

5

Results and Discussions

5.1 Results

The screenshot shows a web browser window with the address bar displaying 'localhost:3000'. The page title is 'IPFS-Hyperledger'. The navigation bar includes buttons for 'Upload To IPFS', 'Load All', 'Registered Users', 'Search', and 'Register User'. The main content area features a blue header box with the text 'Uploads the file to IPFS (Stores the hash value to the Hyperledger)'. Below this, there is a file selection area with a 'Choose file' button and 'No file chosen' text. The 'Owner Info:' field is a single-line text input. The 'File Description:' field is a multi-line text area. An 'Upload' button is positioned below the description field. At the bottom, a yellow information box contains the text: 'Info! Please wait till the page gives response after upload. (Do not refresh)'.

Figure 5.1: Snapshot of *Upload to IPFS* page.

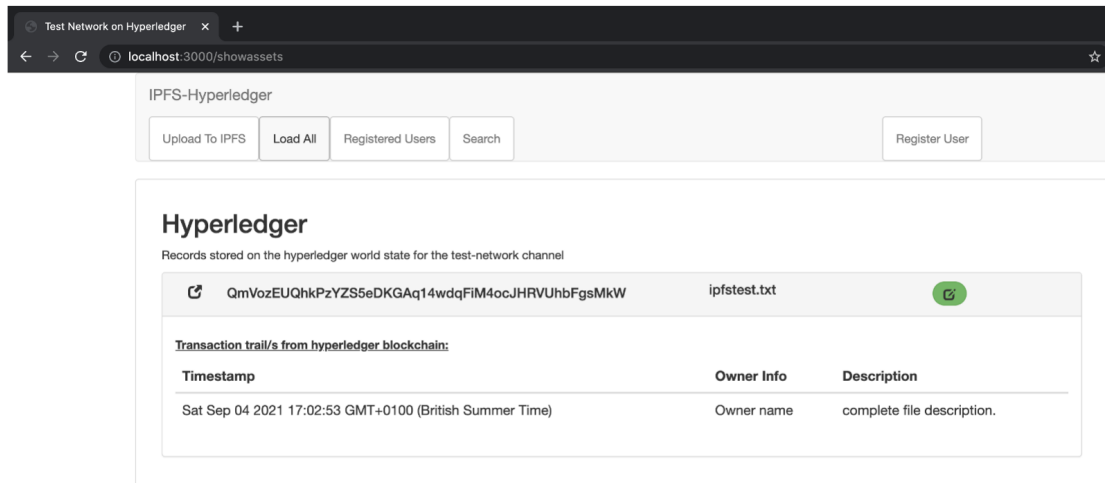


Figure 5.2: Snapshot of *Load All* page with default record

- One record appears by default after the application has been accessed with a model view for how the future documents will preserve in Hyperledger.

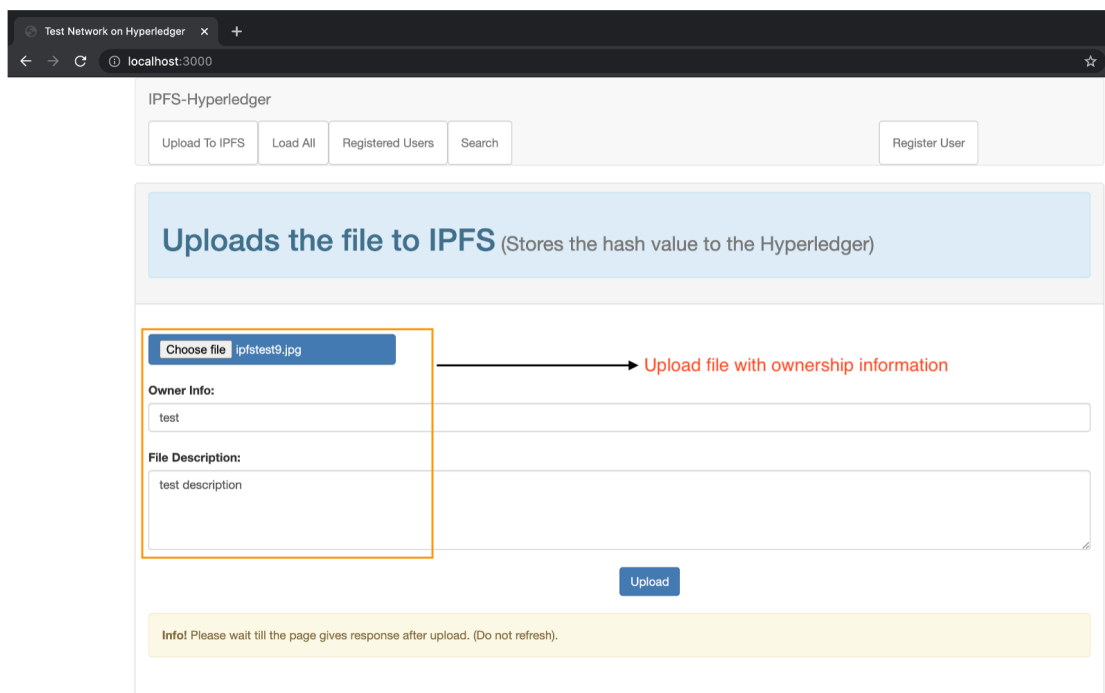


Figure 5.3: Snapshot of *Upload to IPFS* page with file and information.

- Upload the file, using the file upload option.
- Given the ownership information in the fields provided and click *Upload* button, to save the file to IPFS and corresponding hash value and fields information to the blockchain ledger.

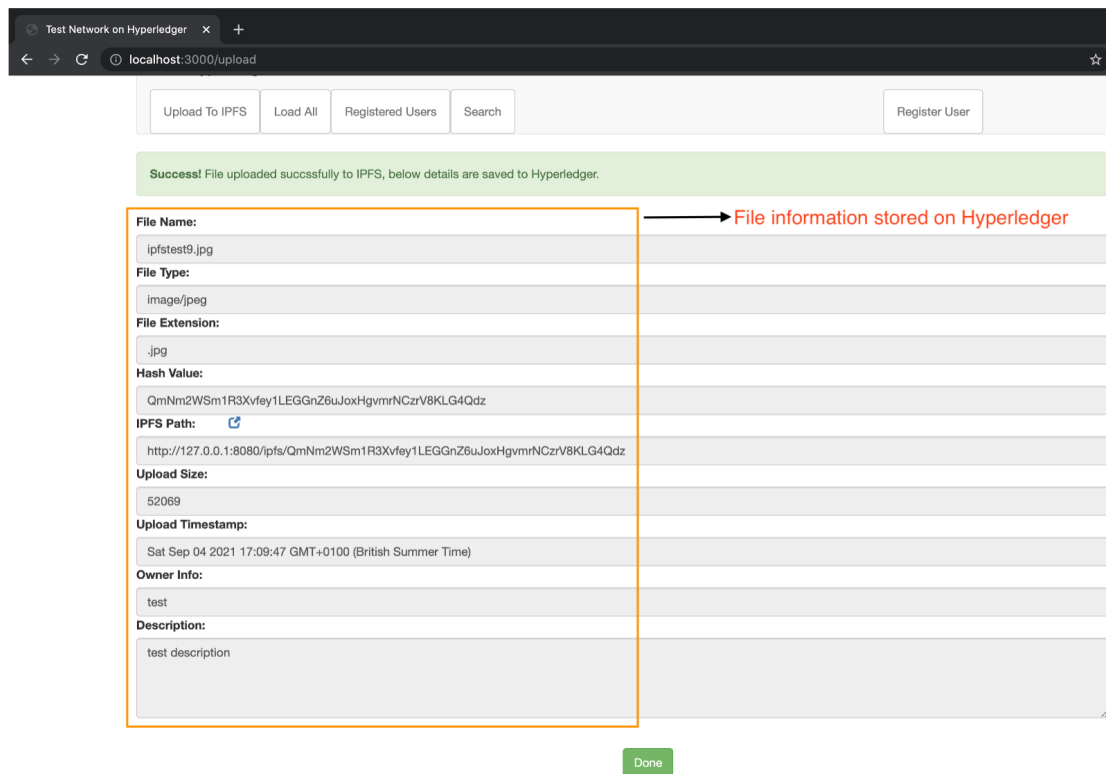


Figure 5.4: Snapshot of *Upload to IPFS* page post success file upload.

- Preview of the stored information is shown to the user after successful file upload.

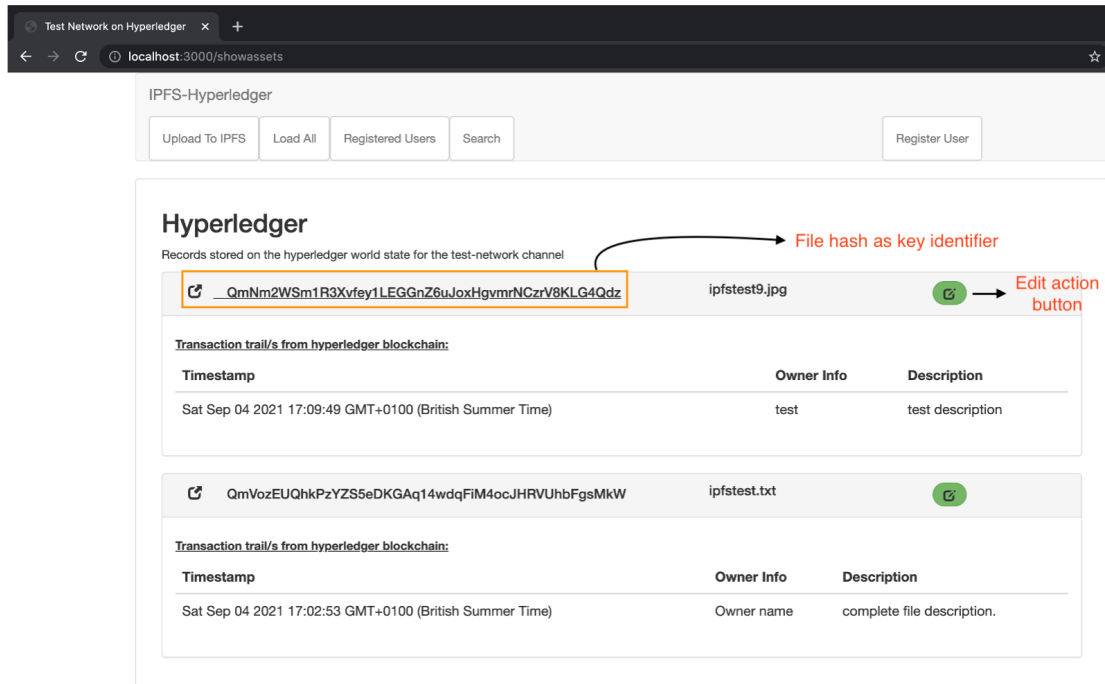


Figure 5.5: Snapshot of *Load All* page after file upload.

- Gives a view of list of documents been uploaded.
- Each record corresponded to a hash key and the media file can be accessed by clicking on the hash link.
- *Edit action* button gives an interface to update the ownership information of the media.

Test Network on Hyperledger

localhost:3000/getasset/QmNm2WSm1R3Xvfey1LEGGnZ6uJoxHgvmrNCzrV8KLG4Qdz/edit

Upload To IPFS Load All Registered Users Search Register User

Uploaded Time: Sat Sep 04 2021 17:09:47 GMT+0100 (British Summer Time)

Hash ID: QmNm2WSm1R3Xvfey1LEGGnZ6uJoxHgvmrNCzrV8KLG4Qdz

File Name: ipfstest9.jpg

File Type: image/jpeg

File Extension: .jpg

File Size: 52069

Ipfs Path: http://127.0.0.1:8080/ipfs/QmNm2WSm1R3Xvfey1LEGGnZ6uJoxHgvmrNCzrV8KLG4Qdz

Owner Info: test

Description: test description

Update

Info! Please wait till the page request processed after update. (Do not refresh).

Figure 5.6: Snapshot of *Edit* interface for a file.

- Only editable fields can be updated with *Edit action*.

Test Network on Hyperledger

localhost:3000/showassets

IPFS-Hyperledger

Upload To IPFS Load All Registered Users Search Register User

Hyperledger

Records stored on the hyperledger world state for the test-network channel

Timestamp	Owner Info	Description
Sat Sep 04 2021 17:11:38 GMT+0100 (British Summer Time)	test update	test description update
Sat Sep 04 2021 17:09:49 GMT+0100 (British Summer Time)	test	test description

Transaction trail/s from hyperledger blockchain:

Figure 5.7: Snapshot of *Load All* after the update.

- Timestamps of the transaction and update trails can be viewed from the page after successful *Update*.



Figure 5.8: Snapshot of *Search* page

- Any media file information stored on the blockchain can be searched with a given file if the file exists.

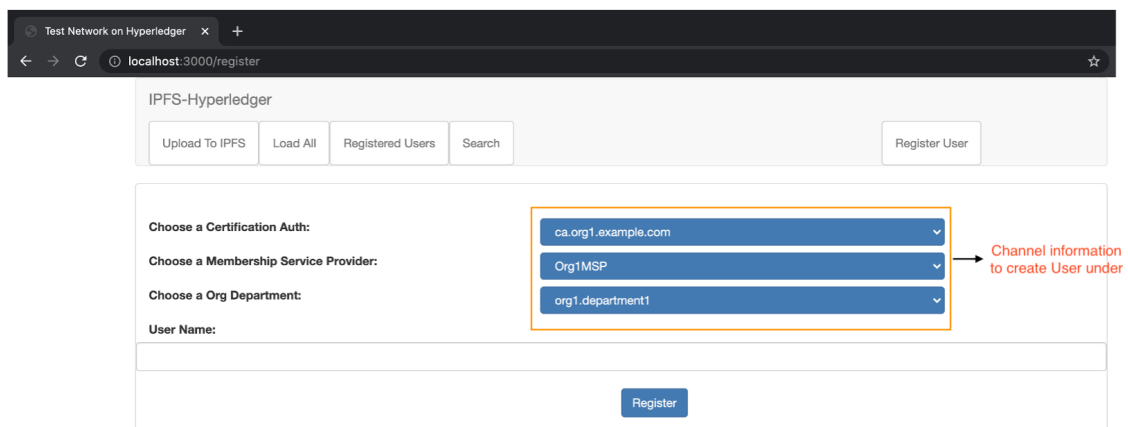


Figure 5.9: Snapshot of *Register User* page

- Demo interface to register the users for a particular channel (single channel operated in the project).

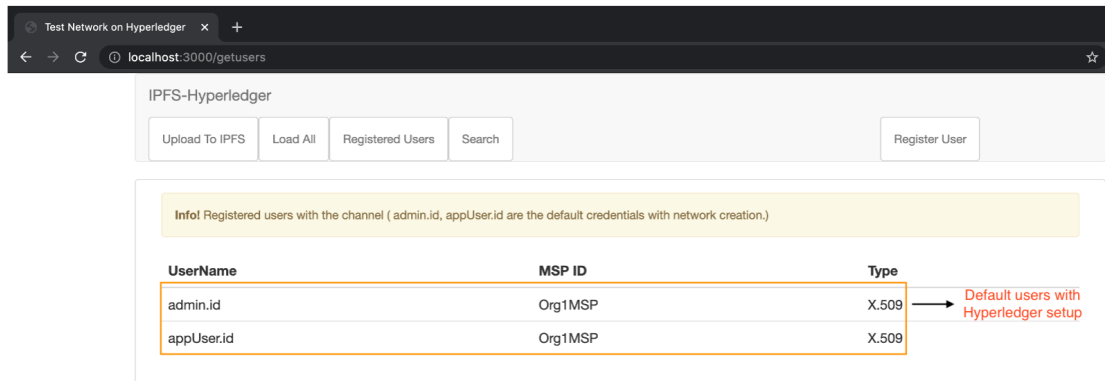


Figure 5.10: Snapshot of *Registered Users* page

- View for list of users registered in the channel.

5.2 Discussions

With the limitation of the research constrained to the blockchain and IPFS the proposed solution has been developed. Test upload of image, video, and text files into the system is successful and with the code modifications, the demo project can be made adaptable to accept multiple files at once.