Andrew Nguyen

November 15, 2011

iEx6 – Programming Environment Survey

1. A good programming environment should:
    a. Contain a compiler and be able to run the compiled files
    b. Have a debugger
    c. Clearly label the buttons and functionalities of the interface and provide sufficient documentation for advanced use
2. Concerning the Dracula programming environment, I like that:
    a. The environment can run functions on user-provided input within the console
    b. The environment has a built-in logic checker
    c. The environment highlights opening and closing parentheses, which are used repeatedly within the ACL2 language
3. Concerning the Dracula programming environment, I do not like that:
    a. The environment takes a long time to load up
    b. The compiler can be working for a long time on a computation-intensive function (such as with iEx5) with no real way to measure the progress
    c. The debugger messages are often confusing and sometimes do not give helpful information on what caused the program to crash
4. Written on next page

To: Project Manager
From: Andrew Nguyen
Date: November 15, 2011
Subject: Programming Environment Evaluation

I have completed my assessment of the different programming environments that are applicable to the proposed project, and I have come to the conclusion that the Eclipse Enterprise Edition programming environment is the most suitable environment for the project. I have made my assessment based on the following reasons:

1. The drivers for the reactor that we have already purchased are written in Java. Eclipse was originally developed as a Java programming environment, so all of the necessary tools to run the drivers come packaged with Eclipse EE.

2. Eclipse is an open-source environment with numerous plug-ins already designed to allow for different languages to be supported. Furthermore, Eclipse EE contains many tools to assist in web application development which could be useful when designing interfaces for the reactor drivers.

3. As an open-source environment, Eclipse is free.

4. Eclipse has plug-ins that can connect the environment to a SVN repository. This is essential for version control and is also helpful in tracking development progress.

5. There is extensive documentation available for ways in which to customize and extend the Eclipse environment. This will allow us to adjust the environment to the specifications we require.

6. The environment is an integrated development environment (IDE), meaning it comes complete with a code editor, compiler, interpreter, debugging tools, and build automation tools.

7. The environment comes with a very robust debugger that allows for very in-depth analysis that is also understandable.

8. The environment has several tools and options to make coding easier, such as automatic code-generation for simple functions, such as getters and setters, and syntax highlighting

9. There are plug-ins that will allow us to run test-driven development very easily to ensure that the drivers and any updates to them are working correctly.

Based on the following reasons, my suggestion is to install the Eclipse Enterprise Edition IDE into the new computers. Naturally, we may need to make some adjustments to the packaged edition before installation, but I will refer this problem to our environment development team. If you have any questions for me, feel free to reach me at my office phone between normal office hours.

- Andrew Nguyen
  Technology Development Analyst
  Office Phone: (713) 614-3488