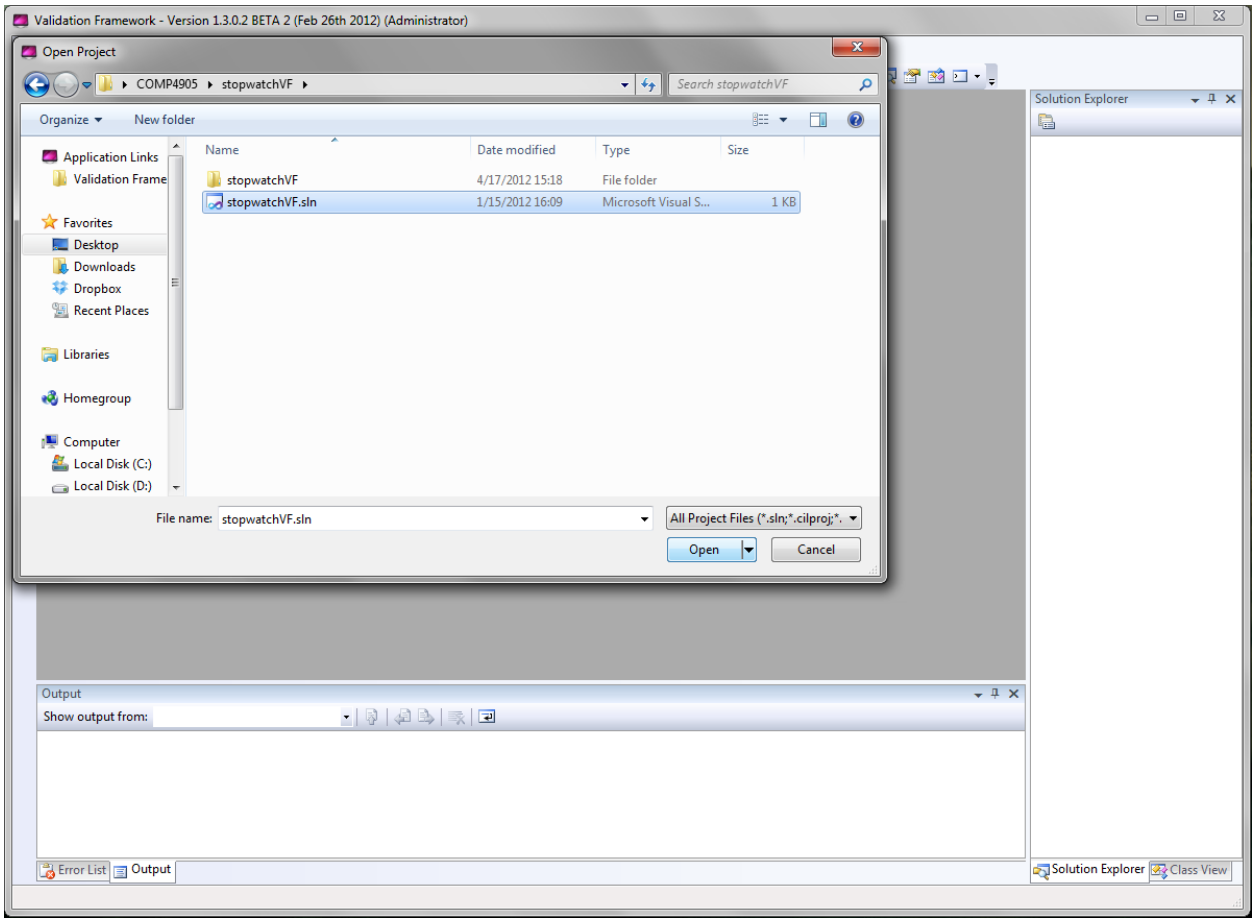

FIGURE 2: Opening a project file in VF.

With the project loaded, double-click on the 'Implementation.Bindings' file in the Solution Explorer window located on the right side of VF. This will open the bindings file as shown in FIGURE 3. However, when opening the bindings file for the first time you will most likely have to set the bindings. Check the table below to confirm that all observabilities and responsibilities are bound to the correct methods in the implementation. To set a binding, first click on the observability or responsibility to be set. The main section showing the binding information will be updated, showing the available methods which are able to be bound to. Select the correct implementation method in this main window and double-click it to set (bind) it to the model method. This is the process for observabilities, however responsibilities are able to be bound to multiple methods in the implementation. This feature is not needed in this model, though the ability does change the way that bindings are set. To set a binding for a responsibility, first click the responsibility to be set from the bindings list. Then, double-click an implementation method from the main window to add it to the methods for which the responsibility is assigned to.

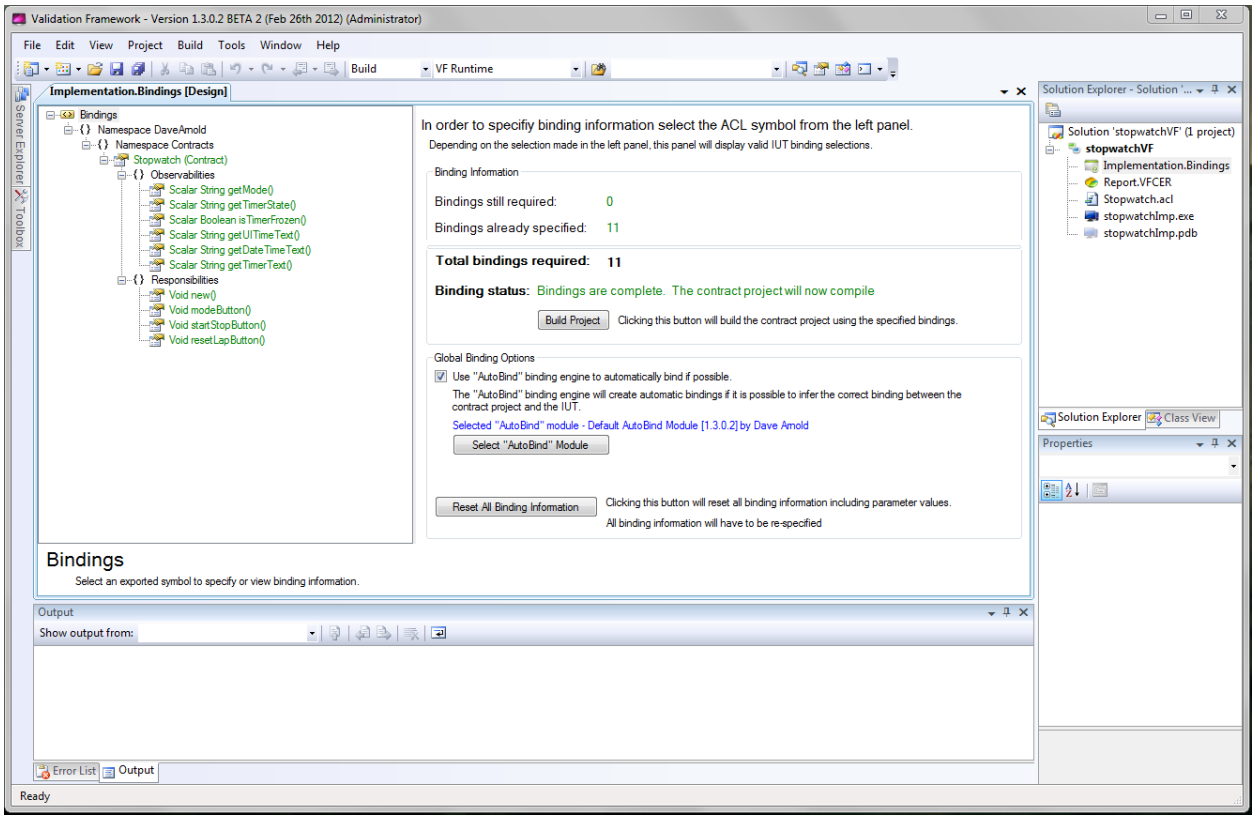

FIGURE 3: VF with bindings file open.

Validation Framework Bindings for the Stopwatch

Contract	**Binding**
Stopwatch (Contract)	stopwatchImp.StopwatchCS
Observabilities	
getMode()	getMode
getTimerState()	getTimerState
isTimerFrozen()	isTimerFrozen
getUITimeText()	getCurrentDisplay
getDateTimeText()	getCurrentDateTime
getTimerText()	getCurrentTimer
Responsibilities	
new()	
modeButton()	modeButton
startStopButton()	startStopButton
resetLapButton()	resetLapButton

Now that bindings are set, we can begin testing. Note that the test cases used during the case study are available in the appendix of the case study report if needed. To run any tests, we simply navigate to the bindings main screen by clicking ‘Bindings’ in the tree view of bindings. Once the bindings main screen is open, click the ‘Build Project’ button from the bindings main screen. This will cause the included ‘stopwatchImp.exe’ file to be run, with the VF model running on top for testing purposes.

With the stopwatch implementation running, it can be manipulated just as if it was running by itself – although any actions done may be a bit slow due to the way that testing is done. For example, the mode can be changed by clicking in the area of the actual Mode button. The other buttons are also accessed in the same way. FIGURE 4 below shows the implementation running through the VF environment, and FIGURE 5 shows the ‘Report.VFCER’ file opened after the testing has been done. In this case, there have been errors found by the tests done which are indicated by the red text color taken on by the failing actions.

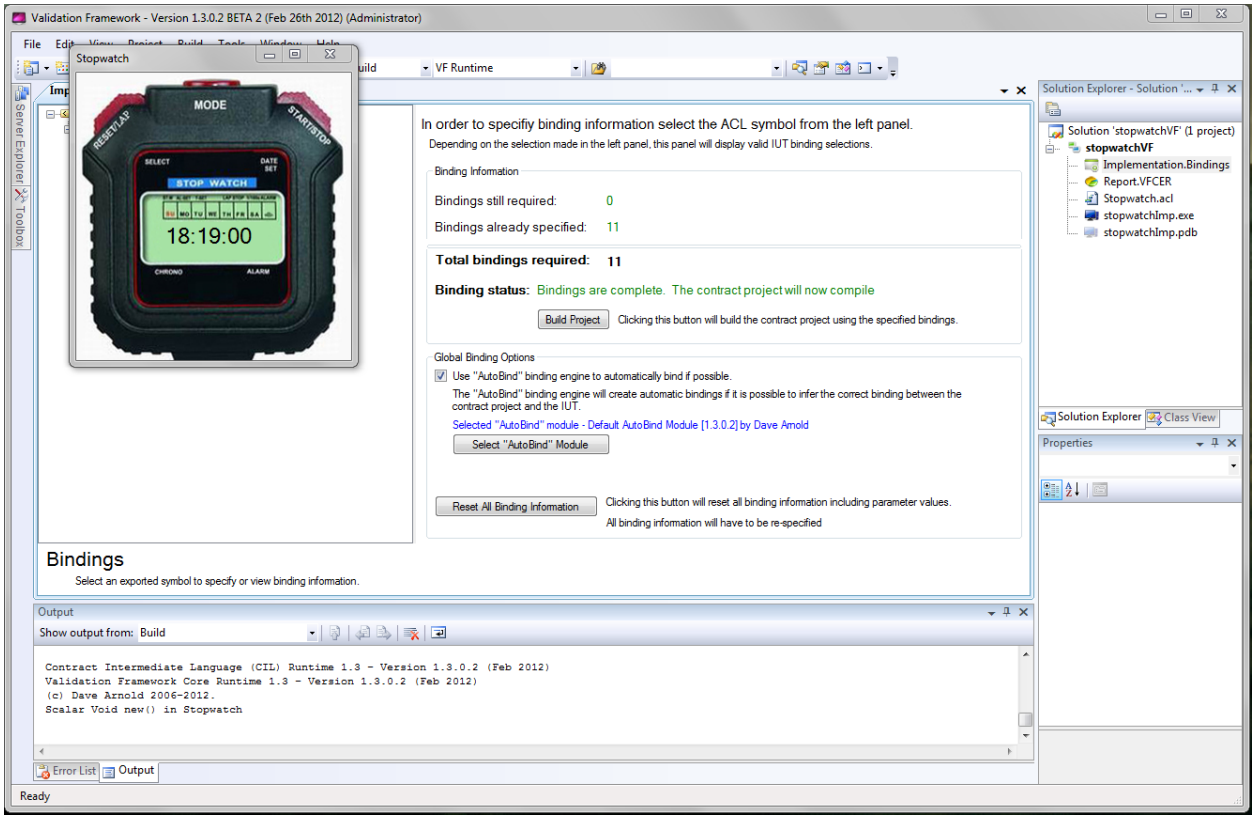

FIGURE 4: Testing the stopwatch implementation with VF.

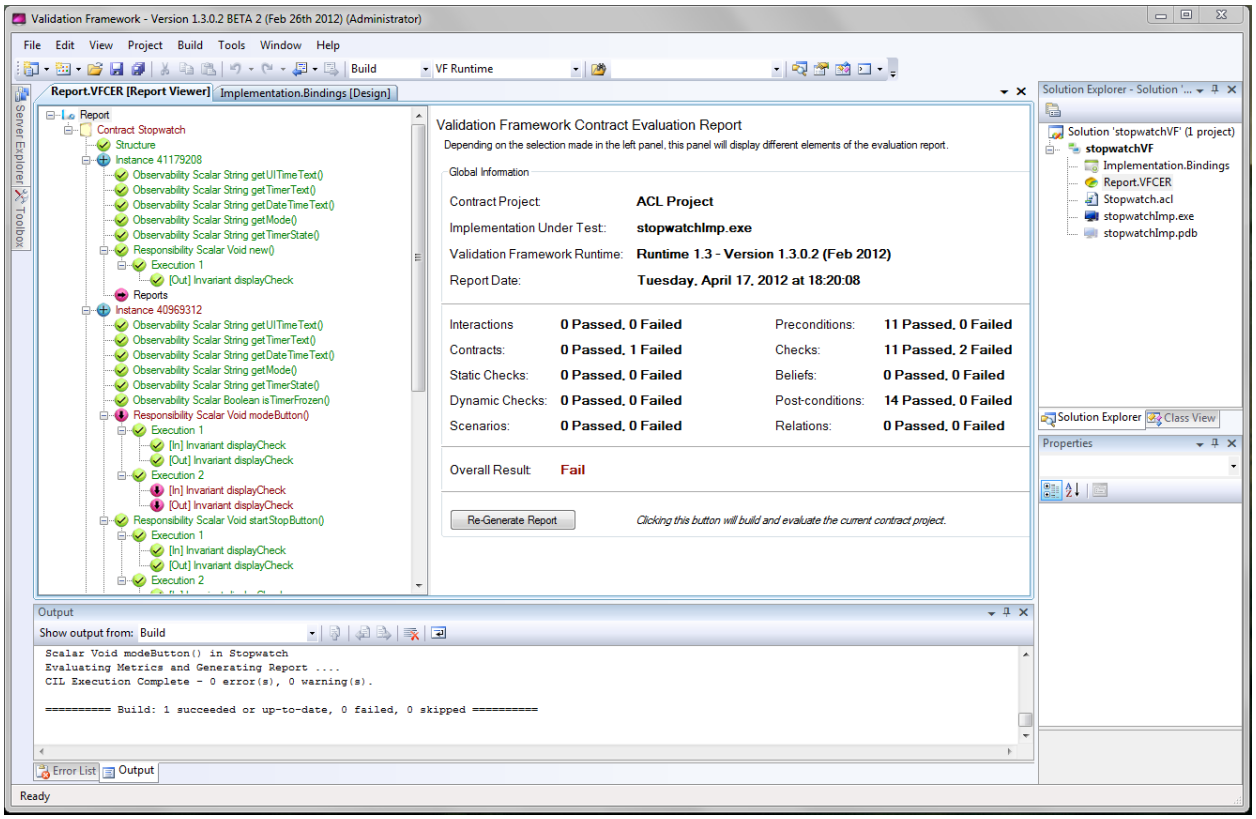

FIGURE 5: VF showing test results.

More detailed information about the failures can be found by clicking on the actions, and the information which is displayed in the main window as a result of the action selection.

The VF project code itself can be inspected by opening the ‘Stopwatch.acl’ file, which is listed along with the other project files in the Solution Explorer window on the upper right side of the VF environment.

This concludes the guide to testing the Stopwatch implementation using the Validation Framework. Further information about the project can be found in the corresponding case study, which compares the testing ability of Validation Framework with that of Microsoft Spec Explorer. Also included in the case study are any problems found relating to the operation of VF, which may be useful when following this guide.