



# The GNOME™ Conference GUADEC

## Archaeology of Accessibility




A look at the past and future of the Accessibility stack




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-  GNOME Foundation
-  GTK



Let's talk about accessibility

*Accessibility*, n.: The design of products, devices, services, or environments so as to be usable by people with disabilities.



*Assistive technology*: Assistive, adaptive, and rehabilitative devices for people with disabilities or the elderly population.



Who benefits from accessibility?

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Figure 1: © Frankie Fouganthin, CC SA-4.0



Figure 2: © Universal Studios



Figure 3:

## Who benefits from accessibility?

We all do.



## Some history

 GTK 1.3 → 2.0

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 ATK

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👉 AT-SPI

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 GAIL



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- 👉 Sandboxing



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- 👉 Funding

## New accessibility stack

# WAI-ARIA

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  - 👉 relation
  - 👉 state

## Toolkit/1

 **element**: GtkAccessible

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## Toolkit/1

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    🐾 GtkAccessibleState



## Toolkit/1

🐾 **element:** GtkAccessible

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🐾 **attributes**

    🐾 GtkAccessibleProperty

    🐾 GtkAccessibleRelation

    🐾 GtkAccessibleState

🐾 **platform-specific backend:** GtkATContext

## Toolkit/2

Set the role on your widget

```
// GtkWidget: set role

gtk_widget_class_set_accessible_role (
    widget_class,
    GTK_ACCESSIBLE_ROLE_CHECKBOX
);
```

## Toolkit/3

### Change states

```
// GtkCheckButton: state change

gtk_accessible_update_state (
    GTK_ACCESSIBLE (check_button),
    GTK_ACCESSIBLE_STATE_PRESSED, is_active,
    -1
);
```

## Toolkit/3

### Change properties/1

```
// GtkEntry → accessible label

gtk_accessible_update_property (
    GTK_ACCESSIBLE (username_entry),
    GTK_ACCESSIBLE_PROPERTY_LABEL, "User name",
    -1
);
```

## Toolkit/3

### Change properties/2

```
// GtkRange: change adjustment

gtk_accessible_update_property (
    GTK_ACCESSIBLE (scroll_bar),
    GTK_ACCESSIBLE_PROPERTY_VALUE_MIN, gtk_adjustment_get_lower (adj),
    GTK_ACCESSIBLE_PROPERTY_VALUE_MAX, gtk_adjustment_get_upper (adj),
    GTK_ACCESSIBLE_PROPERTY_VALUE_NOW, gtk_adjustment_get_value (adj),
    -1
);
```

## Toolkit/4

### Change relations

```
// GtkPasswordEntry → GtkLabel

gtk_accessible_update_relation (
    GTK_ACCESSIBLE (password_entry),
    GTK_ACCESSIBLE_RELATION_LABELLED_BY, password_label,
    -1
);
```

# Applications/1

 Follow the rules

## Five Rules of ARIA

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- 👉 1st: Reuse existing accessible UI elements
- 👉 2nd: Do not change semantics
- 👉 3rd: Keyboard accessibility
- 👉 4th: Do not hide focusable elements
- 👉 5th: Add an accessible label

## Applications/2

 gtk-builder-tool

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 `gtk-builder-tool`

 `GtkTestATContext`

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- 🐾 `gtk-builder-tool`
- 🐾 `GtkTestATContext`
- 🐾 `gtk_test_accessible_assert_*`

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- 👉 Implementing the AT-SPI backend

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## Shout out to

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-  GNOME Accessibility team
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-  Hypra



Questions?



Thanks!