

FSPIV “FizPiv” Application

Full Screen Panoramic Image Viewer

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1.0 Summary

The objective of FSPIV is to augment the internet browser by providing a distraction free, full screen panoramic image viewer for all sized computer screens. It achieves this by resizing the image to the full screen height of the device without changing the image's aspect ratio. The resized image extends horizontally beyond the physical boundaries of the device, allowing the image to be panned panoramically.

Full screen, distraction free image viewers provide a superior user experience to thumbnail picture galleries. Thumbnail images are by definition useful for scrolling through collections of images but not to view individual images. What if you could have all the advantages of a fast scrolling thumbnail gallery, but also view those images in full screen at all times? Now you can, with FSPIV. It allows you to browse your photos in the way they were meant to be browsed, in full screen.

The clipped portion of the image is viewable by panning from left to right. You can restrict the screen viewport to the current image by panning up and down. The menu button in the upper left provides access to programs options, such as selecting image groups.

FSPIV provides an automated image slideshow to view large collections of images without distraction. The automated slideshow can support any number of images configured with a variety of viewing options. Unlike other panoramic image viewers, FSPIV does not require specialized equipment or software, and works with standard image formats using popular web browsers on underpowered mid-tier mobile devices. FSPIV supports the wide image photography popular in today's mobile devices.

An example FSPIV image slideshow of early 20th century expressionist artists is located [here](#). An example HD slideshow of landscape photography is located [here](#). Additional examples are included at the end of this document.

2.0 Architecture and Design

FSPIV is an original website software initiative developed without usage of 3rd party software components. FSPIV runs on website servers that dynamically transfer code and images to a client browser. Installation of client software is not required. The client code runs within the internet browser's protected sandbox without access to the client file systems providing security comparable to typical websites. Once images are cached in the browser, additional client/server network communication traffic is not required. The FSPIV url can be configured with many startup options, such as showing a cylindrical selection menu to choose a specific image sub-group. Customers can deploy pictures using FSPIV hosting services or to their existing websites.

FSPIV takes a standard image, such as a JPG or a PNG, divides it into slices, and renders only those slices that are visible on the device. FSPIV can draw large image collections very quickly and in quick succession, providing near video performance. Image montages with aspect ratios of between 5:1 to 12:1 are ideal for this purpose and create high quality synthesized imagery. See example at the end of this document.

FSPIV is compatible with all popular browsers and supports standard image formats such .jpg, .png, and .webp. To ensure online users are not impacted by development activities, FSPIV provides separate online and development hosting server environments. Cloudflare is employed by the online server environment providing geographical image caching and improved user performance.

FSPIV performs well on mid to high tier mobile devices and requires minimal system resources. FSPIV does not require image pre-processing or post-processing. It splits the image into hundreds of slices and individually renders them in real time. It fits the image slices to the height of the screen and allows the entire image to be panned horizontally.

FSPIV can view images as fast as you create them. FSPIV creates a virtual cylinder in memory with the user situated in the center. The image cylinder is then rotated programmatically or manually by the user. Only those image slices

that are within the screen viewport are drawn. This allows large panoramic images to be animated in quick succession.

Thumbnail galleries allow you to quickly scroll through a large collection of images. However, thumbnail galleries retain the browsers inherent viewing limitation of always resizing the image to the screen width. FSPIV remedies this by resizing the image to the screen's height, always displaying images in full screen, without any user resizing required. Simple user gestures allow the user to view any group of images as an automated slideshow.

3.0 Feature Summary.

- **Cylindrical menu system.** The cylindrical menu enables users to conveniently select documents or named picture groups. The flexible menu enables users to build picture and document orientated websites.
- **Displays pictures at full screen height.** Eliminates the need for cellphone and tablet users to pinch-out landscape photos to full screen. This is a key FSPIV feature that enhances user experience by alleviating the time it takes to manually pinch-out individual photos to full height. Full height pictures significantly enhance picture clarity.
- **Auto slideshow.** Provides cylindrical and filmstrip slideshow options. A url parameter defines the slideshow speed. Center screen clicks stop or start a slideshow.
- **Viewing landscape wide images.** When the slideshow is stopped, panning options enable users to view the clipped portion of the image.
- **HTML language expertise not needed.** Users do not need website html knowledge to deploy FSPIV image groups. The html language is not used.
- **High performance user interface.** Local client application, with minimal client/server communication overhead. User commands are much faster than typical websites.
- **Horizontal circular image presentation.** As opposed to typical websites that stack pictures vertically, FSPIV enables users to view pictures horizontally, providing an attractive alternative user interface.
- **Provides a common user interface.** Employs a common user interface for all client devices including PCs and cell phones.

4.0 URL Attributes

The FSPIV url string specifies an image sub-group to display or initiates a menu that enables a user to manually select an image sub-group to display. An image sub-group consists of images with similar orientations and aspect ratios. Users can create bookmarks to sub-groups or specific images.

The following is a summary of the most important URL attributes: p = Group (required); k = Sub-Group (default - first); e = Image (default - first); d = Display (default - 0); The a= parameter specifies motion or slideshow options.

p=boss/1980x1080; **Group name and path.** This group is named 1980x1080 and is located in the folder boss.

e=6x1.4000. **Image name.** This image is named 6x1.4000. 6x1 is the dimensions of the underlying montage. 4000 is arbitrary.

a=0; **No motion**

a=1; **Enables cylindrical motion.** (FSPIV server parameters specify the image-to-image delay time)

a=>40 **Enables filmstrip motion in ms.** (a=1200 has image delay of 1.2sec)

a= not specified, **default a=1500** (filmstrip image motion delay of 1.5sec)

The following 3 urls demonstrate some of these options. 1) original image, 2) filmstrip slideshow, and 3) cylindrical slideshow. The image group demonstrated here consists of multiple jpg montages, each with 6 images. The browser's native image viewer shows the original image as a wide, narrow strip requiring the user to pinch-out to view the image at full height. Browser gestures such as pinch do not allow you to easily match the image height to the screen height. Example URLs 2) and 3) demonstrate the improved picture quality and user navigation experience provided by full screen filmstrip and cylindrical slideshow motion.

Browser's native image viewer

<https://repba.com/data/boos/1728x1080/interiors/4000.jpg>

Filmstrip slideshow

<https://repba.com/?p=boos/1728x1080&k=interiors>

Cylindrical slideshow

<https://repba.com/?p=boos/1728x1080&k=interiors&a=1>

5.0 User Commands

The following is a **summary of FSPIV user commands**:

- Click the left/right 1/3rd side of the image or hit Backspace/Enter key to move to the **previous/next** picture.
- When motion is stopped, pan **up/down** to move **left/right** to view the picture full width.
- Pan **left/right** to move to the **previous/next** montage image.
- Click the center 1/3rd of screen or spacebar to **stop/start** the slideshow.
- **Pinch** the picture to enable or disable screen magnification, where 1/3rd of the normal picture height is displayed full screen. Use the **left/right** arrow to move horizontally across the magnified picture. Use the **up/down** arrows to move the magnification focal point.
- **Long press** the screen image for two seconds to examine the montage with original images.

6.0 Customer Image and Menu Integration

Various processes enable customers to organize and transmit their picture and menu definitions to the FSPIV application and integration to its hosting servers. The FSPIV server hosting environment provides a deployment & test configuration separate from online servers accessed by users allowing updates and test verification independent of user impact. Alternatively, FSPIV is deployable on customer's web servers using common Linux administrative methodologies.

There are 3 basic ways for organizations to engage and utilize FSPIV services: 1) Developer server access, 2) Menu definitions & file transfers to the FSPIV staff, 3) and transfer metadata directives for automated server builds. For each of the deployment processes, when the development environment updates are verified, the FSPIV team promotes the updated pictures to the online (internet accessible) environment for user access. The following pertains to the FSPIV hosting environment.

Developer Server Access: The FSPIV support team provides a server id/pw to developer(s) for their direct access to a FSPIV development server. The FSPIV technical staff will train experienced Linux OS developers in the technical details needed for their deployment of image groups. The developer employs FSPIV tools to define, design, test, and deploy their image group website.

File transmittal interface to FSPIV staff: The methodology involves website developer transferring pictures and Menu definitions to shared storage facilities (such as Google Drive) or sending a Zip file to the FSPIV support team who integrate the files to FSPIV directory and file structures. The developer does not have id/pw access to FSPIV servers. On-going communications between the developer and FSPIV staff is likely needed to finalize deployment and testing of the picture/menu definitions. The FSPIV team provides a site url based on a developer definition for access to the test and online web servers. .

Metadata Directive Transfer: A developer completes directive files that define pictures, picture sequence, menu items, menu to picture relationships, and general profile parameters. The directive files are automatically processed by FSPIV scripts creating webserver access to the image group. This methodology enables the customer developer to focus on pictures and menu definition that create an effective site without learning the technical details of FSPIV server side implementation.

Image groups are deployed on development servers using FSPIV processes. After transferring image group pictures to the development server, FSPIV scripts are run to build the sub-group montages. Sub-group montages are built by defining ordered sim-links that reference the picture pool. A menu sub-group may also be provided for <all> pictures. Each montage must include pictures that provide an appropriate aspect ratio as needed for parametric cylinder and slice management. Since montages are automatically cropped during the build process, all image group pictures should have comparable aspect ratios. The menu is then configured with sub-group names and other parameters. The FSPIV team provides developer tools to support tuning images for a quality presentation. The tuning results are defined as server parameters providing high quality user images.

7.0 Deployment Support,

This section addresses how the FSPIV team supports image group deployments, 24x7 web Hosting environments, and Life-Cycle Maintenance.

Typical deployment and life-cycle maintenance support is included in the monthly hosting fee. The monthly hosting fee is initiated when a picture group website is deployed to the online Cloudflare hosting environment. The monthly hosting fee is based on the total number of images, storage size of pictures, and volume of online user access. Special deployment and/or life-cycle support requirements may be billed separately at an hourly rate. The overall customer value includes the FSPIV application, hosting server environments, and support. The FSPIV team is the single-point-of-contact for customer support.

8.0 Example Image Groups

Use of a cell phone or tablet in portrait orientation is recommended when viewing the following examples to experience the benefits of FSPIV.

Example-1 <https://repba.com/?p=boss/1920x1080&k=airplanes>

This example image group consists of numerous HD picture subgroups each with a montage size of 6 images. Click the above url to display the "airplanes" sub-group with 144 pictures starting at photo 1 with filmstrip motion enabled. Click the screen anywhere to stop the filmstrip motion. Click the right side of the screen to advance one picture and then click the left side of the screen to move back one photo. When picture motion is stopped, pan up/down to see the full horizontal picture. Then click the center 1/3 of the screen to restart the motion. The motion will continue indefinitely moving back to picture 1 following picture 144. Pinch the screen to enable 1/3 screen magnification and Pinch screen to disable magnification. Select the upper left icon to enable the menu. Select other sub-groups such as Interiors, Tiny World, Food Menu and Sports Action to see many exciting pictures that exhibit the full picture height benefits of FSPIV.

Example-2 <https://repba.com/?p=boss/1920x1080&k=greenscapes&a=500>

This example image group consists of approximately 2000 landscape related HD picture subgroups. Click the above url that includes parameters that enable the menu with a fast image motion time of 500ms. Click each of the Menu sub-groups: Nature, Landscape, Greenscapes, Assorted, Cityscapes, and Castles to see the beautiful pictures. Notice the instantaneous performance when moving between images and between menu and image displays. Stop picture motion by clicking anywhere on the screen and restart motion by clicking the center of the screen.

Example-3 <https://repba.com/?p=boss/1200x1080&k=france>

This example image group consists of 600 art expressionist paintings from the early 20th century. Click on the above image group with url parameters that enable a cylindrical image motion. Briefly enable each of the menu groups viewing a few pictures to experience image cylindrical motion.

Example 4 <https://repba.com/?p=boss/singles&k=ALL&e=DEALERSHIP>

This example image group consists of panorama wide historical pictures. Since the pictures are very wide, a montage of only 1 image is used. Click on the above image group to display an early 20th century car dealership. Pan across the image by panning left/right. Tap the screen to move one screen size at a time. To enable $\frac{1}{3}$ screen magnification, pinch the lower screen and pan left/right or up/down to view the magnified picture. Pinch the screen to disable the magnified view.

Example 5

<https://repba.com/?p=boss/1920x1080&k=spiderman&a=0>

This example url points to a specific image and image group. Setting a=0 locks the image in place. Long press the image for two seconds to view the original image with the browser's native image viewer. This example illustrates that browsers do not display montages at full height like FSPIV.

Example 6

<https://repba.com/?p=boss/800x1080&k=young.faces&a=1>

This example url points to a collection of image portraits. Setting a=1 shows this image group as a cylindrical slideshow.