

MES : Mozile Editing Scheme

Mozile 0.6 Series for Firefox 2.0

Author: Max d'Ayala

Date: 6 Nov 2006

Content: MES Configuration and Commands

The MES file defines the toolbar commands and other options for an editable page. The MES file to load is defined in the page RSD Configuration file. The MES options are applied for every editable region on the page, and for that page only.

A default MES, providing a toolbar for XHTML page editing, is loaded if a custom MES file is not specified.

Refer to the main Mozile documentation for details of the tags and attributes required to define the toolbar buttons and command menus.

Editing Overview

Editing works on the principle of converting displayed text into lines based on the CSS *"display"* property. The easiest way to understand the basics is to look at some XHTML examples.

CSS Lines

Contained and Bounded Lines

In this example the `<div>` is the top container. The top container can **never** be modified, only its contents may be edited. There are three CSS Lines.

```
<div class="editable">
  <p>This is a Contained Line.</p>
  This is a <strong>Bounded Line</strong>.
  <p>Another <em>Contained</em> Line.</p>
</div>
```

The first paragraph is a Contained Line because the text has a container. i.e the line is contained within the `<p> . . . </p>` tags. These have a CSS display value of "block".

The second line of text does not have its own container but instead is bounded at either end by the two paragraphs. The blue text is an example of a Bounded Line.

Note that the `` and `` tags have a CSS *display* value of "inline" and do not form lines of their own. They are inline elements within the CSS Line.

Contained lines can be of three basic types based on their CSS *display* value.

- Block (e.g. p, h1)
- List-item (e.g. li)
- Table Cell (e.g. td, th)

It is worth looking at one other example that may occur if you start from an empty editable area, or if all the content is deleted.

```
<div class="editable">This is a Contained Line.</div>
```

In this case the text is still contained, this time by the block level `<div>`.

Whitespace

The CSS *white-space* property determines how whitespace (spaces, tabs, newlines, etc) is displayed. Usually *white-space* has the value *normal* and any whitespace used to make the XHTML markup readable is filtered out. When *white-space* has the value *pre* the whitespace is displayed exactly as it occurs in the markup. In XHTML *white-space: pre* is normally applied to the `<pre>` element by default.

Note: the eDOM handling of *white-space: pre* is probably not as well tested as *white-space: normal*, so please report any bugs.

Editing Token

Block level elements must contain editable text or an Editing Token to make them editable. The Editing Token used is a non-break space character, Unicode 160 decimal, A0 hex, or ` `; as an XHTML character entity. Currently the editing token can not be easily changed to another value.

This correctly defines an empty editable area:

```
<div class="editable">&nbsp;</div>
```

If you miss out the Editing Token you won't be able to select the div to begin editing:

```
<div class="editable"></div>
```

Normalization

Mozile works on the Document Object Model (DOM) of the document once the page has been loaded, not from the raw source of the original file. This means there may be some changes to the whitespace of the document and to the order of some attributes. In general these small changes are not important, but if you wish to preserve the non-editable sections of the document exactly as you wrote them you will need to save just the editable areas, or extract them if saving the entire document.

The eDOM functionality relies on Text nodes remaining normalized. That is, when new Text nodes are added they should always be merged with any adjacent Text nodes. Failure to do this will often lead to Mozile generating an error, sometimes when you *next* try to execute a command on these text nodes. If you get any unexpected errors like this it is worth using the DOM inspector to check for Text nodes that have not been normalized. If you find any, try and work out what command you executed to produce the error and then report the bug.

Inline elements, such as the `` element used to style text in XHTML documents, are not nested. Nested and crossing styles are produced by splitting the span at each style boundary.

The following text displayed in the browser;

A sentence with bold text and a nested *italic* word.

might be generated by Mozile like this:

```
<p>A sentence with  
<span style="font-weight: bold;">bold text and a nested </span>  
<span style="font-weight: bold; font-style: italic;">italic</span>  
<span style="font-weight: bold;"> word.<span>  
</p>
```

When changes are made to the document similar Styles may be merged, with either inline elements or the line container, to minimise the number of Style declarations.

Comments

In theory Comment nodes should be filtered out by Mozile and should not affect editing. In practice this is not always the case and comments in the editable markup can cause errors. For this reason it is a good idea not to include comments in the editable region.

MES Configuration : Commands Summary

	Attribute	
Element : command		
E.g. <code><command type="toggleStyle" name="bold" key="b"... etc ... /></code>		
Common attributes		
	name	Command name; must be unique.
	title	Text displayed in a drop down menu.
	tooltip	Text displayed when you hover over the button.
	icon	Image to use for the button.
	modifiers	Short cut modifier key. Not currently used - always Ctrl/Meta key.
	key	Short cut key(s). E.g. "b" for Ctrl+b, "B" for Ctrl+shift+b, "Bb" for both.
	type	Command type. Additional command specific attributes are detailed below.
Type attribute		
setLinesContainer		Sets the <i>container</i> for Contained or Bounded Lines.
	namespace	Optional
	tag	
unformat		Removes the <i>container</i> from all Contained Lines of type Block.
wrapText		Wraps the selected text with <i>tag</i> .
	namespace	Optional
	tag	
toggleAttribute		Toggles attribute between value and default . If default is an empty string the attribute is removed.
	attribute	e.g. class
	value	
	default	
styleLines		Applies CSS <i>property</i> and <i>value</i> to Contained and Bounded Lines.
	property	
	value	
styleText		Applies CSS <i>property</i> and <i>value</i> to the selected Text.
	property	
	value	
toggleStyle		Toggles CSS <i>property</i> between <i>value</i> and <i>default</i> for the selected Text. Multiple properties can be specified as a comma separated list.
	property	e.g. font-weight
	value	bold
	default	normal
	activeproperty	Optional. The number of properties to use when updating the active toolbar.
indent		Adds to the <i>margin-left</i> Style.
	value	Optional. Default = +40px
outdent		Subtracts from the <i>margin-left</i> Style.
	value	Optional. Default = -40px

toggleListLines		Toggles between Lines and Lists ("ul" or "ol").
	tag	List container to create. ("ul" or "ol")
	old	List containers to be changed to <i>tag</i> . ("ul" or "ol")
indentLists		Indents lists.
outdentLists		Outdents lists.
link		Applies a link to the selected text or modifies an existing link. (...)
unlink		Removes links from the selected text.
table		Inserts a table.
image		Inserts an image.
hr		Inserts a horizontal rule.
The Common attributes are not used for the following commands.		
reload		Reload page with the specified MIME type.
	contenttype	Required MIME type.
toolbar		Fixed toolbar button configuration. The Common attributes are not currently used.
	name	command name
	disabled	true

Individual MES Commands

setLinesContainer

Sets the *container* for Contained or Bounded Lines.

Arguments: *namespace, tag*

The *namespace* argument is optional.

Works for a single line if the selection is collapsed, or changes all lines within a selection.

If it is a Contained Line and the *container* is top, a table element or a list element the existing *container* is not changed but a new container (of type *tag*) is created.

Warning : Does not check that the children of the new tag are allowed.

E.g. changing a valid <p> to <h1> will always be ok because <p> and <h1> can have the same children. Changing a <p> to <pre> could result in invalid xhtml because <p> can have some children that <pre> can not.

unformat

Removes the *container* from all Contained Lines of type Block.

Arguments: none.

Works for a single line if the selection is collapsed, or changes all lines within a selection.

Removes the line container for a Contained Line of type Block.

Has no effect on Bounded Lines, or Contained Lines of type Table-cell or List-item.

wrapText

Wraps the selected text with *tag*.

Arguments: *namespace, tag*

The *namespace* argument is optional.

Works across all text lines within a selection (wraps the text of each line), or an individual text fragment within a line. Does nothing if the selection is collapsed.

Warning: does not check that wrapping text with *tag* is valid.

toggleAttribute

Toggles *attribute* between *value* and *default*.

Arguments: *attribute, value, default*

This is a rather basic command in how it is applied. Essentially it toggles *attribute* between *value* and *default*. *Attribute* is only applied once, effectively to the first element of the selection.

If default is an empty string the *attribute* is removed if *attribute* equals *value*.

XHTML Specific Commands

styleLines

Applies CSS *property* and *value* to Contained and Bounded Lines.

Arguments: *property, value*

Works for a single line if the selection is collapsed, or styles all lines within a selection.

Bounded Lines are converted to Default Contained Lines before being styled. Adds the XHTML style attribute to the line container.

styleText

Applies CSS *property* and *value* to the selected Text.

Arguments: *property, value*

Works across all text lines within a selection (Styles the text of each line), or an individual text fragment within a line. Does nothing if the selection is collapsed.

Applies tags as required.

Note: applying a Style that the text already inherits will result in *property* being removed.

toggleStyle

Toggles CSS *property* between *value* and *default* for the selected Text.

Arguments: *property, value, default, activeproperty*

Works similarly to styleText.

If property is not equal to value, property is set to value.

If property is equal to value, property is set to default.

Multiple properties can be toggled using a list of comma separated arguments.

indent

Adds to the *margin-left* Style.

Arguments: *value*

value is optional, if not supplied a default value of +40px is applied.

Works for a single line if the selection is collapsed, or all lines within a selection.

Applies the style to the Line *container*.

Indents Contained Lines.

Bounded lines are converted to Contained Lines and then indented.

List containers (ul and ol) are indented.

outdent

Subtracts from the *margin-left* Style.

Arguments: *value*

Similar to indent, although margin-left value can't go negative.
value is optional, if not supplied a default value of -40px is applied.

toggleListLines

Toggles between Lines and Lists ("ul" or "ol").

Arguments: *tag, old*

Either tag=ul and old =ol, or, tag=ol and old=ul.

Works across all Lines within a selection.

Contained and Bounded Lines that are not already list lines are changed to list-items.

List Containers of type *old* are changed to type *tag*.

Adjacent lists of the same type, provided they are in the selected range, are merged.

If there are only list item lines of type *tag* in the range the list-items are outdented one level. Adjacent lists are NOT merged.

indentLists

Indents lists.

Arguments: none

Code is part written but incomplete. Creates nested lists.

outdentLists

Outdents lists.

Arguments: none

Code is part written but incomplete. Removes nested lists.

link

Applies a link to the selected text or modifies an existing link.

Arguments: none

Applies the link element across the selected text or Lines.

If the selection is collapsed within an existing link it can be edited or removed.

unlink

Removes links from the selected text.

Arguments: none

Removes all links from the selection. If the selection is collapsed and there is a parent link it is removed.

The following commands work in limited circumstances but could do with being improved or expanded.

table

Inserts a table

Arguments: none

You are prompted to enter the number of rows and columns for the table.
There are no other table specific commands to manipulate tables.

image

Inserts an image

Arguments: none

hr

Inserts a horizontal rule

Arguments: none

Often nests incorrectly in block level elements such as paragraphs.
(General problem of inserting empty elements with the eDOM.)

Other undocumented development features that may or may not be useful...

x-element

inserts an xhtml element

Arguments: *tag*

Might work if you wish to insert an individual xhtml element.

mozileCommand

Execute one of the other commands.

Arguments: *commandname*

Possibly useful if you want to have completely custom toolbar/menu system.

reload

Reloads the page with the specified MIME type.

Arguments: *contenttype*

Applies to pages that are reloaded from a server, not from a local disk.

MES Configuration : eDOM

The default container for XHTML editing can be specified.
Without this option the default container is set to <div>.

MES Example : Set default container to <p>

For a typical editing scheme you may have the editable region set up within the xhtml <div> tag.
Within this editable region you may wish to have the default container set to be a paragraph tag <p>.

```
<editingScheme ... >
  ... MES commands ...
  <eDOM>
    <xhtml>
      <container default="p"/>
    </xhtml>
  </eDOM>
</editingScheme>
```

MES Configuration : Fixed Toolbar Items

This allows you to disable (hide) any of the fixed toolbar items.

The following command names are recognised;

1. cut
2. copy
3. paste
4. undo
5. redo
6. view-tags
7. edit-source
8. special-characters
9. save
10. bug
11. reload
12. command-menu

MES Example : Hide fixed toolbar buttons.

```
<editingScheme ... >
  <commands>
    <command name="view-tags" type="toolbar" disabled="true"/>
    <command name="edit-source" type="toolbar" disabled="true"/>
    <command name="bug" type="toolbar" disabled="true"/>
    <command name="command-menu" type="toolbar" disabled="true"/>
    ... other command tags...
  </commands>
</editingScheme>
```

Note that the fixed commands have keyboard shortcuts defined in mozile.dtd.

MES Configuration : Special Characters

MES Example

This is a simple example of a custom special character definition added to a MES file. It will add a single named block to the predefined character blocks.

```
<editingScheme ... >
    ... MES commands ...
    <specialchars insert="add">
        <specialentry entry="none"/>
        <specialblock name="MES-Test 1" columns="16">
            <characters>77,69,83,S,84,69,83,84</characters>
            <range start="160" end="255" wrap="16"/>
        </specialblock>
    </specialchars>
</editingScheme>
```

Element	Attribute name value	Notes
specialchars		Should only occur once.
	insert	Optional. Default: insert="add"
	replace	Replace the predefined special character blocks.
	add	Add to the predefined character blocks.
specialentry		Should only occur once. Optional. Default: entry="any"
	entry	
	none	Don't allow manual Unicode entry.
	any	Allow entry of any Unicode value.
specialblock		Optional. Up to 30 blocks can be defined.
	name	This is the name shown in the drop down menu. The displayed name is truncated to 30 characters in length.
	columns	Number of columns as an integer. Maximum of 50.
You must include at least one <characters> or <range> element. You can include multiple <character> and <range> elements in any order. Each element starts a new row of characters.		
	Text content	
characters		Comma separated list of Unicode characters that will wrap at the "columns" value specified in <specialblock>.
	n	integer - Unicode value
	"S"	space
	Attribute name	
range		Contiguous range of Unicode characters.
	start	Start value (integer)
	end	End value (integer)
	wrap	Length of lines. (Must be <= columns)