

Test Plan: Team PhiQuest

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History of document

- **Version 1.00** (March 9th, 2022) – Initial document created. Test cases covered here only measure the current functionality and do not satisfy the requirements of the remainder of the administration dashboard. No references are currently used by the document, so the section has been excluded.
- **Version 1.01** (April 15th, 2022) – Changes made to the document based on the feedback received from Dr. Christensen to include invalid inputs under Design of testing.

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1. Introduction

As businesses transition into hybrid operations that demand online and physical systems, demand has grown for online solutions to the flow of work. A major competitor in this market, Accusoft has created a no-code solution for businesses to create automated document procedures in their OnTask.io application. OnTask.io has flexible solutions to many use cases, but one case that went unconsidered was an on-demand software for creating a workflow while browsing online. For this, they contracted PhiQuest to develop a Google Chrome extension for generating a workflow from a document found while browsing.

This extension, DocBridge.io, creates a communication bridge between Google Chrome's browser and the OnTask.io systems that direct work to organization members. As a part of the extension's development, a dashboard for running the extension is needed so that Accusoft may easily manage the extension and its users. Additionally, Accusoft wants to explore the development of a system that can secure the authenticity of a document. Private ledgers, called blockchains, are perfect for collectively endorsing a document's originality and authenticity.

PhiQuest has approached this student team for help in building this administration interface for the DocBridge.io extension in Google Chrome and for building a private blockchain to support the onTask.io application. The problems that this project will be addressing are as follows: (PS1): “Can a private blockchain system be implemented to certify transactions and documents signed via the DocBridge.io user interface?” and (PS2): “Can an administration user interface be implemented so that operations personnel can visualize Docbridge.io metrics, perform user administration, and log selective events and transactions?”

A test plan outlines the planned experiments that will evaluate the efficacy of the solution to a problem. This plan is made up of test cases that cover requirements and specifications in a certain state with given inputs and detailed expected outputs. Test case #1 is intended to measure if the functionality of adding blocks to the blockchain works as expected, and test case #2 is intended to measure if the functionality of reading the blockchain works as expected. The primary inputs for the project’s tests are user input (data fed to the system or options chosen in a menu) and system input (data sent through POST commands to the server).

2. Glossary

Test Case: The sequence of actions required to verify a specific feature or functionality. Detailing the steps, data and prerequisites and postconditions necessary to verify a feature.

3. Parameters to be tested

A user should be able to successfully initiate a workflow using the DocBridge.io extension, go through the workflow via OnTask, once the workflow is completed. The document should be exported to google drives, information about the workflow and a hash generated from the file’s array Buffer should be stored inside a blockchain and backed up in the Maria DB database. An administrator (currently only administrators will have access to the blockchain explorer, this is most likely to be changed in the future when the project is at a later stage) should then be able to

log into the DocBridge.io administration dashboard and search up the information about that file with a file upload or by searching the files document ID, transaction ID, or hash of the file.

4. Design of testing

System State	Input	Output
Successfully executed workflow initiated from DocBridge.io	POST from OnTask with workflow information	Bit stream from OnTask.io with the signed document's data
Successfully received document bit stream from OnTask.io	Bit stream from OnTask.io with the signed document's data	Hashed block is entered into the blockchain with the workflow timestamp, transaction ID, document ID, and the hash of the signed document
Entered a search for a document ID, transaction ID, or document hash in the blockchain explorer module	String containing a document ID, transaction ID, or document hash	Block data for the blockchain block with a matching document ID / transaction ID / document hash
Activation of the upload document function in the blockchain explorer	Document bit stream	Signal if a hash of the document already exists within the blockchain
Selection of the transaction viewer within the administration dashboard	Entry of parameters for a search of the transaction log for the DocBridge.io system	Table containing all activity conducted within DocBridge.io
Error executing workflow initiated from DocBridge.io	An invalid document page opened where the document is not transferred as a google docs format first before attempting to start a workflow with the document.	The option to start a workflow with the document will not be available on the DocBridge.io extension
Checking a file that has been tampered with on the Docbridge Blockchain Explorer.	Uploading A PDF file that has been changed after it has been stored inside the blockchain.	No search result will show, indicating that the document is not stored inside the Docbridge Blockchain Explorer, showing that the document is not verified.

5. Test case #1

a) Initiating workflow with DocBridge.io and verifying the document on the administrator dashboard blockchain explorer.

b) system configuration

DocBridge.io Installed on google chrome connected with group access token as dee20fe5-1840-4dc5-934e-8d2e01b6463a

c) Exact Input:

|Legal Contract

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b) Mauris erat sapien, venenatis cursus felis vel, consequat tempor purus. Aliquam non erat in est pretium mattis. Donec nec ex nisl. Curabitur non mauris risus. Mauris sed finibus tortor. Donec a tortor a ligula fringilla tempor sed a lorem. Donec pulvinar lectus nec ante tincidunt, vel mollis nulla suscipit. Quisque ac odio suscipit, sagittis velit molestie, euismod turpis.

2) Governing Law:

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Signature:%Signature0%

Name:%Name0%

Date:%Date0%

Test Document that will be sent

Groups
Send
Create
AC

Select Workflow

Select Group:USF Spring 2022

Select Workflow:Allen Upload, Send, Sign, We

Insert Anchor Text ?

Field Name

Letter

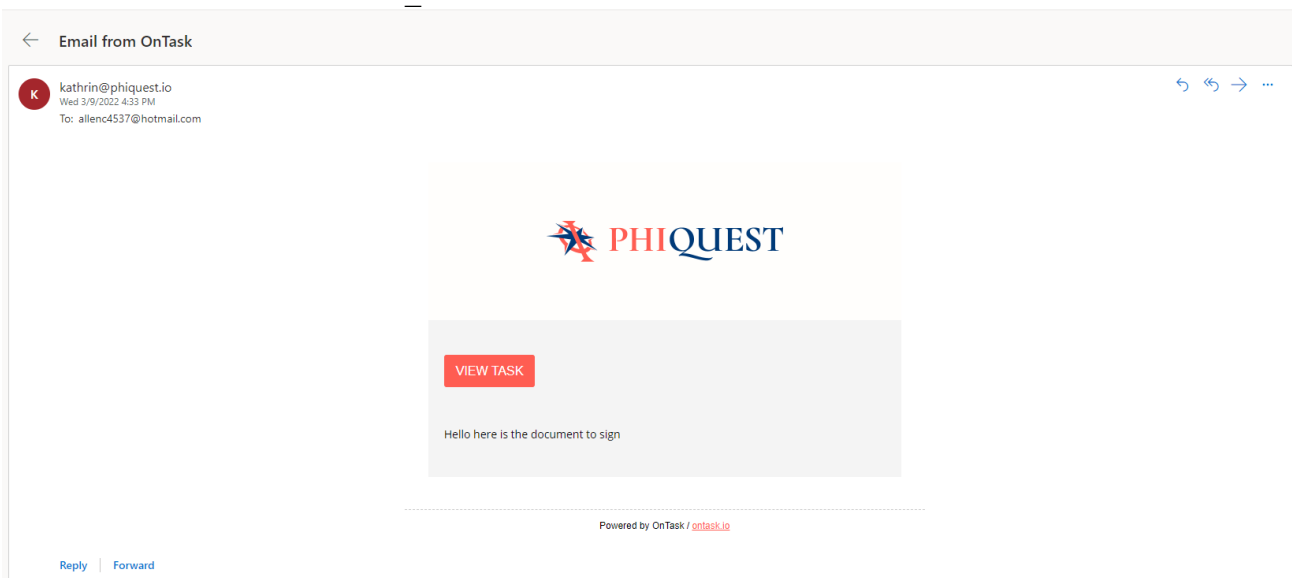
Workflow Parameters

Send_to

allenc4537@hotmail.com

Send Document

DocBridge.io selected values, once “Send Document” is clicked, the workflow will be initiated, where an email is sent to “Send_to”



The email sent to “Send_to” will look like this, click on “View Task”

Legal Contract

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2) Governing Law:


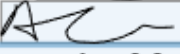
Maecenas quis mi diam. Curabitur at lacus dolor. Sed non tempus sem, eget hendrerit eros. Maecenas tempor turpis purus, vitae venenatis felis condimentum nec. Nam vitae cursus sapien. Cras sed magna id nisi aliquam rhoncus eget at risus. Vivamus eget pulvinar lacus.

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Signature:  Signed with OnTask.io - 024Dec120002
Name:  Signed with OnTask.io - 024Dec120002
Date: March 09, 2022

Once “View Task” is clicked on, the onTask workflow will show up, where it asks for a signature, name and date. After filling these in click on “Continue” in the bottom right to complete the workflow.

d) Exact Output:

id	documentID	hash	time	wfVariables	transactionID	index
69	ae19d941-958c-4f4a-98bd-fa82729a0364	9b0b739ce9d4947543390710edf7bc733ecf41f1ca23762...	2022-03-01T23:53:06+00:00	{ "myFile": { "documentId": "ae19d941-958c-4f4a-98b...	bd8109c099ba11ec8f60b7f0f32a2b49	2
70	7445f1b0-1bca-40d3-8f23-f4aeb07c6b3c	45d99989415cac5b04fc52e62e8dd9af95b5ee975d88e04...	2022-03-02T00:02:39+00:00	{ "myFile": { "documentId": "7445f1b0-1bca-40d3-8f2...	1320240099bc11ec8f60b7f0f32a2b49	3
76	5cc1df78-596b-440b-bcf7-66b7bad36d05	4daf47e24a8f60ce74f6374565af30c85b8ae5a7d0a08863...	2022-03-02T15:29:16+00:00	{ "myFile": { "documentId": "5cc1df78-596b-440b-bcf...	85a972c09a3d11ec93b7632a6a321c9	4
77	b22ealc6-f0d3-4c55-8481-03c5a5003a9c	5263affab02d12be35bc0b1484e6543aa305da300ba0f32...	2022-03-03T18:29:58+00:00	{ "myFile": { "documentId": "b22ealc6-f0d3-4c55-848...	ee72ea909b1f11ec93b7632a6a321c9	5
78	db4b3674-080b-4596-aa1c-072baf204b0d	c502cfb9a57d07631a9b9d259e35cc9c2a19f274e9d4e6...	2022-03-03T22:20:38+00:00	{ "myFile": { "documentId": "db4b3674-080b-4596-aa1...	27f8c5f09b4011ec93b7632a6a321c9	6
79	a4cf6fd0-1fdc-427f-8a31-4db4bf7b44ff	b5a7f594d55f893d876047e8908f569e81dd077556f0a71...	2022-03-07T17:31:08+00:00	{ "myFile": { "documentId": "a4cf6fd0-1fdc-427f-8a3...	6010e8b09e3c11ec8ca1346bac7e921	7
83	16cd5efa-ec45-4468-9c12-6d76ba1c6747	cb253a48283842343932a4995eb25af6cdd39c42bd7c6db...	2022-03-09T21:53:50+00:00	{ "myFile": { "documentId": "16cd5efa-ec45-4468-9c1...	67a10d409ff311ec867e6bf97a2546dc	8

A transaction will be added to the MariaDB transaction table that is set up. In this the 7th entry of the table, id of 83 is the newest document just sent.

```
{
  "index": 8,
  "timestamp": 1646862831560,
  "transactions": [
    {
      "hashOfPDF": "cb253a48283842343932a4995eb25af6cdd39c42bd7c6dbf7d30bd55cf50cf6f",
      "documentTime": "2022-03-09T21:53:50+00:00",
      "documentId": "16cd5efa-ec45-4468-9c12-6d76ba1c6747",
      "wfVariables": "{ \"myFile\": { \"documentId\": \"16cd5efa-ec45-4468-9c12-6d76ba1c6747\" }, \"Send_to\": \"a\" }",
      "transactionId": "67a10d409ff311ec867e6bf97a2546dc"
    }
  ],
  "nonce": 85489,
  "hash": "00006d3dcf843d43dc1e3b1b7e951f5e4d8b4cd47ce62dfdbd2c3e7166e6cc967",
  "previousBlockHash": "000006e6977853f65e2b4684e471d7831c81a67568e8ebca18f9efca87488af0"
}
```

A block will be added to the blockchain, which is viewed by going to <https://stag-ontask-bridge-api.phrequest.com/blockchain/blockchain>

Note that these exact document ID and hash of PDF will not be the same as shown above if replicated with the same inputs, because the document ID is a unique ID generated by OnTask depending on the initiated workflow, which depends on the time the document was sent. Same with the Hash of the file and transaction ID, these are all unique generated values that depend on the context file and the time of the initiated workflow.

6. Test case #2

- Test of Blockchain Explorer Functionality via Document Upload and Search by Relevant Data
- A document has been hashed and the block has been entered into the blockchain containing the hash of the document, its ID within OnTask.io, its transaction ID, and the workflow data that was included in the POST sent from OnTask.io.
- The exact document being used in this test case is the same one referenced in Test Case #1. It is this PDF of a “Legal Contract”, signed by Allen Chang and dated for March 9th, 2022.

Legal Contract

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b) Mauris erat sapien, venenatis cursus felis vel, consequat tempor purus. Aliquam non erat in est pretium mattis. Donec nec ex nisl. Curabitur non mauris risus. Mauris sed finibus tortor. Donec a tortor a ligula fringilla tempor sed a lorem. Donec pulvinar lectus nec ante tincidunt, vel mollis nulla suscipit. Quisque ac odio suscipit, sagittis velit molestie, euismod turpis.

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3) Term:

a) Quisque vehicula, augue ac blandit mollis, nulla augue venenatis risus, a fringilla nisi enim ut sem. Cras iaculis tempus risus eget pulvinar. Cras quis rhoncus felis. Nulla eleifend molestie purus, aliquet suscipit velit ultrices nec. Etiam et sapien eget augue aliquam lobortis non nec orci. Quisque et lacus in justo dignissim tincidunt. Nunc eu mollis tortor. Phasellus mauris magna, lobortis a enim vitae, auctor efficitur libero.

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Signature:  Signed with DocuSign on 03/09/2022

Name:  Signed with DocuSign on 03/09/2022

Date: March 09, 2022

d) When the exact file is uploaded to the DocBridge.io administration blockchain explorer the information about the document stored in the blockchain will be displayed as follows.



Blockchain Explorer

 Upload a File

Search File

Update Blockchain

Search by DocumentID, TransactionID, Hash of Docum



Results for Uploaded File

Document ID: 16cd5efa-ec45-4468-9c12-6d76ba1c6747

Hash of Document: cb253a48283842343932a4995eb25af6cdd39c42bd7c6dbf7d30bd55cf50cf6f

Date and Time of Document: Wed Mar 09 2022 17:30:11 GMT-0500 (Eastern Standard Time)

Transaction ID: 67a10d409ff311ec867e6bf97a2546dc

Workflow Variables:

documentId: 16cd5efa-ec45-4468-9c12-6d76ba1c6747

Send_to: allenc4537@hotmail.com

accusoft_solutions_workflowInitiator: Anonymous

accusoft_solutions_workflowInitiatorName: Anonymous

When the file is searched by document ID, hash of the PDF, or Transaction ID, the same results will also be shown.



Blockchain Explorer

 Upload a File

Search File

Update Blockchain

16cd5efa-ec45-4468-9c12-6d76ba1c6747



Results for '16cd5efa-ec45-4468-9c12-6d76ba1c6747'

Document ID: 16cd5efa-ec45-4468-9c12-6d76ba1c6747

Hash of Document: cb253a48283842343932a4995eb25af6cdd39c42bd7c6dbf7d30bd55cf50cf6f

Date and Time of Document: Wed Mar 09 2022 17:35:14 GMT-0500 (Eastern Standard Time)

Transaction ID: 67a10d409ff311ec867e6bf97a2546dc

Workflow Variables:

documentId: 16cd5efa-ec45-4468-9c12-6d76ba1c6747

Send_to: allenc4537@hotmail.com

accusoft_solutions_workflowInitiator: Anonymous

accusoft_solutions_workflowInitiatorName: Anonymous