

# Open Seadragon

## Overview

This is an Islandora viewer module using OpenSeadragon. It allows users to view large image datastreams (like JPEG-2000) through image tile servers and can be used with Book/Newspaper Pages and Large Images. This module supports a custom Djatoka tilesource and a IIIF tilesource.

## Dependencies

- [Islandora](#)
- [Tuque](#)
- [OpenSeadragon](#)
- [Drupal Token module](#)

In addition, either [Djatoka](#) or a IIIF image server needs to be setup.

Note: when using the [Islandora Paged Content](#) module, you may need Djatoka installed even if you use a IIIF Image Server. See [ISLANDORA-2461](#) for more on this.

## OpenSeadragon

The OpenSeadragon JavaScript library is not included in this module. Openseadragon 2.3.1 is known to work well with Islandora. You can use Drush to download and install it automatically or do it manually.

Older versions must be updated. You can do this quickly with the provided Drush command.

### Drush OpenSeadragon installation

This module provides a Drush command to download and install a recent version of OpenSeadragon. It is advisable to *move* (not copy) the install script to your `.drush` folder and run the following command from that folder:

```
drush openseadragon-plugin
```

### Manual OpenSeadragon installation

Download the [OpenSeadragon 2.3.1 binary release](#) and install the Openseadragon library to your sites/libraries folder.

## Reverse Proxy

A reverse proxy can be used to make an image server available on the same domain as Drupal, so that cross-origin resource access and the need for CORS headers are avoided.

Various applications can be used as a reverse proxy; [Apache HTTPD](#) and [nginx](#) are common in reverse proxy setups. For details on configuring your reverse proxy, you should consult the documentation for your application of choice.

Note: if you use a reverse proxy, you may need to configure the image server as well, so that it knows what external URLs are used to reach the image server. Whether this is necessary and how the image server needs to be configured, depends on the image server.

## Configuration

Set the paths for your chosen Image Server in `admin » Islandora » Islandora Viewers » OpenSeadragon`

### Djatoka Image Server

When you use the Adore-Djatoka Image Server ("Djatoka"), you need to set the base URL to the Adore-Djatoka server OpenURL resolver. The base URL depends on the setup of Djatoka, including (optional) configuration of a reverse proxy.

By default, Islandora OpenSeadragon expects that the Djatoka OpenURL resolver is reachable on the same domain name and port as Islandora itself, at the path `adore-djatoka/resolver`. A checkmark and confirmation message appear when Islandora can connect to the server. If Islandora cannot connect to the server, a cross and error message appear.

### IIIF Server

When you use the IIIF Image Server, you need to specify:

- the base URL of the image server;
- whether to send the image access token as a HTTP header instead of a query parameter;
- the pattern to use as the image identifier.

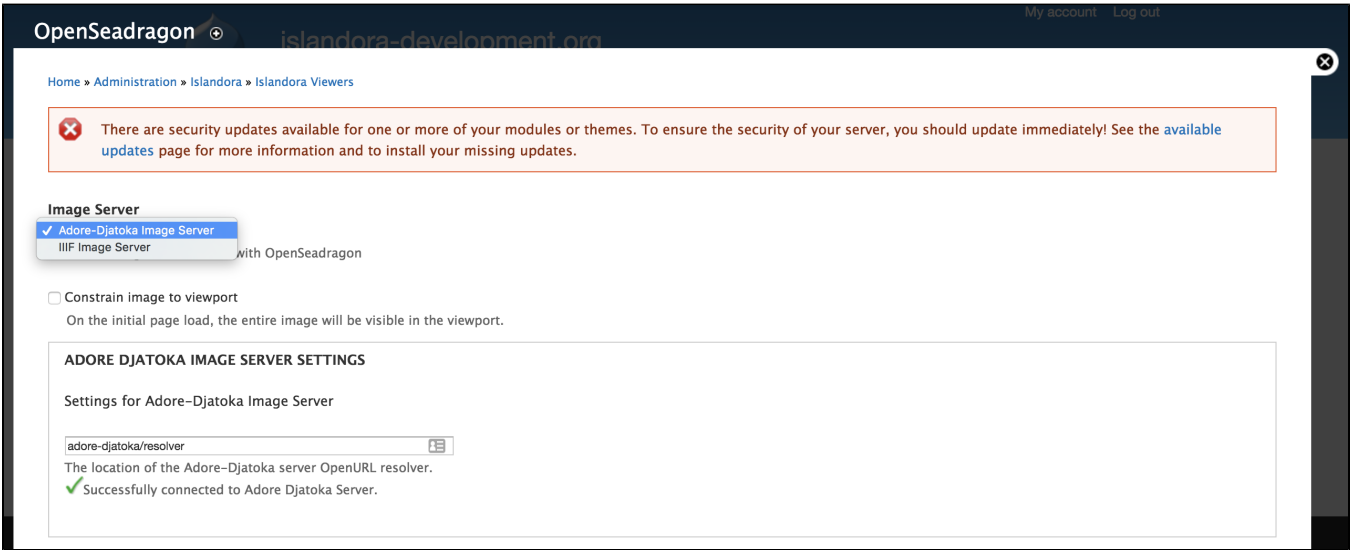
As with Djatoka, the base URL depends on the setup of your IIIF image server and reverse proxy, if you use one. Any IIIF image server can be used as the IIIF tile source. This IIIF server does need to be configured to resolve the image identifier to retrieve the image.

By default, Islandora OpenSeadragon uses the full URL to the image's JP2 datastream and the image access token as image identifier. If you use the Cantaloupe IIIF image server, you can configure it to resolve these identifiers using the HttpResolver with no prefix specified.

## Configuration Screenshots

There are a lot of options to configure OpenSeadragon. Here are screenshots to every available option in the current version. Labels next to the fields explain what each option is for; this is therefore not repeated in this page.

### Configure Image Server



**Image Server**

IIIF Image Server

Select the image server to use with OpenSeadragon

☐ Constrain image to viewport

On the initial page load, the entire image will be visible in the viewport.

**IIIF IMAGE SERVER SETTINGS**

Settings for IIIF Image Server

**IIIF Image Server Base URL**

iiif/2/

The location of the IIIF Image Server.

☐ Add token as header

Instead of sending the token as a query parameter, it will be sent in the X-ISLANDORA-TOKEN header.

**IIIF Identifier**

[islandora\_openseadragon:url\_token]

**REPLACEMENT PATTERNS**

Click a token to insert it into the field you've last clicked.

NAME	TOKEN	DESCRIPTION
DSID	[islandora_openseadragon:dsid]	The objects DSID.
PID	[islandora_openseadragon:pid]	The objects PID.
Token	[islandora_openseadragon:token]	The token that can be used to access the object in Islandora.
URL	[islandora_openseadragon:url]	The URL to the object in Islandora.
URL with Token	[islandora_openseadragon:url_token]	The URL to the object in Islandora with token in the query string.

- Note the option to select either an Adore-Djatoka Image Server or a IIIF Image server - you will be prompted after selecting with a field where you can enter your image server URL.

### Configure Open Seadragon Tile Source Settings

#### OPEN SEADRAGON TILE SOURCE SETTINGS

These settings will apply to all tile sources globally. See the [documentation](#) for more details.

##### Tile Size

The size of the tiles to assumed to make up each pyramid layer in pixels. Tile size determines the point at which the image pyramid must be divided into a matrix of smaller images.

##### Tile Overlap

The number of pixels each tile is expected to overlap touching tiles.

- *Note that interface documentation links will take you to relevant Seadragon documentation, not back to this page.*

## Open Seadragon Viewer Settings

#### OPEN SEADRAGON VIEWER SETTINGS

Settings for OpenSeadragon 2.2.1, see the [documentation](#) for more details.

##### Tab Index

Tabbing order index to assign to the viewer element. Positive values are selected in increasing order. When tabIndex is 0 source order is used. A negative value omits the viewer from the tabbing order.

##### ☐ Debug mode

Toggles whether messages should be logged and fail-fast behavior should be provided.

##### Debug Grid Color

Color of the grid in debug mode.

##### Blend time

Specifies the duration of animation as higher or lower level tiles are replacing the existing tile.

##### ☐ Always blend

Forces the tile to always blend. By default the tiles skip blending when the blendTime is surpassed and the current animation frame would not complete the blend.

##### ☒ Auto-hide controls

If the user stops interacting with the viewport, fade the navigation controls. Useful for presentation since the controls are by default floated on top of the image the user is viewing.

##### ☐ Immediate render

Render the best closest level first, ignoring the lowering levels which provide the effect of very blurry to sharp. It is recommended to change setting to true for mobile devices.

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##### Default zoom level

Zoom level to use when image is first opened or the home button is clicked. If 0, adjusts to fit viewer.

##### Opacity

Default opacity of the tiled images (1=opaque, 0=transparent)

##### Composite Operation

Select the image server to use with OpenSeadragon

##### Placeholder Fill Style

Draws a colored rectangle behind the tile if it is not loaded yet. You can pass a CSS color value like "#FF8800".

##### Initial Rotation

Initial rotation in degrees.

##### Minimum Zoom Level

Minimum Zoom Level (integer).

##### Maximum Zoom Level

Maximum Zoom Level (integer).

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☐ Home Button Fills Viewer

Make the "home" button fill the viewer and clip the image, instead of fitting the image to the viewer and letterboxing.

☒ Pan horizontal

Allow horizontal pan.

☒ Pan vertical

Allow vertical pan.

☐ Constrain During Pan

☐ Wrap horizontal

Set to true to force the image to wrap horizontally within the viewport. Useful for maps or images representing the surface of a sphere or cylinder.

☐ Wrap vertical

Set to true to force the image to wrap vertically within the viewport. Useful for maps or images representing the surface of a sphere or cylinder.

Minimum zoom image ratio

The minimum percentage ( expressed as a number between 0 and 1 ) of the viewport height or width at which the zoom out will be constrained. Setting it to 0, for example will allow you to zoom out infinity.

Maximum zoom pixel ratio

A zoom percentage to allow a zoom-in to affect the highest level pixel ratio. This can be set to Infinity to allow "infinite" zooming into the image though it is less effective visually if the HTML5 Canvas is not available on the viewing device.

Smooth Tile Edges Minimum Zoom

A zoom percentage ( where 1 is 100% ) of the highest resolution level. When zoomed in beyond this value alternative compositing will be used to smooth out the edges between tiles. This will have a performance impact. Can be set to Infinity to turn it off. Note: This setting is ignored on iOS devices due to a known bug (See <https://github.com/openseadragon/openseadragon/issues/952>).

☒ Auto Resize

Set to false to prevent polling for viewer size changes. Useful for providing custom resize behavior.

☐ Preserve Image Size On Resize

Set to true to have the image size preserved when the viewer is re-sized. This requires Auto Resize to be enabled (default).

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Minimum Scroll Delta Time

Number of milliseconds between canvas-scroll events. This value helps normalize the rate of canvas-scroll events between different devices, causing the faster devices to slow down enough to make the zoom control more manageable.

Pixels Per Wheel Line

For pixel-resolution scrolling devices, the number of pixels equal to one scroll line.

Visibility ratio

The percentage ( as a number from 0 to 1 ) of the source image which must be kept within the viewport. If the image is dragged beyond that limit, it will 'bounce' back until the minimum visibility ratio is achieved. Setting this to 0 and wrapHorizontal ( or wrapVertical ) to true will provide the effect of an infinitely scrolling viewport.

Image loader limit

The maximum number of image requests to make concurrently. By default it is set to 0 allowing the browser to make the maximum number of image requests in parallel as allowed by the browsers policy.

Click time threshold

The number of milliseconds within which a pointer down-up event combination will be treated as a click gesture.

Click distance threshold

The maximum distance allowed between a pointer down event and a pointer up event to be treated as a click gesture.

Double click distance threshold

The number of milliseconds within which two pointer down-up event combinations will be treated as a double-click gesture.

section continues...

#### Double click distance threshold

20

The maximum distance allowed between two pointer click events to be treated as a double-click gesture.

#### Spring stiffness

6.5

Determines how sharply the springs used for animations move.

#### Animation time

1.2

Specifies the animation duration per each `OpenSeadragon.Spring` which occur when the image is dragged or zoomed.

#### ▸ MOUSE POINTER GESTURE SETTINGS

#### ▸ TOUCH POINTER GESTURE SETTINGS

#### ▸ PEN POINTER GESTURE SETTINGS

#### ▸ UNKNOWN POINTER GESTURE SETTINGS

#### Zoom per click

2

The "zoom distance" per mouse click or touch tap. Note: Setting this to 1.0 effectively disables the click-to-zoom feature (also see `gestureSettings[Mouse|Touch|Pen].clickToZoom/dblClickToZoom`).

#### Zoom per scroll

1.2

The "zoom distance" per mouse scroll or touch pinch. Note: Setting this to 1.0 effectively disables the mouse-wheel zoom feature (also see `gestureSettings[Mouse|Touch|Pen].scrollToZoom`).

## Expanded Mouse Pointer Gesture Settings

#### MOUSE POINTER GESTURE SETTINGS

Settings for gestures generated by a mouse pointer device. (See [OpenSeadragon.GestureSettings](#))

- Scroll To Zoom
  - Zoom on scroll gesture.
- Click To Zoom
  - Zoom on click gesture.
- Double Click To Zoom
  - Zoom on double-click gesture. Note: If set to true then `clickToZoom` should be set to false to prevent multiple zooms.
- Pinch To Zoom
  - Zoom on pinch gesture.
- Flick Gesture
  - Enable flick gesture.

#### Flick Minimum Speed

120

If `flickEnabled` is true, the minimum speed to initiate a flick gesture (pixels-per-second).

#### Flick Momentum

0.25

If `flickEnabled` is true, the momentum factor for the flick gesture.

- Pinch Rotate

If `pinchRotate` is true, the user will have the ability to rotate the image using their fingers.

## Expanded Touch Pointer Gesture Settings

#### TOUCH POINTER GESTURE SETTINGS

Settings for gestures generated by a touch pointer device. (See [OpenSeadragon.GestureSettings](#))

- Scroll To Zoom
  - Zoom on scroll gesture.
- Click To Zoom
  - Zoom on click gesture.
- Double Click To Zoom
  - Zoom on double-click gesture. Note: If set to true then `clickToZoom` should be set to false to prevent multiple zooms.
- Pinch To Zoom
  - Zoom on pinch gesture.
- Flick Gesture
  - Enable flick gesture.

#### Flick Minimum Speed

120

If `flickEnabled` is true, the minimum speed to initiate a flick gesture (pixels-per-second).

#### Flick Momentum

0.25

If `flickEnabled` is true, the momentum factor for the flick gesture.

- Pinch Rotate

If `pinchRotate` is true, the user will have the ability to rotate the image using their fingers.

## Expanded Pen Pointer Gesture Settings

PEN POINTER GESTURE SETTINGS

Settings for gestures generated by a pen pointer device. (See [OpenSeadragon.GestureSettings](#))

• Scroll To Zoom

Zoom on scroll gesture.

• Click To Zoom

Zoom on click gesture.

• Double Click To Zoom

Zoom on double-click gesture. Note: If set to true then clickToZoom should be set to false to prevent multiple zooms.

• Pinch To Zoom

Zoom on pinch gesture.

• Flick Gesture

Enable flick gesture.

Flick Minimum Speed

120

If flickEnabled is true, the minimum speed to initiate a flick gesture (pixels-per-second).

Flick Momentum

0.25

If flickEnabled is true, the momentum factor for the flick gesture.

• Pinch Rotate

If pinchRotate is true, the user will have the ability to rotate the image using their fingers.

Expanded Unknown Pointer Gesture Settings

UNKNOWN POINTER GESTURE SETTINGS

Settings for gestures generated by a unknown pointer device. (See [OpenSeadragon.GestureSettings](#))

• Scroll To Zoom

Zoom on scroll gesture.

• Click To Zoom

Zoom on click gesture.

• Double Click To Zoom

Zoom on double-click gesture. Note: If set to true then clickToZoom should be set to false to prevent multiple zooms.

• Pinch To Zoom

Zoom on pinch gesture.

• Flick Gesture

Enable flick gesture.

Flick Minimum Speed

120

If flickEnabled is true, the minimum speed to initiate a flick gesture (pixels-per-second).

Flick Momentum

0.25

If flickEnabled is true, the momentum factor for the flick gesture.

• Pinch Rotate

If pinchRotate is true, the user will have the ability to rotate the image using their fingers.

Open Seadragon Viewer Settings (Continued)

Zoom per click

2

The "zoom distance" per mouse click or touch tap. Note: Setting this to 1.0 effectively disables the click-to-zoom feature (also see `gestureSettings[Mouse|Touch|Pen].clickToZoom/dblClickToZoom`).

Zoom per scroll

1.2

The "zoom distance" per mouse scroll or touch pinch. Note: Setting this to 1.0 effectively disables the mouse-wheel zoom feature (also see `gestureSettings[Mouse|Touch|Pen].scrollToZoom`).

Zoom per second

1

The number of seconds to animate a single zoom event over.

NAVIGATOR OPTIONS

☐ Show Navigator

Set to true to make the navigator minimap appear.

Controls Fade Delay

2000

The number of milliseconds to wait once the user has stopped interacting with the interface before beginning to fade the controls. Assumes `showNavigationControl` and `autoHideControls` are both true.

Controls Fade Length

1500

The number of milliseconds to animate the controls fading out.

Controls Fade Delay

200

The max number of images we should keep in memory (per drawer).

timeout

30000

section continues...

☒ Use Canvas  
Set to false to not use an HTML canvas element for image rendering even if canvas is supported.

**Minimum Pixel Ratio**  
  
The higher the minPixelRatio, the lower the quality of the image that is considered sufficient to stop rendering a given zoom level. For example, if you are targeting mobile devices with less bandwidth you may try setting this to 1.5 or higher.

☒ Enable Mouse Navigation  
Is the user able to interact with the image via mouse or touch. Default interactions include dragging the image in a plane, and zooming in toward and away from the image.

**NAVIGATION CONTROLS**  
☒ Show Navigation Control  
Set to false to prevent the appearance of the default navigation controls. Note that if set to false, the customs buttons set by the options zoomInButton, zoomOutButton etc, are rendered inactive.

**Navigation Control Anchor**  
  
Placement of the default navigation controls. To set the placement of the sequence controls, see the sequenceControlAnchor option.

☒ Show Zoom Control  
If true then + and - buttons to zoom in and out are displayed. Note: OpenSeadragon.Options.showNavigationControl is overriding this setting when set to false.

☒ Show Home Control  
documentation

☒ Show Full Page Control  
If true then the rotate left/right controls will be displayed as part of the standard controls. This is also subject to the browser support for rotate (e.g., viewer.drawer.canRotate()). Note: OpenSeadragon.Options.showNavigationControl is overriding this setting when set to false.

☐ Show Rotation Control  
If sequenceMode is true, then provide buttons for navigating forward and backward through the images.

**Sequence Control Anchor**  
  
Placement of the default sequence controls.

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☐ Navigation Previous/Next Wrap  
If true then the "previous" button will wrap to the last image when viewing the first image and the "next" button will wrap to the first image when viewing the last image.

**SEQUENCE MODE**  
☐ Sequence Mode  
Set to true to have the viewer treat your tileSources as a sequence of images to be opened one at a time rather than all at once.

**COLLECTION MODE**  
☐ Enable Collection Mode  
Set to true to have the viewer arrange your TiledImages in a grid or line.

## Troubleshooting/Issues

Having problems? Check out the Islandora google groups for a solution. Have a solution (or a problem with these docs)? Share it with the community!

- [Islandora Group](#)
- [Islandora Dev Group](#)