

# Blockchain Document Sharing Platform

## FUNCTIONAL SPECIFICATION

V0.1

### REVISION HISTORY

Revision Date	Version	What Was Revised	By Whom
	0.1	Use cases	Oleg G.

# CONTENTS

[OVERVIEW](#)

[CONTENT EXAMPLES](#)

[IN SCOPE](#)

[FUNCTIONAL RISKS](#)

[USE CASES](#)

[Admin](#)

[User](#)

[Webpage Notifications](#)

[Email Notifications](#)

[Operational Requirements](#)

## OVERVIEW

Blockchain technologies allow you to record files and create a single registry that is not owned by one particular owner. This is a database that is distributed among different owners, and it is impossible to record in the middle of the chain. If you record in Blockchain, then it remains there forever. This is very useful, for example, in order to make a single register of property owners. That is, you can make sure that you have exactly the file that was placed in the backup, say, five years ago. In order to make sure that this is so, use mathematical algorithms.

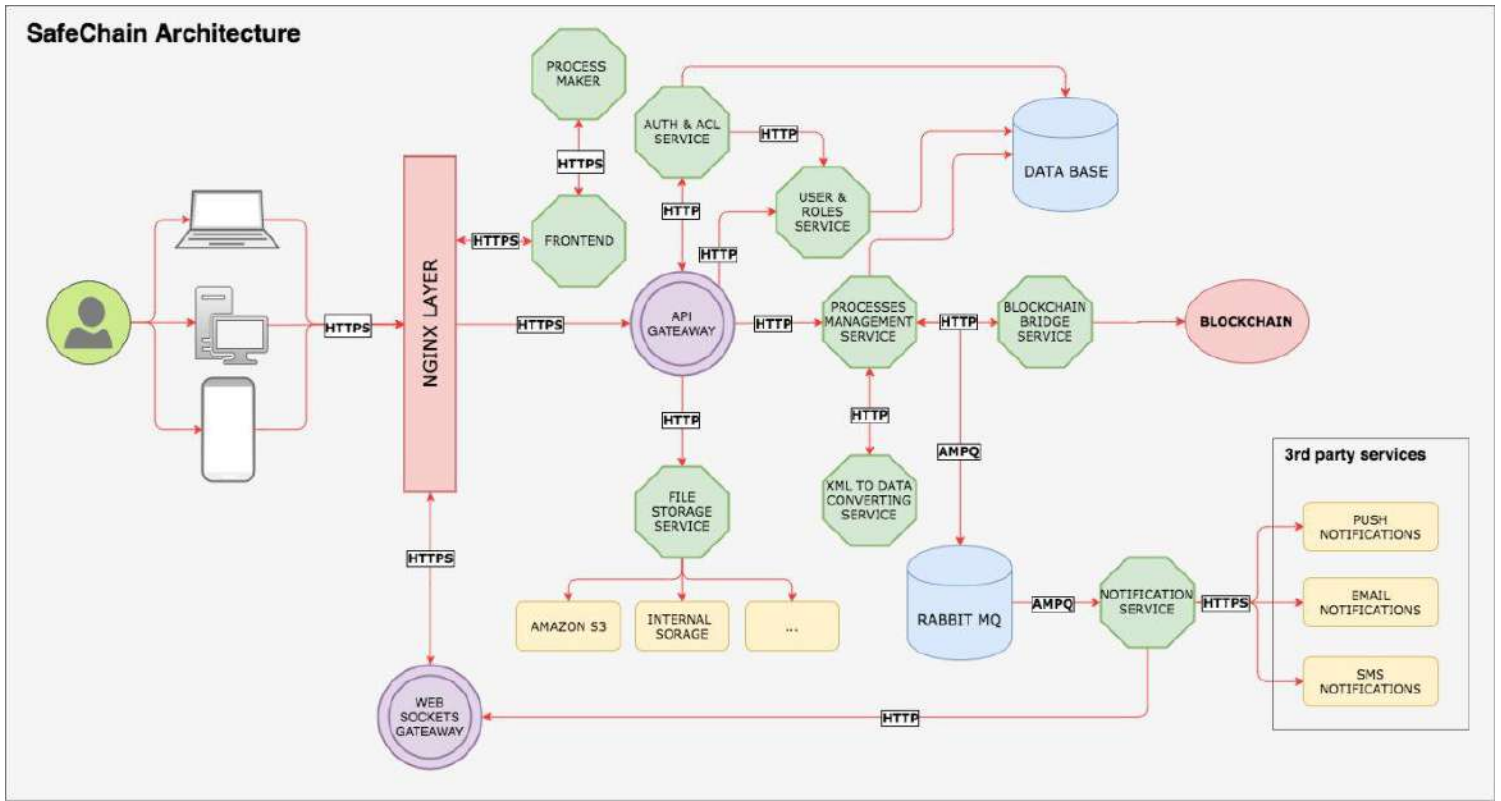
The platform is a document saving platform with blockchain technology integrated. Hyperledger Fabric technology will be used to create blockchain in a project, main features:

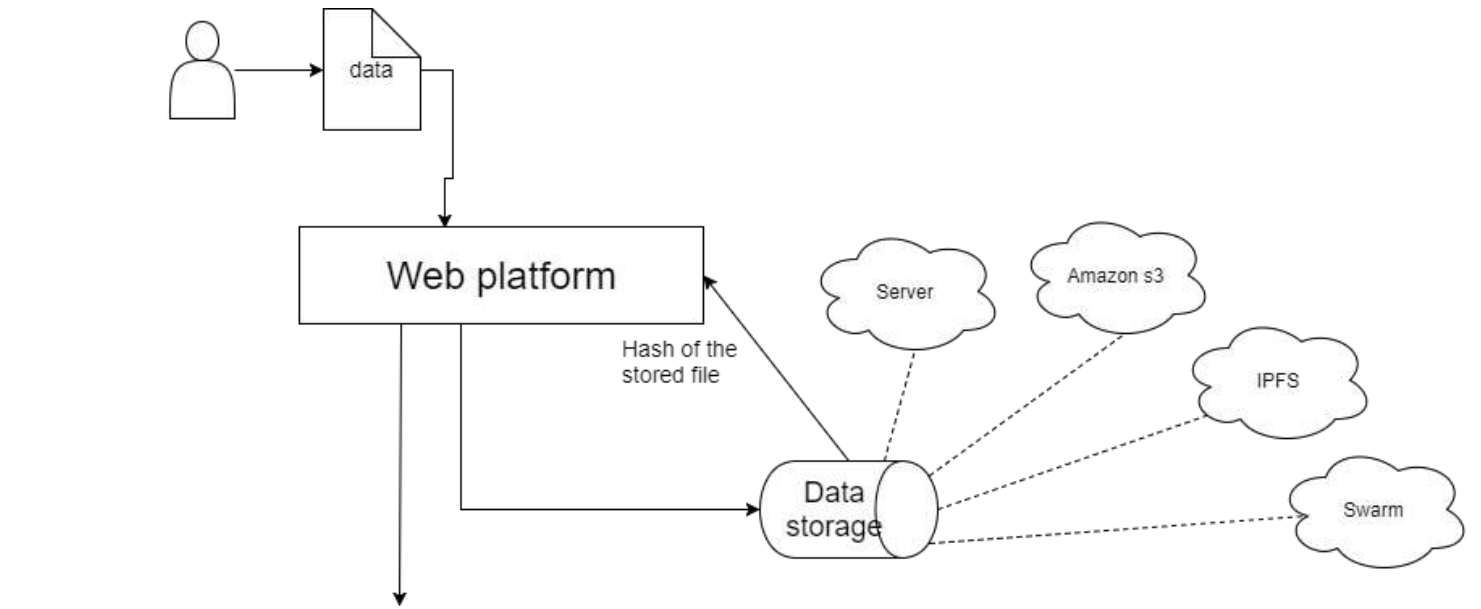
- BFTC (Byzantine Fault Tolerant Consensus)
- has no cryptocurrency and doesn't require mining -> no expensive transactions
- private/permissioned network
- transactions can be confidential
- Smart contracts (chaincode) run in docker containers -> would be faster than EVM
- Membership Service instead of traditional wallets, that provides credential to client, and peers for them to participate (clients use this credential to authenticate their transactions)

For the first version it is decided to make private/ permissioned blockchain with following criterias:

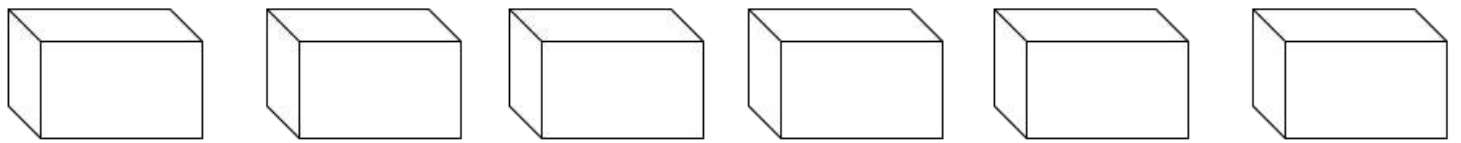
- requires an invitation and (or) validation by network administrator or some set of rules
- different types of access mechanisms
- ability to manage the privacy of transactions

# Blockchain project architecture

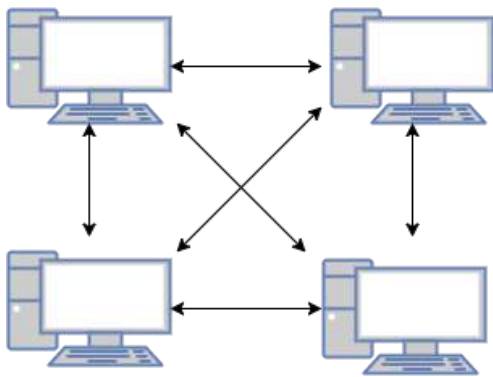




### Blockchain

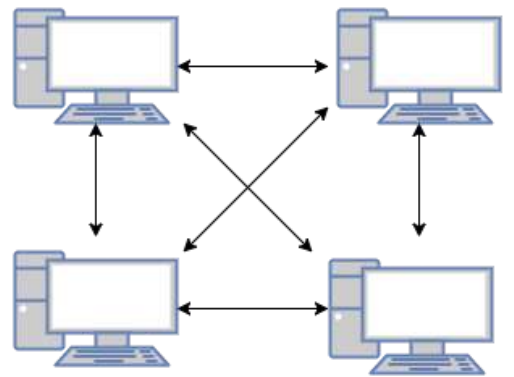


Public



Worldwide nodes

Private



Local computers

## IN SCOPE

- User account creation and management will be performed by an administrator from the admin panel, including passwords
- All uploaded documents will be encrypted by using blockchain technology
- Users should have registered phone number in system to add two steps authentication in order to improve system security
- The site data must be secure from external sources, e.g., HTTPS and data encryption protocols
- Website must be responsive to be viewable on multiple devices

## FUNCTIONAL RISKS

- User may forget password or change phone number, in this case it is presumed that user will contact administrator to change phone number in a system
- Logged in User will be able to access restricted parts of the site, changing fundamental aspects of the site or introducing malware, leading to misrepresentation.
- Site visitor (not logged in) will be able to access sections of the site reserved for logged in users, reducing credibility of the site.
- Users will not be able to access the site on mobile devices, reducing the overall impact of the site

## USE CASES ADMIN

1. [Registration in the project](#)
2. [A user loads blockchain project for the first time on a desktop, tablet or mobile through a browser](#)
3. [An admin first login to the system](#)
4. [Create user screen](#)
5. [Import users](#)
6. [List of users](#)
7. [The Admin creates first Safe Chain](#)
8. [The Admin checking added steps](#)
9. [The Admin may edit steps of chain](#)
10. [View thread for one chain](#)
11. [Admin dashboard](#)

## USE CASES USER

12. [Login procedure for the user](#)
13. User check Safechain(s)
14. Details of user's Safe chain
15. Document's review

### **Use Case 1 - Registration in the project**

All admin accounts are registered by product owner, for admin registration necessary fields are:

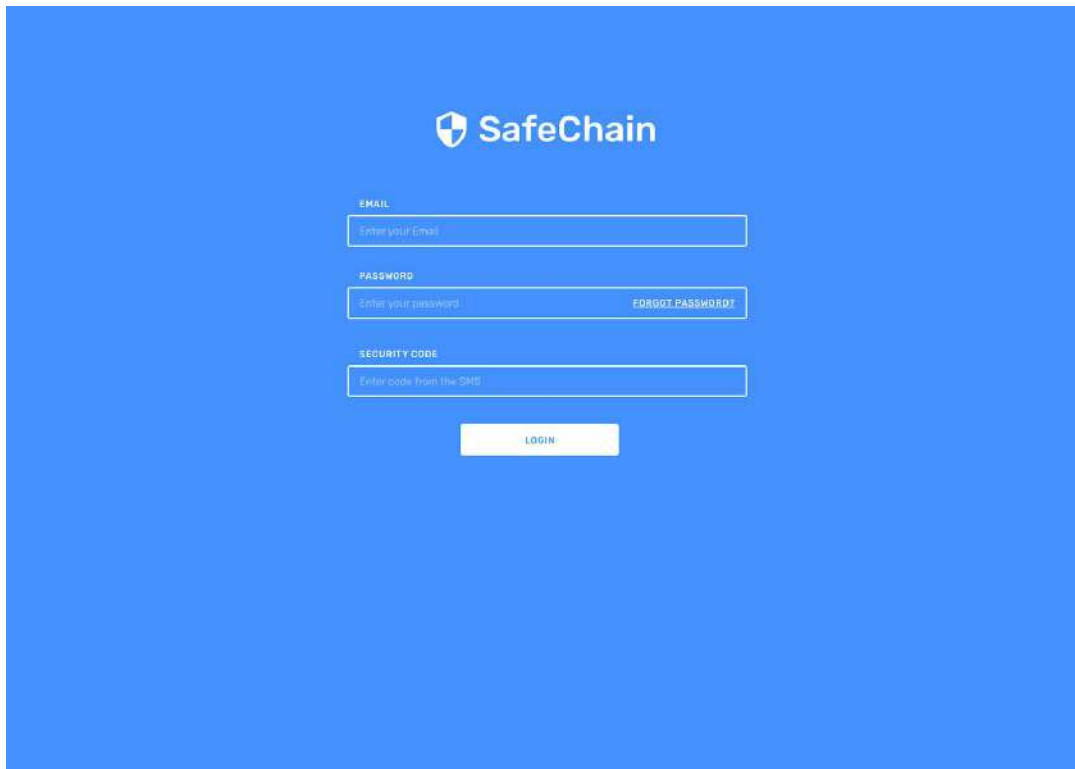
- Name (first and last)
- Email
- Phone number

All users accounts can be registered by admin or imported to the project by admin and will have following details:

- Name (first and last)
- Email
- Phone number

### **Use Case 2 - A user or Admin loads Safe Chain for the first time on a desktop, tablet or mobile through a browser**

Login Page

The image shows a login form for SafeChain on a blue background. At the top center is the SafeChain logo, which consists of a shield icon followed by the text "SafeChain". Below the logo are three input fields: "EMAIL" with the placeholder "Enter your Email", "PASSWORD" with the placeholder "Enter your password" and a "FORGOT PASSWORD?" link to its right, and "SECURITY CODE" with the placeholder "Enter code from the SMS". At the bottom center is a yellow "LOGIN" button.

- Header will have logo of SafeChain, two fields:
  - Enter your email
  - Enter your password
- Button login

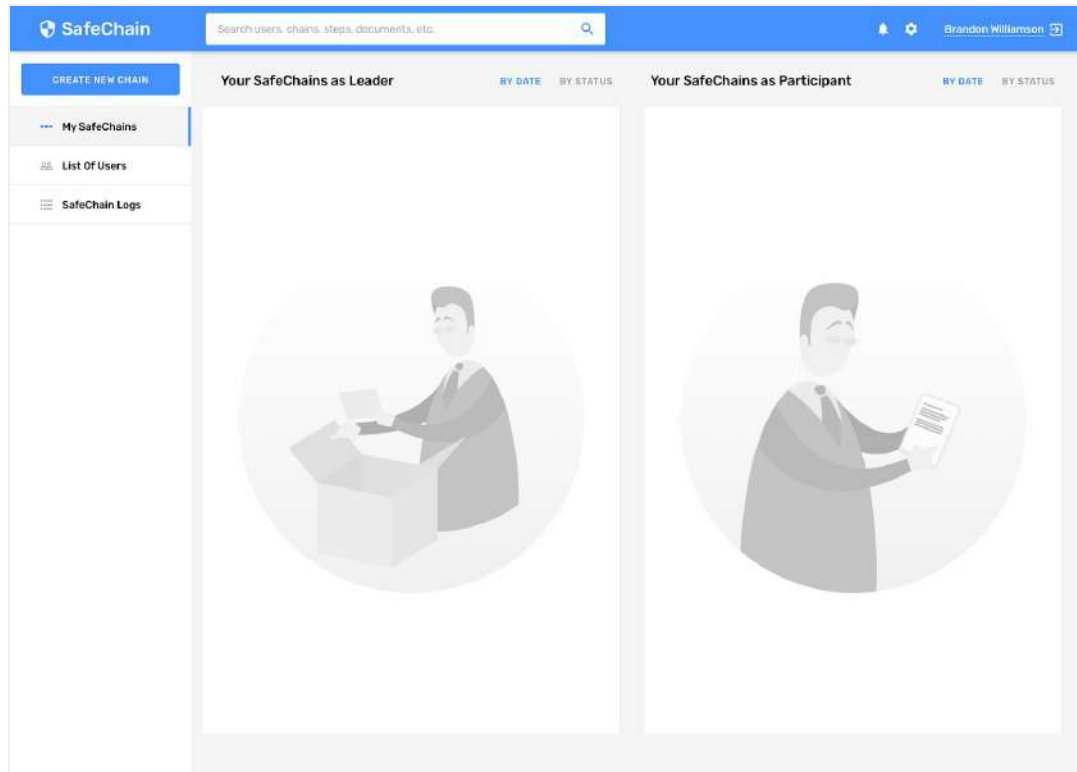
**Actions:**

Admin or user add email login provided and password related (all admin access credentials will be created from server side by product owner, admin may register authorized users), after adding these data and pressing login user will see “Enter SMS code fields” also user will receive SMS with code to the phone number that is registered and verified. SMS includes code, which user adds into an additional field to confirm identity.

**Possible issues:** SMS code could not work in case that external service will have technical issue or user will add wrong digits.



### **Use Case 3 - An admin first login to the system**



When Admin login to the system for the first time there are no records for Safe Chains and no records for users available in a system.

#### **An Admin sees following:**

- Safechain logo
- Top menu with following:
  - Notifications
  - Settings
  - Name of Admin who work in a system
  - Logout
- Side menu with following sections:
  - My SafeChains
  - List of users
  - Safechain log
  - Create user button
- “Create new chain” button

#### **Actions:**

An Admin should start with creating or importing users. The Admin presses Add user button and leads to the proper section.

## Use Case 4 - Create user screen

**SafeChain** Search users, chains, steps, documents, etc. Brandon Williamson

**ADD NEW USER** [IMPORT CSV](#)

Fill fields with the user's information or you can add multiple users at once with the CSV importing. [Download the CSV example](#)

**EMAIL**  
Enter the user's email

**FIRST NAME**  
Enter user's first name

**LAST NAME**  
Enter user's last name

**PHONE NUMBER**  
Enter user's phone number

**COMPANY NAME (OPTIONAL)**  
Enter user's company

**DESCRIPTION (OPTIONAL)**  
Add user's bio or other description

this user is an Admin

**SAVE**

### Create user screen consist of:

- Safechain logo
- Top menu with following:
  - Notifications
  - Settings
  - Name of Admin who work in a system
  - Logout
- Side menu with following sections:
  - My safechains
  - List of users
  - Cancel button
- New user section:
  - Obligatory fields:
    - First and last name
    - Email
    - Phone number
  - Optional fields
    - Company name

■ Description

- Checkbox “This user is an Admin”
- Import users button
- Save button

**Actions:**

Admin should fill out all mandatory fields to save new user, if one of mandatory fields are not added, Save button would not be active to save changes. Mandatory fields are needed for further 2 factor authentication of users and other admins created.

Optional fields will help to identify users and describe them.

If Admin presses checkbox “Admin” role admin should be added to a new created user.

Import users button pressing will lead to a proper functionality.

After saving result Admin will forward to List of users Screen.

**Use Case 5 - Import users**

By pressing “Import users button” admin will see pop-up which allow to choose xls file with presumed structure to upload list of users. In the document will be same mandatory and optional fields.

**Error handling:** If the file is not set correctly the Admin should get the notification that the file has errors and can't be processed

**Use Case 6 - List of users, Admin may manage users inside this section**

**SafeChain** Search users, chains, steps, documents, etc. Brandon Williamson

**ADD USER**

**List of Users** EXPORT TO CSV

You can add new users, edit the information about them, activate and deactivate or delete users permanently from the system.

NAME AND ROLE	ACTIVE	
<b>Cole Reid</b> admin	<input checked="" type="checkbox"/>	CLOSE
Lucille Logan admin	<input checked="" type="checkbox"/>	VIEW
Ollie Turner user	<input checked="" type="checkbox"/>	VIEW
Eugenia Lloyd user	<input checked="" type="checkbox"/>	VIEW
Devin Santos user	<input checked="" type="checkbox"/>	VIEW
Philip Morrison user	<input checked="" type="checkbox"/>	VIEW
Francis Reed user	<input checked="" type="checkbox"/>	VIEW
Bertie McCoy user	<input checked="" type="checkbox"/>	VIEW
Lester McGuire user	<input type="checkbox"/>	VIEW
Abbie Hall user	<input type="checkbox"/>	VIEW
Alvin Parker user	<input type="checkbox"/>	VIEW
Joe Curtis user	<input type="checkbox"/>	VIEW

**EMAIL**  
farrell\_manuel@grimes.biz

**FIRST NAME**  
Cole

**LAST NAME**  
Reid

**PHONE NUMBER**  
975-960-1983

**COMPANY NAME (OPTIONAL)**  
Schultz Wall LCC.

**DESCRIPTION (OPTIONAL)**  
As a business owner or manager, the decision to opt for offshore software development can be difficult. As anyone who has experience knows, there are advantages and disadvantages to outsourcing software development.

this user is an Admin

SAVE

**List of users screen consist of:**

- Safechain logo
- Top menu with following:
  - Notifications
  - Settings
  - Name of Admin who work in a system
  - Logout
- Side menu with following sections:
  - My SafeChains
  - List of users
  - Safechain log
  - Create user button
- Exact list of users with status:
  - First name
  - Last name
  - Role

Would be good to add filters to sort users alphabetical, ASC/DESC, by date of creation
- Edit user section:
  - Obligatory fields:
    - First and last name

- Email
  - Phone number
- Optional fields
  - Company name
  - Description
- Checkbox “Admin”
- Import users button
- Export users button
- Save button
- Cancel button

**Possible issues:**

When Admin clicks on ‘Save’ button fields which are not set correctly or Obligatory fields are missing should be highlighted with red.

**Delete user flow:**

When Admin clicks on delete user he will see popup confirmation with text “Are you sure you want to delete this user” and Buttons ‘Delete’ and ‘No’.

**Use Case 7 - The Admin inside the system and creates first SafeChain with first step**

The screenshot shows the 'Create your SafeChain • Create Step' form in the SafeChain application. The form is titled 'Create your SafeChain • Create Step' and includes a warning: 'All fields are required. You should add step name, upload documents and add users with permissions to edit or/and approve this SafeChain step.' The form contains the following sections:

- SAFECHAIN NAME:** A text input field with the instruction: 'With the first step, you should add name for the whole chain'.
- STEP NAME:** A text input field with the instruction: 'Type the step name. You can change it later.'
- UPLOAD DOCUMENTS TO THE STEP:** A section containing a blue button labeled 'CHOOSE DOCUMENTS TO UPLOAD' and the instruction: 'You can choose multiple documents on the your harddrive'.
- INVITE USERS TO STEP:** A section containing a text input field for email addresses with the instruction: 'Start type the Email address of participant' and a note: 'All invited participants will have permission to view uploaded documents'.

The left sidebar shows navigation options: 'My SafeChains', 'List Of Users', and 'SafeChain Logs'. The top navigation bar includes the 'SafeChain' logo, a search bar, and the user name 'Brandon Williamson'.

By pressing on 'Create SafeChain' button Admin sees 'Create your Safe chain' page with following fields:

- Safechain logo
- Top menu with following:
  - Notifications
  - Settings
  - Name of Admin who work in a system
  - Logou
- Safechain name
- Step name - text fields
- Documents - with option to upload file
  - Required checkmark
- Invite users to view or upload documents - with drop-down to choose users
  - Read checkmark
  - Write checkmark
- Invite users to validate documents
  - Required checkmark

'Save new step' button

Cancel button

**Actions:**

Admin should add all fields and set settings for the step to save new SafeChain with first step.

**Possible issues:**

When Admin clicks on 'Save new step' button fields which are not set correctly or Obligatory fields are missing should be highlighted with red.

**Example of the filled out form:**

CANCEL

My SafeChains

List Of Users

SafeChain Logs

### Create your SafeChain - Create Step #1

All fields are required. You should add step name, upload documents and add users with permissions to edit or/and approve this SafeChain step.

**SAFECHAIN NAME**

Buying Combine Harvester

**STEP NAME**

Sending request

**UPLOAD DOCUMENTS TO THE STEP**

- Checklist.pdf
- Requirements
- Standarts
- Specification

**CHOOSE DOCUMENTS TO UPLOAD**

You can choose multiple documents on the your harddrive

**INVITE USERS TO STEP**

torp\_jonas@pollich.net

All invited participants will have permission to view uploaded documents

NAME OF PARTICIPANT	CAN EDIT	CAN APPROVE
alexandrine_cummings@swift.io	<input type="checkbox"/>	<input type="checkbox"/>
olson_jakob@yahoo.com	<input type="checkbox"/>	<input type="checkbox"/>
matt_dibbert@hotmail.com	<input type="checkbox"/>	<input type="checkbox"/>
stefan_will@yahoo.com	<input type="checkbox"/>	<input type="checkbox"/>

**SEND**

Add next step after sending

## Use Case 8 - The Admin checking added steps

The screenshot displays the 'Buying Combine Harvester' SafeChain interface. On the left, a sidebar contains a 'CREATE NEW CHAIN' button and a menu with 'My SafeChains', 'List Of Users', and 'SafeChain Logs'. The main content area shows a table with three columns: 'SHIPMENTS STEPS', 'DOCUMENT REQUIRED', and 'USERS INVITED'. The table lists three steps: 'Sending request' (APPROVED, 4 documents uploaded, 72 MB), 'Invoice 25% pre-payment' (APPROVED, 2 documents uploaded, 26 MB), and 'Certificates' (IN PROGRESS, 5 documents uploaded, 104 MB). Each step lists invited users with their email addresses. At the bottom, there are 'ADD NEW STEP' and 'VIEW THREADS' buttons.

SHIPMENTS STEPS	DOCUMENT REQUIRED	USERS INVITED
Sending request APPROVED	4 documents uploaded (72 MB)	stefan_wil@yahoo.com matt_dibben@hotmail.com oliver_jakub@yahoo.com skewindrac_cummings@earthlink.net
Invoice 25% pre-payment APPROVED	2 documents uploaded (26 MB)	emestina_mestura@yahoo.com abernathy_dohia@einar.us emseiliza@hotmail.com digan_ruseel@brady.me <a href="#">View all 12 participants...</a>
Certificates IN PROGRESS	5 documents uploaded (104 MB)	emestina_mestura@yahoo.com abernathy_dohia@einar.us emseiliza@hotmail.com digan_ruseel@brady.me <a href="#">View all 12 participants...</a>

### Added steps screen consist of:

- Safechain logo
- Top menu with following:
  - Notifications
  - Settings
  - Name of Admin who work in a system
  - Logout
- Side menu with following sections:
  - My SafeChains
  - List of users
  - Safechain log
  - Create user button
- View threads button
- Name of exact Safechain chosen
- Settings steps and users to a chain part
  - List of steps
  - Status of each step
  - Documents required
  - Users invited
- Add new step button
- Save button



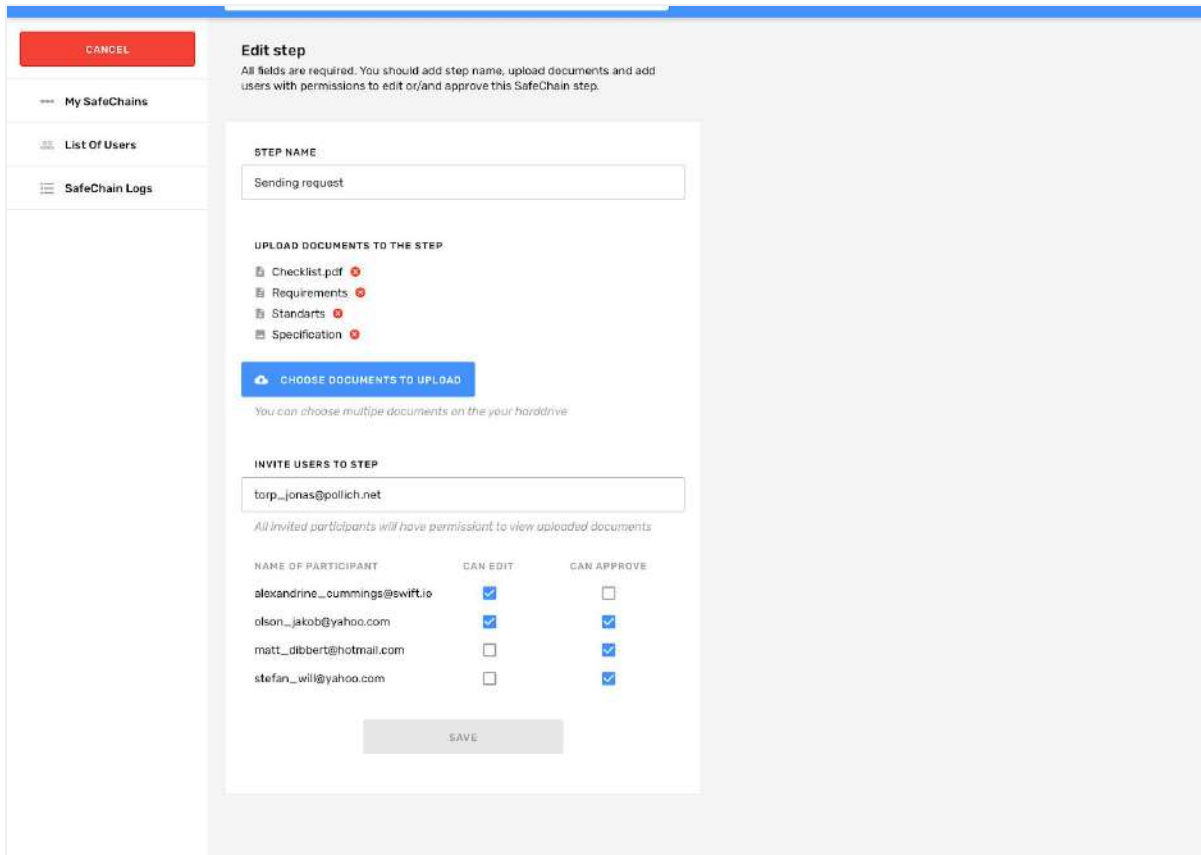
**Actions:**

Add new step button will lead to Add new chain step functionality

By pressing at the particular step admin may edit it.

Admin may edit each step of the chain by pressing edit button.

**Use Case 9 - The Admin may edit steps**



**If Admin presses edit button for a step of Chain, will appear Edit step for a chain screen, which consist of following:**

- Safechain logo
- Top menu with following:
  - Notifications
  - Settings
  - Name of Admin who work in a system
  - Logout
- Side menu
- View thread button
- Step name - text field
- New document category field

- Documents - with option to set number from and to
- Edit users to view or upload documents - with drop-down to choose users
  - Read checkmark
  - Write checkmark
  - Add user button
- Edit users to validate documents
  - Required checkmark
  - Add user button
- Save button

**Actions:**

Admin may open and check thread for the step of the chain. At this screen Admin may: add new type of the document (in v1 presumed to have two types of documents: Certificates and Photos).

By pressing view thread button opens [View thread screen](#)

set number of the documents which are allowed to be in this step of the chain.

By pressing Save button Admin will be directed to [created steps screen](#).

**Use Case 10 - View Threads**

The screenshot displays the 'View Thread' interface for a chain named 'Buying Combine Harvester'. The interface includes a search bar at the top, a sidebar with navigation options like 'My SafeChains', 'List Of Users', and 'SafeChain Logs', and a main content area. The main content area features a table of steps and two document lists on the right.

REFERENCE NUMBER DATE	STATUS STEP NAME
14568998 28 Feb 2017	Completed Buying Combine Harvester
	In Progress Thousands Now Adware Removal Who Never Thought They Could
	Reading Phase Download Anything Now A Days

**DOCUMENT PARTICIPANT**

**Photos**

- 10:17PM - 25 May 2017  
Facts Why Inkjet Printing Is Very Appealing Compared To Ordinary Printing  
Effie Cortez
- 02:54PM - 13 Nov 2017  
How Does An Led Screen Work  
Fanny Lynch

**Certificates**

- 02:04AM - 08 Nov 2017  
How To Stop Living Your Life On Autopilot  
Marie Reese
- 06:17PM - 24 Jun 2017  
Motivation Letter For Work Abroad  
Jim Gibbs
- 11:14PM - 03 Jun 2017  
How Do I Know If I M Getting Any Of This Law Of Attraction Stuff  
Stella Harrington

**Consists of:**

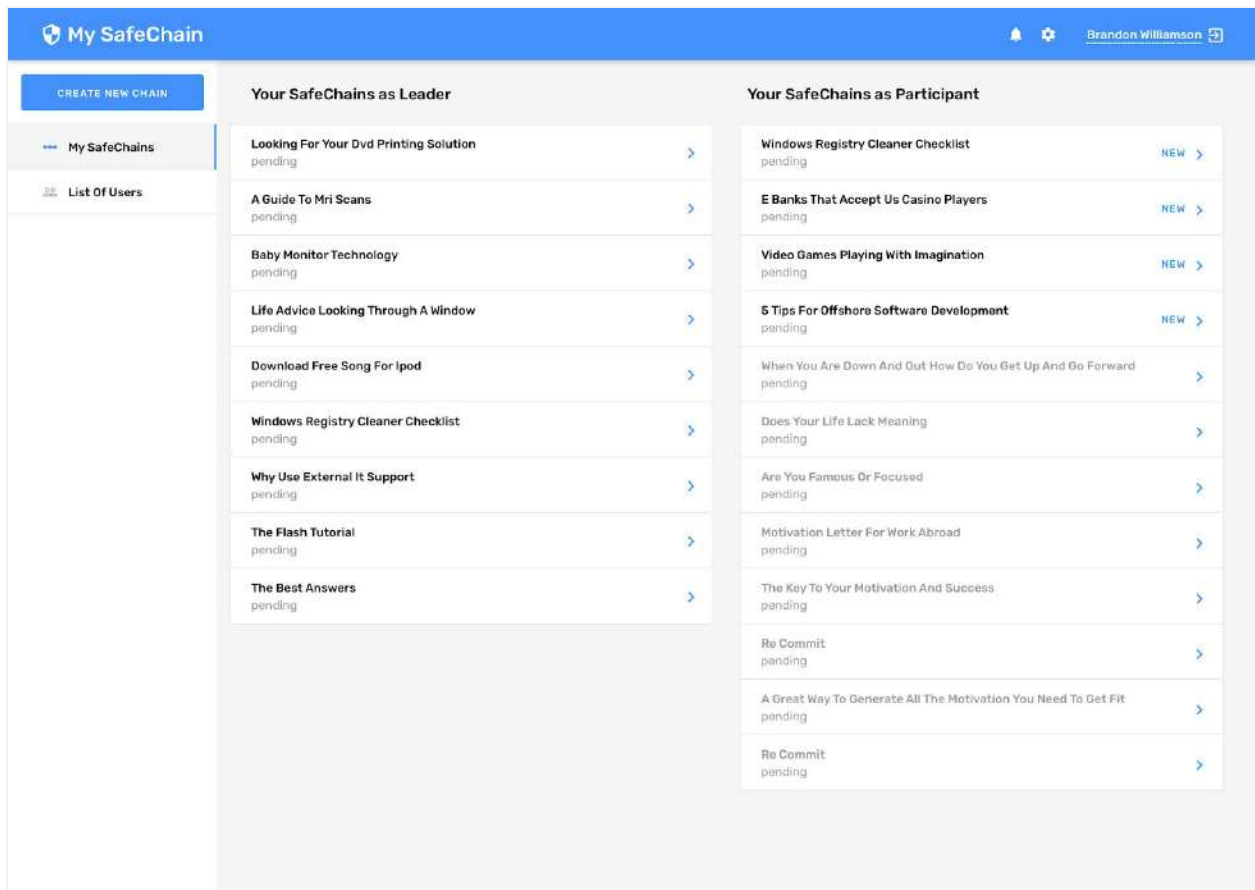
- Safechain logo
- Top menu with following:
  - Notifications
  - Settings
  - Name of Admin who work in a system
  - Logout
- Side menu
- Thread for the particular chain created, including:
  - Reference number
  - Date
  - Documents
  - Save button

**Actions:**

Thread will be created automatically when new chain is created by Admin at backend.

**Use Case 11 - Admin dashboard**

My Safechains for admin



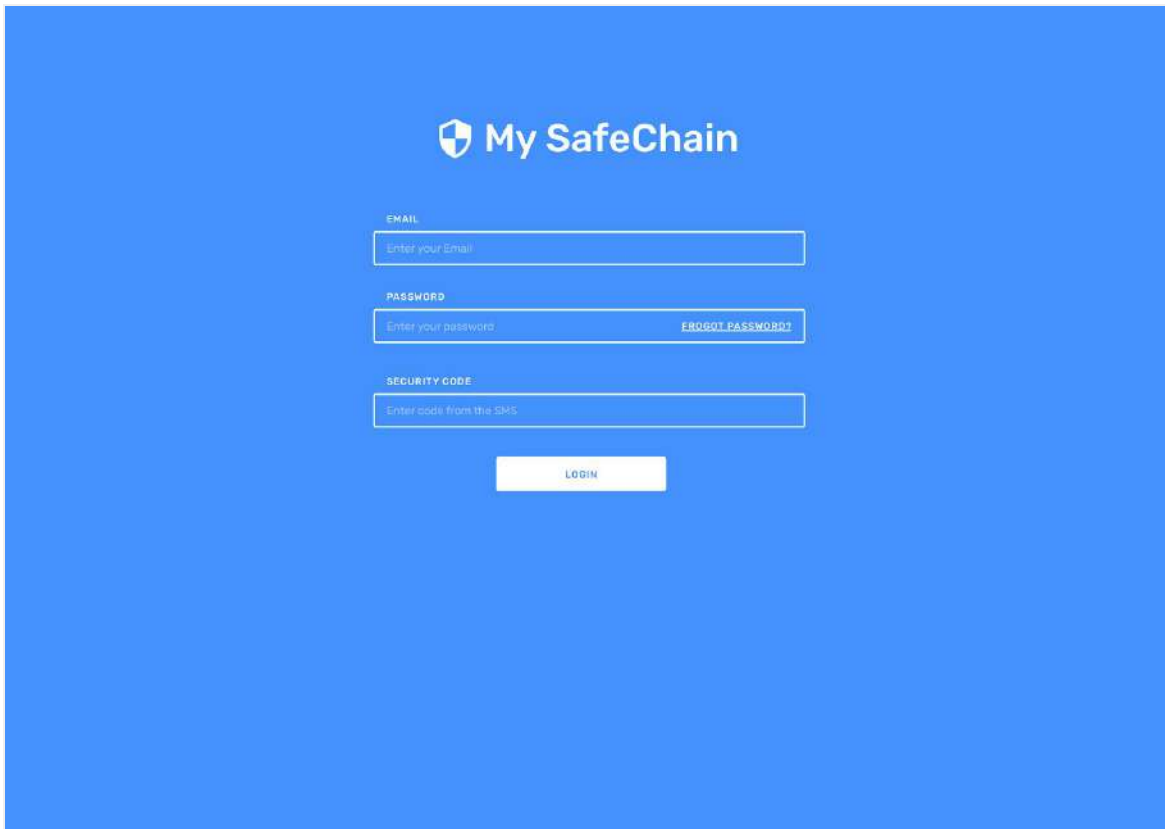
- Admin = logged in;
- Safechain logo
- Top menu with following:
  - Notifications
  - Settings
  - Name of Admin who work in a system
  - Logout
- Sidebar will have 3 sections.
  - My Safechains
  - List of users
  - Safechain log
  - Add user button
- Main section will consist list of Safechains as a leader section and Safechain as participant section and button “Create new chain” at the top.

**Actions:**

- by pressing My Safechains admin stays at the same section
- By clicking “List of users” section Admin will see List of users page
- By clicking add user button Admin will be forwarded to the section where it may be created user or imported list or users.
- By pressing the name of the particular Safe Chain admin will see details of it.
- By clicking create new chain user will be forwarded to Create new chain screen.
- When admin is pressing at one of the names of Safe Chains as a leader, admin will see [edit steps screen](#)

**USER FLOW**

**Use Case 12 - User login**

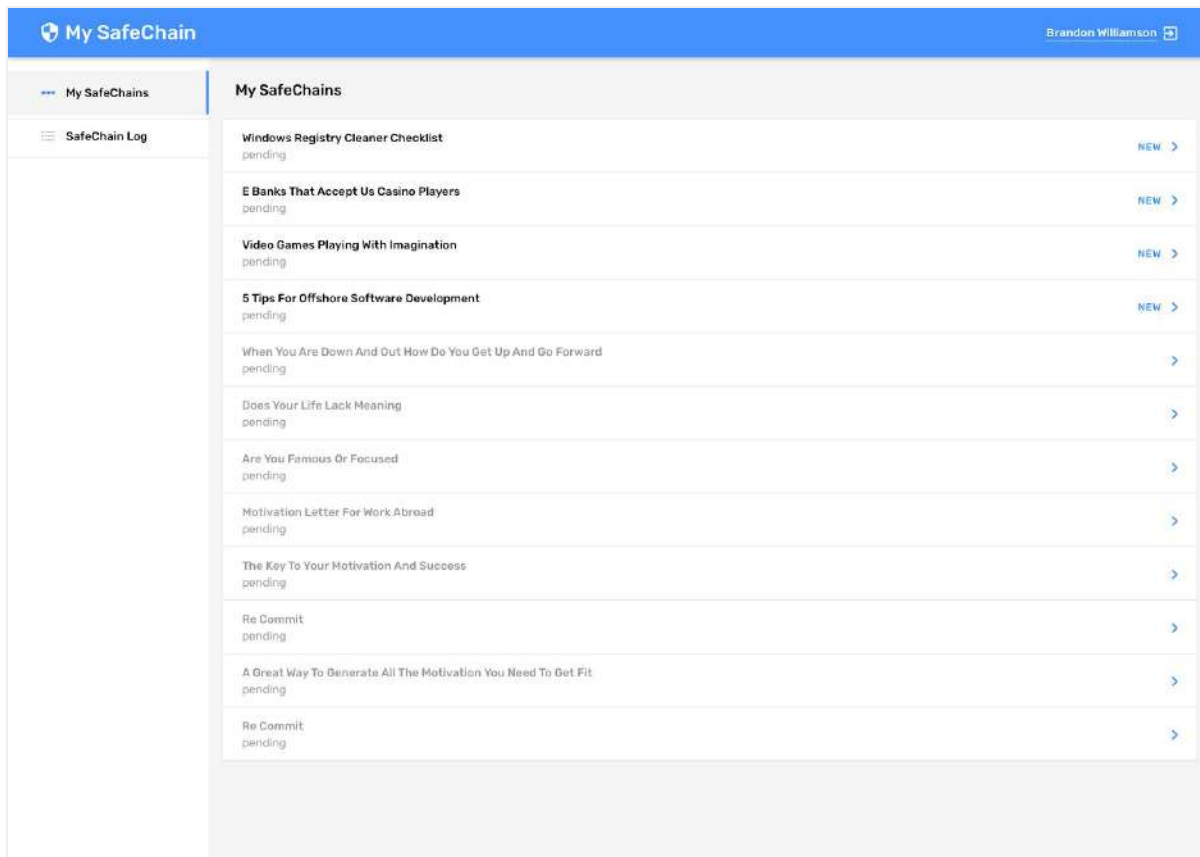


Action: To get into the system user will need to protect the same procedure as Admin process. User add email login provided and password related (all admin access credentials will be created from server side by product owner, admin may register authorized users), after adding these data and pressing login user will see “Enter sms code fields” also user will receive sms to the phone number that is registered and confirmed. Sms includes code, which user adds into an additional field to confirm identity.

Possible issues: sms code could not work in case that external service will have technical issue or user will add wrong digits.

Possible scenario: May be added button contact administrator to report an issue.

### **Use Case 13 - User check My Safechain(s)**



- User = logged in;
- Safechain logo
- Top menu with following:
  - Name of User who work in a system
- Sidebar will have 2 sections.
  - My Safechains
  - SafeChain log






Under my Safechains user will see a list of chains where user is involved, new safe chains will be marked, by pressing on exact Safechain name user will see if the right side documents assigned to the Safechain and buttons approve decline.

If user presses approve button documents are going to the next stage, if user press decline button, will appear additional text field to add an explanation why the document will be declined.

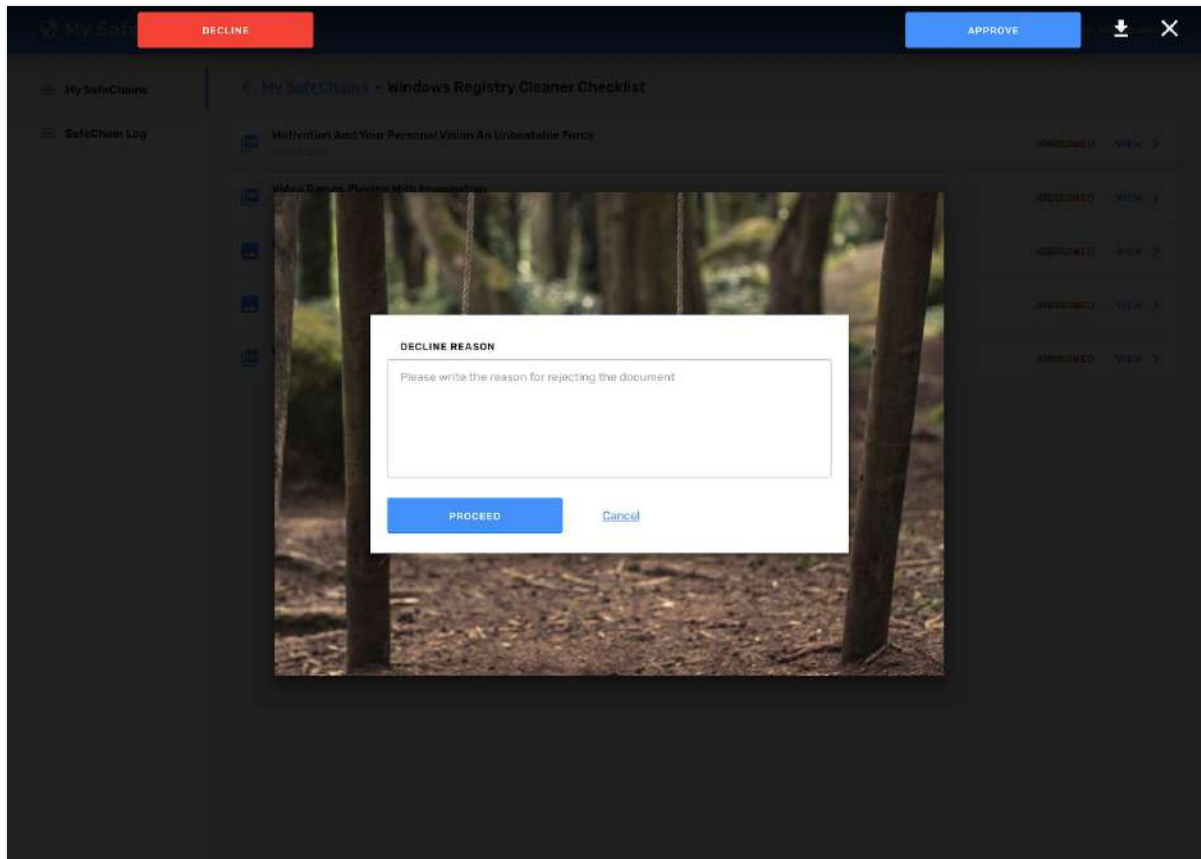
My SafeChain Brandon Williamson

My SafeChains ← My SafeChains · Windows Registry Cleaner Checklist

SafeChain Log

	<b>Motivation And Your Personal Vision An Unbeatable Force</b> certificate	<a href="#">VIEW &gt;</a>
	<b>Looking Fer Your Dvd Printing Solution</b> photo	<a href="#">VIEW &gt;</a>
	<b>Video Games Playing With Imagination</b> certificate	<a href="#">VIEW &gt;</a>
	<b>A Guide To Mri Scans</b> photo	<a href="#">VIEW &gt;</a>
	<b>Windows Registry Cleaner Checklist</b> certificate	<a href="#">VIEW &gt;</a>

Example of the document to Approve or Decline



User see following buttons:

- Decline, by pressing this button user will see a pop-up where it is necessary to add an explanation why document is cancelled, after pressing proceed user will be forwarded to previous screen and document will be marked as cancelled.
- Accept, by pressing this button user will confirm document and it will go to the next step of the chain for further confirmation.
- Download (if user have permissions to download file)
- Close window button

Example of approved and cancelled documents.



My SafeChains

← My SafeChains · Windows Registry Cleaner Checklist

SafeChain Log

 Motivation And Your Personal Vision An Unbeatable Force <small>certificate</small>	APPROVED	<a href="#">VIEW &gt;</a>
 Looking For Your Dvd Printing Solution <small>photo</small>	DECLINED	<a href="#">VIEW &gt;</a>
 Video Games Playing With Imagination <small>certificate</small>		<a href="#">VIEW &gt;</a>
 A Guide To Mri Scans <small>photo</small>		<a href="#">VIEW &gt;</a>
 Windows Registry Cleaner Checklist <small>certificate</small>		<a href="#">VIEW &gt;</a>

## Use Case 14 - logs

The screenshot displays the 'My SafeChain' application interface. At the top, there is a blue header with the 'My SafeChain' logo on the left and the user name 'Brandon Williamson' on the right. Below the header, a sidebar on the left contains two menu items: 'My SafeChains' and 'SafeChain Log'. The main content area is titled 'My SafeChains Logs' and features a list of SafeChain entries. Each entry includes a title, a status (e.g., 'pending'), and a 'NEW >' button. The entries are: 'Windows Registry Cleaner Checklist', 'E Banks That Accept Us Casino Players', 'Video Games Playing With Imagination', '5 Tips For Offshore Software Development', 'When You Are Down And Out How Do You Get Up And Go Forward', 'Does Your Life Lack Meaning', 'Are You Famous Or Focused', 'Motivation Letter For Work, Abroad', 'The Key To Your Motivation And Success', 'Re Commit', 'A Great Way To Generate All The Motivation You Need To Get Fit', and 'Re Commit'. A 'LOG' panel on the right shows a detailed log for the selected 'Re Commit' entry, listing actions such as 'initiates SafeChain', 'uploaded Cert. of Fair Trade', 'uploaded import licenses', and 'requests to add image to Cert. of Fair Trade' with their respective timestamps. A 'PRINT' button is located at the bottom right of the log panel.

- 2. User = logged in;
- Top menu with following:
  - Name of User who work in a system
- Sidebar will have 2 sections.
  - My Safechains
  - Safechain log
- Main section will consist list of Safechains that user already participate in.

### Actions:

- by pressing My Safechains user stays at the same section
- By clicking "Safechain log" user will see log related to the safe chain where user added as a participant.
- In case if user have just one safe chain will be shown a log for this particular safe chain only.
- In case if user have few safechains, that screen will be divided into two parts and left part will show list of Safechains, By pressing the name of the particular Safe Chain user will see details of it.

View for several Safechains logs in user's account.

The screenshot displays the 'My SafeChain' dashboard. On the left, a sidebar shows 'My SafeChains' and 'SafeChain Log'. The main area is titled 'My SafeChains Logs' and contains a list of 13 items, each with a title, 'pending' status, and a 'NEW >' or '>' button. The items are: '5 Tips For Offshore Software Development', 'E Banks That Accept Us Casino Players', 'Video Games Playing With Imagination', 'Windows Registry Cleaner Checklist', 'When You Are Down And Out How Do You Get Up And Go Forward', 'Does Your Life Lack Meaning', 'Are You Famous Or Focused', 'Motivation Letter For Work Abroad', 'The Key To Your Motivation And Success', 'Re Commit', 'A Great Way To Generate All The Motivation You Need To Get Fit', and 'Re Commit'. On the right, a 'LOG' panel shows a list of five events: 'initiates SafeChain [26/06/2017 @ 12:20]', 'uploaded Cert. of Fair Trade [28/06/2017 @ 10:24]', 'uploaded import licenses [01/07/2017 @ 10:25]', 'requests to add image to Cert. of Fair Trade [18/07/2017 @ 10:25]', and 'initiates SafeChain [26/06/2017 @ 12:20]'. A 'PRINT' button is located at the bottom of the log panel.

## Page List for User

The following is the list of pages that are anticipated for the site which are user facing. Administrator pages are not listed below. Static textual content for the page is also provided, where needed.

Page	Text Content
Login screen	
My Safechains	
Logs	
Profile	

## SMS Notifications to User

To limit the scope of email notifications in phase 1, a single summary email notification for the user can be considered as per below. Admin email notifications are not described in this section.

Notification	How Often
Your confirmation code is ...(digits).	Every time user try to login into account and add login and password

## Technology solution:

Blockchain solution: Hyperledger Fabric  
Chain code (smart contracts) language: Go / Java  
Blockchain type - private  
File storage: BigchainDB  
Cloud server solution: Amazon AWS  
Standalone Solution for companies with Government restrictions.  
CI/CD solution: Jenkins  
Backend: Python, Django, PostgreSQL, RedisDB  
Frontend: Angular 4 / React

### Base secure level:

all nodes are installed inside the company

### Improved secure level:

several nodes installed for each company / blockchain users.

## S-PRO is a global IT partner

with local business advisors that works as an R&D centre, combining deep technology expertise across mobile, data, and cloud solutions with domain-specific knowledge. We consult on how to use modern technologies in the FinTech, healthcare, renewable energy, transportation and logistics, manufacturing, and eLearning industries.

Contact S-PRO

