MANUAL

Version 4.5.5290_Beta1

1. QUICK INTEGRATION

Nimbudocs Editor can easily be integrated into a Web page using JavaScript. There are two basic steps to perform when integrating Nimbudocs Editor:

- Inserting the editor into a web page
- Importing and exporting content from the editor

1.1 Integrating the Editor into a Web Page

Nimbudocs Editor comes with a comprehensive JavaScript API designed to allow you to configure and integrate the editor into a web site. In the first step, we will demonstrate how to simply load the editor within a web page without any regards to the loading of content or more advanced integration requirements.

The JavaScript API for Nimbudocs Editor basically allows you to create a JavaScript object containing the editor. You can manipulate the editor's configuration by adding and modifying the objects' properties before it is finally loaded.

To use the JavaScript API, you should import the following library into to the page that will use Nimbudocs Editor.

The placeholder *myserver* has to be replaced by the URL of the server which runs Nimbudocs Editor.

Importing the Nimbudocs Editor JavaScript library

The following JavaScript library has to be imported in your web site.

```
<script src="http://myserver/nimbudocseditor.js" type="text/javascript"></script>
```

Simplest Integration

This is the simplest way to integrate Nimbudocs Editor into your web page.

```
<script type="text/javascript">
jQuery(window).load(function() {
    NimbudocsEditor.create("nimbuContainer", "http://myserver");
});
</script>
```

Checking compatibility

If you are not certain whether Nimbudocs Editor is supported by the browser or not, there are two possibilities to define the behavior if the editor is not supported.

Using the return value of the create method, which is false if the editor is not supported:

```
<script type="text/javascript">
jQuery(window).load(function() {
    var isSupported = NimbudocsEditor.create("nimbuContainer", "http://myserver");
    if(!isSupported) {
        alert("This browser does not meet the requirements of Nimbudocs Editor.");
    }
});
</script>
```

Or defining the onnotsupported handler:

```
<script type="text/javascript">
jQuery(window).load(function() {
    options = {
        onnotsupported: function() {
            alert("This browser does not meet the requirements of Nimbudocs Editor.");
        }
    }
    NimbudocsEditor.create("nimbuContainer", "http://myserver", options);
});
</script>
```

JavaScript only

The previous examples all required your web site to have a container element with the ID "nimbuContainer" which will contain the Nimbudocs Editor instance. It is also possible to dynamically inject this container into the web site when the editor is created using jQuery.

```
<script type="text/javascript">
jQuery(window).load(function() {
    NimbudocsEditor.create(jQuery("<div>").appendTo("body"), "http://myserver");
});
</script>
```

1.2 Retrieving the Editor Object

To get access to the Nimbudocs Editor API, you need the editor object. As the editor loads several resources asynchronously, it is not possible to get the editor object from the create-method. Instead you have to get it via the *onready* event handler.

The *onready* event is trigger once the editor is fully loaded and ready to use.

Getting the API Object

```
jQuery(window).load(function() {
    var nimbudocsEditor;
    var options = {
        onready: function(editor) {
            nimbudocsEditor = editor;
        }
    };

    NimbudocsEditor.create("nimbuContainer", "http://myserver", options);
});
```

Note that the API Object can only be used after, the *onready* event has been triggered.

1.3 Loading Content

There are several ways to load content into the editor. Basically, you can fetch the content either from a URL or you can directly load it as a string.

Load content in the constructor

```
jQuery(window).load(function() {
    var options = {documentUrl: "documents/myDocument.html"};

    NimbudocsEditor.create("nimbuContainer", "http://myserver", options);
});
```

Remember that the document URL must be accessible by the server.

Load content via the API

```
var editor;
jQuery(window).load(function() {
    var options = { onready: function(editor) {
            editor.loadDocumentFromUrl("documents/myDocument.html")
        }
    };
    NimbudocsEditor.create("nimbuContainer", "http://myserver", options);
});
```

Retrieving Content

After editing, you of course want to save it somehow. For this, you may use the respective API method to retrieve the document from the editor as a string. That string can now be saved e.g. to a database, depending on your integration.

Getting the document

```
editor.fetchDocument().then(function(doc) {
    doSomething(doc);
});
```

1.4 Collaboration

One of the main features of Nimbudocs Editor is the collaboration mode. If you want other people to join your collaboration session, you need to make a web page available to them where they may join.

First, create a new web page. This page has to be accessible from anywhere you want other people to join from.

Creating a collab page

The content of a collab page is basically the same as a normal editor page with additional content. You may want to add the possibility for users to enter their user name or even a collaboration password.

In this example, we have a collab page "collab.html" and also have an HTML input form field with the ID "userName" where users can enter their user name. Also, the editor is not created when the page is loaded but when the "joinButton" is clicked.

```
<script type="text/javascript">
jQuery("#joinButton").click(function() {
    var userName = jQuery("#userName").val();
    var options = {userName: userName};

    NimbudocsEditor.create("nimbuContainer", "http://myserver", options);
});
</script>
```

When you have set up your collab page, you have to specify it in your normal Nimbudocs Editor integration. This is done in the constructor by adding a link to the page.

Specifying the collab page

```
jQuery(window).load(function() {
    var options = {collabUrl: "http://url-to-collab-page/collab.html"};

    NimbudocsEditor.create("nimbuContainer", "http://myserver", options);
});
```

Now when you start a collab session, the editor can create a link for guest users that directly redirects them to the collab page so that they may join your collab session.

2. ASYNCHRONOUS API

Many of the API methods in Nimbudocs Editor are asynchronous. This means that these methods do not block the browser. In addition, these methods return a *Promise* object which is resolved at a later time once the asynchronous call to the Nimbudocs Editor server is finished.

2.1 Using Promises

Asynchronous methods are flagged with the `ASYNC` tag in the JavaScript API documentation. All methods flagged with `ASYNC` return a Promise. Furthermore, all methods that start with `fetch*` return a *Promise* (like `fetchDocument`), but please be aware that certain other methods may also return a Promise! Always refer to the API documentation to determine if a method returns a *Promise*.

For more information about *Promises* in general, please see refer to:
https://developer.mozilla.org/en/docs/Web/JavaScript/Reference/Global_Objects/Promise.

The following example show how an asynchronous method is used to retrieve the document content:

Getting the document

```
editor.fetchDocument().then(function(doc) {
    doSomething(doc);
});
```

The *Promise* which is returned by the `fetchDocument` method has a `then` method which accepts a callback. That callback is called once the *Promise* is resolved.

The JavaScript API documentation includes a field labeled "Resolved With" for methods returning a *Promise* instead of a "Returns" field. Since these methods always return a Promise object, it is important to know with which value the Promise will be resolved.

2.2 Multiple Promises

When you need to wait for multiple *Promises* to be resolved, you can use the JavaScript Promise API or similar APIs like jQuery to execute a specified callback once all *Promises* have been resolved.

Multiple Promises

```
var p1 = editor.fetchNumberOfParagraphs();
var p2 = editor.fetchNumberOfWords();
var p1 = editor.fetchNumberOfCharacters();

// using Nimbudocs Editor (recommended)
NimbudocsEditor.when(p1, p2, p3).then(function(paras, words, chars) {
    doSomething(paras, words, chars);
});

// using JavaScript Promise API
Promise.all([p1, p2, p3]).then(function(result) {
    var paras = result[0];
    var words = result[1];
    var chars = result[2];

    doSomething(paras, words, chars);
});

// using jQuery
jQuery.when(p1, p2, p3).then(function(paras, words, chars) {
    doSomething(paras, words, chars);
});
```

It is generally recommended to use the Nimbudocs Editor API for this purpose. This method is safe for other types of arguments, including `undefined`. Arguments that are not *Promises* will be passed as-is to the `then` handler. If none of the arguments are *Promises*, the `then` handler is called immediately.

Since the *Promises* returned by Nimbudocs Editor are thennable, the standard JavaScript Promise API can be used as well. However, be aware that the JavaScript *Promises* API is not supported by Internet Explorer versions below 11.

2.3 Rejected and Failed Promises

If a call to an asynchronous API method fails (e.g. due to network issues), you can add a handler to be called:

```
var p1 = editor.fetchNumberOfParagraphs();

p1.then(function(success) {
    doSomethingOnSuccess(success);
}, function(fail) {
    doSomethingOnFail(fail);
});
```

2.4 Using Async / Await

In browsers that support asynchronous programming with the `await` keyword and `async` functions, you can also use these language features with the asynchronous functions of the Nimbudocs Editor JavaScript API. Example:

```
var paras = await editor.fetchNumberOfParagraphs();
var words = await editor.fetchNumberOfWords();
var chars = await editor.fetchNumberOfCharacters();

doSomething(paras, words, chars);
```

Note that if you want to use `await` to wait for the return value of a an asynchronous API method within a function, you will have to use an `async` function:

```
async function getParagraphsAndDoStuff() {
    var paras = await editor.fetchNumberOfParagraphs();
    doSomething(paras);
}

getParagraphsAndDoStuff();
```

3. ACTIONS

Most of the functionality of Nimbudocs Editor can be customized via the use of actions. These actions can be used as a part of the toolbar, context menu or menu bar such as is the case in the default user interface configuration file delivered with Nimbudocs Editor. Note however that this file does not contain all actions, and the number of available actions far exceeds the ones used in the editor's default configuration.

In addition to being used in the editor's user interface configuration, actions can also be invoked programmatically using JavaScript methods. Moreover, the integrator can define custom JavaScript actions and use those in the editor's user interface or invoke them programmatically if required.

There are some predefined shortcuts (p. 95) which can be used to invoke actions using your keyboard.

3.1 Handling Actions

You can use the API method `invokeAction` in order to trigger actions programmatically. This method also accepts an optional parameter called `actionCommand`.

```
editor.invokeAction("bold");
editor.invokeAction("align", "center");
```

To access then entire functionality provided by the action, use the API method `getAction` which returns an Action object. Actions also support adding a listener using the `addInvokeListener`, which is notified when the action is invoked.

It is also possible to prevent the action from executing its default functionality. To do this, you can call the `preventDefault` method on the event which is passed to the invocation listeners.

The following examples shows how to modify and override the default functionality of the "bold" and "insert-date" actions.

Example 1

```
editor.addEventListener("bold", "actioninvoke", function(e) {
    // add custom code
    editor.fetchCurrentElement().then(function(element) {
        console.log("toggling bold state for element: " + element);
    });
});
```

Example 2

```
editor.addEventListener("insert-date", "actioninvoke", function(e) {
    // custom code
    var monthNames = new Array("January", "February", "March",
                           "April", "May", "June",
                           "July", "August", "September",
                           "October", "November", "December");
    var date = new Date();
    var day = date.getDate();
    var month = date.getMonth();
    var year = date.getFullYear();
    editor.insertContent(monthNames[month] + " " + day + ", " + year);

    // override default functionality
    e.preventDefault();
});
```

3.2 Action States

An action has three possible states:

- `enabledState`: The state that indicates whether the action is currently enabled (Example: The "table-properties-dialog" action is enabled if the caret is placed inside a table).
- `selectedState`: The state that indicates whether the action is currently selected (Example: The "align-right" action is selected when the caret is inside text that is right aligned).
- `stringState`: This state indicates the value of the action as a string (Example: The "font-size" action can have string states like "12pt", "36pt", etc.).

You can set these states in client-side stateless actions, which is e.g. useful when you have radio-button-like action groups.

Example 3

```
editor.addEventListener("my-action1", "actioninvoke", function(e) {
    this.selectedState = true;

    editor.getAction("my-action-2").selectedState = false;
    editor.getAction("my-action-3").selectedState = false;

    // custom code...
});

editor.addEventListener("my-action2", "actioninvoke", function(e) {
    this.selectedState = true;

    editor.getAction("my-action-1").selectedState = false;
    editor.getAction("my-action-3").selectedState = false;

    // custom code...
});

editor.addEventListener("my-action3", "actioninvoke", function(e) {
    this.selectedState = true;

    editor.getAction("my-action-1").selectedState = false;
    editor.getAction("my-action-2").selectedState = false;

    // custom code...
});
```

You can also add listeners to the action states which will be notified when the respective state changes.

Example 4

```
var boldAction = editor.getAction("bold");

boldAction.addEventListener(Action.prototype.PROPERTY_SELECTED_STATE, function() {
    if (boldAction.selectedState === true) {
        console.log("this text is bold");
    } else if (boldAction.selectedState === false) {
        console.log("this text is not bold");
    }
});
```

4. CSS-BASED UI CONFIGURATION

Nimbudocs Editor features very powerful APIs to configure the editor's user interface. This is usually done via an external JSON file or a JavaScript object. This article describes how the parts of the user interface, that are specific to certain elements in the document, can be configured.

4.1 Handles

Nimbudocs Editor displays handles when selecting images, QR codes and media elements. With these handles, the selected element can be moved, resized or manipulated in some way. Should you not want to allow all of these options for a certain kind of element, you can disable parts or all of the handle functionality for any element matching a CSS selector.

Use the CSS property `-ro-nimbu-handles-disable` to configure which handle elements should be disabled. More information about the CSS property can be found here.

Example

For example, if you want to disable cropping and free scaling for all images, you can use the following style sheet:

```
img {
    -ro-nimbu-handles-disable: crop freescale;
}
```

5. CUSTOMIZATION

If not specified otherwise, Nimbudocs Editor loads a default *action map*, *ui config*, as well as a *locale* file. The *action map* is a JSON object containing all available actions to Nimbudocs Editor, the *ui config* defines content and structure of the user interface, and the *locale* contains a mapping between locale constants and localized text in different languages.

Usually it is recommended to only extend the *action map* and the *locale* instead of replacing them. In these extensions, new entries will be added to the default *action map* or *locale* files. Entries in the extensions have higher priority than the entries in the default files, thus default entries can be overridden.

5.1 Configuration Objects

5.1.1 Action Map

The *action map* is a nested JSON object containing action IDs and several configuration options. Each action in the *action map* supports the following properties.

`type`

The type of the action. If set to `"stateless"` instead of `"client"`, the action will not be created on the server and thus cannot receive automatic action state updates. These actions can also not be restricted by the *allowedContextNames* and *prohibitedContextNames*. The third type is `"server"` and only used by internal Nimbudocs Editor actions.

Type:	**String**
Argument:	<optional>
Default:	`"client"`

`title`

The locale constant is used to look up the locale string in the *locale* object. If none is found, the value of the *title* is used directly as a tooltip for the action.

Type:	**String**
Argument:	n/a
Default:	n/a

iconText

The locale constant is used to look up the locale string in the *locale* object. If this is set, this text will be displayed as the toolbar text. Otherwise the *title* setting will be used.

Type:	**String**
Argument:	<optional>
Default:	n/a

iconUrl

The path to the default icon that is used for this action. If a relative path is used, it is resolved relative to the integration base or the icon repository URL (if it is specified). If not specified otherwise, this icon will be scaled according to the size of the action UI element. If omitted, a default icon in the default server icon repository will be used.

If set to *null* and none of the other *IconUrl properties is set, no icon will be displayed/loaded for this action.

Type:	**String**
Argument:	<optional>
Default:	n/a

quickIconUrl

The path to the icon that is used for this action if it is specified within the quick action panel. If a relative path is used, it is resolved relative to the integration base or the icon repository URL (if it is specified). If not specified otherwise, this icon will be scaled according to the size of the action UI element.

Type:	**String**
Argument:	<optional>
Default:	n/a

tinyIconUrl

The path to the icon that is used for this action if it is specified as a tiny button size. If a relative path is used, it is resolved relative to the integration base or the icon repository URL (if it is specified). If not specified otherwise, this icon will be scaled according to the size of the action UI element.

Type:	**String | Boolean**
Argument:	<optional>
Default:	n/a

smallIconUrl

The path to the icon that is used for this action if it is specified as a small button size. If a relative path is used, it is resolved relative to the integration base or the icon repository URL (if it is specified). If not specified otherwise, this icon will be scaled according to the size of the action UI element.

Type:	**String | Boolean**
Argument:	<optional>
Default:	n/a

mediumIconUrl

The path to the icon that is used for this action if it is specified as a medium button size. If a relative path is used, it is resolved relative to the integration base or the icon repository URL (if it is specified). If not specified otherwise, this icon will be scaled according to the size of the action UI element.

Type:	**String | Boolean**
Argument:	<optional>
Default:	n/a

largeIconUrl

The path to the icon that is used for this action if it is specified as a large button size. If a relative path is used, it is resolved relative to the integration base or the icon repository URL (if it is specified). If not specified otherwise, this icon will be scaled according to the size of the action UI element.

Type:	**String**
Argument:	<optional>
Default:	n/a

`shortcut`

A keyboard shortcut for the action consisting of one or more modifier key and a letter or number. Possible modifier keys are:

- `ctrl`: The CTRL key.
- `alt`: The ALT key.
- `shift`: The shift key.
- `cmd`: The Mac CMD key.
- `msck`: The CTRL key on Windows and the CMD key on Mac environments.

Example: `"msck d"`

Type:	**String | Boolean**
Argument:	<optional>
Default:	n/a

`macShortcut`

An optional shortcut that overrides the *shortcut* setting on Mac environments.

Type:	**String | Boolean**
Argument:	<optional>
Default:	n/a

`allowedContextNames`

A list of context names in which the action is allowed. Contexts are defined in CSS. If an entry in the array is `"none"`, the action may not be used at all. This setting is mutually exclusive with the *prohibitedContextNames* setting.

Type:	**Array**
Argument:	<optional>
Default:	n/a

`prohibitedContextNames`

A list of context names in which the action is disallowed. Contexts are defined in CSS. This setting is mutually exclusive with the *allowedContextNames* setting.

Type:	**Array**
Argument:	<optional>
Default:	n/a

`require`

Defines in which caret related context a "client" action is enabled.

- *SELECTION_ONLY*: The action is only enabled when there is a selection.
- *CARET_ONLY*: The action is only enabled when there is no selection and a valid caret position.
- *CARET_OR_SELECTION*: The action is enabled when there is either a valid caret position or a selection.

Type:	**String**
Argument:	<optional>
Default:	"CARET_OR_SELECTION"

5.1.2 Action Map Extension

The default *action map* may also be extended, which means that you do not have to write a completely new *action map* from scratch. This is also useful if you want to add contexts to existing actions

Action Map Extension

```
var actionMapExt = {
    "insert-image-dialog": {
        "title": "L_INSERT_IMAGE_DIALOG",
        "iconText": "L_INSERT_IMAGE_DIALOG_TEXT",
        "allowedContextNames": [
            "imagefield-context"
        ]
    },
    "bold": {
        "type": "server",
        "title": "L_BOLD",
        "shortcut": "msck B",
        "iconText": "L_BOLD_TEXT",
        "allowedContextNames": [
            "none"
        ]
    },
    "my-custom-action": {
        "type": "stateless",
        "title": "L_MY_CUSTOM_ACTION",
        "iconUrl": "icons/custom-action-icon.png"
    }
};
```

In the example above, the "insert-image-dialog" action is only allowed in the context "imagefield-context", the "bold" action is disabled and the custom action "my-custom-action" is added.

5.1.3 Locale Extension

Locale Extension

The following example shows how to write a locale extension. The locale extension is a nested JSON object containing language codes as keys and a mapping of locale constants and localized strings as value.

Note

The language code `""` (empty string) means that the mappings will be applied to all languages, if not otherwise specified.

```
var localeExt = {
    "": {
        "L_CUSTOM_TAB": "Custom Tab",
        "L_PROPERTIES_PANE": "Properties"
    },
    "de-DE": {
        "L_PROPERTIES_PANE": "Eigenschaften"
    },
    "fr-FR": {
        "L_PROPERTIES_PANE": "Propriétés"
    }
};
```

5.2 User Interface

The structure of the user interface is defined in the *UIConfig*. This JSON document configures which actions should be represented with buttons and in which tab and which panel they should appear. Furthermore, the *UIConfig* also defines the content of the context menu.

Important

If no *UIConfig* is specified or if it could not be parsed, a default configuration is used instead.

The *UIConfig* consists of a toolbar definition, a definition of the editor ribbons, as well as quick actions (available to the user independently of which tab was selected).

The ribbons in turn consist of one or more tabs, which can have one or more panes. Panes are divided into sub-panels, which include a list of actions and the configuration for these actions.

5.2.1 The UIConfig Object

The *UIConfig* object is the root document object of JSON object representing the user interface. It defines the toolbar configuration as well as the context menu.

Fixed Fields

Field Name	Type	Description
toolbar	Toolbar Object (p. 18)	Specifies the configuration for the editor toolbar.
contextmenu	Context Menu Object (p. 25)	Specifies the configuration for the editor context menu.

5.2.2 Defining the Toolbar

Structure of the Toolbar

The toolbar uses a ribbons layout and is divided into several different areas (as shown in the picture below):

Quick Actions

A collection of actions that are always available no matter which tab is active.

Tabs

Each tab displays a collection of panes. Switching to another tab displays the collection of panes associated with the new tab.

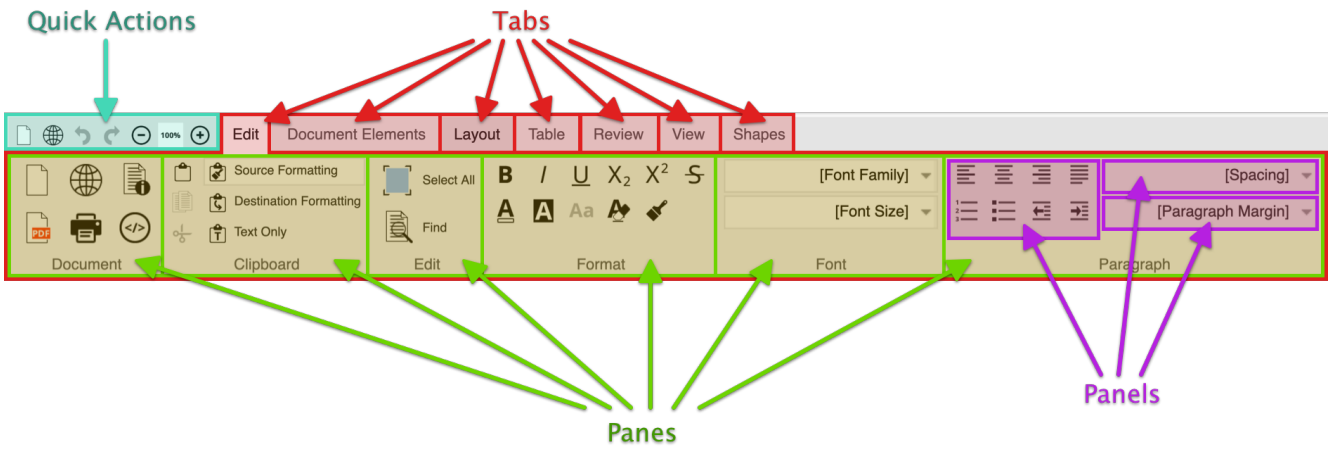
Panes

Each pane is subdivided one or more panes. Panes hold a number of panels and are divided by separators.

Panels

Panels are used to group actions with similar properties within a pane. Actions within the same panel are of the same size (e.g. `smallPanel`, `largePanel`, etc.) and represented by the same UI element (through buttons or drodown lists).

Components of the Toolbar



Toolbar Object

This configures which *quick actions* are available and holds the configuration for the Ribbons Object (p. 19).

Fixed Fields

Field Name	Type	Description
quickactions	array	An array with the IDs of the actions that should appear in the *quick actions* area.
ribbons	Ribbons Object (p. 19)	Configures the editor ribbons.

Toolbar Object Example

```
"toolbar": {
    "quickactions": [
        "new-document"
    ],
    "ribbons": {
        "options": {
            "sortabletabs": "false"
        },
        "elements": {
            "L_EDIT_TAB": {
                "shortcut": "msck shift e",
                "L_DOCUMENT_PANE": {
                    "subpanels": [
                        {
                            "size": "mediumPanel",
                            "actions": [
                                "new-document"
                            ]
                        }
                    ]
                }
            }
        }
    }
}
```

RibbonsObject

This configures the options for the editor ribbons as well as which tabs are available.

Fixed Fields

Field Name	Type	Description
options	Ribbons Options Object (p. 20)	This is an object that configures options of the editor ribbons.
elements	[string, Tab Object (p. 20)]	This object contains a definition for all tabs, where the *string* key is used as the (localized) display name for the tab. **IMPORTANT:** The key `string` must have a unique name within the containing object. It also may not contain any spaces.

Ribbons Object Example

```
"ribbons": {
    "options": {
        "sortabletabs": "false"
    },
    "elements": {
        "L_EDIT_TAB": {
            "shortcut": "msck shift e",
            "L_DOCUMENT_PANE": {
                "subpanels": [
                    {
                        "size": "mediumPanel",
                        "actions": [
                            "new-document"
                        ]
                    }
                ]
            }
        }
    }
}
```

Ribbons Options Object

This is a an object that configures options for the all tabs, i.e. the ribbons as whole.

Fixed Fields

Field Name	Type	Description
sortable	boolean	Specifies whether the tabs should be sortable. Default: *false*.

Ribbons Options Object Example

```
"options": {
    "sortabletabs": "false"
}
```

Tab Object

This object configures an individual tab.

Fixed Fields

Field Name	Type	Description
shortcut	string	**OPTIONAL.** Specifies a keyboard shortcut that can be used to activate this tab.

Patterned Fields

Field Pattern	Type	Description
string	Pane Object (p. 21)	This is a map of all panes displayed on this tab, where the *string* key is used as the (localized) display name for the pane. **IMPORTANT:** The field pattern must have a unique name within the containing object. It also may not contain any spaces.

Tab Object Example

```
"L_EDIT_TAB": {
    "shortcut": "msck shift e",
    "L_DOCUMENT_PANE": {
        "subpanels": [
            {
                "size": "mediumPanel",
                "actions": [
                    "new-document",
                    "load-url-dialog",
                    "page-properties-dialog",
                    "create-pdf-dialog",
                    "print-dialog",
                    "source-view-dialog"
                ]
            }
        ]
    }
}
```

Pane Object

This object configures which subpanels are available in a particular pane.

Fixed Fields

Field Name	Type	Description
subpanels	[Button Panel Object (p. 22) | Dropdown Panel Object (p. 23)]	An array of Button Panel Objects and/or Dropdown Panel Objects. Each Button Panel Object or Dropdown Panel Object holds configuration options for this panel, as well as a list of actions available through this panel.

```
"L_DOCUMENT_PANE": {
    "subpanels": [
        {
            "size": "mediumPanel",
            "actions": [
                "new-document",
                "load-url-dialog",
                "page-properties-dialog",
                "create-pdf-dialog",
                "print-dialog",
                "source-view-dialog"
            ]
        }
    ]
}
```

Button Panel Object

This object configures the options for this button panel, as well as the list of actions available through this panel.

Fixed Fields

Field Name	Type	Description
size	"tinyPanel" | "smallPanel" | "mediumPanel" | "largePanel"	Specifies the size of the buttons of this subpanel. For possible values see the column "type".
displaytext	boolean	Whether the button should have a label. Default: *false*.
actions	array	An array with the IDs of the actions that should appear in this panel area.

Button Panel Object Example

```
{
    "size": "mediumPanel",
    "actions": [
        "new-document",
        "load-url-dialog",
        "page-properties-dialog",
        "create-pdf-dialog",
        "print-dialog",
        "source-view-dialog"
    ]
}
```

Dropdown Panel Object

This object describes the requirements that must be fulfilled to created a dropdown panel.

Fixed Fields

Field Name	Type	Description
size	"dropdownpanel"	The value for *size* must be *dropdownpanel* to configure a Dropdown Panel.
comboactions	[string, Combo Actions Object (p. 23)]	A map where the identifier must correspond to an action ID. The Combo Actions Object configures options for the dropdown as well as actions available through the dropdown. The action correspdonding to this identifier will be invoked when content is manually entered in the dropdown. The content entered in the dropdpown will be used as the action's its *actionCommand* when invoking the action represented by this identifier (see Handling Actions (p. 8)).

Dropdown Panel Object Example

```
{
    "size": "dropdownPanel",
    "comboactions": {
        "font-size": {
            "options": {
                "comboWidth": "150",
                "dropdownWidth": "150"
            },
            "dropdownactions": {
                "font-size-default": "",
                "font-size-8": "",
                "font-size-9": "",
                "font-size-10": "",
                "font-size-11": "",
                "font-size-12": "",
                "font-size-14": "",
                "font-size-16": ""
            }
        }
    }
}
```

Combo Actions Object

This object configures the options for this dropdown panel, as well as the list of actions available through this panel.

Fixed Fields

Field Name	Type	Description
options	Dropdown Panel Options Object (p. 24)	An object holding options for this dropdown panel.
dropdownactions	Map[string, string]	For each entry in this map, the editor will try to find an action with an ID that equals the entry key. Different behavior applies depending on whether or not such an action was was found. If such an action ID was found, a dropdown item corresponding to this action is added to the dropdown menu. Interacting with this dropdown item will invoke the corresponding action. Note that in this case the value of this entry is ignored. If no action with an ID equal to this key was found, the key will be used as the `actionCommand` (see Handling Actions (p. 8)) for the action specified by the key for the comboactions (p. 23) map entry. The value will be used as the display name for the dropdown item displayed in the user interface. This is useful in order to populate the dropdown list with entries that invoke an action with a predetermined `actionCommand` so you do not have to create a separate action for each action / `actionCommand` combination. For example, you could define the `font-size` action as the key for the comboactions (p. 23) map entry, then add an entry in your `dropdownactions` map as follows: `"1in": "1 inch"`. This would invoke the `font-size` action with `1in` as its `actionCommand` and display "1 inch" in the dropdown.

Combo Actions Object Example

```
"font-size": {
    "options": {
        "comboWidth": "150",
        "dropdownWidth": "150"
    },
    "dropdownactions": {
        "font-size-default": "",
        "font-size-8": "",
        "font-size-9": "",
        "font-size-10": "",
        "font-size-11": "",
        "font-size-12": "",
        "font-size-14": "",
        "font-size-16": ""
    }
}
```

Dropdown Panel Options Object

This object configures options for this particular dropdown panel.

Fixed Fields

Field Name	Type	Description
comboWidth	string	The width of the dropdown box in pixels when closed.
dropdownWidth	string	The width of the dropdown box in pixels when opened.

Dropdown Panel Options Object Example

```
"options": {
    "comboWidth": "150",
    "dropdownWidth": "150"
}
```

Context Menu Object

See chapter Defining the Context Menu (p. 26) for details

UIConfig Sample

```
{
    "toolbar": {
        "quickactions": [
            "undo",
            "redo"
        ],
        "ribbons": {
            "options": {
                "sortabletabs": "false"
            },
            "elements": {
                "L_EDIT_TAB": {
                    "shortcut": "msck e",
                    "L_DOCUMENT_PANE": {
                        "subpanels": [
                            {
                                "size": "mediumPanel",
                                "actions": [
                                    "new-document",
                                    "load-url-dialog"
                                ]
                            }
                        ]
                    },
                    "L_FONT_PANE": {
                        "subpanels": [
                            {
                                "size": "dropdownPanel",
                                "comboactions": {
                                    "font-size": {
                                        "options": {
                                            "comboWidth": "150",
                                            "dropdownWidth": "150"
                                        },
                                        "dropdownactions": {
                                            "font-size-default": "",
                                            "font-size-8": "",
                                            "font-size-12": "",
                                            "font-size-18": "",
                                            "font-size-24": ""
                                        }
                                    }
                                }
                            }
                        ]
                    }
                }
            }
        }
    }
}
```

In the example above, the toolbar has one tab, with two panes. Their names are locale codes that will translated into the editor's language. The second pane has a simple dropdown menu with a specified width of 150 pixels.

5.2.3 Defining the Context Menu

All entries that may appear in the context menu are defined in the UIConfig using the key *"contextmenu"* with an array as the value.

This array represents the main level of the context menu and can be filled with more array, action-names and submenu objects.

Name	Type	Allowed Children / Properties	Description
Root Menu	Array	Groups	The main level of the context menu. This scheme is also used for the submenu items array.
Group	Array	Actions, Submenus	A horizontal line separates the groups from each other.
Action	String	N/A	This is the id of the action this menu item is based on. Label and icon are also retrieved from this action.
Submenu	Object	• *"name"*: The display name of this item, i.e. title of the submenu. • *"menuid"*: The unique id of the submenu. Only used internally. • *"items"*: The submenu items. Contains at least one group.	The submenu item opens another menu level when hovering over it.

Context Menu

```
{
    "toolbar": {
        // ...
    },
    "contextmenu": [
        [
            {
                "name": "L_ALIGN",
                "menuid": "alignmenu",
                "items": [
                    "align-left",
                    "align-center",
                    "align-right",
                    "align-justify"
                ]
            },
            {
                "name": "L_CONTEXT_STYLE",
                "menuid": "stylemenu",
                "items": [
                    [
                        "bold",
                        "italic",
                        "underline",
                        "strikethrough"
                    ],
                    [
                        "script-super",
                        "script-sub"
                    ]
                ]
            }
        ],
        [
            "image-properties-dialog"
        ]
    ]
}
```

The sample above is the UIConfig for a context menu with two levels. The first group has two submenu items (text-align and style menus), each of them has several actions. The second group has only one action (image-properties-dialog).

Please Note: Nimbudocs Editor disables actions that can not be used at the current caret position or *context* as it is called. Their *context* is defined in the *action map*.

As long as at least one item in a group is active, the inactive one are just disabled. If all items in a group are disabled, no item is shown and the whole group is left out of the context menu.

Spellchecking actions

In general, the context menu should offer actions for words that have been recognized as misspelled. The following actions will only appear if the spellchecker has been enabled and the current word is misspelled:

Action	Description
`spellcheck-add-word`	Adds this word to the personal dictionary.
`spellcheck-ignore-all`	Ignores this word and all further occurrences of it.
`spellcheck-suggestions`	This is a special action replaces the current word with a suggestion made by the spellchecker. Depending on how many suggestions for the misspelled word are available, there are generated several entries in this action's group.

Note: It is possible to limit the number of the suggestions that are shown in the context menu. To do so, just add *-n* to *spellcheck-suggestions*, where *n* is the desired limit. For example *spellcheck-suggestions-3* would show the best three suggestions.

5.3 Spellchecker Dictionaries

Spell checker dictionaries contain a list of words that are recognized as spelled correctly for a certain language. The following types of dictionaries are supported:

5.3.1 Personal Dictionary

Nimbudocs provides a personal dictionary that allows individual users to customize spell checking. It is automatically available without further integration code.

Please note: The personal dictionary is stored inside HTML 5 local storage. All limitations regarding local storage apply.

5.3.2 Application Dictionary

It is possible to provide Nimbudocs with an application dictionary. The following example adds "Realobjects" and "Nimbudocs" to the american english dictionary:

```
var applicationDictionary = {
    "en-US" : ["RealObjects", "Nimbudocs"]
};
editor.setDictionary(applicationDictionary, "application");
```

Setting an application dictionary should be done early the onready event handler. This way the dictionary is available from the start.

6. EVENT HANDLING

Nimbudocs Editor features a rich event handling API which can be used to execute custom code after one of the various supported events has been fired.

Event handlers are registered by using the API method `addEventListener`. The first parameter specifies the target to which the handler is registered and the second parameter defines the event type. A custom event handler can then be passed as the third parameter.

6.1 Supported Events

6.1.1 Document Events

Document events are fired when the user interacts with HTML elements in the document in certain ways. The supported events mimic the functionality of JavaScript and jQuery mouse events.

Please note that some events like "mouseover" may be fired very frequently. Therefore adding an excess amount of listeners to these events or executing complex code during these events may negatively impact performance.

Supported document events:

- mousedown
- mouseenter
- mouseleave
- mousemove
- mouseout
- mouseover
- mouseup

A simple event handler

```
editor.addEventListener("p", "mousedown", function(e) {
    console.log("This is a paragraph");
});
```

Show tooltips for images

```
// add a tooltip container to the web page
jQuery("body").append("<div id='tooltip'></div>");

/**
 * Set the text content of the tooltip from the 'alt' attribute of the element, as well as the posit
 * of the tooltip, relative to the element and make the tooltip visible.
 */
editor.addEventListener("img[alt]", "mouseenter", function(e) {
    jQuery("#tooltip")
        .text(e.target.attributes.alt)
        .css({ left: e.target.offsetLeft + e.target.width, top: e.target.offsetTop })
        .show();
});

// Hide the tooltip
editor.addEventListener("img[alt]", "mouseleave", function(e) {
    jQuery("#tooltip").hide();
});
```

6.1.2 Action Events

There is only one supported event which is fired when an action is invoked.

Supported action events:

- actioninvoke

An action event handler

```
editor.addEventListener("bold", "actioninvoke", function(e) {
    console.log("boldifying...");
});
```

6.1.3 Spell Check Events

The only supported event *dictionaryChange* is fired when one of the dictionaries was changed, e.g. when a new word was added.

Supported spell check events:

- dictionaryChange

An action event handler

```
editor.addEventListener("document", "dictionaryChange", function(e) {
    var newDictionary = e.dictionary;
    var promise;

    if (newDictionary === undefined) {
        promise = editor.spellChecker.fetchDictionary(e.persistanceLevel).then(function(dictionary)
            newDictionary = e.dictionary;
        });
    }

    NimbudocsEditor.when(promise).then(function() {
        console.log(newDictionary);
    });
});
```

6.2 The Event Object

An event object is passed to each listener which contains useful information about the event. This object is an instance of Event. Some of its properties are present for all event types, e.g. `type` which contains the event type. Other properties are exclusive to specific event types or have different data types depending on the event type.

Please see the API documentation for more information about the properties and methods.

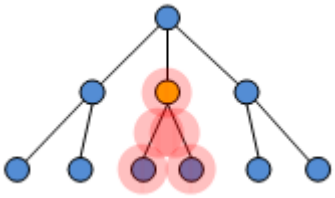
7. RESTRICTED EDITING

All edit operations in Nimbudocs Editor are enabled for all elements of the document by default. But there are situations where it is necessary to disable a specific number of operations (mostly all) for specific elements of the document. In Nimbudocs Editor this functionality is called "restricted editing" and can be controlled via CSS.

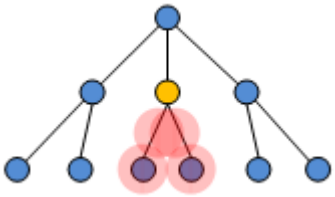
7.1 CSS Syntax

Nimbudocs Editor provides two properties to mark ranges of a document as "editable" or "not editable". The properties are `-ro-editable` and `-ro-editable-inside`. The difference between both properties is which area of the DOM is affected by the specified editability state. As both properties are inheritable properties, this state will also be inherited.

In the following diagram the orange node has set `-ro-editable` to `false`. As a result, all areas highlighted with red circles are marked as "read-only".



In the following example the orange node has set `-ro-editable-inside` to `false`. All areas highlighted with red circles are marked as "read-only".



The difference between the two examples is that in the second one all areas except the node itself are marked as "read-only".

Using these two properties it is possible to arbitrarily nest areas with differing editability states within each other. For example it is possible to create a read-only `table`, inside an editable `div`, inside a read-only `ol` ,inside an editable `div` and so on.<

Property descriptions

`-ro-editable`	
Value:	true | false | no-deletion
Initial:	true
Applies to:	all elements
Inherited:	yes

-ro-editable	
Percentages:	N/A
Media:	all
Computed value:	as specified

This property defines whether an element and all its descendants are editable, not editable (read-only) or can be edited, but not deleted. How this property is evaluated depends on the operation. If an operation is not a deletion operation then, `no-deletion` is equivalent to `true`. If an operation is a deletion operation, then `no-deletion` is equivalent to `false`.

-ro-editable-inside	
Value:	true | false | no-deletion
Initial:	true
Applies to:	all elements
Inherited:	yes
Percentages:	N/A
Media:	all
Computed value:	as specified

This property describes whether all descendants of an element are editable, not editable (read-only) or can be edited, but not deleted. How this property is evaluated depends on the operation. If an operation is not a deletion operation, then `no-deletion` is equivalent to `true`. If an operation is a deletion operation, then `no-deletion` is equivalent to `false`.

Important

If an element is either not editable or not deletable then all ancestors of this element are automatically not deletable. This descendant dependency is necessary in order to ensure that an undeletable element can not be deleted by deleting an editable ancestor.

Important

If an element is not deletable then it must be ensured on the application side that all style sources (e.g. classes or attributes) which enforce that this element is undeletable are removed from clones of that element. Otherwise it would be possible to insert elements into the document which can not be deleted anymore. In other words, undeletable elements should only be inserted and removed by the application, not by users.

7.2 JavaScript API

The JavaScript API method `setIgnoreReadOnly` can be used to specify whether the following JavaScript API calls should respect or ignore the CSS properties `-ro-editable` and `-ro-editable-inside`. If this flag is set to `true`, then JavaScript API calls will always be performed even if they affect elements that are marked as read-only. The default value is `false`. This functionality can be used for example to allow an application to perform special document mutations for elements which are "read-only" from the user's point of view.

Edit Operations

Each edit operation evaluates the editability state in a particular granularity. Some operations are finely grained while others are coarsely grained. Each operation supports at least the document root as the finest granularity. The following table shows for all operations the corresponding granularity.

Operation	Granularity
Inline operations	Paragraph
Paragraph operations	Paragraph
Container operations	Container
List operations	Top level list
Table operations	Table
All other operations	Document root

8. STYLE TEMPLATES

Style Templates are formatting operations created from CSS and transformed into editor actions. This allows integrators and end-users alike to apply a vast amount of CSS styles to different elements of their document.

The chapter Overview (p. 35) provides an introduction to the *Style Templates* system and how it works in principle.

To learn how to define *Style Templates* via CSS see the Chapter Style Template CSS (p. 37). It contains information about necessary properties and existing limitations.

8.1 Overview

8.1.1 How a Style Template Works - In a Nutshell

A *Style Template* is a CSS style rule that is interpreted by Nimbudocs Editor as a formatting operation for single DOM elements. Applying a Style Template means changing the element in a way that makes it fit the *Style Template* selector.

8.1.2 Template Definition

Selector

The selector defines to which elements the style rule applies. For *Style Templates*, it also describes how the formatting of the element will be modified in order to fit the selector. Nimbudocs Editor interprets the selector by splitting it up and sorting the selector parts into one of two categories: Requirements and Transformation Steps.

Requirements are those parts of the selector that need to exist on an element in order for the *Style Template* to be applied to it. Transformation Steps are changes that need to be done in order for the element to fit the selector. Which parts of the selector are considered requirements and which parts are not depends on the element type of *Style Template* defined inside the style declaration. More information on this topic is given in the chapter Style Template CSS - The Selector (p. 37).

Style Declaration

The style declaration mainly defines what an element will look like that matches the style rule's selector. In case of *Style Templates* this means the style declaration defines the look of the *Style Template*.

Besides the visual properties the style declaration also needs to contain at least one special property (-ro-style-template) to tag the style rule as *Style Template*. This property also defines the element type of the *Style Template* and thus the basic formatting behavior. For more information which properties there are to create and configure *Style Templates* and how they work see the chapter Style Template CSS - Properties (p. 38).

8.1.3 Formatting Behavior

Formatted Element Types

The *Style Template* definition made with CSS is automatically translated into Java actions. Throughout this translation, information from the *Style Template* properties is used to define how these actions are composed. The most important information during translation is the element type the *Style Template* should handle.

Currently the capabilities of this translation are limited. Not all of the element types supported by Nimudocs Editor are also supported by the *Style Template* functionality:

Nimbudocs Editor element types & Support for *Style Templates*

Style Template element type	Description	Corresponding HTML elements	Support for Style Templates
inline	Inline nodes with content.	span, strong, ...	supported
inline-element	Empty inline nodes.	img	supported
empty block	Block nodes with no content.	hr	currently unsupported
paragraph	Block nodes defined as paragraphs.	p, h1, ...	supported
container	Block nodes defined as container.	div	supported
table	Block nodes defined as tables.	table	supported
table-row	Table rows.	tr	supported
table-cell	Table cells.	th, td	supported
table-caption	Table captions.	caption	supported
list	Lists.	ol, ul	supported
document	The root element of the document.	body	currently unsupported

Mutual Exclusion

Style Templates are always part of a group. In this group, they are mutually exclusive to one another. If one of them is applied, the others are removed.

A *Style Template* created with the -ro-style-template property belongs to a group named after itself. That means it is not mutually exclusive to any other *Style Template* and can be applied without any other being removed. To assign it to a different group the -ro-style-template-group property is used. For more information on grouping see the chapter Style Template CSS - Properties (p. 38).

Context Relations

Every Style Template only works in one or more contexts. Usually the contexts are document-wide so they can be used everywhere. It is possible to narrow down that context through using -ro-style-template-context. More information on contexts is revealed in the chapter Style Template CSS - Properties (p. 38).

8.1.4 Generated Actions

A Style Template may be translated into multiple actions all applying the same format but working differently according to their configuration.

Currently only two kinds of actions are supported.

Toggle Actions

Toggle Actions will alternate between applying and removing a *Style Template* at the current Caret context. This allows creating a single bold button as well as a group of text align buttons for a tool bar (where toggle behavior is expected).

Setter Actions

Setter Actions will only apply a Style Template at the current Caret context. Removal is handled through an action of it's own, the default action. This allows creating a list or menu (where toggle behavior isn't expected).

A default action is automatically generated and therefore does not need a Style Template declaration. However, it is possible to create a default Style Template via CSS to apply additional settings to it.

8.2 Style Template CSS

A *Style Template* is created from a single style rule in CSS. The style rule can be divided into the selector and the style declaration which contains the *Style Template* properties.

The first part of chapter The Selector (p. 37) will help with choosing the right selector for a *Style Template* and how the selector affects what the *Style Template* action created from the style rule does.

The second part The Properties (p. 38) lines up all of the available properties that define, group and configure *Style Templates*.

The third part The Style Rule (p. 44) demonstrates how the style rule is composed from both selector and properties.

The last part The default Style Template (p. 45) tells how to add custom configuration to the default action by creating a default Style Template.

8.2.1 The Selector

This section deals with creating selectors for *Style Templates*. A *Style Template* selector may consist of those CSS 2.1 selectors presented within the table below. Selectors missing from that table are currently not supported.

As already mentioned in the chapter Overview (p. 35) selectors are interpreted by Nimbudocs Editor and divided into two different meanings according to the *Style Template*'s element type. How a certain selector is interpreted is explained in the table below as well.

Supported CSS 2.1 Selectors and their formatting behavior

Selector Pattern	Further description	Style Template formatting behavior
*	Universal selector	Using this selector will make every DOM element match this style rule. However, since Style Templates are limited to a certain type, the *Style Template* will only appear to be applied to those elements that match this type. Applying or removing it is not possible since the style rule always applies. A combination of this selector with another one will make the *Style Template* applicable on any element that matches the *Style Templates* type. In case of an inline type, the inserted DOM element will be a span element. In case of a paragraph type, the inserted DOM element wrapped around an anonymous paragraph will be a default paragraph element. Inline type Style Templates will use a default inline element, lists will use a default list element.
E	Type selectors	This selector works as a Requirement or Transformation Step depending on the element type. As Requirement: *Style Templates* of the container, table, table row, table cell, table caption and document type are only applicable on DOM elements of the given name. As Transformation Step: Inline, Paragraph and List Elements will transform the DOM node the *Style Template* is applied on into a DOM node of the given name.
E[attributeName]	Attribute selectors	This selector works as a Transformation Step for all types: Applying a *Style Template* of this kind will add an empty attribute of the given name to the formatted element.
E[attributeName="attributeValue"]	Attribute selectors	This selector works as a Transformation Step for all types: Applying a *Style Template* of this kind will add an attribute of the given name with the specified value to the formatted element.
E.className	Class selectors	*Language Specific: This selector is specific to the HTML language.* This selector works as a Transformation Step for all types: Applying a *Style Template* of this kind will add a class attribute if there is none yet and adds the specified class name to it's value list.

8.2.2 The Properties

This chapter deals with the description of each property used to define and configure *Style Templates* as well as with the way how they need to be defined.

-ro-style-template

Value:	|| <type> | default |
Initial:	none
Applies to:	depending on the element type
Inherited:	no
Percentages:	N/A
Media:	all
Computed value:	as specified

The property `-ro-style-template` makes a CSS style rule a *Style Template*. The property defines the name and type of the template.

If no additional `-ro-style-template-group` is defined the *Style Template* will be sorted into a group with the same name as the template.

<string>

The **<string>** defines the name of the *Style Template*. It should be unique since it identifies the *Style Template* inside Nimbudocs Editor. The case of <string> is regarded.

<type>

The **<type>** is used to define which elements the *Style Template* will handle and how this is done. The following values are available, they are corresponding to the elements described in the chapter Formatted Element Types (p. 35):

Property	Description
inline	Used for inline elements.
paragraph	Used for paragraph elements.
container	Used for container elements.
table	Used for table root elements.
table-row	Used for table row elements.
table-cell	Used for table cell elements.
table-caption	Used for table caption elements.
list	Used for list root elements.
document	Used for document elements.
default	This value is used to create a default *Style Template* for a group. For more information on this topic see the chapter Style Template CSS - The default Style Template (p. 45).

Declaring Style Templates

This is an inline type *Style Template*. Using it will create a span on the selected text with the "important" class resulting in making the letters red and bold.

```
span.important {
    -ro-style-template: "Important" inline;
    color: red;
    font-weight: bold;
}
```

Here is a paragraph *Style Template*. It transforms any paragraph element into a first-level heading. The additional styles attached to the element add a chapter number in front of it.

```
h1 {
    -ro-style-template: "Heading 1" paragraph;
}
h1:before {
    content: counter(chapter) ". ";
}
```

This list type *Style Template* transforms a numbered list into a bullet list while a bullet list remains unaffected of this transformation. The resulting bullet list receives a class attribute value of "circle". The application of this Style Template results in a bullet list with circle bullets.

```
ul.circle {
    -ro-style-template: "Circle Bullet List" list;
    list-style-type: circle;
}
```

The following *Style Template* is used on table elements to make their borders look like a simple grid. The additional rule below the *Style Template* rule ensures that not only the table has a simple black border but the cells also have.

Note that this time it is not a value added to the "class" attribute. Instead an attribute ("presentation") is being set if the *Style Template* is applied.

```
table[presentation="simple"] {
    -ro-style-template: "Simple Table" table;
    border: 1px solid black;
    border-collapse: collapse;
}
table[presentation="simple"] > tr > td {
    border: 1px solid black;
}
```

Style Templates for table row and cell elements are created the same way as those of a table. The following rules describe how an alternating table row visualization might be created with *Style Templates*without resorting to the CSS3 `:nth-child()` pseudo class which automatically handles this.

```
tr.even {
    -ro-style-template: "Even Row" table-row;
    background-color: white;
}
tr.odd {
    -ro-style-template: "Odd Row" table-row;
    background-color: gray;
}
```

Both of these table row *Style Templates* should be mutually exclusive, since a row can only have one background color. Nonetheless both could be applied individually one without having an effect. To

prevent the table row element to have both classes added these templates should be grouped with the `-ro-style-template-group` property.

-ro-style-template-group

Value:	|
Initial:	none
Applies to:	depends on element type, see -ro-style-template
Inherited:	no
Percentages:	N/A
Media:	all
Computed value:	as specified

The optional property `-ro-style-template-group` describes which group the *Style Template* is in. A group makes its *Style Template* members mutually exclusive, meaning only one of the group's members can be applied.

If this property is not set a *Style Template* is put into a group with the same name as the template itself.

Important

Some things need to be considered on grouping *Style Templates*:

- All *Style Templates* should have the same element type.

  Actions will be created for those *Style Templates* only whose element type belongs to the majority of present element types in that group.

- *Style Template* with same selectors should not be inside the same group

  If inside a group the selector of one matches another template's selector the selected state of one of both *Style Template*'s actions will be wrong. Even though the *Style Template* is applied one of both actions won't be selected. It is a restriction that comes with the design principle of mutually exclusive members of the *Style Template* group.

<string>

The name of the group. It identifies the *Style Template* group inside Nimbudocs Editor. The case of this <string> is regarded.

Declaring a Style Template Group

The following inline styles belong to the "Severity Marker" group. It's members are not mutually exclusive to members the default inline type group. They exclude only each other.

This allows a user to mark a passage of text as important or unimportant but not both at the same time. These *Style Templates* can be applied in addition to others of the inline element type.

```
span.important {
    -ro-style-template: "Important" inline;
    -ro-style-template-group: "Severity Marker";
    color: red;
}
span.unimportant {
    -ro-style-template: "Unimportant" inline;
    -ro-style-template-group: "Severity Marker";
    color: gray;
}
```

-ro-style-template-context

Value:	document | none | [ ] |
Initial:	document
Applies to:	depends on type, see -ro-style-template
Inherited:	no
Percentages:	N/A
Media:	all
Computed value:	as specified

The optional property `-ro-style-template-context` describes what context the *Style Template* may be used in. A context limits the Style Template to be used only on elements whose value of the `-ro-context` property equals one of those defined with this property.

document

The *Style Template* may be used throughout the whole document. This value is used by default.

none

The Style Template may not be used in the entire document. This option allows disabling *Style Templates* permanently.

string

The name of a context the *Style Template* may be used in. This context name refers to the context names defined via `-ro-context-property`.

Mutually exclusive Style Templates:

The container div.code creates a context "Code Box". The mutually exclusive paragraph *Style Templates* "Source Code" and "Commentary" should be made available exclusively inside this context.

```
div.code {
    -ro-context: "Code Box";
    background-color: gray;
}
p.code {
    -ro-style-template: "Source Code" paragraph;
    -ro-style-template-group: "Code Paragraphs";
    -ro-style-template-context: "Code Box";
    font-family: monospace;
    color: green;
}
p.commentary {
    -ro-style-template: "Commentary" paragraph;
    -ro-style-template-group: "Code Paragraphs";
    -ro-style-template-context: "Code Box";
    font-family: monospace;
    color: blue;
}
p.commentary:before {
    content: "//";
}
```

-ro-style-template-toggle-id & -ro-style-template-setter-id

Value:	|
Initial:	none
Applies to:	depends on type, see -ro-style-template
Inherited:	no
Percentages:	N/A
Media:	all
Computed value:	as specified

The optional properties -ro-style-template-toggle-id and `-ro-style-template-setter-id` specify the ID of the Java actions created from this *Style Template*. The `-ro-style-template-toggle-id` stands for toggle actions created from the *Style Template* while `-ro-style-template-setter-id` stands for setter actions.

If one of these properties is not defined the related action's ID is generated and may change when *Style Templates* are (re)loaded. With a fixed ID an action created from a *Style Template* can be made part of a fixed user interface that retrieves the action by its ID.

<string>

The ID value the action created from the *Style Template* will receive.

Creating a Style Template for Inline Elements

The following Style Template will allow to create actions that inserts a span element with the "important" class set on it. The identifier of the toggle action will be "action-important" while the setter action would receive a generated ID.

```
span.important {
    -ro-style-template: "Important" inline;
    -ro-style-template-toggle-id: "action-important";
}
```

8.2.3 The Style Rule

There are certain rules for a style rule that need to be followed in order to create working *Style Templates*.

Selector Grouping

A *Style Template* can only be created from a style rule with a single selector or selector combination. Grouping of selectors is not supported.

```
/* Allowed for template definition */
h1.green {
    -ro-style-template: ...
}
h1.red {
    -ro-style-template: ...
}
/* Not allowed for template definition */
h1.green, h1.red {
    -ro-style-template: ...
}
```

Single Definition

The `-ro-style-template` property is the primary property for *Style Template* creation. Every other *Style Template* property needs to be defined inside the same style declaration as the primary property.

```
/* Will create a template "Green Heading 1" with group and context */
h1.green {
    -ro-style-template: "Green Heading 1" paragraph;
    -ro-style-template-group: ...
    -ro-style-template-context: ...
}
/* Will create a template "Red Heading 1" with group */
h1.red {
    -ro-style-template: "Red Heading 1" paragraph;
    -ro-style-template-group: ...}
/* Will not add a context to "Red Heading 1" template */
h1.red {
    -ro-style-template-context: ...
}
```

Override as a whole

Overriding a *Style Template* cannot be done property by property. A *Style Template* can only be replaced as a whole. To identify the *Style Template* to be overridden the value of the `-ro-style-template` needs to stay the same. Otherwise the definition would just create a new *Style Template*.

```
/* Template definition */
h1.green {
    -ro-style-template: "Heading 1 green" paragraph;
    -ro-style-template-group: "Special Headings";
}
/* Does not override the group property */
h1.green {
    -ro-style-template-group: "Headings";
}
/* Overrides the group property */
h1.green {
    -ro-style-template: "Heading 1 green" paragraph;
    -ro-style-template-group: "Headings";
}
```

8.2.4 The default Style Template

A default action is a special setter action created explicitly to enable removing *Style Templates* from one group of *Style Templates*. This default action is usually created automatically but sometimes it is necessary to make additional settings for it. This is done by declaring a default *Style Template* from which a replacement default action will be generated.

Creating a default Style Template via CSS is much like creating other *Style Templates*. The same rules apply to it but there are additional rules for it's definition:

- `:not(*)` as a selector
- `default` as value of -ro-style-template.
- `-ro-style-template-group` with the same value as the group that should receive the default action

The `:not(*)` selector is intended to never apply on any element of the document. The default action's style rule exists purely for configuration purpose of the default action created from it. The name identifier `default` indicates that this is a special *Style Template* that is to be created from this style rule. The group name is declared to assign the default *Style Template* to a group.

A default *Style Template* will create a default action, which is retrieved like any other setter action but no toggle action will be available for it.

Using default Style Templates

The following example shows a group of *Style Templates* named `Highlighter`. `Yellow` and `Green` are the two highlighting *Style Templates* that should mark a text with colored background.

The default action declared below "Yellow" and "Green" is intended to remove this colored background. It may contain additional properties for configuration purpose.

Three *Style Templates* will be created from this CSS, the default action, `Yellow` and `Green`.

```
/* A group of Style Templates */
span.yellow {
    -ro-style-template: "Yellow" inline;
    -ro-style-template-group: "Highlighter";
    background-color: yellow;
}
span.green {
    -ro-style-template: "Green" inline;
    -ro-style-template-group: "Highlighter";
    background-color: green;
}
/* The group's default action */
:not(*) {
    -ro-style-template: default;
    -ro-style-template-group: "Highlighter";
    ...
}
```

9. TRACK CHANGES

Nimbudocs Editor provides support for Track Changes, a functionality that allows recording the changes individual users make in a document. The recorded changes are put into a pending state where they are not yet part of the document. They remain pending until they are either accepted or rejected.

9.1 Changes

A change is represented by custom elements, the `changestart` and `changeend` Nodes. These mark the beginning and end of a change. Formatting Changes require additional information located in the document head in a `trackchanges` element.

Important

The `changestart`, `changeend` and `trackchanges` elements are maintained by Nimbudocs Editor and should not be manipulated in any other way than by means provided by Nimbudocs Editor specifically designed for use with Track Changes.

Insertion Changes

Insertion Changes highlight content inserted into the document. They can be accepted and rejected and are highlighted by underlining them and coloring them in the editing user's color.

Deletion Changes

Deletion Changes highlight content deleted from the document. They can be accepted and rejected and are highlighted by striking them out and coloring them in the editing user's color.

Formatting Changes

Formatting Changes highlight formatted content. They can be accepted and rejected and are highlighted by coloring them in the editing user's color.

Misc Changes

Misc Changes highlight content changed in a way unknown to Nimbudocs Editor. They can be accepted but not rejected. They are highlighted by coloring them in the editing user's color.

9.1.1 Supported Operations

Only document changes through stock editing operations can be tracked.

Changes that are created by operations aware of Track Changes will be tracked as Misc Changes unless they fall into one of the following categories:

- Insertion
- Deletion
- Replacement

- Formatting (supported for inline and paragraph elements only)

9.1.2 Finalization Of Read-Only Changes

By default it is not possible accept or reject changes which lie inside protected document areas as the change finalization edit operation respects editability styles as all other edit operations too.

Views

Nimbudocs Editor supports five different view modes designed for use with Track Changes.

Final

The document is displayed in an approximation of it's final form. Insertions are no longer highlighted, Deletions are removed from the document. Formattings and Misc Changes stay highlighted.

Final with Bubbles

Works the same way as "Final" but Deletions are displayed as bubbles and there are additional information bubbles for Formattings.

Mixed Inline

All changes appear in the document. There are no bubbles.

Original

The document is displayed in an approximation of its original form. Deletions are no longer highlighted, Insertions are removed from the document. Formattings and Misc Changes are kept in their final form but are highlighted.

Original with Bubbles

Works the same way as "Original" but Insertions are displayed as bubbles and there are additional information bubbles for Formattings.

9.2 Limitations

- Certain editing operations with a too complex nature may not be tracked at all.
- Document manipulations by direct DOM manipulations will not be tracked.
- Cut or copied content is stripped of any change information. As a result pasting it will not insert change information. However, if insertions are tracked the inserted content may still create an Insertion Change.

10. REVERSE PROXY

In most cases Nimbudocs Editor will be integrated into a governing web application. However, the server which serves the wep application is not necessarily the same server that hosts Nimbudocs Editor. This is a common scenario and has the following implications for the user: The browser will make requests from the web application site to the Nimbudocs Editor server. Since these are two different servers, the browser has to do cross-origin resource sharing (CORS) to access the Nimbudocs Editor server.

10.1 CORS

Cross-origin resource sharing is a means for the browser to request resources from another domain different from the current web site. If the user's browser supports CORS and allows for cross-origin XMLHttpRequests, this will work just fine since the Nimbudocs Editor server automatically sets appropriate headers to allow for CORS.

10.2 Reverse Proxy

CORS can only be used if the browser supports and allows it. Additionally, in some integration scenarios it may be desirable to control the connections made by the Nimbudocs Editor from the client to the Nimbudocs Editor server by tunneling all requests from the editor through the server of the integrating web application. This can be achieved by configuring a "reverse proxy".

Assuming your web application runs on the server *webapp.mycompany.com* and Nimbudocs Editor runs on another server *nimbudocs.mycompany.com*. If you want the clients not to make any requests to *nimbudocs.mycompany.com* directly, you can use a reverse proxy to tunnel all of the clients' requests through your web application server. So when setting up the reverse proxy you could configure it in a way that all requests made to *webapp.mycompany.com/nimbudocs* will be forwarded to *nimbudocs.mycompany.com* by the reverse proxy, eliminating the need for the clients to contact *nimbudocs.mycompany.com* directly.

The following examples show how to setup and configure a reverse proxy for different web application servers. The proxy is configred so that *webapp.mycompany.com/nimbudocs* will forward all requests to *nimbudocs.mycompany.com*.

Apache

The following web modules are required to enable reverse proxy functionality:

```
LoadModule proxy_module libexec/apache2/mod_proxy.so
LoadModule proxy_http_module libexec/apache2/mod_proxy_http.so
```

And to setup the reverse proxy:

```
ProxyPass /nimbudocs http://nimbudocs.mycompany.com
```

IIS

The following modules must be installed on the IIS to set up a reverse proxy:

- ARR (Application Request Routing)
- URL Rewrite

To configure a reverse proxy, you have to add a rewrite rule to the web.config of your web application like this:

```
<configuration>
    <system.webServer>
        <rewrite>
            <rules>
                <rule name="ReverseProxyInboundRule1" stopProcessing="true">
                    <match url="nimbudocs/(.*)" />
                    <action type="Rewrite" url="http://nimbudocs.mycompany.com/{R:1}" />
                </rule>
            </rules>
        </rewrite>
    </system.webServer>
</configuration>
```

Jetty

When using Jetty you can write a simple reverse proxy servlet:

```
public class NimbudocsProxy extends ProxyServlet {
    public NimbudocsProxy() {
    }

    @Override
    protected HttpURI proxyHttpURI(HttpServletRequest request, String uri) {
        String servletContextPath = getServletConfig().getServletContext().getContextPath();
        servletContextPath += "/" + getServletConfig().getServletName();
        String nimbudocsServerUrl = "http://nimbudocs.mycompany.com";
        String requestUri = request.getRequestURI();
        String query = request.getQueryString();

        requestUri = requestUri.substring(servletContextPath.length());
        nimbudocsServerUrl += requestUri;

        if (query != null && query.length() > 0) {
            nimbudocsServerUrl += "?" + query;
        }

        HttpURI httpUri = new HttpURI(URI.create(nimbudocsServerUrl));

        return httpUri;
    }
}
```

To setup the servlet, you also have to add a few entries to your web.xml:

```
<servlet>
    <servlet-name>nimbudocs</servlet-name>
    <servlet-class>com.mycompany.NimbudocsProxy</servlet-class>
    <load-on-startup>1</load-on-startup>
    <async-supported>true</async-supported>
</servlet>

<servlet-mapping>
    <servlet-name>nimbudocs</servlet-name>
    <url-pattern>/nimbudocs</url-pattern>
    <url-pattern>/nimbudocs/*</url-pattern>
</servlet-mapping>
```

10.3 Usage

Once the reverse proxy has been configured and set up, you have to load the Nimbudocs Editor JavasScript files from the new URL as well as change the Nimbudocs Editor server URL appropriately.

Basic Integration:

```
<script src="http://nimbudocs.mycompany.com/nimbudocseditor.js"></script>
<script>
jQuery(window).load(function() {
    NimbudocsEditor.create("nimbuContainer", "http://nimbudocs.mycompany.com");
});
</script>
```

Integration With Reverse Proxy:

```
<script src="http://webapp.mycompany.com/nimbudocs/nimbudocseditor.js"></script>
<script>
jQuery(window).load(function() {
    NimbudocsEditor.create("nimbuContainer", "http://webapp.mycompany.com/nimbudocs");
});
</script>
```

As you can see, when using the reverse proxy, there are now only URLs used which contain the domain of your web application, namely *webapp.mycompany.com* instead of *nimbudocs.mycompany.com*.

11. FORM EDITOR

The Form Editor is a powerful extension for Nimbudocs Editor which enables the document designer to include form fields in their documents. These form fields can be enriched with JavaScript to include business logic and custom validation. This guide explains the different conditions for supported form fields and how to use custom JavaScript.

To enable the form validation, the editor option formValidation has to be set.

11.1 Included Form Fields

The following form fields are included:

Text Field

This is a generic field for entering text.

Date Field

This field is a pre-configured text field and only accepts valid date strings. An empty string (i.e. no user input) is invalid by default. Additionally, a date picker will pop up upon entering the field.

Checkbox

A field that has only two states: checked and unchecked.

11.2 Conditions

You can specify JavaScript expressions for the following two conditions for every form field to determine its state.

11.2.1 Deactivation Condition

This condition determines whether the form element is deactivated or not. Deactivated form fields are not validated and cannot be filled out by the user.

If the JavaScript expression for this condition evaluates to a truthy value (e.g. a boolean `true` or a string), the field is deactivated. In all other cases, including when the expression is empty, the field is activated.

11.2.2 Validation Condition

This condition determines whether the input of the form field is valid or not. Invalid fields are highlighted.

If the JavaScript expression for this condition evaluates to a truthy value, the field is invalid. If no expression if specified, the form field is valid by default.

If the form field is invalid, an appropriate message is stored in the `invalid` attribute of the form field and can be displayed to the user via CSS. If the return value of the JavaScript expression is a string, the `invalid` attribute will contain exactly that string, otherwise it will simply contain "invalid".

Date fields have certain built-in validation checks which check if the input is a date string and if the input is not empty.

11.3 Form Field Reference Objects

Each form field has a unique name. You can reference other form fields from within an expression using a globally defined object with that same name. The objects evaluate to the respective form field's current input data, which is a string for text and date fields (or an empty string for such fields without input) or a boolean value for checkboxes (`true` for checked, `false` for unchecked).

To reference the form field you are currently editing, you can either use its name or the `this` keyword.

This is especially useful for quickly defining dependency trees for the deactivation condition of certain form elements.

Since the form field reference objects evaluate to string or boolean, common JavaScript properties and methods for these data types are also available, including `length` and `match` for strings.

Specifying a Deactivation Condition

Assuming you have two form fields: A checkbox with the name "Checkbox1" and a text field with the name "TextField1". A common use-case is that you want the text field to only be enabled if the checkbox is checked first.

To achieve this, you could define the following expression for the text field's *deactivation condition*:

```
if (Checkbox1 === false) { // if the checkbox is not checked
    return true;          // the field is deactivated
}
```

Or shorter:

```
return !Checkbox1;
```

"Checkbox1" is a checkbox field, thus the object "Checkbox1" evaluates to `true` if the checkbox is checked and to `false` otherwise.

Specifying a Validation Condition

Another pretty common use-case is to check if the user made a certain input, e.g. a specific string. The following example shows how to define an expression for a text field's *validation condition* that causes the field input to only be valid if the user inputs the word "dog". If the user enters other animal names, a custom error message is shown depending on the animal.

```
if (this == "cat") {
    return "Only dogs allowed."; // Custom invalid message for input "cat"
} else if (this == "elephant") {
    return "Elephants are too big."; // Custom invalid message for input "elephant"
} else if (this == "dog") {
    return false; // The field is only valid for input "dog"
}

return "Woof woof."; // Invalid message for any other input
```

11.4 Element Attributes

Every form field is represented in the document by a certain HTML element. Form field elements have several attributes that can be selected via CSS to create custom styles for the form fields, depending on their states.

roname

The unique name of the form field. The value of this attribute is identical to the top-level JavaScript object referencing the field used in expressions for the fields' conditions.

roform

This attribute determines the type and thus the behavior of the form field. Possible values are: `text` for a text field, `date` for a date field, `checkbox` for a checkbox.

roinvalid

If this attribute is present, the form field's input is not valid (according to a pre-defined or custom *Validation Condition*). The value of the attribute is a string describing why the input is invalid. It is the return value of the field's expression for its *Validation Condition*.

11.5 Helper Functions

Global helper functions are available within the context of the JavaScript expressions which provide convenient access to commonly used functionality:

count(formfield...) → {Number}

This function takes an arbitrary number of form elements as argument and returns the amount of form fields that have been filled out.

Check Exactly Two of Three Boxes

```
if (count(Checkbox1, Checkbox2, Checkbox3) != 2) {
    return "Please check two boxes."
}
```

isInt(formfield) → {Boolean}

Returns `true` if and only if the input of the given form field is an integer.

isPosInt(formfield) → {Boolean}

Returns `true` if and only if the input of the given form field is a positive integer.

12. SERVER CONFIGURATION

The Nimbudocs Editor server can be configured/managed in various ways:

1. Global server configuration
2. Configuration/Administration through the Webmin interface (Appliance-only)

12.1 Global Server Configuration

12.1.1 Server Configuration Parameters

Configuration parameters can be specified for the Nimbudocs Editor application server. These are parameters the client should not or cannot influence, and they affect all editor sessions.

These server parameters can be configured in various ways depending on your deployment option:

Please note: For the Docker deployment option using a configuration file is recommended.

Configuration file

Server parameters can also be configured in a special configuration file. For the Virtual Appliance, a sample configuration file *nimbudocseditorserver.config* is available in the */ro/nimbudocs/config* directory. For Docker you have to mount it to the */ro/nimbudocs/config* directory. The content of this configuration file is one or more lines, each consisting of the following:

```
parameterName=parameterValue
```

This format is similar to Java's properties file format.

Java System Properties

As system properties, server parameters have the following form:

```
com.realobjects.nimbudocs.editor.parameterName=parameterValue
```

To specify system properties, add them to the section "VM Arguments" in the /ro/jetty9/start.ini file, below the "--exec" line like this:

```
-Dcom.realobjects.nimbudocs.editor.parameterName=parameterValue
```

Please note: The parameter name must be prefixed with *com.realobjects.nimbudocs.editor.*

Servlet Init Parameters

Init parameters are specified in the */ro/jetty9/webapps/nimbueditor.xml* file. They appear similar to this:

```
<Call name="setInitParameter">
    <Arg>parameterName</Arg>
    <Arg>parameterValue</Arg>
</Call>
```

Environment Variables

Another way to set server parameters is in form of environment variables. How exactly enviroment variables are set is dependent on your system, however it should be similar to this:

```
export NIMBUDOCS_EDITOR_PARAMETERNAME=parameterValue
```

Please note: The parameter name is upper cased and must be prefixed with *NIMBUDOCS_EDITOR_*

Parameter Priority

Should the same server parameter be specified in multiple ways (e.g. as system property and environment variable), the parameter with the highest priority is chosen. The priority is as follows, with the first item having highest priority:

1. Configuration file
2. System property
3. Enviroment variable
4. Servlet init parameter

List of Configuration Parameters

Name	Default	Description
adminKey		The Admin Key is used to authenticate for some administrative tasks performe in the Webmin module or via the REST API. This overrides the "adminKeyPath" paramet
adminKeyPath	`/ro/nimbudocs/config/`	The Nimbudocs Editor server will look for an "adminkey.txt" file, containing the Admin Key String, in that folder.
allowedCrossOriginHosts		Configures the allowed integration hosts. Takes a comma separated list of allowed cross origin locations (host including protocol, e.g.: http://my.integration.host).
apiKeys		API keys can be used to authenticate specific integrations of Nimbudocs Editor. If the API key is set (a different from an empty string the Nimbudocs Editor session will only start if the key is also set in your integration. This parameter sets the API-Keys directly as comma separated list. Will be merged with the API-Keys set by the "apiKeysPath" parameter.

Name	Default	Description
apiKeysPath	`/ro/nimbudocs/config/`	The Nimbudocs Editor server will look for an "apikeys.json" file, containing a JSON Objec with multiple "API-Key" -> "Description" objects, in that folder.
applicationDictionaryDir		Words learned through the `learnWord` method with a persistence level of "application" or through the `spellcheck-add-word-application` action of the context menu will be stored in files corresponding to their language code in the specifie directory. If this parameter is not configured, persistent wor can not be stored persistently
autoSaveInterval	`10`	The interval (in seconds) with which editor sessions are aut saved to the "autoSaveTempDir" (The valu set must be greater than the default value).
autoSaveTempDir	`/ro/nimbudocs/autosavetmp/`	The directory in which editor sessions are auto-saved. If ommited the system temp fol will be used.
concurrentEditorSessions	`50`	Set the concurrent editor session limit. Please note, tha increasing the amount of concurrent editor sessions above the calculated maximu (default setting, determined b available memory) might resu in decreased performance or even application server crashes!
configPath	`/ro/nimbudocs/config/`	Configures the path where th Nimbudocs Editor Server look for the *nimbudocseditorserver.config* file.
customFontFilePath	`/ro/nimbudocs/config/customfonts/`	The file system path where custom font will be uploaded the REST API
customHeaders	Takes a string to set additional custom headers sent by the server. Format: headername1:headervalue1,headername2:headervalue2,...	

Name	Default	Description
externalAutoSaveConfigurationPath	`/ro/nimbudocs/config/`	Configures the path where the Nimbudocs Editor Server looks for the *externalautosave.json* file. This JSON file configures external auto save functionality which is a feature that allows to save the document content to an external server at specific intervals (defined by the *autoSaveInterval* parameter), as well as when the user closes the editor. The JSON file must contain at least a configuration for the *autoSaveUrl*: `{ "autoSaveUrl": "..." }` Furthermore it can also contain configuration for authenticationCredentials, cookies and requestHeaders. The Nimbudocs Editor server will POST the document content using the authentication information configured, as well as two custom headers which identify the editor session: *X-RO-DocumentID* and *X-RO-UserID*.
fontCachePath	System temp folder	The file system path where fonts loaded from http(s) with no CORS headers will be cached. This allows to use those fonts in Nimbudocs Editor, as they would normally be rejected on the client for cross-origin restrictions.
hibernateCleanupTimeout	`600`	The time (in seconds) after which an hibernated editor will be removed from memory. Hibernated editors still require memory and occupy an editor session (The value set must be greater than the default value. So it is not recommended to increase this value too much.
hibernateCleanupTimeoutCheckInterval	`120`	The interval (in seconds) in which it is checked if hibernated editor sessions should be removed (The value set must be greater than the default value and lesser than the hibernateCleanupTimeout value).

Name	Default	Description
imageCachePath	• Appliance: System temp folder • Docker: /ro/nimbudocs/imagecache/	The Nimbudocs Editor server will cache images (which are not available from an URL) in this folder.
instanceName		Sets the configured value as custom response header for each request. Can be used to identify the node in a load balanced scenario.
lenient	`false`	Set to true/uncomment to use Nimbudocs Editor with a self-signed certificate, or if you experience other SSL issues.
licenseKeyPath	`/ro/nimbudocs/config`	The path where the license ke is located.
licenseKeyUrl		An URL to load the license ke from (takes precedence over "licenseKeyPath").
logLevel	`WARNING`	The server side log level. Vali log levels are: SEVERE, WARNING, INFO, CONFIG, FINE, FINER, FINEST.
sessionHibernateTimeout	`180`	Set the timeout (in seconds) until an editor starts hibernati (The value set must be greate than the default value).
sessionHibernateTimeoutCheckInterval	`30`	The interval (in seconds) in which it is checked if an edito should be hibernated (The value set must be greater tha the default value and lesser than the sessionHibernateTimeout value).
storageCleanupCheckInterval	`14400`	The interval (in seconds) in which it is checked if an auto-saved editor session file shou be removed (The value set must be greater than the defa value and lesser than the storageCleanupRetentionPeri value).
storageCleanupRetentionPeriod	`86400`	How long (in seconds) an aut saved editor session file shou be kept after the last modification (The value set must be greater than the defa value).

Name	Default	Description
suggestionFilterListPath		The Nimbudocs Editor server will look for a "suggestionFilterList" file, containing line break separate words, which should be omitte from the suggestion list for misspelled words. The filter lis is "case sensitive" and "whole word" only.
undoLimit	`50`	The limit of the Undo/Redo stack of one editor session.
useSystemFonts	`false`	Whether fonts installed on the system can be used in Nimbudocs Editor. You have make sure the following for th to work correctly: • Install the font on the Nimbudocs Editor server AND on each client syste • Add a font-face style rul referencing the system fo using the "local" src atribute to the editor. Doi so the font will be added the drop down in Nimbudocs Editor, e.g.: `@font-face { font-family: MyFont; src: local("MyFont"); }`

Installing and Setting the License Key

The installation of the license key depends on your deployment.

If Nimbudocs Editor is deployed as Virtual Appliance you can either use the Webmin interface (see below) to upload the key or place the *licensekey.txt* in the */ro/nimbudocs/config* directory.

If Nimbudocs Editor is deployed as a Docker container it will look for a license key in */ro/nimbudocs/config/licensekey.txt* by default. So you should mount a directory on the host system to */ro/nimbudocs/config* and place the licenskey.txt there.

12.1.3 Installing Custom Fonts

Custom fonts can currently only be installed using the appropriate REST API.

12.2 Configuration and Administration through the Webmin Interface (Appliance Only)

The Webmin interface can be reached at *https://yournimbudocsserver:10000*, you can login with the following credentials:

- User: root, Password: sucichiruwe75
- User: nimbudocs-editor-manage, Password: cofeevejwys52 (This user has only access to the Nimbudocs Editor module)

12.3 SSL Configuration in Jetty

Nimbudocs Editor supports HTTPS connections over SSL. The following types of connections are supported:

- Connecting from a client application with no SSL connection to a Nimbudocs Editor server with SSL.
- Connecting from a client application with an SSL connection to a Nimbudocs Editor server with SSL.

You cannot connect to a Nimbudocs Editor server with no SSL connection if the client application itself uses SSL (i.e. you cannot perform an unsecure connection from within a secured environment).

If you would like to activate SSL for the Jetty server delivered with Nimbudocs Editor by default, please see below.

12.3.1 Creating a Self-Signed PKCS12 Keystore

You do not need to perform the steps in this section if you already have an SSL certificate for your Jetty server.

To create a self-signed certificate, execute the following commands on the command line (note: you will require openssl and keytool):

```
openssl genrsa -des3 -out jetty.key
openssl req -new -x509 -key jetty.key -out jetty.crt
keytool -keystore keystore -import -alias jetty -file jetty.crt -trustcacerts
openssl req -new -key jetty.key -out jetty.csr
openssl pkcs12 -inkey jetty.key -in jetty.crt -export -out jetty.pkcs12
```

For simplicity you can use the same password for all commands. If you are using different passwords, make sure to use the appropriate password when configuring the "sslContextFactory" for Jetty (see below).

IMPORTANT: if you are using a self-signed certificate, clients need to accept the certificate before they can make AJAX calls over SSL to your server. These calls will fail due to security restrictions if the certificate was not accepted by the client first. The easiest way to accept those certificates is to manually open the Nimbudocs Editor server SSL URL before loading the editor in your integration (for example, if your host is "https://yourhost.com:8443", first visit this URL and manually accept your self-signed certificate).

If an AJAX call fails due to an untrusted HTTPS connection, you will not be prompted to accept a certificate.

12.3.2 Import the PKCS12 Keystore in Jetty

```
keytool -importkeystore -srckeystore jetty.pkcs12 -srcstoretype PKCS12 -destkeystore keystore
```

Make sure to replace the "keystore" indicated by the "-destkeystore" parameter with the path to the Jetty keystore. It is located in "/ro/jetty9/etc/keystore" by default in the Nimbudocs Editor OVF version. If the Jetty keystore already exists, remove or rename it before creating the new keystore.

12.3.3 Enabling SSL in Jetty

You can now use the keystore you created to configure SSL in Jetty. Since you will have to enter the password for your keystore in the jetty-ssl.xml configuration file, we'd recommend first creating a hash from your password. You can do this as follows:

```
java -cp /ro/jetty9/lib/jetty-util-9.3.2.v20150730.jar\
org.eclipse.jetty.util.security.Password [password]
```

Now open the start.ini file (found in /ro/jetty9/start.ini by default in the Nimbudocs Editor OVF version) and edit/add/uncomment the following section:

```
#=========================
# SSL Configuration
#=========================
#--module=https
#--module=ssl

#jetty.ssl.port=8443
#jetty.ssl.idleTimeout=30000
#jetty.ssl.acceptors=2
#jetty.ssl.acceptorQueueSize=100

#jetty.sslContext.keyStorePath=etc/keystore
#jetty.sslContext.trustStorePath=etc/keystore
#jetty.sslContext.keyStorePassword=OBF:[password]
#jetty.sslContext.keyManagerPassword=OBF:[password]
#jetty.sslContext.trustStorePassword=OBF:[password]
```

The [password] should be replaced by the hash you created using the `org.eclipse.jetty.util.security.Password` as described above. If you are using a MD5 hash of your password or your password in plain text instead, you should change the "OBF" prefix to "MD5" or remove it.

If you are using a self-signed certificate (as described above), you must activate the "lenient" mode by uncommenting the following from "/ro/jetty9/webapps/nimbueditor.xml":

```
<!--
    Set to true/uncomment to use Nimbudocs Editor with a self-signed certificate,
    or if you experience other SSL issues.
-->
<!--
<Call name="setInitParameter">
    <Arg>lenient</Arg>
    <Arg>true</Arg>
</Call>
-->
```

Now restart Jetty to apply the changes. If you are using the Nimbudocs Editor OVF, you can do so using the following command:

```
sudo /etc/init.d/jetty restart
```

12.3.4 Update the Integration Code

Your Jetty server is now ready to serve Nimbudocs over SSL. All you need to do know is to update your integration code to use the new SSL connection. To so, change the URL the `nimbudocseditor.js` is loaded from to the SSL port you configured (8443) in the example above, and also update the URL passed to the "NimbudocsEditor.create" method. Example:

```
<script src="https://yourhost:8443/nimbudocseditor.js"></script>
<script>
.
.
.
NimbudocsEditor.create("nimbuContainer", "https://yourhost:8443", options);
</script>
```

13. REST

This chapter describes the REST APIs provided by Nimbudocs Editor.

The REST APIs of Nimbudocs Editor provide access to resources and management functionalities

13.1 The REST API

RESTful Resources

Resource	HTTP Method	Description	Expected Response
`/rest/assets`	GET	Returns an XML containing a list of all available assets.	**200 [text/xml]** A list of available assets.
`/rest/assets/{asset}`	GET	Retrieves assets like style sheets used by Nimbudocs Editor. This is useful to ensure that Nimbudocs Editor documents look the same outside of a Nimbudocs Editor instance. The following assets are currently available: **main.css** Common styles used by the editor. This is required to display documents correctly. **fonts.css** This contains all fonts currently available to the editor. To ensure that your documents look identical outside of Nimbudocs Editor, all assets must be included.	**404** If the asset was not found or does not exist. **200 [text/plain]** The asset content.

13.2 Management API

To use the Management Service API the Management Service (management.war) has to be deployed in your application server. For the Virtual Appliance and the preconfigured Jetty package, the Management Service is already deployed by default and can be reached on the following *(Base) URL*

```
http://yournimbudocsserver:9424/management/${COMMANDPATH}?adminKey=${YOURADMINKEY}
```

To use the Management Service an Admin Key has to be set. Please note that the Management Service runs on a different port than Nimbudocs Editor itself, so you can restrict access to it using e.g. a firewall.

By default the GET commands return data in XML format. If you want to retrieve the data in JSON format, append ".json" to the command path, e.g.:

```
http://yournimbudocsserver:9424/management/editor/data.json?adminKey=${YOURADMINKEY}
```

PUT requests expect payload in either XML or JSON format (see the corresponding GET methods for the structure of the payload)

COMMANDPATH	`document/${DOCUMENTID}`
Request Type	GET
Additional Query Parameters	
Description	Fetches the content of the editor with the corresponding document id.

COMMANDPATH	`editor/data/autosave/${DOCUMENTID}`
Request Type	`GET`
Additional Query Parameters	**delete:** whether to delete the autosave from disc after retrieving.
Description	Fetches the binary autosave data for this editor instance.

COMMANDPATH	`editor/data`
Request Type	`GET`
Additional Query Parameters	**diagnostic:** enable diagnostics mode (use true as argument value to enable) **noLock:** enable diagnostics mode (use true as argument value to enable)
Description	This returns information (documentId, documentName, ...) about all editor sessions and their associated users. Using the diagnostic mode will return information about the amount of objects used by the document, as well as information about the undo/redo stack for each editor. Please note that it can take up to 1-2 minutes to gather this information, furthermore we recommend not to call this method too often (e.g. every minute). This noLock variation of the diagnostic mode will try to retrieve the information in a "brute-force" way which could lead to data loss/corruption (for those particular editors) and should only be used with caution (e.g. in situations where the server has to be restarted anyway).

COMMANDPATH	`licenseinfo`
Request Type	`GET`
Additional Query Parameters	
Description	Returns information about the installed license key.

COMMANDPATH	`server/settings`
Request Type	`GET`
Additional Query Parameters	
Description	Returns information about the server settings (log level, state).

COMMANDPATH	`server/info`
Request Type	`GET`
Additional Query Parameters	
Description	Returns information about the server environment and configuration.

COMMANDPATH	server/log
Request Type	GET
Additional Query Parameters	
Description	Fetches the server log in chunks.

COMMANDPATH	healthcheck
Request Type	GET
Additional Query Parameters	
Description	Checks if the server is running correctly. Returns with HTTP 200 and "OK" if the server is running.

COMMANDPATH	server/customfonts
Request Type	GET
Additional Query Parameters	
Description	Returns a list of custom fonts installed on the server.

COMMANDPATH	server/shutdown
Request Type	GET
Additional Query Parameters	
Description	Returns the remaining time (in seconds) until the server is shut down.

COMMANDPATH	server/dictionarymanager/words/${LANGUAGEID}
Request Type	GET
Additional Query Parameters	
Description	Returns list of the words stored in the application dictionary for the specified language code.

COMMANDPATH	server/dictionarymanager/lang
Request Type	GET
Additional Query Parameters	
Description	Returns a list of language codes for which an application dictionary exists on this server.

COMMANDPATH	server/settings
Request Type	PUT
Additional Query Parameters	

COMMANDPATH	server/settings
Description	Set the log level and/or state of the server. **logLevel** can be one of SEVERE, WARNING, INFO, CONFIG, FINE, FINER, FINEST **state** can be one of OK, SHUTDOWN, MAINT.

COMMANDPATH	server/licensekey
Request Type	PUT
Additional Query Parameters	
Description	Sets the license key, while the server is running. Expects the license key as string (application/octet-stream).

COMMANDPATH	editor/data/autosave/${DOCUMENTID}
Request Type	PUT
Additional Query Parameters	
Description	Saves autosave data for an editor instance. Data is expected as string (application/octet-stream).

COMMANDPATH	server/apikeys
Request Type	PUT
Additional Query Parameters	
Description	Adds API keys. Expects an array of strings.

COMMANDPATH	server/apikey
Request Type	PUT
Additional Query Parameters	
Description	Adds an API key. Expects a string.

COMMANDPATH	server/customfonts
Request Type	PUT
Additional Query Parameters	

COMMANDPATH	server/customfonts
Description	Adds a custom font to the server. Data has to be sent as form multi-part data consisting of at least the following parts: • A string value with the key "fontFamily" containing the name of the font family. • One or more font files (only ttf, otf, woff, woff2 are allowed). Optional form data: • A boolean string value with the key "italic", if the font files uploaded are for the italic (and/or bold) variant of the font family. • A boolean string value with the key "bold", if the font files uploaded are for the bold (and/or italic) variant of the font family. • A integer string value with the key "weight", if you want to use a numeric font weight for the added font variant. Using weight overrides the "bold" flag.

COMMANDPATH	server/dictionarymanager/words/${LANGUAGEID}
Request Type	PUT
Additional Query Parameters	
Description	Adds add list of words to the application dictionary specified by the language ID. Use a language code (e.g. en-US) as the language ID. **wordList** needs to be a JSON array consisting of one or more words to add.

COMMANDPATH	server/apikey
Request Type	DELETE
Additional Query Parameters	
Description	Removes an API key. Expects a string.

COMMANDPATH	editor/close/${DOCUMENTID}
Request Type	DELETE
Additional Query Parameters	
Description	Closes the editor with the specified document id.

COMMANDPATH	server/kill
Request Type	DELETE
Additional Query Parameters	
Description	Immediately kills the server by stopping the process. Use with caution, may cause data loss.

COMMANDPATH	server/shutdown
Request Type	DELETE
Additional Query Parameters	time
Description	If the **time** parameter is specified and a positive integer, the server state will be set to MAINT until the time has expired. In this state no new editor requests are accepted and the client side "onprepareservershutdown" callback is triggered. If the time has passed or if no time was specified, the server is set to state SHUTDOWN. In this state no new editor sessions are accepted and all existing sessions are closed.

COMMANDPATH	server/cancel-shutdown
Request Type	DELETE
Additional Query Parameters	
Description	Cancels the timer set with "server/shutdown". Works only as long as the time has not yet expired.

COMMANDPATH	server/restart
Request Type	DELETE
Additional Query Parameters	
Description	This works only in specific situations. The flag **supportsRestart** in "server/info" must be *true*.

COMMANDPATH	server/customfonts/${FONTHASH}
Request Type	DELETE
Additional Query Parameters	
Description	Removes the custom font with the specified font hash.

COMMANDPATH	server/dictionarymanager/words/${LANGUAGEID}
Request Type	DELETE
Additional Query Parameters	
Description	Removes the words in the indicated list of words from the application dictionary specified by the language ID. Use a language code (e.g. en-US) as the language ID. **wordList** needs to be a JSON array consisting of one or more words to remove.

COMMANDPATH	server/dictionarymanager/lang/${LANGUAGEID}
Request Type	DELETE
Additional Query Parameters	
Description	Deletes the entire application dictionary for the specified by the language ID. Use a language code (e.g. en-US) as the language ID.

APPENDIX A: ACTION REFERENCE

abbr

Toggles the *abbr* semantic element.

accept-all-changes

Accepts all changes in the document.

accept-change

Accepts the current change in the document.

accept-change-gonext

Accepts the current change and moves to the next change in the document.

acronym

Toggles the *acronym* semantic element.

align

Sets the alignment of the paragraph at the caret position.

This action needs an action command if it is invoked via *invokeAction*. Possible action commands are: *left*, *center*, *right*.

Invoking the align action with an action command

```
editor.invokeAction("align","center");
```

align-center

Aligns the paragraph at the caret position at the center.

align-default

Removes the alignment of the paragraph at the caret position.

align-justify

Justifies the paragraph at the caret position.

align-left

Aligns the paragraph at the caret position on the left.

align-right

Aligns the paragraph at the caret position on the right.

auto-correct-dialog

Opens the "Auto Correct Properties" dialog.

auto-fit-table-content

Removes width and height of the table elements.

background-color

Sets the background color at the caret position or of the current selection. This action needs an action command if it is invoked via *invokeAction*. Possible values are valid CSS Colors (e.g. hex, rgb, cmyk).

Invoking the background-color action with an action command

```
editor.invokeAction("background-color", "#C8C8C8");
```

background-color-aqua

Sets background color to aqua.

background-color-black

Sets background color to black.

background-color-blue

Sets background color to blue.

background-color-default

Removes the background color at the caret position or of the current selection.

background-color-fuchsia

Sets background color to fuchsia.

background-color-gray

Sets background color to gray.

background-color-green

Sets background color to green.

background-color-lime

Sets background color to lime.

background-color-maroon

Sets background color to maroon.

background-color-navy

Sets background color to navy.

background-color-olive

Sets background color to olive.

background-color-orange

Sets background color to orange.

background-color-purple

Sets background color to purple.

background-color-red

Sets background color to red.

background-color-silver

Sets background color to silver.

background-color-teal

Sets background color to teal.

background-color-white

Sets background color to white.

background-color-yellow

Sets background color to yellow.

backgroundcolor-dialog

Opens the "Background Color" dialog.

barcode-properties

Changes the properties of a barcode or QR code. This action needs an action command if it is invoked via invokeAction. The command value must be a JSON object with the keys "type" and "content". Both are mandatory, "type" can be one of the following string values: "qrcode", "pdf417", "datamatrix", "ean-8", "ean-13", "ean-128", "itf-14", "upc-a", "upc-e", "code39", "code128", "codabar", "interleaved2of5", "postnet", "royal-mail-cbc", "usps4cb"."

barcode-properties-dialog

Opens the "Barcode Properties" dialog.

block-indent

Removes the block indentation.

bold

Sets font weight bold at the caret position or of the current selection and enables typing of bold text.

bookmark-properties-dialog

Opens the "Bookmark Properties..." dialog.

cell-properties

Sets the properties of the cell at the caret position. This action needs an action command if it is invoked via *invokeAction*. Possible values are JSON objects with the keys "width", "widthUnit", "height", "heightUnit", "align" and "valign".

Invoking the cell-properties action with an action command

```
attributes = {};
attributes.height = "80";
attributes.heightUnit = "%";
attributes.width = "200";
attributes.widthUnit = "%";
attributes.align = "left";
attributes.valign = "top";
editor.invokeAction("cell-properties", attributes);
```

cell-properties-dialog

Opens the "Cell Properties" dialog.

change-bookmark

Changes the name of the bookmark at the caret position. This action needs an action command if it is invoked via *invokeAction*. The action command determines the new name of the bookmark.

Invoking the change-bookmark action with an action command

```
editor.invokeAction("change-bookmark", "Introduction");
```

change-case

Changes the case of the word at the caret position or of the words in the current selection. This action needs an action command if it is invoked via *invokeAction*. Possible values are *"[lowercase]"*, *"[UPPERCASE]"*, *"[Title Case]"*, *"[tOGGLE cASE]"* and *"[Sentence case]"*.

Invoking the change-case action with an action command

```
editor.invokeAction("change-case", "[Title Case]");
```

change-case-dialog

Opens the "Change Case" dialog.

change-language-dialog

Opens the "Change Language" dialog.

cite

Toggles the *cite* semantic element.

clear-formatting

Removes all formatting from the selection or at the caret position if there is no selection.

code

Toggles the *code* semantic element.

color

Sets the font color at the caret position or of the current selection. This action needs an action command if it is invoked via *invokeAction*. Possible values are valid CSS Colors (e.g. hex, rgb, cmyk).

Invoking the color action with an action command

```
editor.invokeAction("color", "#C8C8C8");
```

color-aqua

Sets font color to aqua.

color-black

Sets font color to black.

color-blue

Sets font color to blue.

color-default

Removes the font color at the caret position or of the current selection.

color-dialog

Opens the "Font Color" dialog.

color-fuchsia

Sets font color to fuchsia.

color-gray

Sets font color to gray.

color-green

Sets font color to green.

color-lime

Sets font color to lime.

color-maroon

Sets font color to maroon.

color-navy

Sets font color to navy.

color-olive

Sets font color to olive.

color-orange

Sets font color to orange.

color-purple

Sets font color to purple.

color-red

Sets font color to red.

color-silver

Sets font color to silver.

color-teal

Sets font color to teal.

color-white

Sets font color to white.

color-yellow

Sets font color to yellow.

column-properties

Sets the properties of all cells of the column at the caret position. This action needs an action command if it is invoked via *invokeAction*. Possible values are JSON objects with the keys "width", "widthUnit", "height", "heightUnit", "align" and "valign".

Invoking the column-properties action with an action command

```
attributes = {};
attributes.width = "200";
attributes.widthUnit = "%";
attributes.valign = "top";
editor.invokeAction("column-properties", attributes);
```

column-properties-dialog

Opens the "Column Properties" dialog.

compare-documents-dialog

Opens the "Compare Documents" dialog which allows the user to select two documents for comparison.

Once the documents are loaded, the editor runs in comparison mode.

convert-image-to-data-uri

Triggers the conversion to base64 data URIs of all images in the document for which the CSS property "-ro-nimbu-image-src" with the value "convert" is applied either by inline style or an external style sheet (e.g. by using a class).

If the "-ro-nimbu-image-src" property is not set, or if the value is "auto" or "keep", the corresponding image is not converted.

convert-table

Tables with an absolute size are converted to tables with relative width.

copy-format

Copies the formatting information of the current selection.

create-pdf-dialog

Opens the create PDF dialog.

decrease-block-indent

Decreases the indentation of the block at the caret position or of the current selection.

decrease-font-size

Decreases the font size at the caret position or of the current selection.

decrease-indent

Decreases the indentation of the element at the caret position or of the current selection.

decrease-list-indent

Decreases the indentation of the list at the caret position or of the current selection.

decrease-list-level

Decreases the list level at the caret position or of the current selection.

decrease-multi-column-count

Decreases the column count

decrease-zoom-client

Decreases the zoom level.

default-key-typed

Insert a character into the document at the caret position as if the character was typed with a keyboard.

delete-backward

Emulates pressing Backspace.

delete-block

Deletes the block at the caret position.

delete-column

Deletes the table column at the caret position.

delete-container

Deletes the container at the caret position.

delete-forward

Emulates pressing Delete.

delete-next-character

Deletes the next inline element of the caret position or the current selection.

delete-next-paragraph-break

Deletes the next paragraph break.

delete-next-word

Deletes the next word after the caret position. If the caret is inside a word, the right part of the word is deleted instead.

delete-previous-character

Deletes the previous inline element of the caret position or the current selection.

delete-previous-paragraph-break

Deletes the previous paragraph break.

delete-previous-word

Deletes the previous word before the caret position. If the caret is inside a word, the left part of the word is deleted instead.

delete-row

Deletes the table row at the cursor position.

delete-selection

Deletes the current selection.

delete-tab

Deletes the tab at the caret position.

delete-table

Deletes the table at the caret position.

delete-table-caption

Deletes the table caption at the caret position.

dfn

Toggles the *dfn* semantic element.

disable-list-level

Deletes the list level at the caret position.

draw-shape-freehand

Draws a freehand shape. You can optionally pass default properties to the action.

Invoking the draw-shape-freehand action with an action command

```
var properties = {
lineWidth: "10",
lineColor: "green"
};

editor.invokeAction("draw-shape-freehand", properties);
```

edit-annotation-dialog

Opens the "Edit Annotation" dialog.

em

Toggles the *em* semantic element.

end-comparison-dialog

Opens the "End Comparison" dialog.

find-next

Finds the next change in the document (Only works if the "Find and Replace" dialog is open and the first occurrence of a word was found).

find-previous

Finds the previous change in the document (Only works if the "Find and Replace" dialog is open and the first occurrence of a word was found).

find-replace-dialog

Opens the "Find and Replace" dialog.

font-family

Sets the font family of the current selection. This action needs an action command if it is invoked via *invokeAction*. Possible values are any font family names supported by Java on this system.

Invoking the font-family action with an action command

```
editor.invokeAction("font-family", "monospace");
```

font-size

Sets the font size of the current selection. This action needs an action command if it is invoked via *invokeAction*. Possible values are any CSS font size.

Invoking the font-size action with an action command

```
editor.invokeAction("font-size", "20px");
```

font-size-10

Sets font size to 10px.

font-size-11

Sets font size to 11px.

font-size-12

Sets font size to 12px.

font-size-14

Sets font size to 14px.

font-size-16

Sets font size to 16px.

font-size-18

Sets font size to 18px.

font-size-20

Sets font size to 20px.

font-size-22

Sets font size to 22px.

font-size-24

Sets font size to 24px.

font-size-26

Sets font size to 26px.

font-size-28

Sets font size to 28px.

font-size-36

Sets font size to 36px.

font-size-48

Sets font size to 48px.

font-size-72

Sets font size to 72px.

font-size-8

Sets font size to 8px.

font-size-9

Sets font size to 9px.

font-size-default

Removes the font size at the caret position or from the current selection.

format-painter

When the action is enabled (toggled on), the formatting of the current caret position or selection is copied and can be applied to other parts of the document by clicking or selecting text.

goto-next-change

Moves to the next change found in the document.

goto-prev-change

Moves to the previous change found in the document.

hyperlink-properties-dialog

Opens the "Hyperlink Properties" dialog.

image-properties

Sets the properties of the image at the caret position. This action needs an action command if it is invoked via *invokeAction*. Possible values is a JSON object with the keys "imageAlt", "imageBorderColor", "imageBorderStyle", "imageBorderWidthStyle", "imageBorderWidthUnit", "imageHeight", "imageHeightUnit", "imageRotation", "imageSource", "imageWidth" and "imageWidthUnit".

Invoking the image-properties action with an action command

```
attributes = {};
attributes.imageHeight = "80";
attributes.imageHeightUnit = "%";
attributes.imageWidth = "200";
attributes.imageWidthUnit = "%";
editor.invokeAction("image-properties", attributes);
```

image-properties-dialog

Opens the "Image Properties" dialog.

increase-block-indent

Increases the indentation of the block at the caret position or of the current selection.

increase-font-size

Increases the font size at the caret position or of the current selection.

increase-indent

Increases the indentation of the element at the caret position or of the current selection.

increase-list-indent

Increases the indentation of the list at the caret position.

increase-list-level

Increases the list level at the caret position or of the current selection.

increase-multi-column-count

Increases the column count

increase-zoom-client

Increases the zoom level.

insert-annotation

Inserts an annotation at the caret position. This action needs an action command if it is invoked via invokeAction. The action command passed as argument is inserted as annotation text.

Invoking the edit-annotation action with an action command

```
editor.invokeAction("insert-annotation", "New annotation value");
```

insert-annotation-dialog

Opens the "Insert Annotation" dialog.

insert-barcode

Inserts a barcode or QR code. This action needs an action command if it is invoked via invokeAction. The command value must be a JSON object with the keys "type" and "content". The "type" is mandatory and can be one of the following string values: "qrcode", "pdf417", "datamatrix", "ean-8", "ean-13", "ean-128", "itf-14", "upc-a", "upc-e", "code39", "code128", "codabar", "interleaved2of5", "postnet", "royal-mail-cbc", "usps4cb"." If "content" is omitted the current selection plain text is used as content. (Omitting "content" thus requires a selection, without a selection nothing will be inserted).

insert-barcode-dialog

Opens the "Insert Barcode" dialog.

insert-bookmark

Inserts a bookmark at the caret position. This action needs an action command if it is invoked via *invokeAction*. The action command determines the bookmark name.

Invoking the insert-bookmark action with an action command

```
editor.invokeAction("insert-bookmark", "Appendix");
```

insert-bookmark-dialog

Opens the "Insert Bookmark" dialog.

insert-column-after

Inserts a column after the column at the caret position.

insert-column-before

Inserts a column before the column at the caret position.

insert-container

Inserts a container at the caret position.

insert-date

Inserts the date at the caret position.

insert-hyperlink

Inserts a hyperlink at the caret position or at the current selection.

insert-hyperlink-dialog

Opens the "Insert Hyperlink" dialog.

insert-image-dialog

Opens the "Insert Image" dialog.

insert-line-break

Inserts a line-break at the caret position.

insert-list-item-break

Inserts a list-item-break at the caret position.

insert-next-element-template

Inserts template for the next element.

insert-page-break

Inserts a page-break at the caret position.

insert-paragraph-after-block

Inserts a paragraph after the block a the caret position.

insert-paragraph-after-container

Inserts a paragraph after the container at the caret position.

insert-paragraph-after-list

Inserts a paragraph after the list at the caret position.

insert-paragraph-after-table

Inserts a paragraph after the table at the caret position.

insert-paragraph-before-block

Inserts a paragraph before the block at the caret position.

insert-paragraph-before-container

Inserts a paragraph before the container at the caret position.

insert-paragraph-before-list

Inserts a paragraph before the list at the caret position.

insert-paragraph-before-table

Inserts a paragraph before the table at the caret position.

insert-paragraph-break

Inserts a paragraph break at the caret position.

insert-row-after

Inserts a row after the row at the caret position.

insert-row-before

Inserts a row before the row at the caret position.

insert-shape-arrow

Inserts an arrow shape.

insert-shape-box

Inserts a box shape.

insert-shape-circle

Inserts a circle shape.

insert-shape-freehand

Inserts a freehand shape.

insert-shape-line

Inserts a line shape.

insert-special-character-dialog

Opens the "Insert Special Character" dialog (JavaScript dialog).

insert-tab

Inserts a tab at the caret position.

insert-table-caption

Inserts a table caption at the caret position.

insert-table-dialog

Opens the "Insert Table" dialog.

italic

Makes the selection italic and enables typing of italic text.

kbd

Toggles the *kbd* semantic element.

language

Sets the language of the current selection. This action needs an action command if it is invoked via *invokeAction*. Possible values are any valid language code combination. Note that the spell checker and thesaurus do not recognize language codes they do not support.

Invoking the language action with an action command

```
editor.invokeAction("language", "de-DE");
```

language-american-english

Sets the language of the current selection to American English.

language-american-legal

Sets the language of the current selection to American legal.

language-american-medical

Sets the language of the current selection to American medical.

language-brazilian-portuguese

Sets the language of the current selection to Brazilian Portuguese.

language-british-english

Sets the language of the current selection to British English.

language-british-legal

Sets the language of the current selection to British legal.

language-british-medical

Sets the language of the current selection to British medical.

language-canadian-english

Sets the language of the current selection to Canadian English.

language-danish

Sets the language of the current selection to Danish.

language-default

Sets the language of the current selection to the default value.

language-dutch

Sets the language of the current selection to Dutch.

language-finnish

Sets the language of the current selection to Finnish.

language-french

Sets the language of the current selection to French.

language-german

Sets the language of the current selection to German.

language-italian

Sets the language of the current selection to Italian.

language-none

Removes the language attribute of the current selection.

language-norwegian

Sets the language of the current selection to Norwegian.

language-portuguese

Sets the language of the current selection to Portuguese.

language-spanish

Sets the language of the current selection to Spanish.

language-swedish

Sets the language of the current selection to Swedish.

line-height-100

Sets the line height to 1em.

line-height-125

Sets the line height to 1.25em.

line-height-150

Sets the line height to 1.5em.

line-height-175

Sets the line height to 1.75em.

line-height-200

Sets the line height to 2em.

list

Converts the paragraph at the caret position or the current selection to a list. This action needs an action command if it is invoked via *invokeAction*. Possible values are *ol* and *ul*.

Invoking the list action with an action command

```
editor.invokeAction("list", "ol");
```

list-default

Converts a list at the caret position or the current selection to a paragraph.

list-ordered

Converts the paragraph at the caret position or the current selection to an ordered list.

list-unordered

Converts the paragraph at the caret position or the current selection to a unordered list.

live-document-language

Sets the current language of the document. This action needs an action command if it is invoked via *invokeAction*.

Invoking the live-document-language action with an action command

```
editor.invokeAction("live-document-language", "en-US");
```

live-fragment-language

Sets the current language of the document fragment at the caret position or of the current selection. This action needs an action command if it is invoked via *invokeAction*.

Invoking the live-fragment-language action with an action command

```
editor.invokeAction("live-fragment-language", "en-US");
```

load-url-dialog

Opens the "Load URL" dialog.

merge-cells

Merges the selected cells.

merge-container

Merges the selected containers.

merge-table

Merges the selected tables.

move-document-end

Moves the caret to the end of the document.

move-document-start

Moves the caret to the beginning of the document.

move-down

Moves the caret down.

move-left

Moves the caret to the left.

move-line-end

Moves the caret to the end of the line of the caret position.

move-line-start

Moves the caret to the beginning of the line of the caret position.

move-next-block

Moves the caret to the beginning of the next block.

move-next-editable-element

Moves the caret to the beginning of the next element (Nimbudocs Form elements only) that is editable (not read-only).

move-next-page

Moves the caret to the beginning of the next page.

move-next-table-cell

Moves the caret to the beginning of the next table cell.

move-next-word

Moves the caret to the beginning of the next word.

move-page-down

Moves the caret one view port down.

move-page-end

Moves the caret to the end of the page of the caret position.

move-page-start

Moves the caret to the beginning of the page of the caret position.

move-page-up

Moves the caret one view port up.

move-previous-block

Moves the caret to the beginning of the previous block.

move-previous-editable-element

Moves the caret to the beginning of the previous element (Nimbudocs Form elements only) that is editable (not read-only).

move-previous-page

Moves the caret to the beginning of the previous page.

move-previous-table-cell

Moves the caret to the beginning of the previous table cell.

move-previous-word

Moves the caret to the beginning of the previous word.

move-right

Moves the caret to the right.

move-to-bookmark

Selects a bookmark. This action needs an action command if it is invoked via *invokeAction*. The bookmark with the specified name is selected if a bookmark with that name is found in the document.

Invoking the move-to-bookmark action with an action command

```
editor.invokeAction("move-to-bookmark", "AppendixIndex");
```

move-to-next-bookmark

Selects the next bookmark found starting from the caret position.

move-to-previous-bookmark

Selects the previous bookmark found starting from the caret position.

move-up

Moves the caret up.

move-word-left

Moves the caret to the beginning of the word left.

move-word-right

Moves the caret to the beginning of the word right.

multi-column-dialog

Opens a dialog to set or edit multi column properties.

multi-column-count

Creates a multi column layout and sets the amount of columns. This action needs an action command if it is invoked via *invokeAction*.

Invoking the multi-column-count action with an action command

```
editor.invokeAction("multi-column-count", 3);
```

multi-column-gap

Sets the gap between columns. This action needs an action command if it is invoked via *invokeAction*.

Invoking the multi-column-gap action with an action command

```
editor.invokeAction("multi-column-gap", "0.5cm");
```

multi-column-width

Sets the width of the columns. This action needs an action command if it is invoked via *invokeAction*.

Invoking the multi-column-width action with an action command

```
editor.invokeAction("multi-column-width", "3cm");
```

multi-column-fill

Sets the fill behavior of the columns. This action needs an action command if it is invoked via *invokeAction*. Possible values are `auto` and `balanced`. The default is balanced.

Invoking the multi-column-fill action with an action command

```
editor.invokeAction("multi-column-fill", "auto");
```

multi-column-rule-style

Sets the width of the column rule. This action needs an action command if it is invoked via *invokeAction*.

Invoking the multi-column-rule-width action with an action command

```
editor.invokeAction("multi-column-rule-width", "10px");
```

multi-column-rule-style

Sets the style of the column rule. This action needs an action command if it is invoked via *invokeAction*.

Invoking the multi-column-rule-style action with an action command

```
editor.invokeAction("multi-column-rule-style", "dotted");
```

multi-column-rule-color

Sets the color of the column rule. This action needs an action command if it is invoked via *invokeAction*. Possible values are valid CSS Colors (e.g. hex, rgb, cmyk).

Invoking the multi-column-rule-color action with an action command

```
editor.invokeAction("multi-column-rule-color", "#FF0000");
```

new-document

Clears the editor's content and populates the editor with a template or default document.

page-mode

Sets the display mode of the editor. This action needs an action command if it is invoked via *invokeAction*. Possible values are "*0*" and "*1*". 0 and 1 correspond to continuous mode and single-sided mode.

Invoking the page-mode action with an action command

```
editor.invokeAction("page-mode", "0");
```

page-mode-continuous

Sets the display mode of the editor to continuous.

page-mode-single-sided

Sets the display mode of the editor to single-sided.

page-properties-dialog

Opens the "Page Properties..." dialog. (Allows to edit page margins, page size/orientation and header/footer)

paragraph-margin-default

Sets the paragraph margin to the default value.

paragraph-margin-0

Sets the paragraph margin to 0em.

paragraph-margin-50

Sets the paragraph margin to .50em.

paragraph-margin-100

Sets the paragraph margin to 1em.

paragraph-margin-150

Sets the paragraph margin to 1.5em.

paragraph-margin-200

Sets the paragraph margin to 2em.

paragraph-margin-250

Sets the paragraph margin to 2.5em.

paragraph-margin-300

Sets the paragraph margin to 3em.

paste

Inserts the contents of the clipboard in HTML format.

paste-format

Applies the formatting copied with *copy-format*.

paste-mode-keep-formatting

Selects the "keep-formatting" paste mode. In this paste mode, pasted content will keep all formatting.

paste-mode-match-destination

Selects the "match-destination" paste mode. In this paste mode, the formatting of the pasted content will match the formatting of the current block.

paste-mode-text-only

Selects the "text-only" paste mode. In this paste mode, content is pasted as plain text.

print-dialog

Opens the "Print" dialog.

q

Toggles the *q* semantic element.

redo

The last action that was rolled back is performed.

reject-all-changes

Rejects all changes in the document.

reject-change

Rejects the current change in the document.

reject-change-gonext

Rejects the current change and moves to the next change in the document.

remove-annotation

Removes the annotation at the caret position.

remove-bookmark

Removes the bookmark at the caret position.

remove-hyperlink

Removes the hyperlink at the caret position.

remove-multi-column

Removes multi column layout.

return-key

Inserts a return key a the caret position.

row-properties

Sets the properties of all cells within a table row. This action needs an action command if it is invoked via *invokeAction*. Possible values are JSON objects with the keys "align", "bgcolor", "height", "heightUnit" and "valign".

Invoking the row-properties action with an action command

```
attributes = {};
attributes.height = "80";
attributes.heightUnit = "%";
attributes.valign = "top";
editor.invokeAction("row-properties", attributes);
```

row-properties-dialog

Opens the "Row Properties" dialog.

samp

Toggles the *samp* semantic element.

script-sub

Makes the selection subscript and allows the typing of subscript text.

script-super

Makes the selection superscript and allows the typing of superscript text.

select-all

Selects all content within the editor.

select-block

Selects the block at the caret position.

select-container

Selects the container at the caret position.

select-document-end

Selects from the caret position to the end of the document.

select-document-start

Selects from the caret position to the beginning of the document.

select-down

Selects the content from the caret position to the same horizontal position in the line below.

select-left

Selects the character to the left of the caret position.

select-line

Selects the line at the caret position.

select-line-end

Selects from the caret position to the end of the line of the caret position.

select-line-start

Selects from the caret position to the beginning of the line of the caret position.

select-list

Selects the list at the caret position.

select-list-item

Selects the list item at the caret position.

select-next-block

Selects from the caret position to the end of the next block.

select-next-page

Selects from the caret position to the beginning of the next page. This action has no effect when page-view is continuous.

select-next-word

Selects from the caret position to the end of the word at the caret position.

select-page

Selects the page at the caret position.

select-page-down

Selects from the caret position to the same horizontal position below, creating a selection whose height equals the height of the view port.

select-page-end

Selects from the caret position to the end of the page. This action has no effect when page-view is continuous.

select-page-start

Selects from the caret position to the beginning of the page. This action has no effect when page-view is continuous.

select-page-up

Selects from the caret position to the same horizontal position above, creating a selection whose height equals the height of the view port.

select-positioned-content

If the caret position is in a positioned element, this action selects the positioned element's content.

select-previous-block

Selects from the caret position to the beginning of the previous block.

select-previous-page

Selects from the caret position to the beginning of the previous page. This action has no effect when page-view is continuous.

select-previous-word

Selects from the caret position to the beginning of the word at the caret position.

select-right

Selects the character to the right of the caret position.

select-sentence

Selects the sentence at the caret position or the sentence preceding the caret position if the caret is between two sentences.

select-table

Selects the table at the caret position.

select-table-caption

Selects the table caption of the table at the caret position.

select-table-cell

Selects the table cell at the caret position.

select-table-column

Selects the table column at the caret position or all columns of the selection.

select-table-row

Selects the table row at the caret position or all rows of the selection.

select-up

Selects the content from the caret position up to the same horizontal position in the line above.

select-word

Selects the word at the caret position.

select-word-left

Selects from the caret position to the left word boundary.

select-word-right

Selects from the caret position to the right word boundary.

shift-tab-key

Emulates pressing shift + tab key.

show-annotations-bubbles

Enables the bubble annotations view.

show-annotations-disabled

Disables the annotations view.

show-annotations-inline

Enables the inline annotations view.

show-bubbles-author

Display the author in bubbles.

show-bubbles-timestamp

Display the creation time in bubbles.

show-changes-final

Shows the final document.

show-changes-final-bubble

Shows the final document. Deletions are shown in bubbles.

show-changes-mixed-inline

Shows insertions and deletions inline. Insertions are underlined, deletions are strike-through.

show-changes-original

Shows the original document.

show-changes-original-bubble

Shows the original document. Insertions are shown in bubbles.

show-collab-url

Shows URL to the current collaboration session of this editor.

split-cell

Splits the cell(s) at the caret position or of the current selection. This action needs an action command if it is invoked via *invokeAction*. Possible values are arrays with two integer numbers like [2,3]. The first number corresponds to the number of the resulting rows and the second number corresponds to the number of the resulting columns of a cell.

Invoking the split-cell action with an action command

```
editor.invokeAction("split-cell", [2,3]);
```

split-cell-dialog

Opens the "Split Cell" dialog, which allows splitting of table cells.

split-container

Splits the container below the caret position or below the current selection.

split-table

Splits the table above the caret position or above the current selection.

strikethrough

Strikes out the text at the caret position or of the current selection and enables typing of striked out text.

strong

Toggles the *strong* semantic element.

switch-focus-area

Switches focus between the editing area and the surrounding Nimbudocs Editor user interface. This allows to navigate the tool bar and other UI elements with the keyboard. By default the shortcut is "Strg shift F" on Windows and "shift alt F" on OS X.

tab-key

Emulates pressing the tab key.

table-cell-valign

Sets the vertical alignment of the table cell at the caret position. This action needs an action command if it is invoked via *invokeAction*. Possible values are *baseline*, *bottom*, *default*, *middle* and *top*.

Invoking the table-cell-valign action with an action command

```
editor.invokeAction("table-cell-valign", "baseline");
```

table-cell-valign-baseline

Sets the vertical alignment of the cell content at the caret position or of the selected cell(s) to the baseline.

table-cell-valign-bottom

Sets the vertical alignment of the cell content at the caret position or of the selected cell(s) to the bottom.

table-cell-valign-default

Removes the vertical alignment of the cell content at the caret position or of the selected cell(s).

table-cell-valign-middle

Sets the vertical alignment of the cell content at the caret position or of the selected cell(s) to the middle.

table-cell-valign-top

Sets the vertical alignment of the cell content at the caret position or of the selected cell(s) to the top.

table-properties-dialog

Opens the "Table Properties" dialog.

toggle-auto-spellcheck

Toggles automatic spell checker.

toggle-collab-mode

Enables or disables the collaboration mode.

toggle-heading-1

Applies the style template *Heading 1* at the caret position. This effectively converts the block at the caret position to a title section formatted with <*h1*>.

toggle-heading-2

Applies the style template *Heading 2* at the caret position. This effectively converts the block at the caret position to a title section formatted with <*h2*>.

toggle-heading-3

Applies the style template *Heading 3* at the caret position. This effectively converts the block at the caret position to a title section formatted with <*h3*>.

toggle-heading-4

Applies the style template *Heading 4* at the caret position. This effectively converts the block at the caret position to a title section formatted with <*h4*>.

toggle-heading-5

Applies the style template *Heading 5* at the caret position. This effectively converts the block at the caret position to a title section formatted with <*h5*>.

toggle-heading-6

Applies the style template *Heading 6* at the caret position. This effectively converts the block at the caret position to a title section formatted with <*h6*>.

toggle-multi-column-span

Toggle the current element (paragraph, heading, etc.) to span across all columns.

toggle-paragraph

Applies the style template *Paragraph* at the caret position. This effectively converts the block at the caret position to a paragraph. Note this action only has an effect if the setting.

toggle-read-only-view

Enables or disables the highlighting of read-only portions of the document.

toggle-show-container-grid-client

Toggles visualization of containers.

toggle-show-marks-client

Toggles visualization of invisible characters.

toggle-show-table-grid-client

Toggles visualization of tables.

track-changes

Starts or stops the Track Changes mode.

underline

Underlines the text at the caret position or the current selection and enables typing of underlined text.

undo

The last action performed inside the editor is undone.

var

Toggles the *var* semantic element.

zoom-100-client

Sets the zoom level of the content in the editor to 100%. This does not affect actual content size, but only the way it is displayed.

zoom-client

Sets the zoom level of the content in the editor to the supplied value. This does not affect actual content size, but only the way it is displayed. This action needs an action command if it is invoked via *invokeAction*. Possible values are numbers between 0.1 and 3.

Invoking the zoom-client action with an action command

```
editor.invokeAction("zoom-client", "0.6");
editor.invokeAction("zoom-client", "2");
```

zoom-mode-window-height-client

Zooms the editor to display the entire height of the page.

zoom-mode-window-width-client

Zooms the editor to display the entire width of the page.

APPENDIX B: DEFAULT KEYBOARD SHORTCUTS

PC Shortcut	Mac Shortcut	Action
ctrl + b	command + b	bold
ctrl + subtract	command + semicolon	decrease-zoom
back-space, shift-backspace	back-space, shift-backspace	delete-backward
delete	delete	delete-forward
ctrl + delete	command + delete	delete-next-word
ctrl + back-space	command + back-space	delete-previous-word
ctrl + f	command + f	find-replace-dialog
ctrl + g	command + g	find-next
ctrl + shift + g	command + shift + g	find-previous
ctrl + add	command + quote	increase-zoom-client
ctrl + shift + d	command + shift + d	insert-date
shift + enter	shift + enter	insert-line-break
ctrl + enter	command + enter	insert-page-break
ctrl + i	command + i	italic
ctrl + end	command + down	move-document-end
ctrl + home	command + up	move-document-start
down	down	move-down, move-shape-down
left	left	move-left, move-shape-left
end	command + right	move-line-end
home	command + left	move-line-start
ctrl + down	command + down	move-next-block
ctrl + page-down	command + page-down	move-next-page
page-down	page-down	move-page-down
page-up	page-up	move-page-up
ctrl + up	command + up	move-previous-block

PC Shortcut	Mac Shortcut	Action
ctrl + page-up	command + page-up	move-previous-page
right	right	move-right, move-shape-right
up	up	move-up, move-shape-up
ctrl + left	alt + left	move-word-left
ctrl + right	alt + right	move-word-right
ctrl + y	command + y	redo
ctrl + r	f5	refresh-all
enter	enter	return-key
ctrl + a	command + a	select-all, select-positioned-content
ctrl + shift + end	shift + end	select-document-end
ctrl + shift + home	shift + home	select-document-start
shift + down	shift + down	select-down
shift + left	shift + left	select-left
shift + end	shift + command + right	select-line-end
shift + home	shift + command + left	select-line-start
ctrl + shift + down	shift + alt + down	select-next-block
ctrl + shift + page-down	command + shift + page-down	select-next-page
shift + page-down	shift + page-down	select-page-down
shift + page-up	shift + page-up	select-page-up
ctrl + shift + up	shift + alt + up	select-previous-block
ctrl + shift + page-up	command + shift + page-up	select-previous-page
shift + right	shift + right	select-right
shift + up	shift + up	select-up
ctrl + shift + left	shift + alt + left	select-word-left
ctrl + shift + right	shift + alt + right	select-word-right
shift + tab	shift + tab	shift-tab-key
ctrl + shift + f	shift + alt + f	switch-focus-area
tab	tab	tab-key
ctrl + 1	alt + F1	toggle-heading-1
ctrl + 2	alt + F2	toggle-heading-2
ctrl + 3	alt + F3	toggle-heading-3

PC Shortcut	Mac Shortcut	Action
ctrl + 4	alt + F4	toggle-heading-4
ctrl + 5	alt + F5	toggle-heading-5
ctrl + 6	alt + F6	toggle-heading-6
ctrl + shift + a	shift + alt + a	toggle-accessibility-mode
ctrl + u	command + u	underline
ctrl + z	command + z	undo
ctrl + numpad0	command + numpad0	zoom-100