

Project Name: BTES - Blockchain Technology Educational Software

Tester : Beste Kulözü - Elnur Alizada - S. Tarık Çetin - Şükrü Kırman

1. Increment	2. Increment	3. Increment
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*: “ * ” Symbol represents completed in the 3rd increment.

Final Increment Test Case

Test Case ID: 1

Test Designed by: <Beste Kulozu>

Test Priority (Low/Medium/High): High

Test Designed date: <15.03.2021>

Test Title: Create Node

Test Executed by: <Beste Kulözü>

Test Execution date: <7.05.2021>

Description: Test Create Node

Pre-conditions: User should be in the sandbox module.

Step	Test Steps	Expected Result	Actual Result	Status (Pass/Fail)	Notes
1	Open BTES.	Users should be able to create nodes.	A new node is created.	Pass	
2	Click Sandbox.				
3	Create Simulation.				
4	Right click > Create Node				

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Test Case

Test Case ID: 2

Test Designed by: <Beste Kulozu>

Test Priority (Low/Medium/High): High

Test Designed date: <15.03.2021>

Test Title: Delete Node

Test Executed by: <Beste Kulözü>

Test Execution date: <7.5.2021>

Description: Test Delete Node

Pre-conditions: User should be in the sandbox module. At least one node must exist to delete.

Dependencies:

Step	Test Steps	Expected Result	Actual Result	Status (Pass/Fail)	Notes
1	Open BTES	Users should be able to delete nodes.	The selected node is deleted.	Pass	
2	Click Sandbox				
3	Create Simulation				
4	Right Click> Create Node				
5	Right click> Delete Node				

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Test Case

Test Case ID: 3

Test Designed by: <Elnur Alizada>

Test Priority (Low/Medium/High): High

Test Designed date: <15.03.2021>

Test Title: Move Node

Test Executed by: <Elnur Alizada>

Test Execution date: <7.5.2021>

Description: Test Move Node

Pre-conditions: User should be in the sandbox module. At least one node must exist to move.

Dependencies:

Step	Test Steps	Expected Result	Actual Result	Status (Pass/Fail)	Notes
1	Open BTES	Users should be able to move nodes.	The node is moved to the desired location.	Pass	
2	Click Sandbox				
3	Create Simulation				
4	Right Click> Create Node				
5	Drag Node with mouse				

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Test Case

Test Case ID: 4

Test Designed by: <Elnur Alizada>

Test Priority (Low/Medium/High): High

Test Designed date: <15.03.2021>

Test Title: Create Sandbox Simulation

Test Executed by: <Elnur Alizada>

Test Execution date: <7.5.2021>

Description: Test Create Sandbox Simulation

Pre-conditions: User should be in the sandbox module.

Dependencies:

Step	Test Steps	Test Data	Expected Result	Actual Result	Status (Pass/Fail)	Notes
1	Open BTES.		Users should be able to create a new simulation instance..	A new simulation instance is created.	Pass	
2	Click Sandbox.					
3	Create Simulation automatically or with a given number.					
4	Create Simulation with a given Simulation Id					

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Test Case

Test Case ID: 5

Test Designed by: <Elnur Alizada>

Test Priority (Low/Medium/High): High

Test Designed date: <15.03.2021>

Test Title: Join Simulation

Test Executed by: <Elnur Alizada>

Test Execution date: <7.5.2021>

Description: Test Join Simulation

Pre-conditions: User is in the sandbox module and a simulation was already created beforehand.

Dependencies:

Step	Test Steps	Test Data	Expected Result	Actual Result	Status (Pass/Fail)	Notes
1	Open BTES		User should be able to join an existing simulation	User joins the existing desired simulation instance successfully..	Pass	
2	Click Sandbox					
3	Enter the Simulation ID	Simulation ID (the id of the simulation that already exists)				
4	Click Join					

Test Case

Test Case ID: 6

Test Designed by: <Beste Kulözü>

Test Priority (Low/Medium/High): High

Test Designed date: <15.03.2021>

Module Name: [Inspect Simulation Package]

Test Executed by: <Beste Kulözü>

Test Title: View Node State

Test Execution date: <7.5.2021>

Description: Test View Node State

Pre-conditions: User should be in the sandbox module. Users must create at least one node so that they can obtain the details.

Dependencies:

Step	Test Steps	Expected Result	Actual Result	Status (Pass/Fail)	Notes
1	Open BTES Click Sandbox	Users should be able to view node state.	Node details modal is displayed.	Pass	
2	Click “Create”				
3	Right Click > Create Node				
4	Double Click Node				

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Test Case

Test Case ID: 7

Test Designed by: <Beste Kulözü>

Test Priority (Low/Medium/High): High

Test Designed date: <15.03.2021>

Module Name: [Inspect Simulation Package]

Test Executed by: <Beste Kulözü>

Test Title: View Node History

Test Execution date: <7.5.2021>

Description: Test View Node History

Pre-conditions: User is in a sandbox simulation.

Dependencies:

Step	Test Steps	Expected Result	Actual Result	Status (Pass/Fail)	Notes
1	Open BTES Click Sandbox	Users should be able to view node history.	Node's log tab is displayed.	Pass	
2	Click "Create" Simulation				
3	Right Click Create Node				
4	Double Click Node				
5	Click "Log"				

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Test Case

Test Case ID: 8

Test Designed by: <Beste Kulözü>

Test Priority (Low/Medium/High): High

Test Designed date: <15.03.2021>

Module Name: [Inspect Simulation Package]

Test Executed by: <Beste Kulözü>

Test Title: List All Nodes

Test Execution date: <7.5.2021>

Description: Test List All Nodes

Pre-conditions: User is in a sandbox simulation.

Dependencies:

Step	Test Steps	Expected Result	Actual Result	Status (Pass/Fail)	Notes
-		Users should be able to list all nodes.	All nodes are displayed as icons on the simulation page.	Pass	For UX purposes, we decided not to implement a separate list of nodes in the simulation. All nodes that are in the simulation are displayed as icons on the simulation page already.

Test Case

Test Case ID: 9

Test Designed by: <Beste Kulözü>

Test Priority (Low/Medium/High): High

Test Designed date: <15.03.2021>

Module Name: [Inspect Simulation Package]

Test Executed by: <Beste Kulözü>

Test Title: View simulation Logs

Test Execution date: <7.5.2021>

Description: Test View simulation Logs

Pre-conditions: User should be in the sandbox module. User must create at least one node so that he/she can obtain the details.

Step	Test Steps	Test Data	Expected Result	Actual Result	Status (Pass/Fail)
1	Open BTES Click Sandbox	f.e : 11:09:44 incoming simulation-node-created 11:09:48 incoming simulation-nodes-connected 11:09:56 incoming simulation-node-mail-received 11:10:00 outgoing simulation-update-node-position 11:10:00 incoming simulation-node-position-updated	Users should be able to view simulation logs.	Simulation logs are displayed.	Pass
2	Click “Create” Simulation				
3	Right Click “Create Node”				
4	Double Click on the node				
5	Click “Log” Button to see details of simulation logs with time. Or Right Click “Show Log” button				

Test Case

Test Case ID: 10

Test Designed by: <Beste Kulözü>

Test Priority (Low/Medium/High): High

Test Designed date: <15.03.2021>

Module Name: [Inspect Simulation Package]

Test Executed by: <Beste Kulözü>

Test Title: View Status of Network

Test Execution date: <7.5.2021>

Description: Test View Status of Network

Pre-conditions: User should be in the sandbox module.

Dependencies:

Step	Test Steps	Test Data	Expected Result	Actual Result	Status (Pass/Fail)	Notes
1	Open BTES Click Sandbox	f.e: “ <i>Network Status: Online</i> ”	Users should be able to view the status of the network whether it is online or not.	The network status is displayed.	Pass	
2	Click “Create” Simulation					
3	Hover the top of the scroll panel, showing the status at the bottom right					

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Test Case

Test Case ID: 11

Test Designed by: <Elnur Alizada>

Test Priority (Low/Medium/High): High

Test Designed date: <15.03.2021>

Module Name: [Manage Simulation] Package

Test Executed by: <Elnur Alizada>

Test Title: Undo Simulation Activity

Test Execution date: <7.5.2021>

Description: Test Undo Simulation Activity

Pre-conditions: User should be in the sandbox module. At least one node should be created.

Step	Test Steps	Expected Result	Actual Result	Status (Pass/Fail)	Notes
1	Open BTES	Users should be able to undo activity.	The latest undo-able activity is undone.	Pass	For UX purposes, we decided not to make all activities undo-able.
2	Click Sandbox				
3	Create Simulation				
4	Create Node				
5	Click Undo				

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Test Case

Test Case ID: 12

Test Designed by: <Elnur Alizada>

Test Priority (Low/Medium/High): High

Test Designed date: <15.03.2021>

Module Name: [Manage Simulation] Package

Test Executed by: <Elnur Alizada>

Test Title: Redo Simulation Activity

Test Execution date: <7.5.2021>

Description: Test Redo Simulation Activity

Pre-conditions: User should be in the sandbox module.

Step	Test Steps	Expected Result	Actual Result	Status (Pass/Fail)	Notes
1	Open BTES	Users should be able to redo.	Latest undone activity is redone.	Pass	
2	Click Sandbox				
3	Create Simulation				
4	Create Node				
5	Click the Redo Button				

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Test Case

Test Case ID: 13

Test Designed by: <Beste Kulözü>

Test Priority (Low/Medium/High): High

Test Designed date: <15.03.2021>

Module Name: [Manage Simulation] Package


Test Executed by: <Beste Kulözü>

Test Title: Pause Simulation

Test Execution date: <7.5.2021>

Description: Test Pause Simulation

Pre-conditions: User should be in a sandbox simulation.

Step	Test Steps	Expected Result	Actual Result	Status (Pass/Fail)	Notes
1	Open BTES Click Sandbox	Users should be able to pause the simulation process.	Simulation's internal network activity is paused.	Pass	
2	Click Create Button				
3	Click Pause Button with a symbol “  ”				

Test Case

Test Case ID: 14

Test Designed by: <Beste Kulözü>

Test Priority (Low/Medium/High): High

Test Designed date: <15.03.2021>

Module Name: [Manage Simulation] Package

Test Executed by: <Beste Kulözü>

Test Title: Resume Simulation

Test Execution date: <7.5.2021>

Description: Test Resume Simulation

Pre-conditions: User is in a sandbox simulation.

Step	Test Steps	Expected Result	Actual Result	Status (Pass/Fail)	Notes
1	Open BTES Click Sandbox	Users should be able to resume the simulation process.	Simulation's internal network activity is resumed.	Pass	
2	Click Create Button				
3	Click Resume Button with a symbol “▶”				

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Test Case

Test Case ID: 15

Test Designed by: <Beste Kulözü>

Test Priority (Low/Medium/High): High

Test Designed date: <15.03.2021>

Module Name: [Manage Simulation] Package

Test Executed by: <Beste Kulözü>

Test Title: Speed Up Simulation

Test Execution date: <7.5.2021>

Description: Test Speed Up Simulation

Pre-conditions: The user must be currently running a simulation.

Step	Test Steps	Expected Result	Actual Result	Status (Pass/Fail)	Notes
1	Open BTES. Click Sandbox	Users should be able to speed-up the simulation.	Simulation's network activity is sped-up.	Pass	
2	Click "Create" Simulation				
3	Give a higher number on the timescale field, or click the increase button.				The timescale field is located at the top of the page, with a tachometer icon.

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Test Case

Test Case ID: 16

Test Designed by: <Beste Kulözü>

Test Priority (Low/Medium/High): High

Test Designed date: <15.03.2021>

Module Name: [Manage Simulation] Package

Test Executed by: <Beste Kulözü>

Test Title: Slow Down Simulation

Test Execution date: <7.5.2021>

Description: Test Slow Down Simulation

Pre-conditions: The user must be currently running a simulation.

Step	Test Steps	Expected Result	Actual Result	Status (Pass/Fail)	Notes
1	Open BTES. Click Sandbox	Users should be able to slow-down the simulation.	Simulation's network activity is slowed-down.	Pass	
2	Click "Create" Simulation				
3	Give a lower number on the timescale field, or click the decrease button.				The timescale field is located at the top of the page, with a tachometer icon.

Test Case

Test Case ID: 17

Test Designed by: <Beste Kulözü>

Test Priority (Low/Medium/High): High

Test Designed date: <15.03.2021>

Module Name: [Inspect Simulation] Package

Test Executed by: <Beste Kulözü>

Test Title: View local blockchain of a node

Test Execution date: <7.5.2021>

Description: Test View local blockchain of a node

Pre-conditions: At least one node must exist in the network.

Step	Test Steps	Test Data	Expected Result	Actual Result	Status (Pass/Fail)
1	Open BTES	f.e: <i>ade8617c80bdad229fdfe3dfce60a12ac74d0fc a25b0bbddf993a76066994c06</i>	Users should be able to view local blockchain of a node.	Local blockchain instances of the node are displayed as a tree graph.	Pass
2	Click Sandbox				
3	Create Simulation				
4	Right Click > Create Node				
5	Double Click Node				
6	Click Blockchain > Block Database				

Test Case

Test Case ID: 18*

Test Designed by: <Beste Kulözü>

Test Priority (Low/Medium/High): High

Test Designed date: <15.03.2021>

Module Name: [Perform Node Action] Package

Test Executed by: <Beste Kulözü>

Test Title: Create Wallet

Test Execution date: <7.5.2021>

Description: Test Create Wallet

Pre-conditions: The user must currently be running a simulation.

Dependencies: Choose wallet type by default. (Since this is a simulation, we can only utilize software wallets.)

Step	Test Steps	Expected Result	Actual Result	Status (Pass/Fail)	Notes
1	Open BTES. Click Sandbox	The node should have a wallet.	The node has a wallet.	Pass	For a better user experience we decided to automatically perform this use case without user interaction. It will be automatically assigned by default.
2	Create Simulation				
3	Right Click >Create Node				A wallet instance is created automatically together with the node.
4	Double Click Node				
5	Node Detail Modal > Blockchain > Wallet				

Test Case

Test Case ID: 19

Test Designed by: <Beste Kulözü>

Test Priority (Low/Medium/High): High

Test Designed date: <15.03.2021>

Module Name: [Perform Node Action] Package

Test Executed by: <Beste Kulözü>

Test Title: Create Public/Private Key Pair

Test Execution date: <7.5.2021>

Pre-conditions: User should be in the sandbox module.

Step	Test Steps	Test Data	Expected Result	Actual Result	Status (Pass/Fail)	Notes
1	Open BTES Click Sandbox		Users should be able to generate and get a public/private key for a node.	The node is given a public/private key pair and an address successfully.	Pass	
2	Create Simulation					
3	Create Node					
4	Double Click on the node					
	Node Details > Click Blockchain > Click Wallet > Click Generate					

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Test Case

Test Case ID: 20

Test Designed by: <Beste Kulözü>

Test Priority (Low/Medium/High): High

Test Designed date: <15.03.2021>

Module Name: [Perform Node Action] Package

Test Executed by: <Beste Kulözü>

Test Title: Create Signature

Test Execution date: <7.5.2021>

Description: Test Create Signature

Step	Test Steps	Test Data	Expected Result	Actual Result	Status (Pass/Fail)	Notes
-					Pass (Implicit)	We decided not to create an explicit user interface for creating signatures. Instead, signature creation is done on the backend automatically whenever necessary. We have unit tests covering signature creation.

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Test Case

Test Case ID: 21*

Test Designed by: <Beste Kulözü>

Test Priority (Low/Medium/High): High

Test Designed date: <15.03.2021>

Module Name: [Perform Node Action] Package

Test Executed by: <Beste Kulözü>

Test Title: Verify Signature

Test Execution date: <7.5.2021>

Description: Test Verify Signature

Pre-conditions: The user must currently be running a simulation.
There must be at least two nodes present in the simulation.
The acting node must have received a signature from at least one other node.

Step	Test Steps	Test Data	Expected Result	Actual Result	Status (Pass/Fail)	Notes
-					Pass (Implicit)	We decided not to create an explicit user interface for verifying signatures. Instead, signature verification is done on the backend automatically whenever necessary. We have unit tests covering signature verification.

Test Case

Test Case ID: 22

Test Designed by: <Beste Kulözü>

Test Priority (Low/Medium/High): High

Test Designed date: <15.03.2021>

Module Name: [Perform Node Action] Package

Test Executed by: <Beste Kulözü>

Test Title: Mine Block

Test Execution date: <7.05.2021>

Description: Test Mine Block

Pre-conditions: User should be in the sandbox simulation module.

Step	Test Steps	Test Data	Expected Result	Actual Result	Status (Pass/Fail)	Notes
1	Open BTES. Click Sandbox.		Users should be able to mine and block in this section.	A block is being mined, successfully.	Pass	
2	Create Simulation					
3	Right click > Create Node					
4	Double Click on the node					
5	Node Details Modal > Click Blockchain > Click Miner	Fill in the block template.				
6	Click “Start Mining”					Mining can take a while depending on the target difficulty.

Test Case

Test Case ID: 22

Test Designed by: <S. Tarık Çetin>

Test Priority (Low/Medium/High): High

Test Designed date: <15.03.2021>

Module Name: [Perform Node Action] Package

Test Executed by: <S. Tarık Çetin>

Test Title: Accept Transaction

Test Execution date: <7.05.2021>

Description: Test Accept Transaction

Pre-conditions: User should be in the sandbox simulation module.

Step	Test Steps	Test Data	Expected Result	Actual Result	Status (Pass/Fail)	Notes
1	Sandbox Create Simulation Create Node Node details Modal > Transaction		Users should be able to add transactions to a block template..	Users add transactions to a block template, successfully.	Pass.	

Test Case

Test Case ID: 23*

Test Designed by: <Beste Kulözü>

Test Priority (Low/Medium/High): High

Test Designed date: <15.03.2021>

Module Name: [Authenticate] Package

Test Executed by: <Beste Kulözü>

Test Title: Login

Test Execution date: <7.05.2021>

Description: Test Login

Pre-conditions: Each email uses only ones.

Dependencies: MongoDB

Step	Test Steps	Test Data	Expected Result	Actual Result	Status (Pass/Fail)	Notes
1	Open BTES	User: example@example.com	Users should be able to login.	User is navigated to dashboard with successful login.	Pass	The database integration is completed via MongoDB.
2	Click Sign In Button	Password: 1234				Sign in button shows the user name.
3	Sign In Launch express; username, password					
4	Provide username and password					
5	Click login now button					

Post-conditions:

Click checkbox for keep me logged in, Click for forgetting password, If not a user, click "Join now button".

Test Case

Test Case ID: 24*

Test Designed by: <Beste Kulözü>

Test Priority (Low/Medium/High): High

Test Designed date: <15.03.2021>

Module Name: [Authenticate] Package

Test Executed by: <Beste Kulözü>

Test Title: Logout

Test Execution date: <7.5.2021>

Description: Test Logout

Pre-conditions: User should be logged in before.

Dependencies: MongoDB

Step	Test Steps	Test Data	Expected Result	Actual Result	Status (Pass/Fail)	Notes
1	Open BTES		Users should be able to logout.	Users are navigated to dashboard with successful logout.	Pass	Button shows login again.
2	Click Sign In Button					
3	Sign In Launch express; username, password					
4	Click logout button					

Test Case

Test Case ID: 25*

Test Designed by: <Elnur Alizada>

Test Priority (Low/Medium/High): High

Test Designed date: <15.03.2021>

Module Name: [Authenticate] Package

Test Executed by: <Elnur Alizada>

Test Title: Register

Test Execution date: <7.5.2021>

Description: Test Register

Pre-conditions: User should authenticate with his/her email and password.

Dependencies: MongoDB

Step	Test Steps	Test Data	Expected Result	Actual Result	Status (Pass/Fail)	Notes
1	Open BTES.	User: example@example.com	Users should be able to register.	User is navigated to register successfully.	Pass	
2	Click Sign In Button.	password = 1234				
3	Sign In	re enter password = 1234				
4	Click the Register button.					

Post-conditions:

If the user is registered, it will redirect to login. User clicks “Already have an account?” Sign in button again.

Test Case

Test Case ID: 26*

Test Designed by: <Şükrü Kırman>

Test Priority (Low/Medium/High): High

Test Designed date: <15.03.2021>

Module Name: [Monitor Real World Blockchain] Package

Test Executed by: <Şükrü Kırman>

Test Title: View Dashboard Visualization

Test Execution date: <7.5.2021>

Description: Test View Dashboard Visualization

Pre-conditions: Cryptocurrency Data, Exchange APIs

Dependencies: Real world blockchain markets updates, api request time.

Step	Test Steps	Test Data	Expected Result	Actual Result	Status (Pass/Fail)	Notes
1	Open BTES	Blockchain APIs	User should be able to view dashboard visualisation	Dashboard visualizations are shown.	Pass	Used APIs can be found from BTES website.
2	Click Explorer in the menu					
3	Page launch dashboard visualisation					

Test Case

Test Case ID: 27*

Test Designed by: <Şükrü Kırman>

Test Priority (Low/Medium/High): High

Test Designed date: <15.03.2021>

Module Name: [Monitor Real World Blockchain] Package

Test Executed by: <Şükrü Kırman>

Test Title: Browse Transaction History

Test Execution date: <7.5.2021>

Description: Test Browse Transaction History

Pre-conditions: Cryptocurrency Data, Exchange APIs

Step	Test Steps	Test Data	Expected Result	Actual Result	Status (Pass/Fail)	Notes
1	Open BTES		Users should be able to browse transaction history.	Users should be able to browse transaction history, successfully.	Pass	
2	Click Explorer					
3	Click Browse Transaction History					

Test Case

Test Case ID: 28*

Test Designed by: <Şükrü Kırman>

Test Priority (Low/Medium/High): High

Test Designed date: <15.03.2021>

Module Name: [Monitor Real World Blockchain] Package

Test Executed by: <Şükrü Kırman>

Test Title: Get Info From Specific Block

Test Execution date: <7.5.2021>

Description: Test Get Info From Specific Block

Pre-conditions: Cryptocurrency Data, Exchange APIs

Dependencies:

Step	Test Steps	Test Data	Expected Result	Actual Result	Status (Pass/Fail)	Notes
1	Open BTES		Users should be able to get info from specific blocks.	Users should be able to get info from specific blocks, successfully.	Pass	
2	Click Explorer to see real world blockchain.					
3	Click on the specific block in the blocks list					