Snowbound Software VirtualViewer®

V4.14 VirtualViewer® HTML5 for Java Administrator's Guide

An online version of this manual contains information on the latest updates to VirtualViewer. To find the most recent version of this manual, please visit the online version at **www.virtualviewer.com** or download the most recent version from our website at **www.snowbound.com/support/manuals.html**.

DOC.3-VVJava 4.14

Copyright Information

Manual Title: *Snowbound Software VirtualViewer® HTML5 for Java Administrator's Guide*

Part Number: DOC-VV Java 4.14
Revision: 1
VirtualViewer® HTML5 for Java Release Number: 4.14
Published Date: December 2018

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About Snowbound Software

For over two decades, Snowbound Software has been the independent leader in document viewing and conversion technology. It plays an integral role in enhancing and speeding document processing for the Fortune 2000. Snowbound excels in providing customers with powerful solutions for capturing, viewing, processing, and archiving hundreds of different document and image types. Thanks to its pure HTML5 technology and multi-environment support (including Java and Windows), Snowbound's products operate across all popular platforms and can be easily integrated into new or existing enterprise content management systems. Nine of the 10 largest banks in the United States (seven of 10 in the world), as well as some of the biggest healthcare providers, government agencies, and insurance companies rely on Snowbound for their mission-critical needs.

Important Phone Numbers and Links

For the most current information, please contact Snowbound Sales at:

1-617-607-2010

or

http://register.snowbound.com/MQL-contactUs-Website-2017.html

or

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or

https://mylivechat.com/chatnoscript.aspx?HCCID=17729140 (sales inquiries only)

Release Notes and Product Manuals:

http://www.snowbound.com/support/manuals

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Please email documentation@snowbound.com

Snowbound Target Markets

Snowbound's two flagship products—VirtualViewer® HTML5 (a pure HTML5 document viewer) and RasterMaster® SDK (document/image conversion library)—help organizations and companies across a variety of industries meet their document viewing and conversion needs:

- Medical: Patient record management
- Insurance: Insurance & health insurance claim processing
- Finance: Mortgage processing & financial statements
- Shipping: Full array of shipping documents
- Legal: Claims, briefs, and other court documents

VirtualViewer® HTML5

Easy-to-Use in Any Environment

VirtualViewer® HTML5 is equipped with powerful and sophisticated features and functionality.

True cross-platform support: VirtualViewer® HTML5 is a universal viewer that operates seamlessly on any platform with both a pure Java solution with Java-based server components or a .NET solution.

No Downloads: No application download or client-side installation is required, making it a trouble-free solution for users as well as IT administrators.

Localized UI: The viewer's intelligent localization capabilities auto-detect browser settings and display in the proper language.

High-speed viewing: With advanced server processing, the viewer delivers an extremely high-speed response.

Seamless Integration into ECM Applications: VirtualViewer® HTML5 integrates into existing back end repositories and homegrown applications. Snowbound also offers a variety of out of the box ECM connectors (Alfresco, IBM FileNet, and Open Text/Documentum) with seamless integration.

One Quick & Easy 10 Minute Installation

Installation of VirtualViewer® HTML5 takes less than 10 minutes for POCs on any desktop, laptop, and virtual machine. After the quick and easy install, VirtualViewer® HTML5 is then backed by Snowbound's award-winning and responsive support team. Snowbound's skilled network of system integrators can further enhance the benefits of VirtualViewer® HTML5 with custom integration to your existing system.

Technical Information

Snowbound provides the option of either a 100% Java or a .NET (64-bit) server component. The viewer operates in all modern browsers (Microsoft Edge, Firefox, Chrome, Safari, Microsoft Internet Explorer 11 and mobile browsers).

Server options:
- UNIX servers including Linux, Sun, IBM, HP, Mac
- Windows servers including Server 2016, 2012, 2010, 2008 and 2007. Server 2019 coming soon.

RasterMaster® SDK

RasterMaster® is the industry's leading document/image conversion and imaging library for Java and .NET. It is continually enhanced with new functionality and formats and was developed by Snowbound's experts who have nearly a hundred years of combined imaging expertise.

High-Speed File Conversion

RasterMaster® is the fastest file conversion SDK on the market. Users can quickly convert files on the fly for viewing or batch convert large amounts of document types. Special features, including conversion via Byte Array is also available for high performance applications.

Extensive Format Support

AFP, DWG, JPEG, MO:DCA, PDF, MS Office, TIFF, SVG, PNG, and hundreds more document types are supported. Convert any format to PDF or TIFF to ensure universal compatibility. RasterMaster® also includes both PDF/A and SVG output support, enabling long term archiving and high resolution viewing.

Technical Information

RasterMaster® is available for multiple platforms, including Java and .NET:
- Java: for all computing platforms, including Unix, Linux, Windows, and Mac
- NET (x64): for Windows native applications, including Server 2016, 2012, 2010, 2008, and 2007

Responsive Support

All of Snowbound's products are backed by responsive support. Our expert, responsive internal support team is available to answer your questions and help you install our HTML5 viewer and conversion SDK. A support portal is also available 24x7 for questions and information at

https://snowboundsupport.force.com/SupportPortal/CommunityLogin .

Important Information

For the latest information, please refer to the Release Notes (releasenotes.md) in your product shipment directory. However the latest Release Notes and manuals are actually on the Snowbound website:

http://www.snowbound.com/support/manuals

- Please be advised the previously named “default content handler” and now called the “sample content handler” is actually intended to be used for Proof of Concept efforts but is not a complete connector

- It is recommended that customers upgrade as soon as possible to the latest release of VirtualViewer (typically offered quarterly). The product is rapidly evolving with new features as well as fixes.

- Snowbound recommends the use of the SVG output format from the server to the browser whenever possible for reducing data size and improving performance, particularly when working with large spreadsheets.

- When working with large spreadsheets, it may be advantageous to try the file breakup option so you’re not working with extremely large downloaded documents that might affect performance.

- VirtualViewer for Java now supports only JRE 1.7+. Previous JRE versions are no longer supported or tested except under special arrangements. It is expected that support will shift to JRE 1.8 in 2019.

- For Windows products, .NET framework versions 4.5.2 and up are now supported

- Web.xml changes: The following parameters in web.xml have been removed:
  - defaultByteSize
  - tiffByteSize
  - jpegByteSize

VirtualViewer 4.14 Release Notes

New Features

Document Filter

There is now an easy way to filter available documents by name in the document navigation pane. This feature is enabled by default, but can be disabled by setting the config.js parameter `showDocumentFilter` to false.

API for Retrieving User Display Name

`virtualViewer.getUsername()`: A new API has been added to programmatically retrieve the current user's displayed user name on the client.

- `virtualViewer.getUsername()` takes no arguments
- Returns a string containing the user name currently set in the browser

Streaming Video Support

Virtual Viewer now progressively loads videos when possible. This allows the user to play the video as it buffers, instead of waiting for the entire video to load before allowing playback. Browsers may not support progressive playback on certain files that have not been optimized for progressive loading, on certain files that the browser does not support, or for other factors of the browser's implementation of video. If the browser is not able to load a video progressively, then it will fall back to previous behavior and load the entire file.

This feature requires no configuration and is on by default. Video behavior in VirtualViewer is the same as before this feature; the only visible change is that the user may be able to play a video in VirtualViewer before the entire file has loaded. There are no API changes or additions.

Overwrite Original Format Notice

When a user makes a page manipulation (e.g. crop, rotate, insert a page, remove a page etc) on a document that is not TIFF or PDF and saves, the document's original format is always overwritten to either TIFF or PDF. With this feature the user is warned when saving if the original format will be changed. The notice dialog gives the user three options:

"Save and Overwrite": Continue the save and overwrite the original document's format.

"Save to New Document": Close the dialog and open the "Save As" dialog.

"Cancel": Quit the save operation and close the dialog.

The dialog only pops up if the user has made a page manipulation and the original file format is not TIFF or PDF. Simply saving annotations, or modifying a document that is already a TIFF or PDF, will not result in overwrite. This feature does not change saving behavior; it notifies the user of the current saving workflow. This warning can be prevented from appearing by setting `enableSaveOverwriteWarning` in config.js to `false`.

New and Changed Callbacks

- `imageLoadCompleted` will be called when an image has finished loading and is able to be displayed. Note that this callback was previously named `imageLoadFinished`; this callback `imageLoadCompleted` is a replacement of `imageLoadFinished`.
- `afterTabClosed` will be called after a tab closes successfully. It will not fire if there's an error while closing the tab, or if the user initiates closing the tab and cancels. The following parameters will be provided to the callback in the argument object:
    - `closedDocumentId` {String} The ID of the document that has just been closed.
- `onLoadUsername` will be called when User Preferences code has finished loading a username from localforage, or has found that there is no username to be loaded. The following parameters will be provided to the callback in the argument object:
    - `loadedUsername` {String} The user name that has just been retrieved from localforage
    - `previousUsername` {String} The user name that was previously set in the viewer

Fixes and Changes

Multiple network requests for each image on Internet Explorer and Edge

Previously, a quirk of Internet Explorer and Edge's image loading workflow could create a race condition. Both browsers may have significant time between when the image is done loading and when the image is usable; due to a bug in VirtualViewer's loading process, this could lead VirtualViewer to request the image again.

Now, VirtualViewer accounts for Internet Explorer and Edge with more nuanced checks for image readiness, preventing multiple requests.

Large images and SVGs on Internet Explorer

As an older browser, Internet Explorer handled very large images poorly: if a web application uses a great deal of memory, Internet Explorer will behave in unexpected ways. A large image with a high DPI, or multiple large images, may not be displayed or may cause errors.

Now, VirtualViewer has several fallbacks in the event of an image loading or drawing failure. First, as before, if an image is loaded as an SVG, VirtualViewer will attempt to reload it as a raster image. After that, if the image is still too large or still cannot be drawn, VirtualViewer will load a downscaled, smaller image, as an attempt to use less memory in the browser. Beginning with such large and high-resolution images means that displaying a slightly smaller image will not provide a dramatic degradation in quality.

If the downscaled image still fails to function, VirtualViewer now has more fallbacks beyond displaying a blank page; an expanded version of the page's thumbnail will be displayed in place, to allow the user to manipulate the page and its annotations.

Miscellaneous Fixes and Changes

- Fixed a bug on VirtualViewer .NET only, where sparse documents would display the first document's image as every page. Now, sparse documents are properly displayed on VirtualViewer .NET.
- `enableCacheObfuscation` is no longer required to be set in the client-side config.js: only the server-side configuration is needed and the client setting will be ignored.
- Fixed a bug where if a user printed two documents in very short succession, VirtualViewer might print the last document instead of the most recent
- Improved annotation selection to make it more natural. A user must now click on the visible line of a line or arrow annotation in order to select it, instead of anywhere in its large bounding box
- Fixed an issue with the annotation tag dropdown
- Ensured the annotation navigation panel hides and shows correctly when switching between documents
- Previously, the toolbar jump-to-page text box in Internet Explorer would behave unexpectedly, and sometimes interpret a backspace as a browser "back" command. Now, the text box behaves in a standard manner
- Fixed user interface problems in the layer manager dialog

- Removed a source of error in the layer manager dialog by modifying the layer deletion workflow. Previously, the layer would be deleted on the server immediately upon clicking "OK" in the layer manager dialog. Now, the layer will be deleted on the server only when the user saves the entire document
- Prevent Microsoft Edge from cutting off the bottom of extremely long documents
- Addressed video loading and downloading bugs
- Fixed a problem where document thumbnails could appear even if the thumbnail tab was disabled
- Videos resize properly in Edge
- If `vvConfig.enableSingleClickImageRubberStamp` is set to false, the stamp now draws in the correct location, instead of initially appearing off the page
- Fixed a bug where redaction buttons in the search panel might be enabled for documents without text
- Fixed a subtle bug could appear where drag-and-dropping a page thumbnail on a document tab, in exactly the right place, could cause a browser error
- Ensure that document notes load properly when switching between tabs
- Watermarks may now apply to a document created with Copy/Cut to New Document, if requested by the user
- Improved VirtualViewer's treatment of document IDs with special characters on .NET
- Fixed a bug where the dialog asking permission to OCR would appear inappropriately during document compare
- Update logic in the Export Document dialog so a user can no longer export a document in its original format while including document notes
- Hiding the top Image Controls toolbar no longer hides the thumbnail panel toggle
- Fixed UI bugs regarding disabled thumbnail tabs
- Annotations now cannot be copied and pasted onto a cropped document
- Annotation filtering and navigation works properly with Virtual Documents
- Postit Annotations now enforce minimum size on creation, instead of just on resize.

VirtualViewer 4.13 Release Notes

New Features

Save Default Choices for Document Dialogs

Users may now save custom default choices for the Save As, Export, Copy to New, Cut to New, Print, and Email dialogs.

For instance, a user's workflow may demand that all documents be exported as TIFFs. Previously, the user would have to find the Format section in the Export dialog and click the TIFF radio button for every export.

Now, the user can fill out the dialog with their preferred default choices and then click the button labeled Save Preferences in the bottom left of the dialog. When the user opens the Export dialog again, the form will be filled out with their saved defaults.

How to Use

To use this new feature, a user modifies the form choices in a dialog and saves those choices as the new default. For instance, they may choose to set defaults in the print dialog. The user opens the print dialog, and chooses the options to use going forward.

Clicking the Save Preferences button will save the user's choices. The dialog will still open normally, and the user may still change options normally. The options that are selected immediately on opening the dialog will now be the user's custom defaults.

Technical Details

Data will be stored in the browser's local storage, through the localforage library, so the preferences will persist across sessions of VirtualViewer on the same browser. Radio buttons and checkboxes will be stored; free text fields and page range fields will not have any defaults stored.

New Configuration Options

No configuration is necessary to enable this feature, but there are new configuration options to pre-set certain dialog defaults.

- `vvConfig.includeRedactions` The "Burn Redactions (Permanent)" checkbox will burn redactions into an image. If this configuration item is true, "Burn Redactions (Permanent)" will be checked by default.
- `vvConfig.includeRedactionTags` The "Include Redaction Tags" checkbox will write redaction tags onto the redactions on an image. If this configuration item is true, "Include Redaction Tags" will be checked by default.
- `vvConfig.includeDocumentNotes` The "Include Document Notes" checkbox will include the document notes in the exported, saved, printed, or copied

document. If this configuration item is true, "Include Document Notes" will be checked by default.
- `vvConfig.includeWatermarks` The "Include Watermarks" checkbox will include added watermarks in the exported, saved, printed, or copied document. If this configuration item is true, "Include Watermarks" will be checked by default.

Updated Search

VirtualViewer now supports document searches and OCR on Virtual Documents, Sparse Documents, and compound documents. Search will also return correct results on documents whose pages have been manipulated and that have not yet been saved; previously, it would use the server version of a document, so could return results for a deleted page.

Pattern search is now supported on annotations. VirtualViewer may search annotation text, tags, and notes for social security numbers, telephone numbers, credit card numbers, and email addresses.

The user interface of the search tab has been updated with new button images, styles, and an adjusted layout.

The search API remains largely the same, with a new addition:

Unchanged API:

- `virtualViewer.cancelCurrentSearch()` stops the current search, and displays any already-returned results.
- `virtualViewer.clearSearchResults()` clears the current search, removing highlights from the document and thumbnails from the search panel.
- `virtualViewer.nextSearchResult()` advances the currently selected search result, switching pages if necessary.
- `virtualViewer.previousSearchResult()` moves the currently selected search result to the previous match, switching pages if necessary.
- `virtualViewer.isDocumentSearchable()` returns true if the document is searchable. It returns false if the document is not searchable
- `virtualViewer.searchText(searchTerm, firstPage, lastPage, skipOcrPrompt)` launches a search through the current document's text for the given search term. This search is performed on the server, and may perform OCR if the document has no text, OCR is enabled, and the user consents. A progress bar will appear when search is launched, as document search is performed asynchronously and in batches: a small batch of pages will be searched and a new batch sent to the server when the previous batch is returned.
    - `searchTerm` {String} The word or words to search for. Set case sensitivity in your configuration file.

    - `firstPage` {Number} Optionally define the start of a region of the document to search. This is 0-indexed, and the default is 0.
    - `lastPage` {Number} Optionally define the end of a region of the document to search. This is a 0-indexed, non-inclusive value. The default is the length of the document.
    - `skipOcrPrompt` {Boolean} If this parameter is set, document search will not prompt the user before using OCR, but will go ahead and use it if necessary and if OCR is enabled.
    - returns undefined

New API:

- `virtualViewer.searchAnnotationText(searchTerm)` launches a search through every annotation on the current document for the given search term. Searched annotation text includes annotation notes, text content, and tags. If no search term is provided and there is a search pattern currently selected in the search tab, a pattern search through the annotations will be launched.
    - `searchTerm` {String} The word or words to search for. Annotation search is case-insensitive.
    - Returns undefined

Configurable Highlight Colors for Search

Two new configuration parameters allow color customization for search. When a search is completed, all search results are highlighted in an orange color on the document; the current search result in focus is highlighted a light yellow.

The first option, `vvConfig.searchColors.matchColor`, sets the color for highlighting search results that are not in focus. The second, `vvConfig.searchColors.selectedMatchColor`, sets the color for highlighting the in-focus search result.
Both configurations may be set to a string that contains an rgba color, in the format `"rgba(255,78,0,0.2)"`. This is the default color for search-result highlights. The first three numbers are RGB values to establish the color, and the fourth number is an alpha value--treated like a percent--to define the transparency of the highlight.

New Callbacks

New callbacks have been provided to allow custom code to interact with VirtualViewer. In order to set a callback, call `virtualViewer.setCallback("callbackName", callbackFunction)`. This function returns `true` if the callback was set correctly, and `false` if it was not. The callback function should be defined, and should take a single argument object as a parameter. Then, for instance, if the function is declared as `function foo(args) { ... }`, the arguments are accessible in the callback function as `args.firstArgument`.

VirtualViewer is responsible for calling the provided callback function appropriately. For instance, VirtualViewer will attempt to call the function set to the `"switchToTab"` callback whenever a user switches their tab. Most callbacks do not pay attention to return values, but two new callbacks require a boolean return.

- `annotationChanged` is called whenever the user modifies an annotation; this will fire whenever VirtualViewer itself judges that an annotation has been changed and the asterisk appears in the tab name. The following parameters will be provided to the callback in the argument object:
    - `documentId` {String} The ID of the current document whose annotations have been modified
    - `annotationLayerId` {String} The ID of the layer that holds the modified annotation
    - `annotationId` {String} The ID of the modified annotation
- `disableTextContextMenu` is called when the text context menu is about to appear, and if the callback function returns `true`, the context menu will be disabled. This context menu can contain options to copy and cut text if any is selected on the document, to perform OCR, or to close document compare. The callback function will be provided one parameter in the arguments object, and must return a value:
    - `documentId` {String} The ID of the current document that the user is clicking on
    - Return `true` to disable the context menu, and return `false` to allow the context menu to show as normal
- `disablePageManipulationContextMenuOptions` is called when the page thumbnail context menu is shown. If the callback function returns `true`, page manipulation options will be removed from the context menu. Page manipulation options include cut, copy, and delete options; page insertion options; and page selection options. This function is equivalent to setting the configuration option `vvConfig.pageManipulations`, but allows document-by-document granular control. The callback function will be provided one parameter in the arguments object, and must return a value:
    - `documentId` {String} The ID of the current document whose pages the user is clicking on
    - Return `true` to remove the page manipulation options, and return `false` to allow VirtualViewer to show or hide the options as normal

Configuration to Disable User Preferences

Now, an administrator can completely disable User Preferences through a new option in vvConfig, `vvConfig.disableUserPreferences`. This configuration item can be set to `true` or `false`. If `true`, the User Preferences dialog will be unavailable to users. All configuration items that could be overridden in User Preferences will be drawn from vvConfig; users will not be able to override vvConfig settings. If not set or set to `false`, User Preferences will behave as normal.

Dynamic Debug Logging

To assist in debugging issues logging can now be toggled into a debug mode without having to change configuartion files. Turning on dynamic logging can be done with the client-side call `virtualViewer.loggingOverride(true)` - while this flag is set all requests during that session will log all messages as high priority. This allows finely detailed logs to be created for a specific use case without changing global log configurations.

Simple Logging Facade (Java)

VirtualViewer Java now implements SLF4J (Simple Logging Facade for Java), a logging abstraction that allows clients to plug in the logging system of their choice. Documentation and examples can be found at https://www.slf4j.org/docs.html.

The default logger is still the java.util.logging framework. The init-param `logLevel` will only function for the default java.util.logging framework - if another logging framework is plugged in using SLF4J, that logging framework's configuration should be used instead.

Common Logging Facade (NET)

VirtualViewer NET now implements Common.Logging.NET, a logging abstraction that allows clients to plug in the logging system of their choice. Documentation and examples can be found at http://net-commons.github.io/common-logging/.

The default logging functionality is unchanged and is implemented in Common.Logging's configuration as SnowboundLoggerFactoryAdapter. The web.config parameters `logLevel` and `logToIIS` are also now implemented as arguments in Common.Logging's web.config section, although the original InitParam arguments will still work for the default logger. If another logging framework is plugged in using Common.Logging, that logging framework's configuration should be used instead - `logLevel` and `logToIIS` will only affect the default logger.

Fixes and Changes

Sticky note updates

The double-arrow button to minimize sticky notes will now scale with zoom. Previously, it was possible for the button to be drawn outside the bounds of the sticky note. Now, the button will no longer be larger than the area of the sticky note, and will disappear when the sticky note is zoomed out far enough.

Previously, on a zoomed-out document, it was possible for the size of a minimized sticky note to be larger than the full sticky note. Now, the minimized sticky note will scale properly as the document zooms.

enableOcr configuration fixed

The enableOcr configuration works again and now defaults to "true" (which will have no effect if your Snowbound license doesn't support OCR). Setting enableOcr to "false" will disable OCR even if your Snowbound license supports it. enableOcr was disabled in 4.12 and replaced with a simple license feature check for OCR.

PDF signature printing issue

Some PDFs have an issue with signatures disappearing when printing via VirtualViewer. We've modified our PDF.js printing solution to fix this issue. if you are encountering this problem, change config.js's `disableDirectPDFPrinting` to "true" to use our modified PDF.js instead of your browser's.

Misc. Fixes/Changes:

- Fixed issue with inserting annotations + disappearing layers
- Fixed client stack trace in sendDocument
- Added new config parameter, 'consolidateLayerName' to set the default name of a consolidation layer
- Prevent context menus from drawing off-screen when at the boundaries of the viewer
- Fixed document tab showing changes (with an Asterisk) when none were made
- Fixed bookmarks being lost during page manipulations

VirtualViewer 4.12 New Features

Video

VirtualViewer can now load and play videos, in formats supported by HTML5-compatible browsers. There is no editing or annotation support at this time - videos can only be viewed and downloaded. Video format support will depend on the capabilities of the web browser.

Supported formats

VirtualViewer uses the browser's HTML5 video player to display video, and can play all types of video supported by a browser's player. Most browsers support MP4, WebM and Ogg Vorbis. This browser compatibility chart has more details: https://developer.mozilla.org/en-US/docs/Web/HTML/Supported_media_formats

User preferences

There are several new configuration options for displaying video. These options can be viewed and modified in User Preferences:

- Video Autoplay: If enabled, the video will play as soon as it is opened. If disabled, the user must click play in order to start the video.
- Mute: If enabled, the video will start muted and the user must click to unmute. If disabled, the video will start at full volume.
- Video Controls: If enabled, the video will have the controls appear on the bottom of the player to control playback, fullscreen, volume, and the ability to download the video. Available options may change depending on the browser you are using. If disabled, video controls will be hidden from view and only accessible through the right-click menu.
- Video Stretching: If enabled, the video will stretch beyond its original size to fill the viewer. It will keep its aspect ratio, which means the video will not distort as it stretches. It acts like the Fit to Window zoom option, so it will fit to height or width and may not actually fill the viewport. If disabled, the video will not expand beyond its original size and will center in VirtualViewer's main display area.

All of these options have equivalent config.js configuration options as defaults.

Supported features with video

We currently support the following actions with video:

- Opening and viewing video.
- Downloading the video. This cannot be disabled.
- Change video viewing size (original size, fit to window and fullscreen).

The following are some things that are limitations of the HTML5 Video Player:

- Some browsers may not be able to seek, they just play from start to finish. Firefox had no issues seeking, Chrome did.
- Fast Forward and Rewind aren't baked into HTML5 Video Player.

Add configuration to auto-resize only sticky notes

When the configuration parameter `vvConfig.autoResizeTextAnnotations` is set to true, the viewer automatically resizes text annotations to fit the annotation text.
If `vvConfig.autoConfirmTextAnnotations` is also set to true, the text annotation will change its size as the user types.
Now, there is a new configuration parameter `vvConfig.autoResizeStickyNoteAnnotations`. This fine-tunes the configuration control. `vvConfig.autoResizeTextAnnotations` will now only affect text annotations, and `vvConfig.autoResizeStickyNoteAnnotations` will only affect sticky note annotations.

Set document display name API

A new Javascript API `virtualViewer.setDisplayName(newDisplayName, documentID)` will set the document specified by the given document ID to the new display name. The display name will update on the document tab and document thumbnail.

Highlight annotation button currently in use

When the user clicks a button to draw an annotation, that button will stay highlighted until the user completes the annotation.

Redaction navigation

Enhanced redaction navigation has been added to VirtualViewer. When the configuration for vvConfig.showAnnNavToggle is set to true, the previous navigation buttons are displayed as well as a set of radio buttons. The radio buttons are for the

two navigation modes and display the annotation and redaction counts for the document. When the annotation navigation mdoe is selected, navigation occurs as it did in the past. When redaction navigation is selected, it goes from redaction to redaction throughout the whole document. The redactions are selected and are focused on. The filter pages button does not work in redaction navigation mode and is disabled.

Page manipulation with bookmarks

VirtualViewer now retains bookmarks created on pages of a document as they are subject to page manipulations. The bookmarks would remain with the page in both reordering pages, cut/paste to other documents and cut/copy to new document.

Cache-seeding support (Java)

There is a new client side API that allows the server to pre-cache images for future use. By calling virtualViewer.seedCache(documentId, pages, clientInstanceId), the user can get pages ready on the server, allowing for quicker retrieval.

Fixes and changes

Stricter URL encoding requirements in Java

Recent versions of Java enforce stricter URL validation. Now, URLs entered directly into the browser's address bar must properly encode all URI components. Unencoded URLs that may have succeeded in the past may now fail.

For instance, Virtual Documents in VirtualViewer may be opened directly from the address bar, by entering a Virtual Document ID in the documentID field: `VirtualDocument:documentName.pdf[1-3]`. This request uses square brackets to specify a page range. The square brackets will cause the request to fail on newer versions of Java. To work, the square brackets must be URI-encoded as `%5B` for the opening bracket `[`, and `%5D` for the closing bracket `]`. The Virtual Document ID, properly encoded, will work: `VirtualDocument:documentName.pdf%5B1-3%5D`. Square brackets and other invalid characters must be URI-encoded.
VirtualViewer API for launching documents (`virtualViewer.openInTab(documentID)`, for example) will automatically encode the document ID as needed. Manual encoding only needs to occur when typing a VirtualViewer URL directly into the browser's address bar.

officeLicensePath parameter has been replaced by ODFLicensePath

The `officeLicensePath` parameter is only needed for working with OpenOffice OpenDocument Format files (ODF). You will only need to use the `ODFLicensePath` parameter to provide the path to this license if you've licensed the OpenOffice format.

VirtualViewer initialization API are easier to work with

The API function `beforeVirtualViewerInit` is called before the VirtualViewer object is initialized, and the API function `afterVirtualViewerInit` is called after; these functions are intended to be defined by customers to easily run code as VirtualViewer starts up. Previously customers would have to define these API functions after index.html was loaded; now, they can be defined any time.

Preserve document scroll when zooming

Previously, zooming in and out would cause the document to jump to the top of the current page. Now, older functionality is restored, and the document will stay in the same scroll position while zooming in and out.

Preserve document scroll and zoom when switching between tabs

When switching between open document tabs in the viewer, documents will now stay at the current zoom and scroll position that the user set, rather than snapping to the default zoom and going to the top of the current page. If the configuration parameter `fitLastBetweenDocuments` is set to true, the document will still apply the zoom of the current document to the next document opened.

disableUploadDocument parameter moved to server

The config.js parameter to disable the Upload Document functionality has been replaced with a server setting, `disableUploadDocument`. The config.js parameter `disableUploadDoc` is no longer used.
When the server setting `disableUploadDocument` is set to true, the service endpoint for upload will be completely disabled, so that clever users can no longer bypass the UI to "force" a document into the system. In prior releases, we specified that the content handler should handle the filtering of uploaded documents. Filtering should still be performed by the content handler, but there is now a way to completely disable upload document.

Removed certain sample content handlers from VV distributable

Some sample content handlers were removed from compiled VirtualViewer code. They are no longer relevant and should no longer be used. Please use the current sample content handler shipped with VirtualViewer. **Please also note that the sample content handler is only a sample and is not intended for production use. We hope to offer a better sample soon.**

- InputStreamContentHandler
- FileAndURLRetriever
- MergedImageContentHandler
- MultiContentElementContentHandler

Public print API

The parameters for the printDocument() method have changed. The new parameters are as follows:

- {String} The documentId to print, must be of a document open in the viewer
- {Boolean} If true, a PDF will be exported to a file. The user will be present with a save dialog
- {Boolean} If true, the annotations will be printed.
- {Boolean} Whether or not to burn in redactions.
- {Boolean} Whether or not to include redaction tags (only used when includeRedactions is true).
- {Boolean} Whether or not to include watermarks.
- {Boolean} Whether or not to include document notes.
- {String} Either "all", "complex" or "current".
- {String} A range of pages numbers to export (only used for "complex" pageRangeType).

Misc. Fixes/Changes:

- Improved the responsiveness of the toolbars
- Added a close button to the split screen/document compare panel
- Fixed an issue with the autoLayerPrefix when there were existing autolayers
- Previously, if you created an annotation layer in the Layer Manager dialog and clicked the dialog box's OK button instead of the layer UI's OK button, the layer would not be created
- Fixed issue with annotation layers and page manipulations
- Fixed several minor/cosmetic issues with search UI

- Load the document model asynchronously, to improve responsiveness
- Make sure the document model has been loaded before requesting an image from the server
- Fixed tab naming after closing document compare panel
- Fixed issue with watermarks and reordering pages
- Confirm user wants to save when closing the browser window/tab
- Fixed an issue with image buffering
- Fixed issue with page-change callbacks where they were firing even if the page didn't actually change (like calling `firstPage()` when you were already on page one).

VirtualViewer 4.11 New Features –

Note that the Release Notes, separately packaged, have the most up to date descriptions of these features.

Document Compare

Summary

This feature will take the text of two documents open in the viewer and compare them together. The results of this comparison are displayed in a new tab in the right-hand thumbnail pane, and users can navigate through each edit to the document.

Entering the workflow

To start comparing documents, first open a document. This document will be the "original" or "old" document in the comparison. Navigate to the document tab in the right-hand thumbnail pane, and right-click the document thumbnail. Select the option "Document Comparison" in the menu that appears.

This option will open your second document in a new pane of the viewer, splitting the view in half. It will also start the process of document comparison. In the right sidebar, a list of pages will appear. Clicking on one of those pages will reveal a list of differences between the documents.

Types of changes

Consider a document that has the first line "To be or not to be," open in the left-hand pane as the original document. Choosing the second document, the user opens a document with the first line "To think or not to think." Document comparison interprets that "be" has been removed and "think" has been added. If this were reversed, and the "to think or not to think" document were open on the left, document compare would declare that "think" has been removed and "be" has been added.

Navigating document compare

Changes in the sidebar are displayed page by page. Click on the "Page 1" text to see all the changes on page 1; click again to collapse those changes away. Clicking on the text of a change in the sidebar will scroll the document to where the text is actually located on the page.

If a page has no changes, it will display "There are no changes to display." If page text has not loaded yet, a loading gif will display. There will also be a "Load More" button at the bottom of the sidebar. If pages have not been compared, it means

their text has not been loaded; either clicking the Load More button or scrolling through the documents will load more page text and thus more document comparison. Page loading and document compare is incremental to preserve performance on long documents.

At the top of the document compare tab in the sidebar, there are three small buttons for controlling document compare. The first, with an icon like an eye, will toggle whether the red and green highlighting on the document is visible. The second, with an icon like a padlock, will lock document scrolling. Scrolling up or down in one document will scroll the other visible document just as much. Finally, the refresh button will re-run and re-display document compare.

Exiting the workflow

Right-clicking on the right-hand document will bring up a menu with the option "Close Document Comparison." This will close the second pane, returning to the full-screen view. The document comparison tab in the right-hand thumbnail pane will also be hidden.

Using OCR with document comparison

If OCR is set up, it is possible to compare documents using OCR. This will occur automatically. If document comparison is initiated and at least one of the documents contains no text, the user may request that OCR is performed. The resulting text will be compared. If OCR is not configured, it will not be attempted, and documents without text simply cannot be compared.

API

```
virtualViewer.compareDocuments(firstDocumentID, secondDocumentID, {
splitScreenDirection } )
```

Parameters:

- *firstDocumentID* {String} This document will be opened in the left pane, as the "original" document.
- *secondDocumentID* {String} This document will be opened in the right pane, as the "new" or "revised" document.
- *options* {Object} This options object does not need to be passed in, and currently contains one optional parameter; it may be modified later to contain more. To pass data in through the options object, create an object with a key-value pair: `virtualViewer.compareDocuments("myOldDocument.pdf", "myNewDocument.pdf", { splitScreenDirection: "vertical" } );`
    - *splitScreenDirection* {String, "horizontal" or "vertical"} The default value is "horizontal". The value "horizontal" will display document panes side-by-side. Pass in the value "vertical" to display the document panes one on top of the other.

Returns: undefined

The API compareDocuments will open both of the provided document IDs in the viewer. The first document ID will be the "original," left-hand document, while the second will be the right-hand document. The final parameter is an options object, which can pass in optional parameters. There is one optional parameter, splitScreenDirection.

`virtualViewer.getDocumentCompareReport()`
Parameters: onReportCompleteCallback

Returns: A string containing the document comparison data, if no callback is provided as a parameter.

The API getDocumentCompareReport will provide an HTML report of all the changes between the two open documents in a unified diff. The report will be provided as an argument to the onReportCompleteCallback given as a parameter, or returned directly from the function getDocumentCompareReport if no callback is provided. Providing a callback is recommended, since then document compare will be able to finish loading and processing asynchronously.

The return string is a `<div>` element; each changed item is a `<span>` within that `<div>`. This includes unchanged text.

- Spans containing unchanged text will have the class name `documentCompareReportNoChange`
- Spans containing text removed from the original will have the class name `documentCompareReportTextRemoved`
- Spans containing added text will have the class name `documentCompareReportTextAdded`

This report does not contain styling.

Callback Event Manager

Starting with 4.11, there is a single API method for setting callbacks and a new manager for the callbacks.

API

`virtualViewer.setCallback('callbackString', callbackFunction)`
Parameters:

- *callbackString* {String} The following are the callback names. You pass in the string and it will properly set that callback.
    - "onDocumentLoad" {documentId}
    - "saveDocument" {documentId, clientInstanceId, documentIdToReload}
    - "saveAnnotation" {documentId, clientInstanceId, documentIdToReload}

    - "saveAsDocument" {oldDocumentId, newDocumentId, clientInstanceId}
    - "uploadDocument" {uploadedDocumentId, clientInstanceId}
    - "sendDocument"
    - "switchToTab" {documentId}
    - "pageChange" {page}
    - "pageCopied" {pages}
    - "pagePasted" {pages}
    - "pageDeleted" {pages}
    - "rotation" {page, degrees}
    - "textSelect" {text}
    - "imageLoadFinished"
    - "imageLoadRequested"
    - "annotationCreationCallback" {type}
- *callbackFunction* {function} Pass in the function that you want to be called. It should accept one object that will contain the properties that are listed next to the callbacks above (e.g. a saveDocument callback is passed an object with the properties documentId, clientInstanceId, and documentIdToReload).

Returns: None

Sticky Note Background Color Support

You can now set the background color of your sticky notes. You can set the default preference in the config.js, a personal user preference in the UserPreferences menu, and individual background colors for stickies in their annotation properties menu.

User Preference Option for Default Thumbnail Tab

Now in the user preference General Preferences tab there is a section that lets you select which tab of the thumbnail panel is the default upon opening the viewer. This should help users get to the navigation they need faster.

Copy Annotations Across Documents

We expanded the copy/paste annotation functionality to work across documents in the viewer. This is only implemented for the current session, you can't copy and paste an annotation between different windows of the viewer. This is strictly for switching between tabs in the viewer.

Get Page Dimensions

You can make an API call to return the actual dimensions of an image.

API

`virtualViewer.getOriginalPageDimensions()`

Parameters: None

Returns: An object that contains the height and width of the image. E.g. *{height: 595, width: 679}*

Require.js

We now use Require.js to compile and load our javascript code. Each of our javascript files is now an AMD module, and VirtualViewer javascript code will be delivered to the the browser in concatenated files to reduce latency from loading multiple script files. The code delivered to the browser will look very different from previous versions of VirtualViewer.

API

To make it easier to hook into VirtualViewer as it initializes, we look for two functions as VirtualViewer starts up. Define these functions in the global space of the iframe or window that VirtualViewer is running in.

`beforeVirtualViewerInit()`

This function is called before VirtualViewer calls any initialization function. The virtualViewer object containing API will exist, but API functions may perform unexpectedly before initialization functions. `beforeVirtualViewerInit`is an appropriate place to call an alternate VirtualViewer initialization API, or initialize other objects.
Parameters: None

Returns: If you return true from this function, VirtualViewer will continue with normal initialization procedures. Return false if you are making calls to initialize VirtualViewer in `beforeVirtualViewerInit`, as these should override VirtualViewer's initialization.

`afterVirtualViewerInit()`

This function is called after VirtualViewer has completed initialization. This is an appropriate place to assign callbacks, and perform initialization tasks that depend on VirtualViewer API.

Parameters: None

Returns: None

InitSpecifiedDocuments and OpenSpecifiedDocuments

The `initSpecifiedDocuments` API now allows more control over how VirtualViewer opens. Now, calling `initSpecifiedDocuments` will, by default, open the first document listed in the specified documents array. To open all documents in the specified documents array, call a new API immediately after calling `initSpecifiedDocuments`: `openSpecifiedDocuments`.

API

```
virtualViewer.initSpecifiedDocuments(documentIdAndNames)
```

The only change to this API is that it will open just the first document in the array. As before, set the config parameter `multipleDocMode` to `vvDefines.multipleDocModes.specifiedDocuments`. Create an array of document IDs, with optional accompanying display names, and call `initSpecifiedDocuments` instead of the standard `virtualViewer.initViaURL()`. This is good code to place in the new `beforeVirtualViewerInit` function, designed to hook into VirtualViewer's initialization process.
Parameters:

- *documentIdAndNames* {array} An array of document ID and display name objects. For instance: [{documentId: "6-Pages.tif", displayName: "Display-6-Pages"}, {documentId: "1234567.pdf", displayName: "Display-1234567"}]. In this case, only 6-Pages.tif will open as a tab.

Returns: None

```
virtualViewer.openSpecifiedDocuments(documentIdAndNames)
```

This new API will open every specified document in a tab. Designed to be called immediately after initializing through `initSpecifiedDocuments`, this API will either use the provided list of document IDs or VirtualViewer's cached list of document IDs previously read in from the specified documents list. It will not attempt to open more documents than the maximum allowed number of tabs, ten.
Parameters:

- *documentIdAndNames* {array} Parameters are optional in this API. Pass in an array of document ID and display name objects to open. For instance: [{documentId: "6-Pages.tif", displayName: "Display-6-Pages"}, {documentId: "1234567.pdf", displayName: "Display-1234567"}]. All the given documents will be opened in tabs.

Returns: None

Toggle Annotation Visibility

This new API allows toggling visibility of all annotations on a document. This is just an API call without any added UI, but adding a button for this feature is simple with the new toolbar configuration: add the below line to the `imageToolbarButtons` or `annotationToolbarButtons` list in user-config/toolbar-config.js: `"toggleAnnotations": { name: "Toggle Annotation Visibility", iconImage: "path/to/icon.svg", clickHandler: virtualViewer.toggleAnnotationVisibility }`

API

`virtualViewer.toggleAnnotationVisibility(show)`
Parameters: show True to show all annotations, false to hide them. If not specified this function will toggle to the opposite of the current state.

Returns: None

Major Past Version Features in VirtualViewer®

v4.11 (see above for more complete information)

Documentation Corrections for VirtualViewer 4.11

- VirtualViewer for Java now supports JRE 1.7 through December 2018. Previous JRE versions are no longer tested or supported. Note that Oracle has accelerated Java releases and we encourage our customers to follow that model in order to insure security of your applications.
- For Windows products, .NET framework versions 4.5.2 and up are now supported

Document Compare

This feature will take the text of two documents open in the viewer and compare them together. The results of this comparison are displayed in a new tab in the right-hand thumbnail pane, and users can navigate through each edit to the document.

Callback Event Manager

Starting with 4.11, there is a single API method for setting callbacks and a new manager for the callbacks.

Sticky Note Background Color Support

User Preference Option for Default Thumbnail Tab

Copy Annotations Across Documents

Get Page Dimensions API call

Require.js

We now use Require.js to compile and load our javascript code.

InitSpecifiedDocuments and OpenSpecifiedDocuments

The `initSpecifiedDocuments` API now allows more control over how VirtualViewer opens.

Toggle Annotation Visibility

This new API allows toggling visibility of all annotations on a document.

v4.10

Mobile Device Control Improvements

- The user can pan on an image, if it's zoomed in, in all directions. Using two fingers. the user can pinch to zoom in or zoom out on the document.
- The viewer now works more elegantly in small iframes, on low-resolution monitors, and when browser windows resized smaller.

Alfresco Quickshare Support

A logged-in user can create or close a public quickshare link through Alfresco.

Alfresco Watermark Support

Added support for Watermarks in the Alfresco version of VirtualViewer allowing saving watermarks back into the Alfresco repository.

API call to toggle annotations on/off

virtualViewer.toggleAnnotationVisibility(show)

'show' is an optional boolean: if not provided, the function will toggle back and forth; if set to true/false it will make the annotations visible/invisible.

for Annotation Create Date/Time

Filenet F_CREATOR Tag Support Added

NET 4.5.2+ Requirement Added for TLS 1.2 support

OCR Integration (beta)

v4.9

Watermarks

VirtualViewer® HTML5 now offers watermarks for users who need to mark page backgrounds with specific notifications such as “Private”, “Confidential”, and “Do Not Distribute.” Users can easily add watermarks to their document via a new button on the left sidebar of the viewer. Additional watermarks functionality includes:

- The ability to customize the appearance of the watermark (direction, location, and sizing), the text of the watermark, and the opacity of the watermark (transparent or solid).
- To expedite the process, the viewer provides the user with predefined watermarks such as "Edited by"; "time/date printed"; "page number"; "total pages"; and "document name.”
- Administrators can restrict who has access to the watermarks feature based on user permissions.

Footers for Page and Document Thumbnails display filenames

Magnifier window resize uinsg the mouse as added

Notes Tab now toggles on if a document note is present

Document Notes templates capability has been added

OCR integration (beta)

v4.7

DWG Layer & xref Support
Users can easily access the DWG files created by CAD applications such as drawings and blueprints, as well as interact with the layers within those files individually. The user can decide which of those layers to view and which to take out of view, allowing for a streamlined review process where the user is only seeing the information they need and nothing else.

Split Screen View
The split screen view allows users to launch a lower panel to simultaneously compare documents side-by-side during the review process so they can easily spot differences, as well as display data in one view and manipulate in another. The user no longer needs additional tabs or windows to view multiple pages or documents at once. The result is a cleaner user experience, a streamlined review process, and less memory required on the server.

Extract and Append Page Ranges
The viewer can extract a range of pages instead of the entire document when saving to PDF, meaning users can save updated, large PDF documents at least 10 times faster than before. This results in dramatic speed improvements (in one instance, 215 seconds before and 3 seconds after) for users with many large, multi-page PDFs.

v4.6

Faster Performance
Snowbound has made upgrades which allow users to view, convert, and manage Microsoft Office documents - including Microsoft Word, Excel, and PowerPoint - at increased speeds. Benchmark testing showed that the viewer now loads these documents six or more times faster than before. These enhancements are also available in the new version of the firm's document conversion SDK, RasterMaster.

Pattern-Based Text Searching
Snowbound has the ability for users to search for patterns in text, including social security numbers, phone numbers, credit card numbers, and e-mail addresses. Users can use this feature to quickly locate, redact, or collaborate on important information within documents.

Drag & Drop Functionality
Users are able to move individual or multiple pages from a document into a new or existing document by simply dragging the thumbnail(s) into the desired tab. Allowing the user to move and rearrange pages within a single viewer across multiple tabs simplifies document manipulation and creation.

Enhanced Annotation Display
The viewer displays user information on each annotation, including the date and time stamp for when the annotation was made.

v4.5

Drag and Drop Page Manipulations
Users can easily reorder pages in a document simply by clicking on the page (or pages) in the thumbnail panel and dragging to the desired location.

Batch Redaction Tagging
Using the viewer's search and redact feature, users are able to tag an entire batch of redacted search results at the same time, rather than having to individually tag each redaction, expediting the workflow process.

Enhanced Cache Capabilities (Java only)
VirtualViewer's server caching has been redesigned to further boost performance, allowing users to greatly reduce repository processing times. The larger the document (100+ pages), the more noticeable the performance enhancement.

Upload Documents
Users have the ability to import local files directly from their computer into the viewer and decide whether to save directly into the repository/backend system or to keep them local.

v4.4

Search Annotation Text
The viewer provides users the ability to search for text though all text-based annotations in the current document using the Search tab in the Thumbnail panel, making collaboration on documents even easier.

Consolidate Annotation Layers
Users can consolidate all annotation layers of a document into a single layer so all annotations can be easily viewed.

Crop Page Selection
The viewer gives the user the ability to select a specific portion of a page using a rectangle tool to crop out the rest of the page. The cropped portion outside of the selected area is deleted from the page and the selected area can be saved out using "save as" or export.

Page Rotation Capabilities
Users are able to rotate specific pages as needed, making it easy to view documents and images as desired.

v4.3

Annotation and Redaction Tagging
Annotation and redaction tools allow multiple users to collaborate on a single annotation. Users are able to assign a tag (e.g. "Social Security Number") to each individual annotation or redaction to indicate to other users why the annotation or redaction was placed on the page.

Bookmarks
The bookmarks feature streamlines navigation within documents by providing users with the ability to create text bookmarks on pages via the thumbnail panel and also jump to a desired page via a bookmarks list.

Annotation Indicators and Navigation
Indicators ensure more efficient collaboration as users can now navigate through only the annotated pages of a document, skipping pages with no annotations or stamps.

Annotation Commenting
This workflow collaboration enhancement allows users to communicate about a specific part of the document by allowing comments to be added to existing annotations. Date, time of the comment, and the commenter's name are also listed.

v4.1

Redactions
Redactions streamline workflow while also ensuring sensitive data such as social security numbers and credit card information remains secure. The viewer provides users with multiple options for making redactions. Users can manually redact any region, highlight a specific selection of text, or search for a specific term. Once the sensitive information has been identified and marked for redaction, the user can then export a redacted version of the document, which is saved back to the document repository.

Document Notes
Users can add document notes to any document in order to maintain an active dialog and conversation within a specific document with other users. The notes are associated with the entire document (and not with specific pages) so collaborators can quickly review notes and action items.

User Preferences
A framework for viewer preferences allows users to customize VirtualViewer directly to their unique needs by concealing or displaying specific tools and functions. By hiding unused options, the user enjoys a cleaner interface with only the required functions taking up valuable screen real estate. The ability to determine default settings associated with annotations can expedite a workflow process and reduce processing errors.

v4.0

DWG Support
The addition of DWG and DXF to Snowbound's extensive file format library for VirtualViewer HTML5 .NET allows designers and architects to view CAD documents from any device with a web browser regardless of their location. CAD documents are typically used for engineering diagrams and blueprints.

SVG Support
The release also includes SVG support for the .NET viewer so users receive high resolution display at any zoom level when viewing extremely large documents. Snowbound developed its own SVG format conversion technology to improve viewing fidelity as well as improve performance by reducing memory requirements compared to traditional raster documents.

Getting Started

This section explains the system requirements and how to install and verify VirtualViewer® HTML5 on your system.

Snowbound Software's VirtualViewer HTML5 for Java viewer works with the latest Java and AJAX technology to create a true zero footprint viewing solution. This section will aid you with setting up and working with the package included in your zip file, **virtualviewer.zip**. This zip file installs all of VirtualViewer HTML5 for Java components. For information on configuring VirtualViewer HTML5 for Java, please see Using VirtualViewer HTML5.

System Requirements

This section describes the system requirements to run VirtualViewer HTML5 for Java.

Content Server

VirtualViewer HTML5 for Java requires the VirtualViewer Java Content Server in order to function. The VirtualViewer Java Content Server is included in the virtualviewer.zip package.

Servlet Container

VirtualViewer HTML5 for Java requires a J2SE or J2EE servlet container to run. Recommended application servers are Apache Tomcat and IBM Websphere. Other servlet containers such as Weblogic or Jboss may be supported with additional effort but you are encouraged to contact Snowbound for detailed support information.

Server Java Version

VirtualViewer HTML5 for Java JRE of 1.8 or higher is highly recommend though JRE 1.7 will be supported through 2019.

Client Browser Versions

The supported browsers are Firefox, Google Chrome, Microsoft Edge, and Safari. Internet Explorer 11 can be used in most circumstances but due to age, incompatibility and lower performance, it is not recommended. VirtualViewe may also work with other browsers such as Opera but no testing is done to ensure compatibility or performance.

Note if using Internet Explorer 11:
VirtualViewer will look, perform, and behave better if it is running outside of compatibility mode in Internet Explorer 11. For best performance, please configure Internet Explorer to use normal mode when using VirtualViewer. Quirks mode in Internet Explorer is not supported.

*Some functionality is limited.

Important Note:

Exceptions to Supported File Formats and Platforms

Exceptions to Supported File Formats and Platforms

We do our best to support product and document specifications and to work in common platform environments, however there are always exceptions. If you find an exception please contact Snowbound Support at http://support.snowbound.com to let us know about it.

Validation Minimum Requirements

The following are the validation minimum requirements:

	Minimum Requirements
Processor	64bit
Speed	2.4 GHz dual core
Ram	16GB
Available Memory	6GB
SSD or HD Space	250GB

Performance Testing Requirements

For performance testing, the following minimum server requirements are suggested:

Performance Minimum Server Requirements

The following are the performance minimum server requirements:

	Recommended Requirements
Processor	64bit
Speed	3.2 GHz quad core
Ram	32GB
Available Memory	16GB
SSD or HD Space	250GB

Performance Recommended Requirements

The following are the high performance recommended requirements:

	Recommended Requirements
Processor	64bit
Speed	3.4 GHz quad core (with hyper-threading)
Ram	64GB
Available Memory	32GB
SSD or HD Space	250GB

Determining Memory Requirements

The amount of memory required to display a document may be significantly larger than the size of the document that is stored on disk. Just like a road map, the document is folded up and compressed when it is stored. In order to see the document, it must be unfolded (decompressed) and spread out so you can see the whole map. The map takes up much more room when open for viewing. The same is true of online documents. When a document is open, a black and white letter size page at 300 dpi takes roughly 1MB of memory to display and a color page takes 25MB.

The amount of memory required to view documents varies depending on the size of the documents you are processing and the number of documents you are processing at any one time. The amount of memory needed increases as:

- You go from black and white, to grayscale, to color documents (bits per pixel increases).
- You go from compressed to uncompressed document formats (lossy compression to raw image data).
- You go from low resolution to high resolution documents (dots per inch /

quality increases).

You go from small index card size images to large blueprint size images (number of pixels increases).

Generally, higher quality documents require more memory to process. Snowbound Software does not have a one-size-fits-all recommendation for memory because our customers have such a variety of documents and different tolerances for the level of output quality. However, you can try doubling the memory available to see if that resolves the issue. Keep increasing memory until you stop getting out of memory errors. If you hit a physical or financial limit on memory, then you can do the following:

Decrease the number of documents you have open at any one time.

Decrease the quality of the images requested by decreasing bits per pixel, the resolution, or the size.

To calculate the amount of memory required for an image, you will need to know the size of the image in pixels and the number of bits per pixel in the image (black and white=1, grayscale=8, color=24). If you do not know the height or width in pixels, but you do know the size in inches and the dpi (dots per inch) of the image, then you can calculate the size in pixels as (width_in_inches*dots_per_inch) = width_in_pixels.

To calculate the amount of memory (in bytes), multiply the height, width and number of bits per pixel. Then, divide by 8 to convert from bits to bytes. See the following example:

(height_in_pixels * width_in_pixels * (bits_per_pixel/ 8)) = image_size_in_bytes

This table lists examples of memory requirements based on image sizes.

Table 1.1: Memory Requirements Based on Image Size

Image Size	Required Memory
24-bit per pixel, 640 x 480 image	640 * 480 * (24 / 8) = 921600 bytes
1-bit per pixel, 8.5" x 11" image, at 300 dpi (2550 pixels by 3300 pixels)	2550 * 3300 * (1 / 8) = 1051875 bytes
24-bit per pixel, 8.5" x 11" image, at 300 dpi (2550 pixels by 3300 pixels)	2550 * 3300 * (24 / 8) = 25245000 bytes (25 megabytes)

Determining Memory Needed for the Number of Users and Pages Viewed in VirtualViewer® HTML5

To calculate the amount of memory needed based on the number of users and potential pages viewed at any given time, use the example below:

The number of concurrent users * size per page in MB * 5 pages in view

For example, plug in the number of pages (in this case, 5) and the number of users (in this case, 1000):

black and white page (100 dpi) .1mb per page x 5 pages= .5 mb x 1000 users = 500 mb =~ 0.5 GB

black and white page (300 dpi) 1mb per page x 5 pages= 5 mb x 1000 users = 5000 mb =~ 5GB

color pages (300 dpi) 25mb per page x 5 pages = 125 mb x 1000 users = 125000 mb = ~122 GB

Exceptions to Supported File Formats and Platforms

We do our best to support product and document specifications and to work in common platform environments. However, there are always exceptions. If you find an exception, please contact Snowbound Support at http://support.snowbound.com to let us know about it.

Licensing

VirtualViewer HTML5 for Java is delivered as a .zip file including the **virtualviewer.zip** installation package. The package may vary depending on your version.

Your options are enabled through a simple **SnowboundLicense.jar** which contains a license .xml file. Your SnowboundLicense.jar is included in your delivery in the virtualviewer\WEB-INF\lib directory. You do not need to take any further action. If you order a new option, Snowbound will provide a new SnowboundLicense.jar to replace the one we provided in your original delivery.

The most current set of documentation is included with the installation package to assist you in installing and administrating this product. Our online documentation available at www.virtualviewer.com is easy to search and has the latest information. The documentation is described below and can be found within the .zip file.

VirtualViewerHTML5JavaAdminGuide.pdf: This guide describes how to use and configure VirtualViewer HTML5 for Java.

VVJavaHTML5ReleaseNotes.pdf: The release notes describe the latest additions and improvements to VirtualViewer HTML5 for Java.

What to Expect in an Evaluation Version of VirtualViewer® HTML5

Your evaluation is a full version of the product with the following limitations:

You will see a pop up banner when you view or convert your first document. Subsequent documents in the same session will not elicit the banner.

You will see large thin Xs across each page after the first 50 pages or thumbnails.

After your expiration date you will see a banner stating the evaluation has expired. You will not see any output.

Other than that, you will have full use of the product including support for all supported document formats.

What to Expect in a Production Version of VirtualViewer® HTML5

When you purchase VirtualViewer HTML5 for Java, you will receive a set of fully licensed files. Your license and options are enabled through a simple **SnowboundLicense.jar** which contains a license .xml file. Your SnowboundLicense.jar is included in your delivery in VirtualViewerHTML5.war.

You do not need to take any further action. If you order a new option, Snowbound will provide a new SnowboundLicense.jar to replace the one we provided in your original delivery.

Please back up your configuration files so that they can be merged into the production version.

Installing the Production Version of VirtualViewer® HTML5

When you receive your production version, you can extract the files from the production version package and use those to replace the same files in the evaluation version that you have installed. It is also possible to substitute your new Production license file for the previous license file if the other files are the same, or you want to initially start with older files.

Once that is successful, you will no longer see banners or Xs. You will only see expiration messages if you try to view a document that you did not purchase. For example: Office or AFP/MO:DCA.

Note that the evaluation configuration places VirtualViewer HTML5 for Java and the Content Server into the same directory on the same machine. If your environment requires the two servers to be in different directories or on different machines then please contact us at http://support.snowbound.com.

Installing

To install VirtualViewer HTML5 for Java, follow the steps below:

1. Extract the **virtualviewer.zip** file to a directory.

2. The extracted .zip file includes the **virtualviewer.war** file.

3. Save the **virtualviewer.war** file to the location where you want to install it. Please note that the application needs to be added to a web server before it can be run. Open the **virtualviewer.war** file in an archive utility such as 7-zip.

4. In the **/virtualviewer** directory, you will see the extracted files for VirtualViewer HTML5 for Java. If you change the default directory from /virtualviewer, please see Changing the Default Directory for more information about how to successfully change the default directory.

5. Find the web application (webapps) directory where you want to install the files.

For example:
`C:\Program Files\Apache Software Foundation\Tomcat 7.0\webapps`

In **Tomcat 8.0**, documents will load using absolute path and not relative path. Use the following example for the path for Tomcat 8:

```
C:\Program Files\Apache Software Foundation\Tomcat
8.0\webapps\virtualviewer\Sample-Documents
```

6. From the extracted zip directory, copy the **virtualviewer** directory as a new subdirectory under your `webapps` directory. If you are using a web server other than Tomcat this may be a different location.

> **Note:**
> For other web servers, you may need to take web application deployment steps that are specific to that type of web server. If you have trouble installing VirtualViewer HTML5 for Java, try exploding the .war file. Uninstall the application. Extract the contents of the .war file and deploy using the root directory /**virtualviewer**.

7. Verify that the VirtualViewer HTML5 for Java content server is running by looking at the web server logs and search for **VirtualViewer**. You should see the start up message. If you do not see **VirtualViewer**, then search for **snow** which may be in an error message. If you still do not get a result, then please refer to the web application deployment documentation for your web server for information on troubleshooting web application deployment and start up issues.

> **Note:**
> We suggest that you restart Tomcat or your web application to ensure that your changes have taken effect.

Verifying

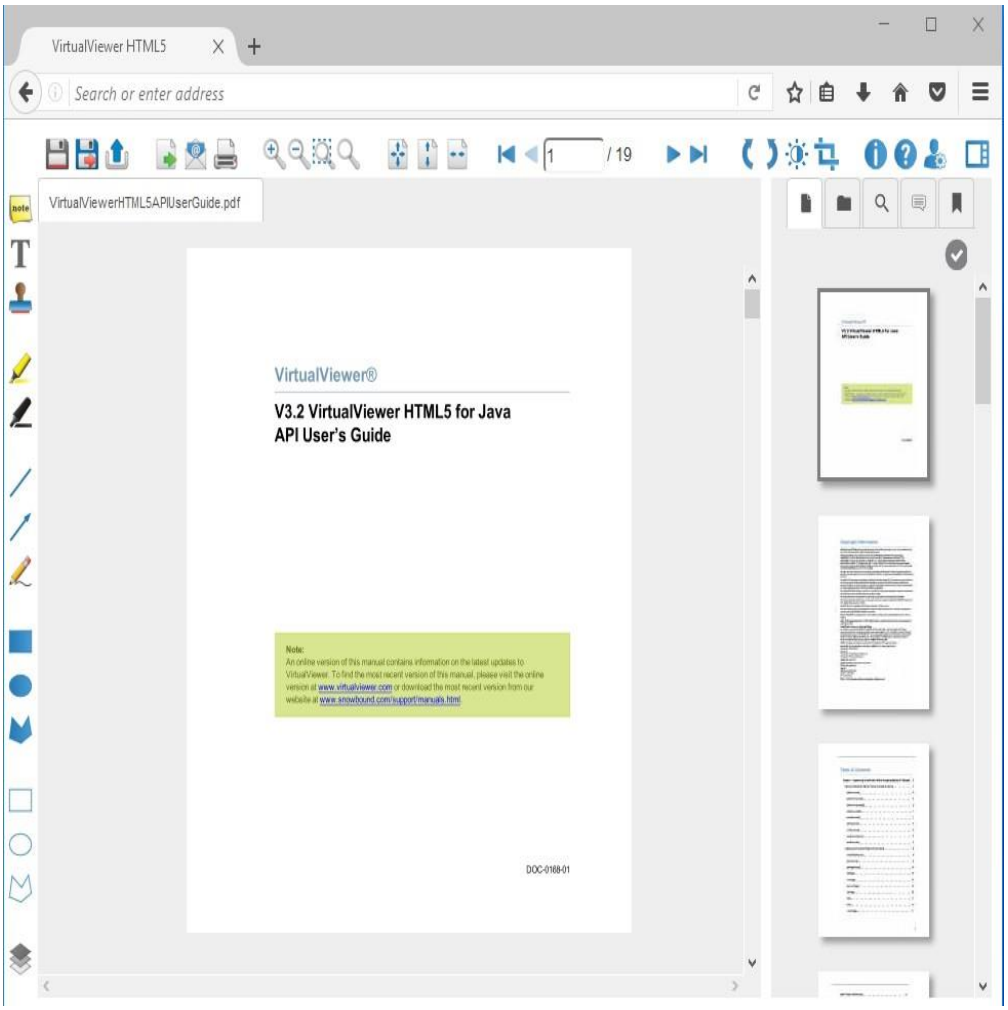
Running VirtualViewer® HTML5 in a Browser

Once all components have been installed, VirtualViewer HTML5 for Java will start up from any supported browser. No client components are needed on the client machine.

To start VirtualViewer HTML5 for Java, open your .html file in a browser. For example, open index.html.

Note:
Make sure that your web service such as Tomcat is running when you open the viewer in your browser.

The following example shows VirtualViewer HTML5 for Java loaded in a browser:



Verifying that the Sample Documents Work in VirtualViewer® HTML5

Snowbound Software provides sample documents in the VirtualViewer HTML5 for Java installation to get you started. The sample files are located in the **Sample-Documents** subdirectory.

The **web.xml** file delivered with VirtualViewer HTML5 for Java located in `virtualviewer\WEB-INF` specifies the Sample-Documents sub-directory as the default location of the sample files in the `filePath` parameter.

To view the sample documents, enter the URL shown in the **Displaying the Sample Documents** example below. Replace **server** and **port** with your server and port where shown in the example. To view any of the sample documents, specify the document name at the end of the URL after

`documentId` with the document name.

Displaying the Sample Documents

```
http://- localhost:8080/virtualviewer/index.html?documentId=BostonPermit.tif
```

The default port for VirtualViewer is **8080**. To configure a different port, set the **codebase** parameter in the web.xml file located in `virtualviewer\WEB-INF`.

For example, change the port 8080 in the example below to your port number.

```
<init-param>
<param-name>codebase</param-name>
<param-value>http://localhost:8080/virtualviewer</param-value>
</init-param>
```

If you are able to see all of the documents that came in the Sample-Documents directory of your VirtualViewer HTML5 for Java installation, then you have successfully installed it.

To view the other documents specify the filename after the `documentId` in the URL. If you are not able to see the documents in the viewer, please see the Troubleshooting section. If you are still not able to see the documents, please file a ticket with Snowbound Support at

http://support.snowbound.com.

Verifying that Your Documents Work in VirtualViewer® HTML5

Now you can move on to viewing your documents by placing them in the Sample-Documents directory and then specifying the document's file name after the `documentId` in the URL.

For example, if you want to display the file named **test.tif**, add that file to your Sample-Documents directory and **test.tif** after `documentId` as shown in the following example:

Example 1.1: Specifying the Document to Display

```
http://-
localhost:8080/virtualviewer/index.html?documentId=test.tif
```

The `documentId` should be a filename if the sample content handler is used. Otherwise, it can be whatever the custom content handler expects for a `documentId`. For more information, please see Connecting to Your Document Store.

Using VirtualViewer® HTML5

This section describes the available functionality and features in VirtualViewer® HTML5.

The first three sections describe the functional areas of VirtualViewer HTML5 for Java. The Image Controls Toolbar runs along the top of the screen. The Annotation Toolbar that runs along the left side of the screen. The Pages and Documents Panel on the right side of the screen shows the thumbnails for the current image and for all the documents made available by multiple documents mode.

The Image Controls Toolbar

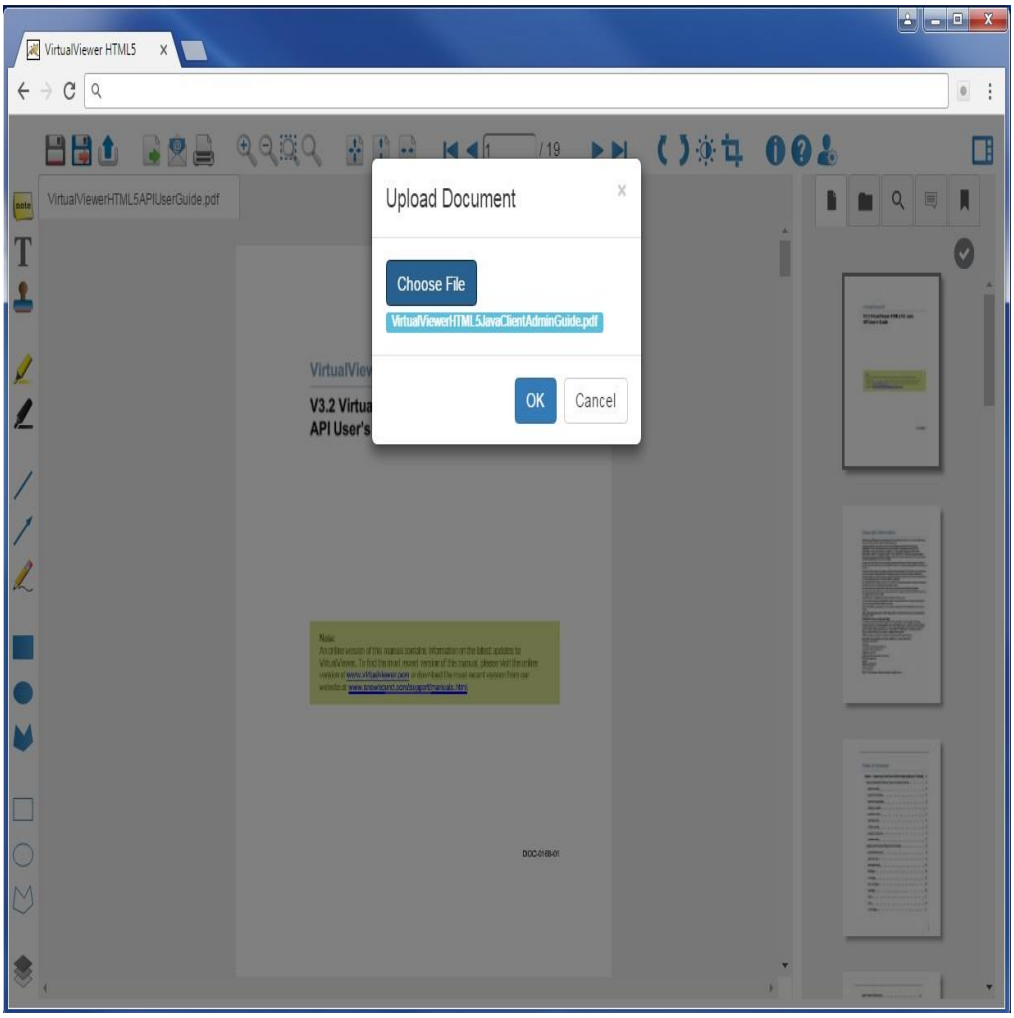
The section describes the Image Controls Toolbar that runs along the top of the VirtualViewer HTML5 for Java screen.

Load Local Files with Upload Document

Load Local Files with Upload Document

Follow the steps below to use the load local files feature:

1. Select the **Upload Document**  button.
2. In the Upload Document dialog, select the **Choose File** button.
3. Select the file that you would like to open. The file name displays in the Upload Document dialog.
4. Select the **OK** button.
5. A copy of the file is uploaded to the server and is automatically placed in your Sample Documents folder to use in VirtualViewer.



Exporting a Document

To export a document, select the **Export Document** button . The Export Document function allows regular and virtual documents to be exported.

Exporting a Document with Annotations

Exporting a Document with Annotations

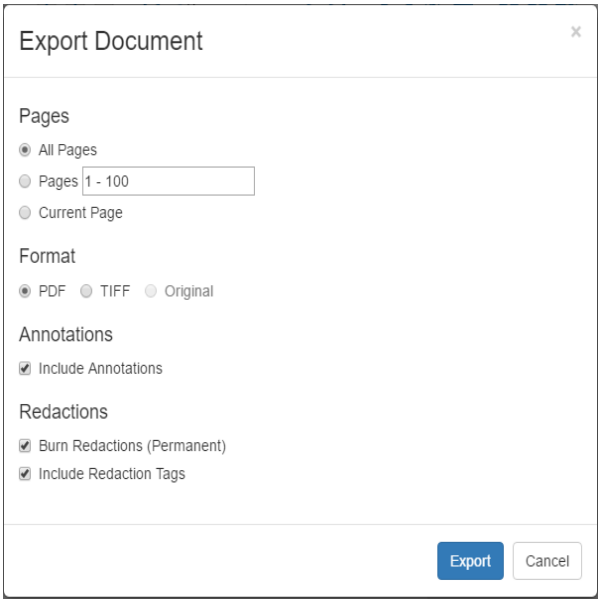
The Export dialog box contains the Include Annotations checkbox to select the option to export a document with annotations. Annotations will only be included when the **Include Annotations** checkbox is selected. The default is set to include annotations when exporting. When exporting with

annotations, only the visible layers are included. When the Include Annotations checkbox is selected, the option to export the file as Original will be disabled. The Include Annotations checkbox is only supported when either the PDF or TIFF format is checked. To export the file as Original, un-check Include Annotations to enable and make available the option for Original. Select the **Export** button to export.

On the Include Annotations dialog box, the Text and Non-Text options are hidden from the Export Document, Email Document, and SaveAs Document sub-option. We still support these options. To re-enable the Text and Non-Text option, change their respective entries from “display: none” to “display :! Important” in dialog.css.

```
div#vvExportOptionsAnnotationsTypeCheckboxes {
display: block !important;

}

div#vvEmailOptionsAnnotationsTypeCheckboxes {
display: block !important;

}

div#vvSaveAsOptionsAnnotationsTypeCheckboxes {
display: block !important;

}
```

For more information on configuring the Export dialog box to display the Include Annotations checkbox, please see Export Dialog Box: Displaying the Include Annotations Checkbox.



Emailing a Document

To email a document, select the **Email** button. 

The Email Document dialog box appears. Select the options that you want for your email.

In the **From:** field, enter the email address of the sender.

In the **To**: field, enter the email address where you are sending the document.

In the **Subject**: field, enter the subject for your email.

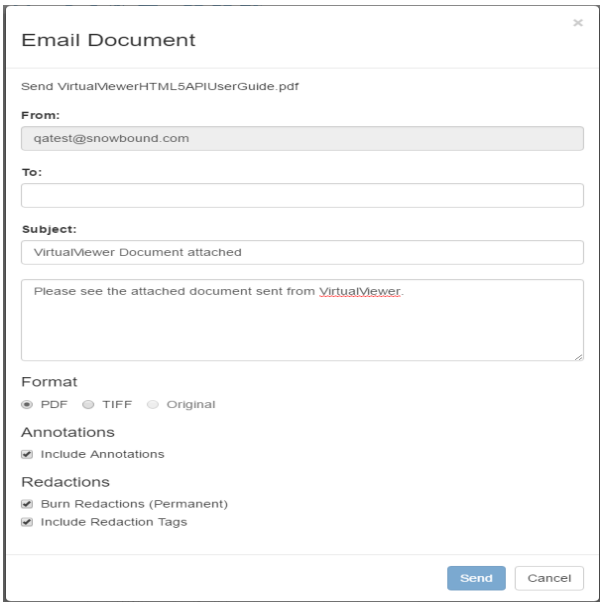
In the **body** field, enter the text of the email.

In the **Format** section, select PDF, TIFF or Original for the file format.

In the **Annotations** section, select any of the following check boxes:

Include Annotations - Check to include annotations.

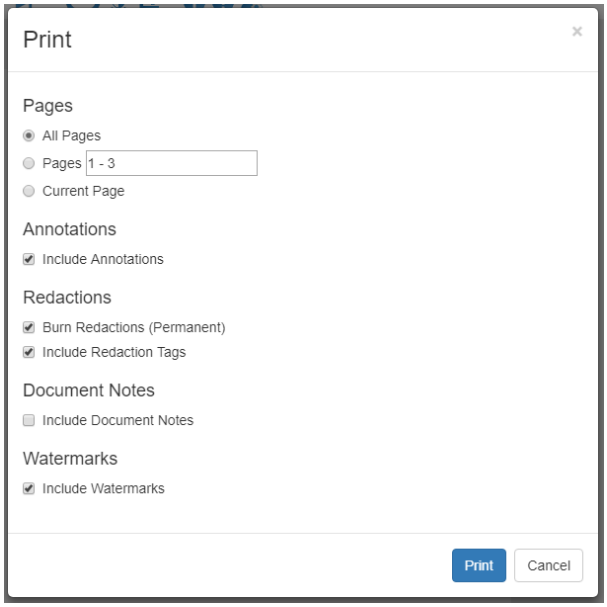
Select **Send** to send the email.



Printing

To print, select the **Print** button. 

The Print dialog box appears. Select the options that you want for your print job. The “Save As PDF” option was removed because it has become a redundant feature that is now handled with the “Export” feature.



Printing with or without Annotations

The print dialog box contains the Include Annotations checkbox to select the option to print with or without annotations. Annotations will only be included when the **Included Annotations** checkbox is selected. The default is set to not include annotations when printing. When printing with annotations, only the visible layers are included.

For more information on configuring the Print dialog box to display the Include Annotations checkbox, please see Displaying the Include Annotations Checkbox.

Zooming

Zooming

To zoom, select one of the **Zooming Controls** buttons. The available Zooming Controls buttons are:

Zoom In  and Zoom Out  .

Rubber Band Zoom

To use rubber band zoom, select the **Rubber Band Zoom** button  and then drag your mouse to select the area that you want to zoom in on.

Magnifier

To magnify, select one of the **Magifier** buttons:

Magnifier  .

When the Magnifier is launched, it appears on the screen based on the default coordinates defined in config.js.

Once the Magnifier is displayed, it can be selected and moved just like any annotation.

The Magnifier size does not scale with changes to the zoom level of the page and maintains its dimensions as the page zooms but the zoom will scale as a factor of the magnifier zoom level and the page zoom level.

The ability to resize the Magnifier window vertically or horizontally using the mouse was added. To resize, grab the bottom left corner (a little black triangle) of the box. The magnifier will not magnify annotations. The original magnifier size is defined in Config.js.

Page Controls

To move from page to page, select one of **Page Controls** buttons. The available Page Controls buttons are:

First Page  , Previous Page  , Next Page  , and Last Page  .

Fit-to-Page

To fit the document to the page, select one of the **Fit-to Controls** buttons. The available Fit-to Controls buttons are:

Fit-to-page  , Fit-to-width  , and Fit-to-height  .

Continuous Scrolling

The thumbnail panel scrolls as you scroll the document in the image panel. The page in the image panel that has greater than 50% of the available screen is reflected as the active thumbnail.

As you scroll through the document pages, the viewer automatically highlights the border of the thumbnails after the page has changed. The page number changes to reflect the page selected in the thumbnail.

Any page level calls are applied to the active page. For example, if you select to rotate, only the active page is rotated.

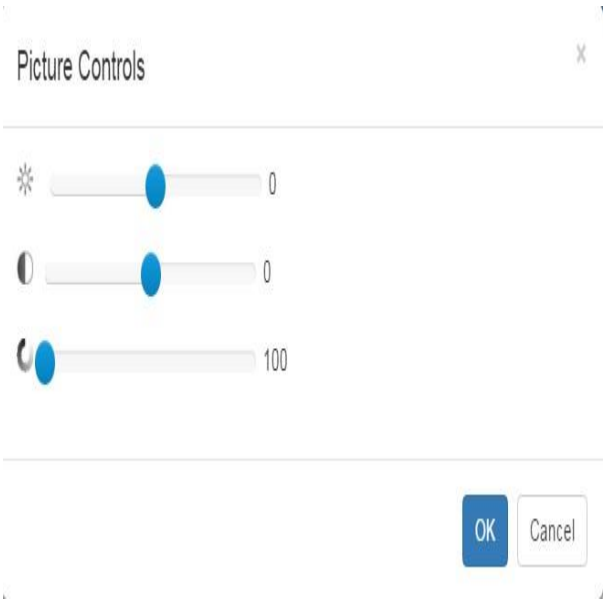
Any zoom level functions are applied to the entire document. For example, if you select, fit-to-page, every page in the document displays as fit-to-page.

Continuous scroll facilitates searching. The found words can be highlighted in all the pages of the document.

Picture Controls

To adjust image properties (picture controls), select the **Picture Controls** button  .

Once the Picture Controls button is selected, VirtualViewer HTML5 for Java displays the Picture Controls window.



You can adjust the Brightness, Contrast, and Gamma by sliding the control bar to increase or decrease the brightness, contrast, and gamma.

Picture Controls are measured on a range of -125 to 125.

Changes made to the Picture Controls properties are page specific and only applied to the page actively in focus.

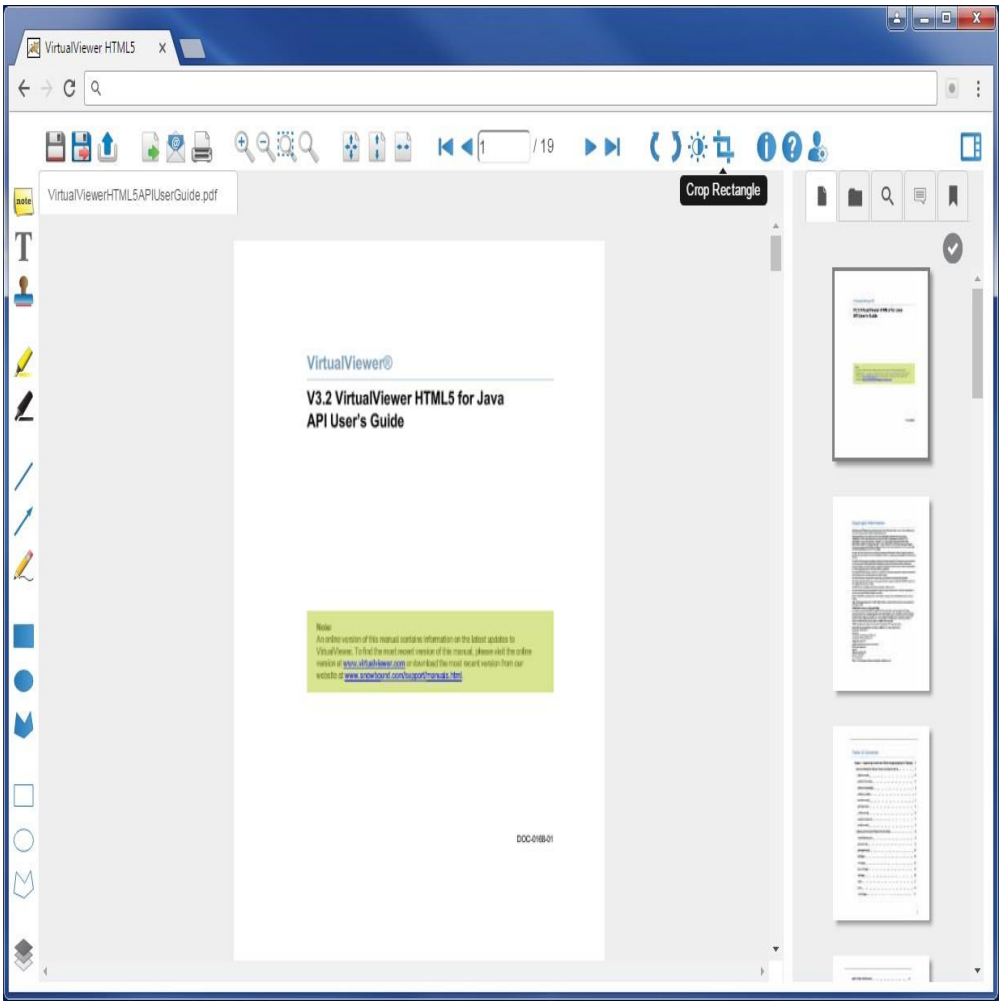
Changes made to the Picture Controls properties will be seen in the viewer, in near real time, as the adjustments are made.

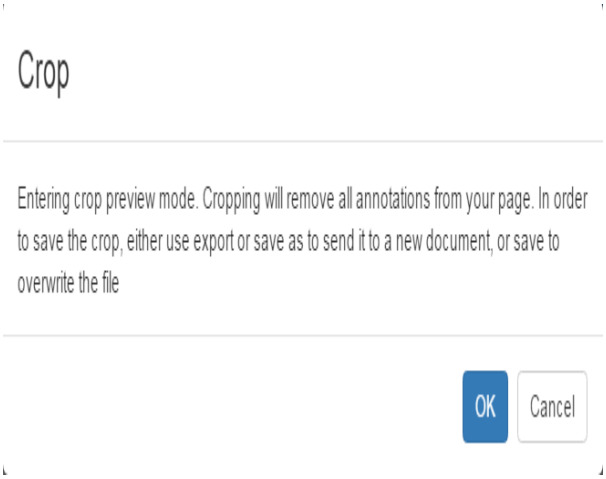
Crop Page Selection

Crop Page Selection

You can draw a crop rectangle on a page and crop out to remove the rest of the page. The remaining area is deleted from the page and can be saved out using save as or export.

To crop a page, select the **Crop Page Selection**  button. With the Crop Page Selection button, draw a rectangle to select the area that you want to crop from the page. Select **OK** to confirm the area to crop. The area outside the selection is deleted from the page. Select **Cancel** to cancel the selection. Select **Save** to save the cropped area.





Crop Page will not retain any annotations or pre-burned redactions.

When entering crop preview mode, cropping will remove all annotations from your page. In order to save the crop, either use export or save as to send it to a new document, or save to overwrite the file.

If you crop within a cropped page, the original crop will be backed out. You cannot crop a cropped area. You have to save the original cropped page to crop again.

Annotations are not supported on cropped pages. If you try to annotate on a crop preview page, you will see an error message and not be able to annotate the page. You can annotate after saving the cropped page.

In config.js, set the `enableCrop` parameter to true to enable consolidate annotation layers. Set the parameter to false to disable consolidate annotation layers. This parameter is set to false by default.

Mobile Device Controls

The user can pan on an image, if it's zoomed in, in all directions (imageScrollbars should be set to false in config.js for this to work).
Using two fingers. the user can pinch to zoom in or zoom out on the document. The zoom motion is not animated so the increase/decrease in size will happen when the user is done pinching.

- Scroll

- Pan

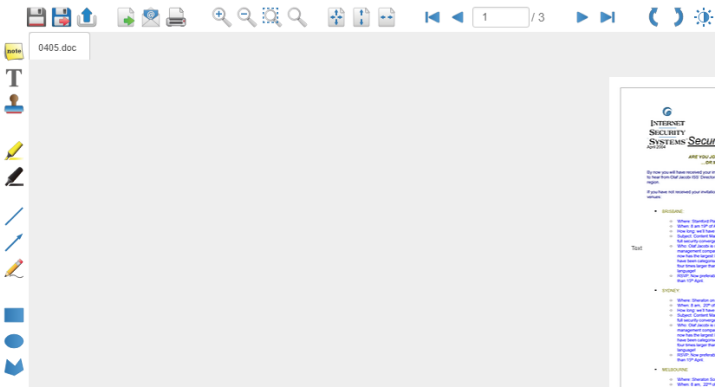
- Zoom In

- Zoom Out

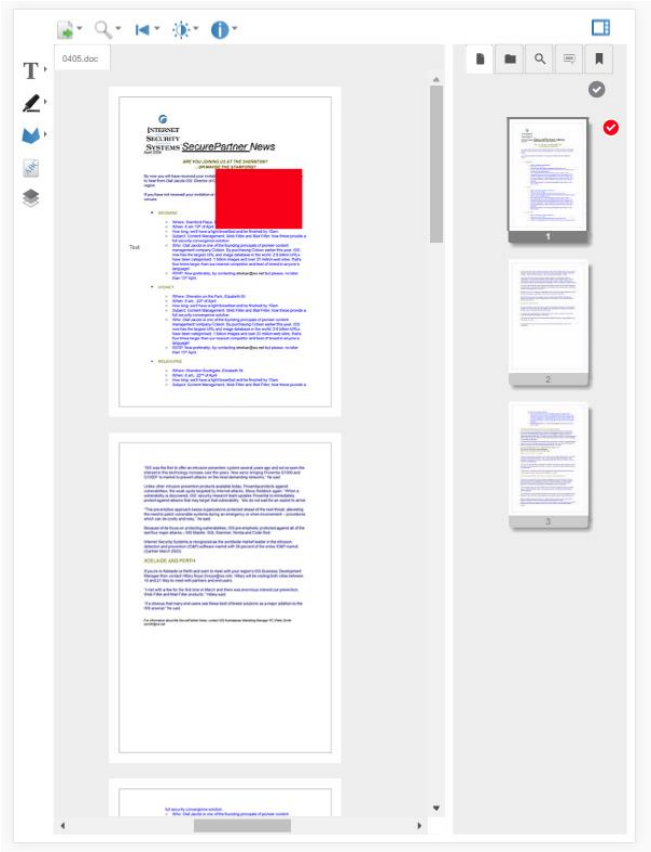
The viewer now works more elegantly in small iframes, on low-resolution monitors, and when browser windows resized smaller.

Toolbar details

On large screens, the toolbars look exactly the same as before:



But as you shrink down, buttons collapse into menus. This happens as you shrink your monitor size, lower your resolution, or even shrink your browser. It's especially important for embedding the viewer in small iframes--like Alfresco--or for using the viewer on an iPad:

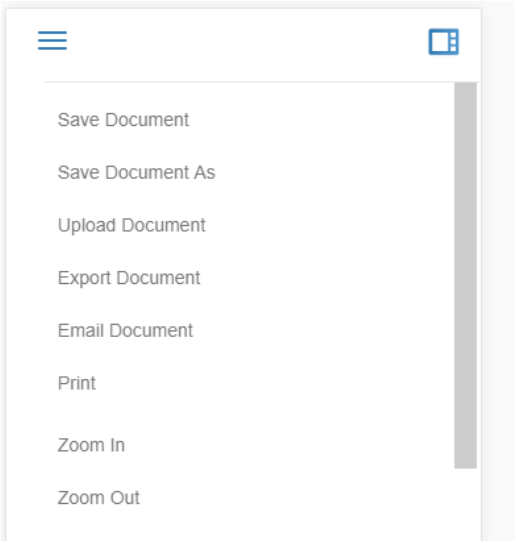


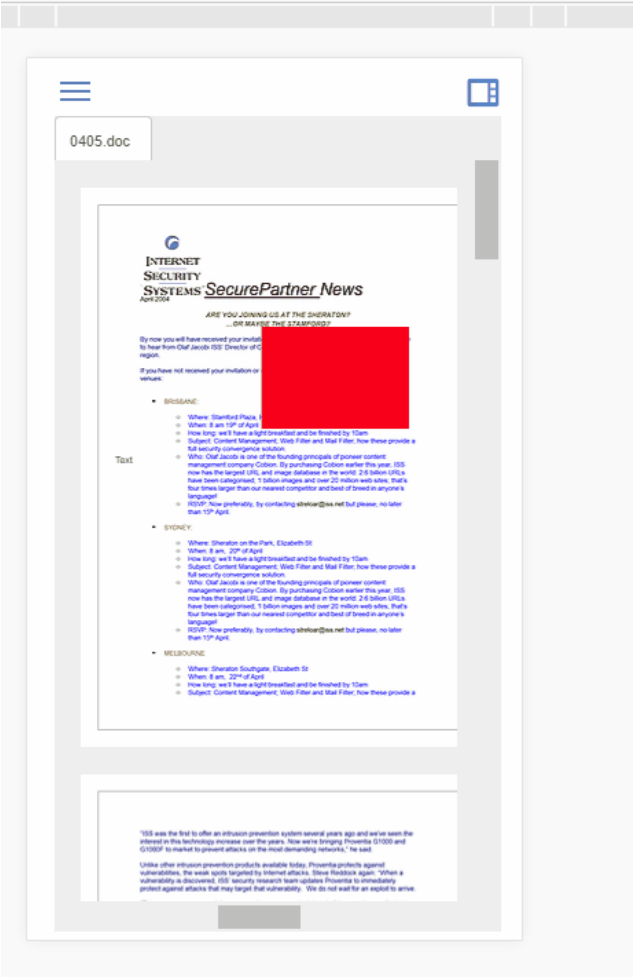
(Note that these icons are temporary.

Here, you can see what the dropdown menus look like:

As you shrink down even further, into phone real estate or into the smallest your browser can get, we have even less space on the toolbar. So, we stuff all the options into a large menu, reachable by the three lines in the top left (called a "hamburger button"):

This menu takes up the entire screen when open:





Toolbar buttons are also now highly configurable.

A deep dive into the configuration

The file user-config/toolbar-config.js now defines everything about the toolbars. Customer admins can go in and manage this instead of modifying index.html directly:

VirtualViewer code goes into this configuration file and creates a toolbar button for every configuration entry that it sees.

There are three parts to toolbar-config.js. First, we have the two big lists: imageToolbarButtons for the top toolbar and annotationToolbarButtons for the left-hand toolbar. Their names should categorically not be modified, particularly not in the final return statement in toolbar-config.js.

Take, for instance, imageToolbarButtons. It looks like this:

var imageToolbarButtons = {

"buttonKey": {button configuration),

"anotherButtonKey": {button configuration}

};

Each "buttonKey" is a unique, descriptive key for the toolbar button. Unique because it's defining the button in the configuration, and also because it's used in the HTML. It should be letters only, and it is good practice for customers to put a prefix on this key--for instance Big Company, Inc may call a key "bcMyKey."

This is the same structure as the annotation toolbar list of buttons. Each button key should also be unique between the two lists--don't put "vvMyNewButton" as a key in the image toolbar configuration and in the annotation toolbar configuration.

Now we can look at the button configuration. In the curly brackets, there are a few items:

-*localizeKey*: This is a string referring to a locale file, where the text that appears in the title--what appears in the tooltip and in the dropdowns--is stored. If a customer is creating a whole new button that doesn't have an entry in a locale file, this field can be left blank, but the "name" field *must* be filled in or the button will appear blank in dropdowns.

-*name*: This is a string with the name of a toolbar button. VirtualViewer buttons do not use this property, since they use localized strings, but customers without an entry in a locale file must put the name of their toolbar button in this field. This should be something short and descriptive.

-*clickHandler*: This is the function that will be called when a user clicks on the toolbar button.

-*iconImage*: This is a string representing a URL to an icon image. VirtualViewer buttons use CSS files to assign icon images, but customers can list an image here and it will be used.

-*addSeparatorAfter*: This is a boolean value. If a group of buttons is too long, it may be necessary to add a bit of whitespace after a button to visually break up the group when the toolbar is fully expanded. If this is true, the viewer will pop some white space after the button. It is not necessary to specify "false" on this item.

-*groupId*: This is a string, and it refers to a group key. Groups are also configured in toolbar-config.js. If a button is in group A, it will be placed in group A in the order it appears--if the Sticky Note button is before the Rubber Stamp button in the annotation toolbar list, and they both belong to group A, the Sticky Note button will appear before the Rubber Stamp button in the UI. If an item is in the annotation toolbar list, it should be assigned to an annotation toolbar group. Additionally, this is optional--if a button has no groupId, it will essentially be in an "uncategorized" list. It will appear at the end of the toolbar and will not be included in a dropdown. (See the Layer Manager and Watermarks buttons as default examples.)

The final part of toolbar-config.js is the group configuration list, called toolbarButtonLogicalGroups. This list looks very similar to the button configuration lists. What it will do is define all the buckets that the toolbar buttons can go into.

Again, each group has a unique string key followed by a configuration object:

var toolbarButtonLogicalGroups = {

"myGroupKey": { configuration },

"myOtherGroupKey": { configuration }

};

The configuration items are as follows:

-*localizeKey*: This is a string referring to a locale file, where the text that appears in the tooltip of the dropdown button is stored. This can be left blank.

-*groupTitle*: Like "name" for the buttons, this is a string with the name of the group in it. For instance, "Preferences" or "Edit" or "File." The localize key will handle this, but a customer without a locale entry could use "groupTitle".

-*iconImage*: This is a string representing a URL to an icon image. VirtualViewer buttons use CSS files to assign icon images, but customers can list an image here and it will be used.

-*annotationToolbar*: This is a boolean flag that chooses where to put the group. If true, the group is an annotation toolbar group; if false or absent, the group is in the top toolbar. Annotation toolbar buttons should only be placed in annotation groups, and similarly, image toolbar buttons should only be placed in image toolbar groups.

New strings in vv-en.json

utilityToolbar.fileGroup: File

utilityToolbar.zoomGroup: Zoom

utilityToolbar.pagesGroup: Pages

utilityToolbar.pageManipulationGroup: Page Manipulation

utilityToolbar.infoGroup: Info and Settings

annToolbar.textAndStampsGroup: Text and Stamps

annToolbar.markupGroup: Markup

annToolbar.shapesGroup: Shapes

Unsupported Features on Mobile Devices

- Drag and Drop
- Search and redact are disabled if redaction is disabled
- Document comparison, when offered, will not be supported for mobile devices
- Though several mobile devices have been approved, we cannot guarantee that all mobile devices are supported.

User Preference

The User Preferences feature allows you to configure the icons, annotation properties, text stamps, and the default fit to display in the viewer.

Select the User Preferences icon  to open the User Preferences window with the following four panels to set the user preferences:

Panel 1: **Toolbar Configurations** sets the ability to show or hide each button on the Image Controls and Annotation toolbar.

Check or uncheck the check box for the toolbar button that you want to turn on or off. Check the box to show the button on the toolbar. Uncheck to hide that button from the toolbar.

Check or uncheck the top check box to turn on or off toolbar icons.

The icons will shift on the toolbar to fill in the space left by icons that are turned off.

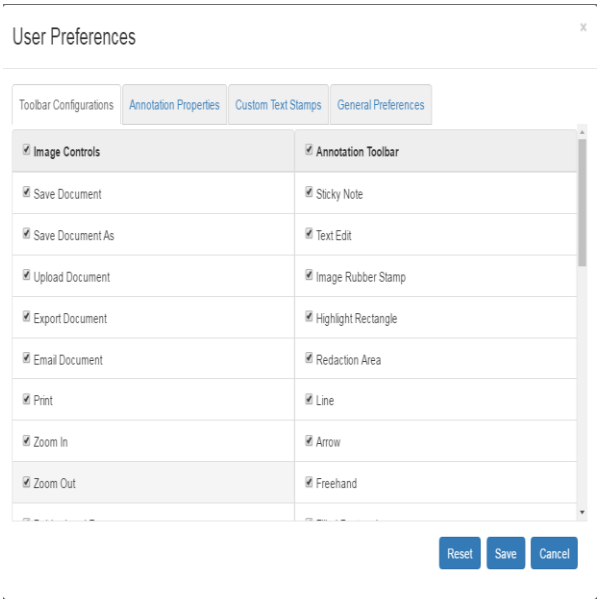
The changes that you make in User Preferences are saved to your local storage on the browser that you used when making the changes. Your User Preferences settings will only be visible on the browser on the computer where you saved the settings.

Public API for setting Username in User Preferences

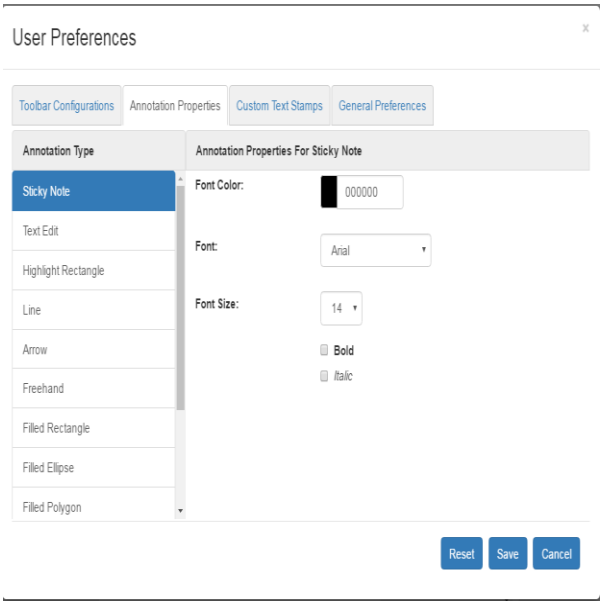
API: virtualViewer.setUsername(string);

This was added so that the user can programatically add a username to their instance of VirtualViewer if they so desired. The user can still use the dialog box in the User Preferences.

Note:
Select the **ctrl + '** shortcut key to launch the user preferences dialog box. This is useful if you have turned off the User Preferences icon in the toolbar and want to open the User Preferences window.



Panel 2: **Annotation Properties** sets the default values for the annotation types. This includes the font type and size, font color, and line size.



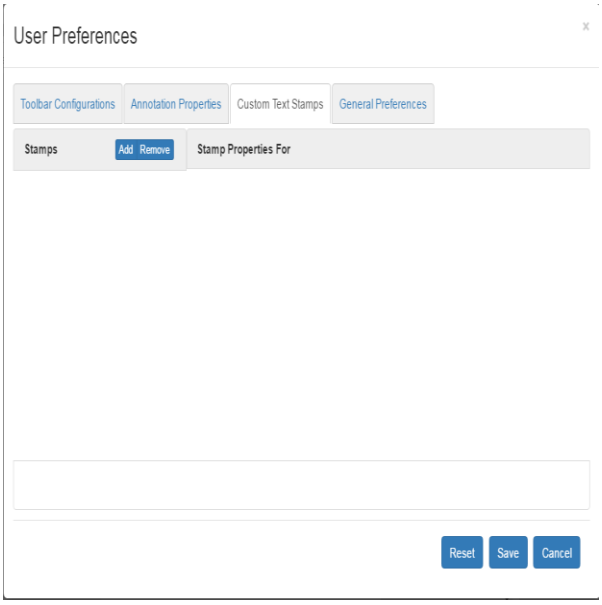
Panel 3: **Custom Text Stamps** defines custom text stamps. Select the [+] button to add a custom text stamp. Enter the display name and stamp text. Select the appropriate font color, font type, font size, bold or Italic text. Select the [-] button to remove a custom text stamp.

The panel shows a real time preview of the custom text stamp.

The **display name** shows the text that displays for the custom text stamp in the toolbar.

The **stamp text** displays the text that is displayed in the custom text stamp annotation.

Custom text stamp is disabled by default. To enable custom text stamp, set `enableTextRubberStamp` **config.js** parameter to true.



Panel 4: **General Preferences** sets the default fit-to preferences.

Select **Fit to Window**, **Fit to Height**, or **Fit to Width**.

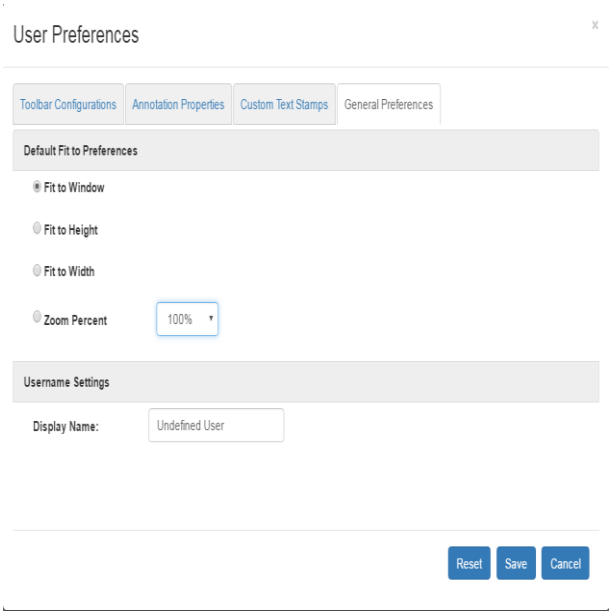
Select **Zoom Percent**. From the drop down select the zoom level from the following:

2, 3, 4, 6, 8, 10, 15, 20, 30, 40, 50, 75, 100, 150, 200, 300, 400, 600, 800, 1000.

In **config.js**, set the `zoomLevels` parameter to the desired zoom levels. The default values are 2, 3, 4, 6, 8, 10, 15, 20, 30, 40, 50, 75, 100, 150, 200, 300, 400, 600, 800, 1000.

Once the level is chosen and saved, the document will automatically switch to the selected zoom level. For example, if you choose 75, the document will zoom to 75%.

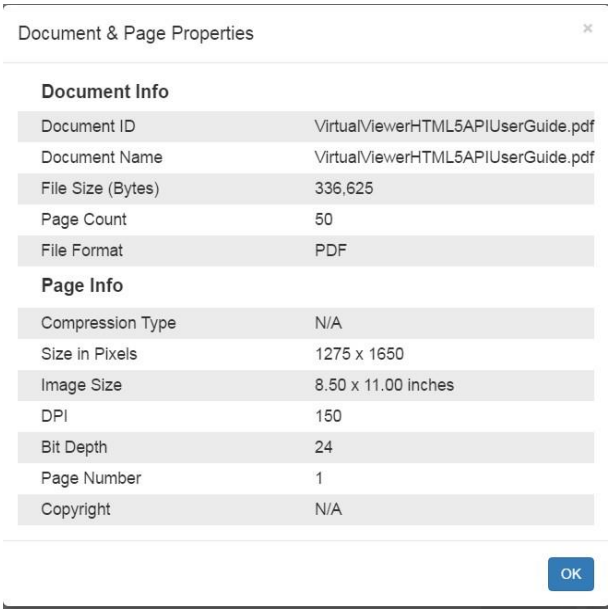
In the **Display Name** field, enter the user name to set a user name for Document Notes and Annotation Commenting.



Select the **Reset** button to clear local storage and remove the browser specific, user defined stamps. Select the **Save** button to save your user preferences in the browser cache. Select the **Cancel** button to cancel the window.

Display Document and Page Properties

Select the Image Info icon to open a window with the following document properties information:



Use the following API methods to manage the display of document properties:

Showing the Information for a document

```
VirtualViewer.prototype.showImageInfo = function()
```

Hiding the Information for a document

```
VirtualViewer.prototype.hideImageInfo = function()
```

Toggling the Information for a document

```
VirtualViewer.prototype.toggleImageInfo = function()
```

The Annotation Toolbar

This section describes the Annotation Toolbar that runs along the left side of the screen for VirtualViewer HTML5 for Java..

Creating Annotations

To create annotations, click on the annotation to select it and then click and drag your mouse on the document. Release the mouse when you are done drawing the annotation. The available annotation buttons are: sticky note, text edit, image rubber stamp, highlight rectangle, redaction area, line, arrow, freehand, filled rectangle, filled ellipse, filled polygon, rectangle, ellipse, and polygon.

Note:
Annotations are NOW supported on the iPhone and iPad platforms.

To display a contextual annotation box, click on the annotation and then left-click on your mouse. The contextual annotation box allows you to:

Select a color to fill in the annotation.

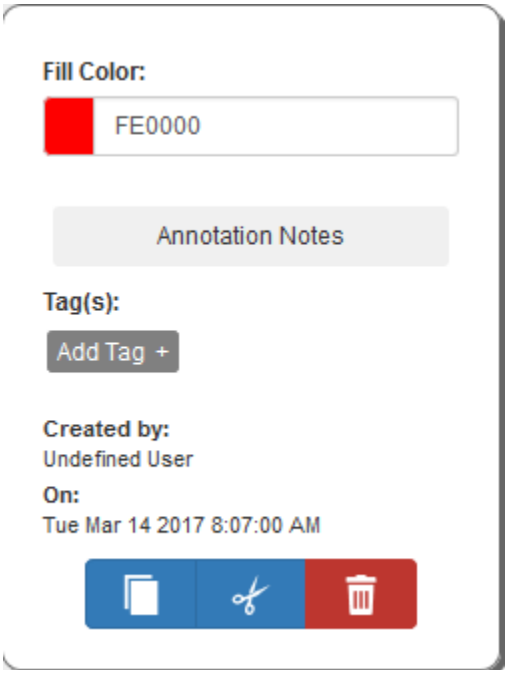
Select a line color.

Adjust the line size for a line annotation.

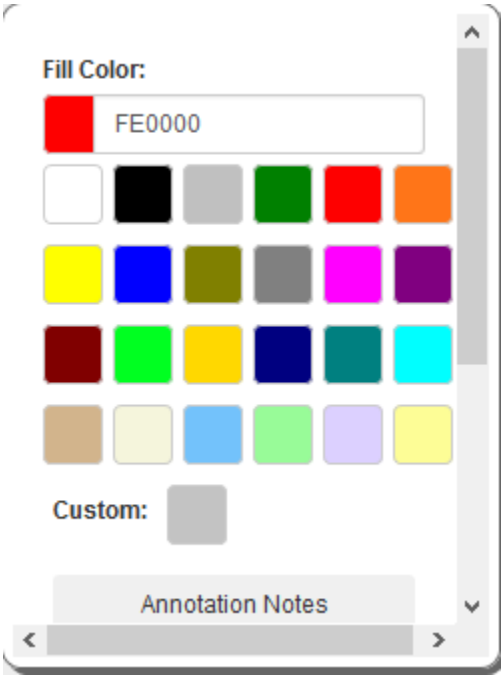
Edit the text for a text annotation.

Editing a Filled Annotation

To select the fill color for a filled annotation, right-click on the annotation. In the contextual annotation box, select the **fill color**.



To display more fill colors, select the color in the **Fill Color** field. The Fill Color box expands to display more colors to select from:

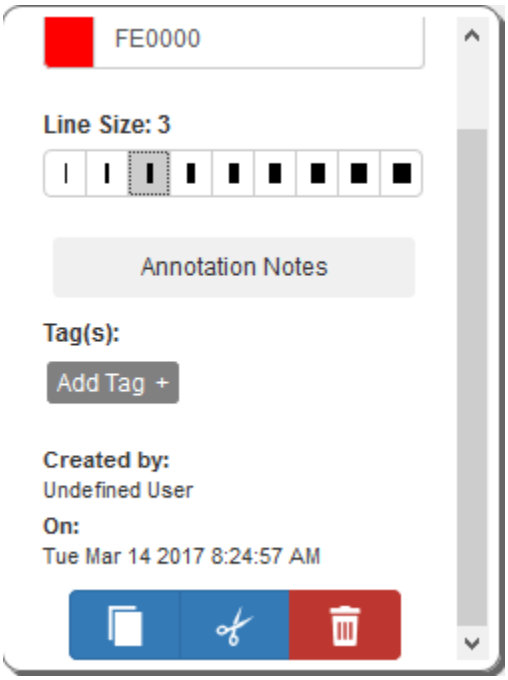


In the Custom: field, you can enter a customized color code as the Red Green Blue (RGB) color code. For example, for the color red, enter the customized RGB color code of FE0000.

Editing a Line Annotation

Editing a Line Annotation

To adjust the line color in a line annotation, right-click on the annotation. In the contextual annotation box, select a **line color**.



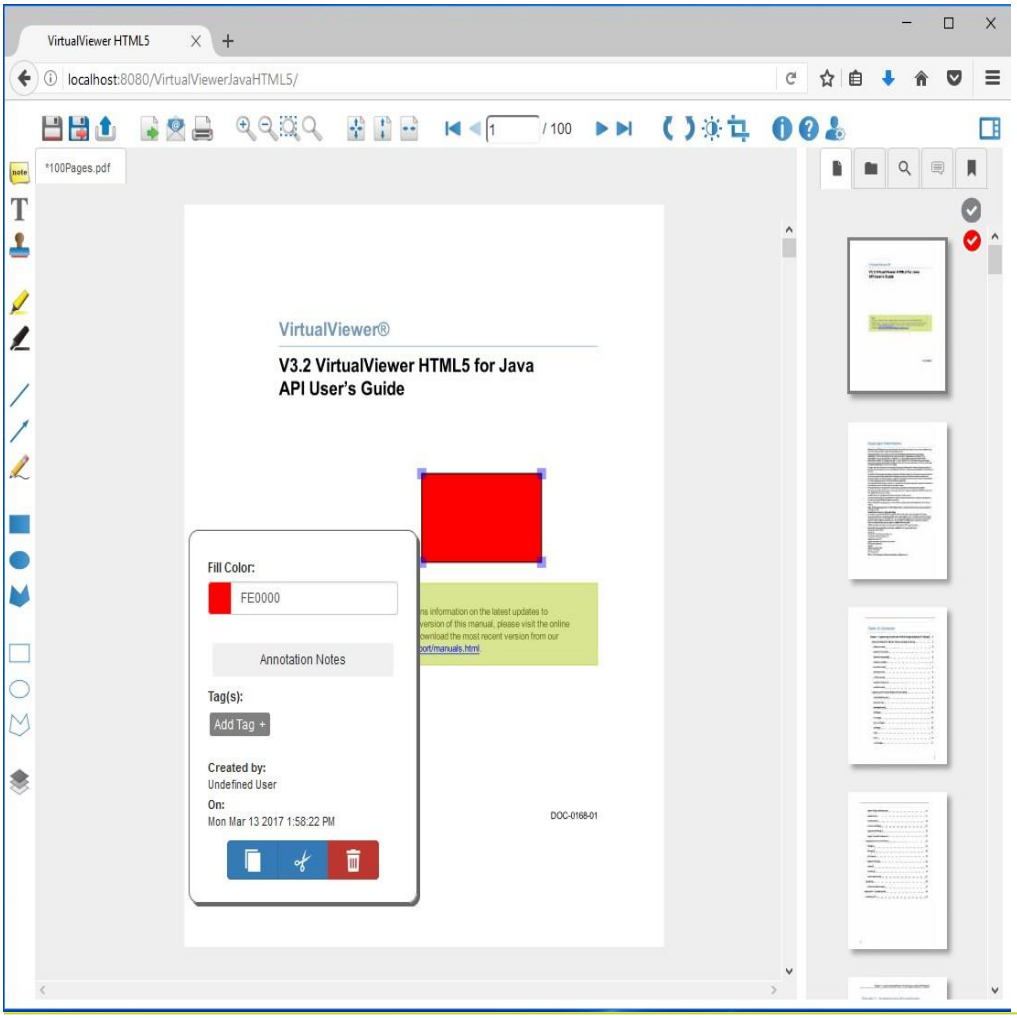
To adjust the line size, right-click on the line annotation. In the contextual annotation box, select the **line size** from the available line weights of 1 to 9.

Copying and Pasting an Annotation

Copying and Pasting an Annotation

Follow the steps below to copy and paste annotations:

1. Right-click on an annotation.
2. From the dialog box, select the **Copy** or the **Cut** button.
3. Right-click on the page where you would like to paste the annotation. Select **Paste**.
4. The annotation is pasted on the page.

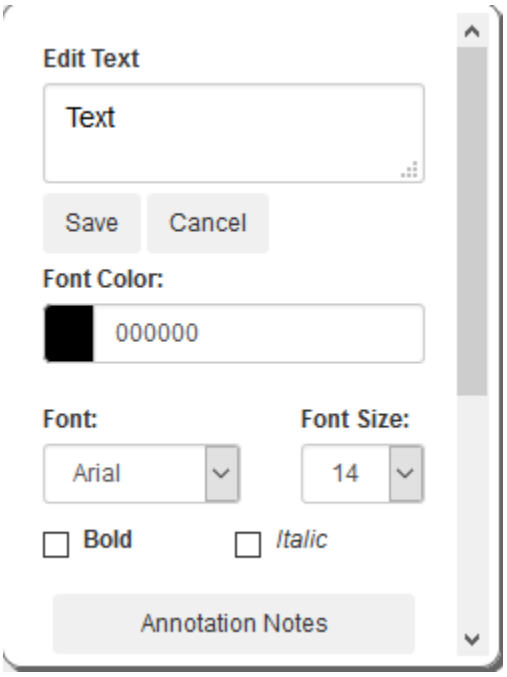


Editing a Sticky Note Annotation

Editing a Sticky Note Annotation

Select the Sticky Note text annotation button.

Right-click on the text annotation to open the annotation contextual box.
Enter text in the text area in the Edit Text field.



To adjust the text color in a text annotation, select a **text color**.

In the Custom: field, you can enter a **customized color code**.

In the Font field, select the **font** that you would like for the text.

In the Font Size drop down box, select the **font size** for the text.

Select the **Bold checkbox** for bold text. Select the **Italic checkbox** for Italic text.

Formatting changes are reflected in this text box as well as the text on the annotation. Select the Save button to save any text edit changes.

Using Text Edit Annotations

A Text Edit annotation allows you to type a text annotation on a document.

Select the Text Edit annotation button.

T

Type the text in the Text Edit annotation box. Select the checkmark to save the text annotation. Select the X to close the Text Edit annotation box.

You can dynamically resize text annotations. The text annotation box expands horizontally as you type from left to right.

In **config.js**, set the `autoResizeTextAnnotations` parameter to **true** to dynamically resize annotations. The default value is false.

Example:

```
autoResizeTextAnnotations: true,
```

If the `autoResizeTextAnnotations` parameter is set to true, the text annotation will act as follows:

The text annotation automatically resizes to fit the initial text when it is created.

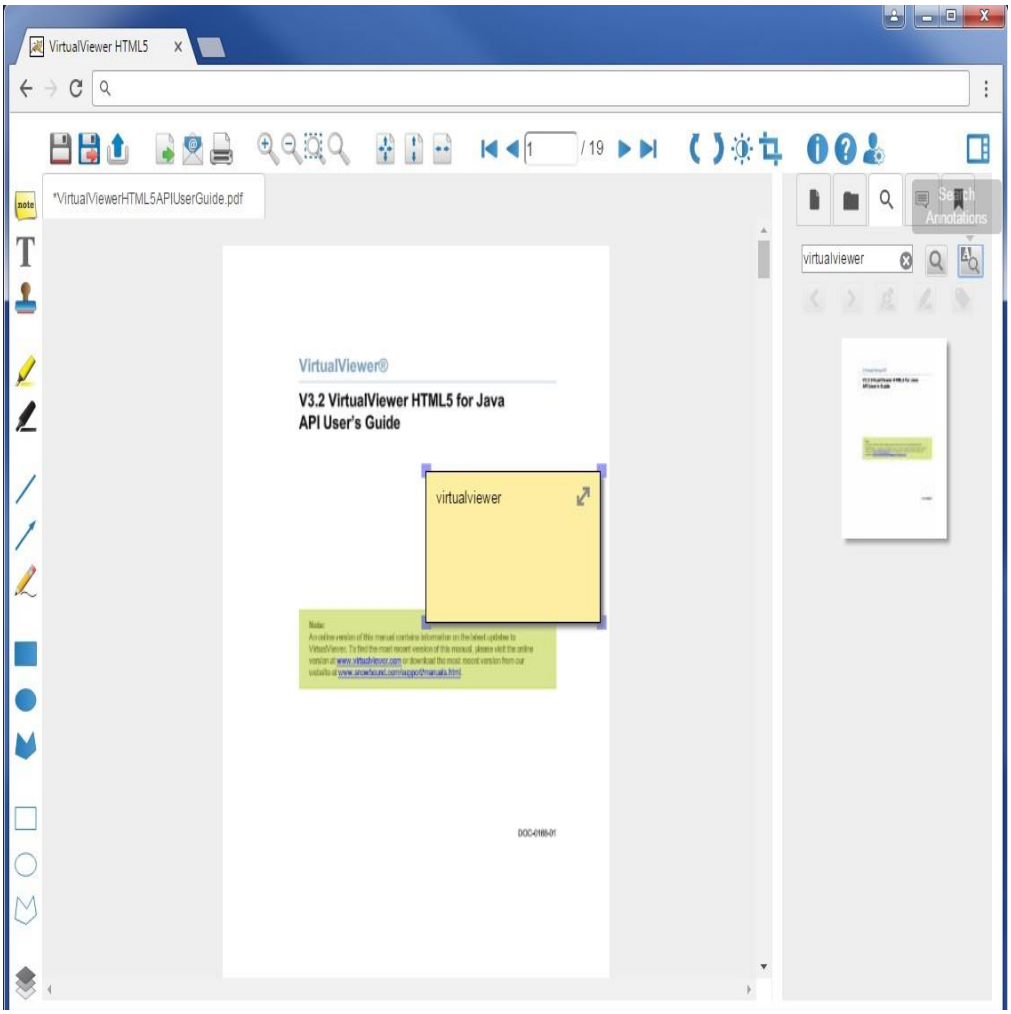
The text annotation extends the right edge of the annotation edit box as you type.

The text annotation is resized vertically and does not extend beyond the bottom of the page.

The horizontal resizing ends at the end of the page.

Search Annotation Text

To search annotation text, select the **Annotation Search** button in the Search tab in the Thumbnail panel. Enter the text that you are searching for in the Search field and select enter. The annotation text is highlighted for the term that you searched.



Annotation Commenting

Annotation commenting allows you to add user comments to an annotation object. This allows multiple users to collaborate on a single annotation object. To use annotation commenting, follow the steps below:

User 1 creates an annotation or rubber stamp and saves and closes the document.

User 2 loads the document and right-clicks on the annotation or rubber stamp. The user selects the **Notes** button. The user enters text in the note field and selects **Add Annotation Note**. The note is displayed with the date and time that it was created.

User 3 follows the same steps as User 2. Each additional user can add comments.

To delete a note, select the x at the upper right of the note.

Annotation commenting is display only. Export, Send, Email and Print will not display the annotation comments on the pages.

In **config.js**, set the `enableAnnotationCommenting` parameter to true to enable annotation commenting. Set the parameter to false to disable annotation commenting.

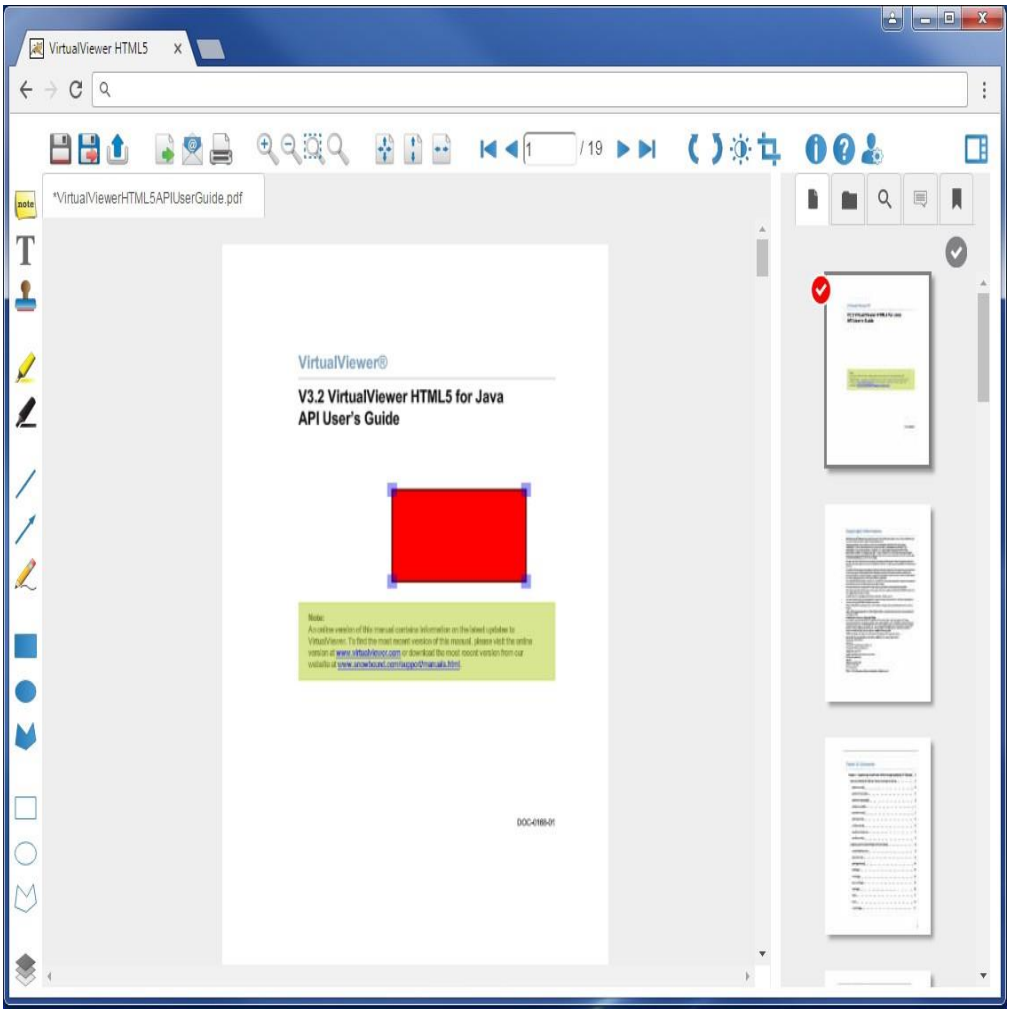
To set the user name, select **User Preferences** and then select the **General Preferences** tab. In the **Username** field, enter the user name and select the **Save** button.

Resizing an Annotation

To resize an annotation, click on it until it is highlighted and selection squares display on each of the annotation's corners. Drag one of the selection squares, except for the top left one, to resize the annotation to the desired size. The following is the expected behavior for the highlighted annotation and selection squares:

Select the **top left selection square** to drag the annotation to a new location. Dragging on other non-selection square areas of the annotation sets the upper left selection square under the mouse pointer.

Select any of the **other selection squares** other than the top left one to resize the annotation.



Annotation Indicators and Navigation

The annotation indicators and navigation buttons allow you to navigate through a document showing only the annotated pages.

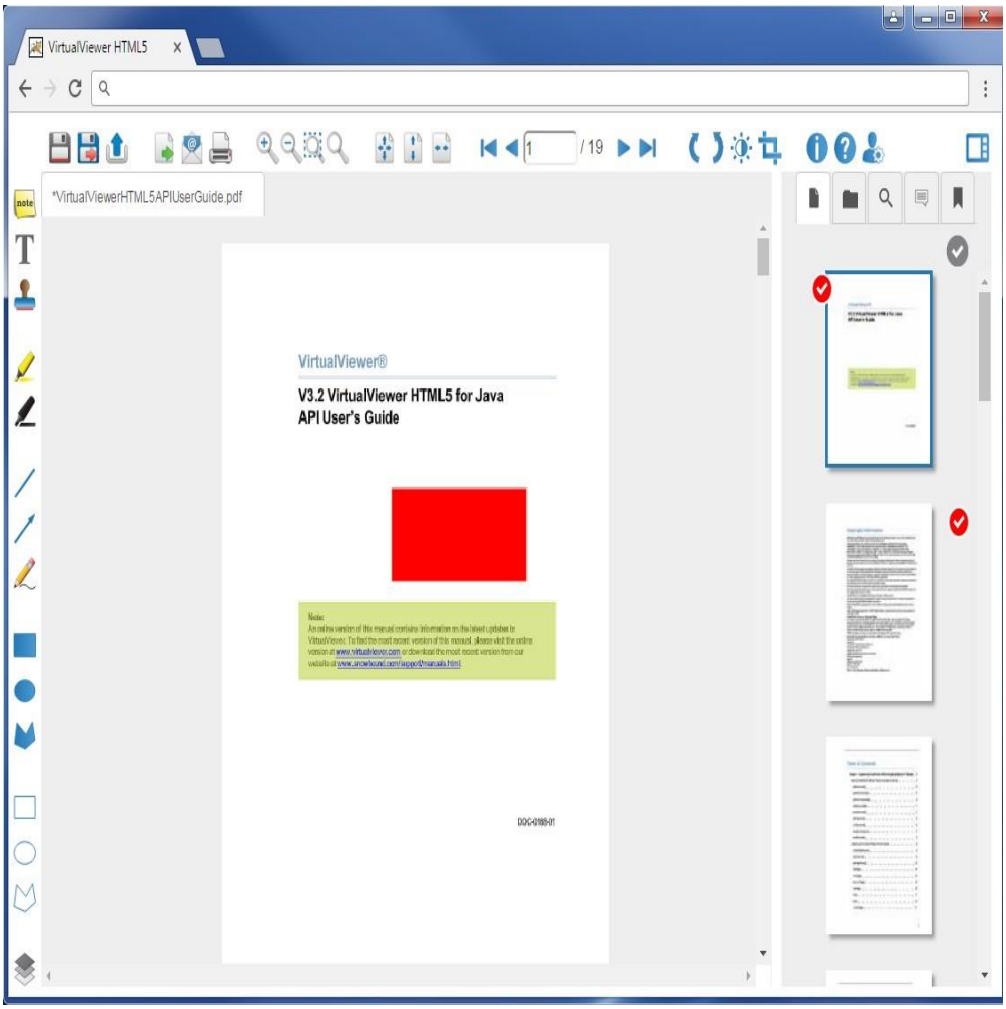
Click the Toggle Annotation Navigation button  (the grey checkmark on top right corner of the Pages panel) to display the Annotation panel.

The Annotation panel shows the **Previous Annotation Page** button, the **Next Annotation Page** button, and the **Filter** button.

Use the Next Annotation Page button and the Previous Annotation Page button to navigate from annotated page to annotated page skipping pages with no annotations.

Select the **Filter** button  to clear the pages view in the thumbnail panel and only display pages that contain an annotation.

The Annotation Indicator icon displays as a red check in the upper right corner of a page with an annotation.



The annotation navigation buttons are enabled by setting the `showAnnNavToggle` config.js parameter to true. The default value is false. Please see the example below:

```
showAnnNavToggle: true,
```

The annotation indicator is enabled by setting the `showAnnIndicators` config.js parameter to true. The default value is false. Please see the example below:

```
showAnnIndicators: true,
```

Saving Annotations

To save annotations, select the **Save Document** button. 

Deleting Annotations

To delete an annotation, right-click on the annotation to display the contextual annotation box.

In the Delete Annotation? box, select the **Delete** button to delete the annotation.

Revision history for Annotation Create Date/Time

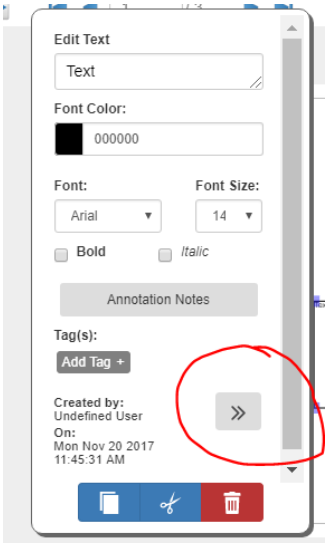
Use Case:
User 1 creates an sticky note on page 1 of a document, the userId/date/time are recorded
User 2 edits that same sticky note (color, size, placement, any change really....ect)
The userId/date/time are updated in a scrolling list reflecting each edit to that object.

Works for all annotations, image stamps and redactions
Resizing/moving records as a change
Changing text records as a change
Page manipulations or moving pages with annotations to a new/other document will not record a change
The use of pages with annotations in a VD will record changes to the annotations
A modification will be added if the annotation is modified and then saved.
If the user changes the color, moves around the annotation, and expands the annotation, and then saves once, only one modification item will be saved.

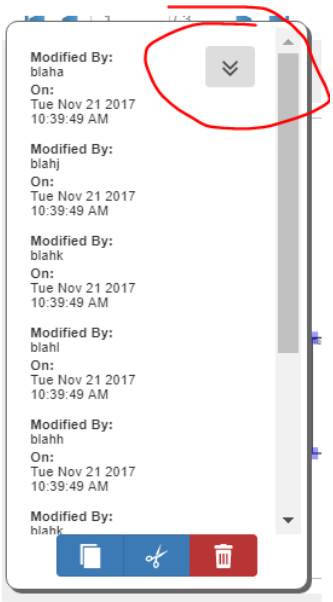
If an annotation is pasted, it will have a clean slate--it won't keep the modifications of the original.
If a document is saved-as, the annotations on the new document will still have a modification trail but will not add a new modification for the saving event.

Display and Use

The revision history is displayed in the annotation popup by clicking an expando button:

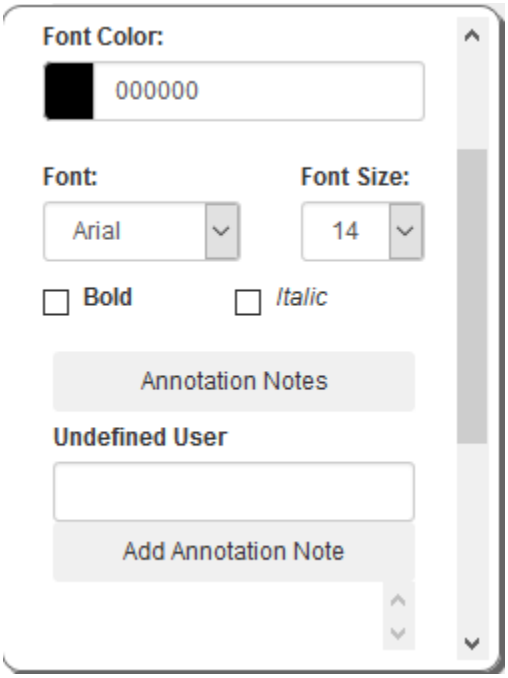


And shrunk again by hitting the same button:



Annotation Information

To display the **User Name** and **Date and Time**, right-click on any annotation in VirtualViewer. The annotation creator's user name and the date and time that the annotation was created display at the bottom of the annotation window.



Using Image Rubber Stamp Annotations

An Image Rubber Stamp is an image annotation from a pre-defined list. Your system administrator has the ability to define a list of pre-configured Image Rubber Stamps through the `enableRubberStamp` parameter in the web.xml file. For more information on configuring rubber stamp annotation functionality, please see Configuring Image Rubber Stamp Annotations.

If the `enableRubberStamp` parameter is set to true and one or more Rubber Stamps are defined, then clicking on the **Text Edit** annotation toolbar button as shown below will produce the rubber stamp text menu.

Click on the **Image Rubber Stamp** annotation toolbar button as shown below to see a list of available image rubber stamps defined by the system administrator.

Note:
If the `enableRubberStamp` parameter is set to false, then clicking the Text Edit annotation button allows you to select only Add New Text to add a text annotation.

The Pages and Documents Panels

The panel on the right side of the screen shows the thumbnails for the current image and for all the documents made available by multiple documents mode. Select the **Pages** tab to display the thumbnails for the current image being viewed. Select the **Documents** tab to display thumbnails for the first page of every document made available by multiple documents mode. Page and document thumbnails now display the file name in a footer. This is managed by the displayThumbFooters parameter in the config.js.file. It is off by default.

To select a specific page or document simply click on the corresponding thumbnail and that page or document will load into the main viewing area.

Hiding the Pages and Documents Panel

The Thumbnail panel provides a convenient way to:

Navigate to any page in a document in the Pages panel.

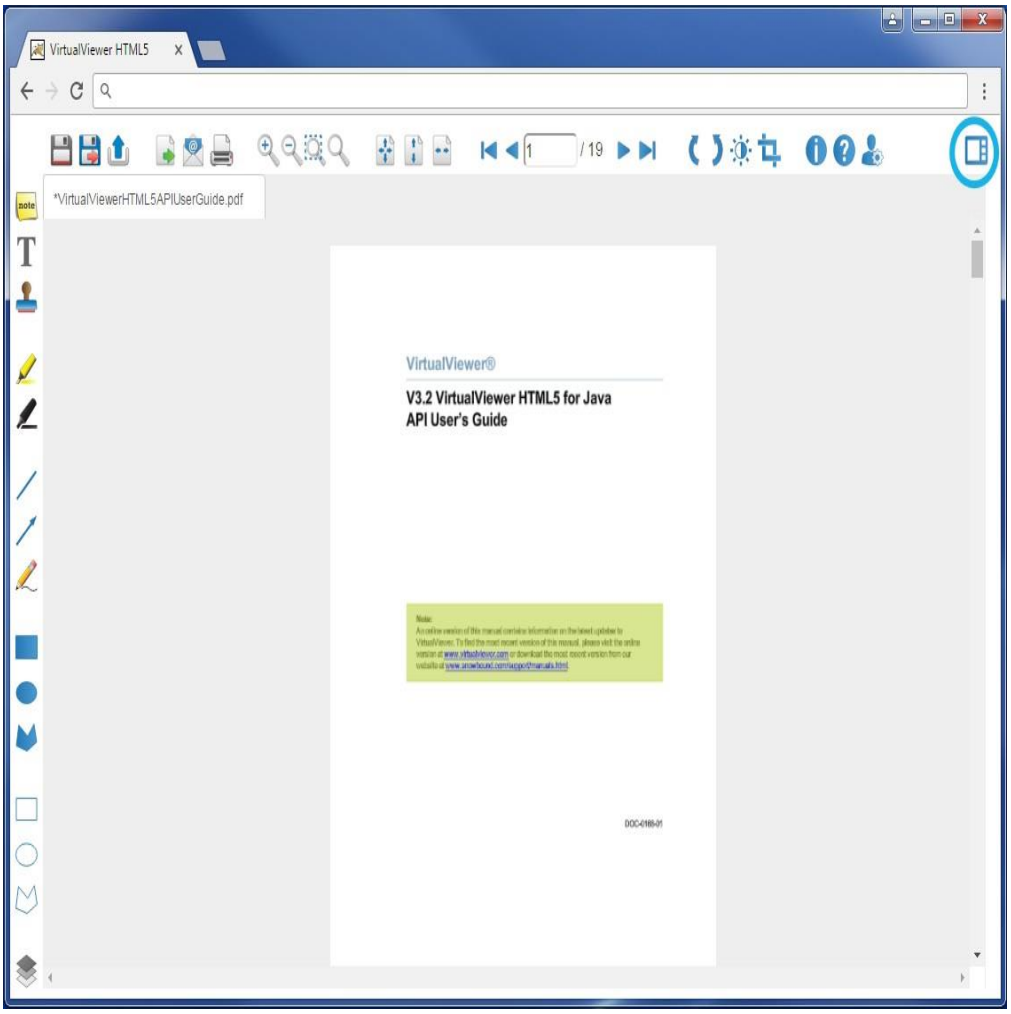
Select another document to view from the multiple Documents panel.

Create a new document by dragging and dropping pages from another document.

However, this convenience does have a price. VirtualViewer HTML5 for Java performance degrades because it is processing every page in the document Pages panel and/or the first page of every document in the Documents panel. If you want to speed up performance, you may want to disable or hide the thumbnail navigation panels. For more information on disabling or hiding the pages and documents panel, please see Hiding the Pages and Documents Panel.

To hide or show the Pages and Documents panel, select the **Toggle Thumbnails** button  .

The following shows VirtualViewer HTML5 for Java with the Thumbnail Panel hidden:



Split Screen View

You can launch documents to a lower panel to visually compare documents in one viewer session. The main image panel on the top retains all feature functionality. The lower panel includes all functionality except the magnifier and the thumbnail panel functionality including page manipulations, text search, document notes, and bookmarks.

Follow the steps below to use the Split Screen View feature:

1. On the **Documents tab**, right-click on the document thumbnail for the document that you want to open in the lower panel and select **Document Comparison**.

2. The document in the main image panel appears in the top panel. The document that you selected from the Documents tab appears in the lower panel.
3. Scroll to navigate the pages in the lower panel.
4. To replace the document in the lower panel, right-click on another document thumbnail in the Documents tab and select **Document Comparison**.
5. To undo the Split Screen View, right-click on the document in the top or bottom panel and select **Close Document Comparison**.

In **config.js**, set the `splitScreen` parameter to **true** to enable the Split Screen View feature. If the `splitScreen` parameter is set to false, the Split Screen View feature is disabled. The default value is true.

Example:

```
splitScreen: true,
```

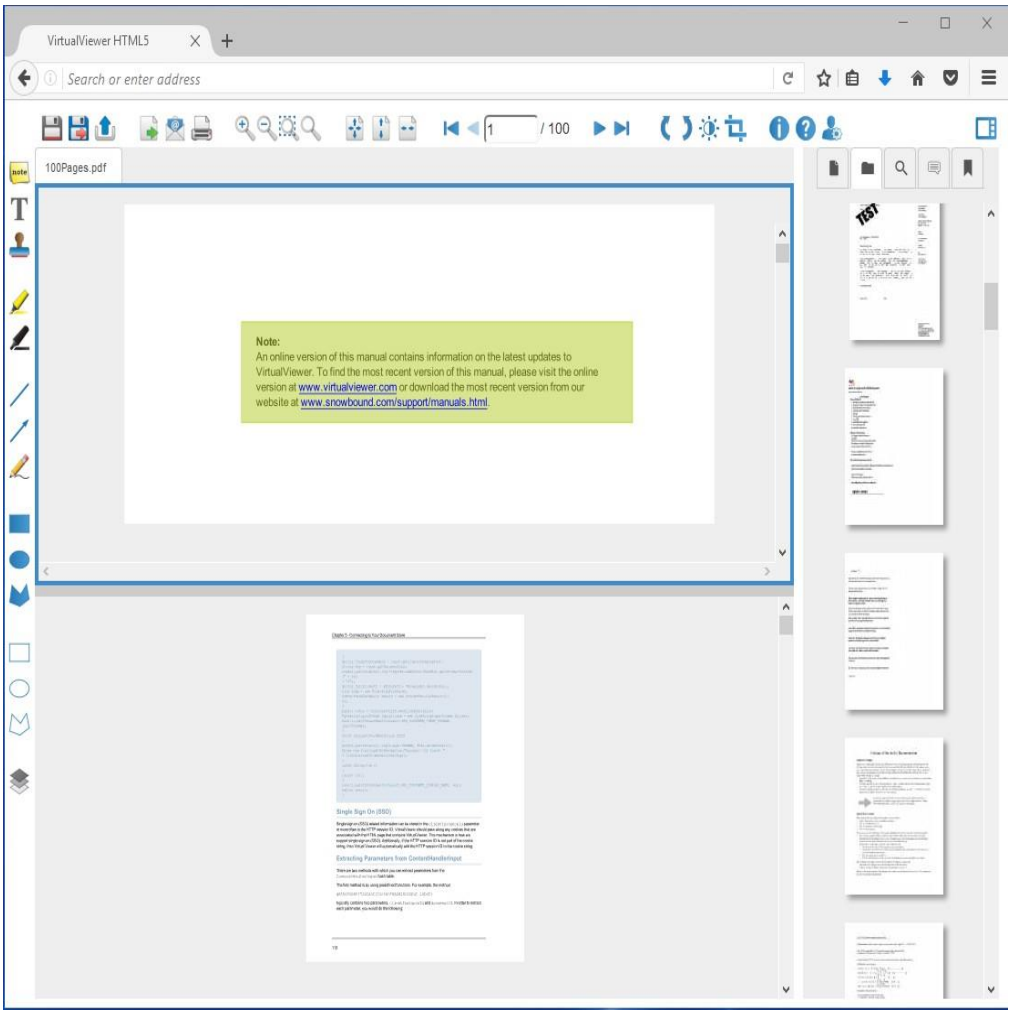
In **config.js**, set the `screenSizes` parameter to the screen size for panel 1 and panel 2. The first value sets the size of screen panel 1. The second value sets the size of screen panel 2. If the first value is set to 50, the first screen panel is set to 50% of the viewer. If the second value is set 50, the second screen panel is set to 50% of the viewer.

Example:

```
screenSizes : [ 50, 50],
```

As images are added by selecting **Split Image**, each new document request replaces the existing document in the lower panel.

The following shows the Split Image view:



The following sections describe the Document Notes, bookmarks, text searching, redaction, and page manipulation features.

Document Notes

The **Document Notes Panel** allows you to add notes that are relevant to the active document that you are currently working with. It includes the ability to view, create, edit, and delete notes.

The `getDocumentNotes(string)` function in **webviewer.js** in the js directory will change the note's author to whatever name is specified in the string.The string will replace "User Unknown" with whatever string is entered in this function.

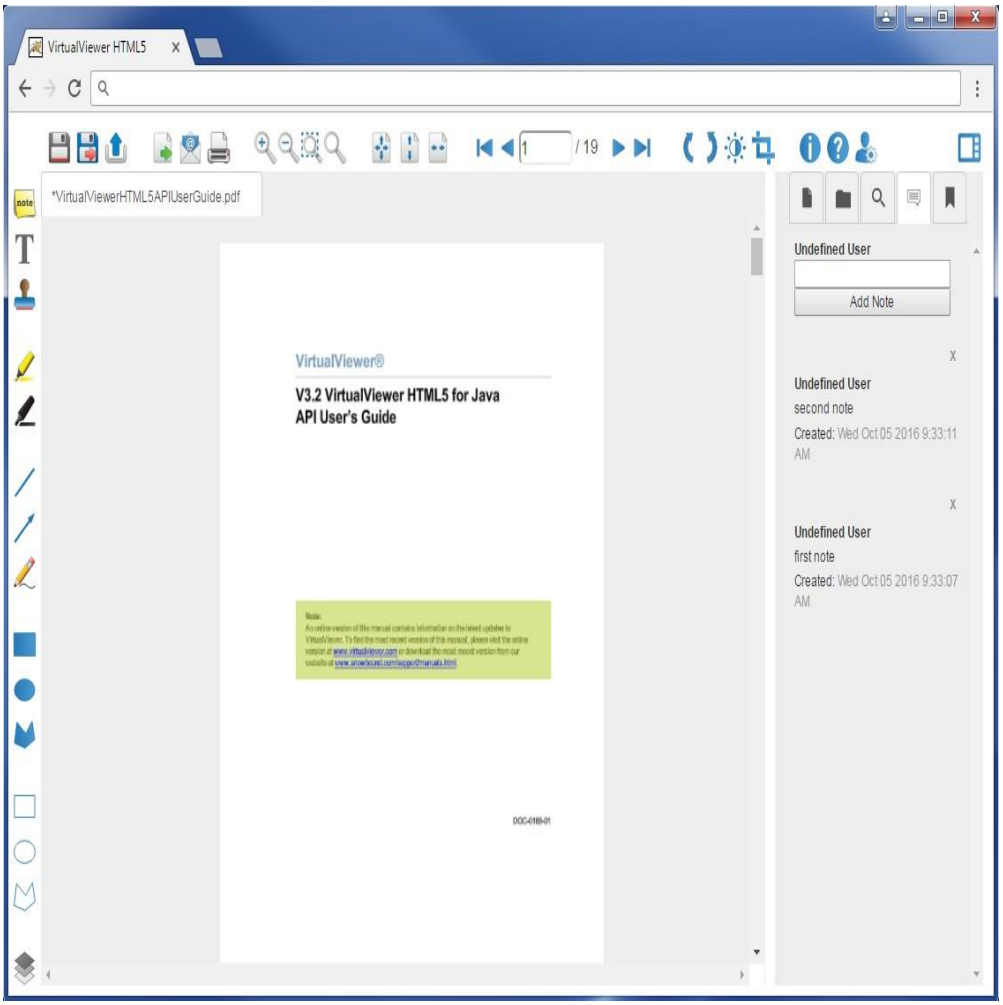
To set the user name in the Document Notes panel, set:

```
virtualViewer.getDocumentNotes(" ") ,
```

For example, if you want to set the user name as Fred:

```
virtualViewer.getDocumentNotes("Fred") ,
```

The time stamp is set by the server time for the computer of the user who created the note. The time stamp changes for the server time for the computer of the user when edited.



Creating Document Notes

To create a note, follow the steps below:

1. Select the **Notes Tab**.
2. In the Document Notes field, add the text for the note.
3. Select the **Add Note** to add the note.

Document Notes templates

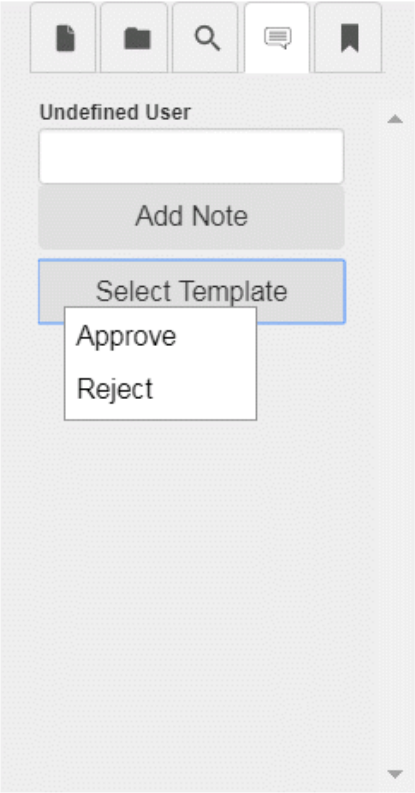
The ability to create Document Notes templates was added. The user can create a Document Notes template in two ways, either by adding the Document Note templates in **User Preference > Notes Templates** tab or by adding the template objects to the “noteTemplates” in **config.js**.

Follow the steps below to add a Document Notes template in User Preference:

1. Select the **User Preference** button**.** From User Preference dialog box, choose **Notes Templates** tab.
2. Select **Add** button to create new Document Notes template.
3. In **Template Name** field, enter the **template name**.
4. In **Template Text** filed, enter the **template text.**
5. Select **Save** button to save the template
6. To edit the Notes template, select the template then edit the **Template name** or **Template Text** field. Select **Save** button to save update template or **Cancel** button to exit.
7. To delete a template, select the template then select **Remove** button. Select **Save** button to save change or **Cancel** button to exit.

Document Notes Template workflow:

1. Select **Notes Tab**
2. Left-click **Select Template** button
3. Choose a template from the template drop down menu
4. Select **Add Note** button to add template to the document note.



Editing Document Notes

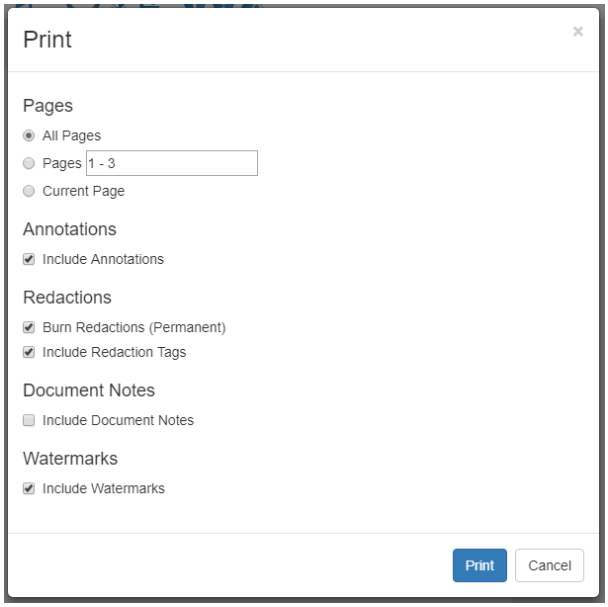
To edit a note, follow the steps below:

1. Double-click on a previously created note text to edit it.
2. In the Document Notes field, edit the note.
3. Select the **Apply** button to save the changes to the note.

Printing Document Notes

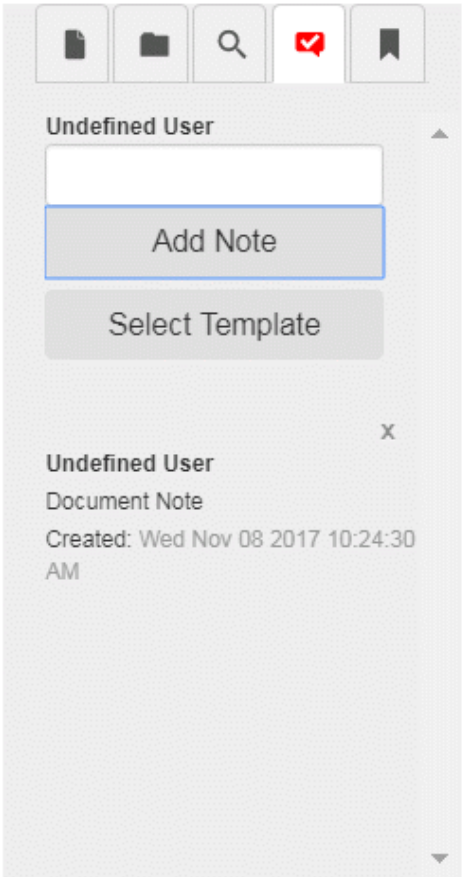
To print a note, follow the steps below:

1. Select the **Print** button.
2. Check the **Print Document Notes** check box and select the **Print** button. The “Save As PDF” option was removed because it has become a redundant feature that is now handled with the “Export” feature.
3. The Document Notes print on the last page of the document.



Document Notes Indicator

A red checkmark Document Notes indicator on the **Notes Tab** will toggle on if a document contains a document note, otherwise it will be toggled off.



Watermark Support

VirtualViewer now offers watermarks for customers who need to mark page backgrounds with specific notifications such as “Private”, “Confidential”, “Do not distribute” and so on. Watermarks can be created that are transparent or solid, of varying fonts and sizes and positions. They can also be restricted to admins versus all users.

They can also have dynamic tags for user name, page numbers, print time, and document name.

What does the User Interface look like?
There are a few UI changes. A new watermarks dialog lays out all the watermarks options for creation, deletion and editing. In the "document handling" dialogs (printing, exporting, etc) a new checkbox has been added, so the user may decide whether to burn their watermarks when exporting.

If a watermark is marked as admin-created, then the "burn watermarks" option will be checked and disabled, so the admin watermarks burn by default. Similarly, a non-admin may not edit or delete admin-created watermarks.

Those dialogs are the only way to interact with watermarks. You can't select them on the document, move them around, etc--they're not annotations, they're marked into the document once created.

Other features
Users may add dynamic data into their watermark text. This is easily done in the watermarks dialog by clicking on a tag button above the text box in the watermark dialog. If you inspect the raw text of the JSON, a tag will appear enclosed in two @ signs, which may be escaped by adding a /. When displayed, the tag will be replaced by data.

For instance, the user wants a page number to print on each page. They click the tag button in the dialog. In JSON, now the watermark text would say, "Page @@pagenumber@@". When displayed on the document, the watermark on page one will read "Page 1", the watermark on page fifty will read "Page 50" and so on. If the user types "If I wanted a page number I would use /@/@pageNumber/@/@", the watermark will now display "If I wanted a page number I would use @@pagenumber@@". The tag is escaped, and so is not replaced by a dynamic number.

Available tags are:

- Username: the user's username as stored in user preferences.

- total pages: the number of pages in the document.
- current page number: the number of the current page.
- print time: The date & time when the document was exported or printed. When displaying in the viewer, this is just an example date and time, from when the document was opened.
- document name: The display name of the current document.

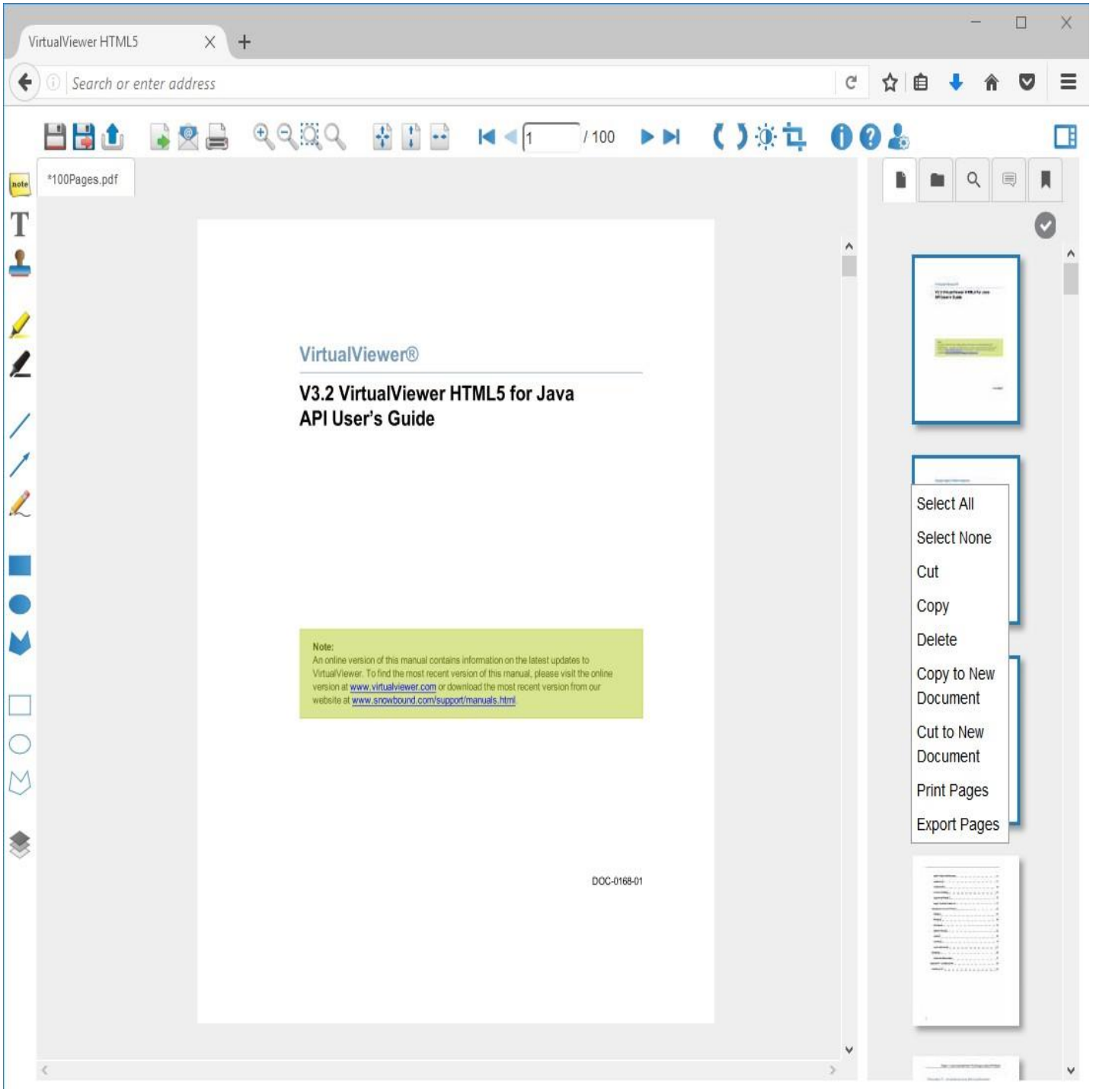
Select Pages from the Thumbnails Panel

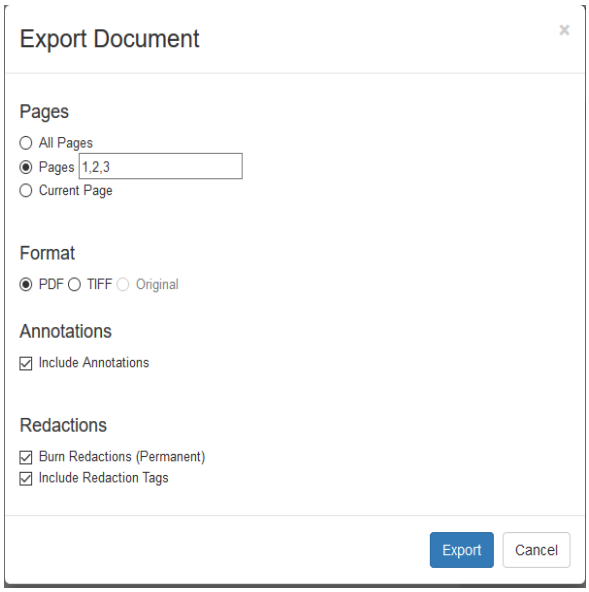
You can select pages from the Thumbnails panel for Export Pages or Print Page.

Follow the steps below to select pages from the Thumbnails panel for Export Pages or Print Pages:

1. Select one or multiple thumbnails from the Thumbnails panel.
2. Right-click to see options for Export Pages or Print Pages.
3. Select **Export Pages** or **Print Pages**.
4. On the dialog box, select **All Pages**, **Pages** (enter the page range), or the **Current Page**. The dialog box automatically displays with the page range.

The following shows the Export Page or Print Pages option:


VirtualViewer HTML5
Search or enter address
1
/ 100
*100Pages.pdf
VirtualViewer®
V3.2 VirtualViewer HTML5 for Java
API User's Guide
Note:
An online version of this manual contains information on the latest updates to VirtualViewer. To find the most recent version of this manual, please visit the online version at www.virtualviewer.com or download the most recent version from our website at www.snowbound.com/support/manuals.html.
DOC-0168-01
Select All
Select None
Cut
Copy
Delete
Copy to New Document
Cut to New Document
Print Pages
Export Pages



Substitute Image Thumbnails

You can add a substitute box instead of image thumbnails. This improves performance because image thumbnails do not need to be created.

In **config.js**, set the `doNotLoadPageThumbs` parameter to **true** to display substitute boxes instead of image thumbnails. The default value is false.

If the `doNotLoadPageThumbs` parameter is set to **true**, VirtualViewer will not request thumbnail images. Instead, VirtualViewer displays a box with the page number. Select the substitute thumbnail box as you would an image thumbnail.

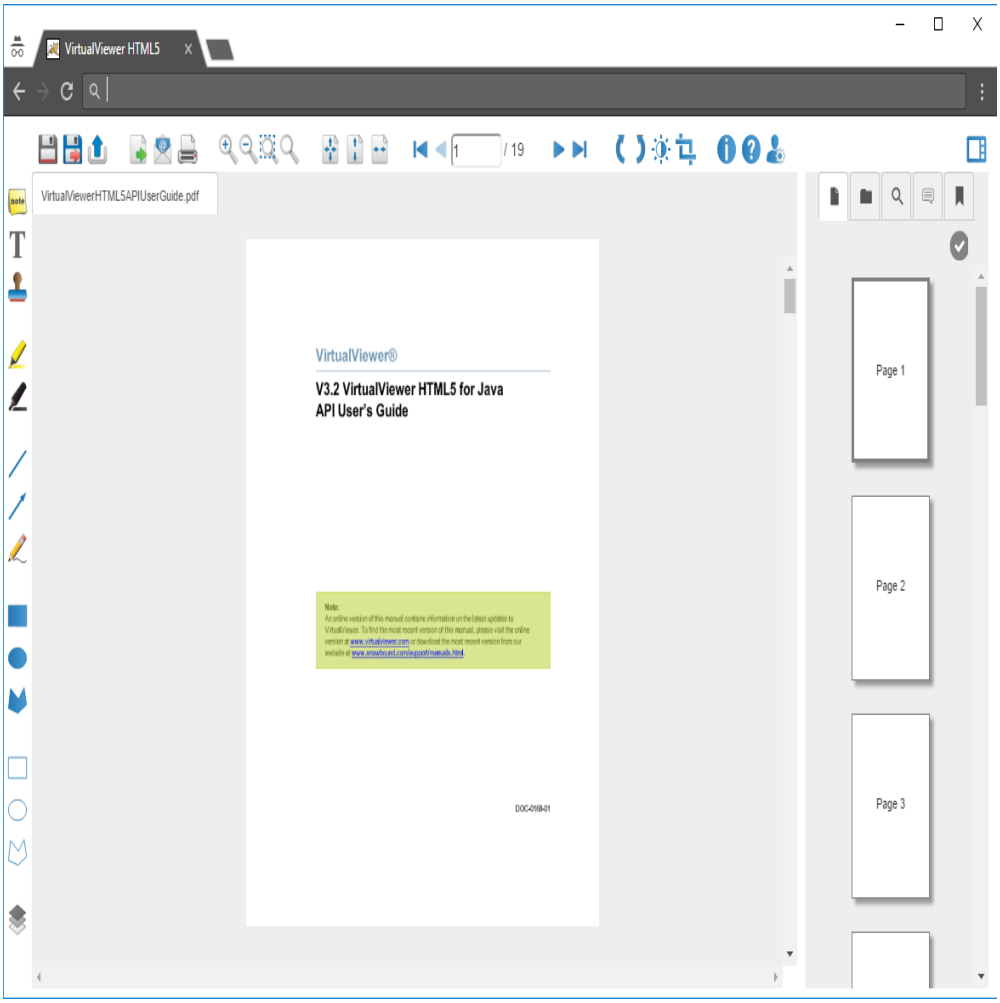
Example:

```
doNotLoadPageThumbs: true,
```

Use the `thumbPageLabel` string to set the page thumbnail tooltip. Please note that it is important to include the trailing space in "Page ".

Example:

```
"thumbPageLabel": "Page "
```



Extract and Append Page Ranges

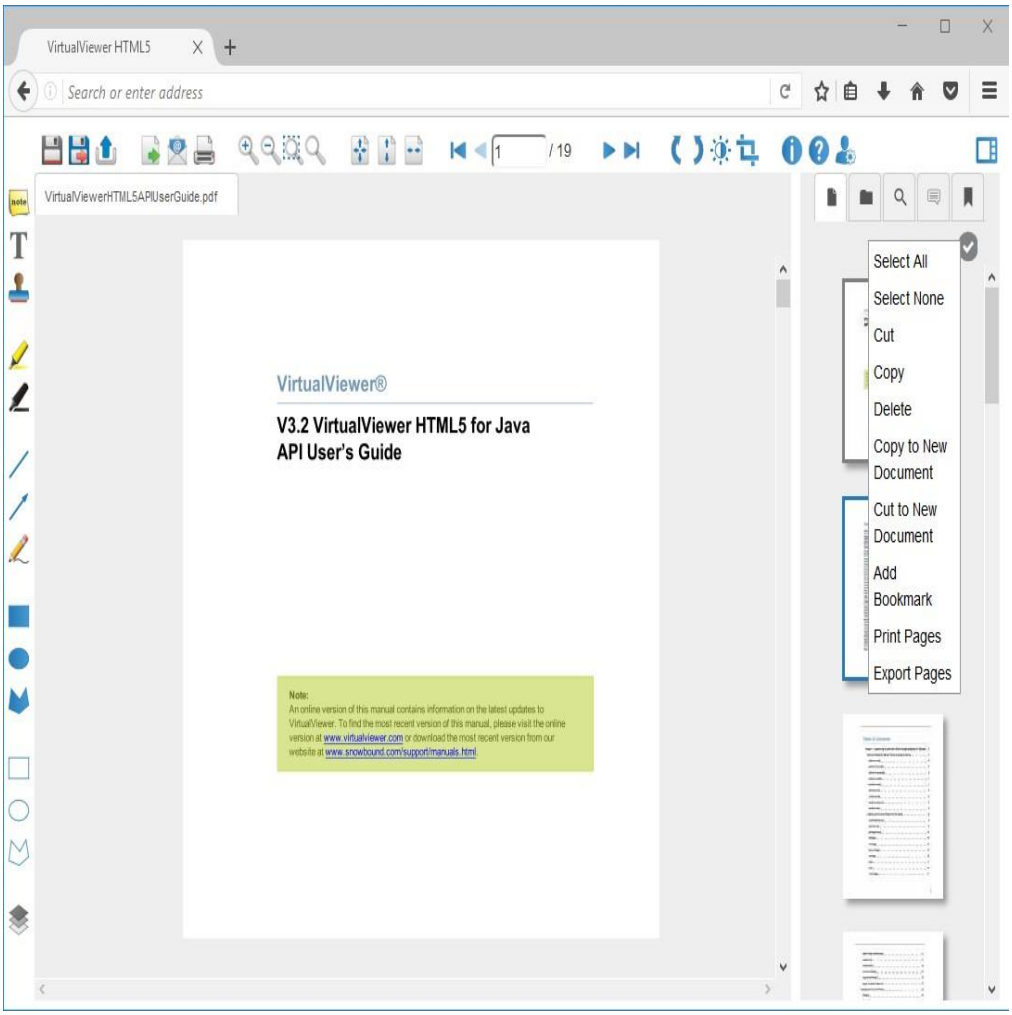
You can extract and append a range of pages instead of the entire document when saving to PDF. All pages do not have to be processed during saving. This provides a shorter save time for documents with a large number of pages (100+).

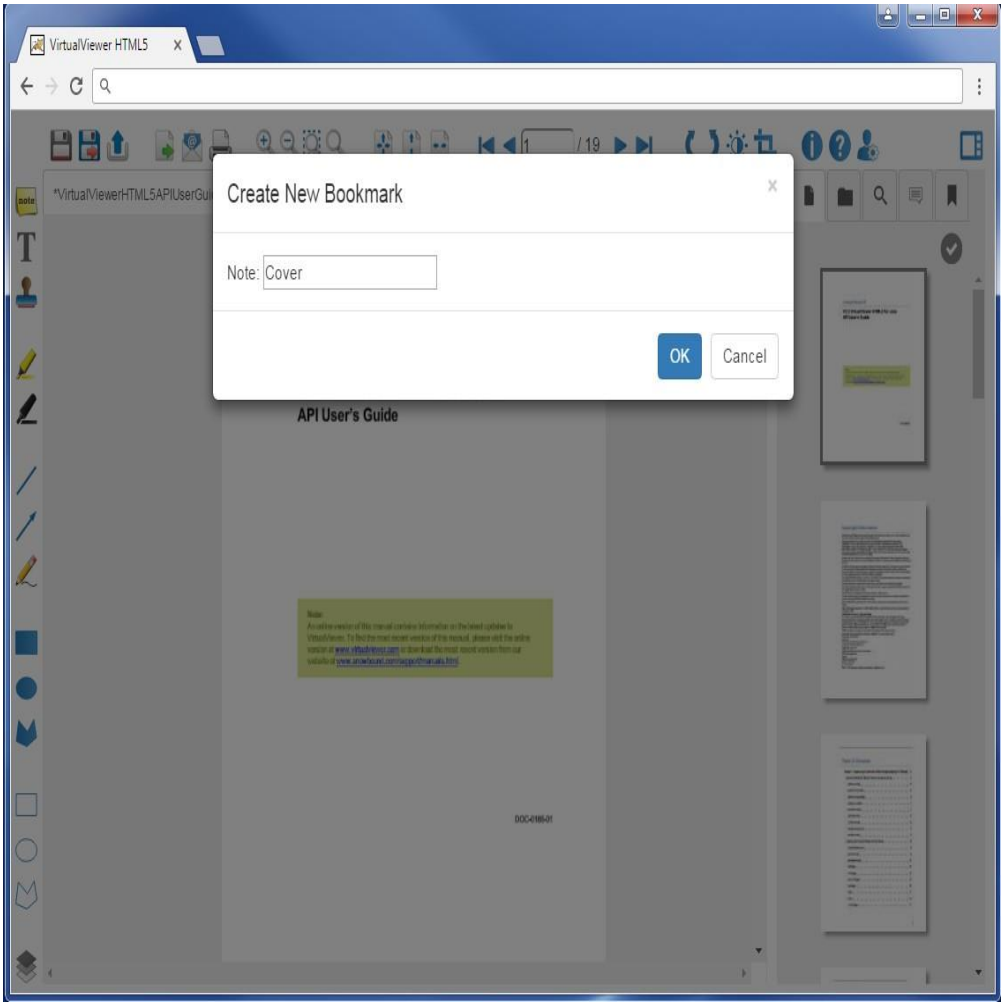
Bookmarks

The Bookmarks feature allows you to add bookmarks that are relevant to the active document that you are currently working with.

Creating Bookmarks

To create a bookmark, right-click on the Pages Tab and select **Add Bookmark**. In the Create a New Bookmark dialog, add the text for the bookmark and select **OK**.

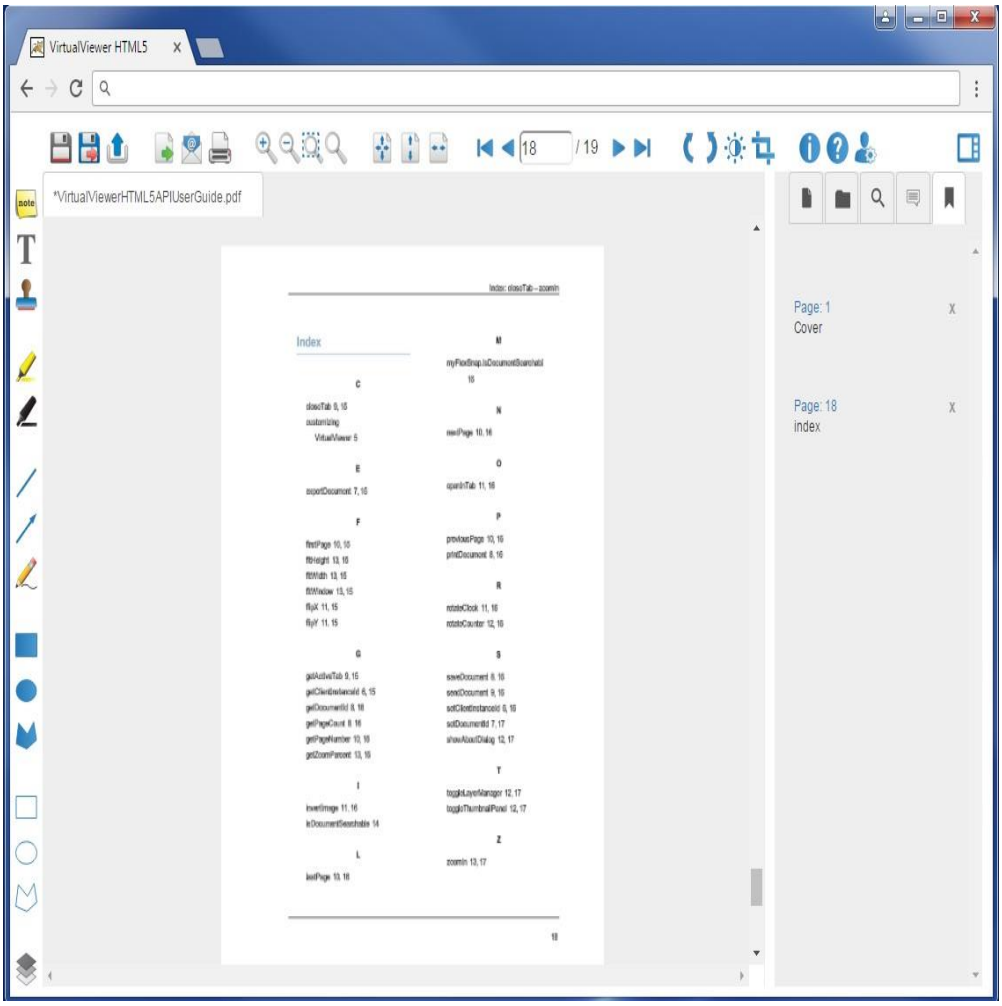




Viewing Bookmarks

To view bookmarks, select the Bookmarks tab. The Bookmarks tab displays a list of all bookmarks created in that document. The list of bookmarks display the page number and text entered by the user. For example:

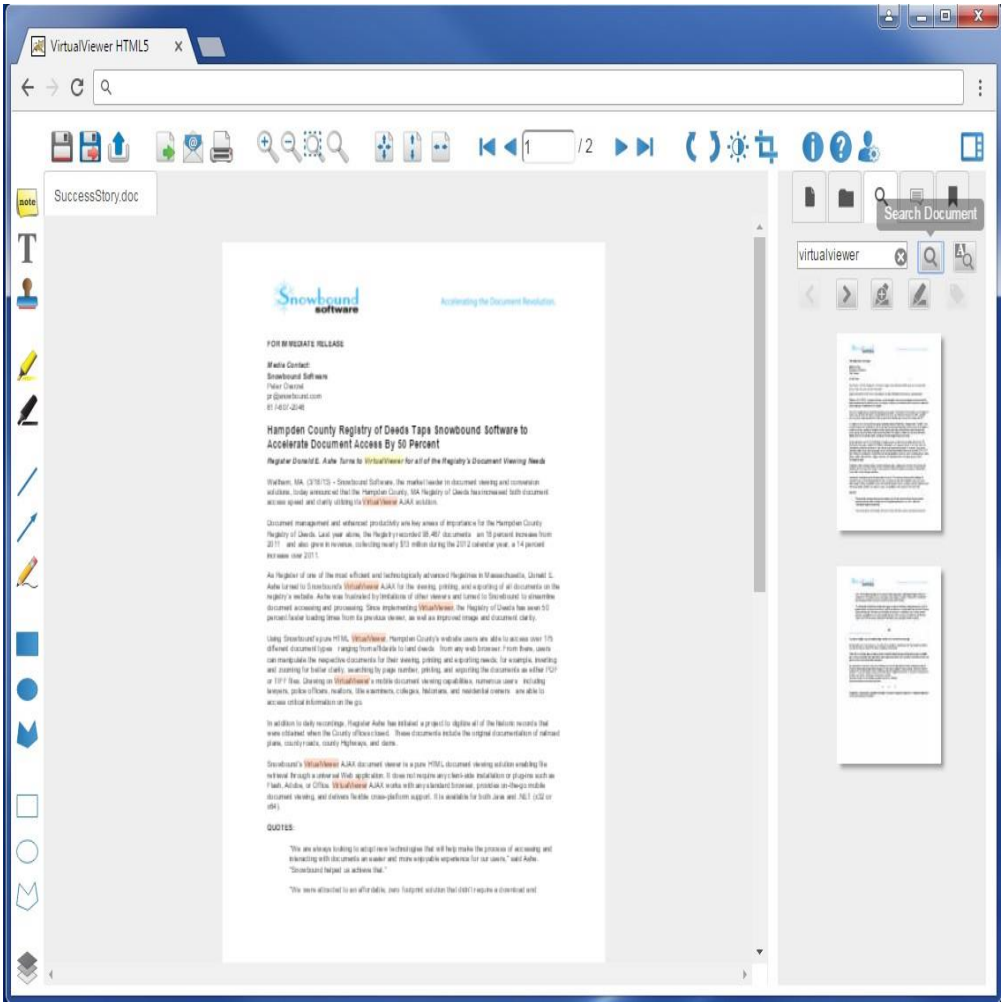
Page. 39
This is the signature page.



The bookmarks feature is not supported in Virtual Documents, Print, Export, Save Document As, and Page Manipulation.

Text Searching

To search text, select the Search tab. Enter the text that you want to find and select the Search Document button. The text that you entered displays as highlighted in your document.



The Search tab is enabled by default. The Search tab is enabled by setting the `showSearch` config.js parameter to true. Set the parameter to false to disable the text searching tab. Please see the example below:

```
var showSearch= true;
```

To determine whether or not text searches should be case sensitive, set the `searchCaseSensitive` config.js parameter to true or false depending if you want case sensitivity turned on or off. The default value is false. See the example below:

```
var searchCaseSensitive = false;
```

Setting the Default Colors

You can configure the default colors for the first and second search match by setting the values for the `searchDefaultColor` and the `searchSelec-`

`tedColor` in the **vvDefines.js** file found in the js directory. Please see the following example:

Setting the Default Colors

```
vvDefines = {
searchDefaultColor: "rgba(255,78,0,0.2)",
searchSelectedColor: "rgba(255,255,0,0.2)",
```

Patten Based Text Searching

Pattern Based Text Searching

You can search for patterns in text including social security numbers, phone numbers, credit card numbers, and email addresses. You can use this information to quickly locate, redact, or collaborate on important information within documents.

To search pattern based text, follow the steps below:

1. From the **Search** tab, select from the drop down for the available patterns to search. For example, select a **social security** pattern. VirtualViewer searches the document for all patterns matching a social security pattern: ###-###-####.
2. VirtualViewer highlights patterns returned by this search as it highlights any text search results.
3. Use navigation arrows to scroll through the patterns results.
4. Use the **Redact Current Match** button to redact the current pattern search result. Use the **Redact All Matches** button to redact all pattern results.

The available patterns include:

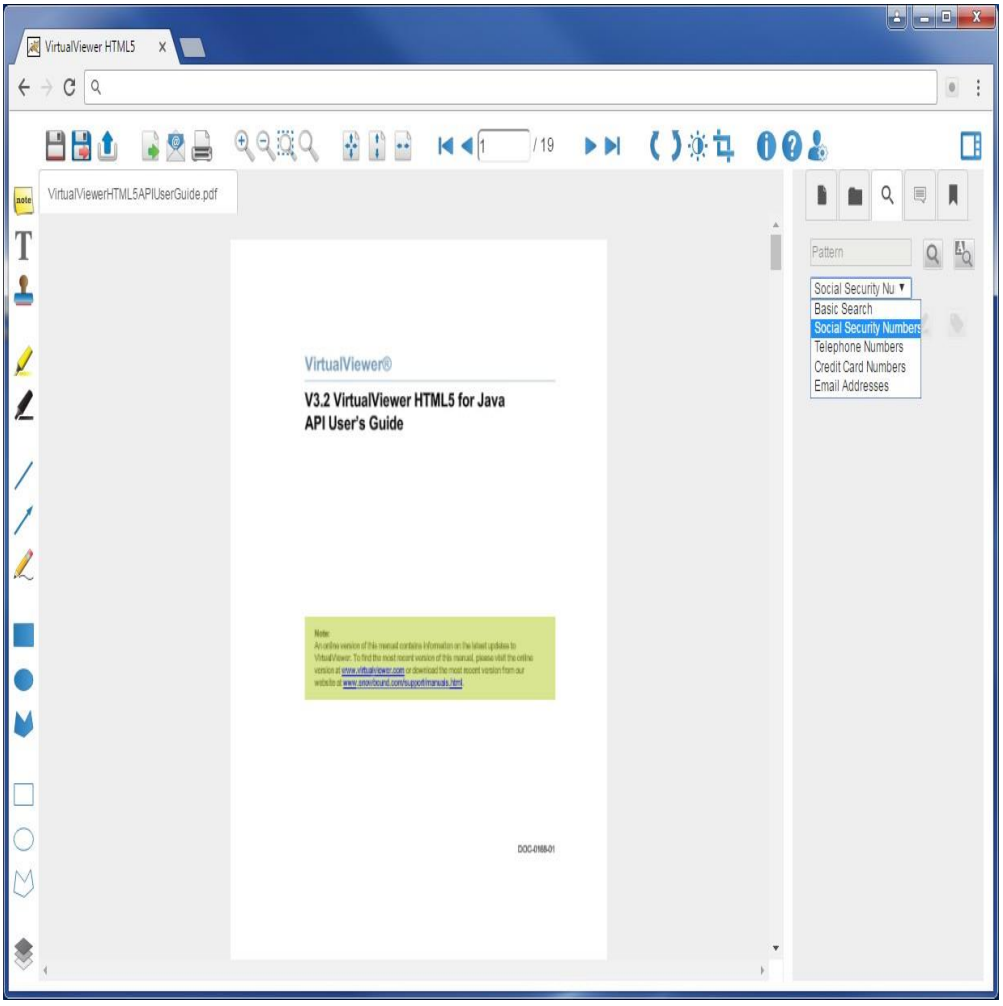
Social Security Number:
123456789
123-45-6789
123 45 6789

Telephone Number:
6176072000
617 607 2000
617-607-2000
(617)-607-2000

617.607.2000
(617).607.2000

Credit Card Number:
1234567891234567|
1234-5678-9123-4567
1234 5678 9123 4567
1234.5678.9123.4567
123456789123456
1234-567891-23456
1234 567891 23456
1234.567891.23456

Email Address:
Any string including a @ symbol with characters on either side of the symbol.



Additional Notes

Pattern based text searching works with any format that is supported for searching text. This includes AFP, PCL, PDF, Word and Excel..

A text pattern search result that breaks on two separate lines will not be found..

A text pattern search that contains odd text spacing between characters may not be found.

OCR Integration

This is a new OCR option in VirtualViewer. We expect to offer a choice of OCR recognition engines in 2018.

The OCR function allows searching text in an image document (TIFF or PNG initially) as well as selecting text in the VV client after the document has been OCRed. To OCR a document in the VV client, a user must search for text in a non-text document to get the OCR prompt. The OCRed result is cached; while that result is cached, the user can search for and select text without a further OCR prompt.

Searching is performed using the Search tab in the thumbnail panel.
The original image will overlay the OCRed textual data to maintain the greatest similarity to the original document. The search text string will be highlighted. “Previous” and “Next” match buttons will work as normal. “Redact” and “Redact All Matches” work as normal. Applying redaction tags to results works as normal.

A wait icon will be displayed while the OCR process is running.

OCR will not be initiated if the input document is not raster. Saving to a PDF file is an option. Additional language support can be added by the customer.

The two new parameters necessary to enable OCR are in web.xml (web.config for .NET):
enableOcr: Enable OCR for searching and text extraction. Must have a valid OCR configuration and licensing to function correctly. Defaults to false.
tesseractDataPath: Absolute or relative path to Tesseract OCR Engine's training data. If using packed WARs in Tomcat, this needs to be changed to an external unpacked folder. Defaults to "/tessdata".

Working with Redactions

This section explains the redaction feature and how to work with redactions.

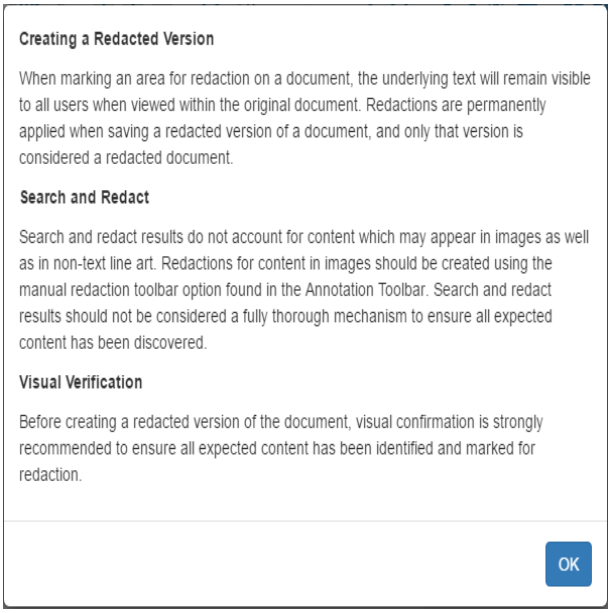
It is important to note that any area marked for redaction will not be redacted until a new document is created from the original document by Save Document As or Export Document. The original document will only show the areas that were marked for redaction but those areas will not be permanently redacted until a new document is saved through Save Document As or Export Document.

There are three ways to mark an area for redaction:

1. Select the Redaction Area tool from the Annotation tool bar.
2. Select text, right click and then select Redact from the menu.
3. Search and redact: You can step through the search results and mark each redaction by selecting the **Redact Current Match** button or select the **Redact All Matches** button to redact all search results.

Redaction Information Warning Message

A **Redaction Information: Read Carefully** warning message displays the first time that you select the Redaction Area tool.



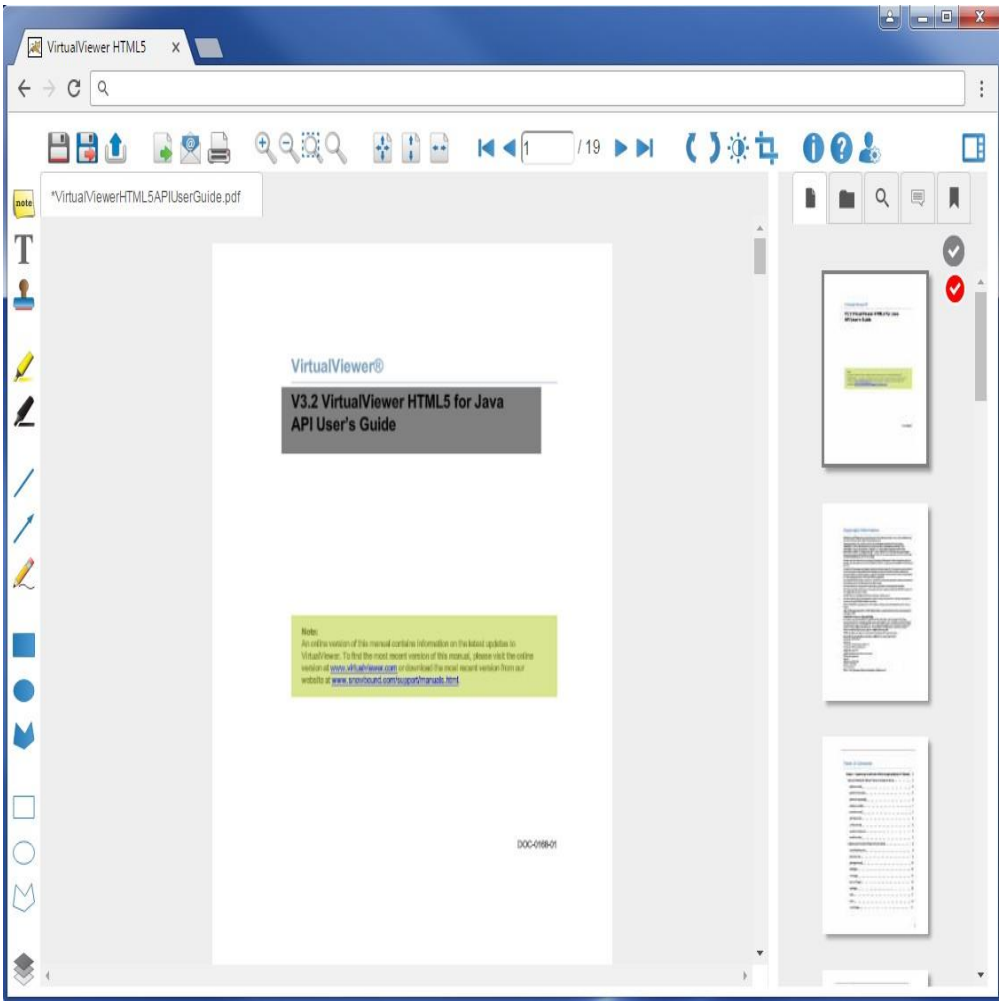
This message is triggered by any of the following events:

- You select the Redaction Area tool.
- You select Redaction from the selected text content menu.
- You select the Mark for Redaction button in Search and Redact.
- You open a document that contains saved Redaction annotations that have not been burned in.

Note:
This message shows once per user session when you initially work with a document with areas marked for redaction.

Redaction Areas

Select the Redaction Area button  from the Annotation toolbar to mark an area of your document for redaction. Drag your mouse to create a translucent rectangle over the area that you want to mark for redaction. The redaction area is a rectangle with translucency. You can see through the rectangle and read the text behind the annotation.



To delete the redacted area, right-click on the translucent rectangle covering the text that you have marked for redaction and select the Delete button. In the Delete Annotation? dialog, select the Delete button.

Using the Redaction Area tool is the quickest way to mark an area for redaction.

Redacting by Selecting Text

Select the text that you want to redact. Right click and then select **Redact** from the menu.

To delete the redacted area, right-click on the translucent rectangle covering the text that you have marked for redaction and select the Delete button. In the Delete Annotation? dialog, select the Delete button.

Using this method to redact selected text will only grab the vector text. (Embedded images cannot be redacted in this mode.) The advantage is that you can visually see the text selected for redaction and avoid marking the white space. The disadvantage is that each line is marked for redaction as a separate block. Each block needs to be edited or deleted separately.

Search and Redact

Use one of the following two methods for marking redaction areas in search results:

Clicking the **Redact All Matches** button applies redactions to all matches on all pages of the current document.

Clicking the **Redact Current Match** button moves to the next result and requires you to click the Redact button or skip the match and press the Next Match to move on to the next result.

Save Document As, Export Document, Email Document and Prints

The Save Document As, Export Document, Email Document and Print tool-bar options include the Burn Redactions (Permanent) check box.

It is important to note that any area marked for redaction will not be redacted until a new document is created from the original document by Save Document As or Export Document. The original document will only show the areas that were marked for redaction but those areas will not be permanently redacted until a new document is saved through Save Document As or Export Document.

Page Manipulations with Redactions

When copying or cutting to an existing document, page manipulations will act as follows:

If pages that are copied/cut to an existing document contain redaction areas, those redaction areas will be copied to the new location, but not burned in.

When you select save, the page manipulations will be saved, leaving the redaction areas.

When copying or cutting to a new document, page manipulations will act as follows:

If pages with redactions are copied/cut to a new document, you will see the existing Dialog box to name the new document.

The new document is not saved until the user selects save.

When you save the newly created document, the document and the redaction areas will be saved.

Annotation Redaction Tagging

Annotation redaction tagging assigns a categorical value to individual annotations or redaction. The values are reasons why the annotation or redaction exists. For example, a social security number could be tagged with a Social Security Number value. Follow these steps to apply annotation redaction tagging:

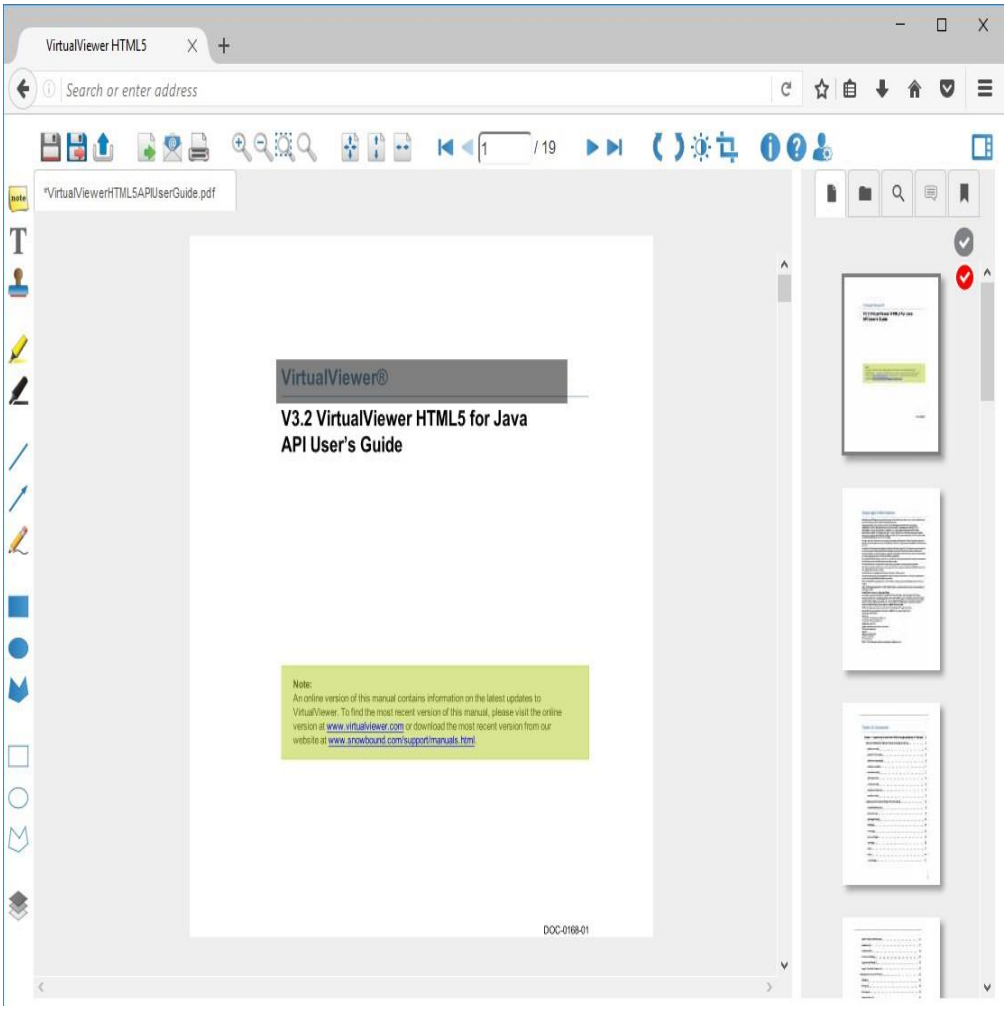
Draw a redaction object over the item that you wish to redact such as a social security number.

Right click on the redaction object when still in highlight mode and select from a predefined list of redaction tags. For Example, “Social Security Number.”

Select **Save Document As** to burn in the redaction with tag. The new document with the burned in redaction now has the Social Security tag to indicate it was a redacted social security number.

To configure your predefined list of annotation redaction tags, add the strings for your tags to the `annotationTags` array in the config.js file. Please see the example below:

```
annotationTags: ["Confidential","Redaction","Social Security","Credit Info"],
```



Tag Search Results

Follow the steps below to use the tag search results feature:

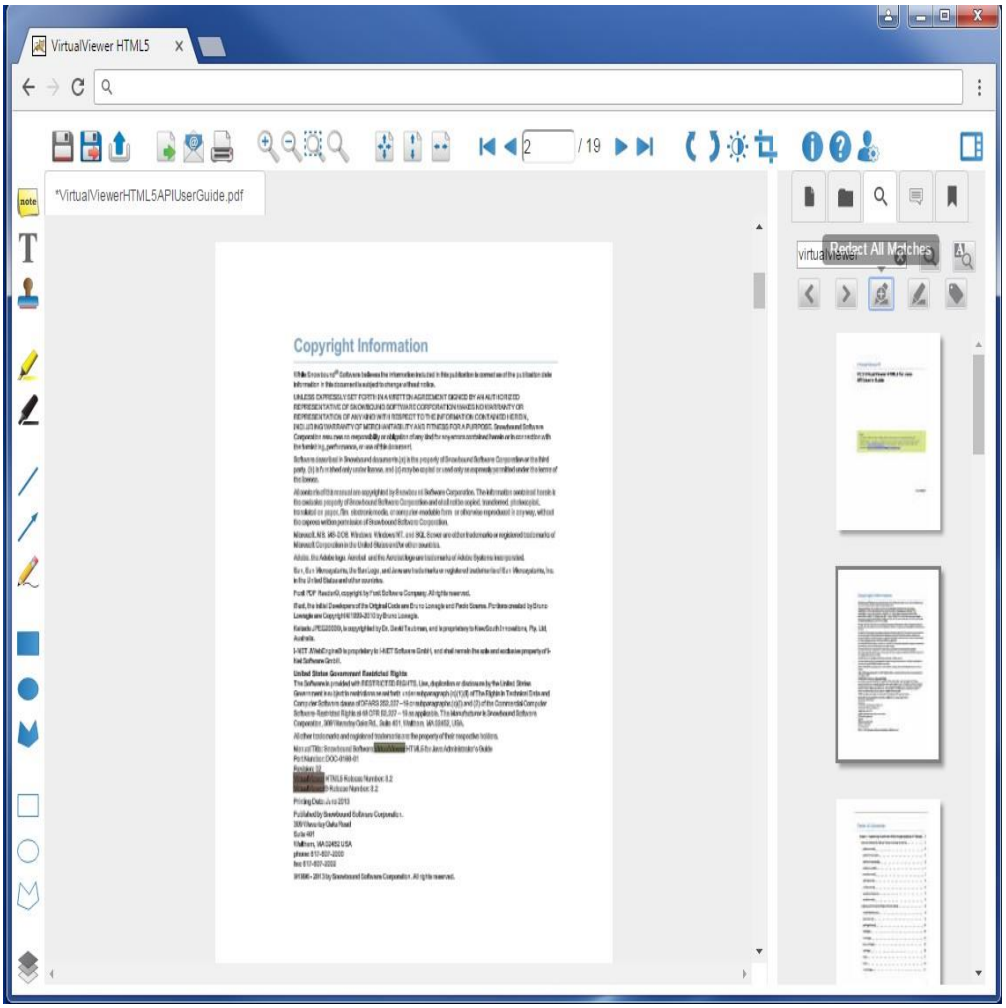
1. Load a text searchable document in VirtualViewer.
2. Search for a term. Alln **config.js**, predefine the list of annotation redaction tags by adding strings to the annotationTags array.
3. Example:
   `annotationTags: ["Social Security Number", "Review"],`
4. results for that term are highlighted in the document.
5. Select **Redact All Matches**.

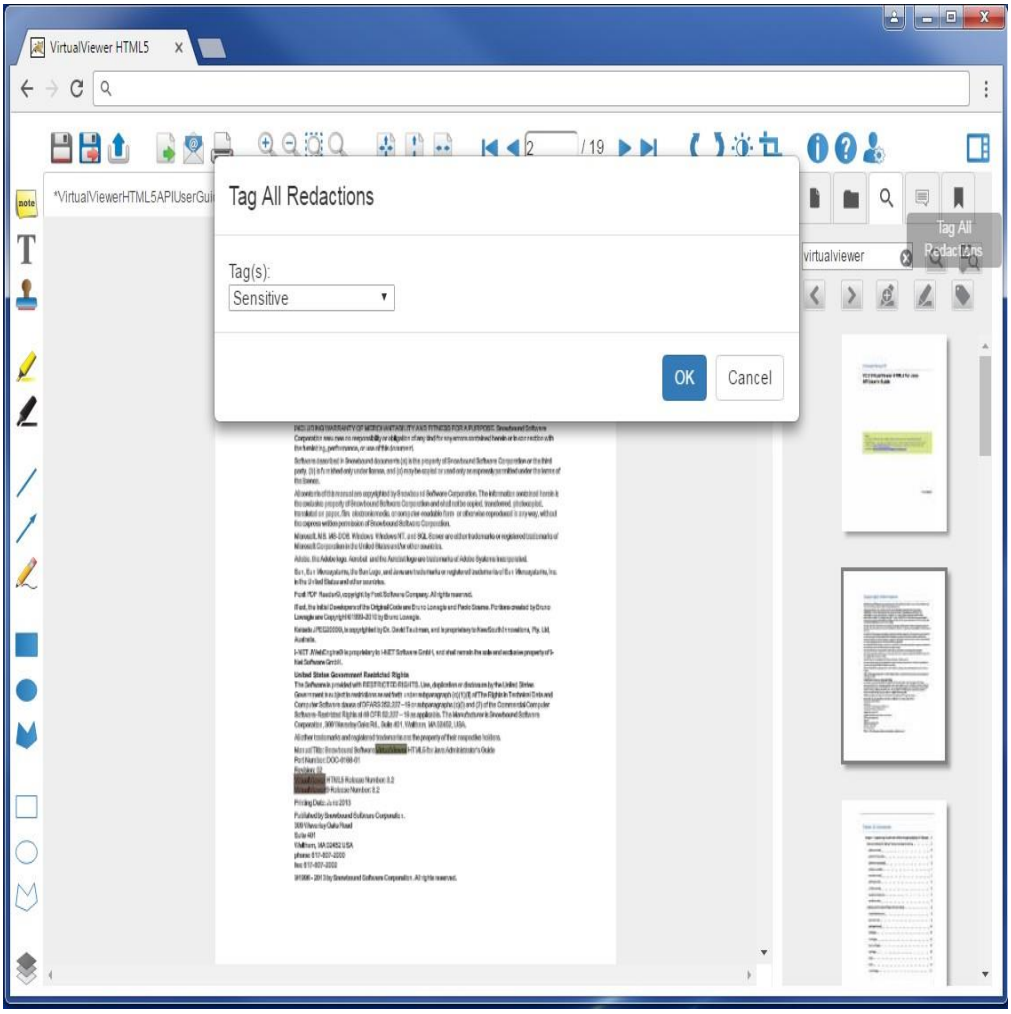
6. Select the **Tag All Redactions** button.
7. In the Tag All Redactions dialog, select the type of redaction from the Tag(s) drop down and select the *OK* button.
8. The redactions are now tagged.

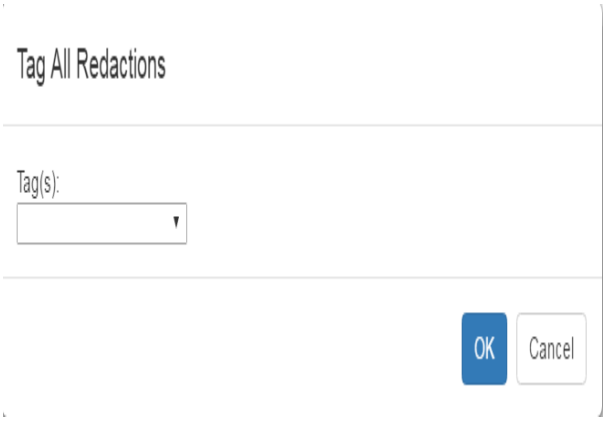
In **config.js**, set the `searchRedactionTags` parameter to true to turn on search redaction tags. The default value is true.

To configure your predefined list of annotation redaction tags, add the strings for your tags to the `annotationTags` array in the **config.js** file. Please see the example below:

```
annotationTags: ["Confidential","Redaction","Social Security","Credit Info"],
```





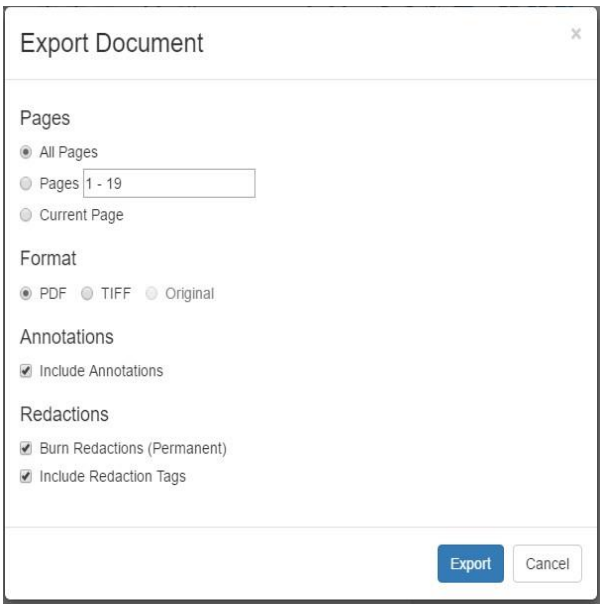


Disabling Redaction Tags for Export, Print, Email, or Saving As

You can disable redaction tags when a document is exported, printed, emailed, or saved as.

Follow the steps below to disable redaction tags when a document is exported, printed, emailed, or saved as:

1. Create a redaction on your document. Right-click on the redaction, select **Add Tag** and select a redaction tag from the drop-down menu to add a redaction tag.
2. Select the **Include Redaction Tags** checkbox when selecting **Export**, **Print**, **Email**, or **Save Document As**.
3. If you select the **Include Redaction Tags** checkbox, the redaction tags are included. If you uncheck the **Include Redaction Tags** check box, the redaction tags are not included.



The Include Redaction Tags check box defaults to checked. It is disabled if the Burn Redactions check box is unchecked.

Page Manipulations

Manipulating Page Order using Thumbnails

VirtualViewer HTML5 for Java allows you to add, remove and reorder pages by cutting and pasting the page thumbnails. This section describes how to enable and use the Page Manipulations feature.

Page Manipulations

Page manipulations are enabled by default. For more information on disabling page manipulations, please see Disabling Page Manipulations .

Selecting a Page

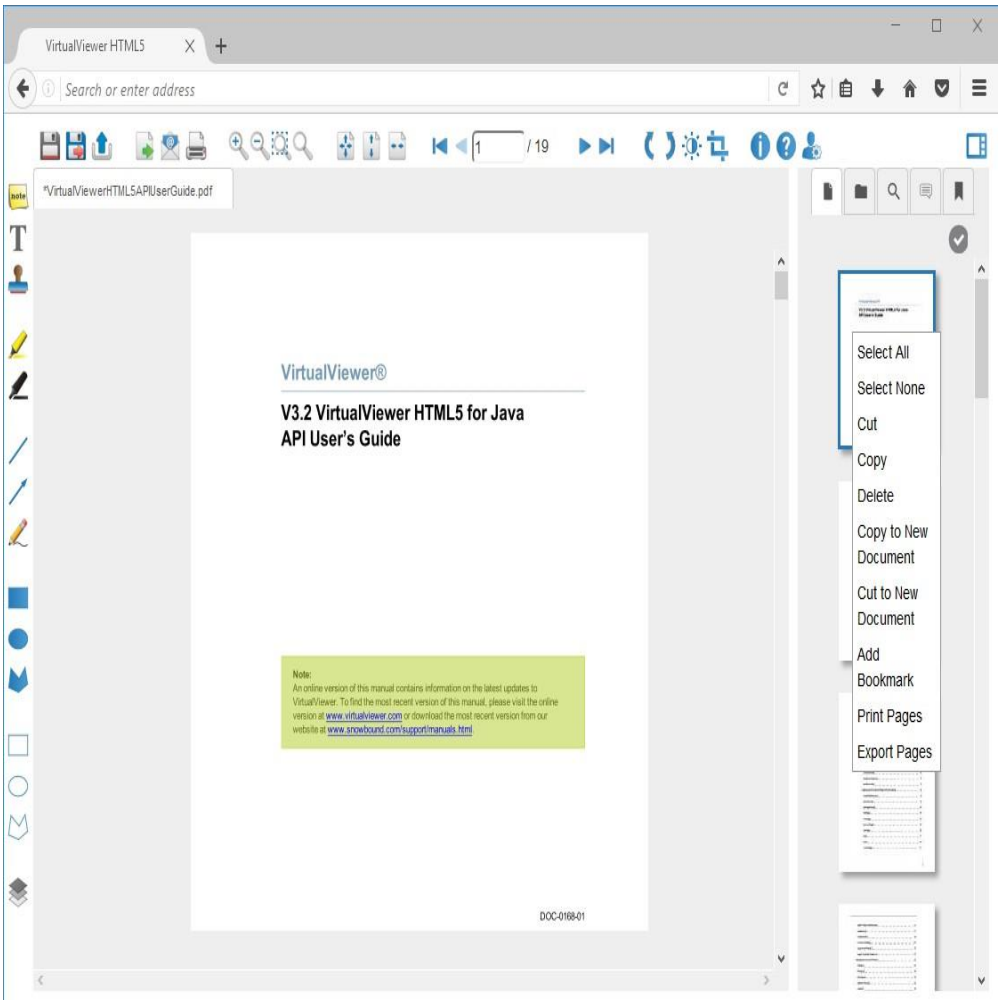
To select a page for page manipulation, left click on a page thumbnail in the Pages tab. A gray selection border around the thumbnail indicates that it has been selected for page manipulation.

Hold the **Ctrl** key while selecting multiple page thumbnails to allow the selection of all thumbnails selected for page manipulation.

Hold the **Shift** key and select a single thumbnail while one or more thumbnails are already selected to highlight all pages between the highest page selected before the new selection.

Loading the Page Manipulation Context Menu

Right-click on a page thumbnail to load the page manipulation context menu.



Cutting, Copying, Deleting and Inserting Pages

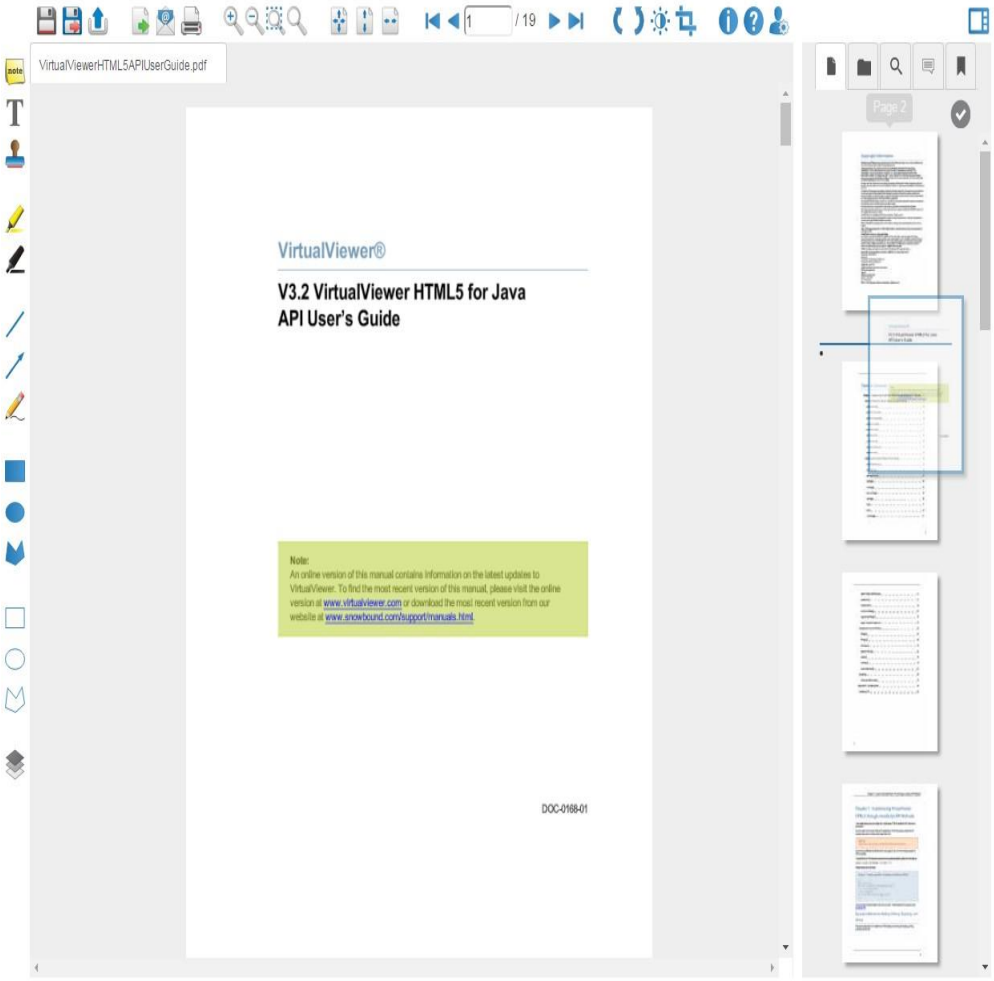
You can cut, copy, delete and insert a page from one document into another document in VirtualViewer HTML5 for Java.

Dragging and Dropping Pages

Follow the steps below to use the drag and drop page manipulations feature:

1. Click and hold on the thumbnail that you wish to move and drag it up or down in the thumbnail panel.

2. A blue line appears horizontally in the thumbnail toolbar (in between thumbnails) indicating where the page being dragged will be placed in the document.
3. Let the mouse button go where you would like to place the thumbnail.
4. The page being dragged lands in between the two pages where the blue line was indicating the drop would happen.



Additional Notes

If the desired drop location is near the end of the document, drag the thumbnail to the bottom of the pane. The pane scrolls down as you reach

the bottom.

You can select multiple pages with the Ctrl click and drag those in tandem.

Dragging and dropping between sessions with two separate windows or browsers is now supported. Dragging and dropping between sessions functions the same way as the Copy feature.

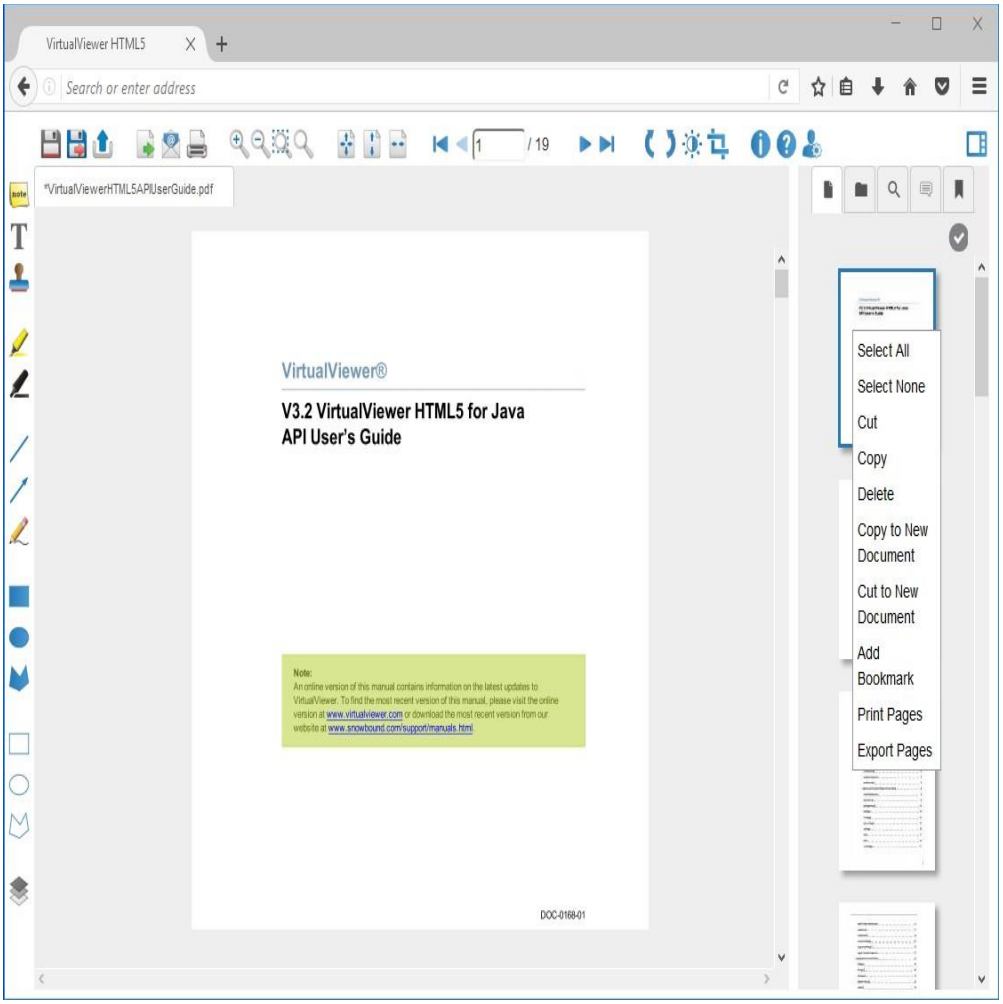
Saving Page Manipulations

Select **Save** to save page manipulations, including rotations and inversions, to the file currently being viewed.

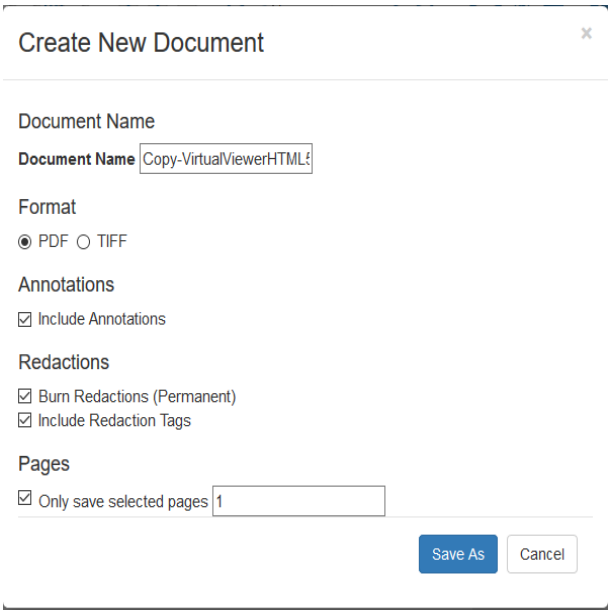
Copy to New Document

To copy to a new document, follow the steps below:

1. Click on the **page thumbnail** or **page thumbnails** that you want to copy to the new document.
2. Right-click on the page thumbnail(s) to load the page manipulation context menu. Select **Copy to New Document** from the Page Manipulations menu.



3. In the Create New Document window, enter the new document name in the Document ID field and select the **OK** button.



The new document is displayed in a tab with the document name that you entered. It contains the pages that you selected.

For more information on configuring Copy to New Document, please see Disabling Copy to New Document.

Rotate Specific Pages

Use the following APIs to rotate specific pages:

`virtualViewer.rotatePageBy(pageNumber, angle)` rotates the current page 0, 90, 180 or 270 (positive or negative) degrees from it's current state. So, you call this twice with 90 degrees as the parameter, the final image will be rotated by 180. It returns true if the page is rotated successfully. Otherwise, it throws an error.

`virtualViewer.rotatePageTo(pageNumber, angle)` rotates the document 0, 90, 180 or 270 degrees absolutely. Thus, if you call this twice with 90 degrees as the parameter, the final image will only be rotated by 90 degrees only. It returns true if the page is rotated successfully. Otherwise, it throws an error.

Page Manipulations Across Multiple Browser Sessions

You can now to perform Page Manipulations (Copy, Cut, Paste) across multiple browser sessions using local storage. Local storage is browser-specific, which requires the multiple sessions to be within the same browser.

Customization

This section shows how to configure VirtualViewer® HTML5 on your system.

Note:
If you are upgrading to a newer version of VirtualViewer HTML5 for Java, we recommend that you make a list of any customized parameters and files. You will need to apply your customizations to the same files in your newer version. Please make a backup copy of the files including **web.xml**, **index.html**, and **config.js** before you edit them.

System Configuration

System Configuration

Configuring web.xml

The **web.xml** file contains a number of tags that define both servlets and their behavior. The web.xml file is located in the **virtualviewer\WEB- INF** directory. There are two groups of tags. The first group is a pair of `<servlet>` tags, and the second group is a pair of `<servlet-mapping>` tags. All of these tags are now added by default to VirtualViewer HTML5 for Java web.xml when the `contentServerType` parameter is set to integrated.

Retrieval Servlet

The first `<servlet>` is the Response Server, which is responsible for handling when data needs to be sent to VirtualViewer HTML5 for Java. Various parameters within its tag define where to retrieve documents from, how it should render and deliver them to VirtualViewer HTML5 for Java, how to cache documents, logging, and more.

Retrieval Servlet

```
<servlet>
 <servlet-name>RetrievalServet</servlet-name>
 <servlet-class>
 com.snowbound.snapserv.servlet.ResponseServer
</servlet-class>
<init-param>
 <param-name>contentHandlerClass</param-name>
 <param-value>com.snowbound.snapserv.servlet.FileContentHandler
```

```
</param-value>
</init-param>
<init-param>
<param-name>logLevel</param-name>
<param-value>FINE</param-value>
</init-param>
</servlet>
```

Upload Servlet

The second `<servlet>` is the Request Server. It is responsible for handling when data needs to be sent from VirtualViewer HTML5 for Java. Various parameters within its tag define settings for the servlet when saving documents and annotations.

Upload Servlet

```
<servlet>
<servlet-name>UploadServer</servlet-name>
<servlet-class>com.snowbound.snapserv.servlet.RequestServer</servlet-class>
<init-param>
 <param-name>saveAnnotationsAsXml</param-name>
   <param-value>false</param-value>
</init-param>
<init-param>
   <param-name>tmpDir</param-name>
   <param-value>c:/tmp/</param-value>
</init-param>
</servlet>
```

Defining the Servlet Paths

Each servlet has its own `<servlet-mapping>` tag to define the path it may be found. The default values should not be changed.

Servlet Paths

```
<servlet-mapping>
<servlet-name>RetrievalServlet</servlet-name>
<url-pattern>/ResponseServer</url-pattern>
 </servlet-mapping>
<servlet-mapping>
<servlet-name>UploadServlet</servlet-name>
<url-pattern>/RequestServer</url-pattern>
</servlet-mapping>
```

Servlet Tags for web.xml

This section lists and describes all servlet tags for web.xml. The web.xml file is located in the **VirtualVieweHTML5\WEB-INF** directory.

Note:
If you are upgrading to a newer version of VirtualViewer HTML5 for Java, we recommend that you make a list of any customized parameters and files. You will need to apply your customizations to the same files in your newer version. Please make a backup copy of the **web.xml** file before you edit it.

This table lists and describes the AJAX Servlet web.xml parameters.

Table 3.1: AJAX Servlet Parameters

Name	Default	Description
`annotationOutputFormat`	`snowbound`	Enables the ability to edit and delete existing FileNet or Snowbound annotations. When set to FileNet, annotations are saved in FileNet XML format. When set to Snowbound, annotations are saved in Snowbound XML format.

This table lists and describes the ResponseServer parameters.

Table 3.2: ResponseServer

Name	Default	Description
filePath	.\sample-documents	The file path the sample content handler uses for retrieval and storage. Not needed when using a custom content handler.

This table lists and describes the RequiredServlet servlet parameters.

Table 3.3: RequiredServlet Parameters

Name	Default	Description
tmpDir	N/A	Specifies a temporary directory for files created during the processing of page manipulation routines on the server.

This table lists and describes the RetrievalServlet servlet parameters.

Table 3.4: RetrievalServlet

Table 3.5:

Name	Default	Description
For AFP bit depth, please use modcaBitDepth.	N/A	To set the bit depth for AFP, please use modcaBitDepth. Please note that increasing the bit depth may negatively affect the performance. For more information on improving performance, please see Configuring to Maximize Your Performance or Quality.
For AFP DPI, please use modcaDPI.	N/	To set the DPI for AFP, please use modcaDPI.
For AFP format, please use modcaFormat.	N/A	To set the format for AFP,

Name	Default	Description
		please use modcaFormat
Access-Control-Allow-Credentials	true	Set as the header in the response
Access-Control-Allow-Headers	N/A	Set as the header in the response.
Access-Control-Allow-Origin	N/A	Sets a comma separated whitelist of origin URLs. If the client's origin matches one of the URLs on this whitelist, the Access-Control-Allow-Origin header will be added to the response.
baseURL	N/A	An optional parameter that can be set when the contentHandlerClass is set to com.snowbound.snapserv.servlet.FileAndURLRetriever. The assigned value will be prepended to documentIds to create the full URL path for documents. For example, if baseURL is set to "http://www.snowbound.com/" and the documentId is "myFile.tif", the content handler will retrieve the document from http://www.snowbound.com/myFile.tif.
bitDepth	1	The default bits per pixel for decompression of formats not specified with individual parameters. Please note that increasing the bit depth

Name	Default	Description
		Is a trade-off with performance.
contentHandlerClass	N/A	Name of the content handler class to use.
defaultByteSize	40000	Initial size of the byte array when saving to any format not TIFF or JPEG to send to VirtualViewer.
docBitDepth	1	The bit depth to use for Word documents. Valid values are 1 or 24. Must be set to 24 to display color output. Please also see wordBitDepth. Please note that increasing bit depth Is a trade-off with performance. For more information on improving performance, please see Configuring to Maximize Your Performance or Quality.
docDPI	300	The DPI to use for Word documents. Must be set to 200 or more to display color Please also see wordDPI.
docFormat	PNG	The format to convert Word documents to. Valid values are TIFF_G4, JPEG, TIFF_LZW, PNG. Please also see wordFormat.
docxBitDepth	1	The bit depth to use for Word 2007 documents. Valid values are 1 or 24. Must be set to 24 to display color output.Please note

Name	Default	Description
		that increasing bit depth Is a trade-off with performance. For more information on improving performance, please see Configuring to Maximize Your Performance or Quality.
docxDPI	300	The DPI to use for Word 2007 documents. Must be set to 200 or more to display output.
docxFormat	PNG	The format to convert Word 2007 documents to. Valid values are TIFF_G4, JPEG, TIFF_LZW, PNG.
extractJpeg	true	If true, allows JPEG images to be sent directly to the client without conversion.
extractPDFPages	true	If false, the iText library will be disabled for PDF saving, resulting in raster PDFs.
extractTiffJpeg	true	If true, allows TIFF_JPEG images to be sent directly to the client without conversion.
fontMappingPath	N/A	For AFP font mapping, specifies the directory on the server of an optional `snbd_map.fnt` file.
htmlHeight	11	Specified document height (in inches). Must be used with the `htmlWidth` parameter.
htmlWidth	11	Specifies the document width (in inches). Must be

Name	Default	Description
		used with `htmlHeight` parameter.
`iocaBitDepth`	`1`	The bit depth to use when decompressing IOCA pages. Valid values are 1 or 24. Please note that increasing the bit depth may negatively affect the performance. For more information on improving performance, please see Configuring to Maximize Your Performance or Quality.
`iocaDPI`	`20`	The DPI to use when decompressing IOCA pages.
`iocaFormat`	`TIFF_G4_FAX`	The format to convert IOCA pages to. Valid values are TIFF_G4_FAX, JPEG, TIFF_LZW, PNG.
`jpegByteSize`	`600000`	Initial size of the byte array when saving to JPEG to send to VirtualViewer.
`jpegQuality`	`50`	Level of quality when a page is converted to JPEG and sent to VirtualViewer.
`loadVirtualDocumentAnnotations`	`false`	Enables the loading of virtual document annotations.
`logLevel`	`Finest`	Detail of logging. Valid values: Severe, Warning, Info, Config, Fine, Finer, Finest, All, and OFF.
`modcaBitDepth`	`1`	The bit depth to use when decompressing MO:DCA pages. Valid values are 1 or

Name	Default	Description
		24. Please note that increasing the bit depth may negatively affect the performance. For more information on improving performance, please see Configuring to Maximize Your Performance or Quality.
modcaDPI	200	The DPI to use when decompressing MO:DCA pages.
modcaFormat	TIFF G4 FAX	The format to convert MO:DCA pages to. Valid values are TIFF_G4_FAX, JPEG, TIFF_LZW, PNG.
officeLicensePath	\WEB-INF\lib\Office2010.Cells.lic, \WEB-INF\lib\Office2010.Words.lic, \WEB-INF\lib\Aspose.Slides.lic	DEPRECATED - Specifies the Office 2007 plug-in licenses for Word, Excel, and PowerPoint. • - only found in older versions of product
overlayPath	N/	For AFP and MO:DCA files, specifies the path of overlays.
pclBitDepth	1	The bit depth to use when decompressing PCL pages. Valid values are 1 or 24. Please note that increasing the bit depth may negatively affect the performance. For more information on improving performance, please see Configuring to Max-

Name	Default	Description
		imize Your Performance or Quality.
pclDPI	20	The DPI to use when decompressing PCL pages.
pclFormat	TIFF_G4_FAX	The format to convert PCL pages to. Valid values are TIFF_G4_FAX, JPEG, TIFF_LZW, PNG.
pdfBitDepth	24	The bit depth to use when decompressing PDF pages. Valid values are 1 or 24. Please note that increasing the bit depth may negatively affect the performance. For more information on improving performance, please see Configuring to Maximize Your Performance or Quality.
pdfDPI	200	The Dots Per Inch to use when decompressing PDF pages.
pdfFormat	JPEG	The format to convert PDF pages to. Valid values are TIFF_G4_FAX, JPEG, TIFF_LZW, PNG.
pixelLimit	N/A	Configures server-side scaling of large raster images in order to reduce the memory footprint of the image sent to the client. If the product of an image's dimensions are greater than this number (or the product of the numbers), it is scaled to just below that. This can be expressed

Name	Default	Description
		as a single value (i.e "1000000") or as 2 dimensions ("1000x1000").
pptBitDepth	24	The bit depth to use when decompressing PPT pages. Valid values are 1 or 24. Please note that increasing the bit depth may negatively affect the performance. For more information on improving performance, please see Configuring to Maximize Your Performance or Quality.
pptDPI	200	The DPI to use when decompressing PPT pages.
pptFormat	JPEG	The format to convert PPT pages to. Valid values are TIFF_G4_FAX, JPEG, TIFF_LZW, PNG.
preferencesPath	N/A	Specifies the location of stored client preferences on the server when using the default content handler.
rtfBitDepth	24	The bit depth to use when decompressing RTF pages. Valid values are 1 or 24. Please note that increasing the bit depth may negatively affect the performance. For more information on improving performance, please see Configuring to Maximize Your Performance or Quality.
rtfDPI	150	The DPI to use when

Name	Default	Description
		decompressing RTF pages.
rtfFormat	TIFF_LZW	The format to convert RTF pages to. Valid values are TIFF_G4_FAX, JPEG, TIFF_LZW, PNG.
saveVirtualDocumentAnnotations	false	Enables the saving of virtual document annotations.
snowboundLicensePath	./WEB-INF/lib/SnowboundLicense.jar	Sets the path to the SnowboundLicense.jar license file.
splitAnnotationLayersByPage	false	When set to true, annotations will be saved in files by page rather than all in one file.
supportRedactions	false	Turns on redaction support.
svgExclusions	ODT,PCL_1,PCL_5,PPTX,ASCII,EMAIL	Exclude any formats from SVG support. This is useful if a formats is misbehaving in SVG and you want to force that format to use the normal, bitmap delivery. The format is a comma-separated list of format names. The following are the valid values for the `svgExclusions` parameter: AFP, ASCII, DOT, DOTX, HTML, MO:DCA,PCL_1, PCL_5, PDF, PDF_15, POWER_ POINT, PPTX, ODS, ODT, RTF, XLS, XLSX, EMAIL Please note that the format

Name	Default	Description
		names are case sensitive. The user can get the file type name for a given document by using the Image Info button and looking at the File Format value.
thumbByteEstimate	6000	The initial byte size of the buffer used on the server to transport thumbnails.
thumbnailDPI	60	Specifies the DPI to use when rendering thumbnails for vector formats such as PDF and MS Word.
tiffByteSize	40000	Initial size of the byte array when saving to TIFF to send to VirtualViewer HTML5 for Java.
tiffCompressionType	TIFF_G4_FAX	Sets the accepted TIFF file formats. The values are: TIFF_LZW, TIFF_JPEG, TIFF_JPEG7, TIFF_G4_FAX. The default value is TIFF_LZW.
vectorPDF	false	If true, PDF pages are sent to the client as vector images instead of being converted to a rasterized image.
wordBitDepth	24	The bit depth to use when decompressing Word pages. Valid values are 1 or 24. Please note that increasing the bit depth may negatively affect the performance. For more information on improving

Name	Default	Description
		performance, please see Configuring to Maximize Your Performance or Quality.
wordDPI	200	The DPI to use when decompressing Word pages.
wordFormat	JPEG	The format to convert Word pages to. Valid values are TIFF_G4_FAX, JPEG, TIFF_LZW, PNG. The bit depth to use when decompressing XLS pages. Valid values are 1 or 24.
xlsBitDepth	24	The bit depth to use when decompressing XLS pages. Valid values are 1 or 24. Please note that increasing the bit depth may negatively affect the performance. For more information on improving performance, please see Configuring to Maximize Your Performance or Quality.
xlsDPI	200	The dots per inch to use when decompressing XLS pages.
xlsFormat	JPEG	The format to convert XLS pages to. Valid values are TIFF_G4_FAX, JPEG, TIFF_LZW, PNG.
xlsHeight	11	Specifies document height (in inches). Must be used with the `xlsWidth` parameter.

Name	Default	Description
xlsWidth	14	Specifies the document width (in inches). Must be used with the xlsHeight parameter.
xlsxHeight	11	Specifies document height (in inches). Must be used with xlsxWidth parameter.
xlsxWidth	14	Specifies document width (in inches). Must be used with xlsxHeight parameter.

Table 3.6:

Table 3.7: UploadServlet Parameters

Name	Default	Description
clearCacheOnSave	true	Clears the server document cache when a document is saved.
outputConfigPath	N/	Specifies the path and name of the output.properties file which is used to determine the formats used when saving documents. **Note:** The format that you want to use may not be recognized by the default output properties. To override the default output properties and set the output format, edit the outputConfigPath parameter in your web.xml file as shown in the following example: <init-param> <param-name>outputConfigPath</param-name> <param-value>/whatever/path/to/output.properties</param-value> </init-param> Then output.properties

Name	Default	Description
		should have the following format: TIFF_LZW.format=TIFF_LZW PDF.format=PDF JPEG.format=JPEG default.format=TIFF_LZW
permanentAnnotationLinks	true	WEBTOP VERSION ONLY. If false, keeps annotations from carrying over to new versions of documents.
saveAnnotationsAsXml	true	If true, saves annotations as XML rather than binary.
sessionClass	N/A	Specifies the session class to use.

Table 3.8: ResponseServer Parameters

Name	Default	Description
convertPDF	JPEG	Specifies the format PDF pages should be converted to. (replaced by pdfFormat)
documentCacheCount	1	Number of documents the server will cache in memory.
jpegCompression	-1	Level of quality when a page is converted to JPEG. (replaced by jpegQuality)
maxByteMultiplier	20	Maximum number of times the byte array is doubled, if the original estimate is too small, when saving to send to VirtualViewer HTML5 for Java.
pngForPDF	false	Specifies that PDF pages should be converted to PNG. (replaced by convertPDF, and then by pdfFormat)

Table 3.9: ResponseServer Parameters

Name	Default	Description
concurrentBWThumbs	500	Limits the number of concurrent 1-bit thumbnail requests processed on the server.
concurrentColorThumbs	10	Limits the number of concurrent color thumbnail requests processed on the server.
concurrentImages	500	Limits the number of concurrent image page requests processed on the server.

Customizing the User Interface

VirtualViewer HTML5 for Java can be customized in many ways. One of the most popular customizations is making it read-only.

We provide the VirtualViewer HTML5 for Java client with almost all options turned on. It is easy to turn off options such as Save Document. Edit the **index.html** file and comment out or remove the `saveDocument` item as shown in the example below:

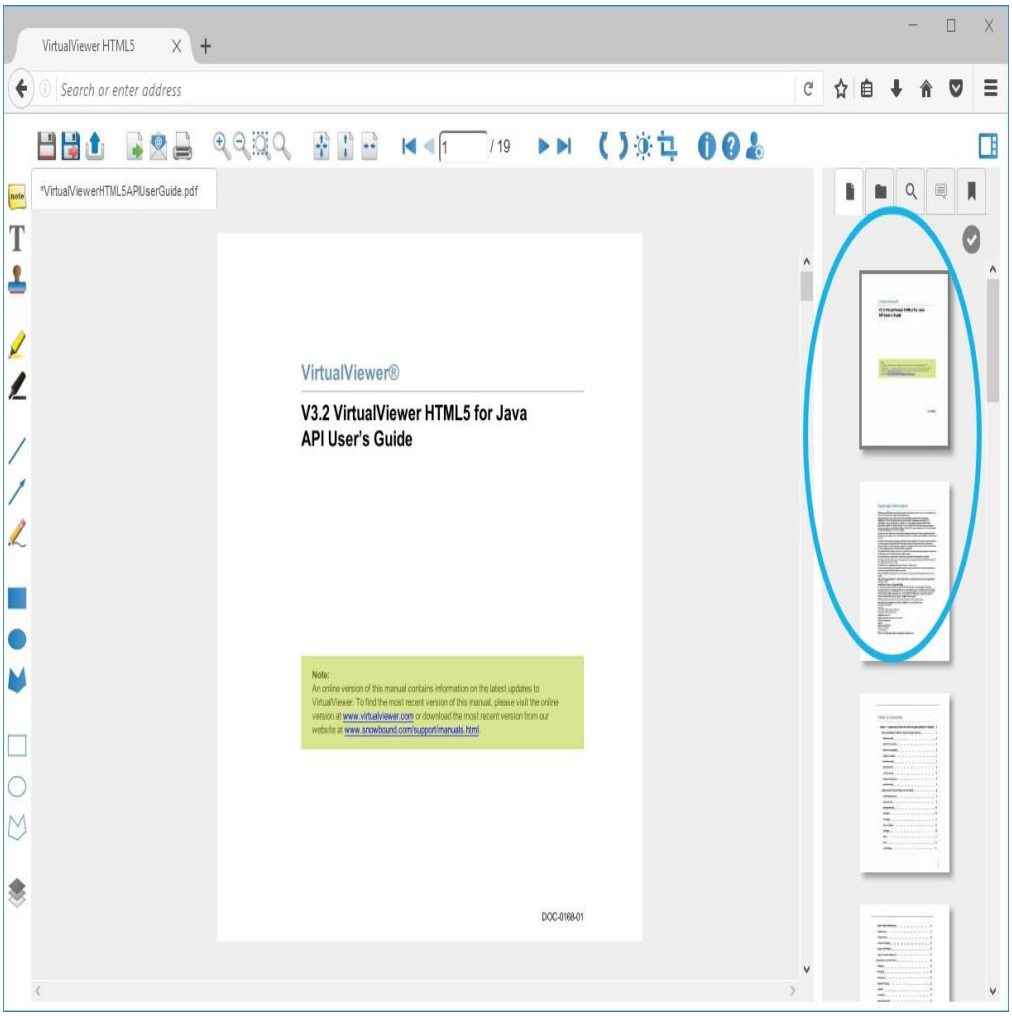
Example 1.1: Customizing What is Displayed in the VirtualViewer HTML5 for Java Client

```
<!--
<div id="saveDocument"
onclick="javascript:myFlexSnap.saveDocument()"
title="Save Document"
class="mouseDown"
alt="Save Document"> </div>
-->
```

You can do this with other buttons and menus as well. The descriptions of the options are in Using VirtualViewer HTML5 for Java.

Another trick is to have a different index.html for each type of user, or to have a script generate the HTML on the fly.

Configuring the Pages and Document Panel Display



You can set the `multipleDocMode` parameter in the config.js file to configure which documents will be shown within the Documents pane of VirtualViewer HTML5 for Java. It can also be used to limit what documents are available to the user.

Please see Config.js Parameters for more information on setting the `multipleDocMode` configuration parameter.

The `multipleDocMode` configuration parameter supports the following three values as options:

availableDocuments

viewedDocuments

specifiedDocuments

Note:
Generating the thumbnails for a large number of documents can be a time consuming operation that will slow down performance. Please choose the document mode accordingly. If the number of documents is large (more than 100), then you may want to consider limiting the list by using `specifiedDocuments` mode.

availableDocuments

The `availableDocuments` option displays the documents that are available to the current user.

The connector to your document storage, the content handler, determines what documents are listed by returning them from its `getAvailableDocumentIds` call. Please see the `getAvailableDocumentIds()` method description in the Content Handler Methods.

The sample content handler is the File Content Handler. It should return all of the documents in the document directory once `getAvailableDocumentIds` is implemented in the sample file content handler.

Example 1.2: Setting multipleDocMode to availableDocuments

This example shows how to set the `multipleDocMode` parameter in the config.js file to use `availableDocuments.var multipleDocMode = multipleDocModes.availableDocuments;`
Documents handling when configured to use `availableDocuments`:
The `getAvailableDocumentIds()` method is called in the content handler to populate the list of documents. Please see the

`getAvailableDocumentIds()` method description inthe Content Handler Methods.

viewedDocuments

The `viewedDocuments` option adds documents to the set of documents as the user views them during the current session.

Example 1.3: Setting multipleDocMode to viewedDocuments

This example shows how to set the **`multipleDocMode`** parameter in the config.js file to use **`viewedDocuments`**.
`var multipleDocMode = multipleDocModes.viewedDocuments;`
Documents handling when configured to use **`viewedDocuments`**:
Documents are passed to the viewer via the URL `documentId` parameter:`index.html?documentId=filename`
Documents are loaded into the viewer with the onload event:
`<body onload="myFlexSnap.initViaURL()">`

specifiedDocuments

The `specifiedDocuments` option limits the documents available for viewing to those specified in an array.

Example 1.4: Changing multipleDocMode from availableDocuments to specifiedDocument

This example shows how to change `multipleDocMode` from `availableDocuments` to `specifiedDocuments` with the set of specified documents limited to: help.doc, info.tif, image.jpg.
In the config.js file, change the value **`multipleDocMode`** to **`specifiedDocuments`** and add a new line defining the array of specified documents:`var multipleDocMode = multipleDocModes.specifiedDocuments;`

```
var SD = new Array("help.doc","info.tif","image.jpg);
```

In the index.html file, change the value of the onload event.
Results in index.html:

```
<body onload="myFlexSnap.initSpecifiedDocuments
(SD);">
```

Config.js Parameters

You can use the config.js parameters to customize VirtualViewer HTML5 for Java.

Descriptions of Config.js Parameters

This table lists and describes the supported config.js parameters.

Note:
If you are upgrading to a newer version of VirtualViewer HTML5 for Java, we recommend that you make a list of any customized parameters and files. You will need to apply your customizations to the same files in your newer version. Please make a backup copy of the **config.js** file before you edit it.

Config.js Parameters

Config.js Parameters

Name	Default	Definition
servletPath	`"/virtualviewer"`	Specifies the path to the servlet for the .NET configuration.
pictureControlsTimeout	200	Sets the wait in X milliseconds before requesting the adjusted images. This exists to throttle the number of image requests sent to the server. If the user quickly slides the sliders back and forth this will wait X seconds before requesting the updated

Name	Default	Definition
		image.
waitDialogTimeout	1000	Sets the wait in X milliseconds before displaying the "Please wait while your image is loaded." dialog message.
imageScrollBars	true	If set to true, turns on the scroll bars for the image display. This disables the pan tool. To turn on the pan tool, set the value to false. Please see the release notes for any updates.
invertedPanScrollX	true	Inverts pan scroll.
invertedPanScrollY	true	Inverts pan scroll.
continuousScrollBufferSize	2	How many pages to buffer on each side of the document.
pageManipulations	true	Enable/Disable Page Manipulation Functionality
pageManipulationsNewDocumentMen	true	Enable/Disable the "New Document" page manipulation menu
restrictedPageManipulationFormats	N/	Array[String] of formats where page manipulations should be ignored.
enableTextExtraction	true	Determines whether to request text from the server
copySelectedText	true	Allows the copying of text.

Name	Default	Definition
guideLineWidth	2	Sets the guide line width.
activeGuideColor	"#000099"	Sets the active guide color.
lockedGuideColor	"#990000"	Sets the locked guide color.
splitScreen	true	If set to true, then screen can be split.
screenSizes	[50, 50]	An array that sets the percentages for each panel. The first value sets the size of screen panel 1. The second value sets the size of screen panel 2. If the first value is set to 50, the first screen panel is set to 50% of the viewer. If the second value is set 50, the second screen panel is set to 50% of the viewer.
showAnnNavToggle	false	If set to true, shows the annotation navigation buttons. If set to false, does not show the annotation navigation buttons.
showAnnIndicators	false	If set to true, shows the annotation indicator. If set to false, does not show the annotation indicator.
sendDocument WithAnnotations	false	If set to true, includes annotations when `sendDocument` is called.
exportBurnAnnotations	false	Determines if VirtualViewer HTML5 should burn the annotations into the image when exporting.
oneLayerPerAnnotation	false	Creates a new annotation layer for each annotation.

Name	Default	Definition
		The ability to add a prefix and/or suffix to an annotation layer name using autoLayerPrefix and autoLayerSuffix String parameters when oneLayerPerAnnotation Boolean parameter is set to true in config.js. oneLayerPerAnnotation : true; autoLayerPrefix: "snowPrefix"; autoLayerSuffix: "snowSuffix"; The configuration will produce <file-name>.snowPrefix-AutoLayer-<#>.snowSuffix.ann.
autoLayerPrefix	null	Controls the annotation layer prefix.
autoLayerSuffix	null	Controls the annotation layer suffix.
collapseStickiesSize	50	The default width in image pixels of the collapsed sticky note.
collapseStickies ByDefault	false	Collapse stickies by default when loading a page.
immediatelyEdit TextAnnotations	true	If set to true, newly added text annotations will immediately enter 'edit' mode with the contents highlighted. Sticky note and text box annotations will be immediately placed in edit mode once drawn on the screen so that the user can edit the text after being added to the page. If you do not want newly added text annotations

Name	Default	Definition
		to immediately enter 'edit' mode with the contents high-lighted, set to false.
autoCon-firmTextAnnotations	false	f set to true, clicking on vvOuterDiv will auto-finish making a Text Annotation (Sticky or Edit)
polygonNubSize	`10`	Sets the color of the "handle" used to resize annotations and to indicate the "end zone."
polygonNubSizeTouch	40	Sets the color of the handle used to resize annotations and to indicate the "end zone."
polygonNubFillColor	`"rgba (0,0,255,.40)"`	Sets the color of the "handle" used to resize annotations and to indicate the "end zone."
base64Encode Annotations	true	Enables or disables Base64 encoding of annotations.
rotateTextAnnotations	true	Determines if the text inside of text annotations rotate along with the document.
enableTextRubberStamp	true	When set to true, enables the Rubber Stamp functionality. When set to false, disables it.
enableSingleClick ImageRubberStamp	true	When set to true, enables the single-click Image Rubber Stamp functionality
textRubberStamps	`{ textString: "Approved", fontFace: "Times New Roman", fontSize: 30, fontBold: true, fontItalic: true, fontColor: "00FF00" }, {`	Configures the text rubber stamps.

Name	Default	Definition
	textString: "Denied", fontColor: "FF0000" }];	
stickyAnnButtons	{ "Sticky Note": false, "Rubber Stamp": false, "Bitmap": false, "Line": false, "Arrow": false, "Freehand": false, "HighlightRectangle": false, "FilledRectangle": false, "FilledEllipse": false, "FilledPolygon": false, "Rectangle": false, "Ellipse": false, "Polygon": false, "RedactionRect": false },	Allow the use of sticky Annotation Buttons. The Annotation will stay on until it is clicked again.

annotationDefaults	// Default
	appearance options
	for annotations
	annotationDefaults: {
	lineColor: "FE0000",
	lineWidth: 3,
	
	fillColor:
	"FE0000",
	stickyFillColor:
	"FCEFA1",
	// yellowish
	stickyMargin: 10,
	// also need to adjust .
	vvStickyNote in
	webviewer.css
	
	highlightFillColor
	: "FCEFA1",
	highlightOpacity: 0.4,
	
	textString: "Text",
	
	fontFace: "Arial",
	fontSize: 14,
		The default appearance for a text annotation looks like a yellow sticky note. If you prefer a different look, the `annotationDefaults` config.js configuration parameter
		sets the default and is customizable.

Name	Default	Definition
	fontBold: false, fontItalic: false, fontStrike: false, // for future use fontUnderline: false, // for future use fontColor: "000000" }	
enableAn- notationCommenting	true	Enable or disable the use of annotation commenting.
annotationTags	["Social Security Number", "Sensitive", "Some unicode tag", "Enter your own"]	List of strings that will be the options for If this list is empty, the user will NOT be able to use Annotation Tags.
defaultZoomMode	vvDefines. zoomModes. fitWindow	Sets the default zoom mode. You can use any of the following variables: fitWidth - Fits the page to the width of the image panel. fitHeight - Fits the page to the height of the image panel. fitPanel - Fits the page in the panel, regardless of landscape or portrait. fitImage - Fits the page to 100 percent.
fitLastBetweenDocuments	false	Retain the fit between documents.
zoomLevels	2,3,4,6,8,10,15, 20,30,40,50, 75,100,150,200, 300,400,600, 800,1000, 1500, 2000,3000	Defines the intervals at which to zoom.
defaultZoomLevel	100	Defines the default zoom level, if fitCustom is selected as default zoom mode
maxZoomPercent	1000	Sets the percentage to stop allowing users to zoom the

Name	Default	Definition
		image.
zoomTimeout	50	Sets the wait in X milliseconds before requesting the zoomed image. This variable spares the server load by only requesting the final zoom level when the user selects zoom several times quickly.
serverScaling	false	Force server only scaling. Setting this to true will increase performance on slow machines, but put more stress on the server.
useBrowserScaling	false	If set to true, will use web browsers built-in scaling instead of more resource intensive (but higher quality) JS scaling.
singleThreadedScalingMode	"server"	For browsers which do not support WebWorkers (IE9), which will degrade JS scaling performance. This setting will allow you to use for these browsers. Valid values are: "server" - use server-side scaling, will request new image at every zoom level. "js" - will use single-threaded JS scaling; not recommended.
defaultPrintingMethod	local	Sets which printing mechanism to use, local or server.
printBurnAnnotations	false	Determines if VirtualViewer HTML5 should burn the annotations into the image when printing.
enableDocumentNotes	true	Enable/disable the use of Document Notes

Name	Default	Definition
noteTemplates	`{ templateName: "Approve", templateString: "I approve this note" }, { templateName: "Reject", templateString: "I reject this note" }`	Note Templates
showThumbnailPanel	false	Sets the ability to hide the thumbnail panel and disable thumbnail requests to improve performance.
showPageThumbnails	true	Enables or disables the Pages thumbnail tab.
showDocThumbnails	true	Enables or disables the Documents thumbnail tab.
showSearch	true	Enables or disables the search tab.
showBookmarkThumbnails	true	Enable or disable the bookmarks thumbnail tab.
searchCaseSensitive	false	Determines whether or not text searches should be case sensitive.
searchRedactionTags	true	Enable or disable tag results for search and redact.

hotkeys	// Configure the keyboard shortcuts
	`{`
	`key:'ctrl+shift+=,ctrl+shift+z,ctrl+shift+plusKeypad', // ctrl+shift+= will not work in IE 9 or IE 10`
	`method: function() {`
		Configures the keyboard shortcuts.

Name	Default	Definition

	virtualViewer.zoomIn();
	},
	localizedValue: 'hotkeyHint-
	s.zoomIn',
	defaultValue: 'Zoom In'
	},
	{
	key:'ctrl+shift+-,ctrl+shift+x,ctrl+-
	shift+minusKeypad', // ctrl+shift+-
	will not work in IE 9 or IE 10
	method: function() {
	virtualViewer.zoomOut();
	},
	localizedValue: 'hotkeyHint-
	s.zoomOut',
	defaultValue: 'Zoom Out'
	},
	{
	key:'ctrl+shift+e',
	method: function() {
	virtualViewer.exportDocument();
	},
	localizedValue: 'hotkeyHint-
	s.exportDocument',
	defaultValue: 'Export Document'
	},
	{
	key:'ctrl+shift+p',
	method: function() {
	virtualViewer.printDocument();
	},
	localizedValue: 'hotkeyHint-
	s.printDocument',
	defaultValue: 'Print Document'
	},
	{
	key:'end',
	method: function() {
	virtualViewer.lastPage();
	},
	localizedValue: 'hotkeyHint-
	s.lastPage',
	defaultValue: 'Last Page'	

Name	Default	Definition
	},	
	{	

	key:'home',
	method: function() {
	virtualViewer.firstPage();	

	},	
	localizedValue: 'hotkeyHint- s.firstPage', defaultValue: 'First Page'	
	},	
	{	

	key:'ctrl+shift+pageup',
	method: function() {
	virtualViewer.previousPage();	

	},	
	localizedValue: 'hotkeyHint- s.previousPage', defaultValue: 'Previous Page'	
	},	
	{	

	key:'ctrl+shift+pagedown',
	method: function() {
	virtualViewer.nextPage();	

	},	
	localizedValue: 'hotkeyHint- s.nextPage', defaultValue: 'Next Page'	
	},	
	{	

	key:'ctrl+shift+l',
	method: function() {
	virtualViewer.rotateCounter();	

	},	
	localizedValue: 'hotkeyHint- s.rotateCounter', defaultValue: 'Rotate Left'	
	},	
	{	

	key:'ctrl+shift+r',
	method: function() {
	virtualViewer.rotateClock();	

	},	
	localizedValue: 'hotkeyHint-	

Name	Default	Definition

	s.rotateClock',
	defaultValue: 'Rotate Right'
	},
	{
	key:'ctrl+shift+t',
	method: function() {
	virtualViewer.toggleThumbnailPanel
	();
	},
	localizedValue: 'hotkeyHint-
	s.toggleThumbnailPanel',
	defaultValue: 'Toggle Thumbnail
	Panel'
	},
	{
	key:'ctrl+shift+c',
	method: function() {
	virtualViewer.copySelectedText();
	},
	localizedValue: 'hotkeyHint-
	s.copyText',
	defaultValue: 'Copy Selected Text'
	},
	{
	key:'ctrl+shift+d',
	method: function() {
	vir-
	tualViewer.toggleColumnSelectionMode
	();
	},
	localizedValue: 'hotkeyHint-
	s.toggleTextSelectionMode',
	defaultValue: 'Toggle Column Text
	Selection'
	},
	{
	key:'ctrl+shift+u',
	method: function() {
	virtualViewer.toggleImageInfo();
	},
	localizedValue: 'hotkeyHint-
	s.toggleImageInfo',
	defaultValue: 'Toggle Image Info Dia-
	log'
	},	

Name	Default	Definition

	{
	key:'ctrl+shift+g',
	method: function() {
	virtualViewer.collapseAllStickyNotes
	(true,true);
	},
	localizedValue: 'hotkeyHint-
	s.collapseStickyNotes',
	defaultValue: 'Collapse Sticky
	Notes'
	},
	{
	key:'ctrl+shift+n',
	method: function() {
	virtualViewer.collapseAllStickyNotes
	(false,true);
	},
	localizedValue: 'hotkeyHint-
	s.expandStickyNotes',
	defaultValue: 'Expand Sticky Notes'
	},
	{
	key:'ctrl+/',
	method: function() {
	virtualViewer.toggleKeyboardHints();
	},
	localizedValue: 'hotkeyHint-
	s.showKeyboardHints',
	defaultValue: 'Show Keyboard Hints',	

maxInfoFieldLength	128	Defines the field lengths that will be displayed in the Image Info Dialog.
imageInfoField	// Define the fields that will be displayed in the Image Info Dialog imageInfoFields : [// Define the *Document-Specific* properties here in the order they are to be displayed { fieldId: "documentId", fieldCaption: "Document ID"}, { fieldId: "documentDisplayName", fieldCaption: "Document Name" }, { fieldId: "documentByteSize", fieldCaption: "File Size (Bytes)"	Defines the Page-Specific properties here in the order they are to be displayed.

Name	Default	Definition

	},
	{ fieldId: "pageCount",
	fieldCaption: "Page Count" },
	{ fieldId: "documentFormat",
	fieldCaption: "File Format" },
	
	// Define the *Page-Specific*
	properties here in the order
	they are to be displayed
	{ fieldId: "compressionType",
	// This is only for Tiff files and
	will be
	'TIFF_G4_FAX', 'TIFF_JPEG', 'TIFF_
	LZW', etc fieldCaption: "Compression
	Type" },
	{ fieldId: "imageSizePixels",
	fieldCaption: "Size in Pixels" },
	{ fieldId: "imageSizeInches",
	fieldCaption: "Image Size" },
	{ fieldId: "dpi", fieldCaption:
	"DPI" },
	{ fieldId: "bitDepth"
	fieldCaption: "Bit Depth" },
	{ fieldId: "pageNumber",
	fieldCaption: "Page Number" },
	{ fieldId: "tiffTag315",
	fieldCaption: "Copyright" }
	]
	};	

reloadDocument OnSave	false	Reloads the document model after a save. Used for systems like FileNet which generate a `documentId` on the server.
unsavedChangesNotification	true	Allows notification of unsaved changes. A dialog box appears when closing a tab or browser.
enableEventNotification	true	Disables the sending of events to the server (pageEvent, emailEvent, printEvent, etc).
multipleDocMode	`vvDefines.multipleDocModes.viewedDocuments`	Sets the multiple documents mode. You can use any of the following variables: `availableDocuments` - The `getAvailableDocumentIds()` is called in the content handler to populate the list of doc-

Name	Default	Definition
		uments. `viewedDocuments` - Documents will be added to the set of documents as the user views them during the current VirtualViewer HTML5 session. `specifiedDocuments` - Uses an array of `documentIDs` passed in as an array to `myFlexSnap.initSpecifiedDocuments()`. This is a replacement for `initViaURL()` in index.html. This is the default.
panIncrement	30	Defines how many pixels to pan for each arrow press.
enableSVGSupport	true	If set to true, the application will request SVG images from the server for supported formats. If set to false, the traditional bitmaps will be requested.
enableSVGSupportForIE	true	If set to true, enables SVG support in Internet Explorer.
enableConsolidateAnnotationLayer	true	Enables consolidation of the layers and creates the Master Layer.
enableCrop	true	Enables the crop tool.
disableUploadDoc	false	Disables the upload document button when set to true.
emailDefaults	`emailDefaults: { prepopulateFrom: "pre-`	The default values for email functionality.

Name	Default	Definition
	populatedEmail@domain.com", prepopulateTo : "", prepopulateCC : "", prepopulateBCC : "", prepopulateSubject: "VirtualViewer Document attached", prepopulateBody: "Please see the attached document sent from VirtualViewer." },	
magnifierDefaults	magnifierDefaults: { zoomPercent: 150, width: 300, height: 150, x: 200, y: 100, },	The default values for magnifier functionality.
doNotLoadPageThumbs	false	If set to true, the viewer will not request any page thumbnails and display placeholders instead.
autoResizeTextAnnotations	false	If set to true, text annotations will automatically resize as you type.
helpURL	"help/help.html";	Passed to `window.open` when creating the help window. `window.open (helpURL,helpWindowName, helpWindowParams);` This can be (and often should be) a relative URL Path.
helpWindowName	"helpWindow";	Passed to `window.open` when creating the help window. `window.open (helpURL,helpWindowName, helpWindowParams);`

Name	Default	Definition
		This can be (and often should be) a relative URL Path.
helpWindowParams	`"scroll-bars=1,width=800,height=600"`	Passed to `window.open` when creating the help window. `window.open (helpURL,helpWindowName, helpWindowParams);` This can be (and often should be) a relative URL Path.

Hiding the Pages and Documents Panel

The Pages and Documents panel provides a convenient way to:

Navigate to any page in a document in the Pages panel.

Select another document to view from the multiple Documents panel.

Create a new document by dragging and dropping pages from another document.

However, this convenience does have a price. VirtualViewer HTML5 for Java performance degrades because it is processing every page in the document Pages panel and/or the first page of every document in the Documents panel. If you want to speed up performance, you may want to disable or hide the Pages and Documents panel by setting the `showThumbnailPanel` parameter to false in the config.js file as shown in the example below:

```
var showThumbnailPanel = false;
```

Disabling Page Manipulations

Page manipulations are enabled by default. To disable page manipulations, the `pageManipulations` parameter must be set to false in the config.js file. This disables the Page Manipulations menu in VirtualViewer HTML5 for

Java and enables the Save Annotations menu choice in the File menu. To disable it, set the `pageManipulations` parameter to false in the config.js file as shown in the example below:

```
var pageManipulations = false;
```

Disabling Copy to New Document

The Copy to New Document functionality is enabled by default. To disable it, set the `pageManipulationsNewDocumentMenu` parameter to false in the config.js file as shown in the example below:

```
var pageManipulationsNewDocumentMenu = false;
```

Configuring Text Rubber Stamp Annotations

The Text Rubber Stamp functionality is enabled when the `enableTextRubberStamp` parameter is set to true and the config.js file contains one or more defined Rubber Stamps. The system will allow for a limited number of Rubber Stamps with the upper limit of available Rubber Stamps set at ten. To disable this functionality, set the `textRubberStamps` parameter to false in the config.js file as in the example below:

```
var enableTextRubberStamp = false;
```

The system administrator has the ability to set the following pre-defined font characteristics for Rubber Stamps:

- Font Face (Helvetica, Times New Roman, Arial, Courier, Courier New)
- Font Size (Any valid integer in range of 2-176)
- Font Color (Any valid HTML color code, specified in hexadecimal)
- Font Attributes (Normal/Bold/Italic)

Please see the following example for how we configure the two Rubber Stamps **Approved** and **Denied**:

Example 1.5: Configuring the Approved and Denied Rubber Stamps

```
var textRubberStamps = [
{ textString: "Approved",
fontFace: "Times New Roman",
fontSize: 30,
fontBold: true,
fontItalic: true,
fontColor: "00FF00" }
{ textString: "Denied",
fontColor: "FF0000" }
];
```

Any font characteristics not defined by the system administrator will use the following default system characteristics:

Font Face: Arial

Font Size: 12

Font Color: #FF0000

Font Attributes: Normal

Configuring Image Rubber Stamp Annotations

The Image Rubber Stamp functionality is defined by the `enableSingleClickImageRubberStamp` parameter in the web.xml file as shown below in a comma-separated list of names which will be used to pull the individual stamp configurations out of the web.xml:

Example 1.6: Configuring Image Rubber Stamps

```
<init-param>
<param-name>testStamp1,testStamp2</param-name>
<param-value>8.5</param-value>
</init-param>
```

Set the comma-separated list of names which will be used to pull the individual stamp configurations out of the web.xml. You use these names in the param-name tags as shown in this example:

Example 1.7: Configuring List of Image Rubber Stamps

```
<init-param>
<param-name>testStamp1</param-name>
<param-value>This is the First Test,300,175,ht-
tp://www.sample.com/sites/sample.com/files/images/Sample.png</param-
value>
</init-param>

<init-param>
<param-name>testStamp2<</param-name>
<param-value>This is the Second Test,600,300,ht-
tp://www.sample.com/sample.pngg</param-value>
</init-param>
```

The param-value tags are comma separated as follows:

displayName,**stampWidth**,**stampHeight**,**stampURL**

displayName -The text that will show up in the pop-up menu in the UI to describe the stamp.

stampWidth/stampHeight - The dimensions used when `enableSingleClickImageRubberStamp` is enabled in config.js.

stampURL - The URL to the stamp in question. This will be downloaded on servlet startup, converted to PNG, and stored in memory.

Set the `enableSingleClickImageRubberStamp` parameter to true in the config.js file to draw the bounding box when adding a rubber stamp to the image with a single click .It will be sized according to the dimensions specified in web.xml. If false, it will behave like any other annotation.

Example 1.8: Configuring List of Image Rubber Stamps

```
<init-param>
<param-name>enableSingleClickImageRubberStamp</param-name>
<param-value>true</param-value>
</init-param>
```

Configuring the Magnifier

The Magnifier functionality is defined by the `magnifierDefaults` parameter in the config.js file as shown below with the default values:

Example 1.9: Configuring the Magnifier

```
magnifierDefaults: {
zoomPercent: 150,
width: 300,
height:150,
x:200,
y:100 },
```

The toggleMagnifier() method to close the Magnifier can be mapped to a shortcut key.

The API call virtualViewer.setMagnifierPosition(X, Y) overrides the defaults and will allow coordinates to be passed.

Configuring Default Annotation Values

The default appearance for a text annotation looks like a yellow sticky note. If you prefer a different look, the `annotationDefaults` config.js configuration parameter sets the default and is customizable.

Please see the following example:

Example 1.10: Configuring the Default Annotation Values

```
// Default appearance options for annotations
annotationDefaults: {
lineColor: "FE0000",
 lineWidth: 3,

 fillColor: "FE0000",
 stickyFillColor: "FCEFA1", // yellowish
stickyMargin: 10, // also need to adjust .vvStickyNote in webviewer.css


highlightFillColor: "FCEFA1",
highlightOpacity: 0.4,
```

```
redactionFillColor: "000000",
redactionOpacity: 0.5,
 textString: "Text",

fontFace: "Arial",
 fontSize: 14,
 fontBold: false,
fontItalic: false,
fontStrike: false, // for future use
 fontUnderline: false, // for future use
fontColor: "000000"
 }
```

The system administrator has the ability to set the following default values for annotations:

- Line color
- Line width
- Fill color
- Sticky note fill color
- Sticky note margin
- Text string
- Font face
- Font size
- Font bold
- Font Italic
- Font strike

Configuring the Annotations Checkbox

To set the Annotations checkbox in the Export dialog box, set the `exportBurnAnnotations` parameter to true in the config.js file as in the example below:

```
var exportBurnAnnotations = true;
```

Configuring Email Documents

To display the Email Document button, set the values for the `emailDefaults` parameter in the config.js file as in the example below:

Set the `prepopulatedForm` parameter to the email address that you want to configure in the config.js file as in the example below:

```
var prepopulateFrom = prepopulatedEmail@domain.com;
```

Set the parameters below in the **web.xml** file to set the values for your email system.

Example 1.11: Configuring Email

```
<init-param>
<param-name>smtpServer</param-name>
<param-value>...</param-value>
</init-param>

<init-param>
<param-name>smtpUsername</param-name>
<param-value>...</param-value>
</init-param>

<init-param>
<param-name>smtpPassword</param-name>
<param-value>...</param-value>
</init-param>
```

Localization

VirtualViewer HTML5 for Java localization supports auto detecting the language settings the user's browser is configured to use. It then looks for a localization file in that language. If a localization file for the corresponding language exists, it will be used to display terms throughout the UI in that language.

For more information on setting language preferences in a browser, please see the following:

http://www.w3.org/International/questions/qa-lang-priorities.en.php

Localization Files

Localized files are stored in the following directory:

```
../virtualviewer/resources/locale/
```

The english file, named **vv-en.json**, located in that directory and can be used as a reference when translating to other languages.

The naming of the localized files should follow the syntax of vv-en.json, replacing en with the two-letter code of the language used for the appropriate translation. The two-letter codes follow the ISO 639 code values.

Please visit the following links for additional resources on language codes:

http://www.loc.gov/standards/iso639-2/php/code_list.php

http://en.wikipedia.org/wiki/List_of_ISO_639-2_codes

Converting Terms

The terms that are displayed in **vv-zz.json** using all caps represent where the language specific replacements should be placed.

Each term includes a replacement text for the **alt** value and the **title** value, although these are most likely going to match each other.

The **alt** and the **title** values represent the displayed text that is shown if the image fails to load or when the user hovers the mouse over the image. It can describe the icon, or in the case of VirtualViewer HTML5 for Java, what action is associated with the corresponding icon.

Supporting Accents/Special Characters

Note:
To support the translation of terms to languages that use accents or special characters, these accents/special characters must first be converted to Unicode before including it in the translation file. You may also translate the entire string to Unicode, rather than just the accents/special characters.

Please visit the following links for additional resources to convert text to Unicode:

http://www.pinyin.info/tools/converter/chars2uninumbers.html

http://tokira.net/unicode/index.php

Example 1.12: Creating a French Language Translation File

The two letter code for **French** is **fr**.

Create a copy **vv-zz.json** and replace the **zz** with **fr**, resulting in a file named:
vv-fr.json

To modify the display text for the **Rotate Left** button, look for the corresponding value:

```
"rotateLeft": {
"alt":"ROTATELEFT.ALT",
 "title": "ROTATELEFT.TITLE"
},
```

* In this case, we will use the same value for both the alt and title values.

The French translation forRotate LeftisRotation À Gauche.

Converting the accents/special characters in this translation into Unicode results in:
Rotation À Gauch
Using the converted results in vv-fr.json with:

```
"rotateLeft": {
 "alt": "Rotation&#192; Gauche",
 "title": "Rotation&#192; Gauche"
},
```

Force a Specific Language

If you do not wish to use the language settings auto-detection, you can force override the UI to use a specified translation.

This setting is controlled via a setting `localizeOptions` in vvDefines.js as shown in the example below. The vvDefines.js file is located in the following directory:

```
..virtualviewer/js/vvDefines.js
```

Example 1.13: Force a Specific Language

Remove the backslashes // before the word **language** and replace the values zz with the letter codes of the language file you want to force. Have the translation file available for reference.

```
localizeOptions: {
//language: "zz",
pathPrefix: "resources/locale"
},
```

Using Keyboard Shortcuts

Certain VirtualViewer HTML5 for Java functions can be accessed via keyboard shortcuts.

Select CTRL+/ to see a pop-up window with all of the keyboard shortcuts.

Please note the following about overriding and defining custom shortcuts:

The shortcut definition is based on JQuery.hotkeys.js.

Define more than one modifier (ALT, SHIF, CTRL) alphabetically For example: CTRL+SHIFT+u instead of SHIFT+CTRL+u.

For maximum browser compatibility and minimal shortcut conflict, Snowbound recommends using CTRL+SHIFT<char> in general when defining VirtualViewer HTML5 for Java shortcuts.

The following table lists the available shortcut commands:

Table 3.10: Keyboard Shortcut Commands

Function	Default Key Stroke	Parameter to Change the Keystroke
Zoom In	CTRL SHIFT =	ZoomIn
Zoom Out	CTRL SHIFT -	ZoomOut
Export Document	CTRL SHIFT e	exportDocument
Print Document	CTRL SHIFT p	printDocument

Function	Default Key Stroke	Parameter to Change the Keystroke
Last Page	end	lastPage
First Page	home	firstPage
Previous Page	CTRL SHIFT pageup	PreviousPage
Next Page	CTRL SHIFT pagedown	NextPage
Rotate Counterclockwise	CTRL SHIFT l	rotateCounter
Rotate Clockwise	CTRL SHIFT r	rotateClockwise
Toggle Thumbnail Panel	CTRL SHIFT t	toggle thumbnail panel
Copy Selected Text	CTRL SHIFT c	copy selected text
Toggle Column Text Selection	CTRL SHIFT d	toggle column text selection
Toggle Image Info	CTRL SHIFT u	toggleImageInfo
Collapse Sticky Notes	CTRL SHIFT g	collapse sticky notes
Expand Sticky Notes	CTRL SHIFT n	expand sticky notes
Show Keyboard Shortcut Hints	CTRL /	show keyboardhints
Show User Preferences	CTRL ’	show user preferences

Keyboard shortcuts are defined in config.js in the hotkeys section as in the example below:

Note:
When defining more than one modifier (alt, shift, ctrl), please specify them alphabetically For example: 'ctrl-shift-u' instead of 'shift-ctrl-u'. For maximum browser compatibility and minimal shortcut conflict, Snowbound recommends using 'ctrl-shift-<char>' in general when defining VirtualViewer shortcuts.

Example 1.14: Defining Keyboard Shortcuts

```
hotkeys: { zoomIn: 'ctrl++,ctrl+=',
           zoomOut:'ctrl+-,ctrl+_',
           exportDocument: 'ctrl+shift+e',
           printDocument: 'ctrl+shift+p',
           lastPage: 'end',
           firstPage: 'home',
           previousPage: 'ctrl+shift+pageup',
           nextPage: 'ctrl+shift+pagedown',
           rotateCounter: 'ctrl+shift+l',
           rotateClock: 'ctrl+shift+r',
           showKeyboardHints: 'ctrl+/',
           toggleThumbnailPanel: 'ctrl+shift+t',
           fitHeight: 'ctrl+shift+j',
           fitWidth: 'ctrl+shift+w',
           fitWindow: 'ctrl+shift+q',
           panLeft: 'left',
           panRight: 'right',
           panUp: 'up',
           panDown: 'down',
           thumbPageDown: 'ctrl+end',
           thumbPageUp: 'ctrl+shift+end',
           copyText: 'ctrl+shift+c',
           searchText: 'ctrl+shift+f',
           enterSelectTextMode: 'ctrl+shift+insert',
           toggleTextSelectionMode: 'ctrl+shift+d',
           toggleImageInfo: 'ctrl+shift+u'
},
```

Advanced Customization

This chapter describes how to set up and work with the advanced features in VirtualViewer® HTML5.

Virtual Documents

This section describes how to work with virtual documents.

A virtual document is a collection of any combination of documents or pages of documents displayed as a single multi-page document with a single set of thumbnails. The pages can be from documents of different file format types such as AFP, Word, or PDF. The virtual document is viewed and regarded as any normal document would be.

Please note the following:

- Exporting to a .tif may require significant resources especially if converting to 24-bit color.
- Virtual Documents export only to .tif because the virtual documents may be a mix of multiple formats.
- If you are viewing all pages in a single document, you should not use Virtual Documents.
- Document Notes is not supported in Virtual Documents.

Loading Virtual Documents

To pass a number of documents to the viewer, the value of a `documentId` can start with a special identifier, followed by a string of a comma-separated list of `documentIds`. The list is issued to create the virtual document. The `documentIds` are listed in the order in which the documents are to be compiled for viewing.

Virtual Document Syntax

The special identifier is the string `VirtualDocument:` which is then followed by any number of `documentIds`. The syntax can be used any time a normal `documentId` could be used. A `documentId` in the comma-separated list may be specified in the following manner.

Table 4.1: Virtual Document Syntax

File Name	Description
ABC.tif	This specifies that all pages of the document should be included.
ABC.tif[2]	This specifies that only a single page from the document should be included.
ABC.tif[1-3]	This specifies that a range of pages from the document should be included.

Note:
To include non-consecutive pages from a single document, you need to specify the document each time in the virtual document string.

Displaying a Virtual Document

Three documents exist, `ABC.tif`, `EFG.pdf`, and `IJK.doc`, each with three pages. Below are examples of how to create virtual documents.

Example 1.1: Virtual Documents

```
http://localhost:8080/virtualviewer/index.html?
documentId=VirtualDocument:ABC.tif,EFG.pdf[2],IJK.doc
```

In the above example, the resultant virtual document would be a 7 page document. Pages 1, 2, and 3 would be all three pages from `ABC.tif`, page 4 would be page 2 from `EFG.pdf`, and pages 5, 6, and 7 would be all three pages from `IJK.doc`.

Example 1.2: Virtual Documents

```
http://localhost:8080/virtualviewer/index.html?
documentId=VirtualDocument:ABC.tif[1-2],EFG.pdf,LJK.doc[3]
```

In the above example, the resultant virtual document would be a 6 page document. Pages 1 and 2 would be pages 1 and 2 from `ABC.tif`, page 3, 4, and 5 would be all three pages from `EFG.pdf`, and page 6 would be page 3 from `IJK.doc`.

Virtual Documents: Save Document As

When a user prints, exports, emails, or uses Save Document As with a virtual document, the resulting document will reflect what the user sees on their screen at the time of execution. Please note that `sendDocument` is not supported in virtual documents. A work around is to send a virtual document with Save Document As. Save Document As has better functionality than `sendDocument`.

The loadVirtualDocumentAnnotations and saveVirtualDocumentAnnotations **web.xml** parameters enables virtual documents to read annotations from the source document and to save annotations created on the virtual documents back to the source document. The default values for both parameters are set to false

Printing Virtual Documents

To print a virtual document, select the Print button. 

Annotation Securing: Watermarks and Redactions

This section describes how to work with annotation security.

The implementation of security for annotations allows each layer to have a permission level assigned to it. This permission level is not inherent in the layer and is only defined when the layer is retrieved by the content handler.

In order to assign a permission level to an annotation layer, the content handler must be implemented or extended and the `getAnnotationProperties` method used.

The Annotation Security Model

The security model is such that when reading annotation layers, various levels of permissions for viewing and working with annotation layers may be specified. The model currently accounts for nine levels on a per layer basis.

Permission Levels

Each successive level includes the functionality of previous levels.This allow each annotation layer to carry a set of permissions. These permissions

allows the layer to be passed in with several different levels of permissions such as *read only* or *edit*.

If you are storing the annotations as layers (XML files) with a redaction permission level, then you will be able to present them to the users in the viewer as *burned in* but they will not actually be burned into the source document. This would allow you to use an XML tool or create an XML parser that would search and report on these annotation layers (XML files) and give you the information you need to run an offline or server side process such as you described.

Table 4.2: Permission Levels

Permission	Level	Actions Permitted
PERM_HIDDEN	Hidden	The layer is passed to the client but not displayed.
PERM_REDACTION*	Redaction	This burns in the annotation layer for viewing.
PERM_PRINT_ WATERMARK	Print Watermark	The user does not see the layer, but it will be burned in for printing.

PERM_VIEW_WATERMARK	View Watermark	The user may view the layer, but may not hide the layer.
PERM_VIEW	View	The user may view or hide the layer.
PERM_PRINT	Print	The user may also print the layer.
PERM_CREATE	Create	The user may also add an object to the layer.
PERM_EDIT	Edit	The user may also edit an object on the layer, and edit layer properties.
PERM_DELETE	Delete	The user may also delete an object on the layer, and delete the layer.

* Redaction annotations are only considered redactions when they are burned in and saved as an image format file such as TIFF format.

Level Definitions

Permission	Definition
Hidden	If a layer is indicated as having the Hidden permission, the information about the layer will be passed, so that changes done by Page Manipulation will be applied when the annotations are saved. The layer is not displayed to the user even if manipulations are applied.
Redaction*	If a layer is indicated as having the Redaction permission, then the servlet will create the working image by applying the layer to the data (i.e. burn in the layer) before passing the working image, so that it becomes part of the image and the data it redacts cannot be seen in any way. The original image is not altered.
Print Watermark	If a layer is indicated as having the Print Watermark permission, it shall be passed as a normal layer, but will not be shown to the user. When the document is printed, any layer with Print Watermark permission will be applied to the image before printing.
View Watermark	If a layer is indicated as having the View Watermark permission, it shall be passed as a normal layer. However, the user will not be allowed to show or hide the layer, or manipulate the layer in any way. This layer will never be printed.
View	If a layer is indicated as having the View permission, it shall be passed as a normal layer. The user will be

	able to hide or show the layer. The user will not be able to add an object, edit an object, delete an object, print the layer, rename the layer, or delete the layer.
Prin	If a layer is indicated as having the Print permission, it shall be passed as a normal layer. The user will be able to hide or show the layer, print the layer. The user will not be able to add an object, edit an object,

Permission	Definition
	delete an object, or rename or delete the layer.
Create	If a layer is indicated as having the Create permission, it shall be passed as a normal layer. The user will be able to hide or show the layer, print the layer, or add an object to the layer. The user will not be able to edit an object, delete an object, edit the layer properties, or delete the layer.
Edit	If a layer is indicated as having the Edit permission, it shall be passed as a normal layer. The user will be able to hide or show the layer, add an object, edit an object, or edit the layer properties. The user will not be able to delete objects, or delete the layer.
Delete	If a layer is indicated as having the Delete permission, it shall be passed as a normal layer. The user will have full rights to perform any operation on the layer.

*Redaction annotations are only considered redactions when they are burned in and saved as an image format file such as TIFF format

Retrieving Annotation Layers

When loading a document, annotation layers will need to be retrieved and have the correct permission level set. The process of loading an annotation layer is as follows:

For each `annotationKey` returned by `getAnnotationNames` the following method will be called.

Example 1.3: Retrieving Annotation Layers

```
public Hashtable getAnnotationProperties (clientInstanceId, doc-
umentKey, annotationKey)
```

This method returns a hash table with the following expected key/value pairs

for that annotation layer.

Key/Value Pairs

The **`permissionLevel`** will determine how the layer is handled. If no value is set, an exception will occur.

The **`redactionFlag`** determines if the layer has **Mark Layer As Redaction** selected in the client. If no value is set, an exception will occur.

If the `permissionLevel` is set to `PERM_REDACTION`, the value of `redactionFlag` is moot since the client does not receive that layer as an annotation layer.

If `getAnnotationProperties` returns *null*, an exception will occur. This prevents cases where a layer should have strict permissions but for some reason no permission level gets set.

Saving Redaction Layers

If a layer has **Mark Layer As Redaction** selected, when choosing **Save Annotations** the following will occur:

VirtualViewer HTML5 for Java will pass both the `permissionLevel` and the `redactionFlag` to the `saveAnnotationContent` method in a hash table:

Example 1.4: Saving Redaction Layers

```
public void saveAnnotationContent(ContentHandlerInput input)
saveAnnotationContent(ContentHandlerInput input)
(String clientInstanceId, String documentId, String annotationKey, byte
[] data, Hashtable annProperties)
```

Printing Layers

When printing a document, the user may choose to print with or without annotations.

Only visible layers with a Print permission level or higher in the Image Panel will print.

A layer which has been given a `permissionLevel` of `PERM_REDACTION` shall always print as part of the image, (since it has been burned into the image), even if the user chose to print without annotations.

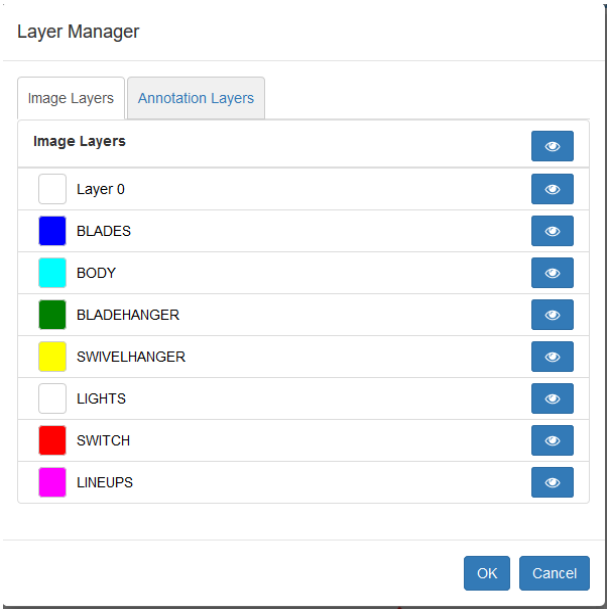
DWG Layer Support

You can toggle DWG layers in and out of view in VirtualViewer. DWG layers are typically called referenced design layers. Layers include schematics or diagrams of blueprints that are embedded in the DWG file and laid over the image at view time.

The DWG option for VirtualViewer HTML5 Java requires Microsoft Visual C++ 2015 Redistributable installed on your computer. You can either install this through Microsoft or use the **vcredist_x64.exe** that is included with your Snowbound license.

Follow the steps below to use the **Layer Manager**:

1. Load a **DWG** file or a **blueprints** file that contains layers.
2. Select the **Layer Manager**  .
3. The Layer Manager dialog box displays a list of all the DWG layers on the **Image Layers** tab. The left side of the tab displays the layer name. The right side of the tab displays a visibility button to toggle the visibility of the single layer.
4. From the Layer Manager dialog box, choose which **DWG layers** to take in and out of view.



5. Select the **visibility button**  to view or hide the image layer. A check on the visibility button indicates that the image layer is hidden.
6. Select **OK** to display the changes that you made in the layer manager.

The DWG file format is only available for 64-bit Windows systems.

Cropping a DWG page with layers is not supported.

Selecting Export, Print, Save As, and Email includes all DWG layers. There is no option to choose specific layers for each function to carry out.

Page Manipulations carry over all DWG layers on that page.

Virtual Documents consisting of DWG pages allow you to take the layers in and out of view on a page.

DWG xref Support

You can load a DWG file that contains references to other files (xrefs). Those related drawings are attached and displayed along with the DWG file. This feature assumes that the xrefs are in the same location as the original DWG file.

Set a valid directory in the `tmpDir` key in **web.xml**.

If the content handler returns any external reference files, they are saved in the following directory: **[your temp directory]/[document ID]**. Make this

directory accessible to VirtualViewer to read and write. External reference files are saved into these directories.

Content Handler

Use the following key in the content handler result class:

`KEY_EXTERNAL_REFERENCE_CONTENT_ELEMENTS`

This key returns the vector of `ExternalReference` objects defined in the `clientcontentserver` package.

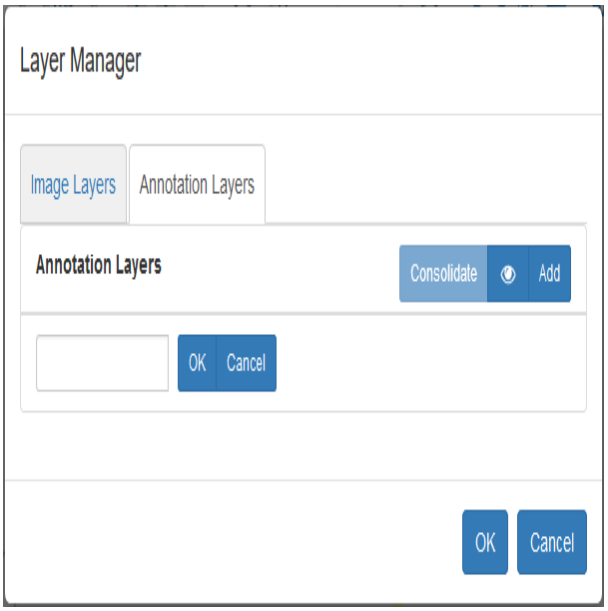
To implement external references in your content handler, include references to the `ExternalReference` class in your code.

Annotation Layers

The top level of the Annotation Layer Manager allows you to toggle all annotation visibility.

Follow the steps below to use the **Layer Manager** and add a new annotation layer:

1. Select the **Layer Manager**  . From the Layer Manager dialog box, choose the **Annotation Layers** tab.
2. Select the **Add** button to create a new layer.
3. In the active field, enter the **name** of the annotation layer.



4. Select the **Consolidate** button to consolidate annotation layers.
5. Select the **visibility button**  to view or hide the annotation layer. A check on the visibility button indicates that the image layer is hidden.
6. Click on the layer row to select the layer as active. When you draw annotations, they appear on the active layer.
7. If you want to edit the layer name, click on the **text of the layer name** or select the **edit pencil** button. Edit the layer name. Select the **OK** button to save the new name.
8. If you want to delete an annotation layer, select the **Delete** button.

Snowbound and FileNet Annotations

You can save Snowbound and FileNet annotations. See the sections below for more information on configuring Snowbound and FileNet annotations.

Configuring Snowbound Annotations

To save annotations in the Snowbound XML format, add the `annotationOutputFormat` parameter with the value set to Snowbound to the servlet web.xml files as shown in the example below:

Example 1.5: Adding the annotationOutputFormat parameter Set to Snowbound

```
<init-param>
 <param-name>annotationOutputFormat</param-name>
<param-value>Snowbound</param-value>
</init-param>
```

Snowbound Annotation Supported Configurations

Server

Table 4.3: Snowbound Annotation Supported Configurations - Server

Parameter Name	Value	File Location
`annotationOutputFormat`	Snowbound	web.xml

Note:
Snowbound annotations can be used with any configuration of non-required annotation parameters.

Client

None

If VirtualViewer HTML5 for Java is configured to save Snowbound annotations, then any existing annotations that are in the FileNet format are read in as read-only and are not able to be edited or deleted. Edit controls are disabled for annotation layers that are not editable. For example:

The menu-items for the layer will be visible, but grayed-out in menus such as Select Layer.

When you right-click an annotation to edit it, the pop-up menu will simply not appear.

Configuring FileNet Annotations

To save annotations in the FileNet XML format, follow the steps below:

1. Add the `annotationOutputFormat` parameter with the value set to FileNet to the servlet web.xml files as shown in the example below:

Example 1.6: Adding the annotationOutputFormat Parameter Set to FileNet

```
<init-param>
 <param-name>annotationOutputFormat</param-name>
<param-value>FileNet</param-value>
</init-param>
```

2. In the config.js file, set the `oneLayerPerAnnotation` parameter to true as shown in the example below:

Example 1.7: Setting oneLayerPerAnnotation to True

```
var oneLayerPerAnnotation = true;
```

FileNet Annotation Supported Configurations

Server

Table 4.4: FileNet Annotation Supported Configurations - Server

Parameter Name	Value	File Location
`annotationOutputFormat`	filenet	web.xml

Client

Table 4.5: FileNet Annotation Supported Configurations - Client

Parameter Name	Value	File Location
`base64EncodeAnnotations`	false	config.js
`oneLayerPerAnnotation`	true	config.js

Reading Daeja Annotations

Documents with Daeja annotations are supported.

Support for Daeja annotation saving is in development. Please check with Snowbound for details.

Annotation Mapping

The table below shows the FileNet annotation and its analogous Snowbound Annotation

Table 4.6: Annotation Mapping

FileNet Annotation	Snowbound Annotation
FileNet Annotation	Snowbound Annotation
Highlight Rectangle	SANN_HIGHLIGHT_RECT
v1-Rectangle	SANN_FILLED_RECT
Arrow	SANN_ARROW
v1-Line	SANN_LINE
v1-Open Polygon	SANN_POLYGON
v1-Highlight Polygon	SANN_FILLED_POLYGON
Pen	SANN_FREEHAND
Stamp	SANN_EDIT
StickyNote	SANN_POSTIT
v1-Oval	SANN_FILLED_ELLIPSE
Text	SANN_EDIT
Transparent Text	SANN_EDIT (Not transparent)
Closed Polygon	SANN_POLYGON
Freehand Line	SANN_FREEHAND

Watermark JSON Files

Watermarks for a document are stored in a json file. Like annotations, the file will be documentkey + suffix. For instance, 6-Pages-1.tif.watermarks.json. The .watermarks.json file is a list of json objects, so it has the format:
[{ myJsonData }, { myOtherJsonData }].

Each individual watermark is a json object. Each will have the following properties, formatted as seen in the attached example:

- *transparency*: A boolean. If true, the watermark will be transparent; if false, it will be a solid color.
- *adminCreated*: A boolean. If false, any user can manage any aspect of the watermark. If true, admin restrictions will apply (as described below).
- *text*: A string. This is the text that will appear on the watermark. Multiline watermarks are supported. This is done under the hood in the watermarks dialog, but if a user is manually entering json, they should enter a newline character ("\n") where a line break should be.
- *allPages:* A boolean. If this is set, the watermark will appear on every page of a document.
- *pages:* An array of page indices, zero-indexed. For instance, to place a

watermark on only page one, this property would contain [0]. This is a key difference between watermarks and annotations. Watermarks are intended to repeat across pages, so an identical watermark will have multiple pages it applies to.

- *widthAtTenPx:* An integer. This is a read-only value used by VirtualViewer to calculate the dimensions of the watermark, representing how wide the watermark is when the font is 10 pixels high.
- *stretch*: A double. This defines how far across the page the watermark will stretch. Set to 1.0, the watermark will go across 100% of the page (minus some margin space). Set to 0.5, 50% of the page. The UI allows only a small set of percentages. Diagonal watermarks will always stretch 100% across the diagonal.
- *format*: A json sub-object that has font and color information, as follows.
  -- font: A font name, for instance "Arial".
  -- color: We currently support only one color, so "000000" would be stored here.
- *position*: This is another sub-json object, that defines where the watermark will be placed on the page. There are two defining properties in here: the vertical placement of the watermark (top of the page, middle of the page, or the bottom of the page) and the direction of the text. While these options may open up further, the direction options are currently left-to-right text or diagonal text. The two options combine so that, for instance, top vertical placement & diagonal direction produce a watermark stretching from the top-left to bottom-right corner--while bottom vertical placement & diagonal direction will go from bottom-left to top-right.
  -- vertical: Use 0 for top, 1 for center, and 2 for bottom.
  -- direction: Use 0 for left-to-right text, and 2 for diagonal text.

Watermark.json file sample

[{"widthAtTenPx":19,"transparency":true,"adminCreated":false,"text":"bugs","allPages":true,"pages":[],"stretchPercent":0.5,"format":{"font":"Times New Roman","color":"000000"},"position":{"vertical":0,"direction":0}},{"widthAtTenPx":86,"transparency":true,"adminCreated":false,"text":"second%20watermark","allPages":false,"pages":[0],"stretchPercent":1,"format":{"font":"Times New Roman","color":"000000"},"position":{"vertical":2,"direction":2}},{"widthAtTenPx":62,"transparency":false,"adminCreated":false,"text":"sdadafsadfgsafd","allPages":false,"pages":[0],"stretchPercent":1,"format":{"font":"Times New Roman","color":"000000"},"position":{"vertical":2,"direction":0}}]

Appendix A: Tips

This appendix describes solutions and tips to resolve the issues that users have experienced with VirtualViewer® HTML5.

Changing the Default Directory

VirtualViewer HTML5 for Java is delivered with virtualviewer as the default directory.

If you change this directory, you need to change the lines in the example below to reflect that change.

For example, if you change the directory from **virtualviewer** to **your custom name**, you will need to change the following lines to reflect that change:

In **config.js**, change:

```
servletPath: "/virtualviewer/AjaxServlet"
```

to

```
servletPath: "/YourCustomName/AjaxServlet",
```

In **web.xml**, change (The web.xml file is located in the WEB-INF sub-directory.):

```
<init-param>
<param-name>codebase</param-name>
<param-value>http://localhost:8080/virtualviewer</param-value>
</init-param>
```

to

```
<init-param>
<param-name>codebase</param-name>
<param-value>http://localhost:8080/YourCustomName</param-value>
</init-param>
```

Changing the Default Directory for Image Rubber Stamps

In **web.xml**, the default image rubber stamp parameters need to have their path changed as shown in the example below or the viewer will spin and not load any documents.

For example, the following image rubber stamps parameter would need to change from:

```
<init-param>
<param-name>Approved</param-name>
<param value>Ap-
proved,535,293,ht-
tp://localhost:8080/virtualviewer/resources/stamps/Approved.png</param- value>
</init-param>
```

to:

```
<init-param>
<param-name>Approved</param-name>
<param value>Ap-
proved,535,293,ht-
tp://localhost:8080/VirtualViewerSomethingElse/resources/stamps/Approved.png</param-
value>
</init-param>
```

Documents Slow to Load in Multiple Documents Mode

Performance may be affected and documents may take several minutes to load if the `multipleDocMode` parameter is set to `availableDocuments` and the directory specified in the `filePath` configuration parameter (The default value is ".\sample-documents".) has several hundred files. To avoid this issue, set the `multipleDocMode` parameter to `specifiedDocuments`. The default setting for the `multipleDocMode` parameter is now `specifiedDocuments`.

Improving Performance or Quality

One of the differences between raster and vector formats is that raster formats have specific DPI (dots per inch) and bit depths. Vector formats aren't inherently black and white or color, and while they typically have sizing in inches, there is nothing that says what DPI or bit depth to use when rendered as a raster image.

When the content server pulls out a page from a vector format document, it must render that page to a certain DPI and bit depth, as well as save that image as some format to be passed to the client for display. (Sending an SVG version of the document for display retain the vector format and DPI is not necessary.) The particular settings are determined on a per format basis by three servlet parameters.

To improve the performance, you can save your files as black and white or grayscale. For example, if you are converting a PDF document, you can

save the document in the TIFF_G4_FAX file format. This will make the file

size smaller and improve performance. Please note that there is always a trade off between performance and quality. To improve performance, the quality of the image may be less. This is true whenever working with any imaging software. Please note that depending on the operating system and configuration, certain unusual or corrupt documents or files can cause the software to crash. Potentially, in some unusual circumstances, files may not be rendered identically to the creator application and may not format correctly or miss information.

Setting the Bit Depth - xxxBitDepth

This parameter determines what bit depth to use when converting the vector page. Valid settings for this format are 1 (for black & white, smaller) or 24 (for color, bigger). If any pages of the vector document might be in color, then the setting of 24 should be used, since there is no way to tell if a page might or might not contain color vector objects.

The example below shows how to set the bit depth parameters in the web.xml file. For a list of of web.xml parameters, please see Servlet Tags for web.xml.

Example 1.1: Setting the Bit Depth

```
<init-param>
 <param-name>docxBitDepth</param-name>
 <param-value>24</param-value>
</init-param>
```

The available bit depth parameters are shown in the table below:

Table A.1: Bit Depth Parameter Values and Description

Parameter Name	Description
`bitDepth`	The default bits per pixel for decompression of formats not specified with individual parameters.
`docxBitDepth`	The bit depth to use for Word 2007 documents. Valid values are 1 or 24.

Parameter Name	Description
iocaBitDepth	The bit depth to use when decompressing IOCA pages. Valid values are 1 or 24.
modcaBitDepth	The bit depth to use when decompressing MO:DCA pages. Valid values are 1 or 24.
pclBitDepth	The bit depth to use when decompressing PCL pages. Valid values are 1 or 24.
pdfBitDepth	The bit depth to use when decompressing PDF pages. Valid values are 1 or 24.
pptBitDepth	The bit depth to use when decompressing PPT pages. Valid values are 1 or 24.
wordBitDepth	The bit depth to use when decompressing Word pages. Valid values are 1 or 24.
xlsBitDepth	The bit depth to use when decompressing XLS pages. Valid values are 1 or 24.

Setting the DPI - xxxDPI

This parameter determines how many DPI (dots per inch) should be used when converting a vector page. Typical settings for this parameter are 150, 200, or 300. The higher the DPI, the higher the quality of the image, but also the bigger the size, which means more processing on the server and larger page sizes across the network. The optimal setting for this varies by format, but 200 is usually good for black & white documents or text, and 300 for color images and more detailed documents. Even higher numbers can be used (400, 600) but it can seriously affect speed of processing and available resources.

The example below shows how to set the DPI parameters in the web.xml file. For a list of of web.xml parameters, please see Servlet Tags for web.xml.

Example 1.2: Setting the DPI

```
<init-param>
 <param-name>docxDPI</param-name>
 <param-value>200</param-value>
</init-param>
```

The available DPI parameters are shown in the table below:

Table A.2: DPI Parameter Values and Description

Parameter Name	Description
docxDPI	The Dots Per Inch to use for Word 2007 documents.
iocaDPI	The Dots Per Inch to use when decompressing IOCA pages.
modcaDPI	The Dots Per Inch to use when decompressing MO:DCA pages.
pclDPI	The Dots Per Inch to use when decompressing PCL pages.
pdfDPI	The Dots Per Inch to use when decompressing PDF pages.
pptDPI	The Dots Per Inch to use when decompressing PPT pages.
wordDPI	The Dots Per Inch to use when decompressing Word pages.
xlsDPI	The Dots Per Inch to use when decompressing XLS pages.

Setting the Format - xxxFormat

This parameter determines which format the vector page will be rendered to for sending to the client. Valid values for this parameter are TIFF_G4_FAX (black & white, best for text documents, small size), JPEG (color, good for images, lesser quality for text, small size), TIFF_LZW (color or greyscale, good for documents with text and color elements), or PNG (color, better for text than JPEG, not as small).

By adjusting these parameters in various combinations, you can find the best settings for your environment, documents, and user load.

The example below shows how to set the format parameters in the web.xml file. For a list of web.xml parameters, please see Servlet Tags for web.xml.

Example 1.3: Setting the Format

```
<init-param>
 <param-name>docxFormat</param-name>
```

```
  <param-value>TIFF_LZW</param-value>
 </init-param>
```

The available format parameters are shown in the table below:

Table A.3: Format Parameter Values and Description

Parameter Name	Description
docxFormat	The format to convert Word 2007 documents to. Valid values should are TIFF_G4, JPEG, TIFF_LZW, PNG.
iocaFormat	The format to convert IOCA pages to. Valid values are TIFF_G4_FAX, JPEG, TIFF_LZW, PNG.
modcaFormat	The format to convert MO:DCA pages to. Valid values are TIFF_G4_FAX, JPEG, TIFF_LZW, PNG.
pclFormat	The format to convert PCL pages to. Valid values are TIFF_G4_FAX, JPEG, TIFF_LZW, PNG.
pdfFormat	The format to convert PDF pages to. Valid values are TIFF_G4_FAX, JPEG, TIFF_LZW, PNG.
pptFormat	The format to convert PPT pages to. Valid values are TIFF_G4_FAX, JPEG, TIFF_LZW, PNG
wordFormat	The format to convert Word pages to. Valid values are TIFF_G4_FAX, JPEG, TIFF_LZW, PNG. The bit depth to use when decompressing XLS pages. Valid values are 1 or 24.
xlsFormat	The format to convert XLS pages to. Valid values are TIFF_G4_FAX, JPEG, TIFF_LZW, PNG.
xlsDPI	The Dots Per Inch to use when decompressing XLS pages.

The full list of format server parameters and their usage is in Servlet Tags for web.xml.

Setting Office 2007 - 2010 Documents to Display Color Output

To display color output in Office 2007 - 2010 documents, set the `xlsxBitDepth` and `docxBitDepth` parameters to 24 and the `xlsxDPI` and `docxDPI` parameters to 200 as shown in the following example:

Example 1.4: Displaying Color Output in Office 2007-2010

```
<init-param>
 <param-name>xlsxDPI</param-name>
 <param-value>200</param-value>
</init-param>
<init-param>
 <param-name>docxBitDepth</param-name>
 <param-value>24</param-value>
</init-param>
<init-param>
 <param-name>docxDPI</param-name>
 <param-value>200</param-value>
</init-param>
<init-param>
 <param-name>xlsxBitDepth</param-name>
 <param-value>24</param-value>
</init-param>
<init-param>
 <param-name>xlsxDPI</param-name>
 <param-value>200</param-value>
</init-param>
<init-param>
 <param-name>docxBitDepth</param-name>
 <param-value>24</param-value>
</init-param>
<init-param>
 <param-name>docxDPI</param-name>
 <param-value>200</param-value>
</init-param>
```

Note: * - only found in older versions of product
Aspose.Words.<jdk>.jar, Aspose.Cells.jar and dom4j-1.6.1.jar all need to be on the CLASSPATH for Office 2007 -2010 documents to process without error. Please see *Setting Up Office 2007 - 2010 Support for VirtualViewer* for more information.

Default Configuration Maximizes Performance

Please note that the default configuration for VirtualViewer HTML5 for Java is set to maximize performance. The default settings are the following:

The bit depth settings for vector formats such as PDF and Word are set to 1. Please note that with the bit depth set at 1 color formats will display as black and white. To view these files in color, set the bit depth to 24.

The DPI settings for vector formats such as PDF and Word are 200. To increase the quality of an image, set the DPI to a higher value such as 400.

The default format is set to TIFF_FAX_G4. If you are trying to view another format in color, set the format parameter to the format type.

To improve performance and the speed of loading documents in VirtualViewer Java Content Server, try setting the values of the following parameters in the `web.xml` file as shown below:

Example 1.5: Setting the Parameters in the web.xml File

```
<param-name>documentCacheSize</param-name>
 <param-value>1024000</param-value>
<param-name>wordBitDepth</param-name>
 <param-value>1</param-value>
<param-name>wordDPI</param-name>
 <param-value>100</param-value>
<param-name>wordFormat</param-name>
 <param-value>JPEG</param-value>
<param-name>pdfBitDepth</param-name>
 <param-value>1</param-value>
<param-name>pdfDPI</param-name>
 <param-value>100</param-value>
<param-name>pdfFormat</param-name>
 <param-value>JPEG</param-value>
<param-name>xlsBitDepth</param-name>
 <param-value>1</param-value>
<param-name>xlsDPI</param-name>
 <param-value>100</param-value>
  <param-value>xlsFormat</param-value>
  <param-value>JPEG</param-value>
```

Note:
Increasing the value of the `documentCacheSize` parameter will improve performance on the client, but will require the server to keep more content in memory and thereby decreasing performance. It is important to find the right balance between the two by performance tuning the cache size during testing.

Recommended JRE Memory Settings

The amount of memory required to display a document may be significantly larger than the size of the document that is stored on disk. Just like a road map, the document is folded up and compressed when it is stored. In order to see the document, it must be unfolded (decompressed) and spread out so you can see the whole map. The map takes up much more room when open for viewing. The same is true of online documents. When a document is open, a black and white letter size page at 300 dpi takes roughly 1MB of memory to display and a color page takes 25MB.

The amount of memory required to view documents varies depending on the size of the documents you are processing and the number of documents you are processing at any one time. The amount of memory needed increases as:

- You go from black and white, to grayscale, to color documents (bits per pixel increases).
- You go from compressed to uncompressed document formats (lossy compression to raw image data).
- You go from low resolution to high resolution documents (dots per inch / quality increases).
- You go from small index card size images to large blueprint size images (number of pixels increases).

Generally, higher quality documents require more memory to process. Snowbound Software does not have a one-size-fits-all recommendation for memory because our customers have such a variety of documents and different tolerances for the level of output quality. However, you can try doubling the memory available to see if that resolves the issue. Keep increasing memory until you stop getting out of memory errors. If you hit a physical or financial limit on memory, then you can do the following:

Decrease the number of documents you have open at any one time.

Decrease the quality of the images requested by decreasing bits per pixel, the resolution, or the size.

To calculate the amount of memory required for an image, you will need to know the size of the image in pixels and the number of bits per pixel in the image (black and white=1, grayscale=8, color=24). If you do not know the height or width in pixels, but you do know the size in inches and the dpi (dots per inch) of the image, then you can calculate the size in pixels as (width_in_inches*dots_per_inch) = width_in_pixels.

To calculate the amount of memory (in bytes), multiply the height, width and number of bits per pixel. Then, divide by 8 to convert from bits to bytes. See the following example:

(height_in_pixels * width_in_pixels * (bits_per_pixel/ 8)) = image_size_in_bytes

This table lists examples of memory requirements based on image sizes.

Table A.4: Memory Requirements Based on Image Size

Image Size	Required Memory
24-bit per pixel, 640 x 480 image	640 * 480 * (24 / 8) = 921600 bytes
1-bit per pixel, 8.5" x 11" image, at 300 dpi (2550 pixels by 3300 pixels)	2550 * 3300 * (1 / 8) = 1051875 bytes
24-bit per pixel, 8.5" x 11" image, at 300 dpi (2550 pixels by 3300 pixels)	2550 * 3300 * (24 / 8) = 25245000 bytes (25 megabytes)

Determining Memory Needed for the Number of Users and Pages Viewed in VirtualViewer® HTML5

To calcuate the amount of memory needed based on the number of users and potential pages viewed at any given time, use the example below:

The number of concurrent users * size per page in MB * 5 pages in view

For example, plug in the number of pages (in this case, 5) and the number of users (in this case, 1000):

black and white page (100 dpi) .1mb per page x 5 pages= .5 mb x 1000 users = 500 mb =~ 0.5 GB

black and white page (300 dpi) 1mb per page x 5 pages= 5 mb x 1000 users = 5000 mb =~ 5GB

color pages (300 dpi) 25mb per page x 5 pages = 125 mb x 1000 users = 125000 mb = ~122 GB

Capacity Planning

To make sure that VirtualViewer HTML5 for Java performs well for your number of users, you may want to do some capacity planning.

Please see the following algorithm for calculating memory for 200 users:

For this calculation, we assume five pages will be active in VirtualViewer HTML5 for Java at any one time - One page being displayed and four thumbnails.

> For 200 concurrent users viewing 5 1-bit color pages, the required Java heap capacity is 200 users * 5 pages * 1 mb /pg = 1,000 mB = 1GB.
>
> For 200 concurrent users viewing 5 24-bit color pages, the required Java heap capacity is 200 users * 5 pages * 24 mb /pg = 24,000 mB = 24GB.

For CPU size, generally, the larger the CPU and number of cores, the faster the response time. We expect VirtualViewer HTML5 for Java to use all available resources to display the documents as quickly as possible. It will peg the CPU for short periods during heavy use.

For more information on the system requirements to run VirtualViewer HTML5 for Java, please see System Requirements.

Caching to Improve Performance

The document cache keeps documents that VirtualViewer has displayed in server memory so that they do not have to be re-rendered the next time they are viewed. This enhances performance but consumes memory on the server. VirtualViewer lets you determine and configure this trade-off between speed vs. memory consumption. Overall cache use can be limited at the web server level..

When caching is enabled, the VirtualViewer content server caches the entire document in memory. The HTML5 server caches the pages it receives from the content server. If the content server and HTML5 server are on the same machine (this is common), they will use the same cache.

The caching configuration parameters mentioned below are in the `RetrievalServlet` portion of the content server's web.xml file. These are documented in Servlet Tags for web.xml.

Do You Need Caching at All?

If your users never view the same page twice, set the `documentCacheSize` parameter to 0 to turn off document caching.

Example 1.6: Turning Off Document Caching

```
<init-param>
<param-name>documentCacheSize</param-name>
<param-value>0</param-value>
```

Sizing the Cache if You Need It

If your users view the same pages frequently, calculate the number of these pages that should be cached away for faster viewing. This will be **numberOfPagesToCache**.

Next determine how much memory will be used to cache each page, **sizeOfPageInBytes**. To calculate the **sizeOfPageInBytes** value you will need to know:

Your page size in inches

Are the pages black & white or color?

Black & white uses 1-bit per pixel (bpp).

Color uses 24-bpp.

The desired resolution in dots per inch (DPI). 100 DPI is fine if the document will not be zoomed or printed. A higher DPI may be required if users are zooming in to look at details.

The size can be calculated using the following formula:

(height_in_pixels * width_in_pixels * bits_per_pixel) / (8 bits per byte) = image_size_in_bytes

The value is in bytes and describes the uncompressed size of the page, so it may look rather large. For more information see Determining Memory Requirements.

Here are some examples:

One black and white 8.5x11 inch page at 100 DPI = (8.5 inches* 300 dpi * 11 inches * 300 dpi) * (1 bit per pixel / 8 bits per byte) = 116875 bytes or 0.1MB per page for **sizeOfPageInBytes**.

One black and white 8.5x11 inch page at 300 DPI = (8.5 inches* 300 dpi * 11 inches * 300 dpi) * (1 bit per pixel / 8 bits per byte) = 1051875 bytes or roughly 1 MB per page.

One color 8.5x11 inch page at 300dpi is 25245000 or roughly 25MB per page.

Now, multiply **numberOfPagesToCache** x **sizeOfPageInBytes**. Set the `documentCacheSize` to the calculated cache size to turn on document caching.

If this number is larger than the memory you have available on the system, you can adjust things like the document bit depth, resolution, or number of pages cached.

For example a cache size of 1024000 (1GB) will hold

40 full 24-bit color pages at 300 DPI or

1,000 black and white pages at 300 DPI or

9,187 black and white pages at 100 DPI

Please see Improving Performance or Quality for more information on how to adjust viewing bit depth and resolution.

Cache Maintenance

If your users modify and save the documents being viewed, set the `clearCacheOnSave` parameter to true (the default) so that older versions of the page are not displayed.

Example 1.7: Clearing Cache on Save

```
<init-param>
<param-name>clearCacheOnSave</param-name>
<param-value>true</param-value>
</init-param>
```

The cache is primarily maintained by your application server. The disk cache will be cleared of all temp files at VirtualViewer startup.

If you start seeing Out of Memory (-1) errors, then you may need to resize your cache as described in the previous section.

Revalidate cache method called for every page

This is a short timespan cache to store answers from validateCache for each session/user. Every x minutes the cache will be deleted for each user (with storing and retrieval handled separately). This provides performance benefits to some users.

For whatever the specified window is (zero will check every time) we will cache the validation for that amount of time based on sessionId, documentId and HTTP action (GET or PUT). Once that time elapses, we will revalidate.

The time span value applies to both storage and retrieval.

The validation cache is defined in ehcache.xml with the document cache in a section for "vvValidationCache". By default, validations will expire after five minutes, although that is configurable in ehcache.xml.

When Does the Cache Get Cleared?

The cache gets cleared when the user clicks the Save button.

The parameter `clearCacheOnSave` in the web.xml must be set to true and the documentCacheSize in the web.xml must be greater than 0 to allow for caching.

To clear the Documentum caches if using Documentum, use the following Javascript method to clear the diskCache for the current session:

```
VirtualViewer.invalidateServerSessionDiskCache();
```

.Use the following Javascript method to clear the diskCache for all sessions:

```
VirtualViewer.invalidateAllServerDiskCaches();
```

Note:
This is assuming that `useSessionDiskCache` is not set to false in the web.xml.

When the Cache Size Is Reached

If you do not use the Save Document functionality, does the cache recycle on its own or does the cache get overwritten once the cache size is reached?

The cache size is determined by the `documentCacheSize` parameter set in web.xml. If the document is too big, it is not cached. The application will revert to using the `getDocumentContent` method in the content handler instead of retrieving the documents from the cache.

The `documentCacheSize` parameter limits the maximum size of a document (compressed) allowed to be put in the cache. The setting does not limit the overall cache size. The document size is logged if caching is on, log-level=finest and the document is too big to fit in the cache.

If the document is larger than `documentCacheSize` (in bytes), it will not enter the cache and VirtualViewer will log something such as:

```
For key: documentId=MyBig.TIF, data size(2710838) >
capacity (1024000). Not caching
```

When this happens, VirtualViewer will call `getDocumentContent` for the document every time it renders the main display or thumbnail since the document is not in cache. Calling `getDocumentContent` multiple times for the same document is usually a significant and unnecessary performance hit which is why you should make the document cache big enough to hold your largest documents.

When the document is within the `documentCacheSize` limit, it is allowed in the cache. If the cache is already full, the cache will remove the oldest document(s) until there is enough room to put the new document into the cache. This is known as First In First Out (FIFO). The documents are identified by id, not by content. There is no pooling of documents with the same content and different ids.

The `documentCacheSize` parameter defines the maximum size of the heap allocated to VirtualViewer to use for document caching. If the -Xmx set in the web server for VirtualViewer is less, the cache will be limited to the smaller value. VirtualViewer may use any remaining heap memory for rendering pages and other operations.

Monitoring the Cache Size

Is there any way to monitor the cache size and have an alert when the cache size is about to be reached?

The system logs will say that the application cannot cache the document because the document exceeded the cache size. The application will

retrieve the document with the content handler method `getDocumentContent` instead of retrieving from the cache.

Cache Setting in Tomcat

Tomcat has a setting to limit how much cache it can consume.Set this limit to stop the cache from growing at that threshold.Keep in mind it does not clear cache. It just limits it so there is no build up and eventual OOM exceptions.

In the Tomcat application server, find the **Tomcat Monitor** application.Open the Tomcat Monitor and then click on the **Java** tab. At the bottom, you will see the settings for Maximum memory pool.Use this to control not only how much is cached by one single application, but how much Tomcat will cache collectively. The value here is you can control how much VirtualViewer bytes are cached as well as all other applications. Thus managing memory at a much higher level.

Caching and Security

Snowbound Software has no mechanism to selectively remove cached content. However, a Cache Validation interface is provided so you can customize when cached content is permitted to be retrieved. You can implement the `validateCache` method to use your authentication system to validate that the current user is authorized to access the cached page content. See the CacheValidator section in Connecting to Your Document Store.

Appendix B: Troubleshooting

This appendix describes solutions and tips to resolve the issues that users have experienced with VirtualViewer® HTML5.

Submitting a Support Issue

You may encounter an issue that is not covered by the documentation. Snowbound technical support is standing by to help you succeed. In order to get a fast, helpful response, please make sure Snowbound has everything needed to reproduce the issue:

1. The configuration files: **index.html**, **config.js**, **output.properties** and **.\WEB-INF\web.xml**.
2. The document that the user is trying to view. Most issues are document specific.
3. The Java console log and the server log.
4. A list of steps that the customer took from starting the Viewer until they see the error.
5. It is helpful to have screen shot of what the user is doing when they encounter the error.
6. The version of VirtualViewer and Java that are being used.

"Please wait while your image is loaded" Message Displays Indefinitely

In some cases, images do not load in the VirtualViewer HTML5 for Java client, and the “Please wait while your image is loaded” message displays indefinitely in the browser. This generally happens when:

1. The web server is not properly configured to handle the necessary http

requests made by the client

2. The VirtualViewer server configuration itself is incorrect.

To resolve this issue, you should log the http traffic between the client and the server in order to determine which http requests are failing and why. This can be done using a browser plugin such as httpWatch (http://www.httpwatch.com) or Firebug (http://getfirebug.com). You can also use a standalone application such as Fiddler (http://www.fiddler2.com) or Wireshark (http://www.wireshark.org) which can be run independently on the client machine. For Internet Explorer 9 users, the traffic can be captured using the IE Developer Toolbar (http://www.microsoft.com/download/en/details.aspx?id=18359).

Once the http traffic has been captured, you should be able to see which requests are failing. Typically, a failed request will cause a 400 or 500 error code to be generated in the logs. Some common error codes that can occur for VirtualViewer HTML5 for Java are as follows:

404 Not Found

This error code indicates that the requested resource on the server could not be found. This error can occur if the servlet mapping is incorrectly configured on the server. First, make sure the `servletPath` parameter value in config.js contains the correct URL mapping to the AJAX servlet. If you changed the default directory name for VirtualViewer HTML5 for Java on the server, you will need to update this value to be consistent with that change. For more information on defining the `servletPath` parameter, please see Defining the Servlet Paths.

For VirtualViewer HTML5 for Java, the web.xml configuration should also be reviewed in addition to config.js. Make sure that the values for **<servlet-class>** and **<url-pattern>** are correct for the relative **<servlet-name>**. Please note that by default, the servlet name is set to AjaxServlet.

405 Method Not Allowed

This error code indicates that the http request contains an action (e.g. POST, GET, HEAD, etc.) that is not allowed by the requested IIS server module. With respect to VirtualViewer HTML5 for Java .NET, this typically means that the IIS handlers for AJAXServer and **aspnet_isapi.dll** have not been properly configured in IIS. First, make sure web.config contains the following handler mapping for AJAXServer:

```
<httpHandlers>
```

```
<add verb="*" path="virtualviewer" type-
e="Snowbound.virtualviewer.AjaxServerHandler, Snow- bound.virtualviewer" />
</httpHandlers>
```

Then, make sure that a wildcard mapping for **aspnet_isapi.dll** has been created for your website configuration. This DLL is a required resource for VirtualViewer, and is usually located in Windows under `C:\Windows\Microsoft.NET\Framework\v2.0.50727\`. To add **aspnet_isapi.dll** to your IIS configuration, please review the instructions below:

For IIS5:

Go to **<VV web application> Properties > Directory (tab) > Configuration > "Add"**.

For the **"Executable"** setting, provide the path to **aspnet_isapi.dll**.

Set the **"Extension"** setting to **"*"** and left click inside the **"Executable"** path field to enable the "Ok" button below (this is a bug in IIS5... see http://support.microsoft.com/kb/317948).

ForIIS6:

Go to **<VV web application> Properties > Virtual Directory (tab) > Configuration > "Insert Wildcard application map"**, and provide the path to **aspnet_isapi.dll**.

ForIIS7:

Go to **<VV web application> Handler Mappings > Actions > "Add Wildcard Script Mapping"** and provide the path to **aspnet_isapi.dll**.

500 Internal Server Error

This error may occur if the content handler mapping is not correctly set in the web configuration. For VirtualViewer HTML5 for Java, check the `contentHandlerClass` parameter value. For VirtualViewer HTML5 for Java .NET, check the contentHandler key value. Make sure this value contains the correct path to the content handler.

Annotation Text Does Not Appear on Separate Lines

An issue may occur where annotation text does not appear on separate lines. This occurs because Linux has different line-end characters than Windows. Linux uses just a line feed while Windows uses a carriage return + line feed (CRLF).

To solve this issue, add the following line in your code so that line-end characters will be the same on all systems:

```
System.setProperty("line.separator","\r\n")
```

Unable to Enter More Text After Using the “-” Key in an Annotation

An issue may occur where you cannot enter any more text after entering the “-” key in an annotation. This was caused by the keyboard shortcut for zoom out being defined without the CTRL modifier.

This issue will be resolved in the next release by changing the the shortcuts for zooming to the following.

For zoom in, select CTRL+.

For zoom out, select CTRL-.

Getting an Evaluation Period Expired Error Message When Creating a War File

Getting an Evaluation Period Expired Error Message When Creating a War File

An issue may occur where you receive an “Evaluation Period Expired” error message when creating a war file.

To solve this issue, look for the `servletURL` parameter in your html file. If you are using that parameter and it is pointing to an evaluation version of the servlet (possible on another machine), you will get the error messages.

Fonts Do Not Display Correctly

An issue may occur where the font displays incorrectly in the following way:

1. The text in the output document is not in the right font.
2. The text in the output document does not display the same way on Windows and on Linux.

To solve this issue, follow the steps below:

1. Inspect the document to determine what fonts it requires.
2. Make sure those fonts are installed on the system. The fonts are usually installed in the `font.properties` file.

3. Make sure the fonts are registered with Java and are of a type supported by your version of Java.

There are several resources on the Internet that discuss how to do this. There are also some helpful tools such as font viewers that make this easier. Some resources we like are:

Java Font resources:
http://mindprod.com/jgloss/font.html

Windows Font knowledgebase article:
http://support.microsoft.com/kb/918791

Java Font.Properties description from Sun:
http://java.sun.com/j2se/1.4.2/docs/guide/intl/fontprop.html

Linux Font installation:
http://linuxandfriends.com/2009/07/20/how-to-install-fonts-in-linux-ubuntu-debian

Linux Font configuration man page:
http://linux.die.net/man/5/fonts-conf

Excel 2007 XLSX files return -7 Format_not_found error (Obsolete – only found in old versions of product)

To render Word 2007, Excel 2007 and PowerPoint 2007 documents, VirtualViewer HTML5 for Java may rely on third party packages. In order to properly integrate these packages, the CLASSPATH may have to be modified. You can specify additions to the CLASSPATH using the web.xml parameter `classPathAddition` under the `FlexSnapSIRetrievalServlet` according to the following example:

```
<init-param>
 <param-name>classPathAddition</param-name>
 <param-value>c:\sample\sample-cells-7.4.3.jar;c:\sample\dom4j-1.6.1.-
jar;c:\sample\sample.slides-7.3.0.jar;c:\sample\log4j-1.2.16.jar;
</param-value>
</init-param>
```

XLS or XLSX Page Content Truncated

Your XLS or XLSX page content may be truncated because XLS and HTML-formats do not include the page size in the document like Word and PDF. It can be set explicitly similar to how you can set the page size when printing. To set the page size to avoid truncated content, use the `xlsHeight`, `xlsWidth`, `xlsxHeight`, and `xlsxWidth` parameters in the **web.xml** file as shown in the examples below. .

For XLS files set the parameters as shown in the example below to the height and width that you would like for your document:

```
<init-param>
 <param-name>xlsHeight</param-name>
 <param-value>11</param-value>
</init-param>

<init-param>
 <param-name>xlsWidth</param-name>
 <param-value>14</param-value>
</init-param>
```

For XLSX files set the parameters as shown in the example below to the height and width that you would like for your document:

```
<init-param>
 <param-name>xlsxHeight</param-name>
 <param-value>11</param-value>
</init-param>

<init-param>
 <param-name>xlsxWidth</param-name>
 <param-value>14</param-value>
</init-param>
```

Overlay Resources Not Pulled into APF or MODCA Document

If overlay resources such as signatures are not being pulled into an AFP or MODCA document, then make sure that the resource filename does not have a filename extension. If the resource filename has a filename extension, remove it.

Documents Loading Slowly in Multiple Documents Mode

Performance may be affected and documents may take several minutes to load if the `multipleDocMode` parameter is set to `availableDocuments` and the directory specified in the `filePath` configuration parameter (The default value is =". `\sample-documents`".) has several hundred files. To avoid this issue, set the `multipleDocMode` parameter to `specifiedDocuments`. The default setting for the `multipleDocMode` parameter is now `specifiedDocuments`.

Images Disappear in Internet Explorer 9 when Zooming or Rotating

Note: For this reason and many others, Snowbound DOES NOT RECOMMEND any Internet Explorer older than Microsoft Edge.

An Internet Explorer 9 canvas bug can cause images to disappear when you click to zoom or rotate the image.

The issue occurs because VirtualViewer AJAX is drawing faster than IE 9 can handle.

To correct this issue, we added a variable in **vvDefines.js** called `ie9DrawDelay`. It inserts a delay in milliseconds into the IE 9 drawing code which can help work around this bug.

Please add this entry to the **vvDefines.js** file:

```
ie9DrawDelay: 900,
```

The **vvDefines.js** file is located in the following directory:

```
..virtualviewer/js/ vvDefines.js
```

The default value is 100 (100 milliseconds). The user can set the `ie9DrawDelay` variable as high as necessary. However; if it is set too high, it could cause a delay for the user each time they zoom.

The `ie9DrawDelay` variable will not work if IE 9 is set to compatibility mode. It will only work in IE 9 standard mode. Please try adding `<meta http-equiv="X-UA-Compatible" content="IE=Edge">` to **index.html** to force IE 9 standard mode.

Internet Explorer Limits URLs to 2048 Characters

Note: Internet Explorer older than Microsoft Edge isn't recommended.

Customers that included a lot of parameters on their VirtualViewer command line ran out of room because the viewer infrastructure was using an HTTP GET operation. The GET URL length was limited by the Internet Explorer browser. Other browsers like Chrome and Firefox allow a much longer URL.

Please see the following work around to resolve the case where the user enters a URL longer than 2048 characters into the URL bar: For long DocumentIDs/cIIDs,call `init()` instead of calling `initViaURL()`, you could simply call `init()`, then call `setDocumentId()` and `setClientInstanceId()`, followed by `openInTab()`. Please see the following example to create a Javascript function:

Instead of calling `initViaURL` in index.html, call `init`:

```
<body onload="virtualViewer.initViaURL()">
```

becomes

```
<body onload="virtualViewer.init()">
```

Initialize the viewer as needed:

```
myFlexSnap.setClientInstanceId("whatever their cli-
entInstanceId is, if any"); myFlexSnap.openInTab
("whatever their document id is");
```

This solution works for all supported browsers.

Internet Explorer Defaults to Compatibility View

Note: Internet Explorer older than Microsoft Edge isn't recommended.

In Internet Explorer, users may experience an issue where their browser defaults to IE7 compatibility view when they open VirtualViewer. Since VirtualViewer no longer supports IE7, VirtualViewer will not work in this mode.

Users can resolve this issue by going into the **Compatibility View Settings** and unchecking the box next to Display intranet sites in **Compatibility View**.

Allowing Relative Paths to Work with Tomcat 8

Please note that in Tomcat 8.0, documents will load using absolute path, and not relative.

The relative path is resolved to an absolute in `FileContentHandler.setFilePath()` via a call to context.`getRealPath(relativePathName)`.

The `relativePathName` should start with a /.

Please see the following code sample to allow relative paths to work on Tomcat 8.

```
...FlexSnapContentHandler/.../FileContentHandler.java

public static void setFilePath(String pathParam, ServletContext context)
{
if ((pathParam.startsWith("./") || pathParam.startsWith(".\\"))
&& context != null)
{
pathParam = pathParam.replace("./", "/");
pathParam = pathParam.replace(".\\\\", "/");

gFilePath = context.getRealPath(pathParam)
+ File.separator;
}
else
{
gFilePath = pathParam;
}

Logger.getInstance().log(Logger.INFO,
"File path for documents is configured to "
+ gFilePath);
}
```

Displaying a Document as Landscape

If the text input document is displayed as portrait and you would like to

dis- play it as landscape, set the `ascii.attribute` parameter.

Getting a ClassNotFoundException Error

A return status of -38 EXCEPTION_ERROR indicates an exception was thrown. This usually includes a stack trace with information about what caused the exception. If the stack trace includes **java.lang.NoClassDefFoundError:** this indicates the issue is a missing .jar file. The name of the class following **java.lang.NoClassDefFoundError:** can be used to determine which .jar file cannot be found. Check your java CLASSPATH carefully to ensure the directory containing the .jar is in the path. Please feel free to contact Snowbound Support at http://support.snowbound.com for help determining which .jar is missing.

APPENDIX C: Supported File Formats

This appendix describes the file type number and read/write capabilities of all supported file formats.

VirtualViewer® HTML5 is a powerful conversion tool that can transform your documents and images into many different formats. Some format types are limited in the amount of color (bit-depth) they support in an image. Some file formats read and write only black and white (1-bit deep) and other file formats support only color images (8+ bits deep). For many of these cases, VirtualViewer HTML5 for Java automatically converts the pixel depth to the appropriate value, based on the output format specified. The chart below will help you determine whether your black and white or color document will be able to convert straight to the desired output format with no additional processing.

Table C.1: File Format Key

File Format	Description
1-bit	Black and white or monochrome images
4-bit, 8-bit, 16-bit	Grayscale images, that may appear to be black and white, but contain much more information, and are much larger than 1-bit.
8-bit, 16-bit, 24-bit, 32-bit	Full color images

When saving to a format, if the error returned is PIXEL_DEPTH_UNSUPPORTED (-21), the output format does not support the current bits per pixel of the image you are trying to save. The chart below will help you identify formats with compatible bit depths.

Please note that the higher the bit depth (bits per pixel), then the larger the

size of the image on the disk or in memory. The higher bit depth may offer more quality, but the performance may suffer because there is a lot more image data to process. Many users may have images that appear to be black and white, however, they are stored in 24-bit color. Converting these documents to a 1-bit file format will decrease the size of the file and improve performance with no perceivable loss in quality.

If you have any questions about what format to select you may contact Snowbound Technical support on the web at http://support.snowbound.com. We do our best to support product and document specifications and to work

common platform environments, however there are always exceptions. If you find an exception please contact Snowbound Support to let us know about it.

Table C.2: Supported File Format Descriptions

B = Base

D = In Development

O = Optional format. Additional charges may apply.

File Format	Description	File Type Number	Input Bit Depth	Output Bit Depth	Common File Ext.	Java Read	Java Write	Supports Text Search
ABIC (reading)	IBM image compression for scanned checks. Note: Not yet supported with RasterMaster .NET x64 or RasterMaster DLL x64.	46	1	1	-	O	-	No
AFP (MO:DCA)	Advanced Function Presentation™. IBM format which uses CCITT G3, G4, and IBM MMR formats. 1-bit only. This is a multi-page file format	74	1, 24	1, 24	.afp	O	O	Yes
ASCII	Snowbound reads in ASCII text files and converts them to a bitmap.	38	1	No	.txt	B	-	Yes
BMP_ COMPRESSED	Originated by Microsoft, BMP supports 1, 4, 8, and 24-bit images.	12	4, 8	8	.bmp	B	-	No
BMP_ UNCOMPRESSED	Originated by Microsoft, BMP supports 1, 4, 8, and 24-bit images.	1	1, 4, 8, 16, 24	1, 8, 24	.bmp	B	B	No
BROOK_TROUT	Brooktrout FAX format.	29	1	1	.brk	-	-	No
CALS	Government specified format.	18	1	1	.cal	B	B	No
CCITT_G3	Group 3 compression for bitonal (1-bit) image data.	33	1	1	.tif	B	-	No
CCITT_G3_FO	Group 3 compression for bitonal (1-bit) image data.	53	1	1	.tif	B	-	No
CCITT_G4	Group 4 compression for bitonal (1-bit) image data.	34	1	1	.tif	B	B	No

CCITT_G4_FO	Group 4 compression for bitonal (1-bit) image data.	52	1	1	.tif	B	B	No
CFF	Compact Font Format is a lossless compaction of the Type 1 format using Type 2 charstrings. It is designed to use less storage space than Type 1 fonts by using operators with multiple arguments, various pre-defined default values, more efficient	83	1 , 8, 24	1 , 24	.ci	O	-	

File Format	Description	File Type Number	Input Bit Depth	Output Bit Depth	Common File Ext.	Java Read	Java Write	Supports Text Search
	allotment of encoding values and shared subroutines within a FontSet (family of fonts).							
CIFF	Camera Image File Format is a raw image format designed by Canon.	81	1 , 8, 24	1 , 8, 24	.cif	O	-	No
CIMS (ABIC)	Check Image Management System. Developed by Carreker. Same as ABIC. Note: Not yet supported with RasterMaster .NET x64 or RasterMaster DLL x64.	80	1	No	-	O	-	No
CLIP	Microsoft Windows clipboard format.	27	1, 4, 8, 24	1, 8, 24	.cip	-	-	No
COD	Liberty IMS black and white format.	72	1	No	.cod	-	-	No
CSV	Comma separated value list, a text spreadsheet.	99	1,24	No	.csv	O	-	No
CUT	Cut images are only 8 bits per pixel and the palette is stored in a separate file. Originated by Media Cybernetics.	31	8	No	.cut	-	-	No
DCS	The DCS format is a standard Quark Express Format. Each plane is stored as an EPS record.	62	32	32	.dcs	-	-	No
DCX	Intel created this format as a multi-page .PCX format. Each page is a .PCX file in whole which can be 1, 4, 8, and 24-bit.	11	1, 4, 8, 24	1, 8, 24	.dcx	-	-	No
DIB	Standard Windows Device Independent Bitmap. Supports 1, 4, 8 and 24-bits. This is a multi-page file format.	48	1, 4, 8, 24	1, 8, 24	.dib	B	B	No
DICOM	Medical image format supporting 1, 12, 16, and 24 pixel images. Limited support.	55	8, 16, 24	No	.dcm	B	-	No
DOC	Microsoft Word format. Supports Microsoft Word 97, version 8 or later. Supports 1-bit images. Cannot decompress (view) document while open in MS Word. The following features have not yet been implemented: right-to-left text flow, underlined URLs, section and paragraph borders and shading, text boxes, multi-column paragraph, Windows Meta Files (WMF) clip art, autoshapes, and embedded OLE objects. Inconsistencies exist between MS	86	1, 8, 24, 32	No	.doc	O	-	Yes

File Format	Description	File Type Number	Input Bit Depth	Output Bit Depth	Common File Ext.	Java Read	Java Write	Supports Text Search
	Word and the Word plugin with regards to character and line spacing. Reading support only. This is a multi-page file format.							
DOCM	DOCM is an MS Open Office XML format with macros enabled	86	1, 8, 24, 32	No	.docm	O	-	Yes
DOCX	The .docx format is part of a family of open office XML-based formats developed by Microsoft. It is the default document format for saving applications in Microsoft Word starting with Office 2007. It is based on XML rather than Microsoft's .doc format. Reading support only. This is a multi-page file format.	93	1, 8, 24, 32	No	.docx	O	-	Yes
DWG	Autodesk® AutoCAD® format. Used for computer aided design (CAD) data and metadata. The DWG format can be read in the VirtualViewer .NET Content Server.	90	0	24	.dwg	-	-	No
DXF	Autodesk® AutoCAD® format. Used for computer aided design (CAD) data and metadata. See the following, for the full specification: http://usa.autodesk.com/adsk/servlet/item?siteID=123112&id=8446698 The DWG format can be read in the VirtualViewer .NET Content Server.	91	0	24	.dxf	-	-	No
EMAIL	E-mail message created with MS Outlook.	89	1	-	.msg	O	-	No
EML	A MIME RFC 822 standard format that is used by many email clients including Microsoft Outlook Express, Lotus notes, Windows Live Mail, Mozilla Thunderbird, and Postbox.	103	1	-	.eml	O	-	No
EPS (preview)	Encapsulated Postscript originated by Adobe. Postscript is an interpreted language. Snowbound does not support full Postscript but will extract an embedded .TIF file in the image. Sometimes called a bitmap representation file.	14	1, 4, 8, 24	1,8, 24	.eps	B	B	No
EPS_BITMAP	EPS Compressed bitmap format. It is an Adobe encapsulated Postscript file with either G4 or JPEG data embedded.	63	8, 24, 32	1, 8, 24	.eps	B	B	No

File Format	Description	File Type Number	Input Bit Depth	Output Bit Depth	Common File Ext.	Java Read	Java Write	Supports Text Search
EPS_BITMAP_G4	EPS Compressed bitmap format. It is an Adobe encapsulated Postscript file with either G4 or JPEG data embedded.	64	No	1, 8, 24	.eps	-	B	No
EPS_BITMAP_LZW	EPS Compressed bitmap format. It is an Adobe encapsulated Postscript file with either G4 or JPEG data embedded.	69	No	1, 8, 24	.eps	-	B	No
FileNet	Image format developed by FileNET Corporation for viewing documents.	78	1	1	-	B	-	No
FLASHPIX	24-bit tiled JPEG format that includes multiple resolution images.	54	8, 24	No	.fpx	-	-	No
GIF	Created by CompuServe for compressing 2, 3, 4, 5, 6, 7, and 8-bit palette images. Uses the LZW algorithm.	4	2, 3, 4, 5, 6, 7, 8	8	.gif	B	B	No
GIF_INTERLACED	Same as GIF except stores the raster data in an interlaced order.	44	1, 2, 3, 4, 5, 6, 7, 8	8	.gif	B	-	No
GX2	Originated by Brightbill Roberts for ShowPartner DOS applications. Supports 4 and 8-bit images. Simple run length encoding technique.	22	4, 8	No	.gx2	-	-	No
HTML	Hyperlink Text Markup Language (HTML) is a tag-based language used to create documents for the Web. HTML forms are often used to capture information from web sites. Full HTML, Javascript and CSS support.	82	0	24	.htm, .html	O	-	Yes
ICONTYPE	Microsoft icon format. Contains a standard device independent bitmap. Supports 1 and 4 bits uncompressed.	25	1, 4	No	.ico	-	-	No
IFF_ILBM	Used on the Commodore Amiga computers for native bitmap format. Uses a run length format for 1, 4, and 8-bit palette images.	26	1, 4, 8, 24	1, 8, 24	.iff	-	-	No
IMG	Originated by Digital Research for storing 1-bit images.	28	1	No	.img	-	-	No
IMNET	IMNET G4 compressed format.	42	1	No	-	B	-	No
IOCA (MO:DCA)	Image Object Content Architecture. IBM format which uses CCITT G3, G4, and IBM MMR formats. 1-bit only. This is a multi-page file format.	24	1, 24	1	.ico	O	O	No
JBIG	Joint bi-level Image Experts Group. This is a highly compressed format which is stored in a TIFF header. It supports 1 or 8-bit gray scale	71	1	1 (with plugin)	.jbg	B	-	No

File Format	Description	File Type Number	Input Bit Depth	Output Bit Depth	Common File Ext.	Java Read	Java Write	Supports Text Search

images.

JBIG2	JBIG2 is a highly-compressed black and white image format that uses symbol recognition and substitution for very dramatic compression results. Snowbound's viewers and conversion programs can be used to directly view JBIG2 documents or convert those documents to a variety of output formats.	77	1	1 (with plugin)	.jbg	B	-	No
JEDMICS	US Military CCITT G4 tiled image format for storing Government documents and drawings. Supports 1-bit per pixel.	56	1	1	.jed	B	-	No
JPEG	Joint Photographics Experts Group. This was a group spearheaded by Kodak for 24, 32, and 8-bit gray scale lossy compression. Lossless JPEG not supported.	13	8, 24, 32	8, 24	.jpg	B	B	No
JPEG2000	JPEG2000 specification. This is similar to JPEG but produces much better compression with better quality. It is supported as a separate plugin. An option exists to set the compression level for saving.	70	8, 24	No	.jpg2	O		No
KOFAX	Kofax Format.	23	1	No	-	-	--	No
LASER_DATA	Compression for documents originated by LaserData Corp. 1-bit images only.	19	1	No	-	-	-	No
LINE_DATA	Presents data for each variable on a single line.	75	1	1	-	-	-	No
MACPAINT	Original Apple bitmap file format. All MacPaint images are 720 x 576 pixels 1 bit.	21	1	No	-	-	-	No
MAG	Mag Format.	61	1	No	.mag	-	-	No
MO:DCA	Mixed Object: Document Content Architecture. IBM format which uses CCITT G3, G4, and IBM MMR formats. 1-bit only. This is a multi-page file format.	49	1, 24	1	.mca	O	O	Yes
MSP	Microsoft Paint program bitmap file format. Supports 1-bit images. Uses a type of RLE compression found also in compressed .BMP files.	30	1	No	.msp	-	-	No
NCR	A simple header with CCITT group 4 data.	65	1	No	.ncr	B	-	No
ODF	Open Document Format is an XML-based file format for representing	98	No	No	.odf	O	-	No

File Format	Description	File Type Number	Input Bit Depth	Output Bit Depth	Common File Ext.	Java Read	Java Write	Supports Text Search
	electronic documents such as spreadsheets, charts, presentations and word processing documents.							

ODP	Open Document Format for presentations.	101	No	No	.odp	O	-	Yes
ODS	Open Document Format for spreadsheets.	97	1, 24	No	.ods	O	-	Yes
ODT	Open Document Format for word processing (text) documents.	96	1, 24	No	.odt	O	-	Yes
OOXML	Office Open Extended Markup Language or Office Open XML (also informally known as OOXML or OpenXML) is a zipped , XML-based file format developed by Microsoft for representing spreadsheets, charts, presentations and word processing documents that is intended for use with the 2007 and later versions of the Microsoft Office suite.	94	1, 8, 24	No	-	O	-	Yes
PCL_1 (with plugin)	Hewlett Packard printer file format. Support for color and grayscale output. Supported as a separate plugin. This is a multi-page file format.	57	1, 24	1	.pcl	O	B	Yes
PCL_1 (without plugin)	Hewlett Packard printer file format. Support for color and grayscale output. Supported as a separate plugin. This is a multi-page file format.	57	No	1	.pcl	O	B	Yes
PCL_5	Hewlett Packard printer file format. Support for color and grayscale output. This is a multi-page file format.	76	No	1	.pcl	O	B	Yes
PCX	Zsoft bitmap file format. Similar to pack bits compression. Supports 1, 4, 8, and 24-bit images.	2	1, 4, 8, 24	1, 8, 24	.pcx	B	-	No
PDF (with plugin)	Portable Document Format. File format developed by Adobe to capture formatting information from a variety of desktop publishing applications. It allows the user to send formatted documents and have them appear on the recipient's monitor or printer as they were intended. **Compatible with the PDF/A-1b – Level B (basic) conformance specification and conforms to PDF v1.7**. JPEG2000 objects within a PDF file require Snowbound Software's optional JPEG2000 license.	59	1, 2, 4, 8, 16, 24, 32	1, 24	.pdf	O	B	Yes

File Format	Description	File Type Number	Input Bit Depth	Output Bit Depth	Common File Ext.	Java Read	Java Write	Supports Text Search
	Supports some types of Adobe specified PDF annotations, however does not support XFA annotations. Does not support corrupt PDF documents. Snowbound Software requires that the fonts needed be available on the system. This is a multi-page file format.							
PDF (without plugin)	Portable Document Format. File format developed by Adobe to capture formatting information from a variety of desktop publishing applications. It allows the user to send formatted documents and have them appear on the recipient's monitor or printer as they were intended. **Compatible with the PDF/A-1b – Level B (basic) conformance specification and conforms to PDF v1.7**. JPEG2000 objects within a PDF file require Snowbound Software's optional JPEG2000 license. Supports some types of Adobe specified PDF annotations, however does not support XFA annotations. Does not support corrupt PDF documents.| Snowbound Software requires that the fonts needed be available on the system. This is a multi-page file format.	59	No	1, 24	.pdf	O	B	Yes
PDF_15	Portable Document Format. File format developed by Adobe to capture formatting information from a variety of desktop publishing applications. It allows the user to send formatted documents and have them appear on the recipient's monitor or printer as they were intended. **Compatible with the PDF/A-1b – Level B (basic) conformance specification and conforms to PDF v1.7**. JPEG2000 objects within a PDF file require Snowbound Software's optional JPEG2000 license. Supports some types of Adobe specified PDF annotations, however does not support XFA annotations.	79	No	1, 24	.pdf	O	B	Yes

File Format	Description	File Type Number	Input Bit Depth	Output Bit Depth	Common File Ext.	Java Read	Java Write	Supports Text Search
	Does not support corrupt PDF documents. Snowbound Software requires that the fonts needed be available on the system. This is a multi-page file format. **Note**: Only supported with RasterMaster .NET or RasterMaster DLL. This format is not yet supported in Rastermaster Java.							
PDF_16	Portable Document Format. File format developed by Adobe to capture formatting information from a variety of desktop publishing applications. It allows the user to send formatted documents and have them appear on the recipient's monitor or printer as they were intended. **Compatible with the PDF/A-1b – Level B (basic) conformance specification and conforms to PDF v1.7**. JPEG2000 objects within a PDF file require Snowbound Software's optional JPEG2000 license. Supports some types of Adobe specified PDF annotations, however does not support XFA annotations. Does not support corrupt PDF documents. Snowbound Software requires that the fonts needed be available on the system. This is a multi-page file format. **Note**: Only supported with RasterMaster .NET or RasterMaster DLL. This format is not yet supported in Rastermaster Java.	92	No	1, 24	.pdf	O	B	Yes
PDF_LZW	Portable Document Format. File format developed by Adobe to capture formatting information from a variety of desktop publishing applications. It allows the user to send formatted documents and have them appear on the recipient's monitor or printer as they were intended. **Compatible with the PDF/A-1b – Level B (basic) conformance specification and conforms to PDF v1.7**. JPEG2000 objects within a	88	No	1, 24	.pdf	O	B	Yes

| File Format | Description | File Type Number | Input Bit Depth | Output Bit Depth | Common File Ext. | Java Read | Java Write | Supports Text Search |

	PDF file require Snowbound Software's optional JPEG2000 license. Supports some types of Adobe specified PDF annotations, however does not support XFA annotations. Does not support corrupt PDF documents. Snowbound Software requires that the fonts needed be available on the system. This is a multi-page file format.							
PHOTOCD	Kodak photo CD format. Supports only 24-bit images. This format contains at least 5 images. Get these images as you would a multi-page file format. Page 0 - 768 x 512 Page 1 - 384 x 256 Page 2 - 192 x 128 Page 3 - 1536 x 1024 Page 4 - 3072 x 2048 Images are uncompressed until the 1536 x 1024 images or greater. All images are stored as YCC data which is luminance then blue and red chrominance channels. The large image must be built from the smaller images by interpolation then adding the residual data stored by Huffman encoding.	39	24	No	.pcd	-	-	No
PHOTOSHOP	Adobe Photoshop format for storing 1, 4, 8, 16, 24, and 32-bit images. Can be compressed or uncompressed. Images may also be stored as CMYK data or RGB.	41	1, 4, 8, 24, 32	1, 8, 24	.psd	-	-	No
PICT	Apple Macintosh bitmap file format. These images may contain vector information such as lines and circles. Only the bitmap portion of data is decompressed. Uses pack bits compression. Supports 1, 2, 3, 4, 8, 16, 24, and 32-bit images.	15	1, 2, 4, 8, 16, 24, 32	1, 8, 24	.pct	-	-	No
PNG (optional)	Originated by CompuServe to replace the .GIF file format. Uses the Huffman encoding variant. Supports 1, 4, 8, 15, 16, 24, and 32-bit images. Also supports interlaced and trans-	43	1, 4, 8, 16, 24, 32	1, 8, 16	.png	B	B	No

File Format	Description	File Type Number	Input Bit Depth	Output Bit Depth	Common File Ext.	Java Read	Java Write	Supports Text Search

	parency.							
PPT	Microsoft PowerPoint Binary File Format which is the binary file format used by Microsoft PowerPoint 97, Microsoft PowerPoint 2000, Microsoft PowerPoint 2002, and Microsoft Office PowerPoint 2003. Reading support only. This is a multi-page file format.	85	1, 8, 24, 32	No	.ppt	O	-	Yes
PPTX	The .pptx format is part of a family of open office XML-based formats developed by Microsoft. It is the default document format for saving applications in Microsoft PowerPoint starting with Office 2007. It is based on XML rather than Microsoft's .ppt format. Reading support only. This is a multi-page file format. Supported on Java 7.	100	1, 8, 24, 32	No	.pptx	O	-	Yes
RAST	Sun raster format. Supports 1, 8, 24, and 32-bits. Run length encoded format.	37	1, 8, 24	1, 8, 24	.ras	-	-	No
RTF	The Rich Text Format is a method of encoding formatted text and graphics for easy transfer between applications.	87	1, 8, 24, 32	No	.rft	O	-	Yes
SCITEX	The SCITEX format is a proprietary format originated from SCITEX Corporation. Gray scale color and CMYK color images. Usually compressed.	60	24, 32	24	.sct	-	-	No
SEARCHABLE_PDF	Searchable PDF, also known as "vector PDF" is a regular PDF file that contains searchable text content vs rasterized text.	59	No	No	.pdf	O	B	Yes
SVG	Scalable Vector Graphics is an XML-based vector image format for two-dimensional graphics with support for interactivity and animation. SVG allows three types of graphic objects: vector graphics, raster graphics, and text. It is a known issue that Internet Explorer has an issue rendering an image in SVG. If you have an issue rendering an image in IE, we recommend that you turn off SVG support for that format. You can turn off SVG support by either adding the format	102	No	24	.svg		B	No

File Format	Description	File Type Number	Input Bit Depth	Output Bit Depth	Common File Ext.	Java Read	Java Write	Supports Text Search
	to the svgExclusions list in web.xml or disable SVG in config.js for all formats by setting `enableSVGSup-`							

	port to false.							
TARGA	The SCITEX format is a proprietary format originated from SCITEX Corporation.	32	16	24	.tga	-	-	No
TARGA16	The SCITEX format is a proprietary format originated from SCITEX Corporation.	32	16	24	.tga	-	-	No
TIFF_2D	Tagged image file format. Created by an independent group and was supported by Aldus. .TIF files can be any number of bits per pixel, planes and several compression algorithms. The byte order may be Intel or Motorola format. The bytes may also be filled from right to left or left to right. Compression may be uncompressed, pack bits, LZW, modified Huffman, CCITT G4, CCITT G3, CCITT G3-2D or JPEG. The CCITT G4 file format only saves to black and white. This is a multi-page file format.	17	1	No	.tif	B	-	No
TIFF_ABIC	TIFF file with Arithmetic Binary encoding. Requires a special ABIC version of our tools. Very popular for check imaging. BW is used for 1-bit bi-level and TIFF_ABIC is for 4-bit gray scale images. This is a multi-page file format.	46	4, 8	No	.tif	O	-	No
TIFF_ABIC_BW	TIFF file with Arithmetic Binary encoding. Requires a special ABIC version of our tools. Very popular for check imaging. BW is used f or 1-bit bi-level and TIFF_ABIC is for 4-bit gray scale images. This is a multi-page file format.	47	1	No	.tif	O	-	No
TIFF_G3_FAX	ANSI baseline Group 3 or Group 4 compression embedded in a TIFF. This is a multi-page file format.	8	1	1	.tif	B	B	No
TIFF_G4_FAX	ANSI baseline Group 3 or Group 4 compression embedded in a TIFF. This is a multi-page file format.	10	1	1	.tif	B	B	No

File Format	Description	File Type Number	Input Bit Depth	Output Bit Depth	Common File Ext.	Java Read	Java Write	Supports Text Search
TIFF_G4_FAX_FO	ANSI baseline Group 3 or Group 4 compression embedded in a TIFF. This is a multi-page file format.	51	1	1	.tif	B	B	No
TIFF_G4_FAX_ STRIP	ANSI baseline Group 3 or Group 4 compression embedded in a TIFF. This is a multi-page file format.	67	No	1	.tif	B	-	No

TIFF_HUFFMAN	TIFF file compressed using the Huffman compression algorithm. This is a multi-page file format.	7	1	1	.tif	B	-	No
TIFF_JBIG	Standard ANSI baseline JBIG compression embedded in a TIFF. This is a multi-page file format.	66	1	1	.tif	B	B	No
TIFF_JPEG	Standard ansi baseline JBIG compression embedded in a TIFF. This is a multi-page file format.	40	8, 24	8, 24	.tif	B	B	No
TIFF_JPEG7	Black and white gray scale format. This is a multi-page file format.	73	1, 8	1, 8	.tif	B	B	No
TIFF_LZW	TIFF file compressed using the LZW compression algorithm. The LZW algorithm includes the look-up table of codes as part of the compressed file. This is a multi-page file format.	9	1, 4, 8, 24, 32	1, 4, 8, 16, 24, 32	.tif	B	B	No
TIFF_PACK	Simple run length encoding algorithm. This is a multi-page file format.	16	1, 4, 8, 16, 24, 32	1, 8	.tif	B	B	No
TIFF UNCOMPRESSED	Uncompressed raw binary data. This is a multi-page file format.	0	1, 2, 4, 8, 16, 24, 32	1, 8, 24	.tif	B	B	No
UTF-8	UTF-8 is a text format.It is a variable width encoding for the Unicode character set.It may start with the Byte Order Mark of 0xFF FE	38	1	No	.txt	B	-	No
UTF-16	UTF-16 is a text format.It is a variable width encoding for the Unicode character set.It may start with the Byte Order Mark of 0xFE FF.	87	1, 8, 24, 32	No	.txt	B	-	No
WBMP	Windows file format for wireless devices.	68	1	1	.wbmp	-	-	No
WINFAX	A simple header with CCITT group 3 compression.	58	1	No	-	-	-	No
WMF	Microsoft Windows Metafile format. These may contain vector information such as lines and circles. Only the bitmap data is extracted. This is in the form of a standard win-	6	1, 4, 8, 24	1, 8, 24	.wmf	B	-	No

File Format	Description	File Type Number	Input Bit Depth	Output Bit Depth	Common File Ext.	Java Read	Java Write	Supports Text Search
	dows DIB. May be 1, 4, 8, and 24-bit. The 4 and 8-bit images may be compressed using Microsoft RLE compression as in .BMP files.							
WPG	WordPerfect's metafile format. This is similar to the WMF file format in that it may contain vector information. Supports 1, 4, 8, and 24-bit images. Only the bitmap data is extracted.	5	1, 4, 8, 24	1, 8	.wpg	-	-	No
XBM	Xwindows file format which encodes each pixel as an ASCII byte. Only supports 8-bits per pixel.	20	1	1	.xbm	-	-	No
Xerox_EPS	Encapsulated Postscript for Xerox.	45	1	No	-	-	-	No
XFA	XML Forms Architecture. XFA is an extension to PDF It allows the user to send formatted documents and have them appear on the recipient's monitor or printer as they were intended. Compatible with the PDF/A specification and conforms to PDF v1.4. JPEG2000 objects within a PDF file require Snowbound Software's optional JPEG2000 license. Supports some types of Adobe specified PDF annotations. Does not support corrupt PDF documents.| Snowbound Software requires that the fonts needed be available on the system. This is a	59	1, 2, 4, 8, 16, 24, 32	1, 24	.pdf	O	-	Yes
XLS	Microsoft Excel Spreadsheet format for structuring and analyzing data. This is the binary file format used by Microsoft Excel 97, Microsoft Excel 2000, Microsoft Excel 2002, and Microsoft Office Excel 2003. Reading support only This is a multi-page file format.	84	1, 8, 24, 32	No	.xls	O	-	Yes
XLSX	The .xlsx format is part of a family of open office XML -based formats developed by Microsoft. It is the default document format for saving applications in Microsoft Excel starting with Office 2007. It is based on XML rather than Microsoft's .xls format. Reading support only. This is a multi-page file format.	95	1, 8, 24, 32	No	.xlsx	O	-	Yes
XPM	Xwindows bitmap file format stored as ASCII data. Each pixel is stored	35	1, 4, 8	8	.xpm	-	-	No

File Format	Description	File Type Number	Input Bit Depth	Output Bit Depth	Common File Ext.	Java Read	Java Write	Supports Text Search
	as an ASCII byte.							
XWD	UNIX XWD Raster format. Each pixel is stored as an ASCII byte.	36	1, 4, 8	1, 8, 24	.xwd	-	-	No

Table C.3: File Type Constants listed by File Type Number

File Type Number	File Type Name
0	TIFF_UNCOMPRESSED
1	BMP_UNCOMPRESSED
2	PCX
3	TARGA
4	GIF
5	WPG
6	WMF
7	TIFF_HUFFMAN
8	TIFF_G3_FAX
9	TIFF_LZW
10	TIFF_G4_FAX
11	DCX
12	BMP_COMPRESSED
13	JPEG
14	EPS
15	PICT
16	TIFF_PACK
17	TIFF_2D
18	CALS
19	LASER_DATA
20	XBM
21	MACPAINT
22	GX2
23	KOFAX
24	IOCA
25	ICONTYPE
26	IFF_ILBM
27	CLIP
28	IMG
29	BROOK_TROUT
30	MSP

File Type Number	File Type Name
31	CUT
32	TARGA16
33	CCITT_G3
34	CCITT_G4
35	XPM
36	XWD
82	HTML
37	RAST
38	ASCII
39	PHOTOCD
40	TIFF_JPEG
41	PHOTOSHOP
42	IMNET
43	PNG
44	GIF_INTERLACED
45	Xerox_EPS
46	TIFF_ABIC
47	TIFF_ABIC_BW
48	DIB
49	MO:DCA_IOCA
51	TIFF_G4_FAX_FO
52	CCITT_G4_FO
53	CCITT_G3_FO
54	FLASHPIX
55	DICOM
56	JEDMICS
57	PCL_1
58	WINFAX
59	PDF
60	SCITEX
61	MAG
62	DCS
63	EPS_BITMAP
64	EPS_BITMAP_G4
65	NCR
66	TIFF_JBIG
67	TIFF_G4_FAX_STRIP

File Type Number	File Type Name
68	WBMP
69	EPS_BITMAP_LZW
70	JPEG2000
71	JBIG
72	COD
73	TIFF_JPEG7
74	AFP
75	LINE_DATA
76	PCL_5
77	JBIG2
78	FILENET
79	PDF_15
80	CIMS
81	CIFF
82	HTML
83	CFF
84	EXCEL
85	POWER_POINT
86	DOC
87	RTF
88	PDF_LZW
89	MSG
90	DWG
91	DXF
92	PDF_16
93	DOCX
94	OOXML
95	XLSX
96	ODT
97	ODS
98	ODF
100	PPTX
101	ODP
103	EML

Appendix D: Snowbound Error Codes

This appendix describes the error codes that are returned by function execution problems.

This table lists the possible Snowbound errors and their descriptions.

Table D.1: Detailed Status/Error Codes

Error	Error Code	Description
OUT_OF_MEMORY	-1	Failed on memory allocation. Problem with a standard memory allocation. Please see Determining Memory Requirements for more information on the the amount of memory required.
FILE_NOT_FOUND	-2	Open call failed when trying to decompress an image.
CORRUPTED_FILE	-3	File format bad, or unreadable.
BAD_STRING	-4	String passed in is null or invalid.
BAD_RETURN	-5	Internal DLL problem. Submit a support issue at http://support.snowbound.com and attach the document you were processing when you received this error.
CANT_CREATE_FILE	-6	Fail on saving when attempting to create a new file. On this error check that you have permission to write to that directory and that there is sufficient space available on the storage device.
FORMAT_NOT_ALLOWED	-7	Image was not recognized as a format the library can decompress.
NO_BITMAP_FOUND	-8	Getobject() call failed to return bitmap header for using DDB functions or may be returned in formats that can contain vector information such as .WPG, .WMF and .PCT if no bitmap information is found.
DISK_FULL	-9	Error writing data to the disk. Standard file i/o write failed.

Error	Error Code	Description
BAD_DISPLAY_AREA	-10	Tried to display with negative coordinates or out of range.
PAGE_NOT_FOUND	-11	Used for multi-page file format support when attempting to access a page which does not exist. This error code provides information of an empty Word-page which is not converted to an empty page in PDF or TIFF.
DISK_READ_ERROR	-12	File format was truncated and tried to read past end of file. Standard read i/o function failed.
BAD_HANDLE	-13	Application passed bad image handle. Not a valid Snowbound library image handle.
NO_CLIPBOARD_IMAGE	-14	Image not found on clipboard.
NO_SCANNER_FOUND	-15	TWAIN scanner driver not installed or not found (TWAIN.DLL).
ERROR_OPENING_SCANNER	-16	Bad scanner driver or driver not configured properly.
CANT_FIND_TWAIN_DLL	-17	TWAIN scanner driver not installed or not found (TWAIN.DLL).
USER_CANCEL	-18	Cancel out of low level save or low level decompress. Usually not an error but termination of a function intentionally.
EVAL_TIMEOUT	-19	Date on an evaluation copy of the Snowbound product has expired.
USING_RUNTIME	-20	Version not allowed for design mode.
PIXEL_DEPTH_UNSUPPORTED	-21	Tried to save an image to a format that does not support the image's bits per pixel. Or tried to perform an image processing function on an image whose bits per pixel is not allowed. Please see Supported File Formats for the pixel depths of each supported format.
PALETTE_IMAGES_NOT_ALLOWED	-22	Some image processing operations does not work on palette images.
NO_LZW_VERSION	-23	No LZW or GIF code in this version.

Error	Error Code	Description
JAR_NOT_FOUND_24	-24	The .jar file containing a class needed to complete the operation was not found. Please carefully examine your CLASSPATH to verify the syntax is correct, and the directory containing the RasterMaster .jar(s) is in the path. For Office 2007-2010 documents you may need to explicitly specify some .jars. If you continue to receive this error contact Snowbound Support at http://support.snowbound.com and attach the document you were processing when you received this error.
FORMAT_WILL_NOT_OTFLY	-25	Format will not support on the fly decompression.
NO_TCOLOR_FOUND	-26	No transparency color information found.
COMPRESSION_NOT_SUPPORTED	-27	Currently not supporting this compression format.
NO_MORE_PAGES	-28	Returned when scanning has completed all pages in the document feeder.
FEEDER_NOT_READY	-29	No more pages ready in document feeder.
NO_DELAY_TIME_FOUND	-30	No delay time was found for the animated GIF.
TIFF_TAG_NOT_FOUND	-31	Could not find the .TIF tag.
NOT_A_TILED_IMAGE	-32	Not recognized as a TIFF tiled image.
NOT_SUPPORTED_IN_THIS_VERSION	-33	You are using a version that does not support this function. You do not have support for this file format. Please open a support issue at http://support.snowbound.com or contact your account representative to get information on the VirtualViewer® HTML5 option that will allow
AUTOFEED_FAILED	-34	Autofeed fail in the TWAIN Scanner.
NO_FAST_TWAIN_SUPPORTED	-35	TWAIN driver cannot do fast transfer.

Error	Error Code	Description
NO_PDF_VERSION	-36	The PDF processing option was not found. If you have the PDF processing option, please make sure the name of the directory containing Snowbound's pdfplug.dll is in the System environment variable Path.
NO_ABIC_VERSION	-37	No ABIC plug-in code in this version.
EXCEPTION_ERROR	-38	Internal error. An exception occurred during processing. Please enter a support ticket at http://support.snowbound.com providing the document that was being processed. If the RasterMaster function being called was not a decompress bitmap, then please include a small sample program that can be used to reproduce the issue. Please see Getting a ClassNotFoundException Error for more information on troubleshooting an exception error.
NO_VECTOR_CAPABILITY	-39	No vector plug-in found in this version.
NO_PCL_VERSION	-40	The PCL processing option was not found. If you have the PCL processing option, please make sure the name of the directory containing Snowbound's pclplug.dll is in the System environment variable Path.
NO_JPEG2000_VERSION	-41	NO JPEG2000 plug-in found in this version.
SEARCH_STRING_NOT_FOUND	-42	Did not find attempted search string.
NO_WORD_VERSION	-43	The MS Word processing option was not found. If you have the MS Word processing option, please make sure the name of the directory containing Snowbound's docplug.dll is in the System environment variable Path.

Error	Error Code	Description
PASSWORD_PROTECTED_PDF	-44	This file was password protected.
METHOD_NOT_FOUND	-45	The Snowbound method was not found. Please check the spelling of the method name and Snowbound library version.
ACCESS_DENIED	-46	Access denied. Please check the security permissions.
BAD_LICENSE_SECONDARY	-47	Primary level license loaded is bad.
PASSWORD_PROTECTED_FILE	-48	This file was password protected for Word or other formats.
PDF_PACKAGE_NOT_SUPPORTED	-49	This PDF file is part of a package that is not supported.
JWEBENGINE_JAR_NOT_IN_CLASSPATH	-50	The jwebengine.jar is not in the classpath.
JAVA_1_6_RUNTIME_REQUIRED	-51	You must be running java 1.6 or better to use HTML support.
OOXML_LICENSE_NOT_FOUND	-52	The OOXML Aspose license file was not found.
OOXML_LICENSE_EXPIRED	-53	The OOXML Aspose license file expired or is otherwise invalid.
LICENSE_NOT_FOUND	-55	Returned when the SnowboundLicense.jar file is not found.
LICENSE_EXPIRED	-56	Returned when the Snowbound licenses expires.
LICENSE_ERROR	-57	Returned when an error occurs when reading the license.

Note:
Older error define values are retrieved from the `StatusDetails` Property.

Table D.2: General Error Define Values Retrieved from Status Property

Value	Error Code	Description
GENERAL_STATUS.SYSTEM_CRASH	-100	If an internal exception is thrown, this is the resulting value.

GENERAL_STATUS. DELETE_ERROR	-101	Image data of the object failed
GENERAL_STATUS. DEFAULT	-102	What the internal values are initially set to
GENERAL STATUS. SNOWBND_OK	1	Operation completed successfully
GENERAL STATUS. SNOWBND_ERROR	-1	Operation failed. See `StatusDetails` property.
GENERAL_STATUS. IMAGE_NOT_AVAILABLE	-103	Internal image data unavailable when trying to complete an operation
GENERAL STATUS. SNOWBND_API_NOT_ AVAILABLE	-104	API is not implemented
GENERAL STATUS. NOT_VALID	-105	Parameter is not valid
GENERAL STATUS. DISPLAY_ERROR	-106	General error display

This table lists the possible Snowbound general status/errors codes and their descriptions.

Table D.3: General Error Define Values Retrieved from Status Property

Error	Description
DELETE_ERROR	The image in memory cannot be removed.
DISPLAY_ERROR	Any problems with displaying an image will return this error code.
IMAGE_NOT_AVAILABLE	No image data is available to do manipulations on.
NOT_VALID	This is returned if a parameter passed into an API is not valid.
SNOWBND_API_NOT_ AVAILABLE	This is returned if an API method is not implemented in the current build.
SNOWBND_ERROR	General API error code of an unsuccessful action.
SNOWBND_OK	General API status of a successful action.

Error	Description
SYSTEM_CRASH	This is returned when a Critical Exception is thrown.

Table D.4: Warning Codes

Value	Error Code	Description
WARNING_MISSING_SHAPE	0	Missing shape
WARNING_MISSING_IMAGE	1	Missing image
WARNING_CORRUPT_IMAGE	2	Corrupt image
WARNING_HILITE_TEXT	3	Missing highlight text
WARNING_PAP_BORDER	4	Missing paragraph border

Appendix E: Working with the Content Handler:

Connecting to Your Document Store

VirtualViewer HTML5 for Java comes with a sample file content handler that connects VirtualViewer HTML5 for Java to your file system. Snowbound Software now has one sample content handlers available to connect to file and web locations. Additional content handlers are being added as well as custom variations. Support for Alfresco, Pega Systems, FileNet P8 and Documentum W6ebtop are all available in various forms.. You can create your own custom connector or use Snowbound Professional Services to create a custom content handler for you.

Note:
VirtualViewer HTML5 for Java includes a sample content handler that connects to the server's File System. This code sample is provided as a starting point to integrate VirtualViewer HTML5 for Java with your document storage. The content handler sample is not production quality. You should add error checking and permissions checking at the very least before releasing this into production.

What is the Content Handler?

The VirtualViewer HTML5 for Java content handler is a Java class that the servlet will call on to perform various actions concerning the retrieval and storage of content. By default, the VirtualViewer HTML5 for Java servlet uses the sample content handler that Snowbound Software provides, **SampleContentHandler.java**, reads and writes to a file system location. You can find this sample content handler at **virtualviewer\Sample-Code\Java Content Handler**. It displays files from the `.\sample-documents` directory. You are encouraged to use this as a starting point for writing your own custom content handler to integrate VirtualViewer HTML5 for Java into back-end systems. You should create your own content handler to serve up documents from locations that work for your company as well as to add error handling and more robustness for handling requests from multiple users.

How the Content Handler Works

Whenever VirtualViewer HTML5 for Java requests a document, the servlet will first check the cache to see if the document is present. If it is not, it then calls into the content handler for the document. The order of action is as fol-

lows:

getDocumentContent
getAnnotationNames
getAnnotationContent (once for each layer name returned by getAnnotationNames)
getBookmarkContent

Whenever the user chooses to save the document by choosing **Save Document**, VirtualViewer HTML5 for Java passes the appropriate data to the servlet, which calls the content handler method `saveDocumentComponents`.

Inside `saveDocumentComponents` the following methods should be called separately when the appropriate data has changed:

saveDocumentContent
saveAnnotationContent
saveBookmarkContent

Other methods within the content handler are called by various functions in VirtualViewer HTML5 for Java.

Defining a Custom Content Handler

The document content handler/connector that VirtualViewer will use is set using the `contentHandlerClass` parameter in the application's web.xml file. Many customers create a custom content handler class that integrates with their document management and security systems. Please see the following example for specifying a custom content handler:

Example 1.8: Setting Up the contentHandlerClass Parameter

```
<init-param>
<param-name>contentHandlerClass</param-name>
<param-value>com.snowbound.flexsnap.custom.MyContentHandler
</param-value>
</init-param>
<param-name>contentHandlerClass</param-name>
<param-value>com.mycompany.viewer.DocumentConnector</param-value>
```

VirtualViewer would then look for and invoke your custom content handler at `./WEB-INF/classes/com/mycompany/viewer/DocumentConnector.class`

Note:
The filecontentHandler will handle byte arrays, but it does not support input streams.

To use the sample File Connector specify:

Example 1.9: Using the Default File Connector

```
<param-name>contentHandlerClass</param-name>
<param-value>com.snowbound.snapserv.servlet.FileContentHandler</param-
value>

<param name="filePath" value="C:/MyDocuments"/> // folder on the server
<param name='startFile' value='myLogo.gif'> // will display C:/MyDocu-
ments/myLogo.gif in the client at start up
```

Example 1.10: Using the Default URL Connector – no longer recommended

```
<param-name>contentHandlerClass</param-name>
<param-value>com.snowbound.snapserv.servlet.FileAndURLRetriever</param-
value>

<param-name>baseURL</param-name>
<param-value>http://www.mycompany.com/</param-value>
<param name='startFile' value='myLogo.gif'> // will display http://www.-
mycompany.com/myLogo.gif in the client at start up
```

The source code for the sample file content handler is provided as a starting point for your own custom connector. The code is located in the VirtualViewer .war file under `\Sample Code\Java Content Handler\SampleContentHandler.java`.

FlexSnapSIContentHandlerInterface

This interface defines methods for retrieving content for VirtualViewer HTML5 for Java. Most of the methods take in a single input parameter, which is an instance of the class `ContentHandlerInput`, an extension of `java.util.Hashtable` which contains the data that is required to implement each method.

Likewise, most of the methods return a single value, which is an instance of the class `ContentHandlerResult`, also and an extension of `java.util.Hashtable` which contains the data required to complete the method.

Authentication

The authentication is added in the content handler in the get and save method implementations, including getDocumentContent, validateCache, and saveDocumentContent.

VirtualViewer passes along any cookies that are associated with the html page. This mechanism is how we support single sign on (SSO). Additionally, if the HTTP session ID is not part of the cookie string, then VirtualViewer HTML5 for Java will automatically add the HTTP session ID to the cookie string. This way, the content handler has the information it needs to verify the current user is authorized to view or save the current document.

If you need to pass more authentication information to your custom content handler, you can use the ClientInstanceId to pass it encrypted in whatever way you like. You have to decrypt it before using it.

When customizing the VirtualViewer content handler to connect to your document storage, you may need to request or store authentication tokens as part of the process.

You can store the tokens in the session object within the content handler. Use the `HttpServletRequest` session object in the content handler to achieve this.

The user can get a handle to `HttpServletRequest` session object in the content handler by using this line of code:

Example 1.11: Getting a Handle to `HttpServletRequest` Session Object in the Content Handler

```
HttpServletRequest request = (HttpServletRequest) input.get(Con-
tentHandlerInput.KEY_HTTP_SERVLET_REQUEST);
```

The user can then get or set session attributes:

Example 1.12: Getting or Setting Session Attributes

```
request.getSession().getAttribute(arg0);
request.getSession().setAttribute(arg0, arg1)
```

Single Sign On (SSO)

Single sign on (SSO) related information can be stored in the `ClientInstanceId` parameter or more often in the HTTP session ID. VirtualViewer HTML5 for Java should pass along any cookies that are associated with the HTML page that contains VirtualViewer HTML5 for Java. This mechanism is how we support single sign on (SSO). Additionally, if the HTTP session ID is not part of the cookie string, then VirtualViewer HTML5 for Java will automatically add the HTTP session ID to the cookie string.

CacheValidator

This interface defines a method that will be called when a document is requested that is in the cache to determine whether or not the cache may be used to retrieve the document or the normal content handler sequence must be called.

The document cache speeds up access to documents by saving the rendering the first time a document is viewed. When it is viewed for the second time, the rendering can be fetched from the document cache and re-used.

When multiple users are viewing documents, documents that should be secured may end up in the document cache. To prevent a user that does not have permission from viewing a high security document, use the cache validator to check the user's permission before allowing a document to be fetched from the cache for that user.

The cache validator can also be used to prevent high security documents from being stored in the cache.

To use this feature, your custom content handler must implement `com.snowbound.snapserv.servlet.CacheValidator` in addition to `FlexSnapSIContentHandlerInterface`.

CacheValidator Method Detail

validateCache

```
public ContentHandlerResult validateCache (ContentHandlerInput input)
throws com.snowbound.snapserv.servlet.FlexSnapSIAPIException
```

Determines whether or not the specified cache put or get is allowed.

Parameters

A `ContentHandlerInput` object containing the following data:

Key	Type	Description
`"KEY_CLIENT_INSTANCE_ID"`	`String`	Value of the `clientInstanceId`parameter.

"KEY_DOCUMENT_ID"	String	The name or ID of the document.
"KEY_ANNOTATION_ID"		Either `ContentHandlerInput.VALUE_CACHE_GET` or `ContentHandlerInput.VALUE_CACHE_PUT`.

Returns

A `ContentHandlerResult` object with the following key/value pairs: `ContentHandlerResult.KEY USE OF CACHE ALLOWED` - either `Boolean.FALSE or Boolean.TRUE`.

Event Notification and Handling

`eventNotification`

The VirtualViewer HTML5 for Java client sends event notifications to the VirtualViewer HTML5 for Java's content handler on the server whenever the user does something that triggers an audited event. Event triggers include opening a document or going to another page in the document.

```
public ContentHandlerResult eventNotification (ContentHandlerInput input) throws FlexSnapSIAPIException
```

Implement this content handler method to receive event notifications.

```
<param name="enableEventNotifications" value="true">
```

The following auditing events trigger event notification:

Page request,
Save annotation,
Save document,
Print,
Export,
Document close

The sample file content handler logs these events to the web server's log. For example, these events might appear in a TomCat web server log:

```
[exec] 04-30-2012 16:00:13 FileContentHandler.eventNotification
[exec] 04-30-2012 16:00:13 Key: KEY_EVENT_PAGE_REQUESTED_NUMBER, value: 0
[exec] 04-30-2012 16:00:13 Key: KEY_DOCUMENT_ID, value: 6-Pages.tif
[exec] 04-30-2012 16:00:13 Key: cacheBuster, value: 0.7112829455936928
[exec] 04-30-2012 16:00:13 Key: KEY_EVENT, value: VALUE_EVENT_PAGE_REQUESTED
[exec] 04-30-2012 16:00:13 FileContentHandler.eventNotification
[exec] 04-30-2012 16:00:13 Key: KEY_EVENT_PAGE_REQUESTED_NUMBER, value: 0
```

```
[exec] 04-30-2012 16:00:13 Key: KEY_DOCUMENT_ID,
value: 6-Pages.tif
[exec] 04-30-2012 16:00:13 Key: cacheBuster, value:
0.1953655708607337
[exec] 04-30-2012 16:00:13 Key: KEY_EVENT, value:
VALUE_EVENT_PAGE_REQUESTED
```

The server `loglevel` must be set to **Info** in order to see the event notifications. The `logLevel` must be set to **Finest** to see all the Key event details in the log file.

You can change the information being logged and the required `loglevel` by modifying the `eventNotification` method in the sample FileContentHandler.

The `eventNotification` method in the content handler can be customized to meet your needs. For example, you could add code to send a message to an audit logging system for certain events or change the log messages to match your company's standard format.

The following are the details for each event:

Parameters

The ContentHandlerInput hash table will contain a variety of elements depending on the type of event being logged, all values are strings:

Key	Type	Description
"KEY_EVENT"	String	One of the VALUE_EVENT_* values
"VALUE_EVENT_PAGE_REQUESTED"	Strin	The event being logged is a page request.
"KEY_EVENT_PAGE_REQUESTED_NUMBER"	String	The page number requested (zero-based).
"KEY_DOCUMENT_DISPLAY_NAME"	String	Getting document content as a byte array from a file and adding to ContentHandlerResult.KEY_DOCUMENT_CONTENT.
"VALUE_EVENT_SAVE_ANNOTATION"	String	The event being logged is a save annotation request.
"KEY_EVENT_SAVE_ANNOTATION_LAYER_NAME_BASE*"	String	The base name of the keys containing the layer names. There will be one of these for each layer. For example: "KEY_EVENT_SAVE_ANNOTATION_LAYER_NAME_BASE0"
"VALUE_EVENT_PRINT"	String	The event being logged is a print request.
"KEY_EVENT_PRINT_PAGE_NUMBERS"	String	The page range being printed, in the format '0-4'
"VALUE_EVENT_EXPORT"	String	The event being logged is a document export request.

"KEY_ANNOTATION_ID"	String	The name of the annotation layer.

Key/Value pairs passed on page request:

```
Key = ContentHandlerResult.KEY_EVENT
Value = ContentHandlerResult.VALUE_EVENT_PAGE_
REQUESTED

Key = ContentHandlerResult.KEY_DOCUMENT_ID
Value = <documentId>

Key = ContentHandlerResult.KEY_CLIENT_INSTANCE_ID
Value = <clientInstanceId>
```

```
Key = ContentHandlerResult.KEY_EVENT_PAGE_REQUESTED
Value = <page number>
```

Key/Value pairs passed on annotation save:

```
Key = ContentHandlerResult.KEY_EVENT
Value = ContentHandlerResult.VALUE_EVENT_SAVE_
ANNOTATION

Key = ContentHandlerResult.KEY_DOCUMENT_ID
Value = <documentId>

Key = ContentHandlerResult.KEY_CLIENT_INSTANCE_ID
Value = <clientInstanceId>
```

Key/Value pairs passed on print:

```
Key = ContentHandlerResult.KEY_EVENT
Value = ContentHandlerResult.VALUE_EVENT_PRINT

Key = ContentHandlerResult.KEY_DOCUMENT_ID
Value = <documentId>

Key = ContentHandlerResult.KEY_CLIENT_INSTANCE_ID
Value = <clientInstanceId>
```

```
Key = ContentHandlerResult.KEY_EVENT_PAGE_REQUESTED
Value = <page number>
```

Key/Value pairs passed on export:

```
Key = ContentHandlerResult.KEY_EVENT
Value = ContentHandlerResult.VALUE_EVENT_EXPORT

Key = ContentHandlerResult.KEY_DOCUMENT_ID
Value = <documentId>

Key = ContentHandlerResult.KEY_CLIENT_INSTANCE_ID
```

```
Value = <clientInstanceId>

Key = ContentHandlerResult.KEY_EVENT_EXPORT_FORMAT_
NAME
Value = <format>
```

Key/Value pairs passed on document close:

```
Key = ContentHandlerResult.KEY_EVENT
Value = ContentHandlerResult.VALUE_EVENT_CLOSE_
DOCUMENT

Key = ContentHandlerResult.KEY_DOCUMENT_ID
Value = <documentId>

Key = ContentHandlerResult.KEY_CLIENT_INSTANCE_ID
Value = <clientInstanceId>
```

Key/Value pairs passed when retrieved from the internal cache:

```
Key = ContentHandlerResult.KEY_EVENT
Value = ContentHandlerResult.VALUE_EVENT_DOCUMENT_
RETRIEVED_FROM_CACHE

Key = ContentHandlerResult.KEY_DOCUMENT_ID\
Value = <documentId>

Key = ContentHandlerResult.KEY_CLIENT_INSTANCE_ID
Value = <clientInstanceId>
```

Use the following sample `eventNotification` method in a custom content handler to make use of the new event for cache retrieval:

Example 1.13: eventNotification Method for New Event for Cache Retrievel

```
eventNotification Method for New Event for Cache Retrievel
public ContentHandlerResult eventNotification
```

```
(ContentHandlerInput input)
throws FlexSnapSIAPIException
String eventType = (String) input.get("KEY_EVENT");
if (eventType.equals("VALUE_EVENT_DOCUMENT_RETRIEVED_FROM_CACHE"))
{
String documentId = input.getDocumentId();
System.out.println("Document retrieved from cache: " + documentId);
// do getDocumentContent related tasks here because getDocumentContent
will not be called
}
return ContentHandlerResult.VOID;
}
```

Returns

A `ContentHandlerResult` object or null. The return value is currently ignored.

Getting Document Content

The examples below show various ways of getting document content.

Use the following example to get document content as a byte array from a file and adding to `ContentHandlerResult.KEY_DOCUMENT_CONTENT`:

Example 1.14: Getting Document Content as a Byte Array from a File

```
* This constant key should be used to store the document content as a
byte array.
* public final static String KEY_DOCUMENT_CONTENT = "KEY_DOCUMENT_
CONTENT";
*/
public ContentHandlerResult getDocumentContent(ContentHandlerInput
input)
throws FlexSnapSIAPIException
{
String clientInstanceId = input.getClientInstanceId();
String key = input.getDocumentId();
Logger.getInstance().log("FileContentHandler.getDocumentContent(" + key
+ ")");
String fullFilePath = gFilePath + URLDecoder.decode(key);
File file = new File(fullFilePath);
ContentHandlerResult result = new ContentHandlerResult();
try
{
```

```
result.put(ContentHandlerResult.KEY_DOCUMENT_CONTENT,
ClientServerIO.getFileBytes(file));
}
catch (FileNotFoundException fnfe)
{
/* Removing stack trace here, as it was unnecessary */
Logger.getInstance().log(Logger.SEVERE, fnfe.getMessage());
throw new FlexSnapSIAPIException("Document not found: "
+ ClientServerIO.makeXssSafe(key));
}
catch (Exception e)
{
return null;
}
result.put(ContentHandlerResult.KEY_DOCUMENT_DISPLAY_NAME, key);
return result;
}
```

Use the following example to get document content as a file and adding to `ContentHandlerResult.KEY_DOCUMENT_FILE`

Example 1.15: Getting Document Content as a File

```
* This constant key should be used to store the document content as
java.io.File object.
* public final static String KEY_DOCUMENT_FILE = "KEY_DOCUMENT_FILE";
* This is used for very large files to help load quickly... this is
read only.
*/

Large file example

public ContentHandlerResult getDocumentContent(ContentHandlerInput
input)
throws FlexSnapSIAPIException
{
String clientInstanceId = input.getClientInstanceId();
String key = input.getDocumentId();
String fullFilePath = gFilePath + URLDecoder.decode(key);
File file = new File(fullFilePath);
ContentHandlerResult result = new ContentHandlerResult();
try
{
result.put(ContentHandlerResult.KEY_DOCUMENT_FILE, file);
catch (Exception e)
{
return null;
}
```

```
result.put(ContentHandlerResult.KEY_DOCUMENT_DISPLAY_NAME, key);
return result;
}
```

Use the following example to get document content as a vector and adding to `ContentHandlerResult.KEY_DOCUMENT_CONTENT_ELEMENTS`:

Example 1.16: Getting Document Content as a Vector

```
* This constant key should be used to store the content of the various
elements of the document if the document is made of
* more than one file. If this key is not null, then the KEY_DOCUMENT_
CONTENT will be ignored.
* public final static String KEY_DOCUMENT_CONTENT_ELEMENTS = "KEY_
DOCUMENT_CONTENT_ELEMENTS";
*/

filenet example:
public ContentHandlerResult getDocumentContent(ContentHandlerInput
input)
throws FlexSnapSIAPIException
{
gLogger.log("FileNetContentHandler.getDocumentContent");
String documentId = input.getDocumentId();
gLogger.log("documentId is " + documentId);
Document filenetDocument = getFilenetDocument(input);
Vector vectorOfBytes = getFilenetContentBytes(documentId,
filenetDocument);
ContentHandlerResult result = new ContentHandlerResult();
try
{
result.put(ContentHandlerResult.KEY_DOCUMENT_CONTENT_ELEMENTS,
vectorOfBytes);
result.put(ContentHandlerResult.KEY_DOCUMENT_DISPLAY_NAME,
filenetDocument.getName());
}
catch (Exception e)
{
e.printStackTrace();
}
return result;
}
```

Event Notification Rotate Page

Use the following example to capture the page rotation event as part of the Event Notification feature set.

Example 1.17: Event Notification Rotate Page

```
var pageEvent = function() {

if(vvConfig.enableEventNotification === false) {
return;
}


var uri = new URI(vvConfig.servletPath);
uri.addQuery("action", "eventNotification");
uri.addQuery("KEY_EVENT", "VALUE_EVENT_PAGE_REQUESTED");
uri.addQuery("KEY_DOCUMENT_ID", virtualViewer.getDocumentId());
uri.addQuery("clientInstanceId", virtualViewer.getClientInstanceId());
uri.addQuery("KEY_EVENT_PAGE_REQUESTED_NUMBER", pageNumber);
```

Extracting Parameters from ContentHandlerInput

There are two methods with which you can extract parameters from the `ContentHandlerInput` hash table.

The first method is by using predefined functions. For example, the method

`getDocumentContent(ContentHandlerInput input)`

typically contains two parameters, `clientInstanceId` and `documentId`. In order to extract each parameter, you would do the following:

```
String clientID = input.getClientInstanceId();
String documentID = input.getDocumentId();
```

Below is a table with the existing methods for extracting parameter data.

Table 4.7: Method Summary

Method	Description
`getAnnotationContent()`	Returns a byte array containing the content of a specified annotation layer.
`getAnnotationId()`	Returns the `annotationId` parameter.
`getAnnotationLayers()`	Returns an array of annotation layers.
`getAnnotationProperties`	Returns a hash table containing Annota-

Method	Description
`()`	tion Properties for a given layer.
`getBookmarkContent()`	Returns a byte array containing the specified bookmark XML content.
`getClientInstanceId()`	Returns the `clientInstanceId` parameter.
`getDocumentContent()`	Returns a byte array containing the specified document content.
`getDocumentFile()`	Returns the `getdocumentFile` parameter.
`getDocumentId()`	Returns `documentId` parameter.
`getHttpServletRequest()`	Returns a `HttpServletRequest` object.

The second method is by explicitly calling the get function on the input hash table. For example, to retrieve the same values as the previous example, you would do the following:

```
input.get(ContentHandlerInput.KEY_CLIENT_INSTANCE_ID);
input.get(ContentHandlerInput.KEY_DOCUMENT_ID);
```

Below is a table with the existing keys for the hash table for extracting parameter data.

Table 4.8: Existing Keys for the Hash Table to Extract Parameter Data

Property	Type	Description
`"KEY_ANNOTATION_CONTENT"`	`byte[]`	The annotation data for a given layer.
`"KEY_ANNOTATION ID"`	`String`	The name of the annotation layer.
`KEY_ANNOTATION_LAYERS"`	`AnnotationLayer[]`	The information for all annotation layers.
`"KEY_ANNOTATION_PROPERTIES`	`Hashtable`	The properties for an annotation layer.
`"KEY_BOOKMARK_CONTENT"`	`byte[]`	The XML data for bookmarks.
`"KEY_CLIENT_INSTANCE ID"`	`Strin`	Value of the `clientInstanceId` parameter.

Property	Description
RELOAD"	made.
"ERROR_MESSAGE"	The error message if there is an error.
"KEY_ANNOTATION_ CONTENT"	The annotation data for a given layer.
"KEY_ANNOTATION_NAMES"	The names of all annotation layers.
"KEY_ANNOTATION_ PROPERTIES"	The properties for a given annotation layer.
"KEY_AVAILABLE_ DOCUMENT_IDS"	The array of documentId's for availableDocument mode.
"KEY_BOOKMARK_CONTENT"	The XML data for bookmarks.
"KEY_CLIENT_ PREFERENCES_XML"	The XML data for client preferences.
"KEY_DOCUMENT_CONTENT"	The data of the document.
"KEY_EXTERNAL_ REFERENCE_CONTENT_ ELEMENTS"	Returns a vector of ExternalReference objects defined in the clientcontentserver package. To implement external references in your content handler, include references to the ExternalReference class in your code.
"VOID"	Used for null or void returns.

How to Return an Error for Display in the Client

There are two ways to return error messages to the client. The method that works with all operations is to throw a FlexSnapSIAPIException. For example:

```
if (currentSecLevel.equals("0")) {
throw new FlexSnapSIAPIException("Security violation detected");
```

For **Send** and **Save** operations you may return an error message through ContentHandlerResult.ERROR_MESSAGE as shown in the following example:

```
if (currentSecLevel.equals("0")) {

ContentHandlerResult failResult = new ContentHandlerResult();
failResult.put(ContentHandlerResult.ERROR_MESSAGE, "Security violation detected");
failResult.put(ContentHandlerResult.KEY_DOCUMENT_DISPLAY_NAME, "Security error");
return failResult;

}
```

Document Notes Methods

The `getNotesPermissions()` and `getNotesTemplates` methods in SampleContentHandler.java are used for Document Notes.

The `getNotesPermission` method must return a ContentHandlerResult containing a permission level. The default is PERM_DELETE. This can be kept as .

The `getNotesTemplates` method must return a ContentHandlerResult. This is never read. It can be left as returning a new (empty) ContentHandlerResult().

To add Note Templates to this method, add the following code:

Example 1.18: Adding Note Templates

```
Vector<NotesTemplate> vTemplates = new Vector<NotesTemplate>();
NotesTemplate template1 = new NotesTemplate("Sample","This is a
sample");
vTemplates.add(template1);
result.put(ContentHandlerResult.KEY_NOTES_TEMPLATES, vTemplates);
```

Document Repository Specific Information

Alfresco

Alfresco Quickshare Support added in 4.10

A logged-in user can create or close a public quickshare link through Alfresco. If a logged-in user accesses that quickshare link, they can see and modify the document through VirtualViewer as normal; if a guest or unauthenticated user accesses the quickshare link, they will be able to view the document but not save any modifications to the document (or annotations, notes, etc).

Currently the unauthenticated user gets the full VirtualViewer UI with a readable error message if they take any action that tries to save the document. In the future they should get a limited UI that doesn't present those options.

Alfresco Watermark Support added in 4.10

Added support for Watermarks in the Alfresco version of VirtualViewer allowing saving watermarks back into the Alfresco repository. All supported features or functions remain.

Other information available in separate documents

IBM Filenet P8

Filenet F_CREATOR Tag Support Added
Other information available in separate documents

OpenText Documentum

Information available in separate documents. Contact Snowbound sales.

Pega Systems

Support included in Version 8.1

Content Handler Methods

Below is a table that lists the methods within the content handler broken into two groups corresponding with the two classes `FlexSnapSIContentHandlerInterface` and `FlexSnapSISaverInterface`. The following section defines each method in more detail.

Table 4.10: FlexSnapSIContentHandlerInterface

Return Value	Method
ContentHandlerResult	`deleteAnnotation(ContentHandlerInput input)` Called when the client has requested to delete the

	specified annotation layer.
ContentHandlerResult	`eventNotification(ContentHandlerInput input)` Implement this content handler method to receive event notifications.

Return Value	Method
ContentHandlerResult	`getAnnotationContent(ContentHandlerInput input)` Returns the content for the specified annotation key in the form of a byte array.
ContentHandlerResult	`getAnnotationNames(ContentHandlerInput input)` Returns an array of annotation object names for the specified `clientInstance` and `documentKey` array.
ContentHandlerResult	`getAnnotationProperties(ContentHandlerInput input)` Returns the properties for a specified annotation key (layer) in the form of a hash table.
ContentHandlerResult	`getAvailableDocumentIds(ContentHandlerInput input)` Returns an array containing the set of `documentIds` available for viewing for the specified `clientInstance`.
ContentHandlerResult	`getBookmarkContent(ContentHandlerInput input)` Returns the bookmark XML content for the specified `documentKey` in the form of a byte array.
ContentHandlerResult	`getDocumentContent(ContentHandlerInput input)` Returns the content for the specified content key in
boolean	`hasAnnotations(ContentHandlerInput input)` Returns true if there is annotation content associated with the specified document.
void	`init(javax.servlet.ServletConfig config)` Performs any necessary configuration tasks.

Return Value	Method
ContentHandlerResult	`sendDocumentContent(ContentHandlerInput input)` This method gets called to send an image via a mechanism defined by the implementor.

Table 4.11: FlexSnapSISaverInterface

`FlexSnapSIContentHandlerInterface` extends FlexSnapSISaverInterface	
ContentHandlerResult	`saveAnnotationContent(ContentHandlerInput input)`
ContentHandlerResult	`saveBookmarkContent(ContentHandlerInput input)`
ContentHandlerResult	`saveDocumentComponents(ContentHandlerInput input)`
ContentHandlerResult	`saveDocumentComponentsAs(ContentHandlerInput input)`
ContentHandlerResult	`saveDocumentContent(ContentHandlerInput input)`

Table 4.12: Cache Validator

Return Value	Method
ContentHandlerResult	`validateCache(ContentHandlerInput input)` Determines whether or not the specified cache put or get is allowed.

deleteAnnotation

```
public ContentHandlerResult deleteAnnotation (Con-
tentHandlerInput input)
throws com.s-
nowbound.snapserv.servlet.FlexSnapSIAPIException
```

Called when the client has requested to delete the specified annotation layer.

Parameters

A `ContentHandlerInput` object containing the following data:

Key	Type	Description
`"KEY_CLIENT_INSTANCE_ID"`	`String`	Value of the `clientInstanceId` parameter.
`"KEY_DOCUMENT_ID"`	`String`	The name or ID of the document.
`"KEY_ANNOTATION_ID"`	`String`	The name of the annotation layer.

Returns

A `ContentHandlerResult` object or null. The return value is currently ignored.

getAnnotationContent

```
public ContentHandlerResult getAnnotationContent (Con-
tentHandlerInput input)
throws com.s-
nowbound.snapserv.servlet.FlexSnapSIAPIException
```

Called to request the content for the specified annotation key in the form of a byte array. This method returns all the content of the annotation files (layers) that were called by `getAnnotationNames`.

Example 1.19: Specifying the getAnnotationContent Content Handler Method

```
public ContentHandlerResult getAnnotationContent
(ContentHandlerInput input)
throws FlexSnapSIAPIException
{
String clientInstanceId = input.getClientInstanceId();
String documentKey = input.getDocumentId();
String annotationKey = input.getAnnotationId();
ContentHandlerResult result = new ContentHandlerResult();
// Code to retrieve annotation file goes here
try
result.put(ContentHandlerResult.KEY_ANNOTATION_CONTENT, annData);
return result;
}
```

Parameters

A `ContentHandlerInput` object containing the following data:

Key	Type	Description
`"KEY_CLIENT_INSTANCE_ID"`	`String`	Value of the `clientInstanceId` parameter.
`"KEY_DOCUMENT_ID"`	`String`	The name or ID of the document.
`"KEY_ANNOTATION_ID"`	`String`	The name of the annotation layer.

Returns

A `ContentHandlerResult` object containing the following data:

Key	Type	Description
`"KEY_ANNOTATION_CONTENT"`	`byte[]`	The annotation data for a given layer.

"KEY_ANNOTATION_DISPLAY_NAME"	Strin	The display name of the annotation layer.

getAnnotationNames

```
public ContentHandlerResult getAnnotationNames (ContentHandlerInput input)
throws com.snowbound.snapserv.servlet.FlexSnapSIAPIException
```

Called to request an array of annotation object names for the specified `clientInstance` and `documentKey` array. This method is called to retrieve all the annotation object names for the specified document that was requested by `getDocumentContent`.

Example 1.20: Specifying the getAnnotationNames Content Handler Method

```
public ContentHandlerResult getAnnotationNames(ContentHandlerInput
input)
  throws FlexSnapSIAPIException
{
 String clientInstanceId = input.getClientInstanceId();
 String documentKey = input.getDocumentId();
```

```
 String[] arrayNames = new String[2];
 arrayNames[0] = "layerOne";
 arrayNames[1] = "layerTwo";
 ContentHandlerResult result = new ContentHandlerResult();
 result.put(ContentHandlerResult.KEY_ANNOTATION_NAMES,
   arrayNames);
 return result;
}
```

Parameters

A `ContentHandlerInput` object containing the following data:

Key	Type	Description
"KEY_CLIENT_INSTANCE_ID"	String	Value of the `clientInstanceId` parameter.
"KEY_DOCUMENT_ID"	String	The name or ID of the document.

Returns

A `ContentHandlerResult` object containing the following data:

Key	Type	Description
`"KEY_ANNOTATION_NAMES"`	`String`	The names of all annotation layers.

getAnnotationProperties

```
public ContentHandlerResult getAnnotationProperties
(ContentHandlerInput input)
throws com.s-
nowbound.snapserv.servlet.FlexSnapSIAPIException
```

Called to request the properties for a specified annotation layer in the form of a hash table. This method is used to request the permission level of the specified annotation layer. Here you will give each annotation layer retrieved or saved via the `getAnnotationContent` or `saveAnnotationContent` a permission level. Permissions are defined in Annotation Security, but they will allow you to set permissions 1-9 for each layer. This layer is then passed to the viewer with those permissions set and will restrict functionality the user has based on the permission set.

Example 1.21: getAnnotationProperties

```
public ContentHandlerResult getAnnotationNames(ContentHandlerInput
input)
  throws FlexSnapSIAPIException
{
 String clientInstanceId = input.getClientInstanceId();
 String documentKey = input.getDocumentId();
 String[] arrayNames = new String[2];
 arrayNames[0] = "layerOne";
 arrayNames[1] = "layerTwo";
 ContentHandlerResult result = new ContentHandlerResult();
 result.put(ContentHandlerResult.KEY_ANNOTATION_NAMES,
   arrayNames);
 return result;
}public ContentHandlerResult getAnnotationProperties(Con-
tentHandlerInput input)
throws FlexSnapSIAPIException
{
Logger.getInstance().log(Logger.FINEST, " Begin getAnnotationProperties
method...");
String clientID = input.getClientInstanceId();
String documentKey = input.getDocumentId();
String annotationKey = input.getAnnotationId();
Logger.getInstance().log(Logger.FINEST, " getAnnotationProperties,
CLIENT ID: " + clientID);
Logger.getInstance().log(Logger.FINEST, " getAnnotationProperties, DOC
KEY: " + documentKey);
Logger.getInstance().log(Logger.FINEST, " getAnnotationProperties, ANN
KEY: " + annotationKey);
Hashtable properties = new Hashtable();

String baseAnnFilename = documentKey + "." + annotationKey;
String annFilename = gFilePath + baseAnnFilename + ".ann";
String redactionEditFilename = gFilePath + baseAnnFilename + "-redac-
tionEdit.ann";
String redactionBurnFilename = gFilePath + baseAnnFilename + "-redac-
tionBurn.ann";
```

```
// Is it a regular annotation layer?
File file = new File(annFilename);

if (file.exists() == true)
{
properties.put("permissionLevel", PERM_DELETE);
properties.put("redactionFlag", new Boolean(false));
Logger.getInstance().log(Logger.FINEST, " Permission: DELETE, false");
}

// Is it a redaction layer the user can edit?
```

```
file = new File(redactionEditFilename);

if (file.exists() == true)
{
properties.put("permissionLevel", PERM_DELETE);
properties.put("redactionFlag", new Boolean(true));
Logger.getInstance().log(Logger.FINEST, " Permission: DELETE, true");
}

// Is it a redaction layer the user can NOT edit?
file = new File(redactionBurnFilename);

if (file.exists() == true)
{
properties.put("permissionLevel", PERM_REDACTION);
properties.put("redactionFlag", new Boolean(true));
Logger.getInstance().log(Logger.FINEST, " Permission: REDACT, true");
}
ContentHandlerResult result = new ContentHandlerResult();
result.put(ContentHandlerResult.KEY_ANNOTATION_PROPERTIES, properties);
Logger.getInstance().log(Logger.FINEST, " End of getAn-
notationProperties method...");
return result;
}
```

Parameters

A `ContentHandlerInput` object containing the following data:

Key	Type	Description
`"KEY_CLIENT_INSTANCE_ID"`	`String`	Value of the `clientInstanceId` parameter.
`"KEY_DOCUMENT_ID"`	`String`	The name or ID of the document.
`"KEY_ANNOTATION_ID"`	`String`	The name of the annotation layer.

Returns

A `ContentHandlerResult` object containing the following data:

Key	Type	Description
`"KEY_ANNOTATION_PROPERTIES"`	`Hashtable`	The properties for a given annotation layer.

getAvailableDocumentIds

```
public ContentHandlerResult getAvailableDocumentIds
(ContentHandlerInput input)
throws com.s-
nowbound.snapserv.servlet.FlexSnapSIAPIException
```

Called to request an array containing the set of `documentIds` available for viewing for the specified `clientInstance`.

Example 1.22: Specifying the getAvailableDocumentIds Content Handler Method

```
public ContentHandlerResult getAvailableDocumentIds
 (ContentHandlerInput input)
{
 String clientInstanceId = input.getClientInstanceId();
 File imgDirectory = new File(gFilePath);
 String[] myArray = imgDirectory.list(this);
 ContentHandlerResult result = new ContentHandlerResult();
result.put(ContentHandlerResult.KEY_AVAILABLE_DOCUMENT_IDS,
 myArray);
 return result;
}
```

Parameters

A `ContentHandlerInput` object containing the following data:

Key	Type	Description
`"KEY_CLIENT_INSTANCE_ID"`	`String`	Value of the `clientInstanceId` parameter.

Returns

A `ContentHandlerResult` object containing the following data:

Key	Type	Description
`"KEY_AVAILABLE_DOCUMENT_IDS"`	`String[]`	The `documentId's` for `availableDocument` mode.

getBookmarkContent

```
public ContentHandlerResult getBookmarkContent (Con-
tentHandlerInput input)
```

```
throws com.s-
nowbound.snapserv.servlet.FlexSnapSIAPIException
```

Called to request the `bookmarkXML` content for the specified `documentId` in the form of a string. For example, The `FileRetriever` class treats the `documentId` as a file name, and returns the corresponding contents in the byte array.

Parameters

A `ContentHandlerInput` object containing the following data:

Key	Type	Description
`"KEY_CLIENT_INSTANCE_ID"`	`String`	Value of the `clientInstanceId` parameter.
`"KEY_DOCUMENT_ID"`	`String`	The name or ID of the document.

Returns

A `ContentHandlerResult` object containing the following data:

Key	Type	Description
`"KEY_BOOKMARK_CONTENT"`	`byte[]`	The XML data for bookmarks.

getDocumentContent

```
public ContentHandlerResult getDocumentContent (Con-
tentHandlerInput input)
throws com.s-
nowbound.snapserv.servlet.FlexSnapSIAPIException
```

Called to request the content for the specified content key in the form of a byte array. For example, The `FileRetriever` class treats the `doc-umentId` as a file name, and returns the corresponding contents in the byte array. This method is called to request the document from your file system in the form of a byte array. It uses `documentId` to identify the document being requested.

Note:
The filecontentHandler will handle byte arrays, but it does not support input streams.

Getting a document from storage and handing it to VirtualViewer happens in the `getDocumentContent` method.

There are a variety of ways to pass the document content:

`KEY_DOCUMENT_CONTENT` -This passes the document content by a file.

`KEY_DOCUMENT_CONTENT_ELEMENTS` - This passes the document content by a byte array.

`KEY_DOCUMENT_FILE` + java.io -This passes the document content by a large read-only file - (best performance is by byte array as above)

Example 1.23: Specifying the getDocumentContent Content Handler Method

```
public ContentHandlerResult getDocumentContent
  throws FlexSnapSIAPIException
{
 String clientInstanceId = input.getClientInstanceId();
 String key = input.getDocumentId();
 String fullFilePath = gFilePath + URLDecoder.decode(key);
 File file = new File(fullFilePath);
 ContentHandlerResult result = new ContentHandlerResult();
 result.put(ContentHandlerResult.KEY_DOCUMENT_CONTENT, getFileBytes
(file));
 return result;
}
```

Parameters

A `ContentHandlerInput` object containing the following data:

Key	Type	Description
`"KEY_HTTP_SERVLET_REQUEST"`		The standard `HttpServletRequest` data.
`"KEY_CLIENT_INSTANCE_ID"`	`String`	Value of the `clientInstanceId` parameter.
`"KEY_DOCUMENT_ID"`	`byte[]`	The contents of the document.

Returns

A `ContentHandlerResult` object containing the following data:

Key	Type	Description
"KEY_DOCUMENT_CONTENT"	byte[]	The contents of the document.

hasAnnotations

```
public boolean hasAnnotations(ContentHandlerInput
input)
throws com.s-
nowbound.snapserv.servlet.FlexSnapSIAPIException
```

Returns true if there is annotation content associated with the specified document.

Parameters

A `ContentHandlerInput` object containing the following data:

Key	Type	Description
"KEY_CLIENT_INSTANCE_ID"	String	Value of the `clientInstanceId` parameter.

"KEY_DOCUMENT_ID"	String	The contents of the document.

Returns

True, if there is annotation content associated with the specified document.

init

```
public void init(javax.servlet.ServletConfig config)
throws com.s-
nowbound.snapserv.servlet.FlexSnapSIAPIException
```

Performs any necessary configuration tasks.

Parameters

`config` -The ServletConfig object for the FlexSnap: SI Servlet.

Returns

void

sendDocumentContent

```
public ContentHandlerResult sendDocumentContent (Con-
tentHandlerInput input)

throws com.snowbound.snapserv.servlet.FlexSnapSIAPI
Exception
```

This method gets called when Send Document or Send Document With Annotations is chosen. While this method is often implemented to send the image via email, it is not a given.

The following example will use the `sendDocumentContent` method to overwrite the original file rather than create a new one:

Example 1.24: sendDocumentContent Method: Overwrite Original File

```
/**
* @see com.s-
now-
bound.snapserv.servlet.FlexSnapSIContentHandlerInterface#sendDocumentContent
(ContentHandlerInput)
*/
public ContentHandlerResult sendDocumentContent(ContentHandlerInput
input)
throws FlexSnapSIAPIException
{
 ContentHandlerResult retVal = new ContentHandlerResult();
 HttpServletRequest request = input.getHttpServletRequest();
 String clientInstanceId = input.getClientInstanceId();
 String documentKey = input.getDocumentId();
 boolean mergeAnnotations = input.mergeAnnotations();
 byte[] data = input.getDocumentContent();
 File saveFile = new File(gFilePath + documentKey);
 ClientServerIO.saveFileBytes(data, saveFile);
 return retVal;
}
```

Parameters

A `ContentHandlerInput` object containing the following data:

Key	Type	Description
`"KEY_HTTP_SERVLET_REQUEST"`		The standard Java `HttpServletRequest` object.
`"KEY_CLIENT_INSTANCE_ID"`	`String`	Value of the `clientInstanceId` parameter.

Key	Type	Description
"KEY_DOCUMENT_ID"	String	The name or ID of the document.
"KEY DOCUMENT FORMAT"	Integer	An Integer value indicating the document's format. For more information, see Appendix C, Supported File Formats.
"KEY_MERGE_ ANNOTATIONS"	Boolean	The name of the annotation layer.
"KEY_DOCUMENT_ CONTENT"	byte[	The data of the document.

Returns

A ContentHandlerResult object containing the following data:

Key	Type	Description
"DOCUMENT_ID_TO_ RELOAD"	String	The documentId to load after a save is made.

If a value is set for DOCUMENT_ID_TO_RELOAD, then VirtualViewer HTML5 for Java will load or reload the specified document when the publish has been completed. If no value for DOCUMENT_ID_TO_RELOAD is set, then the default behavior is for the current page to remain loaded in the viewer.

VirtualViewerSaverInterface Method Detail

This section describes the VirtualViewerSaverInterface methods.

saveAnnotationContent

```
public ContentHandlerResult saveAnnotationContent (Con-
tentHandlerInput input)
throws com.s-
nowbound.snapserv.servlet.FlexSnapSIAPIException
```

This method is called to save each annotation layer changed or created in the viewer.

Parameters

A ContentHandlerInput object containing the following data:

Key	Type	Description
"KEY_HTTP_SERVLET_ REQUEST"		The standard Java HttpSer- vletRequest data.

Key	Type	Description
KEY_CLIENT_INSTANCE_ID"	Strin	Value of the clientInstanceId parameter.
"KEY_DOCUMENT_ID"	String	The name or ID of the document.
"KEY_ANNOTATION_ID"	Strin	The name or ID of the annotation layer.
"KEY_ANNOTATION_CONTENT"	byte[]	The annotation data of the document.

Returns

A ContentHandlerResult object or null. The return value is currently ignored.

saveBookmarkContent

```
public ContentHandlerResult saveBookmarkContent (ContentHandlerInput input)
throws com.snowbound.snapserv.servlet.FlexSnapSIAPIException
```

Called to save bookmark data. This method is called to save the XML components of the bookmarks created.

Parameters

A ContentHandlerInput object containing the following data:

Key	Type	Description
"KEY_HTTP_SERVLET_REQUEST"		The standard Java HttpServletRequest object.

"KEY_CLIENT_INSTANCE_ID"	Strin	Value of the clientInstanceId parameter.
"KEY_DOCUMENT_ID"	String	The name or ID of the document.
"KEY_BOOKMARK_CONTENT"	byte[	The XML data for bookmarks.

Returns

A ContentHandlerResult object or null. The return value is currently ignored.

saveDocumentComponents

```
public ContentHandlerResult saveDocumentComponents
(ContentHandlerInput input)
throws com.s-
nowbound.snapserv.servlet.FlexSnapSIAPIException
```

Called to save all components of a document including the document, annotations, and bookmarks. This method is invoked by **File > Save Document** in VirtualViewer HTML5 for Java.

Within this method the individual methods saveDocumentContent, saveAnnotationContent and saveBookmarkContent are each typically called to handle saving of each type of content separately.

Calling one of those methods alone can cause issues, such as if you have deleted a page and only called saveDocumentContent, the annotations will have an extra page if you do not also save the annotations.

Parameters

A ContentHandlerInput object containing the following data:

Key	Type	Description
"KEY_HTTP_SERVLET_REQUEST"		The standard Java HttpServletRequest object.
"KEY_CLIENT_INSTANCE_ID"	Strin	Value of the clientInstanceId parameter.
"KEY_DOCUMENT_ID"	String	The name or ID of the document.
"KEY_DOCUMENT_CONTENT"	byte[	The data of the document.
"KEY_DOCUMENT_FORMAT"	Integer	An Integer value indicating the document's format. For more information, see Supported File Formats.
"KEY_ANNOTATION_LAYERS"	AnnotationLayer[]	The information for all annotation layers.

"KEY_BOOKMARK_CONTENT"	byte[]	The XML data for bookmarks.

Using KEY_ANNOTATION_LAYERS

In order to save each annotation layer, `saveAnnotationContent` must be called once for each existing layer that has been changed or created. `KEY_ANNOTATION_LAYERS` is an object that contains all the information for all annotation layers of a given document that have changed or been created. In order to retrieve the information for each individual layer, there are three methods you can call on the `AnnotationLayer[]` object.

Once you have set the proper information in the `ContentHandlerInput` object, you can call `saveAnnotationContent`.

Example 1.25: Calling saveAnnotationContent

```
AnnotationLayer[] ann = input.getAnnotationLayers();
for (int annIndex = 0; annIndex < annotations.length; annIndex++)
{
input.put(ContentHandlerInput.KEY_CLIENT_INSTANCE_ID, cli-
entInstanceId);
input.put(ContentHandlerInput.KEY_DOCUMENT_ID, documentId);
input.put(ContentHandlerInput.KEY_ANNOTATION_ID, ann[index].getLay-
erName());
input.put(ContentHandlerInput.KEY_ANNOTATION_CONTENT, ann
[index].getData());
input.put(ContentHandlerInput.KEY_ANNOTATION_PROPERTIES,
 ann[index].getProperties());
saveAnnotationContent(input);
}
```

Returns

A `ContentHandlerResult` object containing the following data:

Key	Type	Description
`"DOCUMENT_ID_TO_RELOAD"`	`String`	The `documentId` to load after a save is made.

Select the **Annotations > Select Layer** menu and click on the annotation layer name that you want to edit. When you are trying to change an annotation object on a specific layer, you need to be on that layer. Make sure that the check mark appears next to that annotation layer name, then try editing the object.

saveDocumentComponentsAs

```
public ContentHandlerResult saveDocumentComponentsAs
(ContentHandlerInput input)
throws com.s-
nowbound.snapserv.servlet.FlexSnapSIAPIException
```

Called as an alternative to `saveDocumentComponents`. This method is typically used to create alternate copies of a document as new content, rather than create new versions or renditions of the original content.

Parameters

A `ContentHandlerInput` object containing the following data:

Key	Type	Description
`"KEY_HTTP_ SERVLET_ REQUEST"`		The standard Java `HttpSer- vletRequest` object.
`"KEY_CLIENT_ INSTANCE_ID"`	`Strin`	Value of the `cli- entInstanceId` parameter.
`"KEY_DOCUMENT_ ID"`	`String`	The name or ID of the document.
`"KEY_DOCUMENT_ CONTENT"`	`byte[`	The data of the document.
`"KEY_ ANNOTATION_ LAYERS"`	`AnnotationLayer []`	The information for all annotation layers.
`"KEY_BOOKMARK_ CONTENT"`	`byte[`	The XML data for bookmarks.

Returns

A `ContentHandlerResult` object containing the following data:

Key	Type	Description
`"DOCUMENT_ID_TO_ RELOAD"`	`String`	The `documentId` to load after a save is made.

saveDocumentContent

```
public ContentHandlerResult saveDocumentContent(Con-
tentHandlerInput input)

throws com.snowbound.snapserv.servlet.FlexSnapSIAPIEx-
ception
```

Called to save the content of a document.

Parameters

A `ContentHandlerInput` object containing the following data:

Key	Type	Description
`"KEY_HTTP_SERVLET_REQUEST"`		The standard Java `HttpServletRequest` data.
`"KEY_CLIENT_INSTANCE_ID"`	`Strin`	Value of the `clientInstanceId` parameter.
`"KEY_DOCUMENT_ID"`	`String`	The name or ID of the document.
`"KEY_DOCUMENT_CONTENT"`	`byte[`	The data of the document.

Returns

A `ContentHandlerResult` object containing the following data:

Key	Type	Description
`"DOCUMENT_ID_TO_RELOAD"`	`String`	The `documentId` to load after a save is made.

Appendix F: VirtualViewer API Guide:

Customizing VirtualViewer® HTML5 through JavaScript API Methods

You can customize the user interface of VirtualViewer HTML5 for Java by editing JavaScript API methods and customizing the code in index.html.

Note:
Please make a back-up copy of the index.html file before you edit it.

You can have a different index.html for each type of user, or have a script generate the HTML on the fly.

The index.html file contains code that can be customized starting after the following line:

```
<body onload="myFlexSnap.initViaURL()">
```

Please see the example below:

Example 1.15: Customizing What is Displayed in VirtualViewer® HTML5

```
<!--
<div id="flipX"
onclick="javascript:myFlexSnap.flipX()"
title="Flip Horizontal"
class="mouseDown"
alt="Flip Horizontal"> </div>-
->
```

You can do this with other buttons and menus as well. The descriptions of the options are in the table below.

JavaScript API Descriptions

Table 3.11: Supported JavaScript API Descriptions

Name	Returns	Description
`addBookmark(Content, Page)`	Undefined	Adds a bookmark to the page with the content as it's note or tag. This will throw an error if there is already a bookmark on the page.
`addPageToSelection()`	Undefined	Adds the specified page number to the current selection.
`cancelCurrentSearch()`	Undefined	Stops the current search, leaves whatever results have been returned in place. Use `clearSearchResults()` to remove these.
`clearSearchResults()`	Undefined	Clears all traces of the current search (highlights,thumbnails, etc).
`closeTab (tabNumber)`	Integer	Closes tab corresponding to `tabNumber`. Removes the tab from the UI. Switches view to a different tab in its place. Will return an error if this is the last tab.

`collapseAllStickyNotes()`	Undefined	Expands or collapses all sticky notes on current page
`consolidateAnnotationLayers()`	Undefined	calls the layer when the user clicks on the “C” button in the Layer Manager. When it is called, all the layers, no matter whether they are visible or not, are consolidated into one layer called Master Layer. It is added to the Layer Manager as another layer. The other layers are also still present in the Layer Manager. The Master Layer contains a copy of all the annotations, which is shown on the viewer, i.e. there are double of all annotations. The method returns undefined and does not have any parameters.

Name	Returns	Description
`copy Selection()`	Undefined	Copies the currently selected (in thumbnail panel) pages to the clipboard (in this context, this is not referring to the system clipboard). Returns true if there were pages selected. Returns false if there were no pages selected.
`copyTo NewDocument(newId)`	Undefined	Copies selection to a new document.
`countPagesForDocument()`	Undefined	Counts the number of pages for the specified document.
`cropPageClient(top, left, bottom, right, page)`	Undefined	Calls the crop functionality.
`copyToNewDocument(delPages, showAlert, callback)`	Undefined	Cuts the currently selected (in thumbnail panel) pages to the clipboard (in this context, this is not referring to the system clipboard). If delPages is true, the pages are simply deleted and not placed on the clipboard. If showAlert is true, show an alert dialog.Iif page manipulations are disabled (Default = false,) callback is a function that will be called once the clipboard object is actually stored by localforage (Optional).
`despeckleImage()`	Undefined	Despeckles image.
`deleteBookmark(page)`	Undefined	Deletes the bookmark on the page specified. If no page is specified, it will attempt to remove the current bookmark. If there is no current bookmark, it will throw an error saying that there is no bookmark specified.

`editBookmark(page)`	Undefined	Opens the edit bookmark dialog for the specified page.
`emailDocument()`	Undefined	Brings up the edit bookmark dialog for the specified page.

Name	Returns	Description
enterPanMode()	Undefined	Puts the viewer back into the default pan mode when a guide or select text mode is selected. Mouse Movements will be interpreted as pan or annotation selection actions.
enterGuideMode()	Undefined	Puts the viewer in Guide mode, allowing guides to be moved and locked on the viewer. Mouse movements will be interpreted as guide manipulation actions.
enterSelectTextMode()	Undefined	Puts the viewer in select text mode to select text by dragging the cursor across any text area of a vector text document. Mouse Movements will be interpreted as text selection actions.
exportDocument()	Undefined	Exports the current document with passed in parameters. Mainly uses parameters from vvExportDialog, but values can be passed directly in, bypassing the Dialog Box.
firstPage()	Undefined	Switches to the first page.
fitHeight()	Undefined	Zooms the current page to fit its height to the exact height of the viewing area.
fitWidth()	Undefined	Zooms the current page to fit its width to the exact width of the viewing area. It display the image at 100% and fills the entire image panel.
fitWindow()	Undefined	Zooms the current page to fit the entire page in the viewing area.
flipX()	Undefined	Rotates the page horizontally along the X axis.
flipY()	Undefined	Rotates the page vertically along the Y axis.
getActiveTab()	Integer	Returns the index of the currently selected tab.
getBrightness()	Integer	Gets the document's brightness to a particular value. Between -125 and 125.
getClientInstanceId()	String	Returns the clientInstanceId parameter. The ClientInstanceId is your string to hold whatever information you need. It is often used to hold session or other client specific information that the content handler (Connector) needs. This string may be encrypted. Your content handler should implement the encryption and decryption. VirtualViewer HTML5 for Java does not look at this value at all.
getContrast()	Integer	Gets the document's contrast to a particular value. Between -125 and 125.
getDisplayName()	String	Returns the current display name.
getDocumentId()	String	Returns the documentId parameter. The doc-

Name	Returns	Description
`getGamma()`	Integer	Gets the document's gamma to a particular value. Between -125 and 125.
`getPageCount()`	Integer	Returns the number of pages in the currently active document. A negative number indicates an error.
`getPageNumber()`	Integer	Returns the current page number of the page currently being viewed.
`getPageProperties()`	Undefined	Returns an array of objects that represents the entire set of properties for the current page.
`getPagePropertyByCaption()`	Undefined	Returns the page property for the given caption as configured to be displayed in the Page Properties dialog box.
`getPagePropertyByFieldId()`	Undefined	Returns the page property for the given `fieldId`.
`getProperty(key, value)`	String	Returns the value of an arbitrary document model property to be passed to the content handler.
`getZoomPercent()`	Float	Returns the ratio of image's current height on the screen over its original height. Unfortunately, this method does not actually return a percentage. To obtain the percentage, multiply by 100.
`goToNextPageWithAnn()`	Undefined	Goes to the next page that has an annotation.
`goToPrevPageWithAnn()`	Undefined	Goes to the previous page that has an annotation.
`hideImageInfo()`	Undefined	Hides the image info dialog box.
`init(openDoc)`	Undefined	Initialize the viewer. Without arguments, the viewer is initialized without an open document. If the `openDoc` parameter is true, the viewer attempts to open the current `documentId` in the viewer. The function "initSpecifiedDocuments" takes a single parameter: "documentIdAndName." This parameter is a DocDis Object. DocDis is an Object containing two String variables: "doc-

Name	Returns	Description
		umentId" and "displayName". "documentId" refers to how the document is identified. "displayName" refers to the name that appears over the thumbnail of the document. If no "displayName" is given (meaning it is null), then the document's "documentId" will be used in place of the "displayName."
`initSpecifiedDocuments(documents)`	Undefined	Takes an array of strings and opens all of them as documents each in a tab.
`initViaURL()`	Undefined	Initializes the viewer based on the parameters passed in via the URL query. For example: `&documentId=foo&clientInstanceId=ba`
`invertImage()`	Undefined	Inverts the colors of the current page.
`isDocumentSearchable()`	Boolean	Returns true if the document is searchable. Returns false if the document is not searchable.
`lastPage()`	Undefined	Switches to the last page.
`nextPage()`	Undefined	Switches to the next page.
`nextSearchResult()`	Undefined	Moves the currently selected search result, switching pages if necessary.
`openInTab(id, newDocument)`	Boolean	Creates a tab for document with id as `id`. Handles the initialization of a new document within a new tab element.
`pageContainsAnnotations()`	Undefined	Called during page selection to return a value of true or false indicating if that page has annotations associated with it.
`pagesWithAnnotations()`	Undefined	Returns a list of all the pages with annotations.
`pasteSelection(beforePageNum)`	Undefined	Pastes the pages contained on the clipboard into the document.
`previousPage()`	Undefined	Switches to the previous page.
`previousSearchResult()`	Undefined	Moves the currently selected search result, switching pages if necessary.
`printDocument()`	Undefined	Prints the current document with passed in parameters. Mainly uses parameters from vvNewPrintDialog, but values can be passed directly in, bypassing the Dialog Box.

Name	Returns	Description
`printDocument()`	Undefined	Will cause the UI to present the client-side printing dialog, as was the case in V3.4 and earlier.
`redoAnnotation()`	Undefined	Redoes the last undo operation.
`reloadDocumentModel()`	Undefined	Reloads the document model from the server discarding any current modifications except for page manipulations. Please note that this does not currently affect annotations.
`removeAllAnnotationIndicators()`	Undefined	Removes all the annotation indicators.
`removeAllCrop()`	Undefined	Removes the crop preview on the entire document.
`removeAnnotationIndicators(pageNumber)`	Undefined	Removes an annotation indicator from specified thumbnail.
`removeCropOnPage(page)`	Undefined	Removes the crop preview on the page.
`removeDocumentFromCache()`	Undefined	Tells the server to remove a document from the cache.
`removePageFromSelection()`	Undefined	Removes the specified page number from the current selection.
`rotateClock()`	Undefined	Rotate the current document clockwise 90 degrees.
`rotateCounter()`	Undefined	Rotate the current document counter-clockwise 90 degrees.
`rotateAllPagesBy()`	Undefined	Rotates all of the documents pages 0, 90, 180 or 270 (positive or negative) degrees from it's current state.
`rotateImageBy(degrees)`	Undefined	Rotate the image by 0, 90, 180 or 270 degrees from it's current unsaved rotation.
`rotateImageTo(degrees)`	Undefined	Rotates the image to 0, 90, 180, or 270 degrees from its original (saved) rotation. To get to the original position you would call `rotateImageTo(0)`
`rotatePageBy(pageNumber, angle)`	Undefined	Rotates the current page 0, 90, 180 or 270 (positive or negative) degrees from it's current state. So, you call this twice with 90 degrees as the parameter, the final image will be rotated by 180. It returns true if the page is rotated successfully. Otherwise, it throws an error.
`rotatePageTo(pageNumber,`	Undefined	Rotates the document 0, 90, 180 or 270

Name	Returns	Description
angle)		degrees absolutely. Thus, if you call this twice with 90 degrees as the parameter, the final image will only be rotated by 90 degrees only. It returns true if the page is rotated successfully. Otherwise, it throws an error.
saveAllDocuments	Undefined	Saves all currently opened documents including any image manipulations and annotations.
saveDocument()	Undefined	Saves the passed in documentId's document including any image manipulations and annotations. If no documentId is passed in, the current document will be saved.
searchDocumentText	Undefined	Searches for a term between the pages specified.
sendDocument()	Undefined	Sends the document via the content handler by way of the server. The variable sendDocumentWithAnnotations in config.js determines whether or not annotations are burned in.
setAnnotationsEnabled(enabled)	Boolean	Sets whether or not annotations are enabled. If true, annotations will be enabled. If false, they will be disabled.
setBrightness(value)	Undefined	Sets the document's brightness to a particular value. Between -125 and 125.
setClientInstanceId()	String	Allows the clientInstanceId to be set via JavaScript method. The ClientInstanceId is your string to hold whatever information you need. It is often used to hold session or other client specific information that the content handler (Connector) needs. This string may be encrypted. Your content handler should implement the encryption and decryption. VirtualViewer HTML5 for Java does not look at this value at all.
setConsolidateLayerNameGenerator()	Undefined	Sets a call-back function to be called when creating a consolidated, master layer. The returned string is used as the filename. It takes in the parameter 'fn'. This is the function to call when exporting.
setContrast(value)	Undefined	Sets the document's contrast to a particular value. Between -125 and 125.
setDocumentId(id)	String	Sets the current document id.

Name	Returns	Description
		Note: This method is only supported before installation. Once the viewer is initialized you should use openInTab() to open a new document.
`setSendDocumentCompletedHandler(fn)`	Undefined	Sets a callback function to be called when a document has been sent.
`setDocumentIdGenerator(fn)`	Undefined	Sets a callback function to be called when creating a new document. Instead of prompting the user for a document id the passed function will be called.
`setExportDocumentNameGenerator(fn)`	Undefined	Allows a document name to be passed in when the export function is called. Pass a function to this method. That function will be called whenever the user clicks Export. The return value of that function will be sent to the servlet and used as the file name of the exported document.
`setGamma(value)`	Undefined	Sets the document's gamma to a particular value. Between -125 and 125.
`setImageLoadCompletedHandler(Function)`	Undefined	Sets a callback function to be called when the image has finished loading.
`setImageLoadRequestedHandler(Function)`	Undefined	Sets a callback function to be called when the image has been requested.
`setMagnifierPosition(X, Y)`	Undefined	Sets the position of the Magnifier.
`setPage(page)`	Undefined	Switches to the specified page.
`setPageManipulationsEnabled(enabled)`	Boolean	Sets whether or not page manipulations are enabled. If true, page manipulations will be enabled. If false, they will be disabled.
`setPageChangeCompletedHandler (function)`	Undefined	Sets a callback function to be called when a page has been changed
`setProperty(key, value)`	Void	Sets an arbitrary key/value property pair in the document model to be passed to the content handler.

`setRedactionsEnabled(enabled)`	Boolean	Sets whether or not redactions are enabled. If true, redactions will be enabled. If false, they will be disabled.
`setRotationCompletedHandler (function)`	Undefined	Sets a callback function to be called when a page has been rotated.

Name	Returns	Description
`setSaveDocument CompletedHandler(fn)`	Undefined	Sets a callback function to be called when a document has been saved.
`setZoomPercent(percentLevel)`	Undefined	Sets the zoom to `percentLevel` directly. example, a `percentLevel` of 75 corresponds to 75%.
`showAbout Dialog()`	Undefined	Displays the About dialog box.
`showAllAnnotationIndicators()`	Undefined	Adds indicators to all the pages that have annotations.
`showAnnotationNaviPanel()`	Undefined	Displays the annotation navigation panel when the annotation navigator toggle button is clicked on.
`showAnnotationIndicator (pageNumber)`	Undefined	Add indicator to specific page's thumbnail. This functions adds an indicator to the specified thumbnail
`showImage Info()`	Undefined	Displays the image info dialog box.
`splitScreen()`	Undefined	Splits the VirtualViewer panel and places a document in the bottom pane
`showTagAllRedactionsDialog()`	Undefined	Redacts all of the current search results, regardless of what page they appear on.
`showUploadLocalFileDialog()`	Undefined	Shows the Upload Document dialog box.
`thumbsWithAnnotations()`	Undefined	Creates a List of thumb boxes of pages that have annotations on them.
`toggleCrosshairGuide()`	Undefined	Toggle the visibility of the crosshair guide.
`toggleHGuide()`	Undefined	Toggle the visibility of the horizontal guide.
`toggleImage Info()`	Undefined	Toggles the display of the image info dialog box.
`toggleLayerManager()`	Undefined	Toggles the visibility of the Layer Manager UI.
`resetSVGSupport()`	Undefined	Toggles SVG support on and off: This will toggle support on and off for the current viewer session as well as implicitly reload the image from the server.
`toggleThumbnailPanel (show)`	Undefined	Toggles the display of the thumbnail panel. If true, show the thumbnail panel. If false, hide

Name	Returns	Description
		the thumbnail panel. If undefined, toggle the thumbnail panel.
`toggleVGuide()`	Undefined	Toggle the visibility of the vertical guide.
`undoAnnotation()`	Undefined	Undoes the last creation of or change to annotations.
`undoSplitScreen()`	Undefined	Closes document comparison.
`zoomIn()`	Undefined	Zooms in to the next level on the current document. The first zoom will fit the document to the window, which may be a large increment. Smaller increments occur after the first zoom. The `maxZoomPercent` configuration parameter determines how far the page can be zoomed in.
`zoomOut()`	Undefined	Zooms out to the next level on the current document.
`zoomRubberband()`		Activates the zoom rubber band mode, allowing the user to specify a rectangle to zoom into using the mouse on the currently selected page. When the user clicks, the display will zoom in to display only the selected section.

Undefined

`zoomToLocation()`	Undefined	Zooms to specified percentage level and scrolls the document to a specific location.

Document Methods for Setting, Printing, Exporting, and Saving

This section describes the VirtualViewer HTML5 for Java document methods for setting, printing, exporting, and saving.

getDocumentId()

This method returns the `documentId` parameter. The `documentId` is used to identify the document in the active tab of the VirtualViewer HTML5 for Java. For example, you could update the status bar for the window with the current `documenId`:

```
window.status = myFlexSnap.getDocumentId();
```

The syntax for the `documenId` is determined by the content handler (also known as a Connector) that is being used by VirtualViewer HTML5 for Java.

The sample content handler is the file content handler, so the id is a file name. If using the URL content handler, the id is a URL.

Parameter

The `getDocumentId()` method contains the following parameter:

Parameter	Type	Description
`documentId`	`String`	The name or ID of the document.

getClientInstanceId()

This method returns the `clientInstanceId` parameter. The `clientInstanceId` is your string to hold whatever information you need. It is often used to hold session or other client specific information that the content handler (Connector) needs. This string may be encrypted. Your content handler should implement the encryption and decryption. VirtualViewer HTML5 for Java does not look at this value at all.

Parameter

The `getClientInstanceId()` method contains the following parameter:

Parameter	Type	Description
`clientInstanceId`	`String`	The name or ID of the client instance information. It is often used to hold session or other client specific information that the content

Returns

The `clientInstanceId` of the current document

setClientInstanceId(id)

This method sets the `ClientInstanceId`. The `ClientInstanceId` is your string to hold whatever information you need. It is often used to hold session or other client specific information that the content handler (Connector) needs. This string may be encrypted. Your content handler should implement the encryption and decryption. VirtualViewer HTML5 for Java does not look at this value at all.

Parameter

The `setClientInstanceId(id)` method contains the following parameter:

Parameter	Type	Description
`id`	`String`	The `ClientInstanceId` is your string to hold whatever information you need. It is often used to hold session or other client specific information that the content handler (Connector) needs.

Returns

Undefined

setDocumentId(id)

This method sets the current document id.

Note:
This method is only supported before installation. Once the viewer is initialized you should use openInTab() to open a new document.

Parameter

The `setDocumentId(id)` method contains the following parameter:

Parameter	Type	Description
`id`	`String`	The document id.

Returns

Undefined

setSendDocumentCompletedHandler(fn)

This method sets a callback function to be called when a document has been sent.

Parameter

The `setSendDocumentCompletedHandler(fn)` method contains the following parameter:

Parameter	Type	Description
`fn`	`Function`	The function to call when document has been sent.

Returns

Undefined

setDocumentIdGenerator(fn)

This method sets a callback function to be called when creating a new document.

Parameter

The `setDocumentIdGenerator(fn)` method contains the following parameter:

Parameter	Type	Description
`fn`	`Function`	The function to call when needing a document id.

Returns

Undefined

setSaveDocumentCompletedHandler(fn)

This method sets a callback function to be called when a document has been saved.

Parameter

The `setSaveDocumentCompletedHandler(fn)` method contains the following parameter:

Parameter	Type	Description
`fn`	`Function`	The function to call when the document has been saved.

Returns

Undefined

setExportDocumentNameGenerator(fn)

This method allows a document name to be passed in when the export function is called.

Parameter

The `setExportDocumentNameGenerator(fn)` method contains the following parameter:

Parameter	Type	Description
`fn`	`Function`	The function to call when needing a document id.

Returns

Undefined

setDocumentId(id)

This method sets the current document id.

Parameter

The `setDocumentId(id)` method contains the following parameter:

Parameter	Type	Description
`id`	`String`	The document id.

Returns

Undefined

getDisplayName()

This method returns the current display name.

Returns

String

getProperty(key, value)

This method returns the value of an arbitrary document model property to be passed to the content handler.

Returns

String

setProperty(key, value)

This method sets an arbitrary key/value property pair in the document model to be passed to the content handler.

Returns

Void

emailDocument()

This method displays the Export Document dialog box to export any page manipulations or annotation changes to the server. The export downloads the currently active document to the client's local machine. The client is given the choice to save as TIF, PDF, or the original format. If saving in the original format there is no option to include annotations. Please see the example below:

```
onclick="javascript:myFlexSnap.emailDocument()"
```

Parameter

The `emailDocument()` method contains the following parameters:

Parameter	Type	Description
`emailFormat`	`String`	exportFormat Either "Original", "PDF" or "TIFF".
`includeTextAnnotations`	`Boolean`	Whether or not to include text annotations.
`includeNonTextAnnotations`	`Boolean`	Whether or not to include non-text annotations. *
`includeRedactions`	`Boolean`	Whether or not to burn in redactions.
`includeRedactionTags`	`Boolean`	IncludeRedactionTags Whether or not to include redaction tags.
`pageRangeType`	`String`	Either "pages", "complex" or

Parameter	Type	Description
		"current".
pageRangeValue	String	A range of pages numbers to export.
fromAddress	String	The sender's email address. * Default can be changed in config.js.
toAddresses	String	The recipient's email address. Default can be changed in config.js.
ccAddresses	String	Anyone that you would like to CC. Default can be changed in config.js.
bccAddresses	String	Anyone that you would like to CC. Multiple addresses can be inputed. Seperated by comma. Default can be changed in config.js.
subject	String	Subject The subject line (title) of the email. Default can be changed in config.js.
emailBody	String	The message (body) of the email. Default can be changed in config.js.

Returns

Undefined

exportDocument()

This method displays the Export Document dialog box to export any page manipulations or annotation changes to the server. The export downloads the currently active document to the client's local machine. The client is given the choice to save as TIF, PDF, or the original format. If saving in the original format there is no option to include annotations. Please see the example below:

```
onclick="javascript:myFlexSnap.exportDocument()"
```

If `exportBurnAnnotations` in config.js is true and the document includes annotations, then the annotations will be burned into the document. The separate .ann files are not downloaded to the client, so it is not an option to download documents with annotations in their original format.

Parameter

The `exportDocument(beforePageNum, newDocument)` method contains the following parameters:

Parameter	Type	Description
`exportFormat`	`String`	exportFormat Either "Original", "PDF" or "TIFF".
`fileExtension`	`String`	Based on exportFormat. "Original" = state.-getFileExtension(). "PDF" = pdf. "TIFF" = tif..
`includeTextAnnotations`	`Boolean`	Whether or not to include text annotations.
`includeNonTextAnnotations`	`Boolean`	Whether or not to include non-text annotations. *
`includeRedactions`	`Boolean`	Whether or not to burn in redactions.
`includeRedactionTags`	`Boolean`	IncludeRedactionTags Whether or not to include redaction tags.
`pageRangeType`	`String`	Either "pages", "complex" or "current".

Parameter	Type	Description
`pageRangeValue`	`String`	A range of pages numbers to export.

Returns

Undefined

getPageCount()

The method returns the total number of pages in the currently active document. A negative number indicates an error.

Type

Integer

Returns

The current page count

printDocument()

This method initializes and shows the Print dialog box to print the current document with or without annotations. Please see the example below:

```
onclick="javascript:myFlexSnap.printDocument()"
```

Only visible layers with a Print permission level or higher in the Image Panel will print.

The `pasteSelection(beforePageNum, newDocument)` method contains the following parameters:

Parameter	Type	Description
`printDestination`	`String`	Either "Local", or "Server".
`includeTextAnnotations`	`Boolean`	Whether or not to include text annotations.
`includeNonTextAnnotations`	`Boolean`	Whether or not to include non-text annotations. *
`includeRedactions`	`Boolean`	Whether or not to burn in

Parameter	Type	Description
		redactions.
`includeRedactionTags`	`Boolean`	IncludeRedactionTags Whether or not to include redaction tags.
`pageRangeType`	`String`	Either "pages", "complex" or "current".
`pageRangeValue`	`String`	A range of pages numbers to export.
`grayScaleChecked`	`Boolean`	Whether or not the image will be in Color or not.
`printerName`	`String`	The name of the printer being printed to. Only applies to Network/Server Printing.

Returns

Undefined

printDocumentLocal()

This method will cause the UI to present the client-side printing dialog, as was the case in V3.4 and earlier.

Returns

Undefined

printDocumentServer()

This method will cause the UI to present the server-side printing dialog.

Returns

Undefined

reloadDocumentModel()

This method reloads the document model from the server discarding any current modifications except for page manipulations. Please note that this does not currently affect annotations.

Returns

Undefined

saveDocument()

This method daves the passed in documentId's document including any image manipulations and annotations. If no documentId is passed in, the current document will be saved. Please see the example below:

```
onclick="javascript:myFlexSnap.saveDocument()"
```

If the `clearCacheOnSave` parameter to true in your web.xml file, then the old version of the document will be removed from the server's document cache. The `annotationOutputFormat` in web.xml can be used to determine the annotation format to use when saving.

Parameter

The `sendDocument()` method contains the following parameters:

Parameter	Type	Description
`documentId`	`String`	The documentId refering to the document that will be saved. (Optional: If unspecificed the current active document will be used)
`newDocumentId`	`String`	Used to save the current document as a new document in the system. The original document will remain unchanged. (Optional: Subsequent parameters will be ignored if omitted)

Parameter	Type	Description
newDisplayname	String	Used to set the display name of the new document. (Optional: newDocumentId will be used as the displayName if omitted)
burnRedactions	Boolean	Used to permanently burn redactions into the new document.
includeRedactionTags	Boolean	IncludeRedactionTags Whether or not to include redaction tags.
burnTextAnnotations	Boolean	Used to permanently burn text annotations into the new document. (Optional: default false)
burnNonTextAnnotations	Boolean	Used to permanently burn non-text annotations into the new document. (Optional: default false)
copyAnnotations	Boolean	Used to copy annotation layers (including redactions) into the new document. (Optional: default false)
saveAsFormat	String	What the outfile format of the file will be (for now either PDF or TIFF).
pageRangeType	String	Either "pages", "complex" or "current". Only supported when saving to a new document not when saving changes to an existing document.

Parameter	Type	Description
`pageRangeValue`	`String`	A range of pages numbers to export. Only supported when saving to a new document not when saving changes to an existing document

Returns

Undefined

saveAllDocuments

This method saves all currently opened documents including any image manipulations and annotations.

Parameter

The `sendDocument(sync)` method contains the following parameter:

Parameter	Type	Description
`sync`	`boolean`	Whether to make the request asynchronously or not. Due to legacy browser considerations this should be set to true.

Returns

Undefined

setImageLoadCompletedHandler(Function)

This method sets a callback function to be called when the image has finished loading.

Parameter

The `setImageLoadCompletedHandler(Function)` method contains the following parameter:

Parameter	Type	Description
`Function`	`fn`	The function to call when the image has finished loading.

Returns

Undefined

setImageLoadRequestedHandler(Function)

This method sets a callback function to be called when the image has been requested.

Parameter

The `setImageLoadRequestedHandler(Function)` method contains the following parameter:

Parameter	Type	Description
`Function`	`fn`	The function to call when the image has finished loading.

Returns

Undefined

sendDocument()

This method sends the document via the content handler by way of the server. Behavior may vary depending on the Connector being used. The default Connector behavior is to create a copy of the document on the server named `"send_<filename.ext>"`.

Some Connectors may use the `emailFromAddress`, `emailSMTPServer` and other configuration settings to send email. The variable `sendDocumentWithAnnotations` in config.js determines whether or not annotations are burned into the copied document. Please see the example below:

```
onclick="javascript:myFlexSnap.sendDocument()"
```

Returns

Undefined

removeDocumentFromCache()

This method tells the server to remove a document from the cache with Ehcache 3.1. Ehcache is an open source, standards-based cache that boosts performance, offloads your database, and simplifies scalability.

If using an older version of Ehcache, you may need to make some configuration changes to Ehcache version 3.1. The documentation for Ehcache version 3.1 is available at http://www.ehcache.org/documentation/3.1.

This method has the following dependencies:

The **ehcache.xml** file is included in the **WEB-INF** directory in your build.

The following jar files are included in the **WEB-INF/lib** directory in your build:

lib/ehcache-3.1.1.jar

lib/slf4j-api-1.7.21.jar

lib/slf4j-simple-1.7.21.jar

Use the Servlet action endpoint as shown in the example below:

```
http://-
loc-
alhost:8080/vv/AjaxServlet?action=removeDocumentFromCache&documentId=6
- Pages.tif&clientInstanceId=foo
```

This returns a JSON object with the following members:

status - Either "OK" or "ERROR"

existedInCache - returns true if the document specified was actually cached.

Parameter

The `removeDocumentFromCache(documentId, documentId)` method contains the following parameters:

Parameter	Type	Description
`documentId`	`String`	The documentId of the document to be removed.
`clientInstanceId`	`String`	If omitted (i.e. undefined), the current clientInstanceId of VV will be used. If included (i.e. a value or null) will

Parameter	Type	Description
		be used in place of the current clientInstnaceId

Returns

Undefined

Interacting with Document Pages within the Viewer

This section describes the methods to configure document pages in the viewer.

splitScreen()

This method splits the VirtualViewer panel and places a document in the bottom pane.

Parameter

The `splitScreen()` method contains the following parameter:

Parameter	Type	Description
`documentId`	`String`	The id of the document meant for the bottom pane.

Returns

Undefined

undoSplitScreen()

This method closes document comparison.

Returns

Undefined

addPageToSelection()

This method adds the specified page number to the current selection.

Returns

Undefined

closeTab(tabNumber)

This method closes the tab corresponding to `tabNumber`. It removes the tab from the UI and switches the view to a different tab in its place.

Parameter

The `closeTab(tabNumber)` method contains the following parameter:

Parameter	Type	Description
`tabNumber`	`integer`	Zero-based index of the tab to close.

Returns

Undefined

copySelectionToNewDocument(newDocumentId)

This method copies selection to a new document.

Returns

Undefined

copySelection()

This method copies the currently selected (in thumbnail panel) pages to the *clipboard* (in this context, this is not referring to the system clipboard).

Type

boolean

Returns

True if pages were selected. False if pages were not selected.

collapseAllStickyNotes()

This method expands or collapses all sticky notes on current page.

Parameters

The `collapseAllStickyNotes()` method contains the following parameters:

Parameter	Type	Description
`collapsed`	`boolean`	If true, all sticky notes will be collapsed.
`repaint`	`boolean`	If true, annotations will be repainted before exit.

Returns

Undefined

countPagesForDocument()

This method counts the number of pages for the specified document.

Returns

Undefined

cutSelection(delPages, showAlert, callback)

This method cuts the currently selected (in thumbnail panel) pages to the clipboard (in this context, this is not referring to the system clipboard). If delPages is true, the pages are simply deleted and not placed on the clipboard. If showAlert is true, show an alert dialog.Iif page manipulations are disabled (Default = false,) callback is a function that will be called once the clipboard object is actually stored by localforage (Optional).

Parameter

The `cutSelection(delPages, showAlert, callback)` method contains the following parameter:

Parameter	Type	Description
`delPages`	`boolean`	If true, the pages will be deleted and the clipboard will remain unmodified.
`showAlert`	`boolean`	Show an alert dialog if page manipulations are diabled (Default = false.
`callback`	`Function`	A function that will be called once the clipboard object is actually stored by localforage (Optional).

Type

boolean

Returns

True if pages were selected. False if pages were not selected.

cutSelectionToNewDocument(newId)

This method cuts selection to a new document.

Type

String

Returns

Undefined

cropPageClient(top, left, bottom, right, page)

This method calls the crop functionality.

Returns

Undefined

removeAllCrop()

This method removes the crop preview on the page..

Returns

Undefined

removeCropOnPage(page)

This method removes the crop preview on the entire document.

Returns

Undefined

despeckleImage()

This method despeckles the image.

Type

boolean

Returns

True if pages are despeckled. False if pages are note despeckled.

enterGuideMode()

This method puts the viewer in Guide mode, allowing guides to be moved and locked on the viewer. Mouse movements will be interpreted as guide manipulation actions.

Returns

Undefined

enterPanMode()

This method puts the viewer back into the default pan mode when a guide or select text mode is selected.

Returns

Undefined

enterSelectTextMode()

This puts the viewer in select text mode to select text by dragging the cursor across any text area of a vector text document.

Returns

Undefined

getActiveTab()

This method returns the index of the currently selected tab.

Type

Integer

Returns

The zero-based index of the active tab

getBrightness()

This method gets the document's brightness to a particular value between -125 and 125.

Type

Integer

Returns

A value between -125 and 125.

getContrast()

This method gets the document's contrast to a particular value between -125 and 125.

Type

Integer

Returns

A value between -125 and 125.

getGamma()

This method gets the document's gamma to a particular value between -125 and 125.

Type

Integer

Returns

A value between -125 and 125.

getPageNumber()

This method returns the current page number of the page currently being viewed. This method is zero-based. If no page is set, the default value is 1.

Type

Integer

Returns

Zero-based page index

getPageProperties()

This method returns a String that represents the entire set of properties for the current page.

Fields

The `getPageProperties()` method contains the following fields:

Fields	Example
`.fieldId`	`documentId`
`.fieldCaption`	`documentId`
`.f`	`ieldValue  MyFile.tif`

Returns

Undefined

getPagePropertyByCaption()

This method returns the page property for the given caption as configured to be displayed in the Page Properties dialog box.

Returns

Undefined

getPagePropertyByFieldId()

This method returns the page property for the given `fieldId`.

Returns

Undefined

hideImageInfo()

This method hides the image info dialog box.

Returns

Undefined

removePageFromSelection()

This method removes the specified page number from the current selection.

Returns

Undefined

showImageInfo()

This method displays the image info dialog box.

Returns

Undefined

toggleImageInfo()

This method toggles the display of the image info dialog box.

Returns

Undefined

toggleCrosshairGuide()

This method toggle the visibility of the crosshair guide.

Returns

Undefined

toggleHGuide()

This method toggle the visibility of the horizontal guide.

Returns

Undefined

toggleVGuide()

This method toggle the visibility of the vertical guide.

Returns

Undefined

toggleSVGSupport()

This method toggles support on and off for the current viewer session as well

as implicitly reload the image from the server.

Returns

Undefined

consolidateAnnotationLayers()

This method calls the layer when the user clicks on the “C” button in the Layer Manager. When it is called, all the layers, no matter whether they are visible or not, are consolidated into one layer called Master Layer. It is added to the Layer Manager as another layer. The other layers are also still present in the Layer Manager. The Master Layer contains a copy of all the annotations, which is shown on the viewer, i.e. there are double of all annotations. The method returns undefined and does not have any parameters.

Returns

Undefined

setConsolidateLayerNameGenerator()

This method sets a call-back function to be called when creating a consolidated, master layer. The returned string is used as the filename. It takes in the parameter ‘fn’. This is the function to call when exporting..

Returns

Undefined

thumbsWithAnnotations()

This method creates a List of thumb boxes of pages that have annotations on them.

Returns

Undefined

showAnnotationIndicator()

This method adds indicator to specific page's thumbnail. This functions adds an indicator to the specified thumbnail.

Returns

Undefined

removeAnnotationIndicators(pageNumber)

This method removes an annotation indicator from specified thumbnail.

Returns

Undefined

removeAllAnnotationIndicators()

This method removes all the annotation indicators.

Returns

Undefined

showAllAnnotationIndicators()

This method adds indicators to all the pages that have annotations.

Returns

Undefined

showAnnotationNaviPanel()

This method displays the annotation navigation panel when the annotation navigator toggle button is clicked on.

Returns

Undefined

pagesWithAnnotations()

This method returns a list of all the pages with annotations.

Returns

Undefined

goToNextPageWithAnn()

This method goes to the next page that has an annotation.

Returns

Undefined

goToPrevPageWithAnn()

This method goes to the previous page that has an annotation.

Returns

Undefined

redoAnnotation()

This method redoes the last undo operation.

Returns

Undefined

undoAnnotation()

This method undoes the last creation of or change to annotations.

Returns

Undefined

setAnnotationsEnabled()

This method sets whether or not annotations are enabled. If true, annotations will be enabled. If false, they will be disabled.

Returns

Boolean

setRedactionsEnabled()

This method sets whether or not redactions are enabled. If true, redactions will be enabled. If false, they will be disabled.

Returns

Boolean

pageManipulationsEnabled()

This method sets whether or not page manipulations are enabled. If true, page manipulations will be enabled. If false, they will be disabled.

Returns

Boolean

firstPage()

This method switches to the first page.

Returns

Undefined

nextPage()

This method switches to the next page.

Returns

Undefined

pasteSelection(beforePageNum)

This method pastes the pages contained on the clipboard into the document.

Parameter

The `pasteSelection(beforePageNum, newDocument)` method contains the following parameters:

Parameter	Type	Description
`beforePageNum`	`Integer`	A zero-based page index specifying where to insert the new pages.

Returns

Undefined

previousPage()

This method switches to the previous page.

Returns

Undefined

lastPage()

This method switches to the last page.

Returns

Undefined

setPageChangeCompletedHandler(function)

This method sets a callback function to be called when a page has been changed.

For example:

```
virtualViewer.setPageChangeCompletedHandler(function(){console.log
("Go to Next Page")})
```

Returns

Undefined

setRotationCompletedHandler(function)

This method sets a callback function to be called when a page has been rotated..

For example:

```
virtualViewer.setRotationCompletedHandler(function(){console.log
("Go to NextPage")})
```

Returns

Undefined

flipX()

This method rotates the page horizontally along the X axis.

Returns

Undefined

flipY()

This method rotates the page vertically along the Y axis.

Returns

Undefined

init(openDoc)

This method initialize the viewer. Without arguments the viewer is initialized

without an open document. If the `openDoc` parameter is true, the viewer attempts to open the current `documentId` in the viewer.

Parameter

The `init(openDoc)` method contains the following parameter:

Parameter	Type	Description
`openDoc`	boolean	Whether or not to open a tab after initialization.

Returns

Boolean

initSpecifiedDocuments(documents)

This method takes an array of strings and opens all of them as documents each in a tab.

The method "initSpecifiedDocuments" takes a single parameter: "documentIdAndName"

This parameter is a DocDis Object. DocDis is an Object containing two String variables: "documentId" and "displayNam.e"

"documentId" refers to how the document is identified.

"displayName" refers to the name that appears over the thumbnail of the document.

If no "displayName" is given (meaning it is null), then the document's "documentId" will be used in place of the "displayName."

Parameter

The `initSpecifiedDocuments(documents)` method contains the following parameter:

Parameter	Type	Description
`documents`	String	An array of document ids

Returns

Undefined

initViaURL()

This method initializes the viewer based on the parameters passed in via the URL query. For example:

```
&documentId=foo&clientInstanceId=bar
```

For more information, see setDocumentId and setClientInstanceId.

Parameter

The `initSpecifiedDocuments(documents)` method contains the following parameter:

Parameter	Type	Description
`documents`	String	An array of document ids

Returns

Undefined

invertImage()

This method inverts the colors of the current page.

Returns

Undefined

openInTab(id, newDocument)

This method creates a tab for document with id as `id`. It handles the initialization of a new document within a new tab element.

Parameter

The `openInTab(id, newDocument)` method contains the following

parameter:

Parameter	Type	Description
`id`	String	The `documentId` of the document to open
newDocument	boolean	Whether this is a newly created document.

Returns

Undefined

rotateAllPagesBy(pageNumber, angle)

This method rotates all of the documents pages 0, 90, 180 or 270 (positive or negative) degrees from it’s current state

Type

Integer

Returns

Undefined

rotatePageBy(pageNumber, angle)

This method rotates the current page 0, 90, 180 or 270 (positive or negative) degrees from it's current state. So, you call this twice with 90 degrees as the parameter, the final image will be rotated by 180. It returns true if the page is rotated successfully. Otherwise, it throws an error.

Type

Integer

Returns

Undefined

rotatePageTo(pageNumber, angle)

This method rotates the document 0, 90, 180 or 270 degrees absolutely. Thus, if you call this twice with 90 degrees as the parameter, the final image will only be rotated by 90 degrees only. It returns true if the page is rotated successfully. Otherwise, it throws an error.

Type

Integer

Returns

Undefined

rotateClock()

This method rotates the current document clockwise 90 degrees.

Returns

Undefined

rotateCounter()

This method rotates the current document counter-clockwise 90 degrees.

Returns

Undefined

rotateImageBy(degrees)

This method rotate the image by 0, 90, 180 or 270 degrees from it’s current unsaved rotation.

Type

Integer

Returns

Undefined

rotateImageTo(degrees)

This method rotates the image to 0, 90, 180, or 270 degrees from it's original (saved) rotation. To get to the original position you would call `rotateImageTo(0)`.

Type

Integer

setBrightness(value)

This method sets the document's brightness to a particular value between -125 and 125..

Returns

Undefined

setContrast(value)

This method sets the document's contrast to a particular value between -125 and 125.

Returns

Undefined

setGamma(value)

This method sets the document's gamma to a particular value between -125 and 125.

Returns

Undefined

setPage(page)

This method switches to the specified page.

Parameter

The `setPage(page)` method contains the following parameter:

Parameter	Type	Description
`page`	Integer	Zero-based page index.

Returns

Undefined

showAboutDialog()

This method displays the About dialog box.

Returns

Undefined

showUploadLocalFileDialog()

This method shows the Upload Document dialog.

Returns

Undefined

toggleLayerManager()

This method toggles the display of the layer manager.

Returns

Undefined

toggleThumbnailPanel(show)

This method toggles the display of the thumbnail panel.

Parameter

The `toggleThumbnailPanel(show)` method contains the following parameter:

Parameter	Type	Argument	Description
`show`	boolean	<optional>	If true, show the thumbnail panel. If false, hide the thumbnail panel. If undefined, toggle the thumbnail panel.

Returns

Undefined

addBookmark(content, page)

This method adds a bookmark to the page with the content as it's note or tag. This will throw an error if there is already a bookmark on the page.

Parameter

The `addBookmark(content, page)` method contains the following parameters:

Parameter	Type	Description
`content`	String	Sets the bookmark content.
`page`	Integer	Zero-based page index.

Returns

Undefined

deleteBookmark(page)

This method deletes the bookmark on the page specified. If no page is specified, it will attempt to remove the current bookmark. If there is no current bookmark, it will throw an error saying that there is no bookmark specified.

Parameter

The `deleteBookmark(page)` method contains the following parameter:

Parameter	Type	Description
`page`	Integer	Zero-based page index.

Returns

Undefined

editBookmark(page)

This method opens the edit bookmark dialog for the specified page.

Parameter

The `editBookmark(page)` method contains the following parameter:

Parameter	Type	Description
`page`	Integer	Zero-based page index.

Returns

Undefined

Adjusting the Size of the Window

This section describes the methods for adjusting the size of the window.

Note:
The `defaultZoomMode`, `fitLastBetweenDocuments`, `maxZoomPercent`, `zoomTimeout`, and `retainViewOptionsBetweenPages` configuration parameters may affect the behavior of the methods listed below.

fitWidth()

This method zooms the current page to fit its width to the exact width of the viewing area. It display the image at 100% and fills the entire image panel.

Returns

Undefined

fitHeight()

This method zooms the current page to fit its height to the exact height of the viewing area.

Returns

Undefined

fitWindow()

This method zooms the current page to fit the entire page in the viewing area.

Returns

Undefined

setMagnifierPosition()

This method Sets the position of the Magnifier..

Parameter

The `setMagnifierPosition()` method contains the following parameter:

Parameter	Type	Description
x	Integer	The X position of the Magnifier.
y	Integer	The Y position of the Magnifier.

Returns

Undefined

getZoomPercent()

This method returns the ratio of image's current height on the screen over its original height. Unfortunately, this method does not actually return a percentage. To obtain the percentage, multiply by 100.

Type

Float

Returns

The zoom ratio

setZoomPercent(percentLevel)

This method sets the zoom to percentLevel directly. For example, a percentLevel of 75 corresponds to 75%.

Returns

Undefined

zoomIn()

This method zooms in to the next level on the current document. The first zoom will fit the document to the window, which may be a large increment. Smaller increments occur after the first zoom. The `maxZoomPercent` configuration parameter determines how far the page can be zoomed in.

Returns

Undefined

zoomOut()

This method zooms out to the next level on the current document.

Returns

Undefined

zoomRubberband()

This method activates zoom rubberband mode, allowing the user to specify a rectangle to zoom into using the mouse on the currently selected page. When the user clicks, the display will zoom in to display only the selected section. Please see the example below:

```
onclick="javascript:myFlexSnap.zoomRubberband()"
```

Returns

Undefined

zoomToLocation()

This method zooms to specified percentage level and scrolls the document to a specific location.

Parameter

The `zoomToLocation()` method contains the following parameter:

Parameter	Type	Description
zoom	Integer	The new zoom percentage, in absolute terms.
x	Integer	The new x position, in the zoomed coordinate space.
y	Integer	The new y position, in the zoomed coordinate space.

Returns

Undefined

Searching

This section describes the method for searching.

cancelCurrentSearch()

This method stops the current search, leaves whatever results have been returned in place. Use clearSearchResults() to remove these.

Returns

Undefined.

clearSearchResults()

This method clears all traces of the current search (highlights,thumbnails, etc).

Fields

The `clearSearchResults()` method contains the following fields:

Parameter	Type	Description
`state`	String	The state of the document.

Type

Undefined

Returns

True if the document is searchable. False if the document is not searchable.

isDocumentSearchable()

This method determines if the current document is searchable.

Type

boolean

Returns

True if the document is searchable. False if the document is not searchable.

nextSearchResult()

This method moves the currently selected search result, switching pages if necessary.

Returns

Undefined.

previousSearchResult()

This method moves the currently selected search result, switching pages if necessary.

Returns

Undefined.

showTagAllRedactionsDialog()

This method adds redaction tags to the search and redact results

Returns

Undefined.

searchText()

This method searches for a term between the pages specified.

Fields

The `searchText()` method contains the following fields:

Parameter	Type	Description
term	String	The string to search for in the document.
firstPage	Integer	A zero-based page index bracketing the start of the range of pages to search.
lastPage	Integer	A zero-based page index bracketing the end of the range of pages to

Parameter	Type	Description
		search.

Returns

Undefined