

 **Token Launch – Deploying a Token Locally**  
**Objective/Aim:**

To learn how to create, compile, and deploy an ERC-20 token smart contract on a local blockchain environment for development and testing purposes before deploying to live networks.

**Apparatus/Software Used:**

* Local Ethereum development environment (Remix IDE with local network)
* MetaMask
* Laptop (Brave)

**Theory/Concept:**

ERC-20 tokens are fungible tokens created as smart contracts on Ethereum that follow a standard interface. Deploying locally simulates the blockchain environment, enabling developers to validate contract behavior, test token transfers/minting, and debug issues without real cost or risk.



**Procedure:**

* Setup local blockchain: Run Ganache or Anvil to start a local Ethereum blockchain).
* Write Smart Contract: Develop the token contract in Solidity implementing the ERC-20 standard.
* Compile Contract: Use Remix IDE or Hardhat to compile the smart contract code.
* Deploy Contract: Deploy the compiled contract on the local blockchain using Remix or command-line tools.
* Interact With Token: Use scripts or MetaMask connected to the local network to mint tokens, transfer between addresses, and check balances.

**Observation:**

* The token contract deploys successfully on the local blockchain with instant block confirmations.
* Token transfers, minting, and balance queries function correctly in a risk-free environment.
* Local deployment enables iterative testing and development, streamlining the release process before mainnet deployment.