COSI-Framework v1.2 Testing

Document History

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1. Functionality and Display

1.1. Functionality

1.1.1. Environment Settings in application_env.php

1.1.1.1. Deployment Status (DEVEL | TEST | ACEP | PROD).
Any $eDeploymentStatus setting other than "PROD" is displayed in the banner and title.

1.1.1.2. Errors reporting.
When $eDisplayErrors is set to true, all errors and warnings are sent with the response. When false, errors are logged, but not returned with the response.

1.1.1.3. Debug information.
When $eDebugOnStatus is set to true, debug information is returned at the bottom of the response, and "DEBUG" is displayed in the banner. Debug information includes session id, isValidSession, user agent, remote address, minutes since epoch, all user role ids, all activity role ids, cookie data, session data, post data, get data, server data (including headers), and LDAP attributes from the session data. When false, no debug information is returned in the response.

1.1.1.4. Locale (time zone and date time formats).
Settings for time zone and date time formats are displayed correctly on 'About The Applications', and used correctly for global formatting and conversion to and from UTC.

1.1.1.5. SSL.
Setting "https" for ePROTOCOL forces a redirect of requests not made via HTTPS to their HTTPS equivalent. Setting an activity property of no_check_ssl to true in application_config.php will prevent redirection to HTTPS of HTTP requests for that activity.

1.1.1.6. LDAP.
Authentication with LDAP will fail if either $eLDAPBaseDN or $eLDAPuid are set to an empty string.

1.1.1.7. Shibboleth.
The link to the Shibboleth authentication provider will be removed from the login page if $eShibbolethIDP is set to an empty string.

1.1.1.8. Titles, contact, and copyright.
Titles display correctly in the banner, title, and logo mouseover.
The contact email link is removed if eCONTACT_EMAIL is set to an empty string.
The copyright text is displayed correctly.

1.1.1.9. Themes.
The setting for $eTheme alters the theme displayed as per the configuration.

1.1.1.10. Session timeout.
Logged in users are redirected to the login page and their session terminated if they request a page after a period of inactivity (no page requests) greater than the duration set for $gSessionTimeoutMinutes.

1.1.2. Application Configuration

1.1.2.1. Menu and Activity nesting.
Menus and Activities are displayed sequentially under their parent menu.

1.1.2.2. Navigation display and function.
Only authorised activities and their parent menus are displayed.
The path from the root to the current activity is displayed.
Activities that have the property only_show_if_active set to true are only displayed in the navigation when they are active.

1.1.2.3. Configuration checking.
The configuration file application_config.php is checked for circular menu references, references to non-existent menus, and activities with non-unique paths.

1.1.3. Calendar Control

1.1.3.1. Display and hide.
Clicking on the control icon displays the control at the bottom right corner of the icon.
Clicking the icon, the 'x' at the top right of the control, or a date within the calendar will hide the control.
Clicking on the control icon for another field than the one for which the control is currently open will display the control at the bottom right corner of the clicked icon.
Clicking and dragging in the top bar of the control (to the left of the 'x') will move the control.

1.1.3.2. Form input binding.
The control updates the value of the field to which it is bound.
If the field holds no value when the control is displayed, then the value in the field and the control is set to the current date and/or time.
If the field holds a value, then the control is set to that date and/or time.
If the field holds an invalid value, then an error message is displayed, the value in the field is selected, and the control does not display.
While the control is displayed, changing values for components of time will update the value of the field.
If the value of the field is cleared while the control is displayed, on closing the control, the value of the field is set to the current date and/or time.

1.1.3.3. UTC date and time.
If the field to which it is bound holds no value, displaying the control for that field will set the value in the field, and the control, to the current date and/or time as determined by the client.
If the format mask specified for the field contains a 'Z', then the current date and time will be the UTC date and time as determined by the client.

1.1.3.4. Functionality.
The drop lists are populated correctly.
The return to the current month icon displays the correct mouseover title and returns the calendar to the current month.
The calendar updates correctly when values for month or year are selected.
The calendar updates correctly when the next or previous months are clicked.
The calendar renders correctly when the first day of the week is selected by clicking on a day of the week.

1.1.4. Please Wait Control

1.1.4.1. Without elapsed time.
The control displays the animation but no elapsed time.

1.1.4.2. With elapsed time.
The control displays the animation and the time elapsed since it was shown.

1.1.4.3. Display and hide.
Clicking the 'x' in the top right corner of the control will hide it. If the control is subsequently made visible, the elapsed time is reset.

1.1.5. About

1.1.5.1. Present and correct.

1.1.6. Change Built-in Passphrase
1.1.6.1. Functions correctly.

1.1.7. Help
1.1.7.1. Functions correctly.

1.1.8. Login
1.1.8.1. Functions correctly.

1.1.9. Versions
1.1.9.1. Present and correct.

1.1.10. Administration.List Roles
1.1.10.1. Filter.
Filters by case-insensitive matching across role id, role name, role type name, and authentication service name.
If only one record is returned, then returns Administration.View Role for that record.
1.1.10.2. Pagination and sorting.
Results show 25 records per page.
Results can be sorted in either direction on any one column.
1.1.10.3. Record highlight, mouseover titles, and click through.
Mousing over highlights a record with a title of 'View this record'. Clicking a highlighted record returns Administration.View Role for that record.

1.1.11. Administration.Add Role
1.1.11.1. Form validation.
Mandatory fields are enforced correctly.
1.1.11.2. Form function.
Form values are populated correctly.
1.1.11.3. Save.
Saving creates the record and associated data correctly, then returns Administration.View Role for that record.

1.1.12. Administration.View Role
1.1.12.1. Data displays correctly.
1.1.12.2. Edit.
Clicking the Edit button returns Administration.Edit Role for that record.
1.1.12.3. Delete.
Clicking the Delete button returns Administration.Delete Role for that record.
1.1.12.4. User role: add and remove functional roles and check links
Links to functional roles are rendered correctly.
Adding a functional role works correctly.
Removing a functional role works correctly.
1.1.12.5. User role: add and remove organisational roles and check links.
Links to organisational roles are rendered correctly.
Adding an organisational role works correctly.
Removing an organisational role works correctly.
1.1.12.6. Functional role: add and remove functional roles and check links.
Links to functional roles are rendered correctly.
Adding a functional role works correctly.
Removing a functional role works correctly.

1.1.12.7. Functional role: add and remove activities.
Adding an activity works correctly.
Removing an activity works correctly.
1.1.12.8. Functional role: check descendants and links.
Descendants and their links are rendered correctly.
1.1.12.9. Organisational role: add and remove organisational roles.
Adding an organisational role works correctly.
Removing an organisational role works correctly.
1.1.12.10. Organisational role: check descendants and links.
Descendants and their links are rendered correctly.

1.1.13. Administration.Edit Role
1.1.13.1. Form validation.
Mandatory fields are enforced correctly.
1.1.13.2. Form function.
Form values are populated correctly.
1.1.13.3. Cancel.
The Cancel button returns Administration.View Role for this record.
1.1.13.4. Save.
Saving updates the data for this record correctly and returns
Administration.View Role for this record.

1.1.14. Administration.Delete Role
1.1.14.1. Data displays correctly.
1.1.14.2. Cancel.
The Cancel button returns Administration.View Role for this record.
1.1.14.3. Delete.
The Delete button removes the record and its associated records correctly and
returns Administration.List Roles.

1.2. Cross Platform Display and Errors
1.2.1. Firefox 2
1.2.1.1. Calendar control.
Renders and functions correctly with no errors.
1.2.1.2. Please Wait control.
Renders and functions correctly with no errors.
1.2.1.3. Navigation display and function.
Renders and functions correctly with no errors.
1.2.1.4. About
Renders correctly with no errors.
1.2.1.5. Change Built-in Passphrase
On first entry, Firefox populates the Current Passphrase field with asterisks even
though the value is empty.
Renders and functions correctly with no errors.
1.2.1.6. Help
Renders and functions correctly with no errors.
1.2.1.7. Login
Renders and functions correctly with no errors.
1.2.1.8. Versions
Renders correctly with no errors.
1.2.1.9. Administration.List Roles
Renders and functions correctly with no errors.
1.2.1.10. Administration.Add Role
Renders and functions correctly with no errors.

1.2.1.11. Administration.View Role
Renders and functions correctly with no errors.
1.2.1.12. Administration.Edit Role
Renders and functions correctly with no errors.
1.2.1.13. Administration.Delete Role
Renders and functions correctly with no errors.
1.2.1.14. Documentation.General Styles
Renders correctly with no errors.
1.2.1.15. Documentation.Form Styles
Renders and functions correctly with no errors.
1.2.1.16. Documentation.Charts
Renders and functions correctly with no errors.

1.2.2. Safari 3
1.2.2.1. Calendar control.
Renders and functions correctly with no errors.
1.2.2.2. Please Wait control.
Renders and functions correctly with no errors.
1.2.2.3. Navigation display and function.
Renders and functions correctly with no errors.
1.2.2.4. About
Renders correctly with no errors.
1.2.2.5. Change Built-in Passphrase
Renders and functions correctly with no errors.
1.2.2.6. Help
Renders and functions correctly with no errors.
1.2.2.7. Login
Renders and functions correctly with no errors.
1.2.2.8. Versions
Renders correctly with no errors.
1.2.2.9. Administration.List Roles
Renders and functions correctly with no errors.
1.2.2.10. Administration.Add Role
Renders and functions correctly with no errors.
1.2.2.11. Administration.View Role
Renders and functions correctly with no errors.
1.2.2.12. Administration.Edit Role
Renders and functions correctly with no errors.
1.2.2.13. Administration.Delete Role
Renders and functions correctly with no errors.
1.2.2.14. Documentation.General Styles
Renders correctly with no errors.
1.2.2.15. Documentation.Form Styles
Renders and functions correctly with no errors.
1.2.2.16. Documentation.Charts
Renders and functions correctly with no errors.

1.2.3. IE 7
1.2.3.1. Calendar control.
Renders and functions correctly with no errors.
1.2.3.2. Please Wait control.
Renders and functions correctly with no errors.
1.2.3.3. Navigation display and function.
Renders and functions correctly with no errors.

1.2.3.4. About
Renders correctly with no errors.
1.2.3.5. Change Built-in Passphrase
Renders and functions correctly with no errors.
1.2.3.6. Help
Renders and functions correctly with no errors.
1.2.3.7. Login
Renders and functions correctly with no errors.
1.2.3.8. Versions
Renders correctly with no errors.
1.2.3.9. Administration.List Roles
Renders and functions correctly with no errors.
1.2.3.10. Administration.Add Role
Renders and functions correctly with no errors.
1.2.3.11. Administration.View Role
Renders and functions correctly with no errors.
1.2.3.12. Administration.Edit Role
Renders and functions correctly with no errors.
1.2.3.13. Administration.Delete Role
Renders and functions correctly with no errors.
1.2.3.14. Documentation.General Styles
Renders correctly with no errors.
1.2.3.15. Documentation.Form Styles
Renders and functions correctly with no errors.
1.2.3.16. Documentation.Charts
Renders and functions correctly with no errors.
Warns about the links to the Google charts being over HTTP when the page has
been requested over HTTPS.

1.3. XHTML Validation
http://validator.w3.org/
1.3.1. About
This page is valid XHTML 1.0 strict.
1.3.2. Change Built-in Passphrase
This page is valid XHTML 1.0 strict.
1.3.3. Help
This page is valid XHTML 1.0 strict.
1.3.4. Login
This page is valid XHTML 1.0 strict.
1.3.5. Versions
This page is valid XHTML 1.0 strict.
1.3.6. Administration.List Roles
This page is valid XHTML 1.0 strict.
1.3.7. Administration.Add Role
This page is valid XHTML 1.0 strict.
1.3.8. Administration.View Role
This page is valid XHTML 1.0 strict.
1.3.9. Administration.Edit Role
This page is valid XHTML 1.0 strict.
1.3.10. Administration.Delete Role
This page is valid XHTML 1.0 strict.
1.3.11. Documentation.General Styles
This page is valid XHTML 1.0 strict.

1.3.12. Documentation.Form Styles
This page is valid XHTML 1.0 strict.
1.3.13. Documentation.Charts
This page is valid XHTML 1.0 strict.

1.4. CSS Validation
http://jigsaw.w3.org/css-validator/
1.4.1. General.css
This document validates as CSS level 2.1.
1.4.2. Layout.css
This document validates as CSS level 2.1.
1.4.3. Menus.css
This document validates as CSS level 2.1.
1.4.4. Datetime_control.css
This document validates as CSS level 2.1.
1.4.5. Wait_control.css
This document validates as CSS level 2.1.
1.4.6. About
This document validates as CSS level 2.1.
1.4.7. Change Built-in Passphrase
This document validates as CSS level 2.1.
1.4.8. Help
This document validates as CSS level 2.1.
1.4.9. Login
This document validates as CSS level 2.1.
1.4.10. Versions
This document validates as CSS level 2.1.
1.4.11. Administration.List Roles
This document validates as CSS level 2.1.
1.4.12. Administration.Add Role
This document validates as CSS level 2.1.
1.4.13. Administration.View Role
This document validates as CSS level 2.1.
1.4.14. Administration.Edit Role
This document validates as CSS level 2.1.
1.4.15. Administration.Delete Role
This document validates as CSS level 2.1.
1.4.16. Documentation.General Styles
This document validates as CSS level 2.1.
1.4.17. Documentation.Form Styles
This document validates as CSS level 2.1.
1.4.18. Documentation.Charts
This document validates as CSS level 2.1.

2. Security
2.1. Authentication and Authorisation
2.1.1. Three methods of authentication are supported: LDAP, shibboleth, and built-in.
If the login form is used and the User ID is configured in the COSI database, then the
configured authentication method (either LDAP or built-in) is applied to the
credentials provided. If the User ID is not in the COSI database, then LDAP
authentication is applied to the provided credentials.
2.1.2. LDAP authentication.
LDAP reserved characters are escaped from the User ID and Passphrase before
attempting a bind.

Successful LDAP authentication adds the special functional role LDAP_AUTHENTICATED.

If a user role for this user is configured in COSI, then the name for that user is taken from the COSI database, otherwise the name is taken from the LDAP attributes.

Unsuccessful LDAP authentication returns a message indicating the nature of the failure.

2.1.3. LDAP attribute-based authorisations.

LDAP attributes are retrieved and stored in session at login.

The attributes are used to set additional authorisations as per custom rules in the function getAllUserRoleIDs in access_functions.php.

2.1.4. Shibboleth authentication.

If a shibboleth identity provider is configured in application_env.inc, then a hyperlink to initiate authentication with that provider is displayed on the login page.

Successful authentication at that provider redirects back to the login page.

The login page checks the HTTP headers for shibboleth fields, and if present and correct initiates a COSI session. These headers will only be present if a correctly configured (for lazy sessions in the COSI directories) shibboleth service provider is running along with COSI.

If a COSI session is initiated, then the special functional role SHIB_AUTHENTICATED is added.

If a user role for this user is configured in COSI, then the name for that user is taken from the COSI database, otherwise the name is taken from the shibboleth attributes.

2.1.5. Shibboleth attribute-based authorisations.

Shibboleth attributes are checked at COSI session initiation and used to set additional authorisations as per custom rules in the function getAllUserRoleIDs in access_functions.php.

2.1.6. Built-in authentication.

Built-in authentication checks the provided credentials against those stored in the COSI database.

Successful built-in authentication will add the special functional role COSI_BUILT_IN_USERS, which will provide access to the Change Built-in Password activity.

2.1.7. Activity-Functional Role binding.

Membership of functional roles controls access to activities.

Attempting to access an activity for which a user is not authorised logs them out and ends their session.

Access to an activity can be checked and used to modify presentation within another activity.

2.1.8. Authorisation and navigation binding.

Only activities (and their parent menus) for which a user has authorisations are displayed in the navigation.

2.1.9. Authorisation and help.

Attempting to access the help page of an activity for which a user is not authorised logs them out and ends their session.

2.1.10. Role inheritance.

Roles inherit the roles and authorisations of roles of which they are a member.

User roles can be a member of functional and organisational roles.

Functional roles can be a member of other functional roles.

Organisation roles can be a member of other organisational roles.

2.1.11. Organisation Role for data partitioning.

Organisational roles can be used by applications to restrict access to data managed by the application.

2.1.12. Authentication service disabled.
Disabling an authentication service by setting the boolean in the COSI database prevents any authenticated sessions being created from use of that service.

2.1.13. Role disabled and inheritance.
Disabling a user role immediately removes their membership from all roles (and their associated authorisations) other than the default PUBLIC role.
Disabling a functional role immediately removes all membership of that role (and associated and inherited authorisations and membership).
Disabling an organisational role immediately removes all membership of that role (and inherited memberships).
Enabling a role will immediately reinstate configured role memberships and associated authorisations.

2.2. Form data, characters, and query strings

2.2.1. Administration.List Roles
Validated and handled correctly.

2.2.2. Administration.Add Role
Validated and handled correctly.

2.2.3. Administration.View Role
Validated and handled correctly.

2.2.4. Administration.Edit Role
Validated and handled correctly.

2.2.5. Administration.Delete Role
Validated and handled correctly.

2.3. OWASP Top Ten
http://www.owasp.org/index.php/Top_10_2007

2.3.1. Cross-site scripting (XSS).
Output is escaped.
The output encoding is specified in the HTTP headers, and in the XML declaration, as UTF-8.

2.3.2. Injection flaws.
Parameterised queries to user-defined functions.
Least privilege for web user operating on a schema other than the default 'public' schema and which is owned by another user.
Non-verbose error messages.

2.3.3. Malicious file execution.
No file access is determined by user input.

2.3.4. Insecure direct object reference.
All object references are checked.

2.3.5. Cross-site request forgery.
XSS mitigation.
POST for all data modification.
Referrer checking.
Session timeout.

2.3.6. Information leakage and improper error handling.
Error and debug framework and settings.

2.3.7. Broken authentication and session management.
SSL.
Hashed storage of built-in credentials.
Uses the inbuilt session management mechanism.
Does not accept new, preset or invalid session identifiers.
No custom cookies for session management.
Login/logout page ends any existing session.

Session timeout.
No exposure of session identifiers or credentials.
Checks the old password for change of built-in authentication.
Binds IP address and user agent along with session identifier.

2.3.8. Insecure cryptographic storage.
No requirement for strong cryptographic storage.

2.3.9. Insecure communications.
This is installation/environment specific.
Best practices for SSL communication between application components is advised in the documentation.

2.3.10. Failure to restrict URL access.
The framework binds navigation to access, and so does not display any links that can't be accessed, nor hide any links which can.
Access to any page is prevented unless a specific authorisation is granted to it (PUBLIC at the very least).

3. Source Code

3.1. Style

3.1.1. Change logs present and correct.
3.1.2. License blocks present and correct.
3.1.3. Directory and file naming conventions are followed.
3.1.4. Style standards are followed.
3.1.5. Commenting is extensive and descriptive.

3.2. Function

3.2.1. Input validation.
3.2.2. Output escaping.
3.2.3. Logic and error handling.

4. Accessibility Guidelines

4.1. Web Content Accessibility Guidelines 1.0

4.1.1. Guideline 1. Provide equivalent alternatives to auditory and visual content.
4.1.2. Guideline 2. Don't rely on colour alone.
4.1.3. Guideline 3. Use markup and style sheets and do so properly.
4.1.4. Guideline 4. Clarify natural language usage.
4.1.5. Guideline 5. Create tables that transform gracefully.
4.1.6. Guideline 6. Ensure that pages featuring new technologies transform gracefully.
4.1.7. Guideline 7. Ensure user control of time-sensitive content changes.
4.1.8. Guideline 8. Ensure direct accessibility of embedded user interfaces.
4.1.9. Guideline 9. Design for device-independence.
4.1.10. Guideline 10. Use interim solutions.
4.1.11. Guideline 11. Use W3C technologies and guidelines.
4.1.12. Guideline 12. Provide context and orientation information.
4.1.13. Guideline 13. Provide clear navigation mechanisms.
4.1.14. Guideline 14. Ensure that documents are clear and simple.

4.2. Checklist of Checkpoints for Web Content Accessibility Guidelines 1.0
http://www.w3.org/TR/WCAG/full-checklist.html

4.2.1. Priority 1 Checkpoints (MUST)

4.2.1.1. | YES | NO | N/A | Provide a text equivalent for every non-text element.
4.2.1.2. | YES | NO | N/A | Ensure that all information conveyed with colour is also available without colour.

4.2.1.3. | ~~YES | NO~~ | N/A | Clearly identify changes in the natural language of a document's text and any text equivalents.
4.2.1.4. | YES | ~~NO | N/A~~ | Organise documents so they may be read without style sheets.
4.2.1.5. | ~~YES | NO~~ | N/A | Ensure that equivalents for dynamic content are updated when the dynamic content changes.
4.2.1.6. | YES | ~~NO | N/A~~ | Avoid causing the screen to flicker.
4.2.1.7. | ~~YES | NO~~ | N/A | Use the clearest and simplest language appropriate for a site's content.
4.2.1.8. | YES | ~~NO | N/A~~ | For data tables, identify row and column headers.
4.2.1.9. | ~~YES | NO~~ | N/A | For data tables that have two or more logical levels of row or column headers, use markup to associate data cells and header cells.
4.2.1.10. | YES | ~~NO | N/A~~ | Ensure that pages are usable when scripts are turned off or not supported.

4.2.2. Priority 2 Checkpoints (SHOULD)
4.2.2.1. | YES | ~~NO | N/A~~ | Ensure that foreground and background colour combinations provide sufficient contrast when viewed by someone having colour deficits or when viewed on a black and white screen.
4.2.2.2. | YES | ~~NO | N/A~~ | When appropriate markup language exists, use markup rather than images to convey information.
4.2.2.3. | YES | ~~NO | N/A~~ | Create documents that validate to published formal grammars.
4.2.2.4. | YES | ~~NO | N/A~~ | Use style sheets to control layout and presentation.
4.2.2.5. | YES | ~~NO | N/A~~ | Use relative rather than absolute units in markup language attribute values and style sheet property values.
4.2.2.6. | ~~YES | NO~~ | N/A | Use header elements to convey document structure and use them according to specification.
4.2.2.7. | YES | ~~NO | N/A~~ | Mark up lists and list items properly.
4.2.2.8. | YES | ~~NO | N/A~~ | Mark up quotations. Do not use quotation markup for formatting effects such as indentation.
4.2.2.9. | YES | ~~NO | N/A~~ | Ensure that dynamic content is accessible or provide an alternative presentation or page.
4.2.2.10. | YES | ~~NO | N/A~~ | Avoid causing content to blink.
4.2.2.11. | YES | ~~NO | N/A~~ | Do not create periodically auto-refreshing pages.
4.2.2.12. | YES | ~~NO | N/A~~ | Do not use markup to redirect pages automatically (use the server to perform redirects).
4.2.2.13. | YES | ~~NO | N/A~~ | Do not cause pop-ups or other windows to appear and do not change the current window without informing the user.
4.2.2.14. | YES | ~~NO | N/A~~ | Use W3C technologies when they are available and appropriate for a task and use the latest versions when supported.
4.2.2.15. | YES | ~~NO | N/A~~ | Avoid deprecated features of W3C technologies.
4.2.2.16. | YES | ~~NO | N/A~~ | Divide large blocks of information into more manageable groups where natural and appropriate.
4.2.2.17. | YES | ~~NO | N/A~~ | Clearly identify the target of each link (i.e. not "click here").
4.2.2.18. | ~~YES | NO~~ | N/A | Provide metadata to add semantic information to pages and sites.
4.2.2.19. | YES | ~~NO | N/A~~ | Provide information about the general layout of a site (eg a site map or table of contents).
4.2.2.20. | YES | ~~NO | N/A~~ | Use navigation mechanisms in a consistent manner.
4.2.2.21. | YES | ~~NO | N/A~~ | Do not use tables for layout unless the table makes sense when linearised. Otherwise, if the table does not make sense, provide an alternative equivalent (which may be a linearised version).

4.2.2.22. | YES | ~~NO | N/A~~ | If a table is used for layout, do not use and structural markup for the purpose of visual formatting (eg do not use TH to make something bold and centred).

4.2.2.23. | YES | ~~NO | N/A~~ | For all form controls with implicitly associated labels, ensure the label is properly positioned

4.2.2.24. | ~~YES | NO~~ | N/A | For scripts, ensure that event handlers are input device-independent.

4.2.2.25. | YES | ~~NO | N/A~~ | Avoid movement in pages, or provide a means for turning it off.

4.2.2.26. | ~~YES | NO~~ | N/A | Make scripts directly accessible or compatible with assistive technologies.

4.2.2.27. | ~~YES | NO~~ | N/A | Ensure that any element that has its own interface can be operated in a device-independent manner.

4.2.2.28. | ~~YES | NO~~ | N/A | For scripts, specify logical event handlers rather than device-dependent event handlers.

4.2.3. Priority 3 Checkpoints (MAY)

4.2.3.1. | ~~YES | NO~~ | N/A | Specify the expansion of each abbreviation or acronym in a document where it first occurs.

4.2.3.2. | YES | ~~NO | N/A~~ | Identify the primary natural language of a document.

4.2.3.3. | ~~YES~~ | NO | ~~N/A~~ | Create a logical tab order through links, form controls, and objects.

4.2.3.4. | YES | NO | N/A | Provide keyboard shortcuts to important links.

4.2.3.5. | YES | ~~NO | N/A~~ | Include non-link printable characters (surrounded by spaces) between adjacent links.

4.2.3.6. | ~~YES | NO~~ | N/A | Provide information so that users may receive documents according to their preferences (eg language, content type, etc).

4.2.3.7. | YES | ~~NO | N/A~~ | Provide navigation bars to highlight and give access to the navigation mechanism.

4.2.3.8. | YES | ~~NO | N/A~~ | Group related links, identify the group (for user agents), and provide a way to bypass the group.

4.2.3.9. | ~~YES | NO~~ | N/A | If search functions are provided, enable different types of searches for different skill levels and preferences.

4.2.3.10. | ~~YES | NO~~ | N/A | Place distinguishing information at the beginning of headings, paragraphs, lists, etc.

4.2.3.11. | ~~YES | NO~~ | N/A | Provide a means to skip over multi-line ASCII art.

4.2.3.12. | ~~YES | NO~~ | N/A | Supplement text with graphic or auditory presentations where they will facilitate comprehension of the page.

4.2.3.13. | YES | ~~NO | N/A~~ | Create a style of presentation that is consistent across pages.

4.2.3.14. | YES | ~~NO | N/A~~ | Provide summaries for tables.

4.2.3.15. | ~~YES~~ | NO | ~~N/A~~ | Provide abbreviations for header labels.

4.2.3.16. | ~~YES | NO~~ | N/A | Provide a linear alternative to side-by-side text for all tables that lay out text in parallel, word-wrapped columns.