



School: Campus:
Academic Year: Subject Name: Subject Code:
Semester: Program: Branch: Specialization:
Date:

Applied and Action Learning

(Learning by Doing and Discovery)

Name of the Experiment : Know Your TX – Dissecting a Transaction

Objective/Aim:

To understand the internal structure of a blockchain transaction (TX), identify its key components, and analyze how transactions are created, validated, and stored on the blockchain using Ethereum as a case study.

Apparatus/Software Used:

1. MetaMask wallet or any Ethereum wallet
2. Access to an Ethereum blockchain explorer (e.g., <https://etherscan.io>)
3. Internet connection
4. Brave Browser
5. Remix-Ethereum IDE for custom transactions

Theory/Concept:

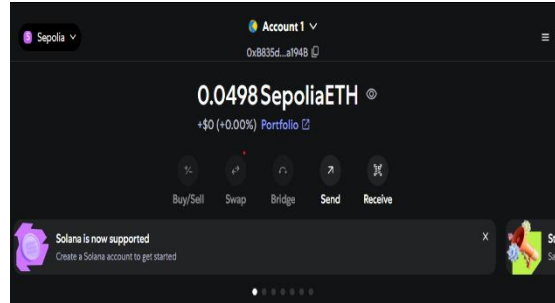
In blockchain networks like **Ethereum**, a **transaction (TX)** is a cryptographically signed message that modifies the state of the blockchain. Transactions can involve sending ETH, interacting with smart contracts, or deploying contracts.

<u>Field</u>	<u>Description</u>
Nonce	A counter to prevent replay attacks; represents the number of TXs from sender
From	The sender's address
To	The recipient address (can be a wallet or smart contract)
Value	Amount of ETH sent
Gas Price	Price per unit of gas (in Gwei)
Gas Limit	Maximum amount of gas the sender is willing to use
Data	Optional field used when calling smart contracts
Signature	Cryptographic signature generated from private key
Hash	Unique identifier of the transaction
Status	Indicates success/failure of the transaction
Block #	The block number where the transaction was included

Procedure:

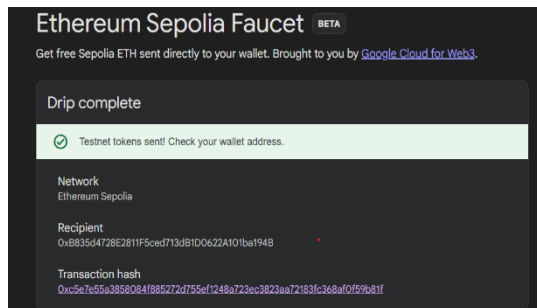
1. Open MetaMask or Use a Wallet:

- Choose an existing transaction from your wallet or perform a test transaction on the Goerli/Sepolia test network.



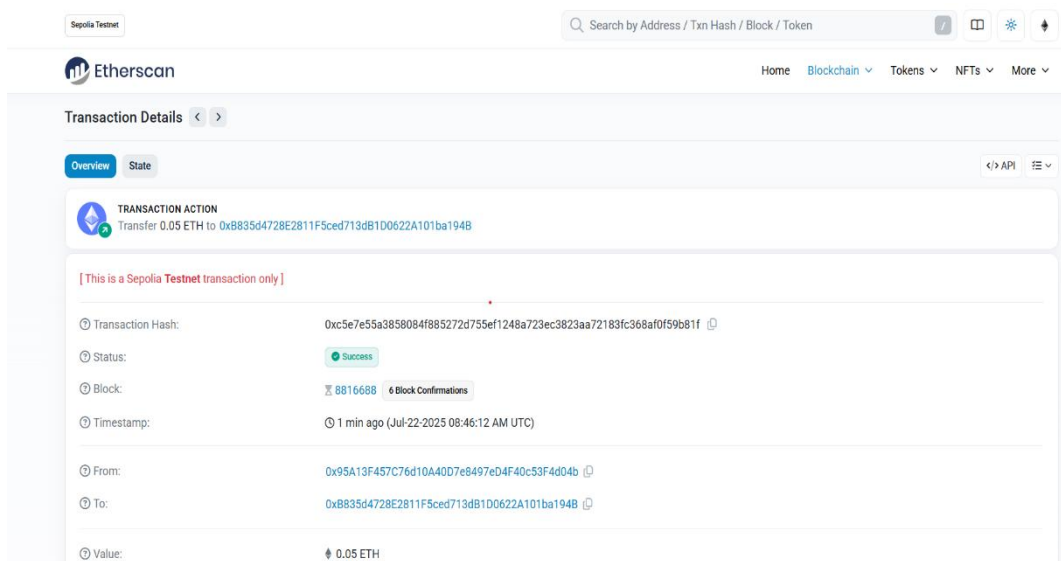
2. Go to Etherscan:

- Visit <https://etherscan.io> (or <https://goerli.etherscan.io> for testnets).
- Search for the transaction using the **TX Hash**.



3. Dissect the Transaction:

- Record the following:
 - Transaction Hash
 - Block Number
 - Timestamp
 - From, To address
 - Value transferred
 - Gas Used and Gas Price
 - Nonce, Input Data, and Status



ⓘ Value: 0.05 ETH
 ⓘ Transaction Fee: 0.000000136127712 ETH
 ⓘ Gas Price: 0.006482272 Gwei (0.000000000006482272 ETH)

ⓘ Gas Limit & Usage by Txn: 21,000 | 21,000 (100%)
 ⓘ Gas Fees: Base: 0.005382272 Gwei | Max: 0.01258286 Gwei | Max Priority: 0.0011 Gwei
 ⓘ Burnt & Txn Savings Fees: ⬆ Burnt: 0.000000113027712 ETH (\$0.00) ⬆ Txn Savings: 0.000000128112348 ETH (\$0.00)

ⓘ Other Attributes: Txn Type: 2 (EIP-1559) | Nonce: 827223 | Position In Block: 170
 ⓘ Input Data: 0x

4. View Details:

- Click on “Click to see More” to explore:
 - Txn Type (Legacy or EIP-1559)
 - Effective Gas Price
 - Burnt & Miner Tip
 - Txn Fee in ETH

5. Advanced:

- For smart contract transactions, decode the **input data** using Remix or online ABI decoders.

Observation Table:

Field	Value (Sample)
TX Hash	0xabc123...
From	0xSenderAddress...
To	0xReceiverAddress...
Value	0.01 ETH
Nonce	5
Gas Limit	21000
Gas Used	21000
Gas Price	20 Gwei
TX Fee	0.00042 ETH
Block	17051234
Status	Success
Timestamp	2025-07-21 16:45 UTC

ASSESSMENT

Rubrics	Full Mark	Marks Obtained	Remarks
Concept	10		
Planning and Execution/ Practical Simulation/ Programming	10		
Result and Interpretation	10		
Record of Applied and Action Learning	10		
Viva	10		
Total	50		

Signature of the Student:

Name :

Regn. No. :

Signature of the Faculty: