
WAMPAC FRAMEWORK - USER MANUAL

The Wide Area Monitoring, Protection and Control (WAMPAC) framework is developed with associated computational algorithms and software tools, to prevent and mitigate cyber-attacks and achieve resilience. The application is designed in accordance with CIA guidelines for information security.

In this network we have a server, set of verifiers and user nodes. Server is the administrator of the network, nodes are desktops who are the participants who take part in transactions, verifiers are set of 7 desktops who are also participating nodes but help in decision making for disputes or root cause analysis in the network.

Every node in the network has a unique decentralized identity (DID). A smart contract governs user enrollment and disenrollment processes based on whitelisted rules.

A distributed Network Monitoring service constantly monitors the entire network for anomalies and performs a PBFT based decision making process on agreed group policies.

The service also detects anomalies, localizes the affected node and provides the latest committed safe state.

A desktop application runs on startup to manage the provenance-monitoring tool.

This user manual will help through each step of the application. Follow the steps to seamlessly setup the application on the system

Table of Contents

PREFACE	3
Prerequisites	3
Product Elements	3
PROCEDURES	4
Installation	4
PRODUCT USAGE	5
Decentralised Identity Creation	5
User Interface	6
File Sharing	9
Network Monitoring System	12
TROUBLESHOOTING	13
APPENDIX	13

PREFACE

Pre Requisites

1. Java 11
2. Go IPFS v0.6
3. Windows 10 Desktop enterprise edition
4. List of ports mentioned in Appendix are opened

Product Elements

1. **User Interface:** It provides provision for user to generate a unique identity in network, verify identity, file share access permission, continuous monitoring of system status, accessing list of backups of files, and provision to create backups for the logs
2. **Network Identity Creation:** Provision to create a unique decentralized identity (DID) in the network, Verification of the identity is mandatory to perform any operation in the network.
3. **Access Permissions:** Provision to define the file access permissions to specific set of users, Perform operations on the file by checking the permission set , File Versioning – History of the file operations performed
4. **NMS logging module:** Checks Health of system, Periodic log collection and distributed storage of logs, System restoration, Backup logs used for root cause analysis

PROCEDURES

Installation

- Install all the prerequisites mentioned in 2.a
- Double click on the executable and the UI screen pops up to perform necessary operations

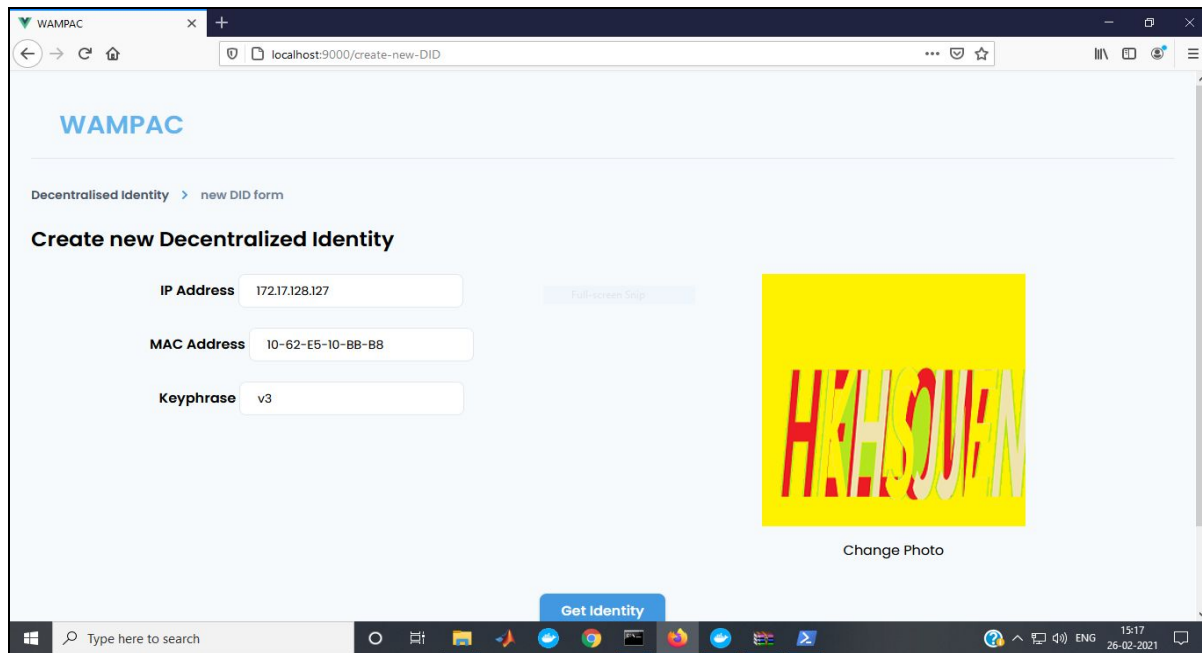
If the executable does not load correctly, please refer troubleshooting module 5.1

PRODUCT USAGE

This section explains how to use the product categorized based on the operations

Network Identity

A. Identity Creation

The screenshot shows a web browser window with the address bar displaying 'localhost:9000/create-new-DID'. The page title is 'WAMPAC'. Below the title, there is a breadcrumb trail 'Decentralised Identity > new DID form'. The main heading is 'Create new Decentralized Identity'. There are three input fields: 'IP Address' with the value '172.17.128.127', 'MAC Address' with the value '10-62-E5-10-BB-B8', and 'Keyphrase' with the value 'v3'. To the right of these fields is a yellow square image with the text 'HHSQUN' in a stylized font. Below the image is a 'Change Photo' link. At the bottom of the form is a blue button labeled 'Get Identity'. The browser's taskbar is visible at the bottom, showing various application icons and the system clock indicating 15:17 on 26-02-2021.

The above screen will be displayed on successful running of the application. Follow the below steps to create and identity

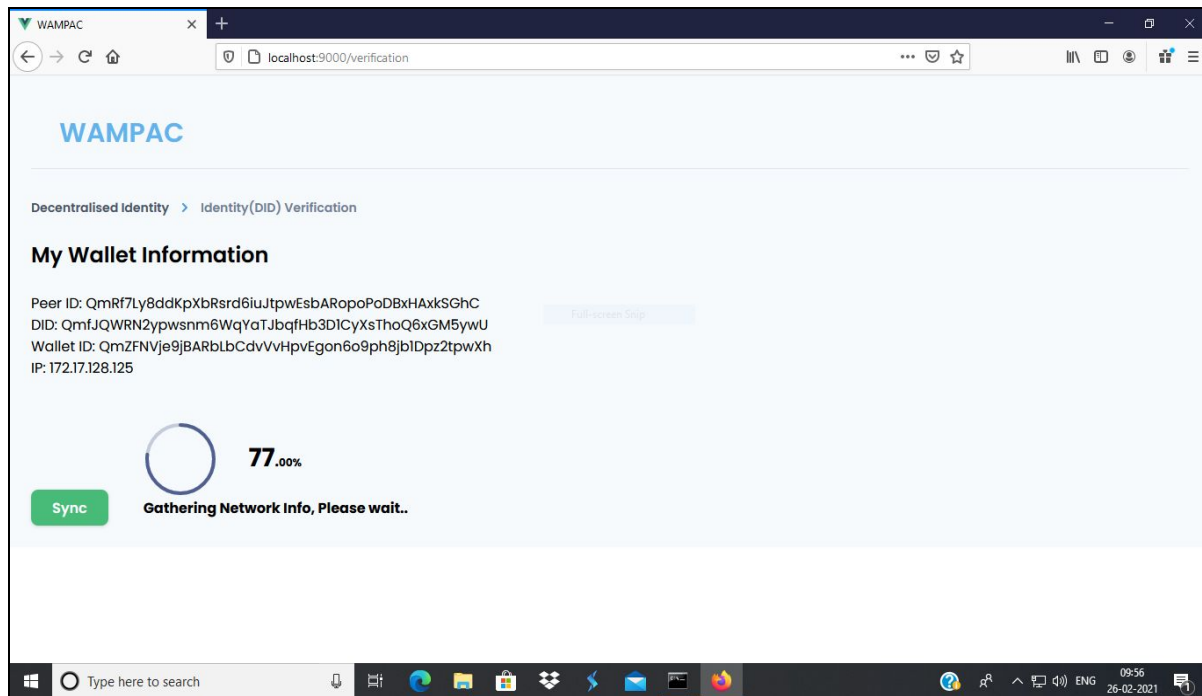
Steps

1. Type in the Key Phrase (random Seed) - supports any character type
2. IP and Mac address fields are automatically detected
3. Drag and drop and image of size 256 * 256, format *PNG
4. Click on Get Identity to obtain a unique network id.

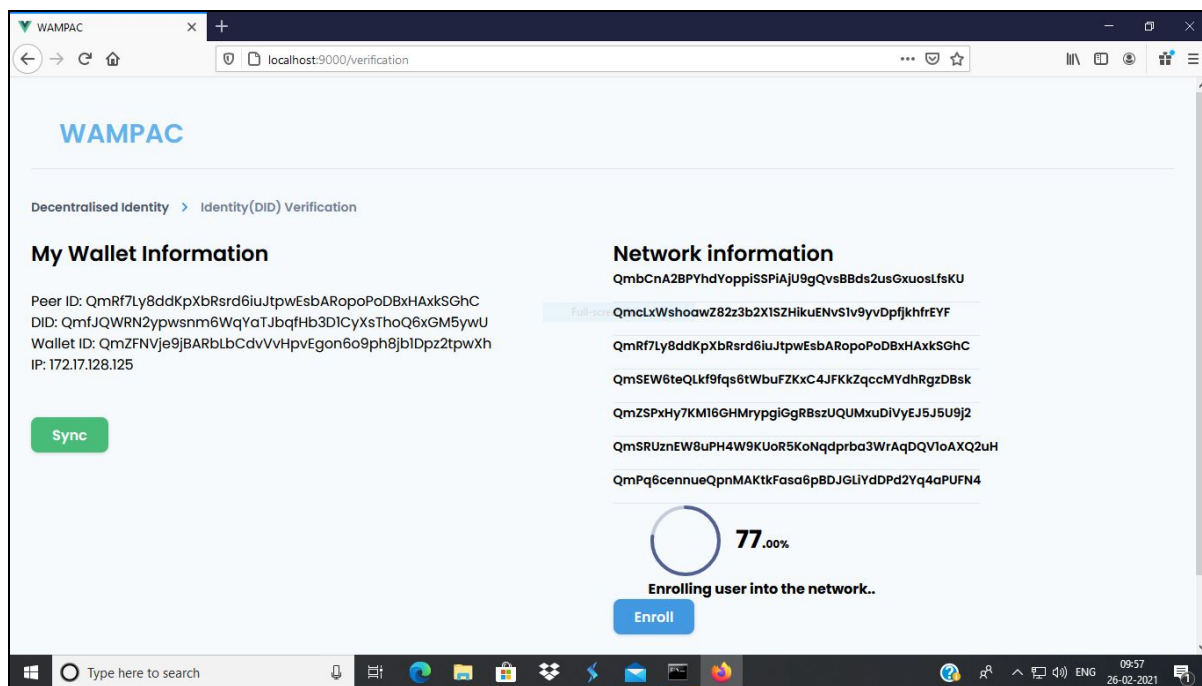
Note: All the input fields are mandatory

On successful identity creation, the page redirects to the Verification page. If failure, **retry**

B. Verification



This page displays the wallet information of the user. Click on Sync, to obtain the network information

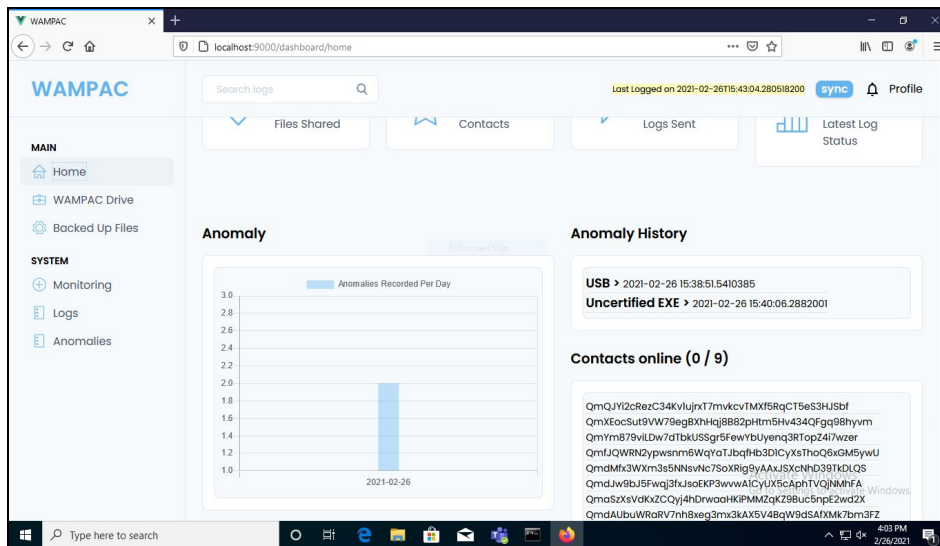


Once the network information is synchronized, click on Enroll, to get your identity verified. If Verified, page redirects to home page & you are authorized to perform any operation in the network based on your role. If not, you are not allowed to join the network.

User Interface

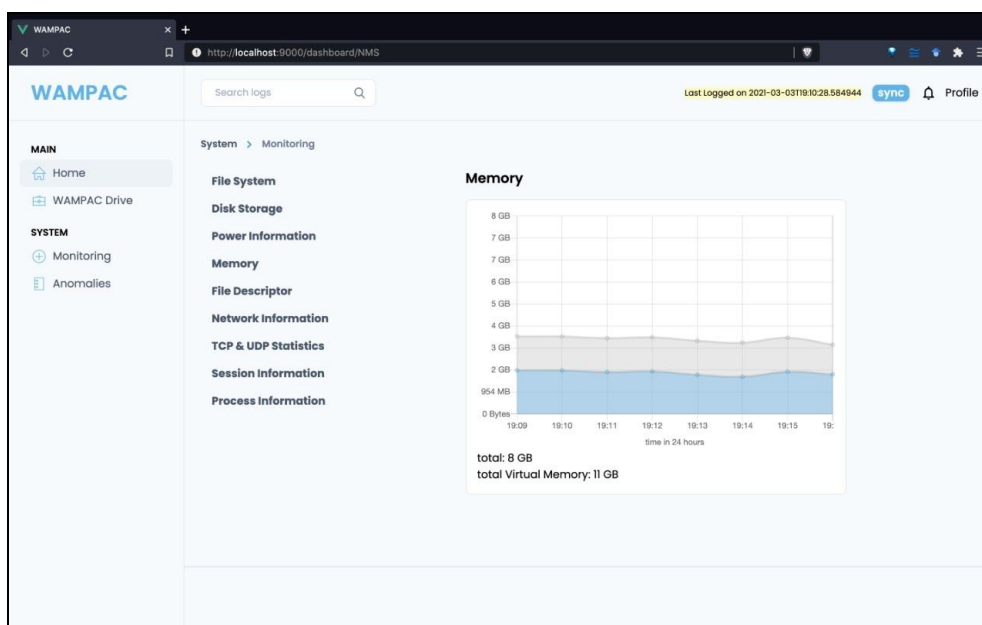
1. DASHBOARD

After successful Identity creation and enrollment into the network, the application will be redirected to the main dashboard with a set of operations made available to the user



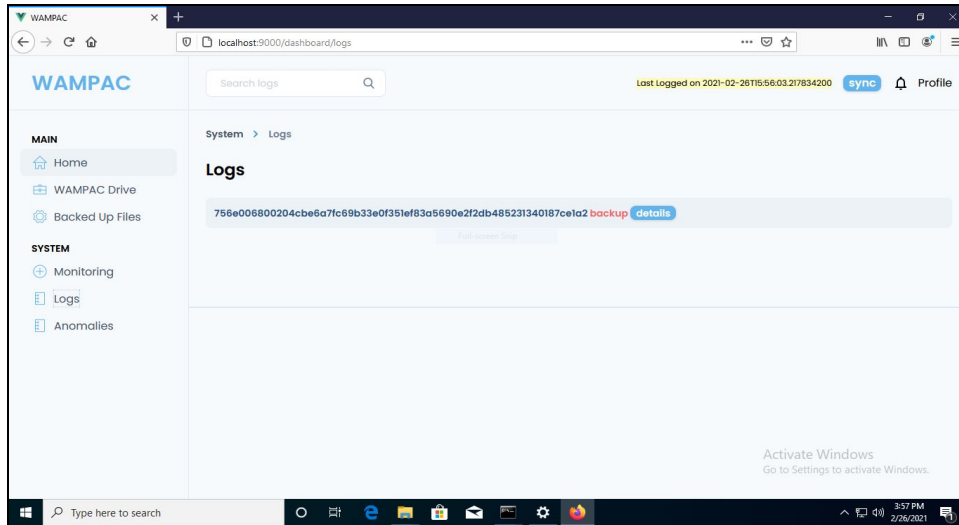
2. NETWORK MONITORING

The network monitoring layer runs locally on the user's system displaying the current network and memory usages



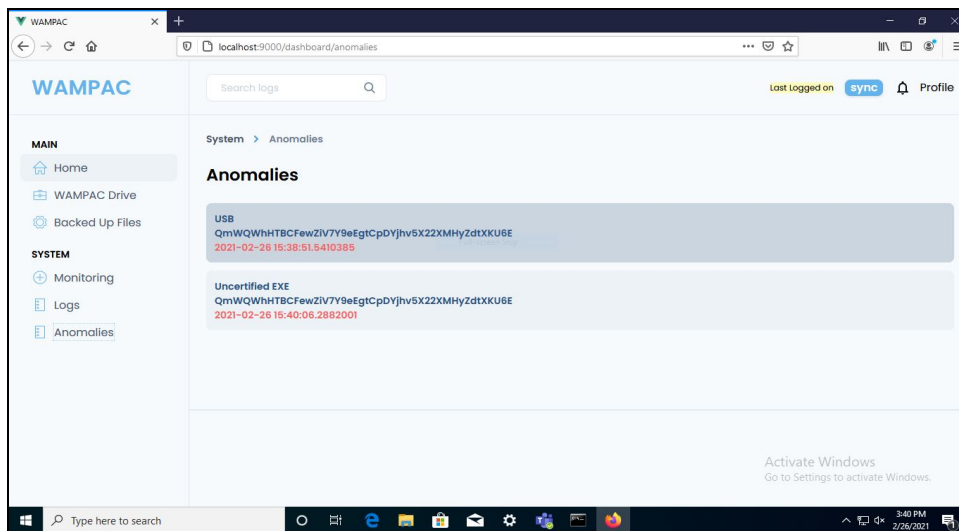
3. EVENT LOGS

Users can view and track the transactions committed to the network regarding the NMS logs and anomaly reports



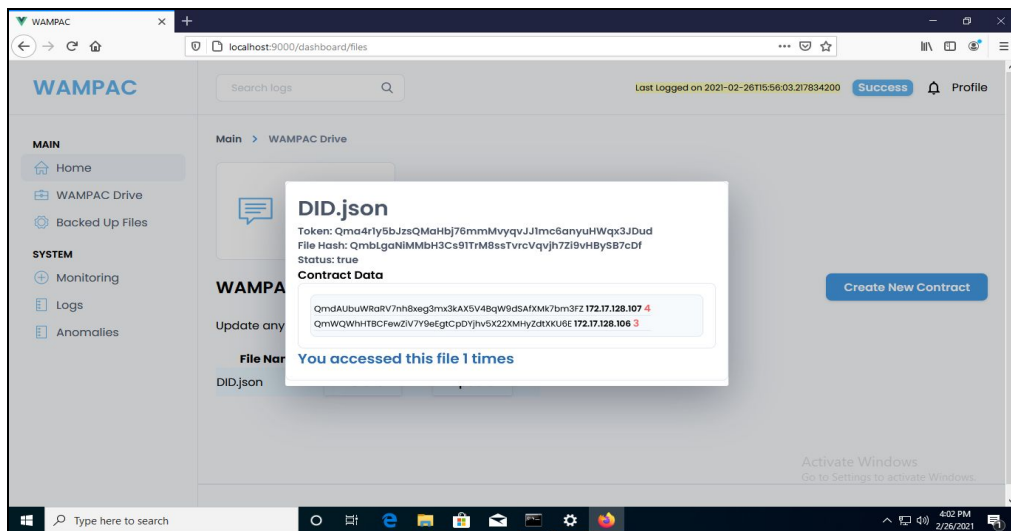
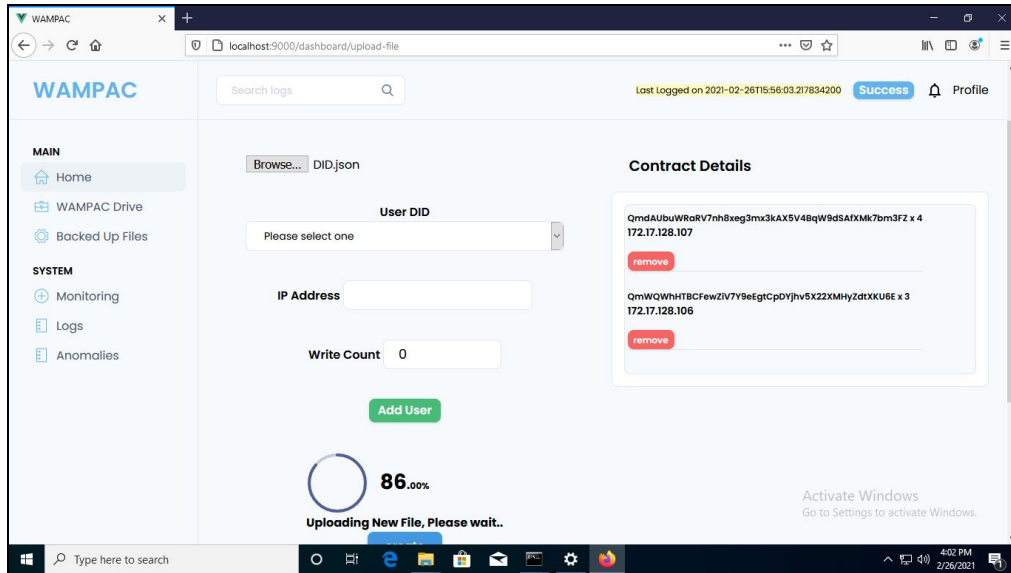
4. ANOMALIES

Users can view the history of anomalies occurred and its corresponding details like time, type of anomaly, decision after reporting to the network



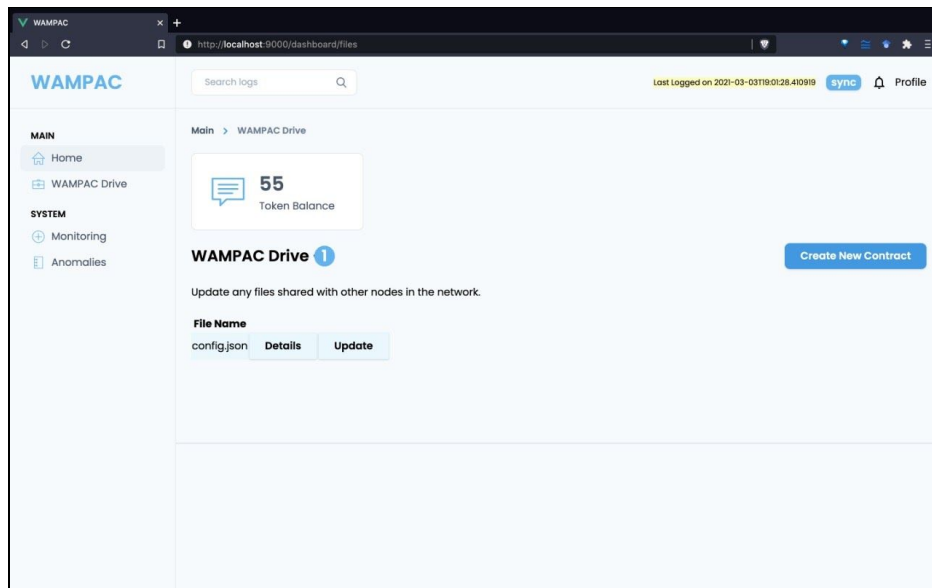
5. FILES DRIVE

New files can be created and shared with the network and maintain a personal drive. There are provisions for viewing the details of the files shared and updating active files



File Sharing - WAMPAC Drive

In this page, you can view the list of shared files and its details. In order to create a new shared file and set permission levels, click on Create New Contract



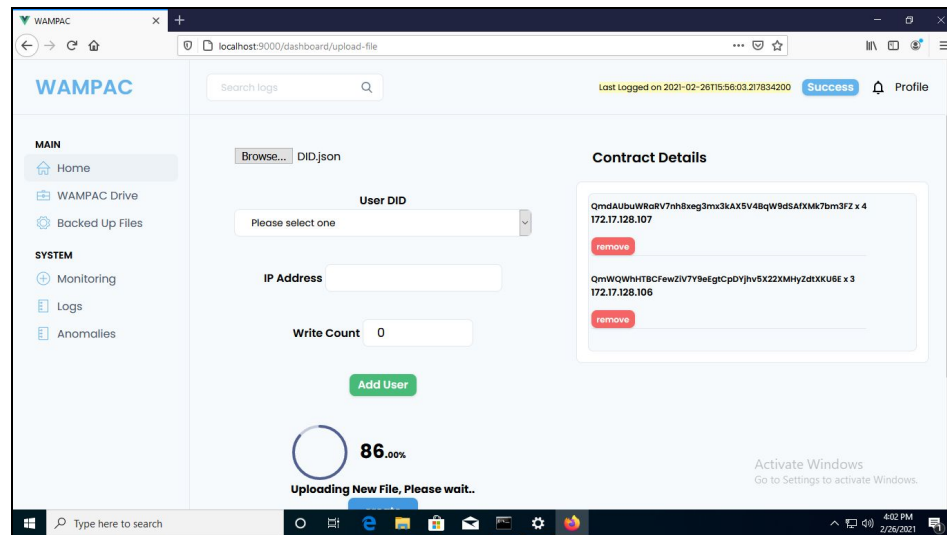
A. Create Contract

Follow the steps to create a new shared file

Steps

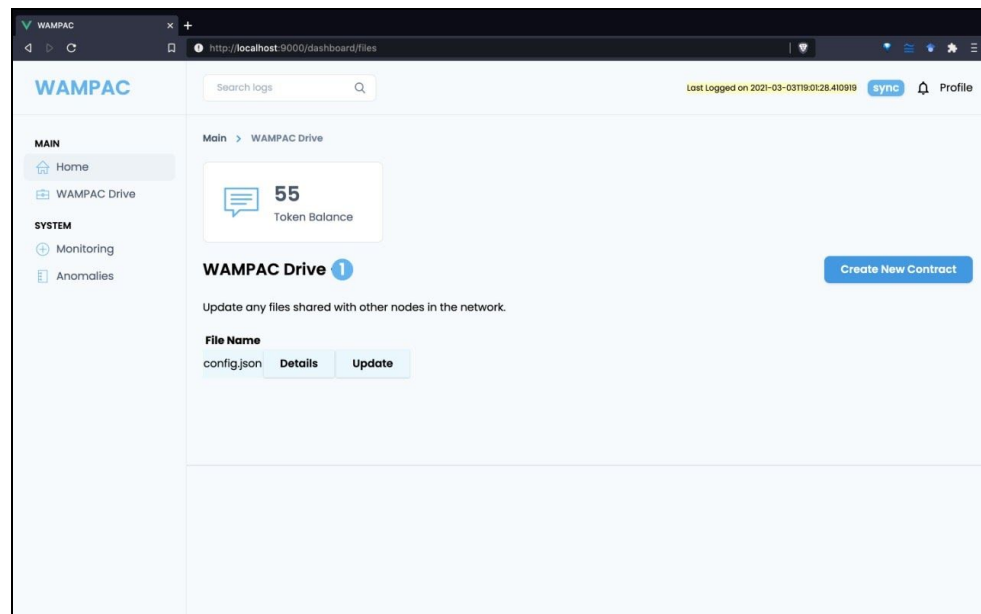
1. Import a file you want to share
2. Click the drop-down button to choose the identity of user who should access the contract
3. IP address of the corresponding user is auto filled
4. Type in the number of times that particular user has access

5. Click on add user button to add the access level details to the contract

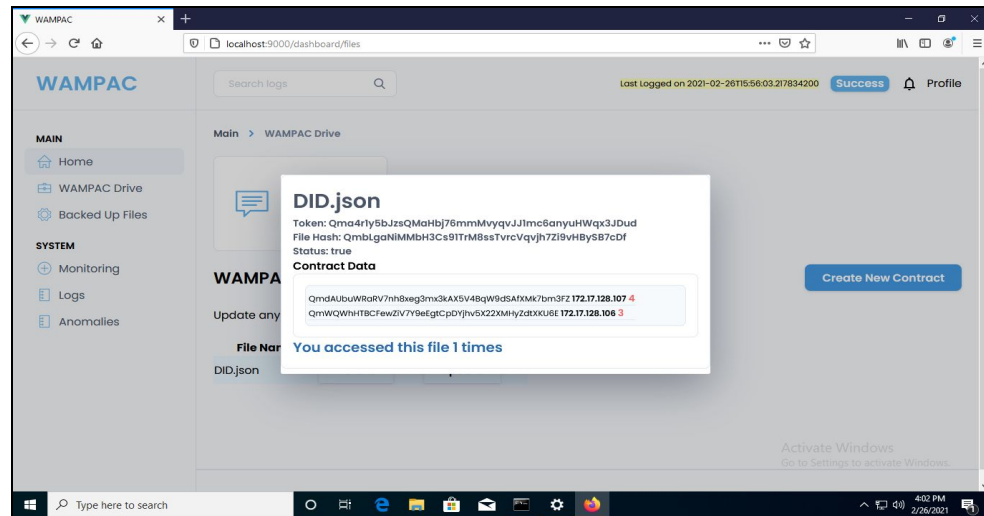


Note: Add your own identity to the contract since you are the initiator of the file sharing process - Mandatory

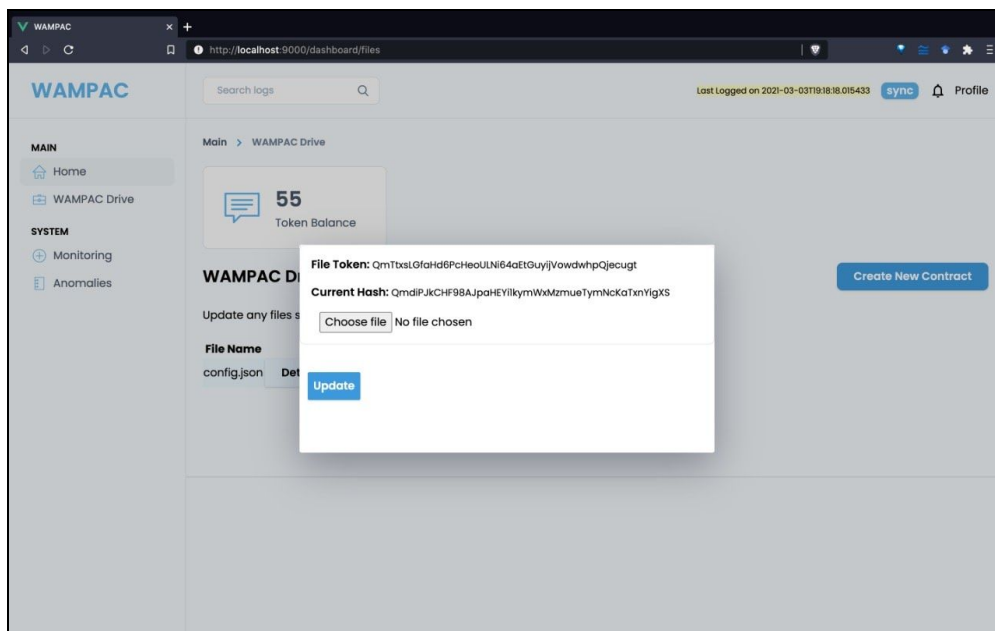
6. After adding the required members, click on create to initiate the file sharing process
7. After successful file sharing process, you will see the shared file details as below



8. Click on Details to view more information about the shared file



B. File Operation - Update

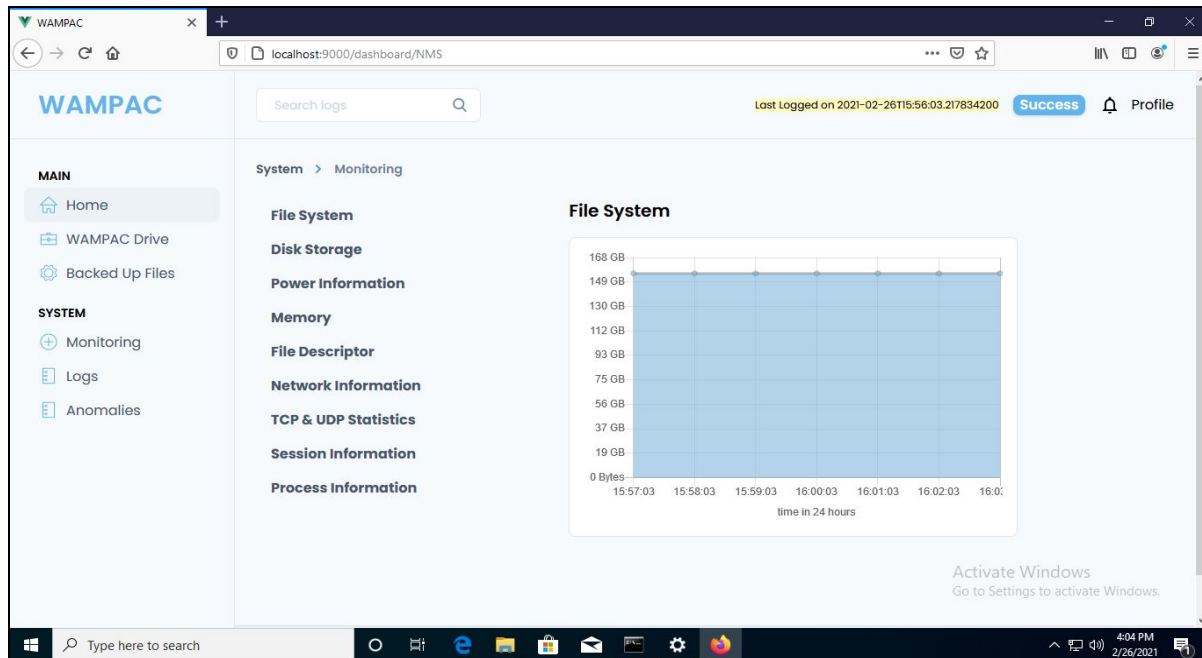


In order to update a particular file, Click on update button next to the file

The current version details of the file are displayed. Select the next version of the file you want to update and click on update

The access permissions set in the creation stage is verified among the specified set of identities while updating the new version of the file

Network Monitoring System



A web UI by default on startup should run the provenance-monitoring tool listening for an incoming message.

In the Monitoring screen there are four graphs namely Memory, Disk Storage, File System and File Descriptor continuously running in the background collecting respective data every one minute to help populate the graphs.

Other components like Power Information, Network Information, TCP and UDP Statistics, Session Information, Process Information generate relevant information where their respective buttons are clicked.

TROUBLESHOOTING

1. Executable not loading while installation
 - Go to “Task Manager” and check if required prerequisites are running
 - If not, kill executable from the task manager and re-run the exe
2. UI does not load
 - Check if the port is open – contact network admin (refer Appendix for port details)
3. UI Stuck
 - Go to Task Manager and kill all the running services related to the product (ipfs, java & exe)

APPENDIX

List of Ports

IPFS – 4001,5001,8080

Electron – 9000

Jar – 1898

Internal communication – 15010, 15011, 15040, 8787