

Ethereum Node Setup - Configuration Requirements

Configuration Placeholders to Replace

Essential Configuration (Required)

```
bash

# Network Settings
ETH_NETWORK=mainnet                # Choose: mainnet, sepolia, goerli, holesky

# Client Selection
EXECUTION_CLIENT=geth              # Choose: geth, erigon, nethermind
CONSENSUS_CLIENT=lighthouse       # Choose: lighthouse, prysm, tekum, nimbus

# User Configuration
ETH_USER=ethereum                 # System username for services
SSH_PORT=22222                   # Change from default 22 for security
```

Security Configuration (Highly Recommended)

```
bash

# Security Settings
ENCRYPTION_PASSWORD=""           # Strong password for config encryption
GRAFANA_ADMIN_PASSWORD=""        # Strong password for Grafana dashboard
FIREWALL_ALLOWED_IPS=""          # Your IP addresses (space-separated)
SUGGESTED_FEE_RECIPIENT=""       # Your Ethereum address for MEV rewards
```

Optional Feature Configuration

```
bash
```

```
# Validator Settings (if running validator)
```

```
VALIDATOR_KEYS_DIR="" # Path to your validator keystore files
```

```
GRAFFITI="Your Custom Message" # Custom message in blocks you propose
```

```
# Backup Configuration
```

```
BACKUP_RETENTION_DAYS=30 # How long to keep backups
```

```
BACKUP_TIME="02:00" # Daily backup time (24h format)
```

```
# Resource Limits (adjust for your hardware)
```

```
MAX_CPU_CORES=4 # Maximum CPU cores to use
```

```
MAX_RAM_GB=16 # Maximum RAM in GB
```

```
MIN_DISK_SPACE_GB=500 # Minimum free disk space required
```

```
# Alert Configuration
```

```
ALERT_EMAIL="" # Your email for critical alerts
```

```
CUSTOM_EXECUTION_FLAGS="" # Additional flags for execution client
```

```
CUSTOM_CONSENSUS_FLAGS="" # Additional flags for consensus client
```

Third-Party Accounts & Services to Create

Cloud Backup Services (Optional)

Choose one if enabling cloud backups:

AWS S3 Backup

- **Account:** [AWS Account](#)
- **Requirements:**
 - AWS Access Key ID
 - AWS Secret Access Key
 - S3 Bucket name
- **Configuration:**

```
bash
```

```
CLOUD_PROVIDER="aws"
```

```
CLOUD_BUCKET="your-backup-bucket-name"
```

Google Cloud Storage

- **Account:** Google Cloud Platform
- **Requirements:**
 - Service Account JSON key file
 - Storage bucket name
- **Configuration:**

```
bash
```

```
CLOUD_PROVIDER="gcp"  
CLOUD_BUCKET="your-gcs-bucket-name"
```

Azure Blob Storage

- **Account:** Microsoft Azure
- **Requirements:**
 - Storage account name
 - Access key
 - Container name
- **Configuration:**

```
bash
```

```
CLOUD_PROVIDER="azure"  
CLOUD_BUCKET="your-container-name"
```

VPN Services (Optional)

Choose one if enabling VPN integration:

ExpressVPN

- **Account:** ExpressVPN
- **Requirements:**
 - Activation key from your account
- **Configuration:**

```
bash
```

```
VPN_ENABLED=true  
VPN_PROVIDER="expressvpn"
```

NordVPN

- **Account:** NordVPN
- **Requirements:**
 - Username and password
- **Configuration:**

```
bash
```

```
VPN_ENABLED=true  
VPN_PROVIDER="nordvpn"  
VPN_USERNAME="your_nordvpn_username"  
VPN_PASSWORD="your_nordvpn_password"
```

Alert & Notification Services (Optional)

Discord Webhooks

- **Setup:** Create a Discord server → Channel Settings → Integrations → Webhooks
- **Configuration:**

```
bash
```

```
ALERT_DISCORD_WEBHOOK="https://discord.com/api/webhooks/YOUR_WEBHOOK_URL"
```

Slack Webhooks

- **Setup:** Slack App Directory → Incoming Webhooks → Add to Slack
- **Configuration:**

```
bash
```

```
ALERT_SLACK_WEBHOOK="https://hooks.slack.com/services/YOUR_WEBHOOK_URL"
```

Email Alerts

- **Requirements:** SMTP server details (Gmail, SendGrid, etc.)
- **Configuration:**

```
bash
```

```
ALERT_EMAIL="your-email@example.com"
```

Pre-Installation Checklist

System Requirements

- ☐ **OS:** Ubuntu 20.04+ or Debian 11+
- ☐ **CPU:** 4+ cores (8+ recommended for mainnet)
- ☐ **RAM:** 16GB+ (32GB+ recommended for mainnet)
- ☐ **Storage:** 2TB+ SSD (4TB+ recommended for mainnet)
- ☐ **Network:** Unlimited bandwidth, stable connection

Network Requirements

- ☐ **Ports:** Ensure ports 30303 and 9000 can accept incoming connections
- ☐ **Firewall:** Configure router/firewall for P2P connectivity
- ☐ **Static IP:** Recommended for better peer connectivity

Security Prerequisites

- ☐ **SSH Keys:** Set up SSH key authentication
- ☐ **Sudo Access:** User account with sudo privileges
- ☐ **Firewall:** Basic firewall knowledge for custom IP whitelisting

Quick Start Configuration Template

Create a file called `config-overrides.env` with your specific values:

bash

```
# === ESSENTIAL SETTINGS ===
ETH_NETWORK=mainnet                # or sepolia for testing
EXECUTION_CLIENT=geth              # or erigon, nethermind
CONSENSUS_CLIENT=lighthouse        # or prysm, teku, nimbus

# === SECURITY SETTINGS ===
SSH_PORT=22222                     # Change from default 22
ENCRYPTION_PASSWORD="YourVeryStrongPassword123!"
GRAFANA_ADMIN_PASSWORD="AnotherStrongPassword456!"
FIREWALL_ALLOWED_IPS="203.0.113.100 198.51.100.50" # Your IPs

# === VALIDATOR SETTINGS (if applicable) ===
ENABLE_VALIDATOR=false             # Set to true if running validator
VALIDATOR_KEYS_DIR="/path/to/your/validator/keys"
SUGGESTED_FEE_RECIPIENT="0xYourEthereumAddress"
GRAFFITI="My Ethereum Node"

# === OPTIONAL FEATURES ===
ENABLE_WEB_GUI=true                # Web interface
ENABLE_VISUALIZATION=true          # Charts and graphs
ENABLE_ENERGY_EFFICIENCY=true      # Power saving mode
ENABLE_CLOUD_BACKUPS=false         # Enable if using cloud storage

# === CLOUD BACKUP (if enabled) ===
CLOUD_PROVIDER="aws"               # aws, gcp, or azure
CLOUD_BUCKET="my-ethereum-backups"

# === ALERTS (optional) ===
ALERT_EMAIL="alerts@yourdomain.com"
ALERT_DISCORD_WEBHOOK="https://discord.com/api/webhooks/..."

# === HARDWARE LIMITS ===
MAX_CPU_CORES=6                    # Adjust for your system
MAX_RAM_GB=24                      # Adjust for your system
```

Important Security Notes

1. **Never share your configuration file** - it contains sensitive information
 2. **Use strong, unique passwords** for all services
 3. **Enable 2FA** on all third-party accounts where possible
 4. **Keep your validator keys secure** - never run the same keys on multiple machines
 5. **Backup your configuration** in a secure, offline location
 6. **Test on testnet first** before running mainnet validator
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Support Resources

- **Ethereum Discord:** <https://discord.gg/ethereum>
- **Client-specific support:**
 - Geth: <https://github.com/ethereum/go-ethereum>
 - Lighthouse: <https://discord.gg/cyAszAh>
 - Prysm: <https://discord.gg/prysmaticlabs>
 - Teku: <https://discord.gg/7hPv2T6>

Remember: Start with testnet to familiarize yourself with the process before moving to mainnet!