**Testnet Deployment Guide: Synergy Network**

**1. Introduction**

This guide provides step-by-step instructions for deploying and interacting with the Synergy Network testnet. It includes node setup, smart contract deployment, and network monitoring configurations.

**2. Testnet Setup**

**2.1 System Requirements**

* **Minimum Hardware Requirements:**
  + CPU: 4-core processor
  + RAM: 16GB
  + Storage: 500GB SSD
  + Network: 100 Mbps bandwidth
* **Software Requirements:**
  + Linux (Ubuntu 20.04 recommended)
  + Docker & Docker Compose
  + Go (for blockchain node compilation)
  + Node.js & npm (for interacting with smart contracts)

**2.2 Node Installation**

1. **Clone the Synergy Network Repository:**
2. git clone https://github.com/synergy-network/testnet.git
3. cd testnet
4. **Install Dependencies:**
5. sudo apt update && sudo apt install -y build-essential curl wget jq
6. **Run Node Initialization:**
7. ./setup.sh
8. **Start the Node:**
9. ./start-node.sh
10. **Verify Node Sync Status:**
11. ./check-sync.sh

**3. Smart Contract Deployment**

**3.1 Deploying a Smart Contract**

1. **Compile Smart Contract:**
2. npx hardhat compile
3. **Deploy to Testnet:**
4. npx hardhat run scripts/deploy.js --network testnet
5. **Verify Deployment:**
6. npx hardhat verify <contract\_address> --network testnet

**4. Network Monitoring**

**4.1 Logging and Monitoring**

* **Check Logs:**
* tail -f logs/synergy-node.log
* **Monitor Network Peers:**
* ./peer-list.sh

**5. API & Developer Access**

**5.1 RPC Endpoints**

* **JSON-RPC Endpoint:** https://rpc.testnet.synergy-network.io
* **WebSocket Endpoint:** wss://ws.testnet.synergy-network.io

**5.2 Example API Call**

curl -X POST --data '{"jsonrpc":"2.0","method":"eth\_blockNumber","params":[],"id":1}' https://rpc.testnet.synergy-network.io

**6. Conclusion**

The Synergy Network testnet is now live and operational. Developers and validators can deploy contracts, participate in consensus, and monitor network activity. For further assistance, refer to the community forum and GitHub documentation.