



Accessibility Tools Framework (ACTF)

Chieko Asakawa, IBM (Project Lead)
Kentarou Fukuda, IBM (Co-technical Lead)





Agenda

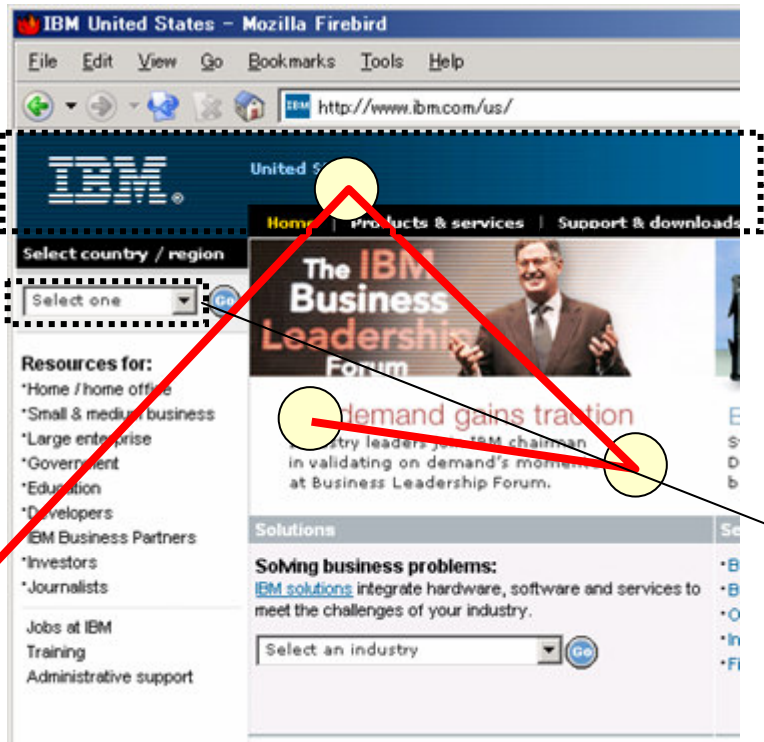
- Accessibility Tools Framework (ACTF) Overview
- What's new in ACTF 0.7 (Galileo release)
- Demonstration



Large Difference between Sighted and the Blind

Sighted

Blind



[IBM.]
 [Skip to main content.]United States
 (Start of form 1.)
 [Text.]
 [Search: Image Button.]
 (End of form 1.)
 Home | Products & services | Support & downloads | My account
 Select country / region
 (Start of form 2.)
 (Start of select menu with 10 items.)
 Select one[Selected.]
 Canada[Off.]
 China[Off.]
 France[Off.]
 Germany[Off.]
 Italy[Off.]
 Japan[Off.]
 United Kingdom[Off.]
 United States[Off.]
 Full country list[Off.]

Eye-movement-based exploration with visual cues

Keyboard-based exploration without visual cues





Explore the Eclipse projects...

Eclipse is a collection of open source projects built on the Equinox OSGI runtime.

Eclipse started as a Java IDE, but has since grown to be much, much more. Eclipse projects now cover static and dynamic languages; thick-client, thin-client, and server-side frameworks; modeling and business reporting; embedded and mobile; and, yes, we still have the best Java IDE.

This page is designed to be a gateway into the projects for users, adopters, team members, and the merely curious.



What's New?

Find out what's new in the Eclipse Projects: upcoming project reviews, new project proposals, changes to the development process, etc.



Show me all the projects

See a list of all the projects and sub-projects hosted at Eclipse. Click through the list to discover the projects' status, activity, contributors, plans, downloads, and more.



Take me to the downloads

If you're just looking to download one or more of the Eclipse Projects, you can either navigate to the project through the list of projects (above) or the list of downloads (here).



Search the projects

Look for a project that implements a specific technology. Look for a certain API. Or just look around...



Help me lead my project

Easy to follow instructions for the official Eclipse processes and rules. Includes everything you need to know about the Eclipse IP Policy. Useful for committers, contributors, and project leaders.



Committers Emeritus

Former Committers who have made significant contributions to the long term success of Eclipse are listed as Committers Emeritus. All former Committers are listed on a similar page as Committer Alumni.

[Report errors in, or request improvements to, this page](#)

Projects Gateway

Address: http://localhost/projects/index.php


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Blind LowVision

[What's New.] What's New?

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[Membership FAQs.] Take me to the downloads

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Committers Emeritus | Committers Emeritus

About the Eclipse Foundation

Address: <http://www.eclipse.org/org/>



Galileo ARRIVES IN 2 WEEKS

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About Us >>

- Foundation
- Governance
- Legal Resources
- Contact Us

About the Eclipse Foundation

- What is Eclipse and the Eclipse Foundation?
- Services of the Foundation
 - IT Infrastructure
 - Intellectual Property (IP) Management
 - Development Community Support
 - Ecosystem Development
- A Unique Model for Open Source Development
- What is the history of Eclipse?

What is Eclipse and the Eclipse Foundation?

Eclipse is an open source community, whose projects are focused on building an open development platform comprised of extensible frameworks, tools and runtimes for building, deploying and managing software across the lifecycle. The Eclipse Foundation is a not-for-profit, member supported corporation that hosts the Eclipse projects and helps cultivate both an open source community and an ecosystem of complementary products and services.

The Eclipse Project was originally created by IBM in November 2001 and supported by a consortium of software vendors. The Eclipse Foundation was created in January 2004 as

Blind LowVision

About the Eclipse Foundation

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- Services of the Foundation
 - IT Infrastructure
 - Intellectual Property (IP) Management
 - Development Community Support
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- A Unique Model for Open Source Development
- What is the history of Eclipse?

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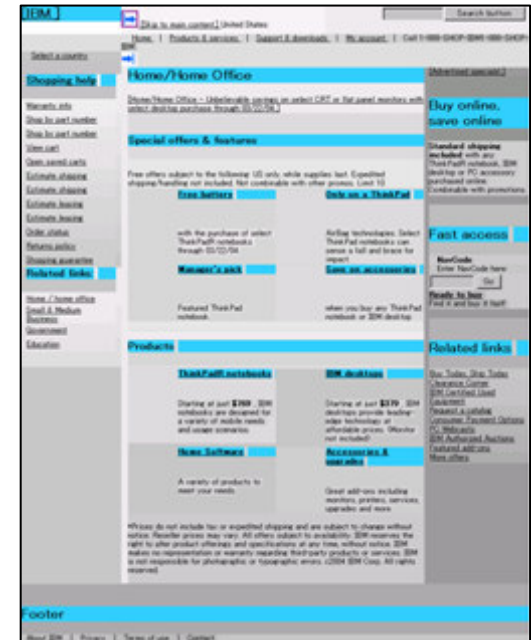


Blind Usability Visualization Example

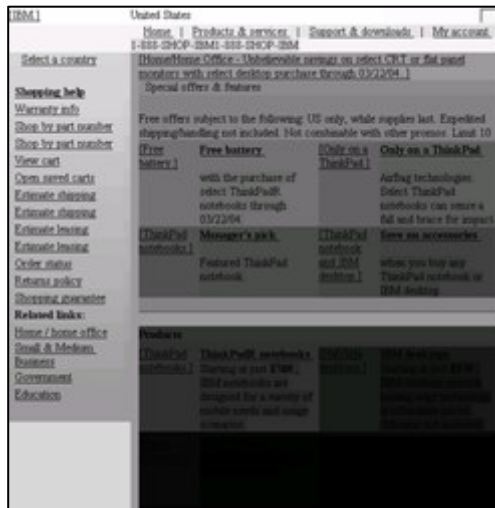
Original



With heading Tags



Inaccessible



With skip-link



Easy to find main contents

- Headers can use as TOC
- Easy to navigate through the page





Accessibility Guideline

-United States: Section 508 of Rehabilitation Act-

Section 508

- ★ a Offer Text Equivalents
- b Present Synchronized Multimedia
- ★ c Remain Independent of Color
- ★ d Stay Independent of Style Sheets
- ★ e Provide Redundant Links for Server-Side Maps
- ★ f Use Client-Side Image Maps
- ★ g Label Row and Column Headers
- ★ h Use the Headers Attribute in Complex Tables
- ★ I Supply Frame Titles (attributes and elements)
- j Reduce Flicker
- ★ k Offer a Text-only Alternative (LAST RESORT)
- ★ l Write Accessible Scripts
- ★ m Specify Accessible Applets and Plug-ins
- ★ n Design Accessible Forms
- ★ o Offer Skip Navigation
- ★ p Alert Users to Timed Responses





Societal Actions for Accessibility

World Wide

- United Nations - Convention on the Rights of Persons with Disabilities, 2008
- W3C - Web Contents Accessibility Guidelines 1.0, 1999
- W3C - Web Contents Accessibility Guidelines 2.0, 2008
- ISO - 9241-171 Guidance on software accessibility, 2008

North America

- Canada - Canadian Human Rights Act, 1997, Ontarians with Disabilities Act, 2001
- United States - Section 508 of Rehabilitation Act, 1998
(will be updated in 2009)

Japan

- JIS standards (X8341), 2004
(will be updated in 2009)

<http://www.w3.org/WAI/Policy/>

Europe

- European Union – Procurement of accessible IT, 2004
- Australia – Disability Discrimination Act, 1992
- Germany – Act on Equal Opportunities for Disabled Persons, 2002
- Ireland – The Disability Act, 2005
- Italy – Provisions to support the access to information technologies for the disabled, 2004
- Netherlands – Web accessibility, 2003
- Portugal – The Accessibility of Public Administration Web Sites for Citizens with Special Needs, 1999
- Spain - Services of the information society and electronic commerce, 2002
- Switzerland – Public sector Web accessibility, 2004
- United Kingdom – Web accessibility, 2004

Oceania

- Australia - Australian Banker's Association Industry endorsed eCommerce standards, 2000, Australian Communications Industry Forum's (ACIF) Guidelines, 2001
- New Zealand - Human Rights Amendment Act, 2001



eclipse Background

- New Technologies, New Standards, and Lack of Tools

<i>Evolution of runtime technologies</i>	<i>Current and coming accessibility standards and APIs</i>	<i>Existing accessibility check or repair tools</i>
Traditional HTML	Section 508 , WCAG 1.0& 2.0 , ISO/IEC Guide 71, ISO/DIS 9241-151, etc.	Bobby , WebKing, aDesigner , etc.
Web 2.0 (DHTML / AJAX)	Section 508 , WCAG 2.0 , WAI-ARIA , ISO/IEC Guide 71, ISO/DIS 9241-151, MSAA (IAccessible2)	Firebug, Firefox Accessibility Extension, AccProbe
Flash	Section 508 , ISO/IEC Guide 71, MSAA	AccRepair for Flash, aDesigner
Eclipse RCP (SWT)	Section 508 , ISO/IEC Guide 71, SWT Accessibility, MSAA (IAccessible2)	Javaco
OpenDocument Format (ODF)	Section 508 , ISO/IEC Guide 71, ODF 1.1 spec, ODF1.2 spec.	aDesigner
• • •	• • •	????

ACTF targets to provide building blocks for new technologies and standards.

Runtime technology innovation goes on.

Standards and APIs in **blue bold face** will be standardized or updated in 2008 to 2009.

Lack of tools

(Tools in blue are ACTF Tools)





eclipse Project Goal

Accelerate adoption of new accessibility standards, and accelerate research and development activities for next generation accessibility tools.


- Provide an extensible and comprehensive framework for accessibility tools.
- Allow developers to build various types of accessibility tools on top of ACTF.
 - ◆ Compliance validation and usability visualization tools
 - ◆ Accessibility check plugins for IDEs
 - ◆ Assistive technology simulation tools
 - ◆ Alternative interfaces for Persons with Disabilities (PwD)
 - ◆ ...
- Contribute to other Eclipse projects
 - ◆ Cooperate with other Eclipse projects as closely as possible.
 - ◆ Help accessibility enhancement of other Eclipse projects.
 - ◆ Work towards making all development and authoring tools on Eclipse generate accessible artifacts.



ACTF Organization and Timeline



- Project lead
 - ◆ Chieko Asakawa, IBM
- Mentors
 - ◆ Naci Dai (WTP PMC)
 - ◆ Ed Merks (Modeling PMC)
- Community
 - ◆ 7 Companies
 - ◆ 6 Non-profit organizations
 - ◆ 7 Academia
 - ◆ 2 Open source communities
 - ◆ 2 International consortiums
- Committers
 - ◆ 21 committers from 9 organizations

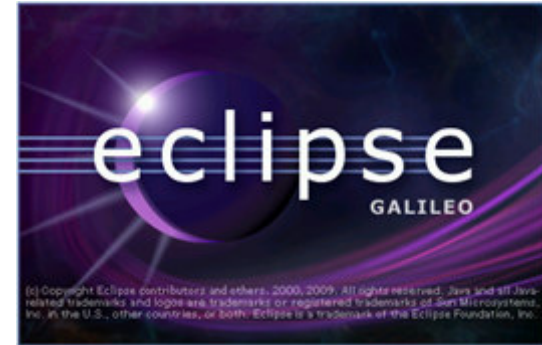
May, 2007	•ACTF project was proposed to Eclipse.org
Sep, 2007	•ACTF project proposal was accepted
Oct, 2007	•ACTF project was launched
Feb, 2008	•Most of initial contribution was completed
Mar, 2008	•Presentations and first F2F meeting at CSUN •Presentations at EclipseCon
Oct, 2008	•Interim 0.5 release (completed) •ASSETS F2F meeting
June, 2009	•Webiner@ Eclipse Live •Galileo release (0.7) 
Sep, 2009	•Projected 1.0 release of visualization part





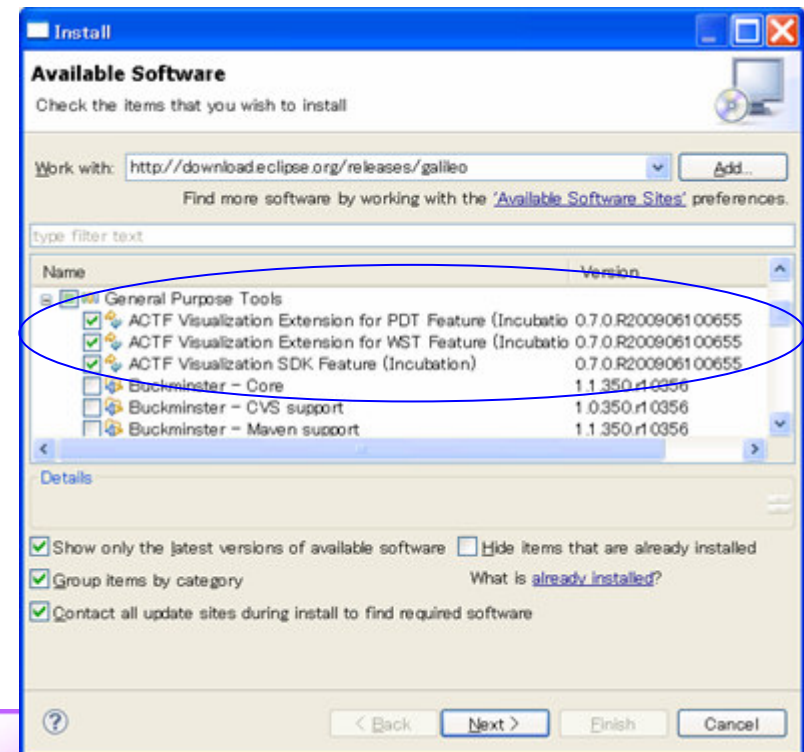
ACTF will be a part of Galileo

- ACTF 0.7 will be included in Galileo release
 - ◆ Visualization SDK
 - ◆ Visualization Extension for WST
 - ◆ Visualization Extension for PDT



Update Site

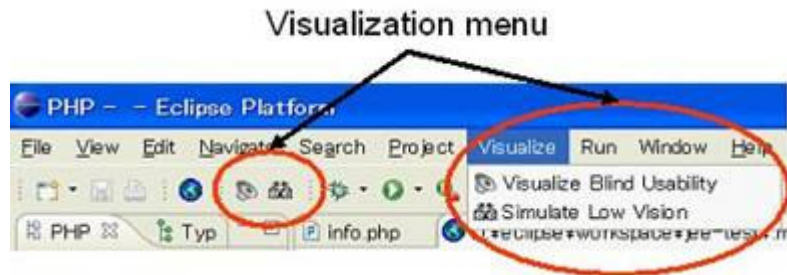
<http://download.eclipse.org/releases/galileo>
(General Purpose Tools category)



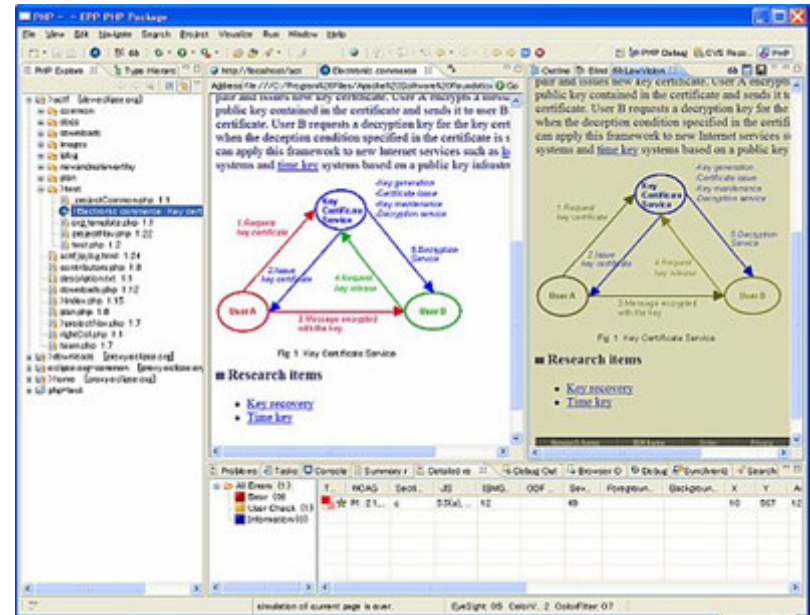


What's New in ACTF 0.7 (Galileo release)

- WTP, PDT integration (extends Web, J2EE and PHP perspectives)
 - ◆ Provide a visual representation of the PwD users' usability of content
 - Blind usability visualization
 - Low vision simulation
 - ◆ Provide an accessibility/usability report



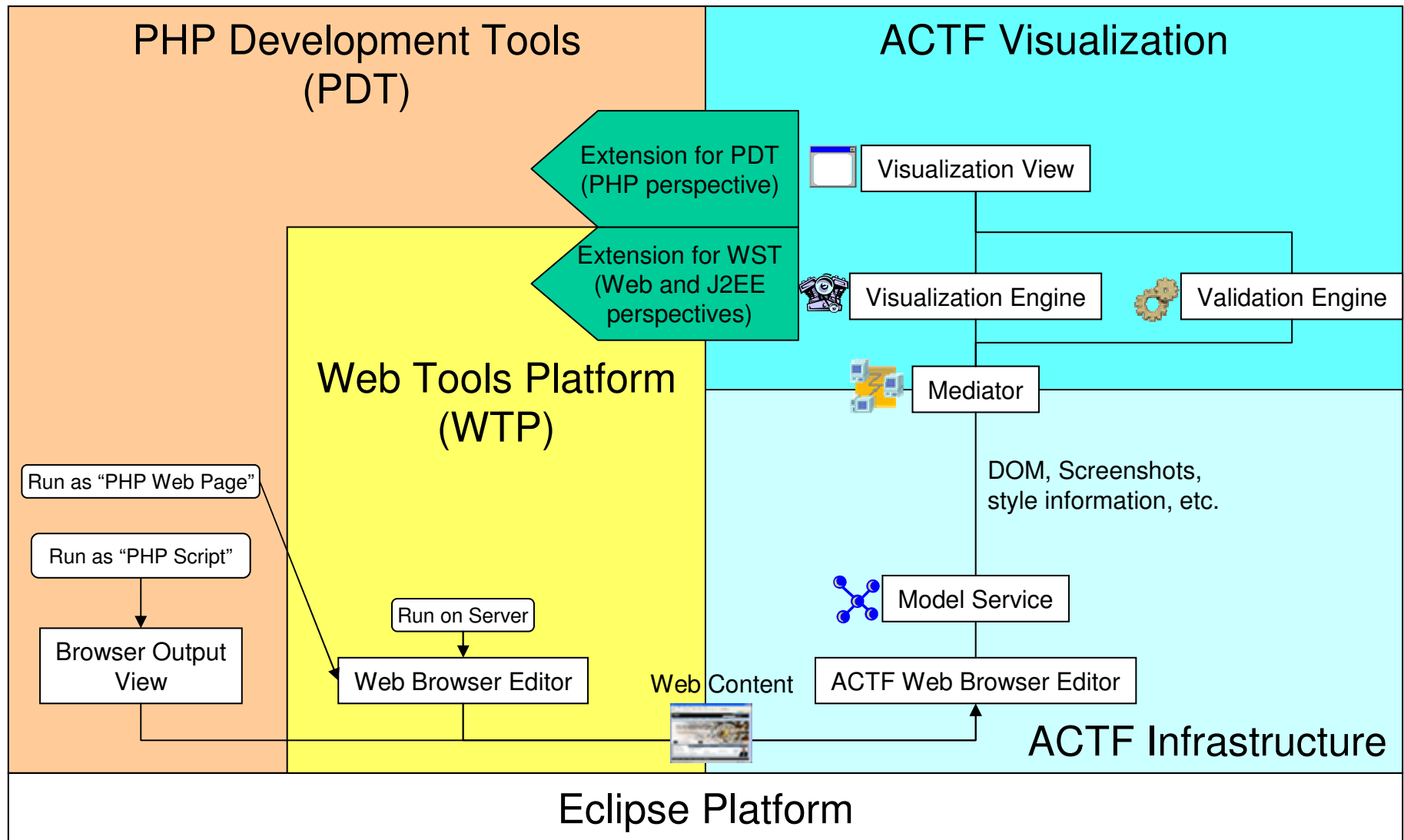
- Other updates
 - ◆ Integration with IDE
 - HTML Accessibility perspective
 - OpenDocument Accessibility perspective
 - Flash Accessibility perspective
 - GUI Accessibility perspective
 - ◆ Documentations for users/developers
 - ◆ OpenOffice.org 3.x support



Low vision simulation in PHP perspective



eclipse Architecture





Demonstration

1. How to install ACTF
2. Use ACTF in PHP perspective
 - Blind usability visualization
 - Low vision simulation
3. Use Flash Accessibility perspective





OpenDocument Accessibility Perspective

- Enable to confirm accessibility of Office Documents

The screenshot displays the Eclipse IDE in the 'OpenDocument Accessibility' perspective. The main editor shows an OpenDocument file with the following content:

Level one heading

Now here we have some coloured text.

Here's a paragraph with a first-line indent

Here's another paragraph with a first-line indent

Here's a paragraph that's fully indented

Here's one that's indented from both sides

Level two heading

Here's a nice little unordered list

- cats
- fish
- dogs

Here is a nested bulleted list

- cats
 - domestic shorthair
 - domestic longhair
- fish
 - salt water

The right-hand pane shows a visual representation of the document's accessibility structure, with elements highlighted in blue and grey. A 'Level one heading' is highlighted in blue, and a 'Level two heading' is also highlighted in blue. A green circle with a plus sign is next to the text 'Here's 13 seconds from top.'.

The bottom pane shows a 'Summary report' of accessibility errors. The report is as follows:

All Errors (6)	H	Compl...	Listen...	Naviga...	ODF...	Line	Problem Description
Error (1)	☆	C	-5 (...)	L	-5 (...)	1.1	Please provide alternative text or caption for an image (If the image
User Check (1)	☆		-2 (...)	L	-2 (...)	2.1	If this is a data table (not used for layout only), provide headers.
Information (4)	☆		(Info...	N	(Info...	2.2	If this is a data table (not used for layout only), provide caption.
	☆		(Info...	N	(Info...	2.2	If this is a data table (not used for layout only), provide caption.
	☆		(Info...	N	(Info...	2.2	If this is a data table (not used for layout only), provide caption.
	☆		(Info...	N	(Info...	2.2	If this is a data table (not used for layout only), provide caption.

eclipse Presentation Simulation

Check visibility of presentation slides in large conference rooms

The screenshot shows the Eclipse IDE with the 'Presentation' window open. The 'Presentation' window displays a slide titled 'Pie Chart Example' with a pie chart and text: 'Main title', 'Large font (32)', 'Medium font (24)', and 'Small font (16)'. The 'Presentation' window is divided into three panes: 'Small Meeting Room', 'Large Meeting Room', and 'Auditorium'. A red dashed box highlights the 'Small Meeting Room' pane, and a red arrow points from it to the 'Large Meeting Room' pane. Below the 'Presentation' window, a 'Thumbnail' window shows a preview of the 'Auditorium' view with the text: 'Display Size : 10 feet' and 'Distance from the Audience : 100'.

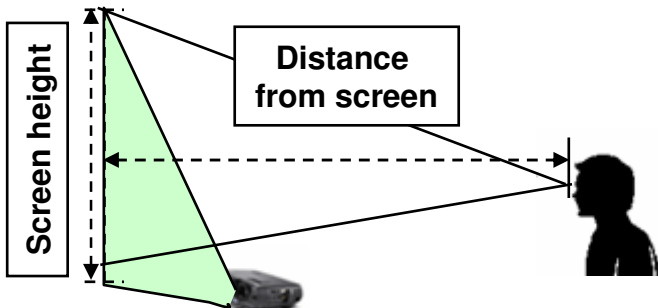
Small Meeting Room



Large Meeting Room



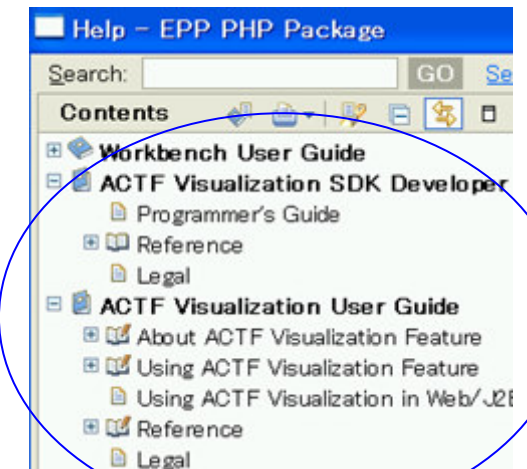
Auditorium





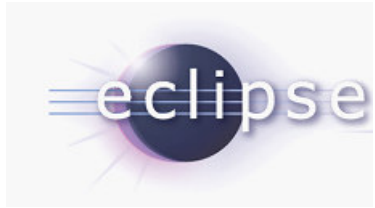
Online help is available

- Open Eclipse Help from “Help”> “Help Content” menu
 - ◆ ACTF Visualization User Guide
 - ◆ ACTF Visualization SDK Developer Guide



- Questions, requests, issues, ...

- ◆ ACTF News Group
 - <http://www.eclipse.org/newsportal/thread.php?group=eclipse.technology.actf>
- ◆ ACTF Developer ML
 - <https://dev.eclipse.org/mailman/listinfo/actf-dev>
- ◆ ACTF Bugzilla
 - <https://bugs.eclipse.org/bugs/buglist.cgi?product=ACTF>



Q&A

Thank you!

Check it out and get involved!!

<http://www.eclipse.org/actf>

(Galileo release will be available on **24th June**)





Backup





Blind Usability Visualization

The screenshot shows the IBM website with accessibility visualization overlays. A yellow callout points to the main content area, stating: "Text content that will be read out by a voice browser is visualized in this area." Another callout points to a lighter background area, stating: "Lighter background color indicates that it takes less time to reach there by using voice browsers." A third callout points to a darker background area, stating: "Darker background color indicates that it takes more time to reach there by using voice browsers." A fourth callout points to a balloon message, stating: "The balloon message shows the exact time to reach the element on which the mouse cursor is placed." A fifth callout points to a summary report, stating: "The original Web page which sighted people view." A sixth callout points to a detailed report, stating: "The problems of the selected category are listed." A seventh callout points to a rating section, stating: "The overall page rating is calculated from: 1: Compliance to accessibility guidelines, 2: Navigability (ease of navigation within the page), 3: Listenability (ease of listening)." A eighth callout points to a table of errors, stating: "The problems of the selected category are listed."

Summary Report

Detailed Report

Summary report Detailed report

Excellent!

This page is well structured and might be easy for blind users to navigate.
Congratulations! This page is completely compliant with guidelines.

★ ★ ★ Good

Compliance

Listenability Navigability

Summary report Detailed report

All Errors (184)	H	C...	LI...	N...	WCAG	Secti...	UIS	Line	Problem Description
Error (1)					P3: 13.6	a	5.2(a)	337, ...	Consider providing more intra-page links or
User Check (89)	★				P3: 10.5		5.3(g)	226	Include non-link, printable characters betwe
Information (94)	★				P3: 10.5		5.3(g)	285	Include non-link, printable characters betwe
	★				P3: 10.5		5.3(g)	297	Include non-link, printable characters betwe
	★				P2: 3.3		5.2(b)	66	Use style sheets to control layout and pres
	★				P2: 3.3		5.2(b)	70	Use style sheets to control layout and pres



eclipse Low Vision Simulation

Simulating the experience of users who have low vision

The original Web page which people without low vision view.

Summary Report

Some parts of this page use color combinations that might be difficult to distinguish from each other.

Too small and fixed size font: 2

Low vision simulation. In this example, Color Vision Deficiency (Deutan) and cataract are simulated.

Problem map that indicates the positions of problems.

Setting panel (Eyesight, color vision deficiencies, crystalline lens transparency)

Preferences

Low Vision

Eyesight
20/200 20/40 20/20
01 05 1.0 050

Color Vision Deficiency
 Protan: Abnormality of red-sensitive cone pigment
 Deutan: Abnormality of green-sensitive cone pigment
 Tritan: Abnormality of blue-sensitive cone pigment

Crystalline lens transparency (Apo)
60's 40's 20's 40

Apply and Simulate Help





Visual Synchronization

The screenshot shows the IBM Business services website with accessibility errors highlighted. A yellow callout box points to the error list, stating: "When a user selects an error in the problem list, the corresponding error position is highlighted." A blue dashed circle highlights the error message "No alternative text for an image button." in the error list, which is synchronized with the corresponding image button on the website. A yellow callout box also points to the error message, stating: "23 seconds from top." and "No alternative text for an image button." The error list is as follows:

C...	L...	N...	WCAG	Secti...	JIS	IBM...	Line	Problem Description		
			P1: 6.3	I	5.4(e)	6		This page has more than ten links wh		
C	-2	L	-2		P1: 1.1	a, n	5.4(a), ... 7	107	No alternative text for an image butt	
C	-2	L	-2		P1: 1.1	a, n	5.4(a), ... 7	135	No alternative text for an image butt	
C	-2	L	-2		P1: 1.1	a, n	5.4(a), ... 7	154	No alternative text for an image butt	
C			N	-2	P2: 12.3		5.3(b)	7	85	Consider grouping long lists of select
C			N	-2	P2: 12.3		5.3(b)	7	116	Consider grouping long lists of select





Synchronization with Guideline/Technique pages

The screenshot shows the Eclipse Accessibility - aDesigner interface. The main window displays the ACTF website. A context menu is open over a table of violations, with the 'View Guideline' option selected. A blue arrow points from this option to a browser window displaying the 'Web Content Accessibility Guidelines 1.0' page, specifically the section for '1.1 Provide a text equivalent for every non-text element'. The browser window also shows a 'W3C Recommendation' sidebar.

H	C..	L..	N..	WCAG	Sect..	JIS	IBM..	Line	Problem Description
				P3: 4.3		5.9(a)		3	Identify the language of the text (
						5.9(a)			Identify the default character of the
				P1: 1.1	a	5.4(a)	1		Use appropriate text for an image (
				P2: 3.5		5.2(a)			
				P3: 1.0.5		5.3(g)			
				P0: 0.5		5.9(-)			

Users can visit corresponding Guideline/Technique pages by using context menu



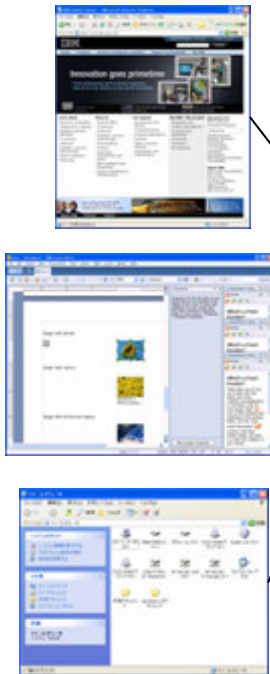


GUI Accessibility perspective (MSAA/IAccessible2)

“GUI outline”
displaying object structure of MSAA/IAccessible2
into tree view control

“GUI properties”
displaying detailed property of
MSAA/IAccessible2 objects

“GUI summary”
summarize object
structure of
MSAA/IAccessible2
by simulating
screen readers



External Applications



Name	Value
Windo...	0x20212 [Internet Explorer_Server]
Parent	
Name	Our clients have taken us on many journe...
Role	graphic (0x28)
State	linked (0x400000)
Value	http://www.ibm.com/ideasfromibm/us...
Descrip...	
Children	0
Default...	Jump
Location	2, 188, 762, 428 (width=760, height=240)
Keyboa...	

Description	Name	Role	State	X	Y
No ALT text for graphic		graphic	normal	7..	1..
No ALT text for graphic		graphic	normal	7..	1..
No ALT text for graphic		graphic	normal	7	4.
No ALT text for graphic		graphic	normal	1..	4.
No ALT text for graphic		graphic	normal	3..	4.

“GUI event”
display screen reader "simulation" based on
MSAA/IAccessible2 events.
If the filter is turned off, raw events are shown

“Error validation for MSAA/IAccessible2 objects”
Validate simple errors in MSAA/IAccessible2 objects, such as
missing "name" attributes.





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