

Making WebKitGTK Accessible Again

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WebKitGTK

GTK

GTK3 vs GTK4

WPE WebKit

<https://webkit.org/wpe/>

Current Status

	Flatpak	Bubblewrap	Unsandboxed
GTK3			
GTK4			

Challenges

Challenge 1

Out-of-process Accessibility Trees

Status: Fixed ✓

Challenge 2

D-Bus Filtering

Status: Fixed ✓

Challenge 3

Flatpak Sub-Sandboxing

Phase 1: The Browser

1. GNOME Shell executes the `org.gnome.Epiphany.desktop` file
2. It runs `flatpak run org.gnome.Epiphany`
3. Flatpak spawns Bubblewrap
4. Bubblewrap spawns `xdg-dbus-proxy` with permissions
5. Bubblewrap spawns the `epiphany` process

Phase 1: The Browser

1. GNOME Shell executes the `org.gnome.Epiphany.desktop` file
2. It runs `flatpak run org.gnome.Epiphany`
3. Flatpak spawns Bubblewrap
4. **Bubblewrap spawns xdg-dbus-proxy with permissions**
5. Bubblewrap spawns the `epiphany` process

Phase 2: The Web View

1. GNOME Web connects to D-Bus
2. GNOME Web acquires a unique bus name (`:1.300`)
3. GNOME Web creates its widgetry
4. GNOME Web a WebKitWebView
5. WebKitWebView uses `flatpak-spawn` for the Web process
6. `flatpak-spawn` calls the Flatpak portal

Phase 3: The Flatpak Portal

1. Flatpak portal creates a new sandbox
2. Flatpak portal spawns Bubblewrap
3. Bubblewrap spawns xdg-dbus-proxy with sockets
4. Bubblewrap spawns the Web process

Phase 4: The Web Process

1. The Web Process connects to D-Bus
2. The Web Process acquires a unique bus name (`:1.301`)
3. The Web Process starts doing web processy stuff
4. The Web Process notifies GNOME Web it's ready

Phase 5: It All Falls Apart

1. GNOME Web learns the Web Process is ready at `:1.301`
2. GNOME Web calls `org.a11y.atspi.Socket.Embedded`
3. It fails

Why?

Phase 1: The Browser

1. GNOME Shell executes the `org.gnome.Epiphany.desktop` file
2. It runs `flatpak run org.gnome.Epiphany`
3. Flatpak spawns Bubblewrap
4. **Bubblewrap spawns xdg-dbus-proxy with permissions**
5. Bubblewrap spawns the `epiphany` process

**Ephy's xdg-dbus-proxy was not set to talk
to :1.301!**

Status: Not Fixed !

Challenge 4

Accessible Tree Contents

Status: Not Fixed !

Roadmap

- Continue investigating the Flatpak situation
- Massage the a11y tree of WebKit into what ATs expect

Q&A

Thanks