may also wish to test applications directly with assistive technology. For example, developers can install a screen reader on their machine and attempt to complete use cases relying solely on the keyboard for input and with the monitor turned off.

When testing accessibility, it is important to remember that assistive technology is used to interact with all applications running on an operating system, not just the application under test. Assistive technology can monitor events generated by the system, intercept and monitor output from the computer's video card and sound card, and intercept keystrokes and act on them before they reach an application. Assistive technology's purpose is to assist the user, not to be a testing tool for developers. In determining labels for elements, for example, some assistive technology may be able to make *informed guesses* regarding label associations and thereby work adequately with an application even if has not been created according to accessibility standards. In practice, this means that testing with assistive technology may not be sufficient. Often it is difficult for a developer or quality assurance engineer to effectively evaluate accessibility solely using assistive technology.

To address the difficulties inherent in accessibility testing, Adobe recommends the use of AccProbe (*http://accessibility.linuxfoundation.org/a11yweb/util/accprobe/*) or aDesigner (*http://www.eclipse.org/actf/downloads/tools/aDesigner*) to test compiled Flex applications. The tools provide a means of inspecting the MSAA information exported by an application. Developers can use AccProbe or aDesigner to inspect the Flex application as it executes and validate that it is exporting proper information via the MSAA API. This testing approach enables developers to verify that core MSAA information is being made available by the Flex application without direct testing in assistive technology.

Note: To display Flex content in an accessible fashion, developers must have the current version of Adobe Flash Player installed. Currently, only the Internet Explorer and Firefox Flash Player plug-ins support the export of accessibility information via MSAA. As such, developers should only perform accessibility testing in one of these two browsers.

Enabling accessibility

While Flex applications provide a high degree of accessibility automatically, developers must still take a number of explicit steps to ensure that accessibility is enabled at both the application level and the individual component level. These steps ensure that assistive technology can access accessibility information for each application and its components.

In Flex 4, accessibility is enabled for applications by default. In addition, developers can ensure that accessibility is active by updating the Flex compiler setup globally via the command line or for any specific Flex application.

Enable accessibility in the Flex Compiler

To ensure accessibility is enabled for all Flex applications, edit the flex-config.xml file in the frameworks folder of the Flex SDK directory and define the value of the `accessible` tag of the `compiler` tag to be true as shown in the following example:

```
<flex-config>
  ...
  <compiler>
     ...
     <accessible>true</accessible>
   ...
  </compiler>
</flex-config>
```

Enable accessiblity in Flash Builder 4

To enable accessibility for a Flex application in Adobe Flash Builder 4, choose Project > Properties, select Flex Compiler, and select the Generate Accessible SWF File option (see Figure 1).