

# SecureHealth Chain

## Demo Deployment Guide

Complete Demo Scenario with Sample Data

<b>Project:</b>	SecureHealth Chain
<b>Team:</b>	Odus
<b>Platform:</b>	DIDLab QBFT Blockchain
<b>Purpose:</b>	Live Demonstration Guide
<b>Date:</b>	December 2024

<b>Demo Duration:</b>	15-20 minutes
<b>Patients:</b>	3 (Jane Doe, John Smith, Maria Garcia)
<b>Transactions:</b>	7 total (3 registrations, 2 payments, 2 records)
<b>Total Cost:</b>	~\$0.0021 (all transactions)
<b>Required Balance:</b>	5+ TT in MetaMask

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# 1. PRE-DEMO SETUP

## MetaMask Wallet Configuration

Setting	Value
Network Name	DIDLab QBFT
Chain ID	252501
RPC URL	<a href="https://eth.didlab.org">https://eth.didlab.org</a>
Block Explorer	<a href="https://explorer.didlab.org">https://explorer.didlab.org</a>
Currency Symbol	TT
Minimum Balance	5 TT (for gas fees)

## Browser Tabs to Prepare

- Tab 1: Frontend Application - Patient Registration
- Tab 2: Frontend Application - Payment Page
- Tab 3: Frontend Application - Medical Records
- Tab 4: DIDLab Explorer (<https://explorer.didlab.org>)
- Tab 5: This demo guide (for reference)

## Test Files Needed

1. Lab\_Results\_Demo.pdf (or any sample PDF)
2. Prescription\_Demo.pdf (or any sample PDF)
3. X-Ray\_Demo.jpg (or any medical image)

**Note:** Any PDF/image files work for testing. File size limit: 10MB

## 2. DEMO SCENARIO OVERVIEW

**Context:** Demonstrating SecureHealth Chain to healthcare administrators at 'City General Hospital'. They want to see the complete patient journey from registration through payment and medical record management.

Patient	Purpose	Demonstrates
Jane Doe	Complete Journey	Registration → Payment → Medical Record
John Smith	Payment Focus	Consistent performance, cost savings
Maria Garcia	Security Demo	Access control, authorization workflow

### Key Metrics to Highlight:

- Transaction costs: \$0.00018 vs traditional \$3.75
- Transaction speed: 4-5 seconds vs 3-5 days
- Security: 0% PII on blockchain
- Transparency: All verifiable on [explorer.didlab.org](http://explorer.didlab.org)

### 3. DEMO 1: PATIENT REGISTRATION (JANE DOE)

**Time:** 3 minutes | **Purpose:** Complete patient onboarding

#### Input Data:

Field	Value
Full Name	Jane Doe
Email	jane.doe@example.com
Date of Birth	01/15/1985
Phone Number	(555) 123-4567
Wallet Address	[Auto-filled from MetaMask]
Member ID	[Auto-generated - e.g., MID-00001]

#### Step-by-Step Process:

**Step 1:** Navigate to registration page

**Step 2:** Click 'Connect Wallet' → Approve MetaMask connection

**Step 3:** Fill form with Jane Doe data (see table above)

**Step 4:** Click 'Register Patient' → Confirm in MetaMask

**Step 5:** Wait ~4 seconds for confirmation

**Step 6:** Copy transaction hash and verify on explorer.didlab.org

#### Expected MetaMask Details:

Gas Limit: ~140,000 | Gas Price: 1 Gwei | Total Cost: ~\$0.00028

#### Talking Points:

- 'Notice the Member ID is auto-generated - MID-00001 - this is what goes on blockchain, NOT the name'
- 'MetaMask shows the cost: twenty-eight cents. Compare to \$5-10 traditional onboarding fees'
- 'Four seconds total... and we're confirmed. Permanently recorded on blockchain'
- 'Look at the explorer - you see wallet address and Member ID, but ZERO patient information'

## 4. DEMO 2: PAYMENT PROCESSING (JANE DOE)

Time: 3 minutes | Purpose: Demonstrate 99.995% cost savings

### Input Data:

Field	Value
Patient	Jane Doe (select from dropdown)
Payment Type	Medical Consultation
Item ID	CONSULT-001
Description	Primary Care Visit - Initial Consultation
Amount	150 TT (equivalent to \$150)

### Cost Comparison to Highlight:

System	Processing Fee	Settlement Time	Total Cost
Traditional	\$3.75 (2.5%)	3-5 business days	\$3.75
SecureHealth	\$0.00017	4.2 seconds	\$0.00017
SAVINGS	99.995% cheaper	99.998% faster	\$3.75 → \$0.00017

### Talking Points:

- 'In traditional systems: \$3.75 fee, 3-5 day settlement. With blockchain: seventeen cents, 4 seconds'
- 'MetaMask shows: 150 TT payment + 0.000085 TT gas = \$0.00017 total fee'
- 'Four seconds... payment confirmed. The hospital has their money RIGHT NOW'
- 'This is \$4,500 saved annually for a clinic processing just 100 payments per month'

## 5. DEMO 3: MEDICAL RECORD UPLOAD (JANE DOE)

Time: 4 minutes | Purpose: Encryption & zero-PII demo

### Input Data:

Field	Value
Patient	Jane Doe
Record Type	Laboratory Results
File	Lab_Results_Demo.pdf
Description	Routine blood work - Annual physical
Test Date	12/01/2024
Provider	Dr. Sarah Smith, MD
Department	Laboratory Services

### Encryption Flow:

1. File selected → Encrypt with AES-256-CBC
2. Generate SHA-256 hash of encrypted file
3. Store encrypted file in database (off-chain)
4. Store ONLY hash on blockchain (on-chain)
5. Blockchain confirms → Immutable verification

### What's ON vs OFF Blockchain:

ON BLOCKCHAIN (Public)	OFF-CHAIN (Private, Encrypted)
✓ SHA-256 Hash	✓ Patient Name
✓ Wallet Address	✓ Test Results
✓ Record Type	✓ File Content
✓ Timestamp	✓ All PII (AES-256 encrypted)

### Talking Points:

- 'The system encrypts with AES-256 - military-grade encryption used by US Government'
- 'It generates a hash - a cryptographic fingerprint. This goes on blockchain, NOT the file'
- 'On the explorer, you see a hash - meaningless characters. Zero patient data visible'

- 'When downloading, system verifies hash matches blockchain - tamper-proof verification'

## 6. DEMO 4: QUICK PATIENT (JOHN SMITH)

**Time:** 2 minutes | **Purpose:** Show consistency

Field	Value
Full Name	John Smith
Email	john.smith@healthmail.com
Date of Birth	03/22/1978
Phone	(555) 234-5678
Payment Type	Laboratory Tests
Payment Amount	75 TT
Item ID	LAB-001

### Quick Process:

1. Register John Smith (same 4-second speed)
2. Process 75 TT payment (highlight: \$0.00017 vs \$1.88 traditional)

### Talking Point:

'Second patient, same performance. Whether it's \$75 or \$750, the blockchain cost is the same: seventeen cents. Traditional systems charge a percentage - we charge a flat, minimal gas fee.'

## 7. DEMO 5: SECURITY DEMO (MARIA GARCIA)

Time: 3 minutes | Purpose: Access control enforcement

Field	Value
Full Name	Maria Garcia
Email	maria.garcia@email.com
Date of Birth	07/08/1992
Phone	(555) 345-6789
Record Type	Prescription
File	Prescription_Demo.pdf

### Security Demo Steps:

1. Register Maria Garcia & upload prescription (standard process)
2. Switch to different MetaMask account (simulate unauthorized user)
3. Attempt to view Maria's records → **ACCESS DENIED**
4. Smart contract blocks access, logs attempt on blockchain
5. Switch back to owner account
6. Authorize the new wallet as provider
7. Switch to authorized wallet → **ACCESS GRANTED**

### Expected Security Response:

```
■ ACCESS DENIED
Error: Not Authorized
Message: 'You do not have permission to access this patient's records.'
Transaction Status: REVERTED
Blockchain Log: UnauthorizedAccessAttempt event recorded
```

### Talking Points:

- 'Watch what happens when unauthorized access is attempted... ACCESS DENIED'
- 'The smart contract enforces this. No one can bypass it - not even the developer'
- 'This failed attempt is logged on blockchain - perfect HIPAA audit trail'
- 'Now with authorization... access granted. Cryptographically enforced permissions'

## 8. EXPECTED OUTPUTS & VERIFICATION

Category	Details	Status
Patients Registered	3 (Jane Doe, John Smith, Maria Garcia)	✓
Payments Processed	2 (150 TT + 75 TT = 225 TT total)	✓
Medical Records	2 (Lab Results, Prescription)	✓
Total Transactions	7 blockchain transactions	✓
Total Gas Cost	~\$0.0021 (all transactions)	✓
Total Time	~28 seconds (7 × 4 seconds avg)	✓
PII on Blockchain	0% (zero patient data)	✓
Security Tests	Unauthorized access blocked	✓

### Blockchain Verification Checklist:

- ✓ Transaction Status: Success (green checkmark)
- ✓ Block Number: Valid block number displayed
- ✓ From Address: Your wallet address
- ✓ To Address: Correct contract address
- ✓ Gas Used: ~85,000-152,000 (depending on function)
- ✓ Transaction Fee: ~\$0.0002-\$0.0003
- ✓ Event Logs: Appropriate event emitted
- ✓ No PII Visible: No patient names, DOB, emails visible

## 9. COMPLETE DEMO SCRIPT (15 MINUTES)

### Opening (1 minute)

"Thank you for joining today's demonstration of SecureHealth Chain. I'm going to show you a live blockchain-based healthcare platform that reduces payment costs by 99.995% while maintaining complete HIPAA compliance.

You'll see three things that are impossible with traditional systems:

1. Healthcare payments for seventeen cents instead of \$3.75
2. Instant settlement in 4 seconds instead of 3-5 days
3. Complete patient privacy with complete transparency

Everything you're about to see is happening live on the DIDLab blockchain. Let's get started."

### Demo Timeline:

Time	Activity	Key Points
0-3 min	Register Jane Doe	Wallet connection, 4-sec speed, no PII
3-6 min	Process Payment	\$3.75 vs \$0.00017, instant settlement
6-10 min	Upload Record	AES-256 encryption, hash verification
10-12 min	Quick Patient 2	Consistent performance, any amount
12-15 min	Security Demo	Access control, authorization workflow

### Closing (1 minute)

"In 15 minutes, we registered three patients, processed two payments totaling \$225, uploaded two medical records, and demonstrated security access control.

Total cost: About two-tenths of a penny. Traditional cost: \$8.63 in fees.

Total time: 28 seconds. Traditional settlement: 3-5 business days.

Privacy: Zero patient information on blockchain. Complete HIPAA compliance.

This is production-ready technology, running on a live blockchain, right now. Questions?"

## **10. TROUBLESHOOTING GUIDE**

### **Issue: MetaMask Not Connecting**

**Solution:** Check installed & unlocked, verify DIDLab network, refresh page, clear cache

### **Issue: Insufficient Gas**

**Solution:** Check TT balance (need 5+), get from faucet, use backup transactions

### **Issue: Transaction Pending**

**Solution:** Wait 30 sec, check network status, verify gas price, use backup if needed

### **Issue: File Upload Fails**

**Solution:** Check size (<10MB), verify format (PDF/JPG/PNG), try smaller file

### **Issue: Wrong Network**

**Solution:** Switch to DIDLab in MetaMask, verify Chain ID 252501, refresh page

# 11. QUICK REFERENCE CARDS

## Patient Data Quick Reference

Patient 1: Jane Doe	Patient 2: John Smith	Patient 3: Maria Garcia
jane.doe@example.com	john.smith@healthmail.com	maria.garcia@email.com
DOB: 01/15/1985	DOB: 03/22/1978	DOB: 07/08/1992
(555) 123-4567	(555) 234-5678	(555) 345-6789
Payment: 150 TT	Payment: 75 TT	Security Demo
Lab Results file	No file	Prescription file

## Key Metrics to Emphasize

Metric	Value
Cost Reduction	99.995% (\$3.75 → \$0.00018)
Time Reduction	99.998% (3-5 days → 4 sec)
PII on Blockchain	0% (complete privacy)
HIPAA Compliance	8/8 (all requirements met)
Security Vulnerabilities	0 (critical/high)
Annual Savings	\$4,500 (small clinic)

## Smart Contract Addresses

Contract	Address
PatientRegistry	0x01A2eA8137793734c12033b214c884cB5d63C0Ca
Payment	0x57677BA3d51369c8356d38cdc120f111813e1224
MedicalRecords	0x78617B48680a83588a6bCAA9a7d39a39031cdc45

Network: DIDLab QBFT | Chain ID: 252501 | Explorer: <https://explorer.didlab.org>

# SUCCESS CHECKLIST

## Pre-Demo (30 minutes before)

- MetaMask installed and funded (5+ TT)
- DIDLab network configured (Chain ID 252501)
- All browser tabs prepared
- Demo files ready on desktop
- This guide open for reference
- Screen sharing tested
- Backup transaction hashes noted

## During Demo

- Opened with clear value proposition
- Demonstrated all 3 patients
- Showed cost comparison clearly
- Verified on blockchain explorer
- Highlighted zero PII multiple times
- Demonstrated security/access control
- Maintained 15-minute timeline

## Post-Demo

- Shared transaction hashes
- Provided contract addresses
- Answered all questions
- Collected feedback
- Scheduled follow-up if needed

SecureHealth Chain - Team Odus  
December 2024  
For support: Contact Team Odus