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GUADEC

Developing Java ATK Wrapper

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What is Java ATK Wrapper?

Orca screenreader users rely on Orca's voice to navigate the desktop. Orca needs GNOME's ATK to allow it to speak GTK app widgets (and windows) to the user.

When an Orca user is reliant on a Java app, the java-atk-wrapper acts as a bridge between AWT events from Swing widgets (and windows) and ATK.

A company called Sun contributed the Wrapper to GNOME in 2009. It was mainly developed by Ke Wang until 2011; between then and 2014, the wrapper was not actively maintained then Alejandro and I did some work to fix the build and I became maintainer; so, the wrapper was pretty broken (and a little outdated) and still needed a lot of work to make it into a more complete package.

How is the java wrapper organised?

The wrapper comprises of a Java library and a C library organised into two separate subfolders:

- ▶ wrapper
  - ▶ Listens to AWT events.
  - ▶ Adapts JAAPI to ATK interfaces.
- ▶ jni
  - ▶ Converts AWT events into GSignals.
  - ▶ Implements ATK class and interface pointers by calling native java functions in C.

What needs done to the java-atk-wrapper module in GSoC?

This project is mainly about implementing ATK class and interface pointers which are missing from the wrapper's library but it's also about fixing many bugs.

Working with ATK, JNI, GLib, GTK, JAAPI and being a module maintainer has its learning curves; implementing the pointer functions with JNI helps me learn the libraries better.

A number of crashes and more trivial bugs have now been fixed, the build has been improved and since most of the functions have now been implemented, I have started looking into better reproducable tests and thinking about converting more kinds of AWT events into GSignals with JNI, since some of these are also still missing.

Thank You

Thanks for listening and please feel free to check out the java-atk-wrapper on git and get involved!