Mozilla Accessibility

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Mozilla Accessibility

Handicap People Have Equal Rights to Information

- Information Technology has made the world a global village.
- Handicap people can't access information in the usual ways.
- Accessibility means presenting information in alternative ways.
- Laws make accessibility mandatory.

Accessibility Goals

- Accessibility makes information available to disabled people.
- Information is presented in alternative output formats.
- Text-to-speech
- Screen magnifier
- Braille display
- On screen keyboard

What Accessibility Provides

- Output the information on screen in alternative ways.
- Echo the effects caused by events.
- Provide information about graphical elements like messages.
- Inform the user about state changes in widgets.

Mozilla Accessibility Features Firefox and Thunderbird are Now Accessible

- Windows accessibility with MSAA
- Accessibility on the gnome desktop with AT-SPY
- Mozilla integrates with existing accessibility technology.
- Mozilla accessibility modules talk with the accessibility interfaces on desktops.
- Document Object Model (DOM) tree of Mozilla has accessibility interfaces.

Hierarchy of Accessibility Layers

Gnome Provides Accessibility with AT-SPI and ATK

- Desktop applications are at the top.
- Assistive technologies and applications are bridged with ATK using GAIL
- ATK interfaces with AT-SPI using corba
- Screen readers consume events and extract the accessibility information.
- Screen readers get information from AT-SPI

Mozilla Approach
OS Independent Accessibility

- Accessibility concepts are similar on every OS.
- MSAA on windows and ATK on gnome have specific layers.
- Mozilla approaches accessibility with node based classification.
- Every widget inherits a accessible node specified by widgets.
- Examples are text widgets, lists/combos and buttons.

Technical Overview

Mozilla Does Not Include GTK+ Mozilla has ATK Built-in

- **Accessibility concepts are similar on every OS.**
- Mozilla accessibility is the first project to focus seriously on platform independence.
- Platform specific information is implemented as interfaces.
- Actions on the web page are made accessible.
- Firefox can be used with screen readers.
- Screen readers and magnifiers get complete access to formatting.
- MSAA on Windows and ATK on Gnome have specific layers.
- Mozilla approaches accessibility with node based classification.
- Every widget inherits a accessible node specified by widgets.
- Examples are text widgets, lists/combos and buttons.

How it Works

- Mozilla has a node structure containing the ATK accessibility interfaces.
- Tasks covered are events and textual information accessibility.
- State changes in the hyper text are also accessible.
- Every widget is a server.
- Every assistive technology is a client.
- Widgets provide information to the clients through ATK accessibility nodes.
- Every ATK interface is mapped to a NSI node in Mozilla.
- Clients register for events which are passed to them through AT-SPI.

Major Interfaces & Functionality

- ATK-Accessible: Top most in the hierarchy, provides all the generic information
- Class ATKutil: Provides methods for registering events and base ATK interface
- ATK registry: Provides information about specific events. Initializes the accessibility.
- ATK-action: Used to pass event messages
- ATK-text: Maps to the NSI-text in Mozilla. Provides information on normal text
- ATK-hypertext: Like ATK-text except this is for hypertext
- ATK-HyperLink: Same as text but this gives additional info on links.
- ATK-image: This class is intended to get accessible (alt text etc) information from images.

- (Note that a separate interface exists for tracking changes in the text itself. Tables and list boxes have their own classes and provide information with ATK-action. Mozilla has the respective NSI classes mapping with all ATK interfaces)

Mozilla Accessibility Results

- Screen readers take 2 approaches for presenting web pages.
- Virtually buffered information, possible with Firefox.
- Realtime presentation, possible only with Firefox.
- Virtual buffers grab accessible information from NSI nodes and present in simple page format.
- Realtime presentation presents the page as is.
- Realtime presentation is more challenging to achieve.
- Gnome-Orca and Firefox achieves non-buffered realtime presentation.

How Does Accessibility Work? Gnome provides accessibility with AT-SPY

- Windows accessibility with MSAA
- Accessibility on the Gnome desktop with AT-SPY
- **Accessibility Toolkit Service Provider Interface**
- Every widget inherits the accessibility interfaces.
- The inherited classes provide information about the given widget which can be used by screen readers.
- The accessible information changes dynamically.
- **Events caused due to user interaction change state of widget.**

How to Get Involved

- Place holder for current accessibility-related bugs (as of 4/12/07)


Thank you
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